



REGIONAL CO-OPERATIVE AGREEMENT  
INTERNATIONAL ATOMIC ENERGY AGENCY

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# REPORT

**TWENTY-FIRST GENERAL CONFERENCE MEETING  
OF  
REPRESENTATIVES OF RCA MEMBER STATES**

IAEA - Vienna, 23 September 1992



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TWENTY-FIRST GENERAL CONFERENCE MEETING OF  
REPRESENTATIVES OF RCA MEMBER STATES

8:30h Wednesday, 23 September 1992

VIC, C07, Conference Room V

INTRODUCTION

The meeting was attended by twenty-nine delegates and one observer representing all RCA Member States with the exception of Singapore. In addition there were observers from Democratic Peoples Republic of Korea, Mongolia, Myanmar and New Zealand. A list of those attending is attached as **Annex 1**.

The Meeting was opened by the Interim Chairman, Dr. Nguyen Tien Nguyen, Director, Department of International Relations and Planning, VINATOM, Vietnam. On behalf of the Meeting he congratulated the new DDG-TC, Mr. Qian Jihui to his appointment as Deputy Director General, Head of Department of Technical Co-operation and thanked the RCA Co-ordinator for his work on the RCA activities. He noted with pleasure that almost all RCA countries had signed the RCA Extension Agreement for the next five year period 1992-1997 and pointed out the comprehensive activity programmes presented for the Meeting's endorsement. The full text is given in **Annex 2**.

The Interim Chairman conveyed his Government's gratitude to all RCA Member States and the Agency for their co-operation and invited Mr. Qian to address the Meeting on behalf of the Agency.

Mr. Qian welcomed all delegates on behalf of the IAEA Director General, Dr. Blix. He noted that the 1987 RCA Agreement had been extended for a further period of 5 years and expressed his hope that the RCA membership might be increased. He made reference to the Working Group Meeting and its outcomes, and referred to the UNDP Industrial Project which has clearly shown that nuclear technology is getting right to the end user. The full text is presented in **Annex 3**.

The Interim Chairman called for the nomination of the Chairman of the RCA Meeting 1992.

Mr. Masanori Wada, Assistant Director, Nuclear Energy Division, Ministry of Foreign Affairs, Japan, was nominated by the Philippines, seconded by Indonesia and unanimously elected Chairman. Mr. Wada expressed his gratitude to the delegates for electing him Chairman. He also thanked all Member States on behalf of his Government, for their support during the last Working Group Meeting. He made reference to the extension of the RCA Agreement and expressed his hope that the next 5 years would again be fruitful in bringing social benefits to the Region. On behalf of the RCA Member States he extended a warm welcome to Mr. Qian Jihui at his first RCA Meeting and hoped to work closely with him on RCA matters. The statement by the Chairman is attached as **Annex 4**.

The Agenda for the Meeting is presented in **Annex 5**.

The Chairman invited the RCA Co-ordinator to present his report.

#### REPORT BY RCA CO-ORDINATOR

In his report, the RCA Co-ordinator reviewed the RCA programme of the past year, highlighting the three project formulation meetings that had taken place for the Nuclear Instrument Maintenance, Radiation Protection Infrastructure and Radiation Sterilization of Tissue Grafts projects. He reviewed the current situation with the new UNDP project proposal. On organizational matters he emphasized the importance of the National Co-ordinators in the RCA programme, the need to have properly formulated projects and the need for technology to reach the ultimate end user. The full text of the report is attached as **Annex 6**.

Japan expressed appreciation of the efforts and the work of the Secretariat and offered congratulations on the extension of RCA which was now legally secured for a further period of 5 years. It was noted that, after receiving on the 29th of June in Vienna the copy of the agreed text and then taking all necessary formalities in Tokyo, Japan had notified the Agency on 11 September 1992 of its acceptance of the Extension Agreement. All those countries who had not yet notified the Agency of their acceptance of the Extension Agreement were invited to complete necessary procedures as early as possible.

FOURTEENTH RCA WORKING GROUP MEETING, TOKYO, JAPAN, 24-27 MARCH 1992

The report was accepted without comment.

