

# General Conference

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## Forty-Seventh (2003) Regular Session

# Plenary

## Record of the Ninth Plenary Meeting

*Held at the Austria Center Vienna on Friday, 19 September 2003, at 12.20. p.m.*

**President:** Mr. TAKASU (Japan)

**Later:** Ms. HALL (Canada)

## Contents

Item of the agenda*	Paragraphs
24 Examination of delegates' credentials	1 - 9
18 Implementation of the NPT safeguards agreement between the Agency and the Democratic People's Republic of Korea	10 - 51
19 Implementation of United Nations Security Council resolutions relating to Iraq	52 - 56

[\*] GC(47)/21.

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The composition of delegations attending the session is given in document GC(47)/INF/14/Rev.2.  
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## Contents (continued)

Item of the agenda*	Paragraphs
- Oral report by the Chairman of the Committee of the Whole on the following items:	57 - 65
- Measures to strengthen international co-operation in nuclear, radiation and transport safety and waste management	58
- Nuclear security - measures to protect against nuclear terrorism	59
- Strengthening of the Agency's technical co-operation activities	60
- Strengthening the Agency's activities related to nuclear science, technology and applications	61
- Strengthening the effectiveness and improving the efficiency of the safeguards system and application of the Model Additional Protocol	62
- Personnel	63
(a) Staffing of the Agency's Secretariat	
(b) Women in the Secretariat	
- Amendment to Article VI of the Statute	64
- Report of the Scientific Forum	66 - 68

### Abbreviations used in this record:

Agreed Framework	Agreed Framework between the United States of America and the Democratic People's Republic of Korea
DPRK	Democratic People's Republic of Korea
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
UNMOVIC	United Nations Monitoring, Verification and Inspection Commission

## **24. Examination of delegates' credentials** (GC(47)/24)

1. The PRESIDENT said that the General Committee had met the previous day to examine the credentials of all delegates, as provided for in Rule 28 of the Rules of Procedure. The report of the Committee was contained in document GC(47)/24. Since the report had been issued, the Secretariat had received credentials satisfying the requirements of Rule 27 from Belarus, Indonesia, Kuwait and Yemen. After discussion, the Committee had recommended the adoption by the Conference of the draft resolution contained in paragraph 8 of its report.
2. Mr. IBRAHIM (Egypt) said that his delegation did not consider the report contained in document GC(47)/24 to be relevant to the territories occupied by Israel since 1967, especially Jerusalem and the Golan Heights. In his country's view, Israel as a State meant the one with the borders as at 4 June 1967 and as defined in the peace agreements with Egypt and Jordan.
3. Mr. LASSEL (Morocco) said that the examination of the credentials of the Israeli delegate, issued in Jerusalem, did not in any way prejudge the status of that city, which remained under occupation in flagrant violation of international law and the relevant United Nations resolutions. He expressed regret that the issue had arisen once again in spite of observations and reservations made in the past.
4. Mr. SAEIDI (Islamic Republic of Iran) said that, in line with his delegation's position on previous reports on delegates' credentials, the fact that his delegation would not block a consensus on the report under consideration should not be interpreted as recognition of Israel by his country.
5. Mr. KAMANDA WA KAMANDA (Democratic Republic of the Congo) requested that the report be corrected, since, according to paragraph 4, only a copy of original credentials had been received from his country, whereas in fact original credentials had been submitted.
6. Mr. MANUHUTU (Indonesia) said that original credentials had been submitted for the delegate of his country the previous day and requested that Indonesia be removed from among the Member States referred to in the last sentence of paragraph 4 of the report.
7. Mr. TAJOURI (Libyan Arab Jamahiriya) said that his delegation's decision to join the consensus on the report did not constitute recognition of Israel by the Libyan Arab Jamahiriya.
8. The PRESIDENT took it that the General Conference was prepared to adopt the draft resolution contained in paragraph 8 of document GC(47)/24.
9. It was so decided.

## **18. Implementation of the NPT safeguards agreement between the Agency and the Democratic People's Republic of Korea (GC(47)/19; GC(47)/L.4)**

10. Ms. HALL (Canada), introducing the draft resolution contained in document GC(47)/L.4, said it was the product of intensive consultations with the countries most directly involved in efforts to achieve a peaceful resolution to the DPRK nuclear issue. It had wide support, as indicated by the long list of co-sponsors contained in document GC(47)/L.4/Add.4, to which the delegations of Kazakhstan, Latvia and Lithuania had asked that their countries be added.

