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# GENERAL CONFERENCE

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TWENTY-THIRD REGULAR SESSION: 4-10 DECEMBER 1979

RECORD OF THE TWO HUNDRED AND NINTH PLENARY MEETING

Held at Vigyan Bhavan, New Delhi  
on Tuesday, 4 December 1979, at 10.50 a.m.

Temporary President: Mr. MALU wa KALENGA (Zaire)  
President: Mr. SETHNA (India)

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The composition of delegations attending the session is given in document  
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#### OPENING OF THE SESSION

1. The TEMPORARY PRESIDENT declared the twenty-third regular session of the General Conference open.
2. In accordance with Rule 48 of the Rules of Procedure he invited the delegates to observe one minute of silence dedicated to prayer or meditation.

All present rose and stood in silence for one minute.

3. The TEMPORARY PRESIDENT said that he wished first in the name of everyone present to thank the Government of India for inviting the General Conference to New Delhi. All had been impressed by the efforts that had been made over the past few months to prepare the Vigyan Bhavan Conference Centre. They had been received with all the warmth and generosity characteristic of the ancient hospitality of India, and he wanted to express his gratitude to the Government of India, the city of New Delhi, all those who had contributed to the construction of the conference building and those who had done so much to help organize the meeting.
4. He extended a welcome to the delegates of Member States and the members of their delegations, to the observers, to the representatives of the United Nations and its specialized agencies, and to all representatives of other intergovernmental and non-governmental organizations.
5. Finally, he wished to thank the members of the Indian Government and the diplomatic corps who had honoured the Conference by their presence.

#### ELECTION OF THE PRESIDENT

6. The TEMPORARY PRESIDENT invited nominations for the office of President of the Conference.
7. Mr. PANABORKE (Sri Lanka) said it gave him great pleasure to propose Mr. H.N. Sethna, the delegate of India, as President of the twenty-third regular session of the General Conference. It was scarcely necessary to detail Mr. Sethna's suitability for the office; his academic qualifications and experience in atomic energy eminently justified his selection. He was Secretary to the Government of India's Department of Atomic Energy and Chairman of the Indian Atomic Energy Commission, and it was a great pleasure to nominate him for the office.

8. Mr. OMOLODUN (Nigeria) said he was pleased to support the nomination, since Mr. Sethna's qualities as a diplomat and as a campaigner for human dignity meant he was highly suited to act as President.

9. Mr. de CARVALHO (Brazil), speaking on behalf of the Latin American countries, also supported the nomination of Mr. Sethna. The development of atomic energy in India owed very much to three men - Bhabha and Sarabhai and now Sethna. Mr. Sethna's very distinguished academic and professional career was familiar to all; he was a man of great knowledge and wisdom, able in governmental and international affairs and endowed with the courage to serve his family, his country and mankind.

10. Mr. HOESS (Austria) expressed his support and that of the western European countries for the nomination of Mr. Sethna.

11. Mr. Sethna (India) was elected President of the General Conference for its twenty-third regular session by acclamation.

Mr. Sethna (India) took the Chair.

12. The PRESIDENT expressed his sincere appreciation to the delegate of Sri Lanka for his kind words and to the delegates of Nigeria, Brazil and Austria for extending their support.

13. He was conscious, in accepting the presidency of the Conference, that the honour carried with it a duty of responsibility towards the delegates. He would endeavour, with their understanding and assistance, to carry out that duty to the best of his ability.

14. In giving him the privilege of presiding over their deliberations, the delegates had also honoured India, which was acting as host to the twenty-third regular session of the General Conference. India had been actively associated with the Agency since its formative years and had always extended the fullest co-operation to its activities, especially to the promotional work designed to "accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world". The importance of rededication to the principle of international co-operation in the peaceful uses of atomic energy, with special reference to the needs of developing countries, could not be overstressed.

15. India was happy to act as host to the General Conference, and he hoped that everyone would have the opportunity of seeing some of the scientific establishments and also some of the cultural heritage of the country. India had one of the world's oldest civilizations, but at the same time it was a young developing nation striving against tremendous odds not only to improve the quality of life, but to provide the basic needs of millions through the benefits of science and technology.

16. In accepting the office of President, he was conscious of the high standards set by his predecessor and wanted to pay a personal tribute to Mr. Malu wa Kalenga, who had presided over the General Conference at its previous session with dignity, unfailing tact and fairness.

17. He expressed his sincere appreciation to the Director General, Mr. Sigvard Eklund, and his staff for their dedicated and valuable services to the Agency and welcomed the representative of the Secretary-General of the United Nations and other representatives of organizations belonging to the United Nations family.

#### ELECTION OF OFFICERS AND APPOINTMENT OF THE GENERAL COMMITTEE

18. The PRESIDENT invited the delegates to turn to the first item on the provisional agenda, the election of officers and appointment of the General Committee. Under Rules 34 and 40 of the Rules of Procedure, the Conference now had to elect, on proposals made by the President, eight Vice-Presidents, the Chairman of the Committee of the Whole and five additional members of the General Committee.