RCA ANNUAL REPORT 1991

Viet Nam questioned the date of acceptance of Viet Nam of the RCA Extension Agreement printed in the Information Circular. The RCA Co-ordinator explained that there normally is a difference between the date on a letter and the date of receipt as recorded by the Agency. The matter raised would however be checked with the Legal Department and was subsequently found to be correct.

The Annual Report 1991 was accepted with no further comments.

RCA PROGRAMME 1993

Proposed RCA project activities for 1993

Referring to the background paper, the RCA Co-ordinator pointed out that there was listed the titles of those projects which would be active in 1993 together with the names of responsible Technical Officer. Some of the specific details of the projects are also included in the relevant Project Formulation Meeting Reports.

The Philippines asked for identification of Technical Officers present at the Meeting and this was done.

India expressed happiness at the extension of the RCA Agreement and stated how relevant and important all projects presented were. In particular, the Food and Agriculture area was referred to and especially the project on food irradiation with emphasis on process control and acceptance. It was noted that the draft resolution on behalf of the Group of 77 on practical utilization of food irradiation in developing countries had been accepted by the Committee of the Whole. India commented on its active support of the UNDP Industrial project, which had been very successful and hoped that the new project proposal could now begin. Hopes were also expressed that there would be projects in the area of nuclear power in the future.

Australia advised the Meeting that the table for RCA project activities for 1993 did not include the proposed Australian project "nuclear medicine distance education" under the medical and biological field. Although this project has not yet been assigned a project number, it was expected to be endorsed at the December Board Meeting on the Technical Co-operation programme. It was further pointed out that the full Australian project proposal also included an industry and a radiation protection component. These have been incorporated into the updated list (**Annex 7**).

Japan noted the continuous progress in RCA activities and expressed hope for future mutual co-operation, self-reliance and understanding amongst RCA countries. Japan said it would continue to support the RCA activities not only technically but also financially and agreed with the proposed RCA activities for 1993.

Indonesia informed the Meeting that it would like to join the Project "Increasing the Yield and Nitrogen Fixation Capabilities of Common Grain Legumes" and asked about the mechanism required for joining. The RCA Co-ordinator replied that he had already informed the Technical Officer of Indonesia's wish to join the project. The project will, however, be terminated end of 1993 and therefore Indonesia would only be able to participate in 1993 activities. There was a recent Research Co-ordination Meeting in China, the results of which would be passed on to Indonesia.

China said that it appreciated very much the activities of RCA and would play an active role both technically and financially. Recently the Chinese Government, through the Permanent Mission in New York to UNDP, supported the activities under the framework of the RCA. China strongly endorsed the project in the Medical and Biological field on "Improvement of Cancer Therapy in Asian Countries" as well as the project on Research Reactor Utilization. China agreed with India in its proposal for projects concerned with nuclear power.

Pakistan pointed out that it has participated in almost all the RCA projects and noted with appreciation the very useful contributions RCA has made. Pakistan welcomed the extension of RCA for the next 5-year period. Involvement in a number of activities in the Agriculture and Nuclear Medicine field were noted and the details had been discussed at the Working Group Meeting. The facilities for training and research in Pakistan were offered to other participating RCA countries. With reference to the proposal from India for projects on nuclear power, it was pointed out that this request had been brought repeatedly to the attention of delegates in past



years and had always been supported by Pakistan. Pakistan reported that it had hosted a Regional Training Course on Power System Expansion Planning this year and proposed that more nuclear power planning training courses be held in the Region. The country statement was presented to the Meeting for inclusion in the Report.

The RCA Co-ordinator replied to the remarks on research reactor utilization and on nuclear power. He pointed out that the "Energy and Nuclear Power Planning" project has been in existence for several years and a number of training courses had been held. If there were a general desire by Member States to look at the programme for this project, a Project Formulation Meeting could be held to assess the future needs and direction. He added that the same would be true for the research reactor utilization area, a Project Formulation Meeting could also be held.

Viet Nam expressed interest in all RCA projects and drew attention to the Australian project, expressing the wish to have this project incorporated within RCA. In answer to a question about the mechanism for participation in this project, the RCA Co-ordinator replied that there was a technical problem, because the Australian activity had not yet been approved by the Board. However, once approved, it would will be a legitimate part of the 1993/94 programme. He suggested that, in future documents, there might be a footnote saying "subject to Board approval".

