NEXT MEETINGS OF IAEA BOARD

The 35-member IAEA Board of Governors is scheduled to meet twice in September 1998, once before and then once after the IAEA General Conference. Meetings are scheduled to begin on 14 September and 28 September, respectively. The Agency's strengthened safeguards system is one item expected to receive the Board's further consideration.

At its mid-year session ending 12 June 1998, the Board approved six more Additional Protocols (which contain new measures for strengthened safeguards) and one safeguards agreement recently concluded with the IAEA. The Additional Protocols are with the United States; with Canada; with Ghana; between the 13 non-nuclear weapon States of the European Union, the European Atomic Energy Community (Euratom), and the IAEA; between France, Euratom, and the IAEA; and between the United Kingdom, Euratom, and the IAEA. The safeguards agreement is between France, Euratom, and IAEA pursuant to the obligations of France under Additional Protocol I of the Treaty of Tlatelolco.

The Board's action brought to seven the total number of Additional Protocols it has approved this year. At its meetings in March 1998, the Board had approved an Additional Protocol with Jordan. Additionally, seven States previously have concluded and signed Additional Protocols with the IAEA. They are Armenia, Australia, Georgia, Lithuania, Philippines, Poland, and Uruguay.

IAEA Board Chairman , Ambassador Ikeda of Japan.

IAEA Director General Mohamed ElBaradei said that he was encouraged by the momentum that had been built up, and that he expected more Additional Protocols to go before the Board in September. He noted in June that the Secretariat has held or is moving forward with consultations with a large number of States. The Additional Protocol contains strengthened measures for use by IAEA inspectors who verify States' compliance with their commitments not to produce nuclear weapons.

Among other actions in June, the Board approved the Agency's regular budget for 1999 — which calls for expenditures of about US $219.3 million for Agency programmes and represents a real reduction of 0.1% compared with the 1998 budget — and reviewed the implementation of IAEA safeguards in 1997. (*See item, next page.*)

1998 SESSION OF IAEA GENERAL CONFERENCE OPENS IN VIENNA

The 42nd regular session of the IAEA General Conference is scheduled to open 21 September 1998 in Vienna, with sessions scheduled throughout the week.

Delegates from the IAEA's 127 Member States will be considering a range of topics on the peaceful development of nuclear technologies. They include those related to measures for further strengthening the Agency's programmes in areas of nuclear, radiation, and waste safety; technical cooperation; and the safeguards system. Also before the Conference for approval is the IAEA's regular budget for 1999 (about US $219.3 million for IAEA programmes); Member States additionally will be asked to accept and make pledges to the 1999 Technical Cooperation Fund.

Other items on the provisional agenda include measures against illicit trafficking in nuclear materials and other radioactive sources; implementation of the safeguards agreement with the Democratic People's Republic of Korea; implementation of UN Security Council resolutions relating to Iraq; application of IAEA safeguards in the Middle East; and plans for the production of potable water economically.

Also planned is a scientific programme with the theme of nuclear energy in relation to water resources and the marine environment, as well as parallel sessions on specific programmatic issues, including the traditional meeting of senior nuclear regulators.

More information about the General Conference, including documents and background reports, is available over the IAEA's *WorldAtom* Internet services at http://www.iaea.org

IMPLEMENTATION OF IAEA SAFEGUARDS IN 1997

The IAEA has reported its implementation of safeguards last year.

In 1997, the IAEA Secretariat did not find any indication of the diversion of nuclear material, or of the misuse of any facility, equipment or non-nuclear material, which had been declared and placed under safeguards. All the information available to the Agency supports the conclusion that the nuclear material and other items which had been declared and placed under Agency safeguards remained in peaceful nuclear activities or were otherwise adequately accounted for. However, the Agency is still unable to verify the initial declaration made by the Democratic People's Republic Korea (DPRK), and the DPRK continues to be in non-compliance with its NPT safeguards agreement.

