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FIRST SPECIAL SESSION: 24-26 SEPTEMBER 1986

RECORD OF THE FIRST PLENARY MEETING

Held at the Neue Hofburg, Vienna,
on Wednesday, 24 September 1986, at 10.25 a.m.

Temporary President: Mr. MANOUAN (Côte d'Ivoire)
President: Mr. MANOUAN (Côte d'Ivoire)

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OPENING OF THE SPECIAL SESSION

1. The TEMPORARY PRESIDENT declared the first meeting of the special session of the General Conference open.

2. In accordance with Rule 48 of the Rules of Procedure, he invited delegates to observe a minute's silence devoted to prayer or meditation, and to turn their thoughts in particular to the victims of the tragic accident which had recently occurred at Chernobyl.

All present rose and stood in silence for one minute.

3. The TEMPORARY PRESIDENT welcomed the delegates, the numerous ministers and in particular Mr. Jankowitsch, Austrian Minister for Foreign Affairs, to the special session of the Agency's General Conference. Their presence underscored the importance which Member States attached to the first special session, during which would be examined numerous matters which could be of decisive importance for the future of nuclear power generation. He also thanked the Austrian authorities which, at very short notice, had placed the Hofburg premises at the disposal of the General Conference for purposes of the special session.

4. The Director General of the United Nations Office at Vienna, who was also present, had requested him to transmit to delegates the greetings of the Secretary-General of the United Nations. The latter attached particular importance to the session, which aimed at establishing international co-operation in a field which had the widest implications for the whole of mankind, and he extended to the General Conference his best wishes for the success of its deliberations.

SUSPENSION OF RULE 5 OF THE RULES OF PROCEDURE OF THE GENERAL CONFERENCE

5. Rule 5 of the Rules of Procedure provided that special sessions of the General Conference should be held not later than 90 days after the receipt by the Director General of a request for such a session from the Board of Governors. When, in the previous June, the Board of Governors had requested the Director General to convene a special session, it had been decided

that, for administrative and practical reasons, it would be preferable for the special session to be held immediately before the thirtieth regular session of the General Conference, the opening date for which had been fixed at Monday, 29 September 1986. However, the opening date of the special session (24 September 1986) was a little more than 90 days after the receipt by the Director General of the request to convene it. In so fixing the opening date the Board had good grounds for believing that the General Conference would, for purposes of holding the session, give its official approval to suspension of Rule 5 of the Rules of Procedure in view of the importance of the items to be dealt with and the particular circumstances in which the special session had been convened.

6. He took it that the General Conference was prepared to suspend Rule 5.

7. It was so decided.

ELECTION OF THE PRESIDENT

8. The TEMPORARY PRESIDENT invited nominations for the office of President of the General Conference.

9. Mr. CUEVAS CANCINO (Mexico), speaking on behalf of the "Latin America" group, said that it was with great pleasure that he proposed Mr. Manouan, the delegate of Côte d'Ivoire, as President of the General Conference at its special session. Mr. Manouan represented a country which was a model for other States of Africa and indeed of the world. Mr. Manouan's long career in the diplomatic services, and as representative of Côte d'Ivoire in Vienna, had contributed to international co-operation. Furthermore, the qualities which Mr. Manouan had exhibited as Governor from Côte d'Ivoire on the Agency's Board of Governors since 1985 meant that he was the ideal choice to occupy the office in question.

10. Mr. MASSE (Canada), speaking on behalf of the "Western Europe" group and other groups, supported the nomination of Mr. Manouan. His diplomatic skill in performing the functions of Governor and Permanent Representative of Côte d'Ivoire to the Agency had won him the confidence of Member States and had enabled him to preside over the work of the twenty-ninth

session of the General Conference, which had been crowned with success. That was a guarantee that Mr. Manouan would be fully capable of guiding the deliberations of the special session of the General Conference through the labyrinth of matters relating to nuclear safety.

11. Mr. SOWINSKI (Poland), speaking on behalf of the "Eastern Europe" group, also supported the nomination of Mr. Manouan.

12. Mr. Manouan (Côte d'Ivoire) was elected President of the General Conference for its special session by acclamation.

Mr. Manouan (Côte d'Ivoire) took the Chair.

13. The PRESIDENT said that the responsibilities with which he had just been entrusted bore witness to a confidence in Côte d'Ivoire of which he was highly appreciative. He wished to express his most sincere thanks, and to assure delegates of his total dedication to the success of the special session, which was of capital importance having regard to the obstacles in the way of nuclear energy, in spite of the untiring efforts which had been made in the area of safety at national, bilateral and multilateral levels with a view to overcoming nuclear hazards.

14. In general, technologies had progressed on the basis not of their successes but of their failures. Men had improved their knowledge of the design of bridges and boilers because of the bridges which had collapsed and not because of those which had held, and because of the boilers which had exploded and not because of those which had remained intact, to quote only two examples. Unlike the situation applying to other technologies, it had been understood since the dawn of the nuclear age that the technology of atomic energy ought not to progress by learning from failures, owing to the dangers which nuclear activities harboured. That technology would, in other words, have to dispense with the method known as "trial and error". Right from the start, the nuclear sector had therefore aimed at achieving complete safety. To arrive at that goal, recourse had been had to strict national regulations and to preventive measures based on science and technology. Problems of security had been taken into account as from the first designs of nuclear facilities, and knowledge and prevention of nuclear hazards automatically

played their part beginning with the initial study of a project. Measures were taken to ensure safety at the various stages of the fuel cycle, ranging from the extraction of uranium in mines or quarries to the storage of radioactive waste, passing through the various intermediate stages, with particular attention being paid to reactors since they represented the greatest hazard.

15. It had proved necessary to co-operate in the search for the solution to the problems of nuclear safety, by reason of the extent of the resources, the high professional skills, the complexity and the high cost of equipment and instrumentation which it involved. Bilateral and multilateral agreements had been concluded for that purpose among the States Members of the Nuclear Energy Agency of OECD, the Commission of the European Communities and the Council for Mutual Economic Assistance. A broader co-operation, embracing both countries having a nuclear industry and the developing countries, had been instituted within the framework of the International Atomic Energy Agency. The Agency devoted an appreciable part of its activities to the preparation of nuclear safety standards, the exchange of information and the provision of various advisory services, with a view to improving the safe operation of nuclear power plants. It had set up the Operational Safety Review Team (OSART) service and developed the Incident Reporting System (IRS) for collecting, analysing, recording and disseminating information on a world scale. The effort put forth in the nuclear safety field at the national, bilateral and multilateral levels had been rewarded by positive results. Thorough studies of the comparative risks of various technologies showed that the nuclear way for generation of electricity was the one which caused the least fatal accidents per terawatthour, and that it had saved several hundred or several thousand human lives, depending on the energy source for which nuclear energy had been substituted.

16. In spite of those results, nuclear safety was questioned by a section of public opinion. Posters representing nuclear energy as an array of permanent, universal and invisible dangers, as an implacable evil which stealthily entered, via air, water or food, into the very depth of the human organism, that was to say into its genes. There was no doubt that behind

those fears could be read the confusion which reigned between the potential consequences of a nuclear accident and the effects of an atomic bomb, although there was a considerable qualitative difference between a nuclear accident, even the worst imaginable, and the explosion of a nuclear weapon.

17. The positive record of nuclear safety should not, however, hide the fact that there were some weak points, such as those which had been revealed by the analysis of the accident which had occurred in Unit 4 of the Chernobyl nuclear power plant. It was therefore essential to intensify efforts, to undertake vigorous measures, and to produce work of high quality so as to perfect nuclear safety. The development of nuclear power, which was irreplaceable in certain countries, was dependent thereon, having regard to the opposition with which it was faced. The interests of the whole of mankind were also involved, because it was now apparent that a nuclear disaster could not only affect a city or a province in the country in which it occurred but also concerned neighbouring or even relatively distant countries.

18. Some people might consider it unreasonable to demand that nuclear safety should strive for limitless perfection. The principle according to which anything which could be done to make reactors safer was good, could not be the exclusive principle. It should not become a convenient way of filling up a void in understanding. A warning against perfectionism in nuclear safety which would in fact not contribute to safety was therefore justified, provided that it did not represent an invitation to place a limit on safety. That would be contrary to the dialectic and the image of scientific and technical progress which history offered.