The Chairman invited the DDG-RI to comment. The DDG-RI referred to the project on food irradiation and said that, in collaboration with the Technical Co-operation Department, the IAEA was going to work to strengthen food irradiation. The Board had requested a progress report for the February 1993 Board Meeting. He would appreciate comments from RCA countries. He cited an example from USA (irradiation of fruits) and expressed his hope that public acceptance of irradiated food would increase.

India said that it had been working in this field for quite some time, particularly with cereals, onions, potatoes, frozen seafood and spices, and referred to the proposal, prepared by the Group of 77, on the practical utilization of food irradiation in developing countries which called for a detailed project proposal by the Director General, in collaboration with other United Nations Organizations, covering technical, legislative, public acceptance and financial aspects. It was hoped that this would be accepted by consensus. On the aspect of nuclear power, India had made a very detailed proposal to the Agency and was awaiting a response. When this was

received, India could then prepare a suitable project proposal. The RCA Co-ordinator responded by pointing out that there was an existing project in this area and reminded delegates that, at a time of static budgets, there were problems because existing projects had to be cancelled in order to bring in new ones.

Bangladesh congratulated Mr. Wada on his election as Chairman and expressed thanks to the RCA Co-ordinator and his staff for their work. The long-time interest of Bangladesh in Food Irradiation was mentioned as well as information on national activities. Bangladesh reported that it carried out activities in the area of research reactors and had a great interest in the nuclear power planning projects. Bangladesh strongly supported nuclear power in developing countries and asked the Meeting to seriously consider a programme for the RCA countries. Bangladesh wanted to see the topic as part of the 1993 Training Programme and would strongly support it.

China pointed out that several meetings on food irradiation were held in China and China was ready to make contributions to this area to make it successful. In the case of any concrete projects, China said it would be willing to support them from a technical and financial aspect. The delegate supported the RCA Co-ordinator's proposal for a project formulation meeting in nuclear power and offered to host such a meeting during the coming year.

The Republic of Korea presented some general remarks and referred to the DDG-TC's opening remarks. It was noted that a number of Member States were planning nuclear power programmes to meet the ever increasing energy needs in the Region and that, in the opening statement to the General Conference by the Director General, Dr. Blix, it was said that the Agency's programmes should meet the rapidly changing world requirements. Republic of Korea said that the RCA programme should include nuclear power related activities to meet the real needs of the Member States and that the Republic of Korea would support these projects.

Japan pointed out that any projects in the area of nuclear power technology would need to be considered carefully by the Agency since they might turn out to be very costly. The individual level of each Member State in this area was referred to as well as the NPT Treaty. In the area of research reactors, Japan's possible support was expressed.

Australia supported Japan's remarks and added that the tabled 1993 programme had met the priorities of the RCA and that the scarcity of funds would preclude looking much beyond

what had been identified.

The Chairman declared the 1993 RCA project activities accepted.

RCA budget and budget estimates for 1993-94

Referring to the background papers, the RCA Co-ordinator presented the budget framework for the proposed activities. He pointed out that some of the projects which have not yet received formal approval by the Board, have been included in this table and that an estimate of US\$1 million was made for the UNDP contribution for each year; this figure would need to be modified in due time. The total for each year was around US\$ 3.5 million which represents a modest increase over the 1992 budget. The updated table is presented in **Annex 8**.

The RCA budget was accepted without comments.

Tentative list of Regional and RCA Training Courses for 1993

The RCA Co-ordinator pointed out that this list was unavoidably incomplete (**Annex 9**); the training requirements under the new UNDP Project would still need to be included. This would probably result in an additional 6 Training Courses being added. He asked those countries who would like to host training activities and/or financially support them to inform the RCA Office as soon as possible. The Training Course Programme for 1993 needs to be finalized by end of October. He made special reference to the Governments of China, India, and the Republic of Korea who had generously supported the Training Course programme in the past and expressed his hope for further support. He asked to be informed on the likely dates and topics for this support so that it could be included in the report.

