October 1989

Programme for Promoting Nuclear Non-Proliferation, Newsbrief, Number 7

Citation:

Summary:

A compilation of the latest news, events, and publications related to nuclear weapons and nuclear non-proliferation. The “Newsbrief” was produced by the PPNN and personally edited by Ben Sanders.

Credits:

This document was made possible with support from Carnegie Corporation of New York (CCNY)

Original Language:

English

Contents:

PROGRAMME FOR PROMOTING NUCLEAR NON-PROLIFERATION

Number 7 NEWSBRIEF October 1989

Editorial note

This **Newsbrief** is the seventh in the series of quarterly publications on current events in the area of nuclear non-proliferation issued by the Programme for Promoting Nuclear Non-Proliferation. It covers the period July/September 1989 and refers also to some events that occurred earlier but became known during that period.

The PPNN **Newsbrief** carries information relating to the spread of nuclear-weapon capabilities to additional States as well as reports on developments tending to deter that spread. It also contains references to related questions of arms control and to diplomatic, economic and technical issues that may have a bearing on nuclear (non-) proliferation.

In selecting items for inclusion, the **Newsbrief** seeks to make a balanced and objective presentation. Citing reports from reputable sources only, it refrains from commenting on their validity.

As editor of the **Newsbrief**, the chairman of the PPNN Core Group is responsible for its contents. Unless expressly stated, the inclusion of an item does not imply the agreement of the members of the Core Group collectively or individually with its substance or with its relevance to the Programme.

Readers wishing to comment on any item included in the **Newsbrief** are invited to send their remarks to the editor, so they may be published in a subsequent issue.

The **Newsbrief** is sent free of charge to institutions and persons interested in nuclear non-proliferation. Copies of previous issues are available upon request.

For the benefit of readers unacquainted with the Programme for Promoting Nuclear Non-Proliferation (PPNN), its aims and activities are described briefly at the end of this issue.

I. Topical developments

Introductory Remarks

The **Newsbrief** seeks to help bring its readers up to date on developments in the field of nuclear non-proliferation and the majority of the reports cited in this issue are of recent date. But the problem of nuclear non-proliferation goes far back in time and many of the events reported on have a long history. To be fully understood, such events must be seen against the background of that history. The **Newsbrief** only makes short references to topical events, and is not equipped to provide that background. Interested readers should consult the extensive literature available in the field.

a. Background

In the period covered by this issue of the **Newsbrief** progress has been made in the bilateral discussions on disarmament and arms control between the Soviet Union and the United States. The September talks between the Soviet Minister for Foreign Affairs and the US Secretary of State may have given a new impetus to their negotiations on the reduction of strategic nuclear weapons. In this connection, the offer by the USSR to forego prior assurance that the USA would refrain from deploying a space-based anti-missile defence, on condition that it could withdraw from the treaty if such a defence was actually deployed, has special relevance. Progress also seems to have been made toward a resolution of the disagreement on the question of sea-launched nuclear-armed cruise missiles. Among other points of discussion, agreement was reached on verification of the threshold test ban treaty and on aspects of a chemical weapons ban. The General assembly of the United Nations yielded a further occasion for initiatives from both sides on the reduction and eventual abolition of chemical weapon stockpiles. The Soviet Union offered, **inter alia**, to halt nuclear testing and accept a nuclear-material cut-off if the United States would do so too.

The Preparatory Committee for the Fourth Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons held its second session in Geneva, from 11 to 15 September. The session was chaired by Ambassador Tadeusz Strulak of Poland and was attended by representatives of 72 parties to the NPT (see below, section c. NPT events).

The General Conference of the International Atomic Energy Agency held its thirty-third regular session in Vienna, Austria, from 25 to 29 September, 1989. The Conference, which was characterised by its harmonious atmosphere, adopted a zero-growth budget for 1990 of US$162.8 million, approved the appointment of the Agency's Director General, Dr Hans Blix, for a third four-year term and provided the occasion for an important scientific meeting on the new generation of nuclear power reactors. Against the background of some apparent progress in the question of South Africa's accession to the NPT, the General Conference resolved to put off the decision regarding that Country's suspension as a member of the IAEA until next year's session. The conference once more adopted a resolution calling on Israel to submit all its nuclear installations to Agency safeguards and deciding to put the matter on the agenda of its regular session in 1990 (see below, section f. IAEA developments).

In the United States, public concern about the safety of the installations producing nuclear material for military uses has grown recently. The media continue to carry reports of bad management and lack of governmental oversight, breakdowns of over-age equipment and a widespread disregard of health and safety rules. The medium-term cost of renovation and decontamination of the many facilities involved is expected to be at least $100-billion. Requests by the Department of Energy for funds to replace or refurbish defective plant are received with growing skepticism on the part of the US Congress. This is prompted not only by the need for budgetary restraint but also by an apparent lack of conviction that the United States needs to maintain its nuclear-material production capacity at the previous high level. In both Houses there have been calls for the Administration to use this situation as an opportunity to seek an agreement with the Soviet Union on a cut-off in the production of nuclear material for military purposes. The Soviet Union has proposed such an agreement, citing the closing down of several production reactors as a move in that direction. Apparently, however, these are obsolete facilities that were already being replaced, and there are indications that even if the USSR should close down all its newer production reactors, it would still be able to produce plutonium and tritium in a number of dual-purpose installations.

This issue of the **Newsbrief** has very few favourable developments to report in respect of horizontal nuclear proliferation. Restrictions recently imposed by the United States on Israeli access to advanced American technology can do little at this stage to influence that country's nuclear capability. Much talk has been devoted lately to the need for India and Pakistan to adopt measures that might lead to greater mutual confidence about their respective nuclear programmes but there seems to have been little progress in this respect. Neither has there been an obvious change with regard to other countries whose nuclear activities have raised concern in the past.

The actions of several non-nuclear-weapon States give specific cause for renewed anxiety. There are reports that in Brazil the separation between the safeguarded and unsafeguarded portions of the nuclear programme is becoming blurred, making the application of safeguards more difficult. This may be due in part to the fact that the IAEA is not always made aware of the transfer of nuclear items subject to safeguards, and suppliers of such items should ensure that the IAEA receives timely notification of all pertinent transfers. Secondly, the tardiness of the Democratic People's Republic of Korea in concluding a safeguards agreement with the IAEA pursuant to its obligations as an NPT party and in submitting all its nuclear activities to safeguards has raised doubts about that state's commitment to the Treaty. A third case is that of Rumania, whose lack of response to Norway's inquiry into the whereabouts of the heavy water it has supplied to Rumania reflects unfavourably on its willingness to support the cause of non-proliferation.