19. If since the Renaissance, when research on mechanical matters had originated, and extending up to the present time science and technology had undergone a prodigious development which was still far from completed, that was because, as a man whose name remained associated with the celebrated Congress of Vienna, Talleyrand, had said "one never goes as far as one does when one does not know where one is going". It was indeed because he had never known where he was going that man had made such progress in the struggle he had always had to face in order to survive. In that struggle for existence, he had been able to count on his intelligence and on the instrument

created by that intelligence, namely technology. Technology had brought him more safety, and science had given birth in him to confidence and to trust in a better future. But from those very grounds for trust a threat had arisen: the risk of technological catastrophes. Thanks to his ingenuity, man had been able to take counter measures and to reduce the frequency of accidents and disasters.

20. In conclusion, he trusted that the first special session of the General Conference, which symbolized a meeting of Governments and world public opinion, would result in new progress in mastering nuclear safety, for the greater good of the whole of mankind.

ELECTION OF VICE-PRESIDENTS OF THE GENERAL CONFERENCE AND OF THE CHAIRMAN OF THE COMMITTEE OF THE WHOLE; APPOINTMENT OF THE GENERAL COMMITTEE

21. The PRESIDENT proposed, in conformity with Rule 34 of the Rules of Procedure of the General Conference, that the delegates of the following Member States be elected as Vice-Presidents of the General Conference: China, Cuba, the Federal Republic of Germany, India, Morocco, New Zealand, the Union of Soviet Socialist Republics and the United States of America.

22. He proposed, pursuant to Rule 34 of the Rules of Procedure, Mr. Scheel, of the German Democratic Republic, as Chairman of the Committee of the Whole and, pursuant to Rule 40, the delegates of the following Member States as additional members of the General Committee: Canada, Denmark, Netherlands, Paraguay and the Syrian Arab Republic.

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

24. The General Committee was thus duly appointed.

PROCEDURAL REMARKS BY THE PRESIDENT

25. The PRESIDENT proposed that, pending the report of the General Committee on the agenda, the Conference should continue in plenary session.

ADDRESS OF WELCOME BY THE AUSTRIAN MINISTER FOR FOREIGN AFFAIRS

26. Mr. JANKOWITSCH (Austrian Minister for Foreign Affairs) recalled that the first special session of the General Conference had been convened in

response to a nuclear accident of unprecedented magnitude. It should therefore be part of an indispensable learning process of the international community in the field of the peaceful uses of nuclear energy.

27. The Chernobyl accident offered the world several urgent lessons. Firstly, nuclear energy had been shown to be unsafe at present, and Chernobyl was not an isolated accident, as was sometimes maintained, but rather the worst and latest of a series of nuclear mishaps. The Post-Accident Review Meeting held in Vienna in August 1986 had demonstrated that the risks of error in nuclear power generation could not be reduced to the extent necessary to exclude any accident. Men could neither create 100% safe technology, nor display 100% perfect behaviour. Secondly, radioactive clouds ignored national frontiers. Generation of energy from the atom involved an unavoidable risk of irreversible and severe transboundary effects. Decisions relating to the siting and construction of nuclear power plants could not therefore be considered as the exclusive concern of a given country. It was obvious that at least the transboundary aspects of the use of nuclear energy must be regulated by international agreements and co-operative endeavours based on them. Thirdly, the requirements for protecting nuclear facilities against terrorism, sabotage or any other misuse were so complex that adequate protection would lead to unacceptable interference with basic civil rights. Indeed, the very nature of nuclear energy sometimes led Governments to violate the people's right to be informed. Fourthly, the growing use of nuclear energy would lead to the accumulation of huge amounts of highly radioactive wastes, requiring safeguarding over such long periods of time that coming generations might be burdened therewith far into the future. Furthermore, no one at present could say with any certainty what might happen when existing plants were decommissioned and no one knew how much that would cost. Finally, Chernobyl had been a dramatic reminder of the threat of a nuclear apocalypse. Chernobyl, of course, was not Hiroshima, however high its cost in human terms. Nevertheless, the peaceful and the military uses of nuclear energy could not be totally disassociated.

28. For Austria, the lessons of Chernobyl were clear. The Faustian bargain of nuclear energy appeared to have been lost. It was high time to leave the path hitherto pursued in the use of nuclear energy, to develop alternative and

cleaner sources of power and, during the transition period, to devote all possible efforts to ensuring maximum safety. That was the price that had to be paid to enable life to continue on planet Earth.

29. In a referendum held in 1978, the Austrian people had rejected the installaton of nuclear power stations in their country. That, of course, had been long before Chernobyl, but the reasons for that decision by the Austrian public were essentially the same as the lessons of Chernobyl. The strong sense of distrust and uneasiness felt in 1978 was now supported by undeniable facts.

30. There were few countries, at least among the industrialized nations, which had not introduced nuclear power generation. A somewhat larger group, however, was constituted by those countries which were gradually abandoning the nuclear option, recognizing it as a technology of transition. The largest group, of course, remained that of the countries which still clung to their nuclear power programmes. In view of the transboundary damage which could accrue from nuclear energy generation, those divisions in the international community almost inevitably led to conflicts of interests. Even between neighbouring countries which had excellent relations with one another, nuclear questions were liable to strain those relations if the countries in question were pursuing different options in the nuclear field.

31. In view of all that, Austria believed that the speedy development, both bilaterally and multilaterally, of an international law applicable to the problems arising from the use of nuclear energy was of capital importance for the whole international community. There were three questions which above all seemed to call for progress in international law: the first question was how to reduce the risk of nuclear accidents. Agreements were required on universally accepted safety standards, on ways of ensuring that they were being obeyed and on the continuous notification of data about the operation of a plant. Moreover, arrangements should be made for neighbouring States to be associated with the relevant administrative processes as from the planning stage of a plant. That would, of course, not render nuclear energy safe from one day to the next, but would contribute to increased safety during a transition period which, in his view, might lead all countries to adopt a "no

nuclear" option. The second question was how to provide prompt assistance in case of a nuclear accident. One of the two conventions which were being submitted to the General Conference for adoption represented a first important step. Measures taken in that area, however, should be further developed so as to strengthen the system of multinational assistance. Finally, the third question was how to satisfy claims for damage suffered by third countries as a result of a nuclear accident. International law was at present very inadequate in that area. It was therefore all the more urgent to develop adequate legal mechanisms to meet such claims.

32. Hence there was much work to be done in developing, at bilateral and at multilateral level, a whole network of international legal instruments. In view of its extensive experience the International Atomic Energy Agency was clearly the primary forum for the multilateral endeavours that would be required.

33. On 15 May 1986 the then Austrian Federal Chancellor, Dr. Fred Sinowatz, had addressed the Austrian parliament on the consequences of the Chernobyl accident. He had proposed the rapid conclusion of international conventions on early notification and on assistance in the case of a nuclear accident. It could now be seen that that approach was shared by numerous members of the international community, and two draft conventions had been prepared. Austria considered that those two documents represented a first step in the right direction. He hoped that numerous States would sign the two conventions before the end of the special session of the General Conference or in the near future. Austria intended to do so and would comply with their provisions even before their official entry into force.

34. Viewing nuclear power with a critical eye did not in any way mean being hostile to technological progress in general. The opposite was true: Austria and the Austrian people believed in technological progress. The necessary development of new concepts should be conducted on the basis of intensive international co-operation. In that respect Austria valued highly the role of the Agency as an essential factor of co-ordination and communication in such international endeavours. Nuclear power was only one segment of the wide spectrum of existing activities and would be developed with a view to its

applications in new fields. At present, the International Atomic Energy Agency had the important task of being a focus for enhanced international co-operation regarding nuclear safety. It was in that context that the most urgent conclusions should be drawn from the tragic events of the recent past. It was essential that the users of nuclear energy should carefully analyse the safety status of their plants and, if necessary, adjust their equipment to the demands indicated by such analyses.

35. Apart from the comparison of experience and the exchange of information, there was one area where, in his view, the Agency had a special role to play in extending its activities. The Agency had rightly earned a high reputation for its work in monitoring the non-proliferation of nuclear weapons. An extension of those monitoring activities to the inspection of safety standards at nuclear power plants would indeed be a gigantic step towards preventing accidents such as had occurred at Chernobyl. In that context he fully concurred with the opinion expressed by the Secretary-General of the United Nations in his report to the forty-first session of the General Assembly, where he had called for an early and positive consideration of the suggestions put forward in that direction. Such an extension of the Agency's activities would be in accordance with its Statute; it was therefore to be hoped that in the near future a consensus among Member States might emerge so as to enable the Agency to take up that new and important task.