The safeguards system is one element of the international effort to prevent the proliferation of nuclear weapons. The Agency carries out most of its inspections and other safeguards activities under agreements concluded pursuant to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The Treaty requires each non-nuclear-weapon State party to it to declare and submit to Agency safeguards all the nuclear material in all peaceful nuclear activities carried out within the territory of the State, under its jurisdiction or under its control anywhere. Comparable provisions are to be contained in safeguards agreements pursuant to the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Tlatelolco Treaty), the South Pacific Nuclear Free Zone Treaty (Rarotonga Treaty), the Agreement between the Republic of Argentina and the Federative Republic of Brazil for the Exclusively Peaceful Use of Nuclear Energy (Guadalajara Declaration), the Treaty on the Southeast Asia Nuclear Weapon Free Zone (Bangkok Treaty), and other comprehensive safeguards agreements.

In some States which are not party to any of these instruments, the Agency applies safeguards under agreements which specify nuclear material, and/or non-nuclear material (e.g. heavy water, zirconium tubes), facilities and equipment to be verified. The Agency also applies safeguards to nuclear material in the nuclear weapon States under what are called "voluntary offer agreements".

At the end of 1997, safeguards agreements were in force with 135 States (and Taiwan, China). Of these, 68 States (and Taiwan, China) had declared nuclear activities and were being inspected, the majority under comprehensive safeguards agreements. Safeguards were also being implemented in four States with safeguards agreements covering specified nuclear or non-nuclear material, facilities or equipment and at designated installations in the five nuclear weapon States.

There were 931 nuclear facilities and other locations which contained nuclear material and were subject to Agency safeguards at the end of 1997. Of these, 602 were inspected at least once in 1997. A total of 2499 inspections were carried out, requiring 10,240 person-days of inspection effort. Inspections focused primarily on activities and locations involving the production, processing or storage of nuclear material from which nuclear weapons could be readily manufactured.

The expenditure from the safeguards regular budget for 1997 was US $82,391,000. In addition, extrabudgetary funds of US $19,412,000 were contributed by seven Member States. The provision by several Member States of extrabudgetary funds for equipment procurement helped to alleviate previous shortages of instruments and facilitated the replacement of some obsolete equipment. In the areas of research and development and implementation support, the Department of Safeguards benefited from the 15 technical support programmes of Member States and the European Atomic Energy Community.

Major events of 1997 were related to:

Strengthening of Safeguards. In May 1997, the Board approved the text of a Model Protocol additional to safeguards agreements, which marked the culmination of the Secretariat's development programme (Programme 93+2) for strengthening the effectiveness and improving the efficiency of the safeguards system. By the end of the year, an Additional Protocol had been approved for one State (Lithuania), signed by six States (Armenia, Australia, Georgia, Philippines, Poland and

Uruguay), and had entered into force for Australia. One State (Armenia) was implementing the Protocol provisionally pending entry into force. The Department of Safeguards, under an Action Plan, made preparations to implement the Additional Protocol. One of the first actions completed was the development of guidelines for the submission of information, pursuant to Articles 2 and 3 of the Protocol, which would constitute a State's expanded declaration.

DPRK. The Agency has maintained a continuous inspector presence in the Nyongbyon area in the DPRK since May 1994. Since November 1994, the Agency has been monitoring a "freeze" on the DPRK's graphite-moderated reactors and related facilities. A number of safeguards measures, such as monitoring waste at the Radiochemical Laboratory (reprocessing plant) and measurements to determine the plutonium content of the spent fuel at the 5MWe reactor, were not accepted by the DPRK. Canning of the spent fuel rods at the 5 MWe reactor will be completed in Spring 1998. There was still no progress in the discussions with the DPRK on the preservation of information that the Agency deems necessary for verification of the completeness and correctness of the DPRK's initial declaration.

Iraq. The Agency continued to investigate aspects of Iraq's clandestine nuclear weapons programme and also to implement its plan for the ongoing monitoring and verification of Iraq's fulfilment of its obligations in compliance with relevant Security Council resolutions, and embarked upon a programme to enhance the technologies utilized in that plan. In October-November 1997, the Agency and the UN Special Commission (UNSCOM) suspended their monitoring activities for a 23-day period as a result of an attempt by Iraq to impose conditions on the composition of the teams. In its October 1997 progress report to the Security Council, the Agency provided an overview of activities completed since May 1991 in connection with its on-site inspections of Iraq's nuclear weapon-related assets and the actions taken by the Agency to destroy, remove and render harmless those assets. In the same report, the Agency recorded that it had formed a technically coherent picture of Iraq's clandestine nuclear programme and stated that there were no indications of significant discrepancies between that picture and the information contained in Iraq's Full, Final and Complete Declaration of 7 September 1996, as supplemented by the written revisions provided by Iraq since that time. *(Also see related item, this page.)*