Each of these cases may have a perfectly innocent explanation. But as long as any country with a significant nuclear programme is unwilling to permit the world community to assure itself of that innocence by means of international safeguards or other appropriate confidence building measures, it is inevitable that suspicions should arise about the nature of that country's nuclear activities. There is all the more reason for concern when the state in question has committed itself to full nuclear transparency by becoming a party to the NPT.

b. Further Relevant Events

Press reports about industrial nations exporting equipment and technology that serve their recipients' capability to develop and deploy weapons of mass destruction and their means of delivery continue unabated. While the major powers discuss means of divesting themselves of chemical weapons and seek to promote restrictions on trade in missile technology, commerce in such items appears to be as lively as ever. A variety of cases reported in the media of export licenses being issued by official bodies or individuals responsible for trade and industry in open contravention of applicable law, would seem to indicate that the governments of a number of industrially advanced nations do not deal adequately with the inherent conflict between a wish to boost lucrative exports and their declared policy of deterring the proliferation of nuclear, chemical and biological weapons and ballistic missiles. Recent press reports also speak of countries deliberately departing from international undertakings in order to make exports apparently considered to have priority over those undertakings. Unless governments see to it that legal restrictions on exports are strictly observed and adhere to their solemn undertakings in that regard, international arrangements to deter proliferation by interdicting trade cannot achieve their purpose.

c. NPT Events

- At its second session, the **Preparatory Committee for the Fourth NPT Review Conference**, which had held its first session from 1 to 5 May 1989 in New York, agreed to recommend as the provisional agenda of the Fourth Review Conference the agenda that served the previous Review Conference in 1985. The Committee discussed the financing of the Review Conference and considered the background papers that had been prepared at its request by the Secretariats of the United Nations, the IAEA, the Agency for the Prohibition of Nuclear Weapons in Latin America (OPANAL) and the South Pacific Forum. At its first session, the Committee had elected Ambassadors Chusei Yamadaof Japan, Tadeusz Strulak of Poland and Bariyu Adeyemi of Nigeria to serve as members of the Bureau for its three sessions. Ambassador Yamada served as chairman of the first session, Ambassador Strulak chaired the second and at the last session, which will be held in Geneva from 23 April to 4 May 1990, Ambassador Adeyemi will be the chairman. It is customary for each of the chairmen of the various sessions of the Preparatory Committee to preside over one of the Main Committees of the Review Conference. The Fourth NPT Review Conference is scheduled to be held in Geneva from 20 August until 14 September 1990 (**Press Release NPT/109**).

- **USA**: At a conference on Nuclear Supply and Nonproliferation Issues for the 1990's, sponsored by Los Alamos National Laboratory and the Department of Energy, Kathleen Bailey, then Assistant Director for Nuclear and Weapons Control at the Arms Control and Disarmament Agency, stressed that the NPT is not "expiring" in 1995, as is often erroneously assumed. Rather, a conference is to be convened that year,

twenty-five years after the entry into force of the Treaty, to decide whether it shall continue in force indefinitely or be extended for an additional fixed period or periods. (**NuclearFuel** July 10, 1989)

d. Other Non-Proliferation Developments

- On 11 August, before starting his visit to **Brazil** (see below, sub-section e.) the new president of **Argentina**, Carlos Saul Menem, held a press conference in which he denied that the two countries were about to embark on joint nuclear weapons development. He also stated that Argentina would not sign the NPT. The Argentine foreign minister was reported to be "less dismissive" of the 1967 Tlatelolco Treaty, of which, as reported, Argentina would like to see a "modified" version (presumably including the possibility of undertaking "peaceful nuclear explosions" - editor) as the basis for a safeguards agreement with the IAEA (**Nucleonics Week**, August 17, 1989)

- **Egypt** is reported to have ended its involvement in a project to develop a solid-fuelled medium-range ballistic missile. American sources claim that besides Egypt, **Argentina** and **Iraq** have for some time been involved in the development of the "Condor-2" rocket, which would be capable of delivering a payload of 450 kilograms over a range of 500-600 miles (**International Herald Tribune**, September 21, 1989).

- **Hungary** and the **USSR** have been discussing arrangements for the return of the irradiated fuel of the Paks power station in Hungary to the USSR (**Nuclear Engineering International,** June 1989)

- In the **United States**, the project to develop less proliferation-prone fuel than has been used so far in many research and test reactors, known as Reduced Enrichment in Research and Test Reactors (RERTR), is facing another crisis. The US Senate has called for an increase in the fiscal-year 1990 funding for this project, from the $1.2 million the House of Representatives had appropriated as a final obligation, to $3.3-million. Initially, supporters of RERTR in the Senate, notably Senators Bumpers, Glenn and McClure, had called for an appropriation of $4.2-million, to help the project reach the $15-million it will need over the next five years to achieve its planned goal. In conference, the Congress has decided nevertheless not to provide further funding for RERTR after fiscal year 1990. It is noted, however, that the Secretary of Energy supports the project and it is within his competence to allocate departmental funds to ensure its continuation (**Congressional Record - Senate** S 7999-8002, July 14, 1989; and S 8928, July 27, 1989; **NuclearFuel**, July 24, August 7 and September 18, 1989).

e. Nuclear Trade and International Cooperation

- **Argentina** and **Turkey** are discussing an agreement for cooperation in the construction in Ankara of a 25MWe nuclear reactor of Argentine design. The reactor will be fuelled with 5 per cent enriched uranium (**Nuclear Engineering International**, July 1989)

- In August, the new president of **Argentina** visited **Brazil**. One of the purposes of the visit was to reaffirm the cooperation between the two countries in the peaceful uses of nuclear energy. President Menem said he would seek a "fully transparent" non-competitive nuclear relationship with Brazil. Argentina and Brazil have agreed on a joint programme for the development of a fast breeder reactor (**Nucleonics Week**, July 13 and August 17, 1989; **Nuclear Engineering International** August 1989)

- **Canada** and **Hungary** are discussing making a study on the factors involved in building a Canadian-type power reactor in Hungary to generate electricity for export (**Nucleonics Week**, August 24, 1989)

- The United States Congress has adopted sanctions against **China** to protest its violent repression of pro-democracy demonstrations. The new measures, which include a suspension of nuclear supplies and technology, were adopted by the Senate in an 81-10 vote and by the House of Representatives unanimously (**Wall Street Journal**, June 30, 1989; **NuclearFuel**, July 10, 1989; **Congressional Quarterly - Weekly Report**, July 15, 1989).