36. In conclusion, he wished to say a few words about the form which he thought the decisions of the General Conference might take. First of all, the Conference should state its consensus in calling for prompt signature of the two conventions on early notification and on emergency assistance in the case of a nuclear accident, an act which should be accompanied by a declaration of intent to comply with the provisions of the conventions pending their entry into force. Secondly, the General Conference should urge all Member States to supply, in the context of bilateral or multilateral agreements between neighbouring countries, all necessary information on the safety features of existing and planned nuclear facilities. The Conference might also urge Member States to accede to requests to hold consultations on safety standards at existing facilities and on plans for new facilities before any final decision was taken. Thirdly, the General Conference might wish to entrust the

International Atomic Energy Agency with a mandate to work out binding safety standards for existing and future nuclear plants, the observance of which could be verified by Agency specialists. In the meantime, States operating nuclear plants should re-examine the existing safety provisions. Fourthly, the Conference should appeal to the international community to co-operate in research and development on new sources of energy capable of supplementing or replacing technologies that appeared obsolete in the light of such new developments. Fifthly, the Conference should initiate a process of negotiations leading to a multilateral agreement on the satisfaction of claims arising out of nuclear accidents in third countries.

37. The international community had important decisions to take regarding its energy future. He was confident that the constructive spirit which had always prevailed in the work of the Agency and which had already yielded significant results would serve as a basis to enable the special session in progress to achieve a positive outcome. Willingness to understand the points of view at issue, even where they appeared to be very different, should open the way to agreement.

STATEMENT BY THE DIRECTOR GENERAL

38. The DIRECTOR GENERAL said that the special session of the Agency's General Conference had been convened at the request of the Board of Governors to address one issue, namely measures to strengthen international co-operation in nuclear safety and radiological protection. It had been prompted by the accident at the Chernobyl nuclear power plant, which had confronted the Soviet authorities with difficult medical and technical tasks and had led a number of European Governments to take a variety of protective measures against the hazards of radioactive fallout. There was general agreement that the Chernobyl accident and other experiences must be turned to good use by enabling everybody to learn from them. The accident had raised many scientific, technical and organizational questions. Among those, of course, were how the accident could have happened, how it had been brought under control, what its consequences were and also how a recurrence could be avoided and what measures, in general, could be taken to increase safety and prevent serious accidents.

39. In some countries, the broader question of the acceptability of nuclear power was being discussed with new vigour. The number of people hostile to or sceptical about or simply frightened of nuclear power had increased in many countries. Numerous individual politicians and some political parties had felt compelled to respond to that anxiety by presenting policies promising the dismantling, freezing or phasing out of nuclear power in their own countries, and even to request specific measures regarding individual installations in neighbouring countries. Thus, many sincere people were one hundred per cent convinced that nuclear power was the ultimate evil. Other, equally sincere people were one hundred per cent convinced of the need for a continued and expanded use of nuclear power, not because they were enamoured of it, but because they saw no viable alternative at the present time. It had happened in the history of the world that people who were one hundred per cent convinced that they were right had proved to be one hundred per cent wrong. It was, unfortunately, only with the passage of time that one learnt which had been the wiser view.

40. In the meantime, governments had to act. Energy was the vital body fluid of society. The questions of reliability of energy supply, safety of energy generation and protection of the environment from damage due to energy generation or consumption were extremely serious and many decisions had long-term consequences. In those matters responsible conclusions and decisions had to be reached without haste and without giving in to sudden and perhaps temporary waves of public opinion. A basis of accurate facts and a careful assessment of arguments were needed. The Agency could assist Member governments by providing data which they required, for example, in the present case, by identifying the lessons to be learnt from Chernobyl.

41. The Agency's response to the accident had been twofold: the Agency had been a centre for information and analysis regarding the accident, and it had sought to take and to define additional international measures in the field of nuclear safety. The other organizations in the United Nations system had fully collaborated in that work.

42. One week after the accident he had been invited to visit the Soviet Union with two nuclear experts. They had received extensive briefings on the situation, on the basis of the facts then known. They had been able to visit

Kiev and to see the damaged plant from the air. They had also been able to inform the public of what they had learned and seen. They had held discussions with the Soviet authorities on how the Agency might proceed so as to enable all Members of the Agency to learn from the accident and further to increase nuclear safety. The Soviet authorities had declared their readiness to furnish information for a post-accident analysis at the Agency. In May and June the Board of Governors and the International Nuclear Safety Advisory Group (INSAG), consisting of government experts on nuclear safety, had met and had considered the problems arising for the Agency as a result of the accident. The Board of Governors had decided immediately on a number of activities that were to be undertaken in 1986 and had examined the draft of the expanded nuclear safety programme for 1987 and 1988. He intended to discuss various elements of that programme which, revised in the light of what had been learnt since its drafting and of the advice of INSAG, was now submitted to the General Conference for approval. During four weeks in July and August government experts had met at Agency Headquarters and had prepared two conventions on early notification and on emergency assistance. That meeting, as delegates would be aware, had resulted in consensus texts that were now laid before the present special session of the General Conference for adoption and signature. It was rare, he was sure, that two conventions had been prepared in an organization with world-wide membership within such a short time. It showed that there was no inherent need for the work of international organizations to be slow in yielding concrete results. Shortly afterwards, over 500 nuclear experts from all over the world had met for a week in Vienna. That meeting had received a comprehensive and very frank report by Soviet experts on the Chernobyl accident and had discussed it in detail. An authoritative account of the meeting and of the lessons drawn thus far had been prepared by INSAG for the Board and the present special session of the General Conference.

43. Thus, while the Soviet authorities were still taking urgent and effective measures to contain the accident and to cope with its medical and environmental consequences, a series of international activities prompted by the accident had been initiated at the Agency.

44. There now existed, in particular thanks to the post-accident analysis, an authoritative basis of facts, which could be used in national and international discussion. For example, it was known that the number of persons who had died from radiation caused by the accident was about 30 - not several thousands as had been erroneously stated in some early reports. Also, calculations based on the conclusions of recognized experts put the maximum of possible additional cancer cases that might be caused in the next 70 years in the Soviet Union by the radiation released at somewhere between 5000 and 20 000, not at a million as certain of the media had quoted one individual as having said. That number of possible additional cases should be viewed against a forecast total figure of up to some 15 million cancer cases from all causes in the same population during the same period. It was also now much better known what had happened in Unit 4 at Chernobyl and why it had happened. That knowledge had enabled the Soviet authorities to take several technical measures at all reactors of that type and several other measures regarding the training of personnel - all with the aim of preventing any recurrence. While the accident was to some extent due to the specific features of that type of reactor, many lessons could nevertheless be learnt and many questions could now be answered. The special session of the General Conference was therefore being held at the right time. Many people throughout the world expected the Governments represented at the session to present their views on nuclear power and to take international measures that might help further to improve nuclear safety. The discussions which would now begin should provide assistance in laying down a policy to be followed.

45. Since the Chernobyl accident, many people had been asking themselves whether nuclear power was an "acceptable" form of energy. The question was far from new, and numerous governments had already replied in the affirmative. At present, 15% of the world's electricity was nuclear generated, and by 1990 it was expected to be 20%. In the current discussion, in which so many sincere and responsible people were participating with such passion, there was an increasing need to make clear that it was not meaningful to discuss the acceptability or non-acceptability of one source of energy alone. An obsession leading to the renunciation of one source of energy might compel the increased use of another source that, upon analysis, might prove to

be even more problematic. If one wished to discuss the acceptability of nuclear power for electricity generation, it was also essential to discuss the alternatives: coal, oil, gas, hydro power, biomass, wind and solar energy, and a few other sources. But before examining the various aspects of any one of those options, the question must first be asked whether the world really needed more electricity. Could the world make do with less electricity in the future than it consummed at present? The answer to that preliminary question was that, even with the conservation measures which had yielded very good results thus far and had helped to bring about a stagnating or even a falling consumption of primary energy, electricity consumption nevertheless continued to rise. Considering, moreover, the wide differences in the level of electricity consumption even among industrialized countries, let alone developing ones, it could be answered categorically that there were strong social and economic reasons for increasing electricity generation in the world. The question was therefore how that increase was to be brought about. Reference was often made to environmentally benign, renewable sources such as hydro, wind and solar power. Of those only hydro power - although it was not without environmental consequences - gave the world significant amounts of electricity at present. Much hydro power could still be harnessed in some developing countries, but the untapped resources left in most industrialized countries were limited. Sources such as wind power were useful, but did not yield the quantities of electricity which were needed. In Denmark, for instance, despite an ambitious programme wind power was planned to add only 100 additional MW(e) in the following five years, whereas during 1985 alone 509 MW(e) capacity had been added through new coal and oil-fired generating plants. Solar energy could contribute to heating, but solar cells for large-scale economic production of electricity were considered to lie far in the future. It was conceivable that solar cells and some other energy sources might one day make possible the economic generation of large amounts of electricity. It was therefore entirely possible that nuclear fission, oil and coal would all one day be phased out as sources of electricity generation. Most technologies were transient, and indeed oil combustion, which played such a crucial role at present, had been used on a large scale for only some 40 to

50 years. However, new sources for large-scale electricity production were not even around the corner. Whether one liked it or not, it had to be recognized that at present planners could count on only coal, oil, gas and the atom - apart from hydro power in some developing countries - for any significant new contributions to the world's supply of electricity. None of those sources were without risk, and all would undoubtedly be used. What was of the greatest importance was the relative share which would be accorded to each of them.