Verification of Weapons Origin Material. Following the launching — in September 1996 — of the trilateral initiative relevant to Agency verification of weapons-origin fissile material in the United States of America and the Russian Federation, representatives of the Agency and these two States continued to review the technical, legal and financial issues associated with such verification.

NUCLEAR VERIFICATION IN IRAQ

On 1 June 1998, an essay by IAEA Director General Mohamed ElBaradei appeared in the *Washington Post*, the US daily newspaper published in Washington, DC. The text follows:

"News stories have been circulating that the International Atomic Energy Agency (IAEA) is about to issue Iraq a clean bill of health and to close the nuclear file. Nothing could be further from the truth.

Following the Gulf War, the Security Council entrusted the IAEA with the task of neutralizing Iraq's nuclear weapon programme, while entrusting a Special Commission established under the aegis of the Security Council (UNSCOM) to do the same with regard to Iraq's chemical and biological weapons and long-range missile systems. With this mandate the Council also provided the IAEA and UNSCOM with very broad rights of investigation and inspection, rights vastly more far-reaching than those available to the IAEA prior to the Gulf War when inspections did not detect Iraq's clandestine nuclear programme.

With respect to the 'nuclear file' a number of issues are being raised and debated. Does Iraq still possess nuclear weapons or weapon-usable nuclear material? Does Iraq still retain the practical capability,

i.e. the scientific and engineering hardware, to produce dangerous amounts of weapon-usable nuclear material? The IAEA's answer to these questions, after seven years of investigation and inspection is that there are 'no indications' that Iraq retains the material or practical capability to produce nuclear weapons, but it must be understood that 'no indication' is not the same as 'no existence'. This is because no matter how comprehensive the inspection, there is always a degree of uncertainty in any country-wide verification process, whether in Iraq or anywhere else, that aims to verify the absence of readily concealable objects such as small amounts of nuclear material or weapons components.

In saying that there are at present no indications that Iraq has nuclear weapons, weapon-usable nuclear material or the practical capabilities to produce them, the IAEA has relied on its intensive and wide-searching investigation and inspection, which over time enabled the Agency to develop a coherent picture of Iraq's clandestine nuclear programme, and to neutralize it through the destruction, removal or rendering harmless of all weapon-related items that came to its knowledge.

Because we need continuing reaffirmation that we have in fact neutralized the past programme and that it will not be reconstituted, we have introduced, with the approval of the Security Council, an equally comprehensive and vigorous ongoing monitoring and verification (OMV) regime that aims to detect any indication of Iraq continuing or rebuilding its nuclear weapons programme.

The OMV regime has the twin objectives of checking that Iraq's known technical and industrial assets are not used for prohibited purposes and, perhaps more importantly, searching, on a country-wide basis, for indications of any prohibited activities. Monitoring inspections are intrusive and involve access to any and all facilities, including industrial sites, scientific establishments and universities, and the use of sensitive environmental sampling and analysis techniques anywhere in Iraq. The OMV regime employs all the technical tools used in the mapping out of the clandestine programme and retains the right to investigate and neutralize any aspect of the past programme that might still be discovered. It is predicated on the assumption that Iraq has the technical ability to design and construct a nuclear weapon and takes into account the large intellectual resource which exists in Iraq in the corps of scientists and engineers which worked in Iraq's clandestine nuclear programme. The IAEA is cognizant of the technical challenge to the OMV regime that would result if Iraq were to directly acquire weapon-usable nuclear material from abroad.

The discussion about the IAEA issuing to Iraq a clean bill of health in preparation for the closure of the nuclear file runs counter to the nature of IAEA verification and generates misunderstanding about its continuing character. Progress in neutralizing the clandestine progamme does not mean an end to inspection. It simply means shifting gears to ensure not only that the past programme has been neutralized, but also that it is not being revived.