19. He proposed that the delegates of the following States be elected as the Vice-Presidents of the General Conference: Ecuador, France, Japan, Malaysia, Nigeria, Qatar, Union of Soviet Socialist Republics, and the United States of America.

20. He proposed Mr. Costa Alonso, delegate of Mexico, as Chairman of the Committee of the Whole, and the delegates of the following States as members of the General Committee: Canada, Czechoslovakia, Federal Republic of Germany, Tunisia, and the United Kingdom of Great Britain and Northern Ireland.

21. The General Conference accepted the President's proposals.

22. The General Committee was thus duly appointed.

#### INAUGURAL ADDRESS ON BEHALF OF THE HOST COUNTRY

23. The PRESIDENT said that Mr. Charan Singh, the Prime Minister of India, had graciously consented to address the Conference.

24. Mr. CHARAN SINGH (Prime Minister of India) said that the Government and people of India considered it a great privilege and honour to act as host to the General Conference at its twenty-third regular session and welcomed all the participants in the Conference to their country. It was particularly gratifying to see among those present the distinguished Director General of the Agency, Mr. Sigvard Eklund, during whose long and able stewardship the activities of the Agency had prospered in many areas, and it was, moreover, a source of pride and happiness for India that Mr. Sethna should have been chosen to guide the business of the Conference as its President.

25. A cross-roads had been reached in the development of atomic energy which made the deliberations of the present session particularly important. Mankind was confronted with an unprecedented threat of self-extinction, arising from the accumulation of the most destructive weapons ever produced. The existing arsenals of nuclear weapons were more than sufficient to destroy all life on earth many times over. Yet the nuclear arms race continued unabated. Events such as the Three Mile Island accident had aroused public feelings against any form of nuclear energy. On the other hand, most of the world was facing an energy crisis; for at least several decades nuclear power would continue to constitute a major component of the energy resources of many countries, and others which as yet had no nuclear programmes would be forced to turn to that source of energy. The International Atomic Energy Agency had the statutory objective of accelerating and enlarging the contribution of atomic energy to peace, health and prosperity throughout the world. It was to be hoped that in performing that important task, the Agency would act in strict conformity with the letter and spirit of its Statute. The Agency had been established primarily to promote international co-operation in the transfer and utilization of nuclear energy for economic and social development, especially in the developing countries. While it was true that the Agency also had regulatory functions, it was incontestable that such functions could only be ancillary to the main, promotional role of the Agency. Unfortunately, increasing stress was of late being placed on the regulatory rather than the promotional functions. Safeguards had come to be given more importance than technical assistance, and what technical assistance continued to be provided by the

Agency was being made subject to restrictive and preferential conditions. That trend should be reversed in order to avoid erosion of the Agency's credibility as a great organization which had in the past made very significant contributions to the development of the peaceful uses of nuclear energy for the benefit of mankind.

26. During the past decade, much had been said and written about the non-proliferation of nuclear weapons. India had always believed in the concept of genuine and comprehensive non-proliferation, and had consistently held that non-proliferation measures, in order to be truly effective, must be applied uniformly and universally to all nuclear activities in all States. It was not merely of historical interest that the concept of "non-proliferation of nuclear weapons" had been introduced by India in 1964, when it had asked the United Nations to depart from the earlier principle of considering how to avoid only the further spread or dissemination of nuclear weapons. That initiative had been in line with India's proposal in 1954 for a complete cessation of all nuclear weapons tests, a proposal which had been based on the valid premise that both horizontal and vertical proliferation were integral parts of the same problem and had to be dealt with simultaneously if the problem of the proliferation of nuclear weapons was to be solved. In 1965 the United Nations had urged the early conclusion of a non-proliferation treaty which "should embody an acceptable balance of mutual responsibilities and obligations of the nuclear and non-nuclear powers". And yet the treaty, when it had finally emerged, had been almost totally silent on the problem of vertical proliferation of nuclear weapons. The goal of nuclear non-proliferation, as the Final Document of the 1978 United Nations special session on disarmament clearly stated, was "on the one hand to prevent the emergence of any additional nuclear-weapon States besides the existing five nuclear-weapon States and on the other progressively to reduce and eventually eliminate nuclear weapons altogether". The Final Document went on to say that that involved obligations and responsibilities on the part of both nuclear-weapon States and non-nuclear-weapon States, the former undertaking to stop the nuclear arms race and to achieve nuclear disarmament and all States undertaking to prevent the spread of nuclear weapons. Although various measures had been initiated to check the possible spread of nuclear weapons, not a single significant step had been taken even to slow down, let alone to stop or reverse, the far more dangerous and irrational nuclear arms race. No progress could be expected in the one without corresponding

progress in the other. It was even more distressing that many of those who preached the virtues of horizontal non-proliferation claimed in the same breath the right - rooted in the theory of nuclear deterrence - not only to possess, but even to use, nuclear weapons to safeguard national security.