- An official **Pakistani** delegation to **China**, led by Prime Minister Bhutto's defence advisor, has discussed fields for nuclear cooperation. Reports that Pakistan might seek to acquire three 300-MW nuclear power plants in China are discounted in Islamabad (**Nucleonics Week**, August 31, 1989)

- **France** and the **Federal Republic of Germany** are discussing cooperation in the use of laser techniques for the enrichment of uranium (**NuclearFuel** June 26, 1989)

- The **Federal Republic of Germany** and the **USSR** are about to conclude the first of several agreements for the construction of an 80-MW high-temperature gas-cooled reactor (HTGR) of German design at Dimitrovgrad (**Nucleonics Week**, July 6, 1989)

- On 25 July 1989 the **Federal Republic of Germany** and the **United Kingdom** signed a joint declaration for cooperation on the peaceful uses of nuclear energy. Among other things, this provides for the reprocessing of German nuclear fuel at British facilities. The latter have set a new price for this service of DM 1,200/kg U, which is about DM 300 lower than the price initially agreed upon by the FRG with France but slightly higher than that which France may offer for later contracts (**NuclearFuel** July 10 and August 7, 1989)

- The Prime Minister of **Pakistan** announced that she and the Chairman of her country's Atomic Energy Commission had discussed with President Mitterand **France's** breach in 1978 of its undertaking to supply a reprocessing plant. It is reported that the meeting paved the way for further deals between the two countries, including the supply by France of a PWR power plant. A French delegation will shortly visit Pakistan to discuss the sale of a 900-MW power reactor and it is expected that

positive results will be announced during President Mitterand's visit in February 1990 (**Nucleonics Week**, July 20 and September 21, 1989)

f. IAEA Developments

1. General

- At its thirty-third regular session, the General Conference of the IAEA approved the Agency's Regular Budget for 1990 amounting to $162.832 million. Of this sum, $54.189 million, or 34.2%, is for safeguards. In addition to the Regular Budget, the Technical Assistance and Co-operation Fund, from which the Agency's technical assistance activities are financed, and which is derived mainly from voluntary contributions, is expected to amount to $46.5 million (**IAEA Document GC(XXXIII)/875**).

- At its thirty-third regular session, in September 1989, the Agency's General Conference had before it a report by the Director General on "Modalities of application of Agency safeguards in the Middle East" (**GC(XXXIII)/887**) and a report on the implementation of a resolution adopted in 1988, on "Israeli Nuclear Capabilities and Threat" (**GC(XXXIII)/886**). With 47 votes in favour, 27 against and 12 abstentions, the General Conference, in a roll-call vote, adopted a resolution submitted by delegations of Arab states, which, **inter alia**, calls once again on Israel to submit all its nuclear installations to Agency safeguards. The text of the resolution is contained in Section V. The General Conference had also the text of a letter from the Resident Representatives of the USSR, the UK and the USA (**GC(XXXIII)/894**), announcing that the Government of South Africa had reaffirmed to them its wish to accede to the NPT, and that it had requested a meeting, which would take place in early December. Against that background, also in a role-call vote, with 59 votes in favour, 26 against and 4 abstentions, the General Conference adopted a resolution — reproduced in Section V — in which South Africa is condemned for its persistent refusal to comply with successive resolutions of the United Nations and the IAEA and which resolves to take a decision on the suspension of South Africa at the 1990 session. An Iranian draft resolution (**GC(XXXIII/889**) on the "prohibition of all armed attacks against nuclear installations devoted to peaceful purposes whether under construction or in operation" was not pressed to the vote, on the understanding that the subject would be placed on the agenda for the next session of the General Conference.

- The General Conference elected 11 Member States to the IAEA's 35-member Board of Governors. This now has the following composition (the names of the newly elected states, who will serve on the Board for a two-year period, are given in bold print): Australia, **Belgium**, Brazil, Canada, **Chile**, China, Colombia, Cuba, **Czechoslovakia**, Egypt, France, Federal Republic of Germany, Hungary, India, Indonesia, **Iraq**, **Italy**, Japan, Republic of Korea, Kuwait, Libyan Arab Jamahiriya, **Nigeria**, **Philippines**, **Poland**, **Saudi Arabia**, Senegal, Spain, Switzerland, **Tunisia**, Turkey, USSR, UK, USA, **Venezuela** and Yugoslavia (**IAEA Press Release PR 89/24**, 28 September 1989).

- In June, 1989, the Director-General visited **Iran** . He reportedly expressed the Agency's readiness to cooperate with Iran in estimating the damage inflicted on the nuclear power plant at Bushehr during the recent conflict with Iraq. On the occasion of the visit, Prime Minister Hoseyn Musavi referred to the fact that Iran was a party to the NPT (**IRNA** - Teheran - 22 and 25 June 1989 - JPRS-TND-89-014).

2. Safeguards

- The Agency's Department of Safeguards has been restructured to eliminate or reduce redundancy and improve efficiency and effectiveness. Various units have been grouped together to improve the Department's capabilities with regard to the analysis of future requirements and planning. Long-term guidelines for safeguards activities are being considered which should lead, among other things, to the formulation of unified implementation and evaluation criteria, resulting in improved safeguards efficiency. (**IAEA Document GC/(XXXIII)/875 pp. VIII and 74-81**).

- In September, an IAEA safeguards team led by Jon Jennekens, Deputy Director of Safeguards, which visited the Kanupp power reactor at Karachi, Pakistan, was reported to have expressed "full satisfaction" with the application of safeguards there (**Nucleonics Week**, September 21, 1989).

g. Peaceful Nuclear Developments

- **Argentina**: It is expected that the new government of President Menem will lay greater stress on nuclear development than the previous administration, during which there was a slow-down in nuclear development due in part to financial reasons and partly to the fact that at present Argentina seems to have excess electricity-generating capacity. Shortly after his election President Menem visited nuclear installations and stressed the importance his government attaches to Argentina's nuclear development. He wishes the Atucha-2 power reactor and the Arroyito heavy water plant to be finished as soon as possible. To help finance completion of Atucha-2, the Kraftwerk Union division of Siemens (KWU), as vendor, together with a consortium of banks, will supply a loan of $100-million, which the Argentine government is expected to match. Manuel Mondino, a nuclear physicist, has been appointed as the new head of the Comision Nacional de Energia Atomica, rather than - as widely expected — Admiral Carlos Castro Madero, who headed the CNEA during the military regime (**Nuclear Engineering International**, July 1989; **NuclearFuel** July 10,1989 and **Nucleonics Week** July 6 and 13 and September 21, 1989) Plans to test a pilot reprocessing plant at Ezeiza using radioactive materials have run into opposition from environmentalists. (**NuclearFuel** July 10,1989)

- In an attempt to become competitive in the world's nuclear markets by the end of the present century, the **European Community** is seeking to standardize nuclear power components and equipment. The growing inter-dependence in the nuclear field among European states is reflected by the trend towards a greater division

of tasks between them, which has already led to the termination of the plans for a major reprocessing plant at Wackersdorf, in the Federal Republic of Germany (**The Energy Daily** June 30, 1989; **Nuclear Europe**, 7-8/1989; **Nucleonics Week** August 3, 1989)

- **France** is reported to find the use of mixed plutonium-uranium oxide (MOX) as fuel in light-water reactors more complicated than expected. Although experience with this fuel is still limited, it is already apparent that its use may not allow a burnup as high as that which can be obtained with uranium fuel and that quarter-core annual reloads may not be feasible. Also, the higher the percentage of MOX fuel, the lower the reactor's reactivity is said to be (**NuclearFuel**, August 21, 1989)

- **India** is planning to set up three new fuel fabrication plants as part of its plans to produce 10,000MWe by the year 2000. This target requires that the production of nuclear fuel be increased from 65 to 1800 tons a year (**Nuclear Engineering International** June 1989)

- **Pakistan** has made a 20-year nuclear power programme under which it would have 6000-MWe of nuclear power by the year 2000, using co-manufacturing arrangements with foreign companies (**Nuclear Engineering International**, August 1989)