In the same vein, a future determination by the Security Council that Iraq has satisfied the requirements for lifting the oil embargo would not bring the monitoring and verification regime to an end. The monitoring and verification regime will continue to operate unabated until, acting in accordance with its responsibility for the maintenance of international security, the Security Council determines otherwise."

MISSION TO IRAQ

Mr. Garry Dillon, Leader of the IAEA's Iraq Action Team, accompanied by two members of the IAEA team, met with Iraqi officials on five occasions during the period 29 June to 2 July 1998.

The discussions sought to clarify a number of questions and concerns regarding Iraq's clandestine nuclear programme. They covered such matters as the documentation of Iraq's abandonment of its nuclear weapons programme, the extent of external assistance to that programme, and some technical aspects of the IAEA ongoing monitoring and verification plan. The IAEA delegation also met with Iraq's Deputy Prime Minister, Mr. Tariq Aziz.

Results of discussions will be included in the next report of IAEA Director General Mohamed ElBaradei to the Security Council, which was scheduled for the end of July 1998.

CONFERENCE EXAMINES RESULTS OF RADIOLOGICAL STUDY

An International Conference on the Radiological Situation at the Atolls of Mururoa and Fangataufa at the Vienna International Centre from 30 June to 3 July 1998 scrutinized the results of a recent Study on the radiological conditions at the atolls.

The atolls, narrow rims of coral reef jutting a few meters above the ocean and located in French Polynesia in the middle of the South Pacific, were the site of nearly 200 nuclear tests carried out by France from 1966 until January 1996, when all French nuclear testing ceased. The Government of France requested the IAEA to undertake the Study in 1995. The IAEA in turn set up an International Advisory Committee of eminent scientists from various countries to supervise the Study. Fifty-five experts external to the IAEA and 18 scientific laboratories co-ordinated by the IAEA's two laboratories in Seibersdorf, Austria, and Monaco, participated in the assessment. In total, 22 States and three international organizations were involved in the Study.

Scope of Study. The Study was prospective in nature, i.e. it assessed the present radiological situation after the cessation of testing at the atolls, and the expected future consequences. However, the Study also summarized the extensive retrospective assessments of the past consequences of the nuclear testing era made by the United Nations Scientific Committee on the Effects of Atomic Radiation UNSCEAR) at the time of testing.

Sampling Campaign. The Study conducted a comprehensive sampling and surveillance campaign to determine the levels of residual radioactive materials in the terrestrial and aquatic environments of the atolls. It also estimated the radioactive materials present underground beneath the atolls and assessed the potential movement of these materials through the geological formations into the atoll lagoons and directly into the surrounding seawaters, and their dispersion throughout the South Pacific Ocean.

Campaign's Findings. A main finding of the Study's sampling and surveillance campaign is that concentrations of residual radioactive material present in the accessible environment of the atolls are in general very low. However, the Study also noted that there were several kilograms of residual plutonium in the sediments in the lagoon of each atoll; that particles containing plutonium were present on three islets of the Mururoa Atoll; and that levels of caesium-137 were somewhat elevated in small areas of the Fangataufa Atoll. However, the Study found that all these residual radioactive materials were of little radiological significance.

Through an independent assessment, the Study also found that a large amount of residual radioactive material remains deep in the rocks beneath the atolls and predicted its future migration through the geosphere. Moreover, the consequences of several major hypothetical disruptive events were also assessed. The most significant event considered was a major rock slide exposing the underground cavities where nuclear tests took place and causing a sudden release of radioactive materials into the ocean. Regional and large-scale modelling was subsequently applied to assess the potential dispersion and dilution through the South Pacific Ocean of all radioactive material assumed to be released from the atolls. The hypothetical potential radiation dose for future populations in the South Pacific was estimated and found to be a negligible fraction of the natural background dose that people from the region will unavoidably incur.

Main Conclusions. The Study therefore concluded that there will be no radiological health effects which could be either medically diagnosed in an individual or epidemiologically discerned in a group of people and which could be attributable to radiation doses from the residual radioactive material remaining at the atolls.

