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PROGRAMME FOR PROMOTING NUCLEAR NON-PROLIFERATION

Number 5 NEWSBRIEF April 1989

Editorial note

This issue of the **Newsbrief** is the fifth in a series of informal publications on current events in the area of nuclear non-proliferation that are issued at approximately three-month intervals. Previous editions were published in March, July and November of 1988 and in January 1989.

The **Newsbrief** is distributed free of charge to persons with an interest in nuclear non-proliferation. It carries information on current events relating to the many aspects of that issue. The **Newsbrief** began as a periodic newsbulletin addressed primarily to the members of the Core Group of the Programme for Promoting Nuclear Non-Proliferation (PPNN). It has turned out, however, that outside the Core Group there is also a demand for an informal periodic publication that not only reports on the actual or presumed spread of nuclear-weapon capabilities, but pays attention – among other things – to measures taken or contemplated to deter nuclear proliferation, related questions of arms control and other aspects of international security; related diplomatic, economic and technical issues; verification of compliance; and developments in the international organisations concerned with these issues. The print-run of the **Newsbrief** has been enlarged to keep pace with that demand and will be further adjusted as necessary.

For the benefit of readers unacquainted with PPNN or its **Newsbrief** the Annex to this issue contains a short description of PPNN's aims and activities.

The **Newsbrief** presents topical items of information on pertinent aspects of nuclear non-proliferation, including reports on the actual or potential spread of nuclear weapons capabilities to additional States. It endeavours to do so fairly and objectively, citing news items derived from reputable sources, without commenting on their validity. In selecting items for inclusion the editor seeks to present positive as well as negative developments. Readers who take issue with any item included or statement made in the **Newsbrief** or who otherwise wish to comment are invited to send their remarks to the editor, so they may be published in a subsequent issue.

The chairman of the PPNN Core Group, as editor of the **Newsbrief**, 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.

I. Topical developments

Introductory Remarks

This issue of the **Newsbrief** covers developments in the field of non-proliferation during the first three months of the present year. Many of the events reported, however, have their roots in previous events. As in preceding issues, the editor feels obliged to point out that, like most questions of international security, the issue of nuclear non-proliferation has a long history. To grasp the full import of current events it is necessary to know their historical background. The **Newsbrief** obviously cannot provide that background for all the items reported. It does, however, publish a brief bibliography of new publications that may help provide a context against which reports on recent developments can be better appreciated.

a. Present Situation

So far, the nuclear (non)proliferation scene in 1989 shows little sign of change since the preceding year. There are some reasons for cautious optimism while other developments give cause for concern. Positive signs may be discerned in South Asia, where India and Pakistan seem to be favourably disposed towards arrangements that might defuse the potentially dangerous nuclear tension between them. Relations between Argentina and Brazil on nuclear matters remain good, although it is hard to predict if this will continue to be the case after the change of government that appears to be at hand in at least one of these countries.

There are reports that financial constraints may compel the government of Canada to reconsider its plans to acquire a fleet of nuclear-propelled submarines. Withdrawing nuclear material from safeguards for use as fuel for the propulsion of naval vessels would complicate the international verification process. If Canada, as a party to the Nuclear Non-Proliferation Treaty and an avowed supporter of the international non-proliferation regime, did so it might cause political harm to the non-proliferation regime. That harm would be the greater if – as it seems to have contemplated doing – Canada would not only seek exemption from safeguards of fissionable material while it is in the propulsion reactors but also during its enrichment, fabrication and reprocessing stages. It would therefore be helpful to the non-proliferation regime if Canada were to abandon its plans in this respect.

Another potentially positive development occurred at the Conference of States Parties to the 1925 Geneva Protocol and Other Interested States on the Prohibition of Chemical Weapons, held in Paris in early January. Many States expressed anxiety about the use of chemical warfare agents and the Conference ended with a consensus declaration confirming the need to bring the Geneva negotiations on a chemical-weapon ban to a fruitful conclusion.

On the other hand, the perceived connection between the issues of nuclear and chemical weapons might not help to deter their proliferation. The **Newsbrief** of January 1989 pointed to the danger that a State threatened by the use of chemical weapons might respond by nuclear means. Conversely, at the Paris conference several Arab delegations stated that they would only accept a ban on this means of warfare if all States in their area would join the NPT or a similar arrangement obliging them to submit their nuclear activities to safeguards. Attitudes of this kind are often taken in the face of attempts to deter the spread of a given category of weapons. Many classes of weapons have a military/strategic counterpart in some other category. Consequently, there may always be States that consider a given weapon essential for their security, even though the majority of the international community considers its production and deployment as detrimental to international security. States may also use the weapon in question to seek concessions with regard to other weapons, as seems to be the case here. In the area of multilateral arms limitation, attempts at trade-offs of this sort rarely help deter the spread of either category of weapons. In the present case it is safe to predict that a linkage between chemical and nuclear weapons would not have a positive impact on the reduction of either.

Although on the surface the nuclear rivalry between India and Pakistan at present does not appear to be acute, there are indications that Pakistan is inexorably bound for nuclear-weapon status. Another cause for concern is the fact that a growing number of States are developing the capacity to manufacture their own long range ballistic missiles. Since a State that has such missiles is able to strike at an opponent's territory at some distance from its own, the possession of such means of delivery raises the risk that a State will employ mass-destruction weapons which they would fear to use close to their own population centres.

At the time this issue of the **Newsbrief** is published, there are only about fifteen months left until the fourth conference to review the implementation of the NPT. One of the issues that will play an important part in that event is the implementation of Article VI of the Treaty, under which the nuclear-weapon States have accepted the obligation to "pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament...". With a new Administration in Washington it may be difficult for the two Superpowers, in the time remaining, to make so much headway in their negotiations on the reduction of strategic nuclear weapons that they can present the fourth NPT Review Conference with concrete results in that area. At the time of writing, the US Administration was still engaged in a comprehensive review of strategic issues, to determine what course it would follow in disarmament negotiations.