- The **Soviet Union** has announced that it is operating ten gas-centrifuge uranium-enrichment plants with a capacity of 1-million SWU a year each. The plants are said to have replaced most of the Soviet gaseous diffusion capacity; only one of the five diffusion plants is believed to be still in operation. The USSR is said to use 10% enriched uranium for its naval propulsion reactors (**NuclearFuel** July 24, 1989)

- In the **United Kingdom**, plans to privatize the electrical industry do not include the seven magnox nuclear power stations which are almost at the end of their working lives. The five advanced gas-cooled nuclear reactors are included, as are the pressurized-water reactors which have been selected to replace the magnox plants (**The Economist**, 29 July, 1989)

- Cracks have been found in the reactor vessel at Three Mile Island in the **United States** where an accident occurred in 1979. This might indicate that the accident was more serious than initially believed. The nature and causes of the cracks are under investigation (**The New York Times**, August 6, 1989)

- In June 1989 a referendum held in Sacramento, California, decided that the Rancho Seco nuclear power station should be closed. Subsequently, the board of the agency owning the plant, the Sacramento Municipal Utility District (SMUD) asked for bids from companies willing to operate it. SMUD has now decided not to pursue negotiations with the only bidder and the plant will therefore remain closed (**The New York Times,** September 13, 1989)

- Also in the **United States**, given the growing concern over the "greenhouse effect" caused by the carbon dioxide released in the use of fossil fuels, interest in the use of nuclear energy as a source of power seems to be returning slowly. The media are calling attention to the work now being done at MIT on a nuclear power reactor that is inherently safer than the light-water reactors (LWR) now used for the production of electricity. This is the modular high-temperature gas-cooled reactor (MHTGR): a small reactor which uses ceramic-encapsulated fuel pellets capable of withstanding extremely high temperatures without risk of melting, and in which the direct use of the helium coolant to spin the turbines, which in turn run high-speed generators, obviates the need for complex steam generators. The reactor, based on a proven West-German design that has been further developed in the United States, is said to be cheaper to build and much more efficient than present nuclear power plants and to be able to produce electricity at highly competitive prices. The design limits the power density and the actual size of the core. Maximum capacity will be modest (100/150 MWe) but it would be possible to link several modules together. The composition of the fuel is said to facilitate disposal after irradiation but to complicate the extraction of plutonium (**Wall Street Journal**, August 17, 1989; **The Washington Post Weekly Edition**, August 28-September 3, 1989)

- The parliament of **Yugoslavia** has adopted a law prohibiting the production and planning of nuclear facilities. This measure, which contradicts the policy of the federal government, is expected to bring all nuclear-energy related activities, except the operation of the existing Krsko nuclear plant, to a halt (**Nucleonics Week,** July 13, 1989)

h. Developments of Concern for Vertical Proliferation

- **China** has announced that about 20 people were killed and more than 1,200 injured in accidents involving radioactive materials in China between 1980 and 1985 (**The China Daily**, quoted in **The New York Times**, August 6, 1989).

- The IAEA has distributed to Member States a technical report supplied by the **USSR** on the causes and consequences of an accident involving radioactive waste from a military nuclear plant at Kyshtym in the Southern Urals in 1957. According to the report there were no fatalities directly attributable to the accident at the time or in the thirty years that have elapsed, nor did the radiation cause congenital defects or mortality from such defects in the first and second generations following the release (**IAEA Press Release PR 89/19, 26 July 1989; INFCIRC/368**, 28 July 1989). Kyshtym, which has been a centre for plutonium production since the late 1940's, was visited recently by an American delegation. Its production reactors, some of which date from the early years of the Soviet military nuclear effort, are gradually being shut down. It is not expected that this will have much impact on plutonium production in the USSR. There are nine production reactors at two sites in Siberia, and ten civilian plants that could be used for the production of plutonium. Further, the Soviet is said to have more plutonium in stock than the USA. Concern about the safety of the military nuclear industry is reported to be

growing also among the Soviet public (**The Washington Post**, July 9, 1989; **The New York Times**, July 10 and 16, 1989)

- According to official Norwegian sources, water analysis indicates that the fire which took place on 26 June in a nuclear submarine of the **USSR** may have involved a loss-of-coolant accident and a partial core melt, which was apparently brought under control. Norway has expressed concern about yet another incident, on 16 July, when a suspected reactor fault forced a Soviet submarine to the surface of the Barents Sea. Soviet sources say that the fumes spotted by Norwegian observers on that occasion were smoke from the start-up of the auxiliary diesels, not radioactive steam. Norway has asked the Soviet Union for notification of nuclear accidents at sea but the latter maintains that the latest incident did not necessitate any notification (**The New York Times**, July 18, 1989; **Nucleonics Week**, July 20, 1989)

- In a reorganization of the government of the **USSR**, the Soviet Ministry of Nuclear Power, which was created after the Chernobyl accident to operate nuclear power plants but not to build them, has been absorbed into the Ministry of Medium Machine Building, which in the past was responsible for the production of nuclear components, notably for the defense sector. The amalgamation of the two ministries into one Ministry of Nuclear Power, Engineering and Industry brings the civilian and defense-related nuclear bureaucracies under one roof (**Nucleonics Week**, July 27, 1989)

- The closing down in the **United States**, in the summer of 1988, of the three Savannah River reactors, the major source of the tritium used in nuclear weapons, is leading to an intensified search for alternative supplies. Amidst press comments that there is enough tritium on hand for several years and additional amounts can be extracted from retired weapons, the Departments of Energy and Defense claim that there is an urgent need to replenish the tritium stockpile. The restart of the Savannah River reactors has been put off repeatedly and estimates of the costs keep increasing. In December 1988 repairs were estimated to cost $350-million and expected to be ready in 1990. Latest estimates are that costs will amount to $1.66-billion and that the job will not be completed until 1991, with the first reactor scheduled to be back in service by July 1990 and the other two following at three-month intervals. Some experts doubt that this schedule can be met, even though there are reports of plans to save time by foregoing a complete safety check and an environmental impact statement — a suggestion that has drawn angry criticism from environmentalists. Media reports note that the recovery of tritium is not possible until nine months after the start-up of the reactor so that even with these shortcuts the first new supply will not be on hand until June 1991 — assuming that the present schedule is kept. Given concern about the capacity of the emergency cooling system to withstand accidents, the reactors will probably be run below maximum capacity. Proposals to use commercial reactors for the production of tritium meet with Congressional opposition as running counter to non-proliferation concerns. A committee of the House of Representatives has decided that the Department of Energy may do so only if Congress passes a law declaring a state of war or national emergency. The US Senate has taken note of a study by Dr. Warren Donnelly concluding that the conversion of the WNP-1 reactor at Hanford, in the state of Washington, would weaken the ability of the United States to secure a favourable extension of the NPT in 1995. The Secretary of Energy is reported to have confirmed that the use of WNP-1 would not be in the best political interest of the United States (**The Washington Post**, July 2, August 31 and September 1, 1989; **NuclearFuel**, July 10,1989; **The New York Times**, July 25 and 31, 1989; **Congressional Record- Senate**, S 10224-10229, August 4, 1989; **Aiken Standard** (S.C.) August 9, 1989; **Nucleonics Week**, August 17, 1989; **Inside Energy/** with **Federal Lands**, September 4 and 11, 1989)