11. Since the General Conference had last considered the DRPK nuclear issue, circumstances had changed fundamentally, and the issue had been the subject of three Board resolutions. The draft resolution before the Conference underscored the continuing interest of the Agency and its governing bodies in the issue.

12. Referring to operative paragraph 8 of the draft resolution, she expressed appreciation of the role which China was playing in the search for a peaceful resolution of the DPRK nuclear issue.

13. She hoped that the General Conference would adopt the draft resolution without a vote, thereby expressing the international community's united resolve to achieve a nuclear-weapon-free Korean Peninsula.

14. Mr. SEMMEL (United States of America), having expressed appreciation of the efforts of the Canadian delegation in crafting the draft resolution under consideration, said that the DPRK should reconsider its actions and make the right choices.

15. The General Conference had formally addressed the DPRK nuclear issue at every session since 1992, when it had become clear that the DPRK was violating its NPT safeguards agreement. Now, the international community had more reason than ever before to be concerned about that issue.

16. Since the General Conference's 2002 session, the DPRK had taken a series of dramatic steps: in October 2002 it had admitted, during bilateral talks with his country, that it had a uranium enrichment programme; it had responded to a resolution in which the Board had, in November 2002, called on it to co-operate immediately with the Agency and abandon its nuclear weapons programme by breaking Agency seals, disabling monitoring cameras and expelling inspectors, who had not been permitted to return to the DPRK; given one last chance to rectify its mistakes by the Board in January 2003, it had announced its withdrawal from the NPT and had reopened nuclear facilities frozen under the Agreed Framework; and, after the Board had, on 12 February 2003 declared it to be in "further non-compliance" with its safeguards agreement and reported the matter to the United Nations Security Council, it had continued to respond to the international community with defiant and provocative rhetoric and threats, including the admission that it was pursuing a nuclear deterrent capability.

17. In taking those steps, the DPRK had contravened the 1992 Joint Declaration on the Denuclearization of the Korean Peninsula, the Agreed Framework, its NPT safeguards agreement with the Agency, and the NPT itself. The Conference must respond unambiguously to a challenge that was unprecedented in the history of the nuclear non-proliferation regime.

18. His Government, which was grateful to the Government of China for organizing and hosting two rounds of talks in Beijing and making preparations for a third had, while not renouncing any option, been consistently pursuing diplomacy with a view to achieving a complete, irreversible and verifiable end to the DPRK's nuclear weapons programme. With its friends and partners, it considered the "six-party talks" process - involving both States on the Korean Peninsula, China, Japan, Russia and the United States - to be the best diplomatic approach to the achievement of that goal.

19. The United States had made it clear that it was prepared to address the stated security concerns of the DPRK in the context of the complete, irreversible and verifiable dismantlement of the DPRK's nuclear weapons programme. Moreover, it had stated that after the programme had been dismantled it would be prepared to enter into negotiations with the DPRK on all issues of bilateral concern, with a view to resolving those issues and normalizing its relations with the DPRK.

20. Against the background of the "six-party talks" process, the international community should speak with one voice, sending to the DPRK the clearest possible signal that its behaviour could not be tolerated.

21. The draft resolution before the Conference demonstrated the international community's continuing serious concern about the threat to international peace, security and stability posed by the DPRK nuclear issue and underscored the Agency's essential verification role.

22. Mr. Chang-beom CHO (Republic of Korea), having thanked the delegation of Canada for submitting the draft resolution under consideration and welcomed the large number of co-sponsors, said that the General Conference and the Board of Governors had adopted numerous resolutions expressing serious concern about the non-compliance of the DPRK with its safeguards agreement. Regrettably, those resolutions had not been fully implemented owing to a lack of co-operation on the DPRK's part, and the Agency remained unable to provide any level of assurance about the non-diversion of nuclear material to nuclear weapons in the DPRK.

23. Moreover, since December 2002 the DPRK had taken a number of further steps in violation of its NPT safeguards agreement and of other voluntarily assumed commitments, those steps culminating in the announcement of its decision to withdraw from the NPT - a serious and immediate challenge to the global nuclear non-proliferation regime.

24. The DPRK should retract its announced withdrawal from the NPT and comply with all its obligations arising out of the NPT; it should dismantle its nuclear weapons programme in a complete, irreversible and verifiable manner; it should co-operate fully with the Agency in bringing about the earliest possible implementation of comprehensive Agency safeguards within its territory; and it should honour its obligations under the 1992 Joint Declaration on the Denuclearization of the Korean Peninsula.