46. What, then, were the negative sides to the two main options, nuclear and coal? Current calculations showed nuclear electricity generation to be cheaper in most places, but he did not believe that the outcome of a world referendum, if such were held, would be much influenced by small differences in economics. Rather it would be governed by the perception of the risks of accidents and of environmental consequences. In the case of coal, accidents in mines and transport took many lives, but the major anxiety relating to the power stations that generated electricity by burning coal was not about accidents. That anxiety concerned the environmental consequences of the burning of vast quantities of coal. In the case of nuclear power, mining and transport took few lives, and the regular operation of nuclear power plants produced no damaging emissions. The major anxiety there lay with the risk of a large-scale accident and with the waste that had to be isolated for very long periods of time. As was often the case, the choice was not between good and bad, but between options that all had some negative aspects.

47. Different persons of good will would all reach different conclusions. The division in public opinion even had its parallel at government level. Thus, Austria and Denmark had renounced the use of nuclear power in their countries. On the other hand, the leaders of seven economically important countries, meeting in Tokyo immediately after the Chernobyl accident, had stated their view that, "properly managed", nuclear power would continue to produce an increasing share of the world's electricity. The Soviet leader, Mr. Gorbachev, had said that it was impossible to envisage a world economy without nuclear power.

48. He was certain that those views had been expressed after a careful assessment of the arguments and risks involved and with a full awareness of the Chernobyl accident. He thought it fair to say that, with the significant exception of Chernobyl, the risks represented by nuclear energy generation to health and the environment had remained precisely that - i.e. risks - while the daily and normal use of coal and oil to generate electricity had had the most serious environmental consequences. Indeed, the emissions arising from the present-day combustion of fossil fuels, including that important proportion thereof which was used for electricity generation, were recognized as one of the greatest threats to the environment. There was now world-wide agreement that the present consumption of fossil fuels needed to be restrained. In particular, the burning of coal and oil was at present decisively - although in ways that were not fully understood - contributing to the large-scale damage and destruction of forests and lakes, and all fossil fuel consumption added to the risk of a rise in the temperature of the earth's atmosphere. There was also agreement that the emissions of sulphur dioxide, nitrogen oxides and other substances released in the combustion of coal and oil had to be reduced as soon as possible and as much as possible. Indeed even with the significant, albeit only slowly achieved, reductions which were now possible through pollution control technologies, enormous quantities of those unwanted substances would still be fed into the atmosphere, simply because of the large scale on which the burning of coal and oil took place. In addition, there was no way by which the release of carbon dioxide - partly responsible for the greenhouse effect - could be avoided in the burning of fossil fuels. The most serious environmental degradation problems were gradual processes, some with global implications. They did not become the focus of attention in the way a dramatic event such as the Chernobyl accident did. Yet their costs in terms of human lives, health and the sustainability of life on the planet Earth were incomparably higher.

49. In 1979, speaking in his then capacity as Foreign Minister of Sweden, he had stated in the Swedish Parliament that "while the arsenals of nuclear weapons threaten the biological life of the Earth with sudden extinction, environmental pollution and the plundering of resources foreshadow the

possibility of slow extermination. Our generation must bear in mind that the world does not belong to us but that we belong to it, and that we must not hand on to coming generations a poisoned and impoverished earth." While it would be difficult for many people to accept the conclusion that a continued and expanded use of nuclear power was necessary until some other technology could provide large quantities of electricity at reasonable cost, it should be easier to obtain a consensus on the next conclusion, namely, that everything had to be done further to improve safety in nuclear power reactors and to build safe installations for the storage or disposal of spent fuel and wastes.

50. What could be done further to improve the safe operation of nuclear power installations and, in particular, what were the lessons of Chernobyl? Before he tried to answer that question, he wished to point out that before Chernobyl electricity generation by nuclear power had gone through about 4000 reactor years of operating experience without a single known death caused by radiation. A new record of excellence in that field had now to be built up. The main responsibility for achieving that lay with national Governments. They had the legislative and executive power and the direct responsibility to their citizens. International measures could never be a substitute for action at the national level. However, if Governments and public opinion began to feel that certain safety standards had to be implemented everywhere, as might now be the case, more international co-operation would be indispensable.

51. It was in fact clear that the question of nuclear safety had now acquired a much more marked international dimension than before. It had long been known that an accident anywhere might affect attitudes to nuclear power everywhere. The international measures taken by States to learn from each other by exchanging experience and to elaborate recommended standards - often through the Agency - had been continuously expanding. In all that, however, there had been relatively little by way of binding commitments. Nuclear safety had differed in that regard from air safety or safety at sea, where binding international rules had long existed. The difference was not surprising: in the air and on the seas common rules were obviously essential, since aircraft and ships shared the same air space and the same sea lanes.

The need for compulsory common rules for safety in nuclear installations was not so obvious, because those facilities were situated on the territory of States. The considerable measure of international co-operation and the body of standards that nevertheless existed had been prompted more by mutual benefit than by common concern, an exception being certain arrangements between neighbouring States regarding nuclear stations located near frontiers. However, the recent realization that a nuclear accident could have radiation consequences very far away had led to a strong interest in the maintenance of a high level of safety everywhere. The Soviet leader, Mr. Gorbachev, had called for an "international safety regime". Others had rightly pointed out that a nuclear cloud emanating from an accident somewhere did not respect any national boundaries. Hence the rules on nuclear safety should be the same everywhere and their implementation should be verified by international safety authorities.

52. At present the substantial body of existing nuclear safety standards (NUSS) was highly influential and was sometimes even incorporated in national legislation, but it was not binding. To change that situation would not be easy for a number of reasons, among them the fact that reactors differed from one type to another and also differed due to factors connected with their location. Serious consideration should nevertheless be given to whether some basic mandatory rules or criteria could not be worked out. He noted in that regard that INSAG had recommended that a self-supporting document on the basic safety principles for existing and future reactor types, with special attention accorded to those principles which emerged from post-accident analyses, should be formulated. He further noted that the question of possible binding international safety standards would be taken up later in the present year by a group of government experts which the Board of Governors had requested the Secretariat to convene. That group would also examine the less difficult but no less important question of a review of the present non-mandatory international safety standards (NUSS) with a view to any revision that appeared called for in the light of new knowledge.

53. A second point to be considered related to the physical protection of nuclear installations. In that regard a binding convention did exist and he hoped that it would soon come into force. Although terrorist and other

attacks on nuclear installations were not deemed likely, measures of protection against such attacks could not be neglected. Further, the question of an international agreement prohibiting military attacks on all nuclear installations was still outstanding, and it was high time that that problem was solved.

54. Other lessons could also be drawn from Chernobyl. The knowledge that the accident had been caused to a large extent by operator errors had again focused attention on the training of operators and other reactor personnel and on the man-machine interface. A major Agency conference on that subject was now scheduled for 1988. The question had also been raised whether internationally agreed standards for the training programmes of reactor personnel could be introduced. The Chernobyl accident had also confirmed the value of design features that tolerated or neutralized operator error - what was termed a "forgiving design" - and the potential value of technical devices designed to reduce or even to prevent the off-site consequences of an accident. Those lessons, whether applicable to improving already operating plants or to the design and construction of new ones, should not remain a dead letter. It was, indeed, natural that in the nuclear industry, as in the automobile industry, steps were continuously being taken to improve safety so as to prevent accidents or reduce their severity. It was only recently that anti-blocking systems on car brakes - an important new design feature that contributed to road safety - had been introduced.