Nevertheless, there have been several relevant developments in this area lately. In a speech in London, on 7 April, the General Secretary of the Communist Party of the USSR, Mikhail Gorbachev, announced that the Soviet Union had decided to halt production of enriched uranium and reduce the production of plutonium for weapons manufacture. While the US Administration does not seem ready to respond positively to this initiative, this may give a new impetus to attempts to revive negotiations on a mutual cut-off of the production of fissionable material for weapons purposes. A move in that direction is thought by many members of the US Congress to be a welcome solution to the problems that have arisen in the American installations producing uranium, plutonium and tritium for weapons purposes.

The number of parties to the Partial Test Ban Treaty (PTBT) of 1963 that have joined the request to the Depositary Governments to call a conference to amend that Treaty has now reached the number at which the latter are obliged to take the requested action. The conference would consider amendments converting the PTBT into a comprehensive nuclear-test-ban treaty. Judging by the support which resolutions on this subject have received in the General Assembly of the United Nations, interest in the conference will be great. The matter is closely connected with the implementation of Article VI of the NPT. A number of the non-nuclear-weapon States have already let it be known that the attitudes of the major nuclear powers to the conversion initiative will have a bearing on their attitudes at the 1990 NPT Review Conference.

Given the special importance of this last NPT Review Conference before the Extension Conference of 1995, it is important that the Soviet Union and the United States, individually and jointly, should give serious and urgent consideration to the steps they might take toward nuclear disarmament – both in terms of short-term results and in terms of longer-term prospects – thus giving substance to the claim that they are truly living up to the obligations they derive from Article VI of the Treaty. The hour is late. There are a number of opportunities which it would be most unwise to miss. The international community is growing increasingly sceptical about the seriousness with which the major Powers seek to meet their obligations under Article VI of the NPT. It is essential that they should make an all-out effort to reach agreement on meaningful and convincing measures of nuclear disarmament.

Reports about exports from Western industrial countries of materials and technology that can be used, directly or indirectly, in military nuclear programmes, continue to give cause for concern. The government of the Federal Republic of Germany, which has been called the major source of materials for Third World nuclear weapons programs, is said to be taking measures to control these exports. It is regrettable that cases of this kind require foreign criticism to trigger domestic action. A tightening of the legislation alone, however, will not suffice as there are almost always ways to circumvent it. For a curb on illegal exports to be effective, concerted and sustained national and international action is essential. As the previous issue of the **Newsbrief** pointed out, it is alarming that governments of parties to the NPT should find it so

difficult to prevent illegal nuclear exports and to prosecute violators.

b. NPT Events

- The first session of the **Preparatory Committee for the fourth Review Conference of the NPT** is taking place at United Nations Headquarters in New York from 1-5 May 1989.

- On 3 April 1989 **Quatar acceded to the NPT**. This makes the total of non-nuclear weapon States parties to the Treaty 137. The number of States that have joined the Treaty since the third Review Conference, in 1985, is now nine.

c. Other Non-Proliferation Developments

- By Resolution 42/26 B of 30 November 1988, the General Assembly of the **United Nations** recommended the convening of a conference to consider amendments to convert the Partial Test Ban Treaty of 1963 into a comprehensive-test-ban treaty. In August 1988, Indonesia, Mexico, Peru, Sri Lanka, Venezuela and Yugoslavia formally submitted an amendment proposal to the three Depositary Governments, USSR, UK and US. By Resolution 43/63 B of 7 December 1988 – which made specific reference to the NPT – the General Assembly welcomed that action (both reproduced in Section V of this **Newsbrief**). In a letter dated 5 April 1989 representatives of the six States mentioned above advised the UN Secretary-General that over 39 States had now formally requested that, in accordance with Article II of the PTBT, a conference of all the Parties be convened to consider such an amendment. Since this number constituted over one-third of the Parties to the Treaty, the convening of the conference was mandatory upon the Depositary Governments.

- For financial reasons the government of **Canada** may reduce and even abandon entirely its plans to acquire nuclear-powered submarines (**The Washington Post**, January 31, 1989). 71 % of Canadians were opposed to the proposed submarine purchase (**Canberra Times**, 1 February 1989, as quoted in **Pacific Research**, Vol.2 No. 1 February 1989, Peace Research Centre, Australian National University)

- On 31 December 1988, **India** and **Pakistan** signed an agreement – under discussion since 1985 – obliging both States to "refrain from undertaking, encouraging or participating in, directly or indirectly, any action aimed at causing the destruction of, or damage to, any nuclear installation or facility in the other country". The parties are to inform each other of the location of their nuclear installations. The agreement is subject to ratification. (The **Miami Herald**, January 1, 1989; **The Independent**, 2 January 1989; **Nucleonics Week**, January 12, 1989)

- **Spain** has announced its adherence to the "Declaration of Common Policy on the consequences of the adoption of the London guidelines by the ten Member States of the Community, dated twenty November 1984." This brings its nuclear export policy into line with that of other EURATOM states. (**IAEA Document INFCIRC/322/Add.2** of November 1988)

- Professor Claude Zangger of **Switzerland** retired in January 1989 from his function as deputy director of the Swiss Federal Office of Energy, in charge of international affairs. Zangger chaired the IAEA committee which drew up the list of nuclear items that would "trigger" export controls pursuant to Article III, para.2 of the NPT.

- The **United States** has announced that nuclear material transferred from territories covered by the safeguards agreements it has negotiated with the IAEA under the provisions of Additional Protocol I of the Treaty of Tlatelolco are subject to "all the standard provisions of safeguards pursuit that are normally built into safeguards agreements other than INFCIRC/153-based agreements." (**IAEA Document GOV/INF/563**, 6 February 1989)

- The twelfth round of **US-USSR** bilateral consultations on nuclear non-proliferation issues was held in Washington from 12 to 15 December 1988 (**Department of State Bulletin**, February 1989)

d. Nuclear Trade and International Cooperation

- **Argentina**: In late March a consortium of Argentine companies was expected to start up the 1 MW tank-type research reactor it has supplied to **Algeria**. Algeria is thought to be interested in acquiring an Argentine-designed 380 MW Argos power reactor during the mid-1990s (**Nucleonics Week**, March 16, 1989).

  The **United States** is expected to approve the retransfer of fourteen kilograms of American enriched uranium to Argentina from **Peru** and five tons of heavy water from **Brazil**. The uranium will be used in a reactor at Cordoba University, which will thereby come under safeguards. The retransfers reflect an improvement of US-Argentine nuclear relations. (**Nuclear Fuel**, February 6, 1989).

