

Certain additional procedures are proposed for reactor facilities and concern, among other things, the number and frequency of routine inspections. The frequency will depend on the nature of the reactor as well as the nature and amount of the nuclear material used or produced in it, and will seek to ensure that in the interval between inspections the total possible error in measuring the quantity of nuclear material used or produced in the reactor

cannot amount to more than 0.2 kg of completely fissile material or its equivalent in any other type of nuclear material. For example, a 2 MW pool type research reactor using 90 per cent enriched fuel will, under this formula, be subject to a maximum of one routine inspection per year, while a maximum of six inspections per year will be made of a graphite moderated natural uranium power reactor with a thermal power capacity of 100 MW.

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## IAEA PROGRESS REPORTED TO UN GENERAL ASSEMBLY

(Introductory statement by IAEA's Director General, Mr. Sterling Cole,  
in presenting the Agency's Annual Report to the General Assembly of the  
United Nations, 12 December 1960)

1. Mr. President, I have pleasure in presenting to the General Assembly the fourth annual report of the International Atomic Energy Agency, as required by the Agency's Statute. This is before you in two parts, the greater one being the report of the Agency's Board of Governors to the General Conference covering the period July 1959 - June 1960 (document A/4531), and an addendum to that document which is a supplement covering developments since that date and giving a summary of action taken by the General Conference at its fourth regular session in September this year.

2. The General Conference opened this year the same day as this Assembly and it is therefore still fresh in our minds. I am pleased to inform you that in my view it was the most constructive and encouraging conference that we have had since the Agency was set up a little more than three years ago. In saying this, of course, I do not gloss over the serious problems which still confront the Agency. In this connection, I cannot do better than refer to a comment made in the course of the debate by the delegate of India, the distinguished scientist, Dr. Bhabha, who is well known to many of you here. He said: "I think all of us here would agree that if this Agency had not been created in 1957, the urge for such an organization would be even greater today than it was four years ago."

The validity of Dr. Bhabha's statement is fortified by the fact that production of nuclear weapons material would seem to be within the reach of more and more governments as present technology improves.

3. Before going into the affairs of the Agency I think that the Assembly would be interested in a brief picture of the present state and prospects of the peaceful uses of atomic energy. The general picture throughout the world has not changed substantially since I spoke to you last year. However, the use of isotopes and radiation continues to flourish and expand, and to bring new benefits to industry, medicine and agriculture. Here the Agency is beginning to see the first fruits of its own work of spreading this technology in the less developed areas. On the other hand, the main use foreseen from nuclear energy, the production of cheap electric and motive power, and heat, still remains to most countries a prospect for the future rather than a reality for the present, although today's assessment is generally more optimistic than that of, say, two years ago. The Agency's scientific conference on small and medium-sized power reactors held in September this year showed that there are good prospects for important if not spectacular technical improvements, particularly in the larger reactors. Several large nuclear power stations have come into operation in the past year or are on the point of beginning their work. I would reiterate that all signs still point to the likelihood that nuclear power will first become competitive in the larger plants and under special circumstances, but in isolated areas nuclear power even now offers challenging prospects. Plans for the construction of nuclear power plants are also going ahead in other than the atomic countries as, for instance, in Brazil, India and Japan. The first nuclear ship for peaceful purposes, the Soviet

icebreaker "Lenin", is already in service and the first nuclear merchant ship, the U.S. "Savannah", has been launched. To sum up, the present position is that the cost of nuclear power is falling quite fast, faster than that of conventional power but from a greater height, but that even in technically advanced areas the two cost curves are not likely to intersect earlier than in the latter part of the 1960s.

4. The disappointment of earlier expectations has, of course, influenced the development of the Agency's own work. Instead of supplying nuclear fuel and facilities on a large scale, the Agency's main effort is centered in training and research programs, scientific meetings, preliminary surveys, technical assistance, the elaboration of codes and regulations, and other work of a preparatory and regulatory nature. The progress in these fields may best be illustrated by a few examples: during the past year the Agency has granted some 420 fellowships to students from 38 countries, thus reaching a total of 1 000 fellowships since the program started. It has arranged for experts and equipment to be available for atomic programs in 27 countries. It has published 31 scientific reports, bulletins, symposia and conference proceedings. The first issue of a quarterly scientific journal devoted to plasma physics and controlled thermonuclear research has already appeared. The Agency has prepared a draft convention on minimum international standards to govern civil liability for nuclear damage, which relates to land-based reactors. At the diplomatic Conference on Maritime Law which will be held in Brussels in April next year the Agency will act as co-sponsor with respect to the item on liability of operators of nuclear ships which, it is hoped, will result in the adoption of a convention on this subject. It is anticipated that during the coming year an international conference will be convened to act upon the Agency's draft convention dealing with third party liability. We have drawn up regulations for the transport by air, sea and land of radioactive materials which, after their unanimous approval by our General Conference, will, we hope, soon find their way into law, both domestic and international. After concentrated preparation and study by highly qualified specialists, technical recommendations for waste disposal into the sea have been made and a panel of legal experts is soon to be convened to determine how these recommendations could best be implemented.