55. Although the major effort should continue to be directed to the prevention of nuclear accidents, there was also a need for systems that helped mitigate the consequences of any accident that did occur. An early warning system was a case in point. A multilateral convention for that purpose had now been drafted, with the parties thereto accepting important obligations to report incidents immediately, and with a clearing-house function for the Agency. Accidents occurring in military nuclear installations were also to be reported. For a neighbouring country it did not of course make any difference whether a reactor hazard to which it became exposed originated from a civilian or from a military installation. The inclusion of accidents at military installations in the reporting system was therefore logical and welcome. The

rules and machinery established under the multilateral convention in question met a strongly perceived need, and might be supplemented by specific agreements on the same subject between neighbouring countries. Those considerations also applied to the second convention that had been prepared during the summer - the convention on emergency assistance. The rules and procedures which it contained should likewise help mitigate the consequences of a radiation emergency. Special consideration must further be given to advice and assistance to developing countries on the subject of adequate arrangements and rules for radiation protection, so as to improve their ability to monitor and to counter any radiation hazards originating from outside, and to ensure safety in connection with their own nuclear activities. Perhaps attention should also be given to whether, and if so to what extent, it would be possible to expand and integrate existing overall nuclear information systems so as to ensure timely and adequate response in emergency situations.

56. Various other measures relating to accident mitigation had been suggested and were still under discussion. One such measure, which had been identified as necessary but which had not yet been carried out, was some degree of harmonization by States of their radiation protection measures. Even allowing for the fact that different circumstances might lead to certain differences in precautions, a public which was bewildered and frightened by radiation hazards did not feel reassured if it discovered that, for example, milk was deemed unsuitable for human consumption when containing 2000 becquerels of iodine-131 in the United Kingdom and in Sweden, 1000 in Poland, 500 in Hungary, 370 in Austria and 20 in Land Hessen in the Federal Republic of Germany. There, also, co-operation between governments and the competent international agencies was required.

57. As part of his survey of the features that should enter into an international safety regime, he now wished to refer to a number of instruments which had been created within the Agency during the preceding five years and which could be used more extensively, developed or supplemented. They had one thing in common: they were based on an openness that enabled governments to learn from each others' experiences. If governments and the public were to

have confidence in the safety of nuclear plants, there indeed had to be openness - internationally and at national level. It was of course well known that such openness carried with it the risk of exaggerated and misleading media reports. However, the opposite policy of secrecy never stood any chance of creating confidence. One Agency programme which built on mutual openness and which was widely adhered to was the Incident Reporting System (IRS), under which States reported on accidents and incidents in order to learn from each other. That programme, which should enjoy universal participation, could be supplemented by a more active joint analysis of selected events liable to have broader significance, and by safety review missions to individual nuclear plants. Another activity which might have great potential was represented by the Operational Safety Review Teams (OSARTs). Under that programme the Agency had sent international teams consisting of 12-15 nuclear safety experts to review the operational safety of nuclear power plants at the request of the national authorities responsible for them. An OSART mission spent several weeks at the plant and, after careful examination and discussion, prepared a report for the inviting authority. In recent years there had been some three or four such missions every year. They were of course very different from safeguards inspections. In the case of safeguards, the Agency decided when it wished to inspect, and the State in question had legally committed itself to accept the inspections, whereas an OSART mission was based on an ad hoc invitation. Nevertheless, ever more authorities and governments were finding it useful to hear the views of a highly competent, international team on the operational safety of their nuclear plants. The reports prepared by OSART missions could indeed help to create confidence among the public and between neighbouring States. OSART missions did resemble safeguards inspections in one respect: they relied on the judgement of impartial outside observers. The Secretariat expected a spontaneous increase in the demand for OSARTs, but it was of course possible to conceive other arrangements under which OSARTs would be developed from an ad hoc to a more regular activity.

58. It should be noted that OSART reviews were limited to <u>operational</u> safety, and did not cover the safety of design and construction, which was a very different task. By that he did not mean that international design reviews would be uninteresting or impossible to organize. The Agency had not

engaged in any reviews of nuclear power plant design, but it was worth noting that the Swedish Government had made it its practice to submit draft safety systems for high-level waste disposal and for the direct disposal of spent fuel to the Agency for consideration by an international review group appointed by the latter. Also, having decided that its nuclear power plants would undergo an examination constituting a new licensing procedure after 10 years of operation, the Swedish Government had invited the Agency to participate in such examinations. The details of that participation had not yet been discussed, but he wished to cite the example because it pointed to a possible interest on the part of States in displaying an openness to an international presence likewise when it was a matter of the safety evaluation of the design and construction of nuclear installations. Another idea which had been mentioned as possibly helpful in creating international confidence in a State's nuclear programme was the presentation in an international forum of national safety systems and programmes and subjecting them to peer review, along the lines of what the OECD countries did with their respective economic policies.

59. In conclusion, he said that the pursuit of economic and social development by the nations of the world made inevitable the continued growth of demand for energy, and for electrical energy in particular. Nuclear power was today an essential source of electricity generation, and it seemed likely that it would make even more substantial contributions in the decades to come. But in order to regain the necessary world-wide confidence that would facilitate its growing use, it was essential for it to acquire a new record of excellence. Most of the responsibility for achieving that lay with individual governments. However, no single government could create that confidence alone. In order to achieve a measure of universal assurance regarding nuclear safety, increased international co-operation was indispensable. At a juncture when important areas of multilateral inter-governmental co-operation were facing crisis, it was gratifying to observe that the Member governments of the Agency were drawing together in a constructive manner, in order to dispel the cloud which now hung over nuclear power. The experience of the preceding four months showed that governments had the ability and determination to achieve that co-operation, and that they stood to gain a great deal from it. He could

assure the governments represented at the present special session of the Conference that the Agency Secretariat would continue enthusiastically and energetically to stand by them in that crucial effort.

MEASURES TO STRENGTHEN INTERNATIONAL CO-OPERATION IN NUCLEAR SAFETY AND RADIOLOGICAL PROTECTION

60. Mr. WALLMANN (Federal Republic of Germany) said that, after the Chernobyl accident, the Federal Chancellor, Mr. Kohl, had suggested to the nations of the world that they should meet to examine the causes and consequences of the serious accident that had occurred, and to find an answer to the question of how to ensure the safety of all nuclear installations throughout the world and improve it in the future. That initiative had found a positive echo everywhere. The Government of the Federal Republic of Germany thanked all States and Governments for their readiness to participate in the Conference's special session.

61. The Agency had prepared the special session extremely well. The experts who had met for preliminary tasks during the summer had also done excellent work. Two draft international conventions, on early notification of a nuclear accident and on assistance in the case of a nuclear accident or radiological emergency, had been drawn up. Those two conventions would considerably improve protective measures against the transboundary effects of any reactor accidents. On behalf of his Government he would be signing both conventions in Vienna. Until they entered into force officially for the Federal Republic of Germany, they would be applied provisionally in accordance with German law. His Government hoped that the two conventions would be signed and applied immediately by many States.

62. The Federal German Government thanked the Soviet Union for its frank and detailed description of the causes of and the sequence of events during the Chernobyl accident. The accident had had serious consequences and had claimed many victims. There was, however, a further aspect. Many people were alarmed and felt their own lives and those of their children and of future generations to be threatened. They were frightened of nuclear power. They were asking politicians and scientists whether it was legitimate to continue

to use nuclear power after Chernobyl and whether the peaceful use of nuclear energy was still justified in moral terms. Governments throughout the world were thus being asked to say, in the face of such a challenge to science and technology, whether civilian nuclear installations were - at least until a less dangerous energy source had been found - still necessary for life on the planet to remain worth living, bearing in mind the fact that millions of people throughout the world continued to die of hunger and want; they were also being asked whether is was possible to control - and therefore to justify - the undeniable risks involved in nuclear power.

63. Answers to those questions could not be given on a national basis, and the problems could not be solved by an individual country alone. Radiation was not stopped by national frontiers, as had been clearly shown by the Chernobyl accident. Each country would fulfil its national obligations only if it was aware of its responsibility towards the international community, in other words towards mankind as a whole. In order to assume such responsibilites, which devolved upon them as sovereign States, it was therefore essential for countries to adopt and apply mandatory agreements relating to the safety of nuclear power plants.