Malaysia informed the Meeting that it would like to host the "Regional Workshop on Training Techniques for Radiation in Industrial Radiography" in 1993 and the "Regional Training Course on Trouble Shooting and Repair of Gamma Cameras" in 1994. Referring to the RCA budget and the UNDP project on "Environmentally Sound Technology" Malaysia announced that it would pledge US\$ 50,000 over the 5 years provided that the project received UNDP support.

Philippines said that it would like to host the "Regional Workshop on Radiation Protection Related to Industrial Applications of Ionizing Radiation" in November 1993.

Viet Nam announced its wish to host in 1993 the "Regional Workshop on Evaluation of Modern Spectroscopy Amplifiers", the "Regional Training Course on Research Reactor Utilization" in Dalat and the "Regional Training Course on Principles and Practices of Tissue Banking".

Indonesia said it would be willing to host two training activities to be chosen from the "Regional Training Course on Research Reactor Utilization", the "Regional Training Course on Principles and Practices of Tissue Banking" and the "Regional Workshop on Training Techniques for Radiation in Industrial Radiography".

Japan announced that it would host the Regional Workshop on "Radioisotopes and Molecular Techniques in Radiobiology Applications for Human Health". In connection with this Workshop, Japan suggested it would be better, from a cost benefit point of view, to hold some national workshops in various countries, supported by Japan.

The RCA Co-ordinator thanked the delegates for their offers and assured them that he would look into offers and then inform delegates of the outcome.

#### New Project Proposal for UNDP funding ICP-5 (1992-96)

The Chairman opened the floor for comments.

Philippines enquired if it was known when UNDP might make a decision on this project. The RCA Co-ordinator answered that there was no good feedback at the time being. He would undertake duty travel in October and visit Bangladesh, Pakistan, India, Thailand and Indonesia and would visit UNDP offices in those countries to ask them about the likely date of response and to see if there were any complicating factors. He had found, for example at the UNDP Office in Manila, that while support had already been given in principle, there had still been some reservations based on linkages to National programmes.

Pakistan informed the Meeting that his Government had conveyed its interest to UNDP Islamabad and had also requested them to convey it to UNDP New York.

Malaysia confirmed its full backing of the project.

Japan reiterated its support for the new UNDP Project. In October last year Japan had, together with Australia, asked UNDP Headquarters to support the project financially. In January 1992 at the UNDP Meeting of Aid Co-ordinators, MAC-5, in Manila the Japanese representative had made a statement asking UNDP to give due and favourable support to the Project. Japan said it would give as much technical and financial support as possible but it was not in a position to commit itself to fixed financial contributions for the future. The Secretariat was asked for a necessary explanation about the UNDP's Programme Work Plan 1992 reproduced in 5e (**Annex 10**) of this Meeting's Background Papers, which indicated such a pledged contribution. The RCA Co-ordinator referred to the footnote at the bottom of the table (**Annex 8**) where it was stated that the figures were "estimates only and did not imply any commitments by donors". He added that, from the planning point of view, some figure had to be indicated. Concerning the budget in the PFF, UNDP had been informed that the programme would be supported by donor countries but again, any numbers indicating possible Australian and Japanese contributions included footnotes saying that these numbers did not imply commitments from the donor countries. In any future correspondence this would be reiterated. The great importance of the donor countries' contribution was emphasized and it was mentioned that only 20% of the total RCA programme came from the Agency. 80% came equally from UNDP and the extrabudgetary contributions of Australia and Japan. Additionally an enormous "in kind" contribution was given by each Member States.

The Chairman asked the RCA Co-ordinator to keep the RCA Member States informed on the progress of the new UNDP Project Proposal.

#### RCA and Regional Asia Footnote a/ Projects 1993-94

The RCA Co-ordinator presented the list of footnote a/ projects which are either being considered or will be considered in 1993/94 (**Annex 11**). The Project on "Nuclear Information System" was put into the programme in response to requests from India at the last General Conference Meeting and from Pakistan who raised the matter at the 14th Working Group Meeting. There was a possibility to secure some Agency funding for 1994. A project on "Nuclear Instrument Maintenance" was supported by Germany in 1990/91; funding was then withdrawn for 1992 and Agency funding was used to enable committed activities to take place. The project "Control of Tropical Plant Viruses" has been unfunded for two years and should now be