  Argentina has signed an agreement with Brazil for the development of a fast breeder reactor within the next 20 years (**Nuclear Engineering International**, February 1989).

● In 1988 **China** exported $38 million worth of "products for peaceful uses of nuclear energy" (including uranium, "other metals and mini-reactors"). This was 20 per cent more than in 1987 (**China Daily**, February 1, 1989). China appears to have a large overcapacity in uranium production and has offered **Japan** 2 million pounds of U_3O_8 at prices 20 per cent below the market price, promising that supply would be "long-term and stable". (**Nuclear Fuel**, March 6, 1989).

China has approached the **Soviet Union** about the purchase of a Soviet-designed nuclear power plant.(**Nucleonics Week**, March 2, 1989)

● Having determined that failure to continue peaceful nuclear cooperation with the **European Atomic Energy Community** (Euratom) would be "seriously prejudicial to the achievement of US non-proliferation objectives" US President Bush on 13 March 1989 expressed his intention to extend until 10 March 1990 the waiver of the application of the relevant export criteria of the Nuclear Non-Proliferation Act of 1978 (**US House of Congress 101-35**)

● **France** and the **USSR** have signed an agreement for nuclear cooperation, including reactor safety, public information and the design of PWRs. France is also assisting in the planned dismantling of two VVER-440 reactors in Soviet Armenia (**Nucleonics Week**, February 2, 1989)

● **The Islamic Republic of Iran** intends to export uranium ore to foreign countries, from a "huge uranium mine" that has been discovered in its territory. It also plans to resume construction of the nuclear power station at Bushehr (**Moscow Radio**, 21 December 1988)

● **Japan's** plans to ship tons of weapons-grade plutonium halfway around the world, to France and the United Kingdom, protected only by small and lightly armed coast-guard vessels, has raised concerns in the United States about risks of terrorist interference (Jack Anderson and Dale Van Atta, **Washington Post**, February 2 and 3, 1989). The US Congress will be given the opportunity to review any sea shipments of US-controlled plutonium if the security measures for the shipment differ "significantly from an armed escort vessel" (**Nuclear Fuel**, January 9, 1989)

● Amidst continuing reports of discussions between **Pakistan** and **France** about construction of a PWR power plant at Chasma, the Pakistan Government is reported to have discussed with **USSR** Foreign Minister Eduard Shevardnadze during his visit in February 1989 the supply of two 1,000MW VVER-type power reactors under conditions similar to those of the Soviet-India agreement . Pakistan's Minister of State for Production is scheduled to visit the Soviet Union in May, to finalise a protocol on the supply of the reactors. (**Nucleonics Week**, March 23, 1989; see also **Nucleonics Week**, January 12, 1989: "USSR said to 'Actively Consider' helping Pakistan nuclear plant"). These reports have since been denied by Pakistani officials. The USSR embassy in Islamabad has also denied a local press report about the supply of a reprocessing plant (**Nucleonics Week**, March 30, 1989). It is noted that the US administration is concerned about such supplies, apparently because the USSR would not require full-scope safeguards. In the early 1980s the US objected to the supply of a power reactor to Pakistan by a French-German consortium, unless this took place under full-scope safeguards (**Nucleonics Week**, March 23, 1989)

● **France** is offering to sell **India** a 1300-MW power reactor "on attractive terms with soft credit to pay for it" (**The Times** [London] 23 February 1989). Another report says that India has rejected a French offer to supply two 900-MWe power reactors. The objection is said to be of a financial nature (**Nucleonics Week**, February 9, 1989).

e. IAEA Developments

1. General

● Eduard Shevardnadze, **Minister for Foreign Affairs of the USSR visited IAEA Headquarters in Vienna** on 19 January 1989. In a talk with the Director General, Mr. Shevardnadze underlined the need for support for the IAEA's safeguards verification programme, which he described as being of importance not only for the prevention of the proliferation of nuclear weapons but also as an example for those considering how to verify disarmament agreements. He is reported to have been "positive" to the idea that more Soviet nuclear installations might be made subject to IAEA safeguards. (**IAEA Press Release** 89/3)

● Boris A. Semenov, until recently Governor from the USSR on the IAEA's Board of Governors, has been appointed **Deputy Director General of the Agency's Department of Nuclear Energy and Safety**. He also occupied this post in 1981- 1984 (**IAEA Press Release** 89/5)

2. Safeguards

● During its session in February 1989 the Board of Governors of the IAEA approved **safeguards agreements** with the **Lao People's Democratic Republic** and with **Tunisia**, under the Treaty on the Non-Proliferation of Nuclear Weapons. It further approved an agreement with the **Democratic People's Republic of Algeria** for the application of safeguards in

connection with the supply of a research reactor and its fuel by Argentina. (**IAEA Press Releases**).

- Also during the February session of the Board of Governors, the Governor for the US complained about the delay of the **People's Democratic Republic of Korea** in submitting its nuclear facilities (reportedly including a 60MW Calder Hall-type magnox reactor and a reprocessing plant) to IAEA safeguards, pursuant to its obligation under the NPT (**Nuclear Fuel**, April 3, 1989).

- A **hand-held inspection device** has been developed in Canada to detect radioactivity from irradiated fuel rods in nuclear power plants. Whereas formerly IAEA inspectors had to rely on visual checks of storage facilities, complemented by Geiger counters to indicate radioactivity, the new " Mark IV" detector is said to be capable of indicating the amount of radioactive material remaining in the fuel (**New Scientist,** 18 February 1989).

f. Peaceful Nuclear Developments

- The **Argentine** Nuclear Energy Commission (CNEA) has concluded that by 2020 the country will need 14,000-MWe of nuclear generating capacity. At present, there are two power reactors operating (Atucha 1 at 357-MWe and Embalse at 648-MWe) and one (Atucha 2, 745-MWe) is under construction. Strong efforts are being made to develop a self-sufficient fuel cycle, including reprocessing and enrichment. An industrial-scale heavy water plant, being built by Sulzer Brothers of Switzerland, is due to start up in 1990 (**Nuclear Engineering International**, February 1989). If the Peronists win the general elections in May they will seek to accelerate Argentina's drive to establish a nuclear fuel cycle entirely independent of foreign supplies and outside supervision. A position paper prepared for the Peronist presidential candidate indicates strong opposition to international safeguards on Argentina's indigenous nuclear activities and makes no mention of the IAEA safeguards which Argentina now requires on its nuclear transfers. It also does not mention nuclear cooperation with Brazil (**Nucleonics Week**, March 9, 1989)

