The Year in Review

In the past year a number of world events presented significant challenges for the International Atomic Energy Agency. In the area of nuclear non-proliferation, the Agency has been at the centre of attention and has demonstrated its ability to perform effective and credible inspections. It was also the year of the 50th anniversary of the "Atoms for Peace" speech delivered to the United Nations General Assembly by US President Dwight D. Eisenhower, in which he offered a vision that would enable humanity to make full use of the benefits of nuclear energy while minimizing its risk, a vision that led to the establishment of the Agency. It was a year of notable successes for the Agency in its efforts to ensure that the benefits of nuclear technology were shared globally for economic and social development.

This review highlights some of the major issues and challenges that faced the Agency — and the international community — during the year, while presenting a look forward at emerging trends.

Technology

Maintaining the continuity of nuclear knowledge and skills

Since the late 1980s, nuclear electricity generation has grown at about the same rate as overall global electricity generation, i.e. about 2.5% per year. However, this is well below its rapid expansion in the 1970s and early 1980s, and many universities — and governments — have now reduced or eliminated their support for the study of nuclear science and engineering. The need to manage the large number of existing nuclear facilities including licence extensions, and also introduce a new generation of plant designs has prompted a growing awareness among Member States of the necessity for succession planning in the nuclear industry, to ensure that a new generation of younger people with the proper education and skills can replace the ageing nuclear workforce.

Responding to this situation, the Agency has made the preservation of nuclear knowledge a high priority, cross-cutting activity involving all of its programme areas. For example, a pilot project was set up in 2003 to establish an inventory of fast reactor data and knowledge to support future work in this area. In terms of education, the focus has been on guidance in support of university level nuclear education. The Agency — together with the OECD/NEA, the World Association of Nuclear Operators and the World Nuclear Association — supported the founding of the World Nuclear University (WNU) in September 2003. With time, the WNU should become a coordinating body for studies to assess the nuclear training and education needs of participating countries. The formulation of standardized course content and curricula, and the development of Internet based and other distance learning modes are other areas of future work.

Nuclear energy: A status report

Nuclear power supplied 16% of global electricity generation in 2003. At the end of the year there were 439 nuclear power plants in operation around the world. Their global energy availability factor rose from 74.2% in 1991 to 83.7% in 2002. In 2003, two new plants were connected to the grid, in China and the Republic of Korea, and Canada restarted two units that had been shut down. Construction began on one new power plant, in India. Four units in the United Kingdom were retired, as was one each in Germany and Japan.

Knowledge Management, Education and Networking

The Agency continued to seek creative methods and techniques in education, training and process driven applications to ensure that the knowledge, skills and abilities from the current generation of experienced nuclear professionals are transferred effectively to the work force of the future.

Prominent examples included the setting up, within the framework of the Agency's technical and scientific programmes, of the Asian Network for Education in Nuclear Technology, the Asian Network for Nuclear Safety and the Ibero-American Radiation Safety Network. The first two are entering full operation in 2004 and the third was launched during the General Conference by Spain and will be closely associated with the activities of the Ibero-American Forum of Nuclear Regulators.

Asia continues to be the centre for expansion and growth prospects. Thus, 20 of the 31 reactors under construction are located in this region. In fact, 19 of the last 28 reactors to be connected to the grid are in the Far East and South Asia.

In Western Europe, capacity has remained relatively constant despite nuclear phase-outs in Belgium (which passed a phase-out law in January 2003), Germany and Sweden. The most advanced planning for new nuclear capacity was in Finland, where in 2003 the utility Teollisuuden Voima Oy selected Olkiluoto as the site for a fifth Finnish reactor, and signed a contract for a 1600 MW(e) European PWR.

During 2003, the Russian Federation continued its programme to extend licences at 11 nuclear power plants. Specifically, the Russian nuclear regulatory body, Gosatomnadzor, issued a five-year extension for the Kola-1 plant. Bulgarian regulators issued a new ten-year licence for Kozloduy-4, the first long term licence in Bulgaria, and later issued a similar eight-year extension for Kozloduy-3. Romania, where licence extensions are required every two years, approved an extension for the Cernavoda plant to 2005.