25. The six-party talks held in Beijing from 27 to 29 August 2003 had been a meaningful step towards a peaceful resolution of the DPRK nuclear issue, and his country was grateful to the Chinese Government for hosting them.

26. It was particularly encouraging that the six-party talks had led to consensus on the ultimate goal, a nuclear weapon-free Korean Peninsula, and on the achievement of that goal by peaceful, diplomatic means - by dialogue.

27. If the DPRK abandoned its nuclear weapons programme, the international community would be prepared to seriously address its concerns, which could lead to a more peaceful and prosperous future for the entire Korean people. A peaceful resolution of the DPRK would facilitate the establishment of permanent peace and security on the Korean Peninsula, leading to stronger peace and greater prosperity in north-east Asia and beyond. The momentum created by the six-party talks should

therefore be maintained, with a view to solving all problems in a comprehensive manner before it was too late.

28. How the international community responded to the challenge posed by the DPRK's nuclear weapons programme would have a lasting effect on the nuclear non-proliferation regime. The General Conference should therefore send the right message to the DPRK and to potential future proliferators. The language of the draft resolution before the Conference was loud and clear, and in his delegation's view the draft resolution sent the right message. His delegation hoped that the General Conference would adopt the draft resolution without a vote, in accordance with what it had done at its four previous sessions.

29. Mr. MORIMOTO (Japan) said that his country was deeply concerned about the situation described by the Director General in his report.

30. Following a statement in April 2003 about the reprocessing of spent nuclear fuel rods, the DPRK had been issuing statements about the possession of a nuclear deterrent, and recently it had declared that it had no option but to keep and strengthen its nuclear deterrent force.

31. Although the six-party talks in Beijing had led to a consensus on resolving the DPRK nuclear issue through dialogue and on not taking action that would aggravate the situation, differences of opinion had been evident. Continuation of the "six-party talks" process was therefore vital.

32. Japan - which could not, under any circumstances, accept the development, acquisition, possession, testing or transfer of nuclear weapons by the DPRK - wanted the DPRK to promptly and completely dismantle all its nuclear development programmes in an irreversible and verifiable manner and to allow its NPT safeguards agreement with the Agency to be fully implemented.

33. Believing that the DPRK nuclear issue should be resolved peacefully, through diplomatic means, Japan attached great importance to the Agency's role and would like the Director General to continue his efforts to bring about full implementation of the DPRK's safeguards agreement with the Agency. The DPRK should co-operate with the Agency as a matter of urgency, holding talks immediately with the relevant Agency officials.

34. In Japan's view, it was essential to arrive at a comprehensive solution to the DPRK nuclear issue on the basis of the Japan-DPRK Pyongyang Declaration on weapons of mass destruction (including nuclear weapons) ballistic missiles and abduction.

35. If the DPRK behaved responsibly, the international community would respond positively in the areas of security, diplomacy and economics. It should respond immediately and constructively to the calls of the international community.

36. Mr. GARCIA (Philippines) said his country attached great importance to the implementation of the NPT safeguards agreement between the Agency and the DPRK and had therefore welcomed the six-party talks held in Beijing in August 2003. It believed that the DPRK nuclear issue could be resolved peacefully, through continued dialogue leading ultimately to the denuclearization of the Korean Peninsula.

37. The DPRK nuclear issue was a matter of great concern to the Philippines, which would like to see the DPRK abandoning its nuclear weapons programme in an irreversible and verifiable manner and returning to the nuclear non-proliferation regime.

38. Having expressed support for the efforts of the Director General, he said that his delegation fully agreed with the major thrust of the draft resolution and wished to be added to the list of co-sponsors.

39. The PRESIDENT took it that the General Conference wished to adopt the draft resolution contained in document GC(47)/L.4 without a vote.

40. It was so decided.

41. Mr. ZHANG Yan (China) said that his delegation had from the outset had doubt about the need, at the present juncture, for a resolution, and it had expressed its doubts during consultations.

42. In his delegation's view, the draft resolution just adopted was not properly balanced. At the six-party talks held in Beijing there had been a consensus on two key points - the need to take account of the DPRK's legitimate concerns and the need to denuclearize the Korean Peninsula. The draft resolution did not strike a proper balance between those two points - it ignored one while emphasizing the other.

