



International Atomic Energy Agency

General Conference

GC(VI)/192

16 August 1962

GENERAL Distr.

Original: ENGLISH

Sixth regular session

Item 16 of the provisional agenda
(GC(VI)/190)

NUCLEAR POWER

International co-operation for developing nuclear power projects

Joint report by the Board of Governors and the Director General

INTRODUCTION

1. In its Resolution GC(V)/RES/109 on international co-operation for developing nuclear power projects the General Conference requested the Board of Governors and the Director General to report at its sixth regular session on the action they had taken:

- (a) To provide, on request, technical advice and guidance to Member States that were desirous of embarking on nuclear power programmes, and to facilitate and arrange the direct participation of technicians and engineers of those States in the design, construction and operation of nuclear power projects;
- (b) To render, on request, such assistance as might be possible in the implementation of the nuclear power programmes of such States;
- (c) To consider the desirability of promoting the establishment of regional nuclear power projects on the basis of international collaboration between the technically advanced countries and the developing countries in the regions concerned, with a view to studying nuclear power costs under conditions prevailing in such regions; and
- (d) To undertake, on request, studies of the problems of the design, construction and operation of international demonstration nuclear power plants, and to consider the desirability of the establishment of such plants.

2. This report is made in compliance with that request; it is divided into two sections, dealing respectively with the action taken under sub-paragraphs (a) and (b) and sub-paragraphs (c) and (d) above.

ACTION UNDER SUB-PARAGRAPHS (a) AND (b)

Requests for advice and assistance

3. The Secretariat is at present providing technical advice and guidance in response to the following three requests related to the initiation or implementation of nuclear power programmes in Member States:

- (a) In El Salvador. During the course of 1961 the Government requested the Agency to provide the advisory services of an expert on nuclear power. A member of the Secretariat visited the country in May 1962 and his findings are at present under discussion with the Government;

- (b) In Pakistan. Late in 1961 the Agency was invited by the Pakistan Atomic Energy Commission to examine the feasibility of introducing the use of nuclear power into various regions of that country, an invitation which followed completion of an extensive report on the subject by two private engineering consultants. A draft of the study made by a mission which was accordingly sent to Pakistan in January 1962 has been transmitted to the Commission; preliminary conclusions to be drawn from it indicate that nuclear power may prove competitive in cost in some areas of the country with that generated by conventional means. Discussions with the Commission are expected to be resumed in the near future; and
- (c) In Thailand. Early this year the Agency was invited by the Thai Atomic Energy Commission for Peace to assist it in studying the economic feasibility of nuclear power in Thailand. The Secretariat is at present looking into ways and means of meeting this request.

4. No other requests that fall within the ambit of these sub-paragraphs of the resolution have yet been received. The General Conference will however appreciate that only eight months have elapsed since its adoption, and it is therefore to be expected that as time goes on more Member States will avail themselves of the advisory services the Agency can provide under it. The studies of the technology and economics of nuclear power, which the Secretariat has undertaken pursuant to earlier resolutions [1], and which it is continuing to work on and keep up to date will, of course, provide the basis for such advice; and the Board and the Director General are accordingly of the opinion that it may be of interest to the General Conference to refer briefly in this section of their report to the present state of that work.

Participation in work on small and medium power reactors in the United States of America

5. Scientists on the Agency's staff have continued to take part in the work being done in the United States of America on the development and operation of small and medium power reactors. [2] Information on this work to supplement that given to the General Conference last year [3] is being collated; it will cover the six reactors representing four different systems which were the subject of the earlier paper as well as three more reactors which have now been included in the programme of study at the Secretariat's request. [4]

6. It is clear that the value of these studies would be enhanced in future if their basis could be broadened, that is if members of the staff could have facilities for similar study of the progress being made elsewhere in the world with the development of small and medium power reactors. The Director General is accordingly looking into the possibilities of making suitable arrangements. [5]

[1] Particularly GC(IV)/RES/86 on nuclear power costing.

[2] For details of this participation, see document GC(V)/161, paragraph 8.