The overhaul of the Savannah River facilities is considered as a precedent for the rehabilitation of the 17 other military nuclear production plants of the Department of Energy that have had to close down because of mechanical failures and environmental problems. It is now reported that — unbeknownst to the Congressional committee which oversees nuclear military production — the Purex plutonium reprocessing facility at Hanford has been closed since last December following the breakdown of equipment. The Hanford production reactor (the "N" reactor) was closed down for safety reasons in 1987 but there is still irradiated fuel on hand for reprocessing. Congress had previously considered proposals by the Administration to construct a $1.2-billion plant in Idaho to purify the plutonium processed at Hanford. The proposal had been criticized because the supply of plutonium was expected to run out in six to eight years. That supply will be much smaller if the Purex plant does not operate.

Reports about health and safety problems at other installations of the Department of Energy are still coming in. FBI investigations are underway into possible contract fraud at the Westinghouse-operated uranium processing plant at Fernald, Ohio. The Energy Department has agreed to pay $73-million to nearby residents who claim they have been harmed by leaking toxic wastes. A $60-million "environmental survey program" of the Department of Energy which should provide data for planning the clean-up of the production facilities has been found to be useless. The governor of Idaho has closed his state's borders to shipments of radioactive wastes from the Rocky Flats plutonium processing plant in Colorado. Idaho had agreed to take plutonium waste for temporary storage until 1 September, at which date the Department of Energy was to have opened an underground repository for radioactive waste in New Mexico but it has not yet been able to do so; the cause is said to be design problems. Under an agreement with the state of Colorado the Rocky Flats plant must now suspend operations. That installation also has an acute problem storing liquid chemical waste.

Meanwhile, it is reported that the 3-year old Fuel Materials Facility at Aiken, South Carolina, which processed uranium for fuel to be used by the navy, will be closed. The Government has stated that the plant is no longer needed because of a decline in nuclear-fuel demands, but the real reason for the decision is said to be vulnerability of the plant to earthquakes (**The New York Times**, July 22 and September 1, 8, 9 and 14,1989; **The Washington Post**, July 31, 1989).

- The **United States** Department of Energy and Congressional investigators have received complaints from workers at several military nuclear facilities who had called attention to health and safety problems, about retaliation by employers and abuse from colleagues afraid of losing their jobs if the plants were forced to close. Reprisals included demotions, ridicule in front of co-workers and threats to revoke essential security clearances. Several "whistle blowers" said they had been sent for mental health treatment (**New York Times,** August 6, 1989)

- By a vote of 284 to 138 the **United States** House of Representatives has approved an amendment to the Defense authorization urging the President to enter into negotiations with the Soviet Union for a verifiable ban qn the production of plutonium and enriched uranium. The new bill further expresses the sense of the Congress that the United States and the Soviet Union should establish verification arrangements including on-site inspections of all production facilities. Similar legislation has been introduced into the Senate. The idea of establishing a bilateral agreement to halt the production of fissionable material for military purposes, to which the Bush administration is opposed, was first raised by President Eisenhower and pursued by Presidents Kennedy and Johnson. It is said to have resurfaced because of the costs and the difficulties involved in rehabilitating the military nuclear industry which is crippled by mechanical breakdowns and mismanagement (**CRS Report for Congress** International Plutonium Control Act, House Subcommittee on Arms Control, International Security and Science: Highlights of Hearings, June 20, 1989 - 89-404 RCO July 11, 1989; **Congressional Record** pp.H4361-4371, July 27,1989; **The New York Times** July 28,1989)

- About 160 **United States** communities have so far declared themselves to be nuclear-weapon-free-zones. As a rule, the Federal authorities consider such moves largely symbolic and refrain from action. However, an ordnance of the City of Oakland prohibiting military nuclear activities there has now prompted the Bush administration to bring suit. Oakland is an important port and industrial town in California, which harbors a naval establishment supplying the Pacific Fleet with components for nuclear weapons and an operations office of the Department of Energy overseeing weapons research at Lawrence Livermore National Laboratory nearby. The city ordnance would compel these installations to leave Oakland. The Federal Government holds that the Constitution gives it exclusive authority over the military and that under the Atomic Energy Act it has sole authority over nuclear weapons and nuclear energy (**The New York Times,** September 8, 1989).

- In the face of budgetary pressure, Congressional opposition and the resistance of environmentalists, the **United States** Department of Energy wants to cut the funds for the reactor it was developing for use in outer space. The 4.2-ton reactor, known as the SP-100, would generate 100 kilowatts of electricity and is estimated to cost $1.8-billion. It could be used as a power source in anti-missile defense or for manned bases in space. The General Electric Company was to build a prototype which would be launched in the mid-1990's from a space shuttle. The Department of Defense is opposed to the cut. The Office of Management and the Budget may overturn the decision or direct potential users to cover the item from their funds (**The New York Times,** September 11, 1989).

i. Developments of Concern for Horizontal Proliferation

- In **Italy,** court charges have been brought against the heads of a number of companies recently created by former employees of a major military manufacturing concern, who are accused of supplying parts and technology for the "Condor-2" ballistic missile project conducted by **Argentina, Iraq** and at least until recently — see the second item under subsection d. above — **Egypt** (**L'Unita** (Milan), 30 July 1989 JPRS-TND-89-016).

- According to sources in the Federal Republic of Germany, **Brazil** is constructing two natural-uranium fuelled reactors for the production of plutonium: one heavy-water cooled and moderated and the other gas-cooled and graphite-moderated. Brazil is further reported to be constructing a new light-water reactor for research and isotope production, as well as one related to submarine technology development. These facilities, a small centrifuge enrichment plant, a laboratory-scale reprocessing facility and several uranium conversion installations are part of Brazil's "autonomous" or "parallel" nuclear programme, which is not under international safeguards. However, the strict separation that had been maintained so far between the safeguarded and unsafeguarded portions of Brazil's nuclear programme seems to be disappearing and there are reports that some activities covered by the agreement with the Federal Republic of Germany and subject to IAEA safeguards have been made "off-limits" to the latter's inspectors. The IAEA is said to have criticized both Brazil and the Federal Republic for not notifying it of all transfers/receipts of equipment and technology, as provided in the agreement. It also appears that German-trained Brazilian staff have been transferred to unsafeguarded activities. While press reports cite documentary evidence of clear violations of the agreement — denied by both Brazilian and West-German authorities — reports by the latter's intelligence service have "confirmed" that the Brazilian nuclear effort has a "purely civilian character" (which still would not absolve either country from its duty to report transfers to the IAEA — editor). The matter is generating serious criticism within the Federal Republic and has led to a dispute between the leading political parties there (**Frankfurter Allgemeine Zeitung,** 21 July, 1989, JPRS-TND-89-016; **Wall Street Journal,** July 24, 1989; **Nucleonics Week,** July 27, 1989; **Die Zeit,** 28 July, 1989, JPRS-TND-89-016; **NuclearFuel,** August 7, 1989).