In the USA, the Nuclear Regulatory Commission (NRC) approved nine licence extensions of 20 years each (for a total licensed life of 60 years for each nuclear power plant), bringing the total number of approved licence extensions to 19. It also approved the uprating of eight units. Three companies applied for the NRC's new early site permits, which can be reserved for future use. In Canada, near term expansion has involved the restarting of some of the nuclear units that have been shut in recent years. The first two such restarts took place in 2003. Meanwhile, licences have been extended for four units to 2005, and for eight units until 2008.

Evolutionary and innovative approaches

The future viability of nuclear power is dependent not only on resolving issues of economics, safety and security, waste management and proliferation resistance, but also on the development of innovative technologies that can enhance the positive aspects of this energy source. International efforts on the development of evolutionary and innovative reactor and fuel cycle designs include work by 20 Member States on national and international projects in these areas. To encourage the sharing of information and exchange of experience, the Agency convened an international conference in June on innovative technologies for the nuclear fuel cycle and for nuclear power.

Complementing the many national initiatives are two major international efforts to promote innovation — the Generation IV International Forum (GIF) and the Agency's International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO). In 2002, GIF selected six concepts for international collaborative R&D and, in 2003, made progress on establishing the management and oversight structure for subsequent work and specific cooperative R&D agreements. In June 2003, INPRO published a report defining user requirements in five areas — economics, environmental impacts, safety, waste management and proliferation resistance — for incorporation into nuclear R&D projects. It also provided an assessment method for applying these requirements to specific innovative nuclear concepts and designs; this method is currently being tested by INPRO participants.

Spent fuel storage and waste management

The management and disposal of spent fuel and radioactive waste continue to be a critical issue, not only in terms of the public acceptance of nuclear technology but for any planned expansion of nuclear energy in the future. A number of new issues have also arisen in discussions on waste disposal. For example, at an Agency conference in Vienna in June on the storage of spent fuel from power reactors, a number of Member States expressed the wish to extend spent fuel storage times to 100 years and longer, as a result of delays in repository disposal programmes, lack of resources, uncertainties over whether to treat spent fuel as waste or a resource, lack of public acceptance of disposal, and lack of political will in moving forward on repository siting and construction. These States are also interested in ensuring the future retrievability of waste to ensure that there is a sufficient degree of flexibility in the options available to them.

Progress continued to be made in 2003 on the Yucca Mountain repository in the USA, the Olkiluoto repository in Finland and the site selection process for a final repository in Sweden, all for the disposal of spent fuel and high level waste. In January 2003, the European Commission adopted a set of legislative proposals that included proposed directives on European Union wide nuclear safety and radioactive waste rules, with priority given to geological waste disposal. However, in November the EU Council formally deferred further consideration of these proposals to 2004. In the Russian Federation, legislation was passed to facilitate Russia's cooperation with other countries regarding the storage of spent fuel.

A notable development during the year was the opening of the HABOG storage facility in the Netherlands with a planned 100-year operational life; the involvement of the local population, particularly in the design of the facility, played a large part in the successful inauguration of this facility. The commissioning of the French Morvilliers near surface disposal facility, for the disposal of very low activity radioactive waste primarily from decommissioning activities, was another major development.

Current research reactor concerns

For over 50 years, research reactors have made valuable contributions to the development of nuclear power, basic science, materials development, radioisotope production for medicine and industry, and education and training. Of the total of 671 research reactors built or planned, 272 are still operational in 56 countries, 214 are shut down, 168 have been decommissioned and 17 are planned or under construction. Many of those that are shut down, but not decommissioned, still have fuel — both fresh and spent — at the sites. The proper handling of this spent fuel and the management of radioactive waste continued to be areas of international concern, and Agency emphasis.