- **Belgium, France**, the **Federal Republic of Germany, Italy**, and the **United Kingdom** have agreed to cooperate in the development of a commercial fast reactor for nuclear power generation. The original aim was to build three such reactors but the plan now is for only one 1500-MW reactor which should be ready by the mid-1990s. There is still disagreement between France and the Federal Republic of Germany about a site for this prototype fast reactor (**Daily Telegraph**, 16 February 1989; **New Scientist**, 18 February 1989)

  Meanwhile, discussions are going on in the Parliaments of some of the countries involved, as well as between them, regarding the relationship between this project and the fast-breeder project at Kalkar in West Germany, which has so far cost over $4 billion, and which has generated considerable environmental opposition, especially in the Netherlands. (**Frankfurter Allgemeine Zeitung** and **Sued Deutsche Zeitung**, both 17 February 1989) .

- **Brazil** has asked the World Bank for a $500 million loan but the Bank is withholding this because of the country's nuclear power programme. To win the loan Brazil must either show that nuclear power is as cheap as hydropower or must halt construction of its new nuclear power station, Angra-3. The World Bank has dropped its original demand for international safeguards on its uranium enrichment plant, which will supply fuel for Angra-3. Jose Goldemberg, a member of the Superior Council on Nuclear Energy, called this demand "quite impertinent" and officials say that Brazil will not change its plans to complete Angra-3 (**New Scientist**, 25 February 1989).

- **China** is planning to build a reprocessing plant in the Gobi desert, with a solidification plant and waste burial facilities. The installation is to be ready by 1995 and by 2000 a larger treatment plant should be completed on the same site (**Nuclear Engineering International**, March 1989)

- **India** is considering construction of a pool-type 500-MWe prototype fast breeder reactor, which should go critical by the turn of the century. Work on the reprocessing plant at Kalpakkam, which will handle spent fuel from the power reactors there and produce plutonium for the PFBR, is said to be progressing well (**Nuclear Engineering International,** January 1989). India's budget for 1989/1990 foresees an increase of 29% for nuclear energy research, development and allied electronic capability over the previous year (**Nucleonics Week**, March 24, 1989, as cited in **CRS Issue Brief** "India and Nuclear Weapons" by Warren H. Donnelly and Barbara B. Black, updated March 30, 1989, Order Code IB86125).

- Public opposition in **Japan** to nuclear power is growing and worries industry. Protests are directed at nuclear power production (35 nuclear power plants are in operation, which in 1988 generated 29.1 per cent. of the country's electricity), and are expected also against enrichment and waste-disposal activities (**New Scientist**, 24/31 December 1988).

- The government of **Taiwan** is preparing for the eventual resumption of that island's nuclear construction program, which was suspended in 1982. There has been public opposition to nuclear power after the incidents at Three Mile Island and Chernobyl, as well as a reactor fire in Taiwan in 1985. Formal government approval for two additional units of 950-MWe each is expected in 1990 (**Nucleonics Week**, February 23,1989)

g. Developments of Concern for Vertical Proliferation

● The **United Kingdom** is proposing to construct a facility to process depleted uranium at the Atomic Weapons Establishment at Aldermaston. Depleted uranium is used in its Trident missile warhead programme and in anti-tank ammunition (**Jane's Defence Weekly**, 25 March 1989).

British Nuclear Fuels (BNFL) is considering the construction at Sellafield in Cumbria of a pressurized water cooled (PWR) or advanced gas cooled (AGR) reactor for the triple purpose of producing electricity, plutonium and tritium, to replace the initial Calder Hall and the Chapelcross reactors (**The Times** [London], 2 February 1989)

● The **USSR** has revealed that it has put a more efficient, long-lived and powerful compact nuclear energy source into space satellites than any used before. This 10,000-watt 'Topaz' reactor is being offered for sale to Western Countries. American military experts are concerned that observation satellites equipped with this kind of power source could be put in orbits out of the reach of anti-satellite weapons. Some Western experts believe that the presence of these radioactive sources in space may explain false readings registered by their sensors. According to some American views, the USSR uses radioactive power sources in space because it lacks more advanced (solar power) technologies. It is also argued (both in the USSR and the USA) that such use should be avoided because the reactors pose risks to the environment when they break up. Some American scientists are urging their Government to close the "reactor gap" and calling for the development of large reactors to be used for manned space missions. A space-based nuclear power source is under development in the United States for military (SDI) as well as civilian purposes (**New York Times**, January 15 and 22, 1989; **New Scientist**, 28 January 1989; **Time**, February 20, 1989).

● The 17 facilities in the **United States** producing nuclear material for military use which, for various (largely safety-related) reasons have ceased production recently include the three Savannah River reactors at Aiken, South Carolina. These are the United States' principal sources of tritium. This radioactive gas boosts the efficiency of the fission explosions that trigger nuclear fusion weapons, but it is subject to decay and must be replenished periodically. At the end of 1988, the US Department of Energy said that unless the reactors could be reactivated soon, reserves of tritium would run out by the summer of 1989. Although it is not yet known when the reactors can be started up again, and it will take several months after reactivation before they would start producing tritium, the need is now said to be less pressing, and careful conservation should stretch supplies at least until the end of the present year. The possibility of buying tritium in Britain or France is reported to be under consideration. There has also been talk of Canada supplying tritium from its new Darlington plant, which might free tritium from other sources to be used in US weapons. However, this plant is currently not in service. There have been proposals to produce tritium by particle accelerator, which seems to be a safer procedure than using reactors and would not generate as much radioactive waste. Some scientists making a conceptual study of the use of linear proton accelerators for this purpose see it as a possible "complementary approach" to the use of reactors, but consider it as a still "immature technology". Supporters of the idea see it as entirely feasible and maintain that an accelerator might be constructed in less time and at much lower cost than new production reactors. It would, however, require a large source of energy of its own. Continued sales of tritium to foreign commercial users by the Department of Energy have evoked doubts about the seriousness of the shortage. The Federation of American Scientists, meanwhile, has suggested that using the cessation of tritium production as a "forcing mechanism" to achieve reductions in nuclear weapons would not be practical. They argue that the uncertainty would be great, verification would be difficult and it would be easier altogether to negotiate a clear and verifiable reduction in nuclear weapons (**F.A.S. Public Interest Report** and **Arms Control Today**, December 1988; **New York Times**, January 13, 17 and 23, February 3 and 13 1989; **Nucleonics Week**, January 26, February 2 and 23 1989; **Science**, 27 January 1989; **Deadline, A Bulletin From the Center for War, Peace and the News Media**, January/February 1989).