- There is a report that the inclusion in the nuclear budget of **India** of Rs1.4-billion ($84-million) for the import of heavy water may reflect the cost of "illegal" imports of that material (the adjective seems to refer to imports not under IAEA safeguards - editor) which may be as high as Rs10-million per tonne, as against Rs3-million for Soviet-supplied heavy water. India has successfully tested

a missile, called "Prithvi", with a range of 240 kilometres. India has thus developed both long-range and short-range missiles (**Far Eastern Economic Review**, 31 August 1989; **International Herald Tribune**, September 29, 1989).

- According to a Soviet news report, **Israel** has tested an intermediate-range missile over the Mediterranean. The missile splashed down about 400 kilometres north of Benghazi, Libya, and thus has a range of at least 1250 kilometres. American officials say they have no reason to disbelieve the report (**Washington Post**, September 16, 1989).

- The **Democratic People's Republic of Korea** is believed to be developing its own means of producing and separating plutonium. According to US sources, the DPRK has a "large" natural-uranium reactor at Yongbyon (reports variously mention a capacity of 30MWe and 60MWe) and there are indications that a plutonium reprocessing plant is being constructed nearby. The DPRK is a party to the NPT but has not yet concluded a safeguards agreement with the IAEA pursuant to that Treaty. North Korean sources qualify these reports as an "utterly groundless lie". Reactions from Seoul vary: one news service specializing in North Korean affairs is quoted as confirming that country's capability to produce nuclear weapons, and while some South Korean nuclear specialists are concerned at these reports, others are said to be sceptical (**The Korean Herald**, 4 June 1989 - JPRS-TND-89-013 and 016; **Wall Street Journal**, July 19, 1989; **KNCA** (Pyongyang), 4 August, 1989, JPRS-TND-89-016; **Washington Post**, July 29, 1989. See also Joseph A. Yager, **Nuclear Nonproliferation Strategy in Asia**, CNSN Paper, Volume 1, No.3, July 1989).

- When the Prime Minister of **Pakistan** visited Washington and London earlier this year, she stated several times that her country did not possess, nor intended to make, a nuclear device. While she rejected President Bush's proposal for on-site inspections of key installations to verify that they are not part of a weapons programme, Ms. Bhutto proposed a treaty with **India** banning nuclear tests, as a first step towards a regional nuclear-free zone. During a visit to the United States, shortly afterwards, the Indian defence minister rejected Ms. Bhutto's assurance as well as her proposal and in turn stated that India's nuclear programme was not aimed at building weapons. At the same time there was a report that the foreign secretaries of the two countries had discussed the possibility of mutual inspections of nuclear facilities; no results were reported. Meanwhile, US President Bush reportedly urged India's Prime Minister Gandhi to begin talks with Prime Minister Bhutto to lessen the tensions between the two countries over their respective nuclear activities. During Mr. Gandhi's visit to Pakistan, soon after, Ms. Bhutto stated that her country was prepared to join "any arrangement" that would prevent the spread of nuclear weapons in South Asia. More recently, she has been quoted as saying that Pakistan had the knowledge to build nuclear weapons but that there was a difference between knowledge and capability and that in the absence of any threat Pakistan did not intend to use that knowledge. She repeated that Pakistan was "firmly committed to nuclear non-proliferation" but that any one-sided action by any country in the subcontinent could trigger off a nuclear arms race. In early August, Zahid Malik, editor of the **Pakistan Observer** (an opposition paper in Islamabad) was arrested for violating the official secrets act. Malik is a reputed supporter of the development of nuclear weapons in Pakistan and the author of the book "Dr. A.Q. Khan and the Islamic Bomb", which gives details about the development of Pakistan's military nuclear programme and concludes that it has the capacity to make nuclear weapons if it wishes to. The book (which is in Urdu) is said to assert that Prime Minister Bhutto has asked Dr. Khan to stop his work on developing nuclear weapons. Dr. A.Q.Khan has received Pakistan's second-highest civilian decoration. The German firm NTG Neue Technologien GmbH is accused in the Federal Republic of having obtained in the United States high-powered lasers that are used in nuclear fuel fabrication, which it has re-exported to Pakistan (**The Washington Post**, July 1, 1989; **The New York Times**, July 9, 10 and 17, 1989; **Arms Control Today**, August 1989; **The Washington Times**, August 8, 1989; **Nucleonics Week**, July 6, August 17 and 31; and September 7, 1989; **NuclearFuel**, August 21, 1989).

- Two of the five 'Candu' (natural-uranium fuelled, heavy-water-cooled and moderated) reactors **Rumania** has bought from **Canada** are near completion and there is some question about the supply of the 900 tonnes of heavy water needed for their operation. Canada previously assured Rumania that it would be prepared to meet its heavy-water needs but it is now said to hesitate in the light of reports that Rumania may have re-exported 12.5 tonnes of heavy water which it bought in Norway in 1986 and has not responded to the latter's request for information as to the whereabouts of that material (**Financial Times**, 29 June 1989). A report that Rumania had obtained from Argentina West-German technology relating to the construction of nuclear-capable medium-range missiles has been denied by the firm concerned, Messerschmidt-Boelkow-Blohm (**DPA** - German Press Agency - 8 May 1989).

- **South African** experts believe that their country has the technology and capability to manufacture ballistic missiles. According to these views, while it might both deploy such missiles in lieu of a bomber force and export them, it should avoid the nuclear option as both politically counterproductive and militarily unnecessary (**The Star** - Johannesburg - 22 June 1989 - JPRS-TND-89-014).

- The **United States** Senate is investigating reports that several "sensitive" countries, including Argentina, India, Iraq, Israel, Pakistan and South Africa, have obtained from the Department of Energy information on detonators, explosives and firing sets. The information in question is not classified, but may be useful in making and testing nuclear weapons. Administrative rules against its disclosure to proliferation-prone countries do not seem to be rigorously enforced. There have also been numerous cases of exports of dual-use hardware (**US General Accounting Office Report** GAO/RCED-89-116, Weapons-Related Information and Technology Controls, June 1989; **The Wall Street Journal**, August 7, 1989; **The Washington Times**, August 8, 1989). The US

Administration is debating whether authorization should be given for the export to Brazil, India and Israel of American supercomputers that could be used, among other things, for the development of nuclear weapons and ballistic missiles. Experts are divided on the desirability of doing so. Some doubt that the possession of such computers would make a substantial difference to a state determined to make nuclear weapons, while others hold that they are needed to develop sophisticated nuclear weapons. Among the government agencies involved, the Departments of State and Commerce believe that the sale should be authorized; the Pentagon and ACDA are against. The Department of Energy prefers to consider such exports on a case-by-case basis (**The New York Times**, August 20, 1989). Following the discovery of discrepancies in amounts of tritium it has sold to eight private firms, including some overseas, the US Department of Energy is looking into the whereabouts of 2.5-5 grams of tritium which cannot be adequately accounted for, which is thought to be largely due to measurement errors and faulty bookkeeping. The Nuclear Regulatory Commission says that there is no evidence of diversion but that this cannot be entirely ruled out. The amount involved is said to suffice for the enhancement of one nuclear fission weapon. Exports of tritium, which were suspended when the discrepancy was noticed, in July, are being resumed (**NuclearFuel**, July 24 and August 7 and 21, 1989; **The New York Times**, July 26 and September 1, 1989; **Washington Post**, September 1, 1989).