A notable international effort was the shipment of fresh high enriched uranium (HEU) research reactor fuel from Romania and Bulgaria to the Russian Federation under the aegis of the tripartite Russian Federation–USA–IAEA agreement. And at an Agency conference on research reactors, held in Santiago, Chile, in November, research reactor designers, users and regulators discussed ways to strengthen physical security, improve the sharing of expertise and enhance the Agency's research reactor safety assistance missions.

The future: Nuclear energy and sustainable development

Global socioeconomic development needs dictate that a large increase in the supply of energy will be required in coming decades. With regard to nuclear energy's role in supplying part of this energy requirement, the Agency in 2003 extended its medium term projections for nuclear energy up to the year 2030. The low projection was revised upward in 2003 and estimates a 20% increase in global nuclear generation until the end of 2020, followed by a decrease, resulting in global nuclear generation in 2030 that will be only 12% higher than in 2002. Nuclear power's share of global electricity generation is projected at 12% in 2030, compared with 16% in 2002.

In the high projection, global nuclear generation will increase steadily by a total of 46% by 2020 and by 70% by 2030. Increases are predicted in all regions, once again led by the Far East. However, overall electricity generation would increase even faster than nuclear power, causing nuclear power's share of overall electricity to decline. By 2030 the nuclear share would be down to 11%.

In general, no progress was made in 2003 on the Kyoto Protocol, which would help make nuclear power's avoidance of greenhouse gas emissions valuable to investors. The next round of major deliberations on energy and sustainable development is not scheduled until the 13th session of the United Nations Commission on Sustainable Development in 2006–2007.

Applications of nuclear technology

A large part of the Agency's work —in both the regular budget and the technical cooperation programme — is concentrated on non-power applications of nuclear technology. Many of these applications are gaining increasing importance as tools for social and economic development.

Nuclear techniques and food production

Induced mutations, created by gamma rays, X rays, fast neutrons or chemicals, have provided some major successes in plant breeding. In many cases new phenotypes have revolutionized the appearance of the crops, enhanced disease and pest resistance, and raised nutritional and processing quality. Important results have been achieved for various commercial crops. One example is the improvement in rice varieties; following trials for mutant varieties of rice in nine Asian Member States, many strains with good yields in different ecological conditions were identified. In Indonesia, Members of Parliament attended a harvesting ceremony to mark the positive economic impact of a rice variety produced using gamma rays that exhibits higher yield and better quality. Seven new varieties of rice are expected to be released in the region over the next three to five years. And in a regional technical cooperation project completed in 2003, new mutated germplasm was introduced in 12 countries in the Asia and Pacific region.

'Atoms for health'

According to WHO, the number of new cancer cases in the developing world will double to ten million annually by 2015 as a result of the increase in

Progress in Ensuring Food Quality

International standards are essential for facilitating trade in food and agricultural products between nations and for promoting food quality and safety within national boundaries. In this regard, the International Consultative Group on Food Irradiation (ICGFI), established under the aegis of the Agency, FAO and WHO in 1984, assists national authorities in harmonizing their national regulations on the basis of the Codex General Standard for Irradiated Foods.

Having fulfilled its mandate in establishing the safety and wholesomeness of irradiated foods and in finalizing international sanitary and phytosanitary standards related to irradiation, members of ICGFI at the 20th meeting in October 2003 in Geneva, decided to discontinue its work from May 2004. Future activities related to irradiation will continue to be undertaken by the Agency and other international organizations through existing mechanisms.

life expectancy and lifestyle changes. However, most developing countries do not have enough health professionals or radiotherapy machines to treat their cancer patients safely and effectively. In response, the Agency — by itself and working with other partners such as WHO — provided training, expert missions and equipment to support national and regional efforts to improve cancer therapy and other human health programmes. Across Africa, the number of cancer patients receiving treatment, often through Agency technical cooperation projects, has increased by approximately 35% over the past five years.