27. Non-proliferation was a much-abused word. In its name, efforts continued to be made to obstruct developing countries trying to develop indigenous facilities for the peaceful utilization of atomic energy, smaller nations were forced to accept restraints and restrictions which the nuclear-weapon Powers were not prepared to accept for themselves, and there were even moves towards institutional measures aimed at limiting certain nuclear fuel cycle activities to a few so-called safe and secure locations, thereby introducing a regime under which the vast majority of countries would be placed at a permanent economic and technological disadvantage. Such efforts ran counter to the letter and spirit of the unanimously adopted Final Document of the United Nations special session on disarmament.

28. One of the major functions of the Agency had in recent years been the strengthening of international safeguards on national nuclear installations. It was generally agreed that safeguards should be non-discriminatory, but at the same time it was held that safeguards were relevant only in the case of horizontal proliferation, that the jurisdiction of the IAEA covered only the peaceful applications of atomic energy, and could not be extended to non-civilian nuclear establishments. The Agency should carefully consider that problem, in particular since the only reported cases of large-scale diversion of weapons-grade nuclear material, which was precisely what safeguards were meant to prevent, had occurred in the sanctuaries of nuclear-weapon States.

29. The international community had declared that the use of nuclear weapons was a violation of the Charter of the United Nations and a crime against humanity. The Geneva Protocol of 1925 had proved invaluable in the efforts to abolish chemical and biological weapons. A similar treaty or convention prohibiting the use of nuclear weapons might prove a precursor to nuclear disarmament, besides being useful in itself.

30. India had been active in the field of nuclear energy for over three decades. At the end of the Second World War, when most nations had regarded atomic energy as a force of destruction, India had already been thinking in terms of exploiting atomic energy solely for economic development. The largely

independent development of nuclear science in India from the laboratory stage to the industrial stage showed that developing countries need not follow the path taken by advanced countries in the application of science to society; certain stages of technological development could be omitted through the planned utilization of advanced science and technology. The Indian atomic energy programme had brought immense benefits: the knowledge and skills imparted to Indian industry had enhanced technological capability, quality consciousness and self-confidence and atomic energy had contributed to the growth of a national scientific culture. At the same time, India had never wavered from its commitment to the peaceful uses of nuclear energy.

31. In conclusion, he hoped that the IAEA would succeed in formulating and implementing a long-term plan that would enable the developing countries to reap the benefits of atomic energy in their national development. International co-operation in such a plan would call for wisdom and maturity coupled with a high degree of mutual trust and understanding.

MESSAGE FROM THE SECRETARY-GENERAL OF THE UNITED NATIONS

32. The PRESIDENT welcomed the representative of the Secretary-General of the United Nations, Mr. M.D. Sytenko, and invited him to take the floor.

33. Mr. SYTENKO (Under Secretary-General for Political and Security Council Affairs) said that he wished to convey a message to the General Conference from the Secretary-General, Mr. Kurt Waldheim. The present session of the Conference was being held, Mr. Waldheim noted, at a time when the world energy situation had reached a critical stage. A principal issue in the world energy economy was the measures that needed to be taken to complement or perhaps even replace predominantly petroleum-based systems by more renewable sources of energy. However, confidence in the use of nuclear power had recently been undermined by diverse technical, economic and safety factors. The concerted efforts of scientists, engineers, technologists, policy-makers and planners would be required to meet the challenge facing the nuclear industry, particularly in relation to reactor safety and radioactive waste disposal problems.

34. Added to those issues were the differing viewpoints between countries which lacked energy resources and were therefore seeking access to technology and equipment for independent and peaceful nuclear programmes, and those countries which feared that the spread of such know-how and equipment would increase the

risk of nuclear proliferation. The International Atomic Energy Agency had the important task of finding ways of widening the benefits of the peaceful application of nuclear energy. With its combined promotional and regulatory functions, the Agency was in a unique position to help devise schemes which would reflect a reasonable balance between the rights and obligations of the States involved and rest on a genuine consensus between suppliers and recipients.

35. The Agency's safeguards were an essential condition for international nuclear co-operation. It was a cause for deep concern that the number of States with unsafeguarded nuclear facilities might be on the increase. Such a trend needed to be reversed if confidence between States was not to be undermined and international relations adversely affected.

36. Given that background, it was clear that the Conference was meeting at a time when deep reflection and a thorough perusal of all the issues involved in nuclear power were called for. Mr. Waldheim hoped with some confidence that the Conference would contribute to the search for answers to the urgent and difficult questions confronting the international community.

STATEMENT BY THE DIRECTOR GENERAL

37. The PRESIDENT invited the Director General of the International Atomic Energy Agency, Mr. Sigvard Eklund, to take the floor.