II. PPNN Activities

- In response to PPNN's request in June 1989 the Board of Governors of the International Atomic Energy Agency authorized the Agency's Director General to invite the Programme to be represented by an observer at the thirty-third regular session of the Agency's General Conference. The General Conference, held in Vienna from 25 to 29 September, was accordingly attended by Ben Sanders, as PPNN's observer. The event presented a fruitful occasion for contact with delegations and representatives of other non-governmental organizations and to acquaint them with PPNN's purposes and activities.

- John Simpson was invited by the Quaker United Nations Office to introduce a discussion on "The NPT: Moving Towards 1990" at a buffet luncheon for diplomats in Geneva on 24 August. This provided an opportunity to discuss with potential members of more than twenty delegations to the 1990 NPT Review Conference the significance of the NPT, the issues surrounding the extension conference in 1995 and the work of PPNN in these contexts.

- Two members of the PPNN Core Group, John Simpson and Ian Smart, presented papers on the 1990 NPT Review Conference and the significance for the nuclear industry of the continued health of the nuclear non-proliferation regime at the Uranium Institute Annual Conference, which took place in London from 6 to 8 September. This provided an excellent opportunity to alert many representatives of the industry to the current state of the non-proliferation regime.

- The sixth PPNN Core Group meeting will be held in Baden bei Wien, near Vienna, Austria from 17th-19th November 1989. The substantive part of the meeting, over the weekend of 18-19th November, will focus on issues relevant to the work of the IAEA on the nuclear non-proliferation area. A number of diplomats stationed in Vienna and IAEA officials have been invited to participate in this element of the meeting.

III. Other Non-Governmental Groups Active in Related Areas

- The Markland Group, a citizen organization in Hamilton, Ontario, Canada, recently submitted a 200-page brief to Canada's Secretary of State for external affairs arguing that Canada should take an active role in the formation of a new UN agency which would be available to accept responsibility for administering multilateral disarmament treaties.

IV. Some recent books, articles and other materials on Nuclear Non-Proliferation

Books:

A. Ehteshami, **Nuclearisation of the Middle East**, (London, Published by Brassey's for the Gulf Centre for Strategic Studies, 1989).

W. Sweet, **The Nuclear Age: Atomic Energy, Proliferation and the Arms Race** (2nd Edition), (Congressional Quarterly Inc., 1988), 340pp.

Articles and other materials:

J. Goldblat, Nuclear Non-Proliferation: the Status and Prospects, **Background Paper No. 29**, Canadian Institute for International Peace and Security, June 1989

J.R.Primack et al., "Space Reactor Arms Control", **Science and Global Security**, Vol. 1, No. 1-2, 1989, pp. 49-72.

G.C. Smith and H. Cobban, "A Blind Eye to Nuclear Proliferation", **Foreign Affairs**, Vol. 68, No. 3,Summer 1989, pp. 53-70.

G.M. Steinberg, "The Middle East in the Missile Age", Issues in Science and Technology, Vol. V, No. 4, Summer 1989, pp. 35-40

T.B. Taylor, "Verified Elimination of Nuclear Warheads", **Science and Global Security**, Vol. 1, No.1-2, 1989, pp. 1-26

J. A. Yager, "Nuclear Nonproliferation Strategy in Asia, Center for National Security Negotiations", **CNSN Paper**, Volume 1, No. 3, July 1989, 72 pp.

V. Documentation

Resolutions adopted by the thirty-third regular session of the General Conference of the International Atomic Energy Agency

GC(XXXIII)/895
22 September 1989

GENERAL Distr.
Original: ARABIC

ISRAELI NUCLEAR CAPABILITIES AND THREAT

Draft resolution submitted by Algeria, Egypt, Iraq, Jordan, Kuwait, Lebanon, the Libyan Arab Jamahiriya, Morocco, Qatar, Saudi Arabia, Sudan, the Syrian Arab Republic, Tunisia, and the United Arab Emirates.

The General Conference

(a) Recognizing the urgent need to prevent proliferation of nuclear weapons and a nuclear arms race in the area of the Middle East,

(b) Gravely concerned about Israel's growing nuclear capability and threat to peace and security in the area,

(c) Expressing deep concern about the continuous co-operation between Israel and South Africa in the nuclear field,

(d) Recalling Security Council resolution 487/1981, which, inter alia, requested Israel to submit all its nuclear installations to the Agency's safeguards system and to refrain from attacking or threatening to attack nuclear installations,

(e) Deprecating the continuous refusal by Israel to place all its nuclear installations under the Agency's safeguards, and

(f) Noting the technical study prepared by the Director General on "Modalities of application of Agency safeguards in the Middle East",

1. Calls once again upon Israel to comply without delay with Security Council resolution 487/1981 by submitting all its nuclear installations to Agency safeguards;
2. Requests the Director General to consult with the States concerned in the Middle East area with a view to applying Agency safeguards to all nuclear installations in the area, keeping in mind the relevant recommendations contained in paragraph 75 of the report attached to document GC(XXXIII)/887 and the situation in the area of the Middle East, and to report on the matter to the Board of Governors and to the General Conference at its thirty-fourth regular session;
3. Requests the Director General to inform the Secretary-General of the United Nations of this resolution; and
4. Decides to include in the agenda for its thirty-fourth regular session an item entitled "Israeli nuclear capabilities and threat".

GC(XXXIII)/900
27 September 1989

GENERAL Distr.
Original: ENGLISH

SOUTH AFRICA'S NUCLEAR CAPABILITIES

Draft resolution submitted by the Africa Group

The General Conference

(a) Recalling the recommendation of the Board of Governors to suspend South Africa from the exercise of the privileges and rights of membership of the Agency as contained in its report GC(XXXI)/807 pursuant to General conference resolution GC(XXX)/RES/468,

(b) Stressing that, despite the requests of the General Conference and the international community, South Africa has persistently violated international law as well as the purposes and principles of the United Nations, upon which the Agency's activities are based in accordance with Articles III.B.1 and IV.B of the Statute,

(c) Also stressing that the acquisition of a nuclear weapons capability by the racist regime of South Africa constitutes a very grave danger to international peace and security, and in particular jeopardizes the security of African States and increases the danger of the proliferation of nuclear weapons, and

(d) Equally recalling the resolve of the General Conference to take a decision on the suspension of South Africa expressed in General Conference resolution GC(XXXII)/RES/503 in accordance with Article XIX.B of the Statute,

1. Vehemently condemns South Africa for its persistent refusal to comply with successive resolutions of the United Nations General Assembly and the General Conference of the Agency, as well as its refusal to adhere to the principles and purposes of the United Nations Charter and the Statute of the Agency;
2. Resolves to consider and take a decision on the recommendation of the Board of Governors contained in its report GC(XXXI)/807 to suspend South Africa from the exercise of the privileges and rights of membership of the Agency in accordance with Article XIX.B of the Statute at the Conference's thirty-fourth regular session;
3. Requests the Director General to continue to take all possible measures to ensure the full implementation of resolution GC(XXX)/RES/468 and to report to the General Conference at the thirty-fourth regular session in this regard;
4. Further requests the Director General to bring this resolution to the attention of the Secretary General of the United Nations; and
5. Decides to include in the agenda for its thirty-fourth regular session an item entitled "South Africa's nuclear capabilities".