Building capacity is a key aspect of many Agency technical cooperation projects. In West Asia, five nuclear medicine courses were held to provide specialized training for more than 100 physicians and technologists. In addition, the first technetium-99m radiopharmaceutical kits, for use in Albanian hospitals, were produced locally in 2003. This was an important example of cost sharing and greater self-reliance, carried out under the auspices and support of the Agency's technical cooperation programme. At another level, information and communication tools were used to establish a 'tele-nuclear-medicine' link between Namibia, South Africa and Zambia that will facilitate remote diagnosis and treatment; another such link is being established among 15 countries in Latin America.

Managing the world's scarce resources of fresh water

More than one sixth of the world's population lives in areas without adequate access to safe drinking water — a situation that is expected to worsen significantly unless the international community takes prompt and effective action. Moreover, improving the availability of the world's water resources is of crucial importance for sustainable development. The use of isotopes in hydrology, based on the natural occurrence of isotopes in water, helps to provide rapid hydrological information for large areas at low cost.

The Agency has made substantive contributions to the 3rd World Water Forum held in Kyoto and chaired the session to launch the UN's first World Water Development Report. It has more than 80 technical cooperation projects, covering the mapping of underground aquifers, managing surface water and groundwater, detecting and controlling pollution, and monitoring dam leakage and safety. For example, a regional project in Latin America brought together more than 30 water institutes to address water shortages for seven aquifers in Chile, Colombia, Costa Rica, Ecuador and Peru. In Yemen, the Agency assisted with the assessment of the groundwater system in the region of the Sana'a Basin. African Member States have requested a number of projects related to shared aquifers, such as the sustainable development and equitable use of the common water resources of the Nile Basin, the Nubian Sandstone Aquifer, the Iullemeden Aquifer and the North Western Sahara Aquifer.

Member State efforts to explore the desalination of seawater using nuclear energy are also being supported by the Agency. At the Karachi Nuclear Power Plant in Pakistan, a reverse osmosis facility in service since 2000 has been producing about 450 cubic metres of fresh water per day. In India, at the Kalpakkam nuclear power plant, a desalination plant designed to produce 6300 cubic metres of fresh water per day is undergoing commissioning. And in the Republic of Korea a design has been developed for a nuclear desalination plant which would supply 40 000 cubic metres of fresh water per day and 90 MW of electricity.

Technical cooperation in developing countries: Sharing the costs of development

Promoting the scientific, technological and regulatory capabilities of developing countries through

technology transfer and capacity building, with special emphasis on technical cooperation between developing countries, is among the main tasks of the Agency's technical cooperation programme. In 2003, a major emphasis in the programme was on promoting cost sharing of development projects, and revenue generation, by governments.

For example, through an RCA project, national nuclear institutes in East Asia and the Pacific have developed capabilities to provide services to end-users. In particular, China, Indonesia and Vietnam have been awarded contracts by the petrochemical industry in the region. Under an AFRA project on strengthening waste management infrastructure, African specialized teams have over the past few years cleared spent sealed radioactive sources in Angola, Côte d'Ivoire, Ethiopia, Ghana, Mauritius, Sudan, Tunisia, the United Republic of Tanzania and Zimbabwe.

In Europe, Albania made a substantial contribution in 2003 towards the purchase of a new cobalt-60 teletherapy machine for the Hospital Mother Theresa in Tirana, working out a cost effective solution with the Agency to meet project objectives. It also secured assistance from the World Bank to further upgrade the hospital's radiotherapy department. The new teletherapy machine and other improvements will facilitate the treatment of 1000 cancer cases per year.

Many Latin American countries, among them El Salvador, Nicaragua, Bolivia, Guatemala and Colombia, were also involved in cost sharing schemes. The main focus of many of these schemes is on improving national capabilities in the treatment of cancer.