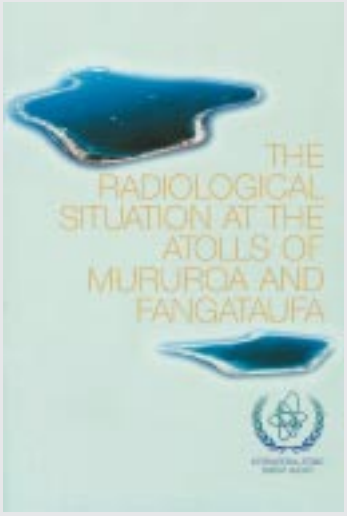
The Study also assessed the implications of residual radioactivity in the lagoons for the local animal and plant life and concluded that no effects on marine ecosystems would arise.

The Study concluded therefore that neither remedial actions nor continuing environmental monitoring at Mururoa and Fangataufa are needed on radiological protection grounds. However, the Study noted that the French Government plans to

continue some environmental monitoring at the atolls, and suggested that there could be scientific interest in supplementing this programme by additional monitoring of the underground migration of certain radionuclides and that the environmental monitoring programme may be useful in assuring the public about the continuing radiological safety of the atolls.

A summary of the Study's findings, conclusions and recommendations was presented during the first week of June to the South Pacific Forum (a regional organization of 15 South Pacific countries) in Suva, to representatives of the Forum's member states in Nandi, and to people and authorities of French Polynesia in Faa'a. The Executive Summary of the Study was presented to the IAEA Board of Governors at its June 1998 meeting; the Board requested its transmission to the IAEA General Conference in September 1998.

Several reports arising from the Study were tabled at the international Conference: a Main Report, which incorporates an Executive Summary; a Technical Report in six volumes *(Radionuclide Concentrations Measured in the Terrestrial Environment of the Atolls; Radionuclide Concentrations Measured in the Aquatic Environment of the Atolls; Inventory of Radionuclides Underground at the Atolls; Releases to the Biosphere of Radionuclides from Underground Nuclear Weapon Tests at the Atolls; Transport of Radioactive Material within the Marine Environment; and Doses due to Radioactive Materials Present in the Environment or Released from the Atolls).* The reports comprise a total of nearly 2000 pages of technical material; also issued was the 90-page Summary Report.



The Conference was directed at the general scientific community. Invited papers by participants in the Study were presented at the Conference, and time was allowed for counter-arguments and discussion, both during sessions and in a Round Table. Decision-makers, advisors, government officials and policy makers having administrative responsibilities in areas involving radiation protection participated in Conference sessions. The Conference proceedings — which will contain a record of the discussion, and an overall summary of the views and conclusions arising from the Conference — will be published by the IAEA over the coming months. More information may be obtained from the IAEA Division of Publications or the Agency's Conference Services.

Photo: Alongside the study's technical reports, the IAEA issued a public information booklet summarizing the Study's main findings and recommendations.

LATEST EDITION OF URANIUM "RED BOOK" ISSUED

The latest status and projections related to world uranium requirements and supplies have been issued. *Uranium Resources, Production and Demand* — known as the "Red Book" — provides official information from 59 countries, including the first-ever official reports on uranium production in Estonia, Mongolia, the Russian Federation, and Uzbekistan.

The book is jointly prepared by the IAEA and Nuclear Energy Agency (NEA) of the Organization for Economic Cooperation and Development.

The report notes that world uranium production increased to 36,000 tonnes-uranium in 1996, up 9% from 1995. In 1996, twenty-three countries produced uranium, with the ten major producers accounting for about 90% of the output. The annual reactor-related uranium requirements for the world's nuclear power plants in 1996 were estimated at about 60,500 tonnes of natural uranium equivalent. They are projected to increase by 2000 tonnes or more through the period 2015.

More information may be obtained from the NEA, Le Seine St. Germain, 12, boulevard des Îles, 92130 Issyles-Moulineaus, France.

INTERNATIONAL CONVENTIONS

More States are joining international conventions that have been adopted under auspices of the IAEA.

■ **Convention on Nuclear Safety.** In 1998, four more countries – Italy (15 April 1998, ratified), Portugal (20 May 1998, ratified), the Republic of Moldova (7 May 1998, acceded), and Ukraine 8 April 1998, ratified) – have agreed to be bound by the Convention. As of early July, the Convention had sixty-five Signatories and forty-six Parties.