43. There was general agreement that the six-party talks had been a step in the right direction, but it had not been easy to achieve the progress made and maintaining the momentum would be crucial. All parties, and also the Agency, should exercise restraint and avoid actions or words that might have a negative impact on the situation.

44. The denuclearization and security of the Korean Peninsula was an objective for which China would continue its efforts in concert with the rest of the international community. That objective could only be achieved by diplomatic means. The six-party talks had been useful, leading to better mutual understanding and opening the way towards a solution acceptable to all the parties.

45. Mr. KUCHINOV (Russian Federation) said that his delegation, which had not opposed the consensus in favour of adoption of the draft resolution contained in document GC(47)/L.4, was pleased that, in operative paragraph 7 of the draft resolution, the General Conference stressed its desire for a peaceful resolution through dialogue to the DPRK nuclear issue and that, in operative paragraph 7, the Conference expressed support for the international community's peaceful efforts "in all available and appropriate forums" to address the challenge posed by the DPRK nuclear issue. It was particularly pleased that in operative paragraph 8 the six-party talks held in Beijing and the consensus that had emerged from them were described as "a clear step in the right direction".

46. With regard to the DPRK's nuclear programme, his country continued to be strongly in favour of ensuring the nuclear-weapon-free status of the Korean Peninsula and opposed to the appearance - for whatever motive - of weapons of mass destruction there. It believed that the resolution of the DPRK nuclear issue should be a long-term one involving reinstatement of the implementation of the NPT throughout the Korean Peninsula. It therefore wished the DPRK to dismantle any nuclear weapons programme it might have in an irreversible and verifiable manner.

47. His country, which would like to see the DPRK nuclear issue resolved through diplomatic means and in a comprehensive manner, believed that the six-party talks held in Beijing had led to better mutual understanding, thereby opening the way for a package solution to be arrived at gradually through the synchronized taking - in parallel - of agreed measures by the interested parties.

48. Now, more than ever, it was essential to employ all diplomatic means, with respect for the legitimate interests of all participants as regards their security and socio-economic development.

49. Mr. MORENO (Italy), speaking on behalf of the European Union and the acceding countries Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia, said that the associated countries Bulgaria, Romania and Turkey endorsed his statement.

50. The European Union had welcomed the recent six-party talks and the resulting consensus, which it hoped would serve as the framework for diplomatic efforts directed towards a peaceful

resolution of the DPRK nuclear issue. It was committed to developing its relations with the DPRK, provided that the DPRK continued to participate in talks aimed achieving substantive progress and did nothing to exacerbate the present situation.

51. The DPRK should abandon its confrontational stance, so that the mutually beneficial co-operation between it and the European Union might be resumed, and reconsider its position vis-à-vis the Agency, with which it should co-operate fully. It should continue the current dialogue with all interested parties and, on the basis of the results of the six-party talks, help in building a lasting peace on the Korean Peninsula.

## **19. Implementation of United Nations Security Council resolutions relating to Iraq** (GC/47/10)

52. The PRESIDENT said that, as a result of consultations, it had been agreed that he should read out - for endorsement by the General Conference - the following statement, which reflected a delicate compromise:

“The General Conference took note with appreciation of the report in document GC(47)/10 and commended the Agency for its verification activities in Iraq under the mandate provided by United Nations Security Council resolutions from November 2002 to March 2003.

“The Conference expressed its appreciation for the activities undertaken by the Agency as reported in document GOV/2003/46 and noted with satisfaction that there is no proliferation risk from the type and quality of uranium compounds at the Baghdad Yellowcake Facility.

“The Conference further expressed appreciation for the continuation by the Agency of its NPT safeguards activities in Iraq.

“The General Conference noted the Security Council’s intention, as expressed in resolution 1483, to revisit the mandates of the Agency and UNMOVIC.”

53. The PRESIDENT asked whether the Conference was prepared to endorse the statement which he had read out.

54. The Conference endorsed the statement.

55. Mr. THIEBAUD (France) said his delegation fully shared the views expressed by the Director General in his statement to Conference, in which he had underlined the responsibilities of the Agency, under the relevant Security Council resolutions and its NPT safeguards agreement with Iraq. The Agency was to be commended on the way in which it had been fulfilling its responsibilities and maintaining its operational preparedness through the Iraq Nuclear Verification Office.

56. His delegation hoped that, when the Agency’s mandate was revisited, the role of the Agency in verifying that Iraq was fulfilling its obligations would be confirmed.