Safety

Nuclear safety in 2003

Any increased role for nuclear energy in the future requires assurances that current nuclear installations are being operated safely, that there is a viable international safety regime and that nuclear material is secure. With regard to the safety of current nuclear power plants and related facilities, there was continued improvement overall around the world in 2003. According to the joint IAEA–OECD/NEA International Nuclear Event Scale, the number of significant events remained negligible. The Agency and other international organizations, such as the World Association of Nuclear Operators, continued to conduct expert missions, design reviews and peer reviews of safety.

Application of international safety standards

One of the key requirements for the establishment of a global safety regime is a set of standards governing the safe operation of nuclear installations. In 2003, the revision and updating of Agency safety standards continued to make good progress; the ultimate aim is to complete this revision process by the end of 2004. Two safety requirements publications were published, on site evaluation for nuclear installations and remediation of areas contaminated by past activities and accidents.

A strategy to enhance the safety standards and their global application was prepared in consultation with the various safety standards committees. It was submitted to the Board of Governors and the General Conference in September 2003. The wider application of the standards continues to be an area of emphasis.

International conventions

In addition to a comprehensive set of safety standards, legally binding international agreements are a vital part of a global safety regime. The first Review meeting of the Contracting Parties of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (the Joint Convention) was held in Vienna in November 2003. The participants noted that it was important for all States to have a long term strategy for managing spent fuel and radioactive waste, especially since only a few have such plans at the current time. There was also a need to plan for integrated decommissioning and waste management. An issue of general concern was the comparatively small number of Contracting Parties — numbering 33 at the end of 2003.

Safe transport of nuclear and radioactive material

Spent nuclear fuel and other radioactive material have been transported safely for many decades without serious accidents. However, many Member States continue to express concern over the risks involved, especially with regard to maritime transport. The Agency's contribution to the efforts worldwide to ensure that radioactive material is transported safely includes safety standards (the Transport Regulations) and review services. In 2003, Transport Safety Appraisal Service (TranSAS) missions visited Panama and Turkey and a pre-TranSAS visit was made to France.

To promote greater dialogue among Member States, the Agency — together with IATA, ICAO,

Civil Liability for Nuclear Damage

An International Expert Group on Nuclear Liability (INLEX) was established during the year. INLEX serves three major functions: it is an expert body to explore and advise on issues related to nuclear liability; it should recommend measures to enhance global adherence to an effective nuclear liability regime, including possible changes to fill any identified serious gaps in the regime, inter alia, on the basis of the Convention on Supplementary Compensation for Nuclear Damage and the annex thereto, the Vienna Convention on Civil Liability for Nuclear Damage, the Paris Convention on Third Party Liability in the Field of Nuclear Energy, and the Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention and the amendments thereto; and it will assist in the development and strengthening of the national nuclear liability legal frameworks in Agency Member States.

There are 20 members of INLEX, comprising nuclear and non-nuclear-power States, as well as shipping and non-shipping States. The first meeting of the group was held in Vienna in October 2003.

IMO, ISO and UPU — convened a conference in Vienna in July on the 'Safety of Transport of Radioactive Material'. In addition to discussions on radiation protection, compliance, quality assurance and regulatory issues, there were discussions on liability and on communication with the public and between governments.

Nuclear security

The events of 11 September 2001 gave rise to a thorough review of Agency programmes related to the prevention of acts of nuclear and radiological terrorism, and resulted in the adoption of a plan of activities to protect against such acts. Work continued according to this plan during the year, and the pace of activities continued to increase. A new type of service, the International Nuclear Security Advisory Service (INSServ), was developed. Under this service, missions were organized during the year to identify measures for additional or improved security for nuclear related activities.

Member States have also received assistance in evaluating their national physical protection systems, mainly through International Physical Protection Advisory Service (IPPAS) missions and follow-up visits. Moreover, the Agency delivered an extensive programme of physical protection related training courses, workshops and seminars, as well as border evaluation missions for customs and other personnel.

New courses, including one on combating both nuclear terrorism and incidents involving illicit trafficking in nuclear material, were organized. The membership of the Illicit Trafficking Database (ITDB) continued to increase. In this regard, a meeting of the ITDB national contact points was held in 2003 to identify ways to improve the effectiveness of the database.