64. The Government of the Federal Republic of Germany welcomed the two draft conventions, on early notification and on assistance in the case of a nuclear accident, which were being submitted to the special session. He wished, however, to make four proposals in respect of them. First, it was necessary to establish very strict safety standards for all nuclear installations. In the interests of the whole of mankind, absolute priority should be given to safety and, in particular, to ensuring that safety took precedence over any consideration of profitability. Secondly, the Agency's safety recommendations should be brought into line with the present state of knowledge and, made mandatory in the most appropriate manner. Thirdly, all States should declare themselves willing to accept that Agency Operational Safety Review Teams (OSARTs) might regularly inspect their installations serving the peaceful uses of nuclear energy. The Federal Republic of Germany had already announced that it was prepared to submit to such safety reviews. Finally, as regards compensation for damage, the principle of "the polluter pays" should be applied. An effective world system applicable to liability

for nuclear damage was essential. The Vienna and Paris conventions on civil and third party liability might serve as a basis for the introduction of such a system. In his letter of June 1986, General Secretary Gorbachev had stated his agreement with Chancellor Kohl that, in future, financial compensation for nuclear damage should be the subject of increased attention at international level.

65. If Member States participating in the special session bore that in mind and achieved the corresponding results, they would find a technical, and therefore also a moral, justification for nuclear power. The risks of nuclear power had in fact been mastered and could be mastered. That energy source was a trump card for mankind. Nuclear weapons could destroy life, but the peaceful uses of nuclear energy could contribute to ensuring that the world remained worth living in for all inhabitants of the planet. Industrialized countries had a particularly important responsibility in that respect. The world's population continued to increase, and in the year 2000 there would be approximately 6-7 thousand million people on Earth. It appeared that, according to current forecasts, the remaining fossil fuels would suffice only for the next few generations. It was not morally defensible for economically strong countries to outmanoeuvre countries of the Third World with respect to the consumption of fossil fuels. Peaceful utilization of nuclear energy could restore the balance; so far, approximately 15% of world electricity production came from nuclear plants.

66. In conclusion, he wished the Conference every success and hoped that the special session would mark not only the end of the summer's work but also the beginning of increasingly close co-operation on nuclear safety. The confidence of people in the peaceful uses of nuclear energy needed to be restored, and all States should make it clear that they had nothing to hide where safety was concerned; it was only by that means that prosperity and security could be assured for future generations.

67. Mr. SHCHERBINA (Union of Soviet Socialist Republics) said that the special session of the General Conference represented an important step towards the implementation of proposals put forward by many countries with a view to strengthening international co-operation, to establishing the

conditions necessary for the safe use of atoms for peace and to giving effect to the initiatives of the General Secretary of the Central Committee of the Soviet Communist Party, Mr. M. Gorbachev, relating to an international regime for the safe development of nuclear power, initiatives which had been widely greeted throughout the world. That regime should be established as soon as possible. States, both individually and collectively, should conclude international undertakings to develop nuclear power safely.

68. Throughout the history of mankind, there had been no more important scientific discovery, from the point of view of its consequences, than that of the atom and the mastery of nuclear fission. Over thirty years of the use of atomic energy for satisfying the social and economic needs of mankind had proved that the world had irrevocably embarked on the nuclear era. The use of the energy of the atom had now become an objective necessity and a condition for the progress of civilization. In the Soviet Union, the development of atomic energy would be pursued in accordance with the programme laid down for the period up to the year 2000.

69. However, during his scientific and technical conquests, man encountered dangerous forces. Atomic energy, for example, could escape his control, and the lessons learned from accidents that had taken place in nuclear power plants caused the world community to ask questions about the future reliability of the new technology. The accident of 26 April 1986 in Unit 4 of the Chernobyl power plant had grievously affected the Soviet people and had alarmed the international community. Its causes and consequences were well-known. Detailed information on a whole range of questions relating to the accident had been provided by the Soviet delegation to the meeting of experts held in Vienna under the auspices of the Agency. That accident, in addition to those at nuclear power plants in many other countries, showed that questions of safety and reliability required ceaseless attention. In the application of modern and complex technologies, negligence and incompetence were unacceptable.

70. Following the accident, the Soviet Union had strengthened the precautions in force at all types of nuclear power plant, and had adopted new safety measures which took account of the most recent experience and scientific data relating, for example, to the testing of metal and other plant

components and to the more extensive use of automatic process control. A crucial problem at all nuclear installations was that of the optimization of the man-machine interface. That was a dual task: it was necessary, on the one hand, to raise the qualifications of staff by improving training methods and, on the other hand, to design reactors which were simpler to operate and to provide optimum working conditions for operators. A special Ministry of Nuclear Power had been set up in the Soviet Union.

71. The work entailed in putting the Chernobyl plant back into operation had entered its final phase. Entombment of the damaged unit and decontamination of the site were being completed. The level of radioactivity had returned to normal. The first unit was practically ready to be started up. The normal water supply, ventilation and automatic systems were operating in the plant, and preparations were also under way for the startup of the second unit. Extensive construction work on accommodation for plant workers and for the population evacuated from the contaminated zone had been completed. That population was enjoying substantial material assistance and continuous medical surveillance. Tests had not shown any new case of radiation disease or that any new cases were foreseeable. Eleven persons were currently being treated in hospitals in Moscow and Kiev.

72. On behalf of the Soviet Government, he thanked governments, organizations and individuals who had provided assistance at the time of the Chernobyl disaster. The Soviet population saw in that gesture the promise of a better future on earth and would always remember it gratefully. Everyone should take an interest in the fate of the Earth, since man had nowhere else to live. It was therefore necessary to limit as far as possible the risk of accidents at nuclear installations, and that task would require the concerted efforts of many countries.

73. The establishment of an international regime for the safe development of nuclear energy, along the lines of the proposals submitted by the Soviet Union at the special session of the General Conference[1], would contribute to the strengthening of international co-operation on the peaceful uses of atomic

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[1] The Soviet proposals are contained in General Conference document GC(SPL.1)/8.

energy and make it systematic in nature. The programme proposed by the Soviet Union aimed at setting up a material, scientific and technological base for the safe development of nuclear energy, supplemented with international regulations and agreements. The main elements proposed had been discussed at meetings of the Board of Governors in May and June and had been included in the Agency's programme of activities. The Soviet Union, which was prepared to notify all nuclear accidents if - as a result of such an accident - there was a danger of a transboundary release of radioactivity, was proposing the setting up of a system of early notification of nuclear accidents likely to cause transboundary releases, for example, on the basis of the draft convention being submitted to the present special session of the General Conference[2], which the Soviet Union was prepared to sign; the system could be backed up by an international data bank containing data on natural background radiation levels, and also by a set of international standards relating to radionuclide concentrations and levels of radioactive contamination in an area affected by an accident. His Government was also proposing a mechanism for providing assistance in emergencies and accidents; an agreement between countries constructing or operating nuclear power plants and other installations providing for them to follow the relevant Agency technical recommendations; safety analyses of existing plants; a new generation of highly safe reactor designs; an international convention prohibiting military attacks on nuclear installations and measures for preventing nuclear terrorism; implementation of the Convention on Physical Protection of Nuclear Material in the largest possible number of countries; an international legal instrument governing relations between States in the event of nuclear accidents; and, finally, the assignation of a central role to the Agency in the safety regime proposed and an increased contribution by specialized agencies of the United Nations, such as WHO, UNEP and UNESCO.

74. A feature of the modern world, in which everything was interdependent, was existence, alongside the atom for peace, of the atom for war. Nuclear militarism had created a critical situation, which was becoming increasingly difficult to control as the arms race gained in momentum. Mankind was

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[2] Reproduced in document GC(SPL.I)/2, Annex II.

preparing to enter the twenty-first century, of which much was expected and of which each had a different perception. In considering the future, it should not be forgotten that over fifty thousand nuclear warheads permanently threatened the inhabitants of the planet. The danger was great. With the future development of new weapons systems, there would scarcely be any time, in the event of a crisis, to become aware of the danger and to take political action. Genuine nuclear safety and security were inconceivable without a stop being put to material preparations for nuclear war and without the total elimination of all means of conducting such a war. In the nuclear and space age, realism dictated a new approach to international relations and concerted efforts by States with different social systems to stop the deadly arms race and to improve radically the political climate of the planet. The only possible way of proceeding was to stop nuclear tests and, ultimately, to eliminate all nuclear weapons from the Earth. It was time to act decisively and responsibly and to prepare to take concrete and visible measures to diminish the risks of nuclear war. The Soviet Union had taken a step in that direction by declaring a unilateral moratorium on nuclear explosions. By its action and initiative, the Soviet Union was attempting to strengthen the hope of nations for a change in the situation and for an outcome other than confrontation. The twentieth century must come to a close under the sign of nuclear disarmament and the establishment of a reliable system for the security of the world. The Stockholm understandings showed that political goodwill could result in an agreement and in compromises on most complex questions. His delegation was determined to contribute to the success of the special session of the General Conference and to make a constructive and serious contribution to the search for means of resolving the important and serious tasks which devolved upon it in the sphere of the safe utilization of atomic energy for peaceful purposes.