[3] GC(V)/INF/41.

[4] The new paper will be issued later as document GC(VI)/INF/54.

[5] In relation to the Agency's studies of the development of power reactors, the Board and the Director General have noted with appreciation the offers made by the Governments of the United Kingdom of Great Britain and Northern Ireland (GC(V)/OR. 53, paragraph 87) and the United States of America (GC(V)/OR. 50, paragraph 8(32)) to provide opportunities within the framework of the Agency's fellowship programme for scientists and technicians from the developing countries to study the operation of power reactors.

Symposium on Power Reactor Experiments

7. As part of the Agency's efforts to disseminate information on the latest developments in power reactor technology, a Symposium on Power Reactor Experiments was held in October 1961. It was attended by 177 participants from 24 Member States and two international organizations, and the proceedings [6] were published in January of the present year.

Cost data

8. The Secretariat is continuing to analyse cost data on existing and planned nuclear power plants, for which purpose requests for up-to-date information on reactors in operation and on cost projections based thereon have been made to the leading nuclear Powers. Material obtained in response to these inquiries and the latest published information will be reviewed shortly in the light of the paper on nuclear power costs which was presented to the General Conference in 1961[7]. Although it is not expected that much new data on the subject will thus become available before the General Conference meets, arrangements are being made to provide it with a supplement [8] to the previous paper.

9. In view of the importance of problems connected with the disposal of radioactive waste and of the influence of this subject on cost studies, the Secretariat is engaging in a study of the possibilities of international co-operative action to further waste disposal research. The desirability of making the maximum use of existing research facilities will be emphasized in the study.

10. It is indicated in the Programme for the current year that the Secretariat will begin to study the economic effects of introducing nuclear power plants into existing electric power grids [9], as a sequel to its initial work on the methodology of nuclear power costing. The first results of this work were published last November as an Introduction to the Methods of Estimating Nuclear Power Generating Costs [10], and the new study has begun with the preliminary consultation of experts from nuclearly advanced countries and the United Nations Secretariat.

ACTION UNDER SUB-PARAGRAPHS (c) AND (d)

11. With regard to the Agency's role in furthering the undertaking of regional nuclear power projects or in establishing international demonstration power reactor plants, the Board and the Director General feel it desirable to make the following point. Despite the preliminary general interest which has been shown in such projects by both technically advanced and less advanced countries, economic and political considerations make it necessary for the initiative for this kind of project to come from a Member State or a group of such States. Once that initiative has been taken, however, the Agency can provide assistance in the following ways:

- (a) By dispatching a nuclear power survey mission to make a comprehensive general appraisal of the economic and technical feasibility of the proposed project;

[6] Power Reactor Experiments, Vols. I and II, Proceedings Series, STI/PUB/51, p. 687.

[7] GC(V)/INF/38.

[8] To be issued as document GC(VI)/INF/53.

[9] GC(V)/155 , paragraph 29.

[10] Technical Reports Series, No. 5 (STI/DOC/10/5).

- (b) By providing experts to advise on such technical points as the reactor type, the siting of the power plant, safety and hazards evaluation and the preparation of the necessary legislation, as well as to assist in drawing up specifications for consulting engineers;
- (c) By helping to draw up a request for a project under the United Nations Special Fund and by acting as the Executing Agency for the project;
- (d) By organizing an international panel to study tenders for construction;
- (e) By arranging for the training of staff;
- (f) By helping to obtain the nuclear fuel required; and
- (g) By facilitating the making of financial arrangements.

12. At the request of the Yugoslav Federal Nuclear Energy Commission the Secretariat sent a mission to Yugoslavia in the middle of last year to make a preliminary survey of the possibilities of establishing a demonstration nuclear power reactor in Yugoslavia, which might be designed, built and operated as an international enterprise. The mission's preliminary assessment of the technical aspects of the project were favourable. In March 1962 the Commission asked the Agency to provide experts who could advise on the technical aspects of its conceptual design study; and some of the more advanced Member States have provided experts for this purpose.