Verification

Comprehensive safeguards agreements and additional protocols

In 2003, the Agency continued its efforts to implement a strengthened safeguards system. The number of States that have yet to bring into force their comprehensive safeguards agreements, in accordance with their obligations under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), decreased from 48 at the end of 2002 to 45 at the end of 2003; this included the addition of one new NPT State party. Despite this decrease, the number remains undesirably high. The number of States having brought into force additional protocols to their safeguards agreements increased substantially, from 28 to 38, over the same period. However, as the wider application of the strengthened safeguards system continues to be a priority, the total number of States with additional protocols in force remains disappointing. As a means to address this challenge, the Secretariat, supported by a number of Member States, is implementing an enhanced action plan — which was updated in 2003 — designed to expand adherence to the strengthened safeguards system.

Challenges to the safeguards regime

The events of the past year have indicated quite clearly that the nuclear non-proliferation regime is under stress on multiple fronts and requires urgent steps to strengthen it. The Agency once again had to respond to both ongoing and new challenges to the safeguards system. For example, the situation in the Democratic People's Republic of Korea (DPRK) continued to be a serious cause for concern. Meeting the verification challenges in the Islamic Republic of Iran (Iran) and the Libyan Arab Jamahiriya (Libya) were also the focus of the Agency's effort and attention.

And as a result of the changing situation in Iraq, the Agency has not been able to implement important parts of its broader verification mandates.

Democratic People's Republic of Korea

As in 2002, the Agency continued to be unable to verify the correctness and completeness of the initial declaration by the DPRK of nuclear material subject to safeguards in accordance with its NPT safeguards agreement with the Agency. The Agency was not able to carry out any verification activities in the DPRK in 2003, leaving the Agency unable to provide any assurance about the non-diversion of nuclear material in that State.

The Board passed two resolutions with regard to the DPRK, in January and February 2003. At its February 2003 meeting, the Board decided to report to all Member States of the Agency and to the Security Council and General Assembly of the United Nations the DPRK's further non-compliance and the Agency's inability to verify non-diversion of nuclear material subject to safeguards.

Iraq

Agency inspections in Iraq resumed in November 2002, pursuant to UN Security Council (UNSC) resolution 687 (1991) and subsequent resolutions. When Agency inspectors withdrew on 17 March 2003, 237 inspections had been carried out at 148 locations, including 27 new locations. No evidence was found of the revival of nuclear activities prohibited under resolutions 687 (1991) and 707 (1991). Since 17 March 2003, the Agency has not been in a position to implement its mandate in Iraq under the relevant UNSC resolutions, which remained valid.

In June 2003, the Agency's inspectors returned to Iraq to verify, under the NPT safeguards agreement between Iraq and the Agency, the nuclear material subject to safeguards stored at the Location C Nuclear Material Storage Facility near the Tuwaitha complex south of Baghdad. The inspectors found that some dispersal of natural uranium compounds, not sensitive from the standpoint of proliferation, had occurred due to looting. The Agency recovered and verified the presence of nuclear material subject to safeguards at the site.

Islamic Republic of Iran

The Agency had extensive discussions with Iran in 2003 on safeguards issues to be clarified, and carried out a range of verification activities in the context of Iran's NPT safeguards agreement. Reports by the Director General were made to the Board of Governors in June, August and November 2003. The report in June noted that Iran had failed to meet its obligations under its safeguards agreement with respect to the reporting of nuclear material, the subsequent processing and use of that material and the declaration of facilities where the material was stored and processed. The report also noted corrective actions that had been taken. In response, the Board shared the Director General's concern at the number of Iran's past failures, and welcomed Iran's reaffirmed commitment to full transparency.