38. The DIRECTOR GENERAL, after congratulating the President on his election and commenting on his knowledge and wide experience, said he was certain that he was expressing the sentiments of all concerned in thanking the Prime Minister and members of his Government for honouring the Conference with their presence at its opening. He also wished to thank the Government of India for its generous hospitality in inviting the Conference to New Delhi. Under the leadership of three men of exceptional vision and ability - the late Drs Bhabha and Sarabhai and, now, Dr. Sethna - India had shown how a developing country could reach a position in the front rank of nuclear power and the applications of nuclear techniques in various areas of the national economy.

39. It seemed to him appropriate to start his address by saying a few words about the energy situation in the world, as the future role of nuclear energy depended fundamentally on the need for energy in general in the years to come.

40. In the developed countries, there seemed to be a school of thought that believed in the need for more energy in the future (although less than the annual increase of 5% which had prevailed for a long time), and another school which thought that in a decade or so it would be possible to limit the annual growth to 0.5-1%, or even reach zero growth by means of careful energy conservation programmes.

41. His own comments on the subject could be summarized as follows: the world population would increase from the present 4200 million to 6400 million people by the year 2000. The primary task of any government would be to provide those people with food. That could only be achieved by cultivating all areas which could possibly yield crops and by using the most intensive agricultural methods. Future intensive agriculture would require the use of fertilizers, for the production of which energy and hydrocarbons were needed. So there would be an automatic increase in the need for energy already resulting from the population increase.

42. A decrease in the contribution of the present non-renewable sources of energy to the increasing total energy needs would only be possible if new sources of energy became available on a drastically enlarged scale within the next 20 years. Realistic estimates did not envisage such a development on the scale required. It went without saying that the new energy sources now being proposed - solar, wind, geothermal and tidal energy - should be developed because all energy sources with any real potential would be needed in future. However, considerable time would elapse before they could make a substantial contribution to the energy balance.

43. Estimates made in 1977 by the most competent body existing - the World Energy Conference - showed without doubt that, in a few more decades, with the present consumption rate the world would have exhausted its existing petroleum resources, the formation of which had taken hundreds of millions of years.

44. Reserves of coal existed, but were very unevenly distributed. They also presented difficulties associated with mining and environmental pollution.

45. That led to the conclusion that there was only nuclear power which was immediately available to be used for saving at least part of the hydrocarbon resources for coming generations.

46. The situation in the developing countries was less ambiguous, there being no question that they required more energy to meet their needs. As the first Chairman of the Indian Atomic Energy Commission, the late Dr. Homi Bhabha had said at the first United Nations International Conference on the Peaceful Uses of Atomic Energy in 1955: "There is no energy so expensive as no energy".

47. In that situation it must seem strange to an objective observer that there existed a heated debate in a number of developed countries as to whether or not use should be made of nuclear power. The arguments related usually either to the impact of nuclear energy on the environment (the risks of release of radioactivity or the safe storage of nuclear waste) or to the assumed risks of proliferation of nuclear weapons from the peaceful uses of nuclear energy. It would undoubtedly be an interesting task for future historians to try to understand how and why a question almost wholly technical should have become an all-encompassing political theme. The matter had acquired enough political importance to topple governments, and had made parliamentarians and holders of elected office fear for their prospects of being re-elected.

48. There were countries - an example was his own, Sweden - where the question whether or not to use nuclear power had become the fundamental issue of the day, commanding the attention of the electorate far more than others such as social benefits or taxation which had traditionally kept political interest alive. Politicians in those countries had become so wary of the issue that they no longer dared to rely on the expertise available to their Governments for solving problems of a technical nature. The Governments concerned seemed to wish to relieve themselves of their immediate responsibilities by referring decisions to the electorate in the form of a referendum.

49. People were informed or misinformed by the information media as to some of the basic principles involved in energy production, and were exposed to the wisdom which the different political groups found it convenient to bestow upon their electorate. Having thus been educated, they were invited to go to the urns to express their preference. One wondered whether the electorate would ever learn any of the more relevant facts through such a process: for instance, that at the beginning of 1979 a total of 224 nuclear power reactors had been in operation, representing some 1800 reactor years of experience, and that in not one case had any person ever been fatally or seriously injured by radiation from a civilian nuclear power plant; or that the world population was continuously exposed to radiation, of which 68% came from the natural background,

31% from medical irradiation, 0.6% from fall-out due to nuclear tests, and only 0.15% from the nuclear power industry. On the basis of the 1977 report of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), it had been calculated that the radiation emitted by all nuclear plants at present operating in the world might cause some 60 deaths from cancer each year; that was a figure to be compared with the 7000 cancer deaths resulting from the medical use of X-rays and radiations, out of an estimated total of 50 million cancer deaths each year from all causes. The figure of 60 deaths represented a mathematical speculation, whereas the other figures were based on statistical evidence.