75. Mr. WALKER (United Kingdom) said that living standards had changed considerably in a large part of the world during the present century, and everyone knew that that change would have been impossible without abundant energy resources. During that time, the world's population had quadrupled, industrial activity had expanded at an unprecedented rate and the century had been the first in history in which significant energy shortages had been

experienced and in which it had become possible that energy supply could no longer meet damand. In the light of known reserves of non-renewable energy resources, it was clear that the improvement in living standards might be cast into doubt in the next century. All other possible energy sources were therefore being actively investigated: solar, wind, tidal and geothermal; and the United Kingdom had not been the country most inactive in launching research programmes on those topics. But all the indications were that, even if all those energy sources could make a contribution, they would in no case be able to satisfy world requirements. And if, despite those forecasts, a decision was taken to abandon nuclear power, the problem would take on catastrophic dimensions. One third of the electricity of the member states of the European Community was now being produced by nuclear means. The Soviet Union, the United States and many other major countries were assuming that nuclear power would be one of their main sources of energy supply; to eliminate that source would result in considerable economic upheaval. Nuclear power had many advantages from both the economic and the environmental points of view; the only problem was how to use it safely, and it was up to the General Conference and the Agency to find the solution.

76. The Chernobyl accident had alarmed the whole world; it had demonstrated that any large accident had international repercussions and that its effects would not be limited by territorial boundaries. In such conditions it had become clear that the Agency should draw up agreements and understandings and should elaborate the practices and procedures for international co-operation which would enable all to benefit from nuclear power in safety. The prospects of that objective being met had been improved by the fact that the Soviet Union, rather than concealing the facts out of national pride, had provided the information required by the international community and had carried out an objective analysis of the causes of the acccident. It had indicated that mistakes had been made in design, operation and management, and that uncompromising analysis would enable it to continue with its nuclear power programme in highly satisfactory safety conditions; that honesty would also make it possible, at an international level, to develop effective safety policies.

77. The Chernobyl accident had shown that the Agency was the body which should take action in such cases. Of course, every country would wish to carry out its own programmes and, in particular, members of the European Community would wish to study together their common problems in that connection. However, as regards the establishment of a regime for international co-operation on safety, the Agency was best placed to act. The United Kingdom Government supported the Agency and its work unreservedly and was prepared to sign the conventions before the General Conference. The conventions would then have to be ratified, but the British Government would apply them immediately. Moreover, it intended to inform the Agency and States liable to be affected in the event of an accident occurring at its military installations; in that way, all sectors of the nuclear industry, both military and civilian, were resolved to carry out their responsibilities in that sphere.

78. In addition, his Government was anxious to see the establishment of a general system of compensation in respect of nuclear accidents and would support the setting up of a binding international regime for that purpose. He also wished to make certain other proposals, which he considered could be usefully implemented in the coming months. First, it was necessary - and the events of Chernobyl had proved that - to adopt and perfect an international accident warning system; the Agency should monitor the introduction of such a system to ensure that it was effective and universal. Secondly, exchanges of experience should be put on a systematic basis. A permanent exchange programme in spheres such as training, systems for protection against human error and all methods of preventing and detecting radioactive releases should be set up.

79. Thirdly, the Agency should review all existing regulations. It had done important work on the development of a Code of Practice on Governmental Organization for the Regulation of Nuclear Power Plants[3], which had certainly been useful to countries embarking for the first time on nuclear programmes. The time had come to extend that work: the Agency should update

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[3] IAEA Safety Series No. 50-C-G.

the information at its disposal about all national regulatory systems by providing an exact definition of the powers of nuclear inspectorates, their objectives, their role in the issuing of reactor construction licences, in the approval of their design and in the development of risk evaluation techniques. After collating that information - which could be communicated to all countries - the Agency would be in a good position to ensure that information about the measures adopted by one regulatory authority were transmitted to other authorities which had not yet taken such measures, so that they could apply them quickly. In addition, the Agency could set up a team which could co-ordinate a peer review of international regulatory systems with a view to bringing about a constructive exchange of ideas about how those regulatory systems could be improved. The United Kingdom would welcome such a role for the Agency.

80. Fourthly, the Agency should become capable of evaluating the quality of nuclear installation inspectorates. It was not possible to establish an international inspectorate or even a European inspectorate, in view of the diversity of reactors, language problems and the need for inspectors to be permanently near the installations they inspected. The Agency could, however, obtain the services of experts who could provide advice to different inspectorates. Finally, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency[4] deserved support. On the occasion of the Chernobyl accident, the Soviet authorities had received international assistance, for which they had expressed their gratitude. The Agency should set up a system for channelling such help quickly and effectively.

81. The time had come to open up new perspectives and to select options which would enable coming generations to benefit from an energy form which was safe, of enormous economic value and environmentally more acceptable than any other form used so far. If appropriate regulations and safety requirements were drawn up, nuclear power would not pollute the atmosphere in the way that other energy forms had done, nor would it pollute lakes and forests. Nuclear power, like all great human achievements, posed problems and presented dangers

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[4] Draft reproduced in document GC(SPL.I)/2, Annex III.

but, by means of international co-operation, it should make a massive contribution to securing the future of mankind. The Agency should therefore be at the heart of an international safety system which enjoyed the confidence of all.

82. Mr. HERRINGTON (United States of America) read the following message addressed by Mr. Ronald Reagan, President of the United States of America, to the General Conference:

> "On behalf of the American people I extend best wishes to all of you for a constructive and successful meeting on the vital issues relating to nuclear safety.
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> "Each day events within our own national borders focus our attention on the importance and the urgency of protecting the safety of our people. Natural disasters, accidents on our highways and in our skies - to name just a few concerns - are constant reminders of the need to preserve a sharp focus on national public safety. Sometimes, however, an event occurs which unambiguously demonstrates the profoundly interdependent nature of our world and the need for a collective international focus on safety. The accident at Chernobyl was such an event. It is dramatically clear that we are all affected by this tragic occurrence. It is also clear that if we are to learn all that we can about the accident, and maintain the most effective nuclear safety measures possible, we must work closely and consistently together. Although each country bears the responsibility for the safety of its nuclear programme, expanded international co-operation in nuclear safety is essential to continued vitality and growth in nuclear energy. This growth must continue if we are to meet adequately the energy needs of our children and of future generations.
>
> "Fortunately, expanded international co-operation in nuclear safety can readily and effectively be pursued under the auspices of the International Atomic Energy Agency. The IAEA Director General Blix and his staff are to be commended for their dedicated efforts to respond quickly and capably to the Chernobyl accident. IAEA Member States should also be commended for the speed with which they responded to the demanding task of reviewing the causes and consequences of the accident. Their work in completing negotiation of international conventions on the reporting of nuclear accidents and the provision of emergency assistance in the event of such accidents is particularly noteworthy.
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> "Together we have made an impressive beginning in expanding our co-operation. However, we have only just begun. Through the IAEA and other international institutions we have the opportunity and responsibility to share with each other facts and insights which can

further enhance the safety of the nuclear power plants which contribute much to the energy security of many nations. The United States is fully committed to working closely with you to ensure the safest possible world for all our peoples. We owe them nothing less."

83. The present session was convening at a decisive moment in the history of the world nuclear community. The future of nuclear energy and of the Agency itself was at stake. Nearly six months previously, a tragedy had occurred at Chernobyl: innocent persons had died, and major and costly disruptions had occurred both in the Soviet Union and in neighbouring countries. The radioactivity released by the accident had caused concern, even actual damage, in neighbouring countries. Throughout the world, questions had been asked about the future of nuclear power. The present special session would have been unnecessary if one country had not failed to meet its international responsibilities. Once again he wished to express to all those affected the sympathy and concern of the United States at the losses which they had suffered, and he sincerely trusted that the efforts at present being put forth to deal with the aftermath of Chernobyl would continue to progress successfully and rapidly.