■ **Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.** In 1998, ten more States have signed and three States have ratified the Convention. They are Canada (7 May 1998, signed and ratified), Croatia (9 April 1998, signed), Denmark (9 February 1998, signed), Greece (9 February 1998, signed), Hungary (2 June 1998, ratified), Italy (26 January 1998, signed); Norway (12 January 1998, ratified), Peru (4 June 1998, signed), Philippines (10 March 1998, signed), and Spain (30 June 1998 signed). As of early July, thirty-four States had signed the Convention and three States had become Parties.

■ **The Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage.** As of early July, thirteen States have signed the Protocol. They are Argentina, Czech Republic, Hungary, Indonesia, Italy, Lebanon, Lithuania, Morocco, Peru, the Philippines, Poland, Romania, and Ukraine.

■ **The Convention on Supplementary Compensation for Nuclear Damage**. As of early July, thirteen States have signed the Convention. They are Argentina, Australia, Czech Republic, Indonesia, Italy, Lebanon, Lithuania, Morocco, Peru, the Philippines, Romania, Ukraine, and United States.

■ **Vienna Convention on Civil Liability for Nuclear Damage.** In 1998, Belarus deposited an instrument of ratification (9 February 1998), and Bosnia and Herzegovina an instrument of succession (30 June 1998, with effect from 1 March 1992), bringing the total number of Parties to thirty States.

■ **Convention on the Physical Protection of Nuclear Material.** In 1998, Uzbekistan deposited an instrument of accession, and Bosnia and Herzegovina an instrument of succession (30 June 1998, with effect from 1 March 1992), bringing the total number of Parties to sixty-two States.

■ **Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency.** In late 1997, Singapore acceded to the Convention (15 December 1997), and in 1998 Bosnia and Herzegovina deposited an instrument of succession (30 June 1998, with effect from 1 March 1992), bringing the total number of Parties to seventy-seven States.

■ **Convention on Early Notification of a Nuclear Accident.** In late 1997, Singapore acceded to the Convention (15 December 1997) and in 1998 Bosnia and Herzegovina deposited an instrument of succession (30 June 1998, with effect from 1 March 1992), bringing the total number of Parties to eighty-two States.

— For updated listings of the status of Conventions, visit the IAEA's WorldAtom Internet services at http://www.iaea.org. Click on "Nuclear Law/ Conventions" in the Quick Index.

ANNUAL REPORT FOR 1997

The IAEA Board has approved the Agency's *Annual Report for 1997,* which highlights the IAEA's achievements in the context of global developments relevant to the safe and peaceful use of nuclear energy.

The report reviews major IAEA programmes and includes tables and graphs related to financial resources and spending; safeguards agreements and safeguarded facilities; nuclear safety services; coordinated research projects; technical cooperation; and training courses, seminars, and workshops. Among other topics, the report notes the Agency's contributions to the UN systemwide objective of sustainable development in a number of fields, and toward the strengthening of the global framework for nuclear and radiation safety, including radioactive waste and transport safety.

The *Annual Report* is available from the Agency's Division of Publications. Additionally, it will be accessible in electronic form over the IAEA's *WorldAtom* Internet services at the address http://www.iaea.org

UPCOMING TOPICS OF IAEA MEETINGS

■ **28 September - 2 October 1998, Regional Seminar on Approaches and Practices in Strengthening Radiation Protection and Waste Management Infrastructures in Countries of Eastern Europe and the Former USSR,** Bratislava, Slovakia. Four subject areas are being examined: radiation protection, safe management of radioactive waste, safety of radiation sources, and the security of radioactive materials. Special emphasis will be placed on steps countries are taking to ensure consistency with the IAEA's Basic Safety Standards in the legislative and regulatory framework and in the practical application of radiation safety requirements. Among specific areas of discussion will be international cooperation through separate IAEA Model Projects for upgrading radiation protection infrastructures and for safely managing radioactive wastes. Discussions will cover important aspects of safety infrastructures that are of common regional interest, from managerial, technical, and economic perspectives in the context of national plans and programmes.