50. Bearing those facts in mind, one might find it difficult to understand how Governments dared to take decisions without referenda which would permit dams to be built that might collapse; which would allow huge aircraft to fly over densely populated areas where an accident could cause (and sometimes did) hundreds of deaths; and which permitted the transport by road and rail of highly toxic substances of the type which recently had led to the largest evacuation in the history of mankind, involving a quarter of a million people in the vicinity of Toronto.

51. Psychologists and sociologists explained the situation in terms of different attitudes towards known and unknown risks, as well as a difference in attitudes towards risks that were imposed and those that were taken voluntarily. That might be true; in his opinion, however, there were deeper reasons for the ground gained by the anti-nuclear groups. In that context it was interesting to note that there was little debate on the nuclear issue in the developing countries and in those countries which had centrally planned economies. The debate flourished almost exclusively in countries with affluent economies, irrespective of whether or not there was access to alternative energy sources.

52. In those countries there were citizens' groups who were not interested in further economic growth or technological development. They advocated new life styles, and a tacit assumption was that their own standard of living would be maintained and the quality of the environment preserved. It was not clear how less fortunate human beings, either in their immediate surroundings or in the developing countries, were to be able to improve their living conditions in such a "no growth" economy.

53. Any comments on the nuclear controversy would be incomplete without reference to the Three Mile Island accident in the United States of America during the early spring of 1979. Two weeks after the event a Presidential Commission had been established under the chairmanship of John G. Kemeny to conduct a comprehensive study and investigation of the accident. The Commission had concluded its work by 30 October and its report was remarkable in its clear description of the events and in the objectivity with which it recommended steps that could be taken in order to prevent a repetition. Several other investigations were under way in the United States, initiated by the Senate, the Nuclear Regulatory Commission and the Electric Power Research Institute. To those must be added studies by specially appointed commissions in a number of countries with substantial nuclear programmes.

54. The Kemeny Commission's most important conclusions were that the equipment had worked better than expected but that the operators had not: in the Commission's own words it had become clear that the fundamental problems were "people-related" problems. The main factor which had turned minor events into a potentially major event had been human error and not mechanical failure.

55. As delegates knew, the Board of Governors in June had approved a significant expansion in the Agency's nuclear safety programme, although not appropriating any funds for it but asking for voluntary contributions. That included a widening of the scope of the Nuclear Safety Standards (NUSS) programme, and the sending of missions on request to Member States to advise them on safety matters and help them use the NUSS programme products. At the invitation of the Swedish Government, a major international conference on nuclear safety would be convened in Stockholm in October 1980.

56. The Agency might also play a useful role in assembling, comparing and possibly later co-ordinating the competence requirements which should be met by power reactor operational staff. Preparations for the establishment of what could be termed an international nuclear fire brigade would also be considered. A programme would be initiated to collect and systematically analyse data on abnormal nuclear power plant operating experience.

57. Finally, on that topic, he wished to draw attention to a booklet entitled "Radiation, a Fact of Life" which had recently been published by the Agency in English and which would shortly appear in French, Russian and Spanish also.

58. He had told the United Nations General Assembly when it had discussed the Agency's Annual Report on 2 November that year that, if black-outs were to be avoided, factories kept going and homes heated and illuminated in the late 1980s and 1990s, it was imperative for Governments to take the necessary decisions on new capacities in electricity production without delay and overcome the paralysis that had unfortunately undermined the energy programmes of many leading industrial countries.

59. What was the reality behind the public's apprehensions about nuclear power? At the end of 1978 the world's installed capacity of nuclear power had amounted to 110 000 MW(e), or 6% of the world's generating capacity. By 1985, on the basis of plants currently being built, the proportion of nuclear power would increase to about 16% of the electricity actually produced. In 1985, it would represent the equivalent of more than 400 million tons of oil a year. By way of comparison he observed that the previous year Saudi Arabia had produced 420 million tons of oil. Obviously, the contribution of nuclear energy was indispensable. That had also been emphasized at the summit meeting in June that year in Tokyo, where in the final communiqué it had been stated:

"We need to expand alternate sources of energy, especially those which will help to prevent further pollution, particularly increases of carbon dioxide and sulphur dioxide in the atmosphere. Without the expansion of nuclear power generating capacity in the coming decades, economic growth and higher employment will be hard to achieve. This must be done under conditions guaranteeing our people's safety. We will co-operate to this end. The International Atomic Energy Agency can play a key role in this regard."

60. Although a large number of nuclear plants were at various stages of construction (including around 90 plants in the United States alone) and even considering that a week previously Switzerland had put the G8sger power reactor into operation, thereby establishing a new world record of producing 30% of its electric power by nuclear means, one could not honestly express full satisfaction at the increasing use of nuclear power as long as it met with resistance from large groups of society.

61. The care with which nuclear energy had been introduced had also initiated a trend to observe the same care with regard to safety, waste disposal and pollution in traditional polluting industries such as the chemical and steel industries.