## **- Oral Report by the Chairman of the Committee of the Whole (resumed)**

57. Mr. GARCIA (Philippines), Chairman of the Committee of the Whole, presented the outcome of the Committee's deliberations on agenda items 13-17, 22 and 23.

58. Under item 13, "Measures to strengthen international co-operation in nuclear, radiation and transport safety and waste management", the Committee recommended that the Conference adopt the three draft resolutions contained in document GC(47)/L.7.

59. Under item 14, "Nuclear security - measures to protect against nuclear terrorism", the Committee recommended that the Conference adopt the draft resolution contained in document GC(47)/L.8.

60. Under item 15, "Strengthening of the Agency's technical co-operation activities", the Committee recommended that the Conference adopt the draft resolution contained in document GC(47)/L.9.

61. Under item 16, "Strengthening the Agency's activities related to nuclear science, technology and applications", the Committee recommended that the Conference adopt the five draft resolutions contained in document GC(47)/L.5.

62. Under item 17, "Strengthening the effectiveness and improving the efficiency of the safeguards system and application of the Model Additional Protocol", the Committee had been unable to agree on a recommendation regarding the draft resolutions contained in documents GC(47)/COM.5/L.3 and GC(47)/COM.5/L.17/Rev.1.

63. Under item 22, "Personnel", the Committee recommended that the Conference adopt the two draft resolutions contained in document GC(47)/L.6.

64. Under item 23, "Amendment to Article VI of the Statute", the Committee recommended that the Conference: recall its resolution GC(46)/RES/19, by which it had approved the amendment to Article VI of the Statute and had urged all Member States to accept the amendment as soon as possible in accordance with their respective constitutional processes; take note of the report by the Director General contained in document GC(47)/INF/5; and request the Director General to submit to the Conference at its forty-ninth regular session a report on the progress made towards the entry into force of the amendment and to include in the provisional agenda for that session an item entitled "Amendment to Article VI of the Statute".

65. The PRESIDENT congratulated the Chairman of the Committee of the Whole, the two Vice-Chairmen and others who had assisted him on the manner in which the work of the Committee had been conducted. The Conference would consider the outcome of the Committee's deliberations on agenda items 13-17, 22 and 23 at its next meeting.

**Ms. Hall took the chair.**

## **- Report of the Scientific Forum**

66. The PRESIDENT invited the Rapporteur, Mr. Cirimello, to present the report of the Scientific Forum.

67. Mr. Cirimello presented the report which is reproduced in the Annex.

68. The PRESIDENT thanked Mr. Cirimello for his most interesting report and the Secretariat for its excellent preparation of the Scientific Forum.

**The meeting rose at 2.00 p.m.**

## **Report to the 47<sup>th</sup> regular session of the IAEA General Conference from the 6<sup>th</sup> Scientific Forum**

1. The 6<sup>th</sup> Scientific Forum, organized during the 47<sup>th</sup> regular session of the IAEA General Conference, took place in the Austria Center Vienna on 16–17 September 2003 under the general title of “New Horizons: Nuclear Energy in a Changing World”. The four sessions focused on: Innovative Approaches: Nuclear Power, Innovative Approaches: Nuclear Medicine and Self-reliant Institutions, IAEA Safety Standards: Towards Global Application, and Safeguards Technology: Challenges and Limitations. Each of the sessions consisted of an introduction by a moderator knowledgeable in the specific field and presentations by leading experts followed by panellists’ comments and discussion with participants.
2. In Session 1, it was noted that world demand for energy is growing at a rate of 2.3% per year and will increase by 43% by 2025. Although no large increase in the use of nuclear energy is foreseen in the near and medium term, in the longer term an increased use of nuclear energy is generally predicted as a solution to meet the needs of global sustainable development, especially if significant reductions in carbon dioxide emissions are required.
3. The outcome of the International Conference on Innovative Technologies for Nuclear Fuel Cycles and Nuclear Power held in June in Vienna recognized a lack of understanding between the nuclear community and the public. Communication has to be substantially improved both within the nuclear community and with the public. Nuclear energy has a major role to play, and a major long-term shift in the market for nuclear energy towards today’s developing countries was anticipated. Although the current nuclear industry has reached the level of maturity, innovation would be required for further improvement of safety, economy, sustainability, and proliferation resistance even for the near term deployment of nuclear technology. It is necessary that nuclear power generation should be within the acceptable range of costs. For the developing countries to harness the potential of nuclear power appropriate solutions need to be found such as establishment of a special international fund etc. Nuclear system modelling may help for drawing conclusions about the future direction of research and development and there was general agreement that extensive international co-operation is necessary. The need to have synergy between various international initiatives particularly between INPRO and Generation IV was stressed.
4. INPRO project was started by IAEA by asking whether nuclear energy could be a key, substantial part of meeting the energy needs for sustainable development particularly for developing countries. INPRO studied the new scenarios of the Intergovernmental Panel on Climate Change (IPCC), particularly their conclusions about nuclear power and nuclear generated hydrogen, and the answer is that nuclear energy does have a major role to play, and the scenarios anticipate a major long-term shift in the market for nuclear energy toward today’s developing countries.
5. An outline of the Generation IV International Forum (GIF) programme was presented. The GIF member countries prepared a Generation IV technology roadmap, which identified the six most promising reactor systems and fuel cycle concepts and the R&D necessary to improve these concepts for commercialization by 2030. Furthermore, the Advanced Fuel Cycle Initiative was initiated to reduce the volume of spent nuclear fuel and thereby reduce the cost of geological disposal, reclaim valuable energy in spent fuel and reduce inventories of civilian plutonium, and reduce radiotoxicity of spent fuel.
6. The report of the interdisciplinary group from the Massachusetts Institute of Technology, USA on the future of nuclear power was presented. The economics, safety, waste management and