5. The Agency is now well launched on its program of scientific meetings covering in detail the various peaceful uses of atomic energy. With the help in some instances of UNESCO, WHO, FAO and IMCO we held in the past year a series of nine scientific meetings. These were attended by more than 2 000 scientists from 40 countries. They covered such diverse fields as the use of isotopes in the physical sciences and industry, the use of radiation in seed and crop improvement and, as I have already mentioned, the technology and economics of small and medium power reactors. Symposia on such subjects as neutron physics, fuel elements and nuclear ship safety have also been held. The conferences have

been well attended and we have been very gratified by the expressions of appreciation of their value made by leading scientists as well as by governments. Our conference program will continue next year at much the same rate, as it is important not to make too great a demand on the time of scientists to the detriment of their regular work. Moreover, should the General Assembly decide that there is a need for a third large conference of the Geneva type, it is the recommendation of our own Board of Governors, that the Agency should play an important role, particularly in the scientific preparation and organization of the meeting. I am pleased to assure the Assembly that we stand ready in every possible way to assist such a conference, relating as it will to the essence of the Agency's own activities. Such help could particularly take the form of making available our own scientific staff, who have now gained considerable experience in the organization and evaluation of a number of specialized scientific meetings held under the Agency's auspices.

6. For reasons already mentioned only very modest progress has been made in the Agency's reactor, nuclear power and fuel supply programs. Some significant developments do, however, deserve mention, such as requests from Finland for Agency assistance in the transfer of a small research reactor from the United States and the supply of the necessary fuel for it and also for the fuel for a critical assembly which will be provided by the Soviet Union under arrangements in both cases to be made by the Agency. The former will be the first Agency project involving highly enriched fuel. Yugoslavia has recently requested the Agency to supply 6½ tons of heavy water, which will also mark our entry into a new field of supply. While the number of requests and the quantities involved are still small, these projects are valuable in enabling the Agency to establish its supply procedures.

7. A large part of the Agency's research program is concerned with problems of radiation and the Agency and its laboratory are working closely with the United Nations Scientific Committee on the Effects of Atomic Radiation. Our laboratory has already performed analyses at the request of UNSCEAR as well as of Member States. The results of these analyses are being communicated to UNSCEAR and the Agency hopes to be in a position in this way to act more and more effectively as an operational arm of UNSCEAR. In addition the Agency will provide an increasing amount of information to UNSCEAR on such matters as radiation damage in bone due to bone-seeking isotopes, problems of waste disposal and occupational exposure to radiation.

8. In the last year we have also drawn encouragement from the growing willingness of governments to place specialized facilities at the Agency's disposal. The Government of Yugoslavia, for example, enabled the Agency, with an international team of scientists, to use its facilities at Vinca for an experiment to

assess the radiation dose received by persons exposed during an uncontrolled reactor run in that installation in the fall of 1958. We are grateful to the atomic energy authorities of France, the United States, the United Kingdom, and, most particularly, to Yugoslavia for the help we received. A second instance was the offer by the Government of the United Arab Republic to place its national training center in Cairo at the disposal of the Agency for conversion into a Middle East Regional Training Center for the Arab countries. A third was the offer by Monaco to place laboratory facilities in the well-known oceanographic institute and its research vessels at the Agency's service for an initial period for the purpose of research on the effect of radioactive substances in the seas. Most recently Norway has offered to place a reactor facility at the Agency's disposal in a joint reactor physics research program. The United States will make available for this project the prototype core of the nuclear ship "Savannah".

9. In another sphere the Agency's work is designed to be complementary to that of the United Nations in the field of atomic energy. I refer to that difficult but important part of our functions - that of endeavoring to ensure that the help which the Agency provides is not used to further any military purpose. This function is probably the main reason for the direct link which exists between the Agency and this Assembly. The means by which the Agency must carry out this task is through the application of safeguards as outlined in its Statute. While all signatories of the Statute accepted in principle the need for safeguards, debate in the recent General Conference again revealed that profound and sincere differences of governmental views on their practical application still persist. As is known, the Board of Governors has been discussing this matter for the past three years. The Fourth General Conference, by a vote of 43 to 19 with 2 abstentions, adopted a resolution taking note of the principles and procedures provisionally approved by the Board of Governors and inviting it, before giving effect to them, to take appropriate account of the views expressed in the General Conference. The Agency will soon be in a position to exercise its safeguards functions in activities where this is required or in cases where the party to a bilateral agreement or a national government invites the Agency to do so.