62. Recently, Member States of the Economic Commission for Europe had signed a convention on long-range transboundary air pollution. A suggestion had been made that pollution from nuclear power stations be included in such an agreement. In his opinion, the essential thing was to consider on a world-wide basis the transboundary effects of all pollutants of different origins. That could probably be done within the framework of the United Nations and specifically the United Nations Environment Programme (UNEP). In that way, various pollutants could be put into proper perspective and the most urgent problems tackled first.

63. In that context, he wished to refer to the study undertaken by UNEP on the environmental consequences of the production and use of different energy sources. Two parts of that study, namely the one on coal and oil and the one on nuclear power, had already been completed. The third part would cover renewable sources of energy and the fourth was expected to consist of a comparative analysis of all results obtained.

64. The Agency had supported the idea of a comparative study by UNEP and had contributed to the part on nuclear power.

65. During recent visits to a number of developing countries it had been possible to observe that the Agency's role in the field of technical assistance, both in promoting the application of nuclear techniques and in respect of nuclear power, particularly in uranium prospecting and mining, was highly appreciated.

66. In a situation where the demand for technical assistance greatly exceeded available resources, every effort had to be made to utilize the latter in such a way as to obtain maximum impact. With that in mind, several measures designed to improve co-ordination with recipient Governments and establish well-planned and well-integrated country projects, together with the first multi-year projects, were now being implemented.

67. Although resources for technical assistance had been growing steadily, the gap between the assistance required by the developing countries and the resources available was widening. Hence Member States were urged to make voluntary contributions at the highest possible level to the General Fund for technical assistance, especially those States which had not found it possible so far to contribute to the target in the same proportion as to the Regular Budget.

68. Moreover, the developing countries, to a far greater extent than the industrialized countries, were facing severe economic problems as a result of the energy supply crisis. For example, the cost of imported oil for India (now itself an oil producer) represented 26% of the total import bill, while for Brazil the figure was 31%, compared with about 13% of the import bill for the Common Market countries. Those were the percentages for 1978. At the present time the OPEC price was \$24 per barrel and on the spot market the price was \$40.

69. In such circumstances, all countries, especially the developed countries, had to heed the recommendations of OPEC itself and seek to reduce their dependence on oil, above all imported oil, in ways least likely to affect economic and industrial growth.

70. There were now about a dozen developing countries, including India, whose demand for electricity was large enough to justify the introduction of nuclear power. The number would increase as the electrical grids of other developing countries were expanded and as the price of alternative fuels continued to rise. By 1985, the 25 nuclear power plants already in operation or under construction in developing countries would account for about 4% of their total electricity production and, by the turn of the century, the figure would have risen to 10% or more.

71. Such projections might sound encouraging, but they were subject to several qualifications. First, even in the case of the best estimates, nuclear power would continue in the present century to play a much smaller role in electricity generation in the developing countries than in the industrialized countries. Second, the expansion of nuclear power in most of the developing countries continued to depend on the state of health of the nuclear industry in the developed countries. Third, future prospects for nuclear power in the developing countries were equally as sensitive to the evolution of non-proliferation policies as those for nuclear power in the developed countries.

72. There was also a direct relationship between nuclear power expansion in the developed countries and increased energy use in the developing countries. The less the nuclear power generated by the industrial countries, the more oil they consumed, the higher the price would rise and the less oil available to the developing world. The same was true of coal. So it was in

the direct interest of the developing countries that nuclear power should rapidly expand in the industrial countries and relieve the pressure on oil supply and prices.

73. Asia had provided the first example of regional nuclear research co-operation in the developing world, and the Regional Co-operative Agreement for Research, Development and Training Related to Nuclear Science and Technology, known as the RCA, was now in its seventh year, the number of countries taking part being ten.

74. The RCA would welcome more support from the industrial Member States of the Agency, and could also be commended to other regions of the developing world as an example of co-operative research in the nuclear field.

75. As far as safeguards, the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and related matters were concerned, it was encouraging to note that five developing countries had acceded to NPT during the past year, namely Bangladesh, Indonesia, Sri Lanka, Tuvalu and the People's Democratic Republic of Yemen. The process of accession was also advancing in Turkey and the Treaty now covered 111 countries.

76. Nevertheless, the task of creating a world-wide non-proliferation regime was by no means finished. Of all regions, Latin America, thanks mainly to the Treaty for the Prohibition of Nuclear Weapons in Latin America (the Tlatelolco Treaty), was the furthest advanced and on the way to becoming the first area of the world in which all nuclear activities, except those of a specifically peaceful nature, would be prohibited by international law and verified by IAEA safeguards. In that connection the Conference would be happy to hear of the decision by Argentina to ratify the Tlatelolco Treaty and of its initiation, in the summer of 1979, of negotiations for a full-scope safeguards agreement pursuant to that Treaty.