Appendix — PPNN Papers

Papers Presented to the Second Core Group Meeting, Charlottesville, November 1987

1. William C Potter: **Creating a Database on International Nuclear Commerce** (published as Working Paper No 60, Centre for International and Strategic Affairs, University of California, Los Angeles, CA 90024-1486)
2. Tariq Rauf: **The Non-Proliferation Regime and Nuclear Submarines for Canada: A Critical Analysis** (revised and expanded version published (with Marie-France Desjardins) as 'Opening Pandora's Box? Nuclear Powered Submarines and the Spread of Nuclear Weapons' **Aurora Paper 8,** Canadian Centre for Arms Control and Disarmament, 151 Slater Street, Suite 710, Ottawa, Ontario K1P 5H3, Canada)
3. John R Redick: **Nuclear Restraint in Latin America: Argentina and Brazil** (subsequently published as PPNN Occasional Paper No 1, to be revised and reprinted in early 1990)
4. Leonard S Spector: **India, Pakistan and Nuclear Proliferation** (derived from work on 'Nuclear Weapons and South Asian Security' Report of the **Carnegie Task Force on Non-Proliferation and South Asian Security,** Carnegie Endowment for International Peace, 11 Dupont Circle, N.W., Washington DC 20036)

Papers Presented to the Third Core Group Meeting, Guernsey, May 1988

5. Ben Agu: **Nigeria and the Nuclear Non-Proliferation Regime**
6. Ben Agu: **Recent Press Attacks on the IAEA Safeguards System**
7. Andrew Barlow: **European Supplier Policies**
8. Lewis Dunn: **Implementation of NPT Articles I and II**
9. Lewis Dunn: **US Perspectives on Nuclear Supply**
10. David Fischer: **Implementation of NPT Article III.1**
11. Jorge Morelli Pando: **The Prospects for the Non-Proliferation Regime in the Latin American Region**
12. Walter Rehak: **Technical Aspects of IAEA Safeguards**
13. Ben Sanders and John Simpson: **Nuclear Submarines and Non- Proliferation: Cause for Concern** (revised version published as PPNN Occasional Paper No 2)
14. Ian Smart: **Nuclear Proliferation in the Middle East**
15. Michael Wilmshurst: **The Future of IAEA Safeguards**

Papers Presented to the Fourth Core Group Meeting, Charlottesville, November 1988

16. Jayantha Dhanapala: **The Right to the Peaceful Uses of Nuclear Energy and its Implementation Article IV of the NPT**
17. Charles van Doren: **China as a Nuclear Supplier** (revised and published as part of PPNN Occasional Paper No.3)
18. Lewis Dunn: **Verification Approaches Contained in New Disarmament Agreements and their potential Impact on IAEA Safeguards**
19. Rodney Jones: **China and the Non-Proliferation Regime: Renegade or Communicant?** (revised and published as part of PPNN Occasional Paper No.3)
20. Jan Murray: **The Future of Nuclear Power and the Uranium Market**
21. Leonard Spector: **The Use of Commercial Satellite Verification for Non-Proliferation Purposes**

Papers Presented by the PPNN Panel at ISA/BISA Conference, London, March 1989

22. Joseph Goldblat and Peter Lomas: **Nuclear Non-Proliferation: the Problem States**
23. Ben Sanders and John Simpson: **Military Uses Permitted Under the NPT: the Effects on the Non-Proliferation System and the Safeguards Regime**
24. Lewis Dunn: **Nuclear Proliferation Watch: Some Thoughts on Future Challenges**
25. David Fischer: **The 1995 NPT Extension Conference: Problems and Prospects**

Papers Presented at the Fifth Core Group Meeting, Guernsey, May 1989

26. Adolf von Baeckmann: **The Safeguards Implications of New Civil Technologies** (revised version published as part of PPNN Occasional Paper No.4)
27. Dennis Fakley: **New Technologies and Nuclear Proliferation** (revised version published as part of PPNN Occasional Paper No.4)
28. Harald Mueller: **France and the NPT**
29. Ian Smart: **The Significance for the NPT of Missile Technology Proliferation and Attempts at Control**

The Programme for Promoting Nuclear Non-Proliferation and the Newsbrief

The Programme for Promoting Nuclear Non- Proliferation was established in the Spring of 1987 with the ultimate purpose of helping to strengthen the nuclear non-proliferation regime and with the shorter-term goal of contributing to the success of the fourth review confer- ence of the Non-Proliferation Treaty and of the 1995 conference that will decide on the Treaty's extension. The Programme provides for the creation of an international, non-governmental and informal system of collecting, exchanging and analysing relevant information which should be brought to the attention of government officials, diplomats, the research community, parliament- arians, non-governmental organisations and the media, so as to help foster among those groups, and particularly among their younger members, a greater interest in, and a deeper knowledge of, the issues involved.

The central element of the Programme for Promoting Nuclear Non-Proliferation is an international networking exercise based on a Core Group of high-level experts from eleven industrialized and developing nations. These experts give general guidance to the Programme, pool and exchange information on the many different aspects of the question of nuclear (non-)proliferation and make the respective communities of which they form part aware of the need to support the non-proliferation regime and the Treaty. The Core Group customarily meets twice a year.

The **Newsbrief** was initially conceived as a means of communication from the chairman of the Core Group of the Programme for Promoting Nuclear Non-Proliferation to the members, to acquaint them with developments relevant to the aims and activities of the Programme. Given its general nature, however, the **Newsbrief** has become part of the outreach effort which constitutes a major element of the Programme. It is therefore now addressed to a wider, though still limited, audience of persons not directly involved with the Programme for Promoting Nuclear Non-Proliferation but interested in the subject, to inform and help them alert their respective environments to the issue of nuclear non-proliferation.

The **Newsbrief** is published on behalf of the Programme for Promoting Nuclear Non-Proliferation by the Centre for International Policy Studies, Department of Politics, University of Southampton. Communications relating to its content and other editorial matters should be addressed to Ben Sanders at 240 East 27th Street, New York, New York 10016, USA. Those relating to production and distribution should be addressed to John Simpson, Department of Politics University of Southampton, Southampton, SO9 5NH, United Kingdom.

ISBN 085432 3317