■ **5-9 October 1998 International Symposium on Marine Pollution,** Monaco. The Symposium symbolically takes place in the UN International Year of the Ocean and involves leading scientists in marine pollution and representatives from relevant UN bodies and other international organizations. It serves as an important forum for evaluating the state of the marine environment, defining the current scientific understanding of the impact of marine pollution and improving risk assessment approaches. Scientific and technical priorities for achieving those objectives will be identified. During the week, a ministerial meeting of Member States from the Black Sea region is being held, and IAEA technical cooperation in the region will be discussed. The Symposium is organized by the IAEA and co-sponsored by the Intergovernmental Oceanographic Commission (IOC) of UNESCO, the United Nations Environment Programme (UNEP), the International Maritime Organization (IMO). The new premises of the IAEA Marine Environment Laboratory in Monaco, the only marine laboratory in the UN family, will be officially inaugurated during the week.

■ **12-16 October 1998, International Seminar on Nuclear Power in Developing Countries: Its Potential Role and Strategies for its Deployment,** Mumbai, India. The Seminar brings together experts and policy-makers from industrialized and developing countries, the nuclear industry, and international organizations to examine the role of nuclear power in meeting the growing demand for electricity in the developing world, and to identify suitable ways and means for proper implementation of nuclear power programmes there. Five key issues will be emphasized: the need and role of nuclear power in developing countries; financing aspects of nuclear power programmes; technology transfer and localization; regulatory requirements; and public information.

■ **19-24 October 1998, 17th IAEA Fusion Energy Conference,** Yokohama, Japan. This Conference examines advances in the scientific understanding of plasma physics and the results from large experimental devices intended to demonstrate the feasibility of the fusion energy option in the long term. Also being reviewed are changes in the strategies of some national research programmes and progress through international activities since the last Fusion Energy Conference in Montreal in 1996.

■ **2-5 November 1998, International Symposium on Techniques for High-Dose Dosimetry in Industry, Agriculture and Medicine,** Vienna, Austria. The Symposium will cover the whole spectrum of research, development and use of dosimetry in diverse radiation applications. Several international and regional organizations have developed guidelines, standard practices, and protocols for various radiation techniques, especially for validation of the process and for achieving a high degree of quality. Radiation dosimetry can assist in providing quality assurance and serve as the foundation for the safe use of radiation for a range of applications in industry, agriculture and medicine.

■ **9-13 November 1998, International Symposium on Storage of Spent Fuel from Power Reactors,** Vienna, Austria. The total amount of spent fuel accumulated from nuclear power plant operations is projected to keep rising in years ahead, and countries are considering various technologies for its storage. While spent fuel can be safely stored for decades, greater attention is being given to expanding interim storage facilities as spent fuel is being stored for longer time periods than once anticipated. The first geological repositories for the final disposal of spent fuel, for countries considering that option, are not expected to be in operation before the year 2010. The Conference will review national approaches and plans with an emphasis on safety, engineering, and environmental aspects.

■ **30 November - 4 December 1998, International Symposium on Evolutionary Water-Cooled Reactors: Strategic Issues, Technologies and Economic Viability,** Seoul, Republic of Korea. Water-cooled reactors are the dominant type of nuclear power plants throughout the world, and technological advances are being made to achieve certain improvements. These "evolutionary" types of reactors are being developed in a number of countries. This Symposium will examine developments in the field since 1993, when the IAEA organized an international symposium on advanced reactors in Seoul. On the agenda are topics related to design objectives and safety approaches, strategies for deployment, and possibilities for international cooperation.

■ **30 November - 4 December 1998, International Seminar on Safeguards Information Reporting and Processing,** Vienna, Austria. The subject of this Seminar will be discussed as it relates to safeguards agreements and to the trafficking of nuclear materials. Member States or organizations report or are making preparations to report information pursuant to safeguards agreements and efforts also are in progress to provide information on incidents related to the trafficking of nuclear material. The IAEA has undertaken to implement systems for collecting, maintaining and processing such information. Specific topics on the agenda include State Systems of Accounting for and Control of Nuclear Material; the Additional Protocol to safeguards agreements; and reporting on the trafficking of nuclear material.