The report to the September Board noted an increased degree of cooperation with the Agency by Iran, although it also stated that information and access were at times slow in coming and incremental, observing that a number of important outstanding issues remained, particularly with regard to Iran's enrichment programme. In its resolution of 12 September, the Board expressed grave concern that Iran had still not enabled the Agency to provide the required assurances that all nuclear material had been declared and submitted to safeguards and that there were no undeclared nuclear activities in Iran. The Board also decided that a number of actions on Iran's part were essential and urgent for Agency verification of the non-diversion of nuclear material.

The November report reiterated that Iran had in a number of instances over an extended period of time breached its obligation to comply with its safeguards agreement. However, it was noted that, given the past pattern of concealment, it would take some time before the Agency would be able to conclude that Iran's nuclear programme was exclusively for peaceful purposes. The Board responded in its resolution of 26 November by welcoming Iran's offer of active cooperation and openness and its positive response to the Board's previous demands, but also by strongly deploring Iran's past failures and breaches of its obligation to comply with its safeguards agreement.

Iran signed an Additional Protocol on 18 December 2003. However, as of the date of publication of this report, there remain outstanding issues requiring resolution; the Agency's ongoing verification activities continue to require Iran's active cooperation.

Libyan Arab Jamahiriya

On 19 December 2003, Libya announced its decision to eliminate all materials, equipment and programmes leading to the production of internationally proscribed weapons — including nuclear weapons. The Agency began a process of working with the Libyan authorities to ascertain the extent of Libya's nuclear programme. Libya informed the Agency that

it had been engaged in activities that should have been (but were not) reported to the Agency under Libya's NPT safeguards agreement. It also stated that its nuclear enrichment programme was at an early stage of development and that no industrial scale facility had been built, nor had any enriched uranium been produced.

In December 2003, an Agency team of technical and legal experts visited locations related to undeclared nuclear activities and initiated a process of verifying the previously undeclared nuclear material, equipment, facilities and activities. Since then, Agency inspectors, including nuclear weapon and centrifuge technology experts, have visited Libya to continue the verification process. Libya also confirmed its intention to sign the Additional Protocol and — pending entry into force — to act as of 29 December 2003 as if the protocol was in force.

As part of its continuing verification process with Libya and Iran, the Agency is also investigating, with the support of Member States, the supply routes and the sources of sensitive nuclear technology and related equipment and nuclear and non-nuclear material. It is continuing such investigations with a view to ensuring that the sensitive nuclear technologies and equipment found in Libya have not proliferated further.

Outreach and Management Issues

Events over the past year brought the Agency's activities, on an almost daily basis, to the attention of the media, and public interest in the Agency's work remained high throughout the year. The importance of verification in helping to prevent the proliferation of nuclear weapons was widely discussed and explained in a variety of forums. At the same time, the Secretariat provided commentaries on the importance of the other side of the 'nuclear coin' and of the Agency's programme — the peaceful applications of nuclear techniques for the benefit of humanity. Information campaigns were launched dealing with the radiation treatment of cancer and the search for sustainable water resources.

In 2003, the first biennium in which a full results based management approach was applied to the formulation, implementation and the initial stages of the assessment of the programme was completed. The experience gained is already being applied to the 2004–2005 and 2006–2007 cycles. In this connection, emphasis was placed on consolidating the many process changes introduced over recent years and ensuring that they became part of an overall 'one-house' culture.

After a decade and a half of zero real growth, the Board of Governors agreed to a 'package proposal' that included an increase of some 10% in the regular budget over a period of four years. The part of the increase recommended for 2004 received the approval of the General Conference in September and will make it possible to undertake a more extensive programme aimed at meeting the expressed priorities, needs and interests of Member States.

Conclusion

This review of activities in 2003 makes it clear that the scope of the Agency's work has continued to expand, and that its agenda remains very full. There have been significant challenges in all the areas of activities of the Agency — technology, safety and security, and verification. The Agency has responded appropriately to all of these challenges, guided by the principle that only through international cooperation and mutual accommodation can there be progress in dealing with the pressing issues of poverty, maintaining and enhancing peace and security, and protecting the environment. ■