non-proliferation challenges of enabling a global mid-century deployment of about 1000 GW(e) were addressed through a set of findings and policy recommendations, including that such a mid-century growth scenario should be based primarily on thermal reactors operated in a once through mode. It suggests that a major international effort should be launched to develop the analytical tools and to collect essential scientific and engineering data for integrated assessment of fuel cycles.

7. Early opportunities may exist for demonstration and implementation of nuclear-generated hydrogen. The refining industry could see the first large-scale use of nuclear energy for hydrogen production — an initial but critical step to the 'hydrogen economy'. The increased demand for hydrogen is the result of using heavier crude oils in the manufacture of gasoline and other petroleum products. If the price of natural gas, the main feedstock for hydrogen production, remains at current levels or rises, alternative approaches to hydrogen production will become attractive.

8. On the topic of nuclear power from fusion the advantages identified are inexhaustible fuel resources, ecological benefits, improved safety, a significantly lower level of radioactive waste, and an absence of materials that could be used for weapons. An engineering design for a 500 MW thermal reactor was completed in 2001. The negotiations concerning ITER construction have been started. Canada, Japan, France and Spain proposed options for site selection.

9. There was general consensus that consideration should be given to the feasibility of multilateral co-operation on key aspects of the nuclear fuel cycle, particularly in view of the increasing non-proliferation, safety, security and technical challenges facing nuclear power. This consideration could include the merits of adopting a multilateral approach to the use of weapon-usable material in civilian nuclear programmes such as processing and production of such material in international centres with appropriate rules of transparency, control and assurance of supply.

10. There was a broad agreement among the participants that international collaboration in general should be improved and substantially expanded. The IAEA is expected to play a key role in co-ordinating international efforts to develop innovative technologies.

11. Session 2 on innovative approaches on nuclear medicine was introduced by referring to the advantages that tele-nuclear medicine techniques could bring to nuclear medicine. Reference was made in particular to the need to get public acceptance of nuclear medicine and for a better understanding of the risks. The advantages were clearly seen in areas of distance learning and uniform reporting between centres, providing a measure of quality assurance in nuclear medicine techniques.

12. Development of internet-based study materials in Thailand for teaching and training in nuclear medicine was undertaken in the frame of an IAEA co-ordinated research project. The aim of the project was to create an information resource and database of nuclear medicine case studies, facilitating self-study by participating nuclear medicine practitioners. The major problems in developing countries for developing regional tele-nuclear medicine software are a lack of equipment, human resources and gamma cameras. To overcome these problems it is necessary to digitize analogue gamma cameras so that they can be used for and benefit from tele-nuclear medicine.

13. Examples of the use of tele-nuclear medicine in Namibia and Latin America were presented. Patient data needs to be kept separate from scan data and virtual private networks are one solution for confidentiality of data transmission. The issue of fees for service was mentioned along with legal liability and the broader issue of acceptance of nuclear medicine.

14. A demonstration of tele-nuclear medicine software was given and the Forum debated the levels of skills needed to implement and sustain a tele-nuclear medicine network. The Agency's project experience showed that the regional server system needed the services of an informatics specialist, but

in local hospitals generally a physicist could be trained in the technology. As regards data collection, it was recommended that dedicated boards be created to oversee and select website material.