84. Safe as commercial nuclear power was, an even greater effort than ever must be made to ensure that such an accident was not repeated. A stronger programme of co-operation in international nuclear safety was called for. If inadequate safety was tolerated, safety would indeed be inadequate. The present problem was a human one, and amenable to human solution. The special session of the General Conference would have served no purpose if it were not used to make progress in the domain of safety and to restore the confidence of the public. Protection of the public must remain a priority concern - a proposition upon which there could be no compromise.

85. The issue was not whether nuclear energy was viable, but how it could be made more safe. There was no doubt that nuclear power was necessary and that it was a key element in world energy security. Commercial nuclear energy was an important power option, which it would be inconceivable to abandon. At present, there were 382 nuclear power plants in operation, generating 15% of the world's electricity; they supplied power to schools, hospitals, industries and so on, and they had enhanced international energy security by

making it possible to save the equivalent of nearly 7 million barrels of oil per day. The nuclear industry had made it possible to reduce world dependence on oil, and had contributed greatly to general energy security. The United States was convinced that nuclear electricity generation should be continued, and that that could be done in a safe, reliable and effective manner. The world's energy requirements were increasing, and it was the role of nuclear energy to play its part in meeting those requirements. According to reliable estimates, the demand for electricity would continue to increase during the coming decade in the United States, in Europe and particularly in developing countries. The United States was fortunate in having access to a wide variety of energy sources, but many other countries were not in that happy position. They must retain the option of a strong nuclear programme.

86. In order to further the exchange of ideas on problems of safety, which was one of the purposes of the special session of the General Conference, he wished to give an account of recent developments in the United States in the nuclear power field. It went without saying that any country which launched a nuclear power programme bore the responsibility for the safety of its own installations. The United States federal regulatory network, operated by the Nuclear Regulatory Commission (NRC) was charged with supervision of the entire commercial nuclear fuel cycle, on the basis of rigorous standards for construction and operation, technical reviews, systematic inspection and a safety research programme. The NRC ensured that all uses of nuclear materials in the United States conformed to the requirements of the protection of public health and safety and of the environment, and to the requirements of national security - whether it was a matter of safeguarding nuclear materials against theft and sabotage, ensuring the safe transport and disposal of nuclear materials and wastes, or preserving neighbouring countries from any harmful effects. For the United States Government safety was the top priority issue, and it ensured that reactors were operated in conformity with strict safety standards.

87. Right from the beginning, it had been the builders and operators of reactors - i.e. industry - who had been primarily responsible for safe operation. No system of regulation would be effective if, on site,

inadequately trained personnel were employed, or if careless operational procedures were applied. That was why the utility companies in the United States had, on their own initiative, progressively introduced arrangements to monitor, supervise and upgrade their performance, with the help of such organizations as the Nuclear Safety Analysis Centre and the Institute of Nuclear Power Operations (INPO). But even then, the electricity companies had felt that they could do better: in 1985 they had, under the auspices of the Utility Nuclear Power Oversight Committee, commissioned a special study to see how the operational performance of United States reactors could be improved. Following that study, utility companies had agreed to embark on an energetic programme of self-evaluation aimed at achieving operational excellence at all nuclear power stations. The role of the NRC in that connection had been a prominent and important one. Its chairman had emphasized the importance of self-discipline and the highest qualifications at all levels both within the NRC and in the nuclear industry. All NRC activities, including for example its major safety research programme, conducted in co-operation with many countries and emphasizing standardization for future nuclear plants, were intended to ensure the safe performance of all United States civilian nuclear facilities.

88. In the area of research and development, American experts were studying ways of making future reactors simpler and safer. In that area the United States regarded it as essential to work in close co-operation with other countries, for advances in safety technology should continue to be shared between all interested parties.

89. The accident at Chernobyl had underscored just how closely the world's fortunes and fates were linked in the energy field. It had now become vital to institute an international programme of bilateral and multilateral co-operation aimed at ensuring nuclear safety throughout the world. In that connection he believed that there were five principal areas on which attention should be focused: firstly, the adoption of the convention on early notification of a nuclear accident, whose provisions were in complete harmony with the policy long followed by the United States, was extremely important. That convention, whose entry into force would involve no modification of

United States policy on the subject, would represent decisive progress for the international community. Should any other significant nuclear accident occur in the future, the convention would help States to deal with the transboundary radiological consequences thereof. The United States delegation was therefore prepared to sign the convention, subject to ratification, at the present session. He also wished to stress that, without awaiting ratification of the convention, the United States would, in the event of a nuclear accident covered by Article 1 of the convention, voluntarily notify States that were or might be physically affected and the Agency, and would provide them with all available information for purposes of minimizing the radiological consequences of the incident. The United States would also voluntarily provide notification on any other nuclear accident which had, or might have, transboundary radiological effects.

90. Adoption of the convention on emergency assistance would also constitute decisive progress. That convention, which reaffirmed the role of the Agency in safety matters, should greatly enhance the ability of States to assist each other in case of an accident; it was the culmination of an idea first proposed by the United States some years previously. And indeed, his country had shown, during the days following the Chernobyl accident, that it was unreservedly willing to offer its assistance. His delegation was ready to sign that convention also, subject to ratification, and he invited other Member States to do the same.

91. Thirdly, it was a matter of urgency to expand the programmes of multilateral co-operation on reactor safety and radiological protection. Those were areas where the Agency had already accomplished much, but it could do still more. The proposed expanded programme in the field of nuclear safety[5] should make it possible to strengthen those activities, and he trusted that both at the present special session and at the regular session of the General Conference Member States would endorse that programme.

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[5] Described in Document GC(XXX)/777/Add.1 prepared for submission to the General Conference at its thirtieth regular session.

92. Then also, it was incumbent upon everyone to learn all the lessons from the Chernobyl accident. During recent weeks the technical aspects of the accident had been analysed by specialists throughout the world in a highly constructive manner. In particular, the technical meeting organized by the Agency in August 1986 had done much to identify the causes of the accident and to define those technical issues which merited further analysis. However, there were several serious questions still to be pursued, and the international community was awaiting the answers thereto. Those questions dealt with design, instrumentation, training, containment and so on. The Soviet Union had indicated that it would provide additional answers following the further studies to be carried out under the auspices of the IAEA, and indeed those answers were mandatory. The United States was prepared to give strong support to the investigations in question, and would offer new suggestions at the meeting of nuclear safety experts planned for the end of 1986.

93. Finally, the time had come for each country to begin a new era of co-operation, not only of a multilateral but also of a bilateral nature when their common interests so dictated. The United States had a long record of co-operation with many countries in developing the peaceful uses of nuclear energy, and sought to continue to do so. For example, the US-USSR Joint Committee on Co-operation in the Peaceful Uses of Atomic Energy had met in August 1986, for the first time in eight years; the Committee had agreed to exchange technical delegations responsible for preparing possible co-operation in areas of mutual interest in nuclear power plant safety. The United States was ready to co-operate in that field with other States, in the interests of all, so as to improve safe and reliable operation of nuclear power stations throughout the world, to provide the general public with better information, and to enable everyone to continue to take advantage of the peaceful uses of atomic energy.

94. In May 1986, in Tokyo, President Reagan had declared, along with the leaders of other major industrial nations, that nuclear power, if properly managed, would continue to be an increasingly widely used source of energy, with each country engaged in nuclear power generation bearing full and

unequivocal responsibility for the safety of its installations. But at the same time those leaders had stressed that "for each country the maintenance of safety and security is an international responsibility." The events occurring during the recent period gave grounds for believing that the States Members of the Agency shared that point of view and that they would continue to work closely together to achieve those objectives. The Chernobyl accident had made it abundantly clear that nuclear safety was not, and could not be, a solely national concern, and that the world community must meet the challenge both individually and collectively. There again, no compromise was possible and every nation using the atom should solemnly undertake to ensure the safety of its nuclear installations.

95. The IAEA had been a beacon for world nuclear safety for many years. The United States delegation hoped that, in a spirit of openness and co-operation, the General Conference would lay the foundations for even closer international co-operation on safety issues. If that were so, the recent events would have constituted an opportunity to create enhanced confidence in the atom as a source of energy.

The meeting rose at 1.5 p.m.