It is expected that the plutonium fabrication plant at Rocky Flats, Colorado, will be reopened presently, after a shutdown for emergency repairs. Colorado's Governor has said he will have the plant closed again, once the waste accumulating in it reaches an agreed limit. Part of the waste is now being shipped to Idaho but its Governor has decreed that this shall not continue beyond September 1989. The Budget Committee of the US House of Representatives has been told that the Department of Energy has seriously underestimated the costs of cleaning up the weapons complex. The Comptroller General estimates tentatively that clean-up and new construction may cost $155 billion. Meanwhile, there are reports that the danger to several of the installations involved may be worse than initially thought. It will be costlier to rectify and two-thirds of them may not be repairable. The Federal Environmental Protection Agency has forbidden its employees to inspect the Feed Materials Production Center (uranium processing plant) at Fernald, Ohio, because of the risk of exposure to radioactivity. In view of potential reductions in nuclear weaponry that would follow from negotiations with the Soviet Union, members of Congress are beginning to question the need to reconstruct weapons-material plants at great public expense. Plans to reconstruct the plutonium purification plant at Idaho Falls have come under special criticism, because of the large stocks of that material already on hand. Nevertheless, tests are planned to start this year on laser technologies to separate plutonium. The US Administration is said to be planning a laser-operated facility for the purification of plutonium which would permit weapons-grade material to be extracted from fuel irradiated in civilian reactors. Congress has specifically prohibited doing this except during a national emergency (**New Scientist**, 7 January 1989; **New York Times**, January 21, February 9,

15, March 7, 21 1989; **The Guardian**, 1 February 1989; **The Energy Daily**, February 9 1989; **Inside Energy with Federal Lands**, February 13 1989; **The Washington Post**, February 26 1989; **F.A.S. Public Interest Report**, March 1989).

Funding for the United States programme to reduce the enrichment in the uranium fuel in research and test reactors (RERTR) has been decreased to the point where the future of this (non-proliferation) exercise has become uncertain. However, the fact that the programme has been transferred from the Arms Control and Disarmament Agency to the Department of Energy might help in obtaining future funds for it (**Nuclear Fuel**, January 23, 1989).

United States Government officials say that, because of over-estimates of the strength of the rock at the Nevada nuclear test site in which nuclear detonations were conducted, those tests had an unacceptably small margin of safety. Procedures have been changed recently to make sure radiation does not escape (**New York Times**, February 18, 1989).

While the **USSR** is willing to publish data that were measured by its own and by American scientists from two underground testing experiments in Kazakhstan and Nevada, the **United States** Administration does not wish these, and other data exchanged between the two sides, to be published. The objection is said to arise from the American fear that this information might be used by critics to press it to soften its demands on verification (**New York Times**, March 23, 1989).

The United States is developing a new short range nuclear missile to succeed the old Lance missile now deployed in the Federal Republic of Germany. The new missile should have four times the range of the Lance and be more accurate; it would be ready for deployment in 1995. The fact that the introduction of these new weapons would hamper verification of limitations on short-range nuclear weapons is said to concern the German authorities, which are seeking talks to restrict such weapons. It does not appear to disturb the American Administration, which is not in favour of restricting them (**New York Times**, February 17, 1989).

Following law suits brought by two environmental groups protesting at a series of electric disturbances, the United States Defense Department has halted a programme simulating the "electro-magnetic pulse" (EMP) emitted by nuclear explosions (**Earth Island Journal**, Winter 1988/89, quoting **OMNI magazine**)

h. Developments of Concern for Horizontal Proliferation

● For years firms in the **Federal Republic of Germany** have made supplies which have contributed to the development of a chemical or a nuclear weapons capability in a number of States. Part of the exports consisted of nuclear equipment, technology and material which the Federal Republic, as a party to the NPT, was not entitled to supply without safeguards. The recipients of such supplies included Argentina, India, Israel, Pakistan and South Africa. In some cases, exports are reported to have been made without licenses; in others, licencing authorities overlooked prohibitions or interpreted the rules so liberally as to allow for exports which legally should not have been made. Use was also made of loopholes in overly lax legislation. Apparently, the Federal departments responsible for trade and economics tended to approve transactions that favoured industry, with the open and tacit support of many members of both Houses of Parliament. Where violations have been prosecuted, court sentences have been lenient and limited to relatively minor fines and/or suspended prison terms. Partly (it is said) as a result of pressure from other governments, notably that of the US, and in part in response to internal criticism, the Federal German cabinet has now decided on limited changes in the export legislation, which should result in tighter controls, partly through more rational coordination between the different national authorities involved, and higher penalties for contravention. A thorough revision of those controls is not being considered, however, and introducing the changes will take time (**New York Times**, January 4 1989; **New Scientist**, 7 January 1989; **Nucleonics Week**, January 5 and 12 and February 16 1989; **Nuclear Fuel**, January 9 and 23, 1989; January 12 1989; **U.S.News and World Report**, January 23 1989; **The Economist**, January 21 1989; **Bulletin of the Atomic Scientists**, April 1989).

● **India/Federal Republic of Germany**: in 1984, the West-German firm of Degussa AG exported 95 kilograms of beryllium of US-origin to India. The export – which would not have been approved in the United States – was officially licenced by the Federal German authorities, presumably on the undocumented statement from India that the material would not be used for military purposes. There is some indication that German authorities considered the beryllium to be too impure for direct nuclear use (**Nuclear Fuel Special Report**, January 30 1989; **The New York Times, The Financial Times, International Herald Tribune** February 1 1989; **Nuclear Fuel** February 6 and February 20, 1989).