77. It was to be fervently hoped that the trend, initiated by NPT in 1970, of bringing all civilian activities throughout the world under IAEA safeguards would not be reversed. Retreating from the course which had been followed during the preceding nine years would involve the grave risk of leading the world into a new spiral of the nuclear arms race with the waste of valuable resources and manpower which that implied, not to speak of the danger to peace. For that reason, the reports about the spread of unsafeguarded enrichment technology could not but be a matter of

great concern. It must be borne in mind that where NPT and IAEA safeguards ended, the danger of proliferation began.

78. An important exercise which had engaged the attention of senior nuclear experts and diplomats from 66 Member States during the preceding two years - the International Nuclear Fuel Cycle Evaluation (INFCE) - was approaching its end. The INFCE final Plenary Conference would be held in Vienna in February 1980. Commending the achievements of INFCE in narrowing the gap in views which had appeared two years earlier about certain crucial activities of the nuclear fuel cycle, he wished to pay a tribute to its temporary chairman at the TCC meetings, Professor Chayes. INFCE had reaffirmed the validity of the nuclear choice which most countries had made in the 1950s. Two concrete projects had emerged from INFCE, namely, consultations intended to develop a system of international plutonium storage under the auspices of the Agency in implementation of Article XII.A.5 of the Statute and a study on international spent fuel management.

79. There were, however, still problems requiring attention, especially the problem of reconstructing an internationally acceptable framework of assured supplies of nuclear fuel and equipment under adequate safeguards. The Board of Governors might wish to establish a committee comprising the whole membership of the Agency with the task of developing a set of guidelines which would provide adequate assurance of continued supply of nuclear material and also ensure the willingness of the recipient States to accept the IAEA safeguards regime and to adhere strictly to a non-proliferation policy.

80. It was legitimate for a country - in particular a developing country - which invested resources of the order of a thousand million dollars in a nuclear power plant and was prepared to accept NPT or comparable safeguards to expect an uninterrupted supply of fuel during the lifetime of the plant.

81. Considering the instability prevailing at present in the overall energy market in many areas of the world, it was certainly an ambitious task to attempt to secure the long-term provision of nuclear fuel and fuel-cycle services. Nevertheless the long lead time required to increase capacity and the very high investment costs for nuclear power made such an endeavour desirable. Success in achieving international agreement in that area would be another example of the progressive role of nuclear energy in shaping international relations in the domain of technology.

82. The first principle which should govern any subsequent activities after INFCE was that the basis of all non-proliferation efforts must be, and must remain, the Non-Proliferation Treaty, and that the continuing credibility of Articles IV and VI of that Treaty as well as its first three Articles must be ensured. Otherwise there was a great danger that support for the Treaty would be eroded.

83. A second principle was that the appropriate organization for developing and executing international policies in the nuclear field was the International Atomic Energy Agency, which had been created specifically for that purpose, and that the appropriate organ within the Agency was its Board of Governors.

84. In August 1980, the Parties to NPT would be reviewing for the second time the operation of the Treaty "with a view to assuring that the purposes of the Preamble and the provisions of the Treaty are being realized", as was called for in Article VIII.3. The deliberations which had taken place at the INFCE meetings should provide a useful basis for arriving at the same assurances with regard to Article IV as in the case of the first three Articles.

85. In that context, it was worth mentioning the resolution adopted on 29 November by the United Nations General Assembly, deciding in principle to convene by 1983 an international conference on the peaceful uses of nuclear energy under the auspices of the United Nations, with the IAEA fulfilling its appropriate role.

86. He would appreciate Member States' assistance in improving the cost effectiveness of Agency safeguards, and their co-operation in the matter to which he had referred at the 539th meeting of the Board, viz. the non-acceptance by Member States of certain safeguards inspectors.

87. With regard to the Agency's budget for 1980, the Conference had before it the Board's recommendations for a budget modification which required an assessment of almost US \$4 million. That modification was essential if the Agency was to carry out the programme which the Board had approved. The additional assessment was due entirely to the decline in the value of the United States dollar, or, in other words, the rise in costs in Austrian schillings. That assessment, which would place an additional burden on Member States, especially those whose currencies had retained near parity with the dollar, imposed on the Agency the responsibility to continue and intensify its policies of strict economy and financial stringency.

88. If the Agency was to meet its statutory responsibilities regarding technical assistance, as well as those relating to safeguards and nuclear safety, some expansion would clearly be needed in 1981. With a view to offsetting, as far as possible, the cost of such expansion, additional economy measures would have to be examined.

89. At the Agency's request, the Austrian authorities were looking into the question of the exchange rate used in Austria for calculating air fares so that more rational arrangements could be arrived at for the Agency and the delegations accredited to it.