During the General Conference a considerable number of governments indicated their intention to enter into consultations with the other party to their bilateral agreements, with a view to transferring to the Agency responsibility for administration of the safeguards provisions contained in those agreements, and several others expressed interest in this procedure. Of particular note was the offer of one Member State, a major atomic power, to place under Agency safeguard procedures four of its domestic reactors.

*It is of considerable symbolic and historic significance that for the first time teams of international*

inspectors are to be permitted to supervise and safeguard the peaceful operation of national atomic energy facilities. The success of the Agency's work in this field will however be largely conditioned by the progress made by governments and the United Nations in the more vital and difficult field of controlled nuclear disarmament.

10. Mr. President, the question of co-ordination of the Agency's work with that of other members of the United Nations family is considered in detail by the Economic and Social Council, and I shall therefore only make some very general comments on this subject. In regard to the programs in which the United Nations and the Agency have a direct common interest - power and radiation effects - there has been much improvement in the last two years and the working level arrangements have been perfected to the point where they are fully satisfactory. In regard to questions of policy, the General Assembly itself has the important responsibility of ensuring that when it assigns tasks in the field of peaceful uses of atomic energy it does so in such a way as to avoid duplication and make the fullest use of existing services and facilities.

11. Arrangements for co-ordination between the Agency and the specialized agencies have now also reached a generally satisfactory stage, as may be seen from the jointly organized and co-sponsored projects in which the special competences of two or more organizations have been effectively used. A third and very important aspect of the problem of co-ordination relates, however, to the relationship of the Agency with the various regional organizations which have been established in the atomic energy field. Some of these organizations have statutory responsibilities which are almost identical with those of the Agency. It is therefore of the greatest importance that the Agency retains its priority for dealing with those problems that are worldwide in scope, such as health and safety regulations, third party liability, waste disposal problems and related issues; whereas regional bodies concentrate on the organization of joint activities among countries of a particular area and with common economic and technological objectives.

12. The three years of operation of the Agency have already demonstrated that there are points in which its Statute, drafted in 1955-56, are out of touch with present realities. A major problem which faces us, like other bodies of the United Nations family, is the shortage of operational funds, and for us this is particularly acute because vital sections of the Agency program are dependent upon voluntary contributions by governments, which consistently are insufficient to meet the totals set for them by those same governments. A more stable basis for financing the Agency's technical assistance program is therefore necessary. In this connection, I have been pleased to note the initiative contained in the resolution in this Assembly by Brazil, Ghana, India and Yugoslavia, in which the Agency is urged to develop its program

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of technical assistance to the less developed countries and the developed countries are asked to increase substantially their voluntary contributions to our operating funds.

13. I should also like to refer, Mr. President, to a matter which I feel sure is of particular interest to the General Assembly at its present session. I am pleased to report that in the last few months there has been a further growth in the Agency's membership, which now stands at 74. The four new members are Chile and Colombia, which were original signatories to the Statute, and Ghana and Senegal whose applications for membership were approved by the General Conference. The General Conference also approved the application of the Republic of Mali, which will accordingly also become a Member upon completion of the necessary formalities. We are, of course, particularly pleased that these newly independent States in Africa should have sought membership in the Agency and we hope that their example will be followed by others. In recognition of the growing importance of the African continent in the Agency's affairs, the General Conference unanimously adopted a resolution asking the Board of Governors to submit proposals for a draft amend-

ment of the Agency's Statute which would provide for increased representation on the Board of the area described in the Statute as "Africa and the Middle East". Although the application of nuclear power may not seem an urgent need in many of these new States, it is unquestioned that in several cases isotopes and radiation can play a part in raising standards of health and agriculture, can help tap and enlarge resources of water and improve irrigation. Africa is already linked to the nuclear age as an important source of nuclear raw materials. We look forward to the wider role which the continent is destined to play in the counsels of the Agency no less than to the contribution which we may be privileged to make to its inevitable progress and development.

In conclusion, Mr. President, I am satisfied that positive and considerable progress has been made by the Agency during its first fully operational year, and I am equally confident that its program will continue to grow as the needs of its Member States become evident and funds are made available by governments to meet these needs. In approving a 20 per cent increase in the target for voluntary contributions to finance our technical assistance and laboratory programs, the General Conference showed, I think, that it shares this satisfaction and confidence.