● Reports of mainly Israeli origin say **Iraq** (a party to the NPT - editor) is secretly developing nuclear weapons in a "crash program" to produce nuclear warheads for use in missiles which are also under development. The sources allege that the 25 pounds of high-enriched uranium intended for use in the Osiraq reactor which was destroyed in an Israeli air raid in 1981 are being used and that **Saudi Arabia** is partly financing the project and **Pakistan** is providing "limited technical assistance". The report (published and commented on in **The Washington Post**, March 31, 1989) also mentions the development in Iraq, with the help of **West-German, French** and **Italian** firms, of a two-stage missile with a range of "at least" 500 miles. The project is said to have been started by **Argentina** and that in 1984 **Egypt** is said to have become a partner. On 3 April **Iraq**'s official newspapers strongly denounced the report and said the country would retaliate if Israel made another raid on its nuclear installations (**Thawra** (Baghdad) as quoted in **The Washington Post**, April 4, 1989).

● The **People's Democratic Republic of Korea** is building a reprocessing plant, in the vicinity of its 30-MW (sic) reactor at Yongbyon, North of Pyongyang. Neither facility is as yet under IAEA safeguards (**Far Eastern Economic Review**, 2 February 1989; [see also above, under I e. IAEA Developments: 2. Safeguards]).

● **Pakistan/Federal Republic of Germany**: there is increasing evidence that for the last ten years or more, German firms have supplied Pakistan with materials, equipment and technology that could be used to produce fissionable material and the components of nuclear weapons. Reports speak of 70 firms having at some time been involved in this trade, which either seems to have escaped official supervision, was not prohibited by German export rules or was done in contravention of the law in several instances, presumably with the full knowledge of the German authorities responsible, who consistently disregarded American warnings that the supplies were intended for Pakistan's military nuclear programme. Recent press reports reveal details. In 1985-87 the firms Neue Technologien GmbH and Physikalisch-Technische Beratung supplied equipment and information which have given Pakistan the capacity to purify significant amounts of tritium (**New York Times**, January 29 1989; **Nuclear Fuel**, February 6 1989; **Sunday Times**, 19 February 1989; **SuedDeutsche Zeitung**, 20 February 1989; **The Washington Post**, March 22 1989; **Nuclear Engineering International**, April 1989). The reports also mention exports of material and components for a non-safeguarded heavy-water reactor used, supposedly, to produce tritium; of uranium-conversion equipment; of equipment for uranium enrichment and fuel fabrication and of a variety of other equipment and materials for use in these processes, as well as some items that might be used direct in the manufacture of weapons (**Der Spiegel**, 20 February 1989; **Nuclear Fuel**, March 6 1989; **Bulletin of the Atomic Scientists**, April 1989).

Pakistan's Ambassador to Bonn has denied that there has been any "knowing violations of German export laws by Pakistani parties" and stated that "nothing has been done which would involve a breach of the (NPT) by Germany" (**Nuclear Fuel**, April 3, 1989). Pakistan's Ambassador in Washington is on record as saying that Pakistan's nuclear programme was entirely peaceful and geared to meet the country's energy requirements (Letter to the **Washington Times**, February 17, 1989).

A Dutch metallurgist has been arrested in the company of the Pakistani scientist Abdel Qadir Khan (who purloined information on the Dutch ultracentrifuge enrichment process, editor). The Dutchman had received $^3/_4$ million Dutch guilders from Pakistan's Embassy in Bonn and is reported to have been one of Dr. Khan's most important agents. He is said to have been involved in the supply by Arbed Saarstahl, in the Federal Republic, of maraging steel for the production of centrifuges, and the purchase of sensitive seismic equipment to register underground test explosions (**De Telegraaf** [Amsterdam], 11 January 1989).

US Intelligence estimates say that Pakistan has the components for four bombs. It can machine enriched uranium into the appropriate shape and may have manufactured the fusing devices and casings for nuclear weapons (**Newsweek**, February 13, 1989).

● **USA/Pakistan:** Having formally certified on 18 November 1988 that Pakistan did not possess a nuclear explosive device and that the US program of assisting that country would "reduce significantly the risk that Pakistan (would) possess (such a device)", US President Reagan wrote a letter to the Congress in which he stated, **inter alia**, that "the statutory standard as legislated by Congress is whether Pakistan possesses a nuclear explosive device, not whether Pakistan is attempting to develop or has developed various relevant capacities". The President added that "as Pakistan's nuclear capabilities grow" and evidence of its activities continued to accumulate, the process of annual certification would require the President "to reach judgments about the status of Pakistani nuclear activities that may be difficult or impossible to make with any degree of certainty" (**Presidential Determination** 89-7)

● **Nuclear submarines**: **Brazil** is working on a nuclear-powered submarine (SSN) programme, with the target of having the first boat in service in 2002 (**Jane's Defence Weekly**, 1 April 1989). Brazil expects to be able to enrich uranium to 20 per cent in the Aramar experimental ultracentrifuge plant at Ipero, which should be operational in November 1989. The material is meant to serve as fuel for its submarine propulsion reactors. The facility will not be under IAEA safeguards (**Nuclear Engineering**, March 1989).

● Industrial groups in **Canada** and **The Netherlands** are jointly investigating the construction of a conventionally propelled submarine that would use a low-power and temperature nuclear power source (AMPS, for Autonomous Marine Power Source) to make it air-independent (i.e. load its batteries, run its air-conditioning system, etc. without using a snorkel while submerged, editor) (**Jane's Defence Weekly**, 25 February 1989).

● **Delivery Vehicles**: after the abortive attempt by Egyptian agents at exporting missile components last year, the United States Customs Service is investigating two further "significant cases" involving the unauthorized export of ballistic-missile technology. William H. Webster, Director of the CIA, told Congress that by 2000 at least 15 developing countries will be making their own ballistic missiles (i.e. projectiles capable of carrying a payload of 1,100 pounds for 190 miles or more). According to Webster, countries that now have such missiles or will soon have them include Brazil, Egypt, Iran, Iraq, Israel, Libya, both Koreas, Syria and Taiwan (**The Christian Science Monitor**, March 15, 1989). **India** is preparing to test a ballistic missile with a range of 1,500 miles, which is also capable of delivering a payload of one ton. Indian scientists call the project experimental and based on a decision taken

long ago to build up an infrastructure for missile technology. The missile, called "Agni", comes in addition to the "Prithvi" short-range surface-to-surface missile. Both are said to have been developed without foreign assistance (**New York Times**, April 3, 1989). Other sources indicate the existence of an Indian intermediate-range (1,600-2,500 km) missile (SLV-3) of US/French origin (from a table in Rodney Jones and Harald Mueller: Preventing a Nuclear Sarajevo: Proliferation in the Middle East and South Asia, **Arms Control Today**, January/February 1989).