15. The session participants concluded that the Agency has a central role to play in promoting and implementing tele-nuclear medicine.

16. The second part of Session 2 dealt with the development of greater self-reliance within nuclear institutions. An important topic was the concept of increasing self-reliance within nuclear institutions to reduce their financial dependence on state funding and, hence, to ensure their sustainability. Since the middle 1980s and particularly in the 1990s, the pressures experienced by many nuclear institutions to curtail their dependence on funding from government, has shaped the strategies and policies in these organizations.

17. The Nuclear and Energy Research Institute (IPEN), Brazil, is a non-profit organization wholly owned by the National Commission of Nuclear Energy (CNEN). Although it focuses on domestic supply of radioisotopes, a few orders have also been produced for other countries within Latin America. CNEN also has the sole responsibility in Brazil to regulate the import of radiopharmaceuticals for nuclear medicine and this ensures a high level of oversight of both imported and nationally produced radioisotopes.

18. A wider scope of activities directed towards increasing self-reliance has been introduced at the Malaysian Institute for Nuclear Technology Research (MINT). MINT's three long-term strategies are: first, the relevance of the national nuclear institution in the context of mainstream socio-economic development; second, the need for the nuclear institution to fulfil social obligations; third, improving the image and acceptance of nuclear technology by the general public. As in the case of Brazil, the current scope of self-reliance activities is founded on extensive experience and development gained with the IAEA since the inception of MINT in 1972.

19. The Ghana Atomic Energy Commission (GAEC) has carried out a critical evaluation of its R&D activities, defined its core competencies, restructured its two institutes and five centres, and established strategic business and marketing plans. Progress towards establishing commercial income-generating units has led to self-funding levels of between 20% and 40% of annual operating expenses within the various commercialising centres. The very rapid progress achieved by GAEC in its commercialisation programme shows the benefits of the co-operation with other centres within the region that have had more experience with their own commercialisation programmes, which has been carried through the IAEA's regional AFRA programme.

20. The third session was devoted to the IAEA Safety Standards and their global application. Since the early days of the IAEA, the promulgation of standards, covering the areas of radiation and transport safety, the safe management of radioactive waste and the safety of nuclear installations, has been one of the statutory functions of the organization.

21. The safety standards on radiation and transport have been instrumental in bringing about excellent safety records in these areas. Although the first set of standards on radioactive waste and nuclear safety acquired the poor reputation of being developed according to the lowest common denominator, the situation now is entirely different in this regard: all IAEA standards are now being developed and revised with the goal of enhancing safety in all Member States. A general agreement has emerged that all IAEA safety standards reflect a high level of safety and should serve as the global reference for the protection of people and the environment. Many regulatory bodies already use the IAEA standards as reference, but global implementation is still a challenge.

22. Keynote speakers characterized the process of the development and review of the standards as a consensus-building process with heavy involvement of experts and stakeholders from Member States.

This consensus should pave the way for their ultimate acceptability and application by all users. The discussion underlined the need for the Agency and its Member States to seek more opportunities for involving stakeholders in the various stages of the process. An example that was discussed is the IAEA transport regulations, covering an area that by its very nature is international, which are developed in close consultation with the national regulators and parties subject to the regulations. As a result, the regulations are widely applied in maritime, air, road and rail transport and incorporated by the international organizations like the International Maritime Organization and the International Civil Aviation Organization in their rules and assimilated in national regulations and practices.

23. Co-sponsoring of safety standards, by involving other international organizations, is seen as another mechanism to promote worldwide acceptance. The example of the International Labour Organization shows the inclusion of organizations of employers and workers as major stakeholders.

24. In the radiation protection area one of the keynote speakers illustrated the incorporation of relevant IAEA safety standards in a national system of legislation and regulatory requirements and guides, an example of a State where the Agency's Model project on Upgrading Radiation Protection Infrastructure has been very successful. Over 80 countries are currently receiving assistance in developing relevant national rules and regulations.

25. A proposal was presented for a regional approach in Europe for adopting the IAEA safety standards in the areas of nuclear installation safety and waste management. There was considerable debate on the added value and actual implementation of European standards. Regardless the outcome of the debate on European standards, there is a clear consensus that the IAEA safety standards will serve as their basis. Alternative mechanisms were suggested, such as using the national reporting and peer review under the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management, in order to establish to what extent States have adequate national rules and regulations in place.