90. There were some other important matters which he wished to mention briefly. In October negotiations for a Convention on the Physical Protection of Nuclear Material had been successfully concluded under the chairmanship of Ambassador Siazon of the Philippines. The Convention marked an important international consensus on the measures to be taken to protect nuclear material in international transport. Its conclusion should help to promote nuclear trade and should provide an assurance to those who feared that the international development of nuclear energy necessarily involved a high risk of nuclear material falling into the wrong hands.

91. Significant developments were taking place in thermonuclear fusion. On the initiative of the Soviet Union, the Agency had held a number of workshops to study the construction of an international fusion reactor intended to demonstrate the technical feasibility of using fusion for producing electricity, a project which was being jointly carried out by Japan, the Soviet Union, the United States of America and the European Atomic Energy Community (EURATOM).

92. The inauguration of the Vienna International Centre had taken place on 23 August, and the Secretariat had now completed the transfer to its Permanent Headquarters. He was sure that the General Conference would join him in expressing sincere appreciation to the Federal Government of Austria and the municipality of Vienna for the new premises. He also wished to thank the Holy See and the Governments of Finland, the Federal Republic of Germany, Hungary and the Soviet Union, who had offered valuable gifts to the Agency's Headquarters; it was to be hoped that their example would be followed by others.

93. The General Conference would doubtless be happy to join in congratulating Professor Abdus Salam of Pakistan on his being awarded the Nobel Prize for Physics. As Director of the International Centre for Theoretical Physics in

Trieste, he had consistently exercised dynamic and successful leadership and had now gained the highest scientific recognition.

94. He had started his address by referring to the inconsistencies in many countries where the nuclear option was under debate and by noting that, internationally, there had been a loss of confidence through what might be called proliferation phobia. The nuclear industry and trade were now suffering from those developments. How could the situation be improved? There had probably been too lax an attitude in relations with the media, and on the national level much more activity was needed to counter the innumerable incorrect or unbalanced statements being made and distributed by news agencies. It was also essential when energy questions were discussed to arrange for the participation of opponents of nuclear power. They should have the opportunity to talk with power experts so as to learn of alternatives, and of their possibilities and shortcomings. Those who were interested in the consequences of a maximum credible accident should have an opportunity to learn of the extraordinary precautions taken and what the actual probability of a maximum credible accident was. They might in the end agree with Mark Twain, who had said once, when old, that he had been frightened of many things in life, most of which had never happened.

95. Attention should also be given to the consequences of not using nuclear energy - in particular the political tensions which would develop as a result of increased competition for oil and the difficulties which countries would face as they tried to maintain employment and an adequate standard of living.

96. In respect of non-proliferation, the most important task was to convince countries still outside the NPT regime to accede to the Treaty; but that could be done only if existing imbalances were rectified. For instance, there should be a complete ban on tests of nuclear explosives or weapons, of which to date roughly 1000 had been carried out underground. Furthermore, signatories of NPT who had relinquished part of their sovereignty by permitting international inspection should not be penalized by having other, additional conditions imposed upon them. That was why it was so important to find a formula whereby irrevocable safeguards also meant an irrevocable supply of fuel.

97. In conclusion, he felt it must be admitted that the present situation in the nuclear energy field was characterized by a number of contradictions. Many spoke of intolerable risks from civilian nuclear plants at which to date no

fatal radiation accident had occurred, but advocated their replacement by coal plants where, in the whole process from beginning to end, many people were killed each year. Frequent reference was made to the heritage that might be left to coming generations in the form of long-lived radioactive wastes, but nothing was said about the systematic efforts being made to deprive those same generations of the limited quantities of petroleum left. It was said that the industrialized nations wanted to improve the fortunes of the developing countries, yet they competed with them in the oil market, to which many of the developing countries particularly needed access if they were to be able to build up an electric infrastructure. People seemed to accept the existence of tens of thousands of nuclear weapons stored in many different places; they tolerated a growing number of ships propelled by nuclear engines; yet they fretted about land-based nuclear power reactors and talked about proliferation risks even from research reactors.

98. Far from being at the end of industrialization, the world was just at the beginning. One had to acknowledge how far the world had progressed since the Second World War in making the lives of human beings easier, healthier and more productive through continuing scientific and technological developments. The present nuclear debate did not constitute the most important question mankind had ever faced. There were many other, more important issues such as how to maintain world peace and how to help the hundreds of millions who were starving. Yet, to feed those people and to better their lot, industrialization was needed, and that in turn required a supply of cheap, reliable energy. That was where nuclear energy could make a substantial contribution.

STATEMENT BY THE MINISTER OF STATE FOR COMMUNICATIONS OF THE GOVERNMENT OF INDIA

99. The PRESIDENT thanked the Director General and gave the floor to the Minister of State for Communications of the Government of India.

100. The MINISTER OF STATE FOR COMMUNICATIONS commended the Agency on its efforts to assist developing countries by promoting the peaceful uses of atomic energy, and announced the issue of a special postage stamp by the Government of India to commemorate the occasion of the General Conference's session in New Delhi.

The meeting rose at 1 p.m.