- **Chemical and Biological Weapons**: a Conference of States Parties to the 1925 Geneva Protocol and Other Interested States on the Prohibition of Chemical Weapons was held in Paris in early January 1989, amidst reports about the accelerating spread of a chemical-weapon capability among an increasing number of States. At the Conference, Iraq and other Arab nations stated that a comprehensive ban on chemical weapons should be linked with effective steps by Israel to assure non-nuclear-weapon States that they would be neither subjected to the use of nuclear weapons nor threatened with them (**New York Times**, January 9, 1989). According to congressional evidence by CIA Director William H. Webster, in the early to mid-1980s Iran, Iraq, Libya and Syria developed a chemical-weapon capability with the assistance of West European firms and individuals (**New York Times**, February 10, 1989 and **Science**, February 17, 1989). It is recognised in Washington that US export controls have many of the same deficiencies that have permitted West European companies to assist these States in building facilities for the production of chemical warfare agents. The US Administration has started a review of existing export regulations and is planning corrective steps. In addition to the countries listed by the Director of the CIA as having or about to have a chemical weapons production capability, the Director of Naval Intelligence also mentioned Burma, China, Egypt, Ethiopia, India, Israel, North Korea, Pakistan and Taiwan; another US specialist has pointed out that there was "no firm proof" with respect to India and Pakistan (**New York Times**, March 26, 1989). In his testimony, the Director of the CIA also stated that "at least ten countries" were working to produce existing and new types of biological weapons (**New York Times**, February 10, 1989). Confirming a report carried by ABC News, US Government officials said on 17 January that Iraq was developing biological weapons that could spread typhoid, cholera and anthrax (**New York Times**, January 18, 1989).

II. PPNN Activities

- The PPNN Core Group will hold its fifth semi-annual meeting from 13-14 May 1989 at Guernsey in the British Channel Islands. All members of the core group are to attend, and among the subjects to be discussed are Article VI of the NPT; the role of France in the Nuclear Non-Proliferation regime; the significance for nuclear non-proliferation efforts of missile technology proliferation and attempts to limit it and new technologies and their impact upon both nuclear proliferation capabilities and the IAEA safeguards regime. A full report on this meeting will be carried in the next edition of the **Newsbrief**.

- A PPNN Conference for diplomats and other officials involved in preparations for the 1990 NPT review conference will also be held in Guernsey from 14-17th May. The conference will cover all aspects of the NPT and issues likely to arise in the review conference. Nominations have been received from 37 states out of the original 51 invited to attend.

- PPNN sponsored a panel on non-proliferation at the joint International Studies Association/British International Studies Association Convention held in London from 28 March -1 April. Four papers were presented at conference sessions by PPNN members: **Nuclear Non-Proliferation: The Problem States** by Jozef Goldblat and Peter Lomas [PPNN-22]; **Military Uses Permitted Under the NPT: The Effects on the Non-Proliferation System and the Safeguards Regime** by Ben Sanders and John Simpson [PPNN-23]; **Nuclear Proliferation Watch: Some thoughts on Future Challenges** by Lewis Dunn [PPNN-24] and **The 1995 NPT Extension Conference: Problems and Prospects** by David Fischer [PPNN-25]. Copies of these papers may be obtained from John Simpson in Southampton.

- A new PPNN Occasional Paper is in preparation and should be available for distribution in early June. Its title is **China and Nuclear Non-Proliferation: Two Perspectives** by Charles van Doren and Rodney Jones.

III. Other Non-Governmental Groups Active in Related Areas

- On 15 and 16 March 1989 a seminar was organised by the **Peace Research Centre of the Australian National University** in Canberra on Australia and the Fourth NPT Review Conference.

- A Conference on the Implications of the Acquisition of Nuclear Powered Submarines (SSNs) by Non-Nuclear Weapon States was held at the Massachusetts Institute of Technology on 27 and 28 March 1989, organized by **the Department of Nuclear Engineering and the Defense and Arms Control Study Program at MIT.**

- During March and April 1989 the **Quaker United Nations Office** at New York organized a series of briefings for New York-based diplomats on the impact on the NPT of efforts to hold a conference to convert the Partial Test Ban Treaty into a comprehensive test ban treaty.

- At the **7th Annual Socialist Scholars Conference**, held at the City University of New York, a panel discussion on arms limitation was held on 1 April 1989, which dealt **inter alia** with nuclear non-proliferation.

- On 4 and 5 April 1989, a workshop on the control of chemical and biological weapons was held at the University of Toronto, Canada, sponsored by the **Working Group on International Surveillance and Verification.**

- A meeting of **UK officials and academics**, sponsored by the British members of the PPNN Core Group, took place in London on 14th April 1989. This was the first of a regular series of meetings to discuss NPT related issues in advance of the 1990 review conference.

Representatives of PPNN participated in each of the events listed, presented papers and/or made statements.

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

Books:

F. Barnaby, **The Invisible Bomb**, (London: I.B. Taurus, 1989).

S. Bhatia, **Nuclear Rivals In The Middle East**, (London: Routledge, 1988), 119 pp. (hbk.).

V.F. Davydov, **Non-Nuclear Zones and International Security**, (Moscow: International Relations Publishing House, 1988).

Articles and other materials:

B.B. Black, "The Clandestine Trade in Heavy Water: A Chronology", **CRS Report for Congress**, Congressional Research Service, The Library of Congress, January 24, 1989, 89-66 ENR.

W.H. Donnelly, "Nuclear Arms Control: Disposal of Nuclear Warheads", **CRS Issue Brief**, Congressional Research Service, The Library of Congress, Updated February 6, 1989, Order Code IB88024.

J.F. Evernden, "Lies that stopped a test ban", **Bulletin of the Atomic Scientists**, Vol. 44, No. 8, October 1988, pp. 20-24.