—More information about these and other IAEA meetings may be obtained from the Conference Service Section or by visiting the IAEA's WorldAtom Internet services at www.iaea.org

STATEMENTS OF IAEA DIRECTOR GENERAL

Over the past months, IAEA Director General Mohamed ElBaradei has presented invited addresses in a number of countries.

The topics and venues include:

■ ***Nuclear Technology and the Role of the IAEA,*** presented at the Ninth International Conference on Emerging Nuclear Energy Systems, Tel Aviv, Israel, 28 June 1998.

■ ***IAEA Activities in Nuclear Safety,*** presented at the Spanish Nuclear Safety Council, Madrid, Spain, 28 May 1998.

■ ***The Control of Nuclear Proliferation: Future Challenges,*** presented at the Swedish Institute of International Affairs, Stockholm, Sweden, 23 April 1998.

■ ***The Safe and Peaceful Use of Nuclear Energy – an IAEA Perspective,*** presented at the German Association for Foreign Policy, Bonn, Germany, 17 April 1998.

The Director General's upcoming public statements include his address in September at the IAEA General Conference in Vienna, and his scheduled statement to the UN General Assembly in New York later this year.

—The full texts of the statements are accessible over the IAEA's WorldAtom Internet services at http://www.iaea.org. Click the item "DG Statements" in the Quick Index on the front page.

■ **The IAEA's Marine Environment Laboratory has moved to new premises in Monaco.** The new address is IAEA-MEL, 4, Quai Antoine 1er, B.P. 800, MC 98012 Monaco Cedex. The new telephone number is +377-9797-7272 and the new fax number is +377-9797-7273.

■ **Benin is set to become the IAEA's 128th Member State.** The application of Benin for membership of the IAEA was endorsed by the Agency's Board of Governors in June 1998. It now goes before the IAEA General Conference for approval in September 1998.

■ **The IAEA has announced additional new appointments.** They are ***Mr. Nikolai Khlebnikov***, from the Russian Federation, as Director of the Division of Technical Services, Department of Safeguards; ***Mr. Adnan Shihab-Eldin,*** from Kuwait, as Director of the Division for Africa, East Asia and the Pacific, Department of Technical Cooperation; and ***Mr. Verasak Liengsririwat,*** from Thailand, as Director of the Office of Internal Audit and Evaluation Support, Office of the Director General.

■ **Cooperative activities of Argentina and Brazil cooperative in the field of safeguards are highlighted in a recent annual report.** The *Annual Report for 1997* of the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC) reviews the body's activities last year, and provides brief overviews of achievements over the past five years. The report may be obtained from ABACC, Av. Rio Branco, 123, grupo 515, 20040-005, Rio de Janeiro, RJ Brazil. The e-mail is postmaster@abacc.org.br and the Internet Web site is http://www.abacc.org.

■ **A new book critically examines nuclear energy prospects from the standpoint of safety and radiation issues.** *Commercial Nuclear Power — Assuring Safety for the Future* particularly focuses on topics and issues raised in the public debate about nuclear and other energy technologies. Written by Charles B. Ramsey and Mohammad Modarres, the 508-page book covers energy and electricity generation; health and environmental effects; control and safety systems; accident prevention; safety levels, goals, and assessments; impediments to accident prevention; nuclear fire protection; nuclear plant maintenance; safety management; regulatory oversight; and accident investigation. It concludes with the text of the high-level declarations that were made at the April 1996 Moscow Nuclear Safety and Security Summit by the leaders of nine nations that use nuclear technology. An appendix features forecasts of international electricity demand and usage. *(publisher John Wiley & Sons, Inc.; requests may be addressed to the firm at 605 Third Avenue, New York, NY 10158-0012. The fax is +212-850-6008. E-mail: permreq@wiley.com).*

CORRECTION

A mistake appeared in a recent *IAEA Bulletin* article, "Comparing Energy Options: The Inter-Agency Decades Project" (Vol. 40, No.1, English edition, 1998).

In the graph on page 4 entitled "Investment Costs at Power Plant Level", the values should be expressed in US$ per kilowatt-electric. The correct graph appears here.

The editor regrets the error and any inconvenience it may have caused readers.