26. International standards organizations develop industrial standards that complement the IAEA safety standards by specifying detailed requirements for design and operation of components and procedures. It would be desirable for these types of standards, developed by the International Organization for Standardization and the International Electrotechnical Commission, to use a common structure and share the glossaries of terms together with the IAEA safety standards.

27. Professional societies, especially those in the medical area, are considered as stakeholders that could play an important role in the development and review of IAEA safety standards. They could subsequently assist in the dissemination of these standards amongst a wide audience of potential users of nuclear technology, channel feedback on the use of the standards, and contribute to updating and the continuous improvement of the standards.

28. The fourth session highlighted the technological challenges posed by the implementation of measures for strengthening safeguards, including the Secretariat's efforts to keep abreast of technological development and to implement new technology to optimize the effectiveness and cost-efficiency of safeguards implementation. It also focused on some of the limitations of the Agency's current safeguards technology in terms of both capability and resources.

29. The four presentations given in the Session covered two broad aspects of safeguards technology: information handling and analysis and in-field verification activities. Particular emphasis was given to the use of technology for the safeguards State evaluation process, specifically the collection and analysis of open source information including satellite imagery; the use of environmental sampling techniques, and future safeguards equipment needs and technology. Speakers and panellists highlighted some salient points associated with the development of safeguards technology against the backdrop of the strengthened safeguards system, for example: a large volume

of information, equipment and safeguards samples; the built-in obsolescence of much new equipment; the long lead-time for new technology; unique boundary conditions and limited financial resources.

30. On the first point, the introduction of safeguards strengthening measures means that the Agency needs to handle a more extensive volume of information, equipment and safeguards samples than ever before. This requires specific underpinning infrastructure such as new databases and other tools; new skills and training, which must be dynamic to respond to changing requirements. Safeguards development is continually aiming at a moving target.

31. The issue of obsolescence derives from a rapidly changing technological environment. There is built-in obsolescence in such areas as information technology systems and in-field equipment. The Agency needs to cope with all of that and is attempting to do so. In that regard, the Session noted, *inter alia*, that a major project is underway to modernize the safeguards information system and that an equipment-upgrading programme is in place.

32. The Session also noted that the Department of Safeguards must try to envisage future equipment and technology needs early on, in view of the long lead-time required for development.

33. New measures for strengthening safeguards mean recourse to new techniques and methodologies. The Agency needs to continue to keep abreast of state-of-the art technology and to incorporate it properly in its development programme. One constraint it faces is its heavy dependence on the capability of others, due to the fact that it does not, in itself, have all of the necessary technical capabilities. This is essentially a resource problem.

34. The development of safeguards technology is carried out under unique boundary conditions. The market for dedicated equipment for safeguards use is small and manufacturers cannot easily recover the huge development costs involved. Hence, the development of safeguards equipment is frequently an unattractive option commercially. Other examples of unique boundary conditions are that:

- In-field equipment must operate in harsh environments with sufficient reliability;
- Instrumentation must be non-intrusive and acceptable to State authorities and facility operators;
- Data authentication and tamper-proof measures needs to be incorporated; and
- The confidentiality of information needs to be protected.

35. Because of the zero real-growth Agency budgets that have characterized the last decade, the Secretariat does not have sufficient resources to enable it to address its many challenges in full. In this context, the Member State Support Programmes for Agency Safeguards (MSSP) have been major contributors to the personnel, financial and technical resources required.

36. During discussion on how to cope with the kinds of challenges and limitations recommendations made were:

- Given that it is neither technically nor financially possible for the Agency to be self-sufficient technologically, it should try to identify specific areas in which support from States would be useful and beneficial. An example of this is the establishment of the Network of Analytical Laboratories. Other possible areas of co-operation should also be investigated;

- Member States should continue to support the Department of Safeguards in keeping up to date with appropriate technology. In particular, on-going MSSP support is essential to equipment development;
- The Department of Safeguards should make greater use of the capabilities of State Systems for the Accounting and Control of Nuclear Material (SSAC). More use of SSAC effectiveness leads to greater efficiency in safeguards implementation;
- A key priority is the further development and refinement of integrated safeguards. This should be aimed not only at increasing safeguards effectiveness but also efficiency.

37. Thus, the 6<sup>th</sup> Scientific Forum addressed a number of key issues for the nuclear community. Proposals have been made for several actions by the Agency and these are commended to you.