J. Goldblat, "What it would take to ban testing", **Bulletin of the Atomic Scientists**, Vol. 44, No. 8, October 1988, pp. 25-27.

R.W. Jones and H. Muller, "Who wants a Nuclear Sarajevo? Nonproliferation Initiatives for the Middle East and South Asia", **Arms Control Today**, Vol. 19, No. 1, January/February 1989, pp. 15-22.

K. Kaiser, "Non-Proliferation and nuclear deterrence", **Survival**, Vol. XXXI, No. 2, March/April 1989, pp. 123-136.

J.F. Keeley, "International Atomic Energy Agency Safeguards. Observations on Lessons for Verifying a Chemical Weapons Convention", **Arms Control Verification Occasional Papers**, prepared for The Arms Control and Disarmament Division, Department of External Affairs, Ottawa, Ontario, Canada, September 1988.

R. Mason, "Nuclear Weapons: Non-Proliferation, Technologies and Test-Ban Treaties", **Disarmament**, Vol. XII, No. 1, Winter 1988/1989, pp. 34-41.

"Report of the Working Group on Nuclear Safety and Non-Proliferation", AF 237 STC/NS (88) 2, **Scientific and Technical Committee, International Secretariat, North Atlantic Assembly**, November 1988.

L. Scheinman, "A Layman's Guide to Constitutional Aspects of International Arms Control Agreements Involving the United States", Report K/ITP-241 issued by **Martin Marietta Energy Systems Inc. for the United States Department of Energy**, December 1988.

L.S. Spector, "Nonproliferation-After the Bomb Has Spread", **Arms Control Today**, Vol. 18, No. 10, December 1988, pp. 8-12.

L.S. Spector, "New players in the nuclear game", **Bulletin of the Atomic Scientists**, Vol. 45, No. 1, January/February 1989, pp. 29-32.

V. Documentation

1.United Nations

General Assembly A/RES/43/63

Forty-third session

Agenda item 52

43/63 Cessation of all nuclear-test explosions

(Part B)

The General Assembly

Bearing in mind the determination, proclaimed since 1963 in the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water, to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time and to continue negotiations to this end,

Bearing in mind also that in 1968 the Treaty on the Non-Proliferation of Nuclear Weapons recalled such determination and included in its article VI an undertaking by each of its parties to pursue negotiations in good faith on effective measures relating to the cessation of the nuclear-arms race at an early date,

Recalling that in it resolution 2028 (XX) of 19 November 1965, adopted unanimously, it had stressed that one of the basic principles on which the treaty to prevent the proliferation of nuclear weapons should be based was that such treaty, which was then to be negotiated, should embody an acceptable balance of mutual responsibilities and obligations of the nuclear and non-nuclear Powers,

Recalling also that the Third Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, in its Final Declaration adopted by consensus on 21 September 1985, expressed its deep regret that a comprehensive multilateral nuclear-test-ban treaty had not been concluded so far and called for the urgent negotiation and conclusion of such a treaty as a matter of the higher priority.

Noting that Article II of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water provides a procedure for the consideration and eventual adoption of amendments to the Treaty by a conference of its parties,

1. **Welcomes** the submission to the Depositary Governments of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water of an amendment proposal for consideration at a conference of the parties to the Treaty convened for that purpose in accordance with Article II of the Treaty;

2. **Decides** to include in the provisional agenda of its forty-fourth session an item entitled "Amendment of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water".

73rd plenary meeting

7 December 1988

2. **"Proposed amendment to the treaty banning nuclear weapon tests in the atmosphere, in outer space and underwater submitted to the Depositary Governments by the Ambassadors of Indonesia, Mexico, Peru, Sri Lanka and Yugoslavia to the Conference on Disarmament."**

CONFERENCE ON DISARMAMENT **CD/852**

5 August 1988

Amendment Proposal

The Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water shall be amended by the addition of the following article and protocols:

ARTICLE VI

Protocols annexed to this Treaty constitute an integral part of the Treaty.

PROTOCOL I

States Parties to the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, in order to achieve the permanent banning of all nuclear explosions, including all such explosions underground, have agreed that in addition to their undertakings in Article I of such Treaty:

1. Each of the Parties of this Protocol undertakes to prohibit, to prevent, and not to carry out any nuclear weapon test explosion, or any other nuclear explosion, at any place under its jurisdiction and control;

a) underground; or

b) in any other environment not described in Article I, paragraph I, subparagraph (a) of the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water.

2. Each of the Parties to this Protocol undertakes furthermore to refrain from causing, encouraging, or in any way participating in, the carrying out of any nuclear weapon test explosion, or any other nuclear explosion, anywhere which would take place in any of the environments described in paragraph I of this Protocol.

PROTOCOL II

(The precise provisions of this protocol are not included at this time, but will be submitted later for consideration and agreement at the conference. They will deal with all questions of verification, including in particular, the following:

- international co-operation for seismic and atmospheric data acquisition and analysis.
- installation of special seismic detection networks on the territory of the nuclear weapons States Parties to the Treaty,
- non-interference with national technical means of verification and non-use of concealment measures

- which impede verification by national technical means,
- on-site inspections, and
- a permanent consultative mechanism to consider questions of compliance and ambiguous situations.)

ANNEX

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 conference of the Non-Proliferation Treaty and of the 1995 conference that will decide on the Treaty's extension. To this end, 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, parliamentarians, 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 a dozen 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 meets approximately twice a year. Between meetings they seek to keep in touch, inter alia, through a **Newsbrief** which contains information on the work of non-governmental groups in related areas, highlights topical developments of interest to the Programme, features extracts of and references to press reports on relevant issues and draws attention to publications and articles on the topic of nuclear proliferation and on steps that are being taken, or that might be taken, to deter it.

The **Newsbrief** was initially conceived principally 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 he considers to be relevant to the aims and activities of the Programme. Given its general nature, however, the Core Group has felt that the **Newsbrief** could play a useful part in the outreach effort which constitutes a major element of the Programme. Accordingly, the **Newsbrief** is 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. It is meant to supply its readers with material that might help them in alerting their respective environments to the issue of nuclear non-proliferation and inform them about developments in that context.

The **Newsbrief** is published as part of the Programme for Promoting Nuclear Non-Proliferation of 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.

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