considered for deletion. The project "Strengthening of Nuclear Medicine in RCA Member States" will be supported by Australia. The project "Use of Computers in Technetium-99m Imaging" had been supported by Australia until 1992. At the Working Group Meeting requests were made for further Training Courses and it had therefore been put on the list of footnote a/ projects. The project "Radioisotopes in Industry" was part of the Project support of Japan similar to the project on "Radiation and Isotope Applications in Industry" which was part of the project supported by Australia. The regional project "Marine contamination and sediment transport" would be unfunded in 1993 since the US support would cease at the end of 1992. However there would be some residual funds for support of activities in 1993 and probably in 1994. For the project "Strengthening of Radiation Protection Infrastructures", support had been indicated by Japan and Australia and also there would be funding from the Agency. The project "Risk Management and Comparison in Large Industrial Areas" had been unfunded for a year; if it remained unfunded next year, it would be considered for deletion at the next General Conference Meeting.

The Chairman asked for comments on the project on "Control of Tropical Plant Viruses". The Philippines proposed to have the project deleted and removed from the list and there was no objection to the proposal.

The Chairman announced therefore to have the project deleted from the footnote a/ list.

The Philippines enquired about the efforts made to seek funding for the project on "Risk Management and Comparison in Large Industrial Areas". The RCA Co-ordinator replied that the project had been displayed in the Project Schedules and was available for picking up by donors. The previous Technical Officer had looked at various possibilities to secure funding from elsewhere but had not been successful. He expressed his disappointment that this important area had not been supported. Philippines asked if the Project on "Risk Management and Comparison in Large Industrial Areas" could be retained for another year. The RCA Co-ordinator replied that the project would not be considered for deletion before next year and in the interim extra funds might be secured.

#### OTHER BUSINESS

India offered to host a Training Course on the subject of "Nuclear Information Systems" at a time when the Secretariat considers it suitable. The RCA Co-ordinator replied that a function

could tentatively be planned for 1994. He again stressed the importance of well-constructed projects, pointing out that a skeleton programme would be very useful.

Australia advised the delegates that it would provide new extra-budgetary contributions to the Agency beginning in 1993 for a Co-ordinated Research Programme on the "Use of Nuclear and Isotopic Techniques in Retrospective Studies on Coral Reefs", particularly looking at the influence of climate change and environmental impact. This study will run for three years and will be co-ordinated by ANSTO and the IAEA's Marine Environmental Laboratory at Monaco. The project should bring together experts in this area and lead to better understanding of the role of coral reefs as markers for the environmental change and industrial pollution. It was commented that other RCA Member States might be interested in this programme. Australia advised the delegates that the 9th Pacific Basic Nuclear Conference would be held in Sydney in May 1994. The theme of the Conference is the Use of Atoms in Energy Production and in Science and Technology. A preliminary programme had been circulated in the Meeting. It was hoped to organize one RCA Workshop from the new project to coincide with this Conference.

On an administrative matter the RCA Co-ordinator asked all delegates to check the participants list and inform the Secretariat of any changes or corrections.

The Philippines asked for clarification of item 5a in the background papers. The Chairman reminded the floor that, as the RCA Co-ordinator had mentioned earlier in his report, this item only presented references and explained that the Meeting had therefore started with item 5b. The Philippines raised the question on whether the venue for the 15th RCA Working Group Meeting could be considered under "Other Matters" and announced that the Philippines would host the 15th Working Group Meeting in Manila, 23-26 March 1993. All Member States and Observers were invited to the Meeting and it was hoped that the Observers would be RCA Members by the time of the Meeting.

Japan supported the Philippine proposal.

The Chairman announced that the next Working Group Meeting will be held in the Philippines, 23-26 March 1993.

Republic of Korea apologized for his country's delay in its official notification of its wish to extend the RCA Agreement which was due to time consuming administrative procedures. It was reiterated that Republic of Korea strongly supported RCA and seconded Japan's support for the Philippines holding the next Working Group Meeting in Manila. In the absence of any other offers from Member States, Republic of Korea stated its willingness to host the 1994 RCA Working Group Meeting.

India supported the next Working Group Meeting being held in Manila and reminded delegates that the very first RCA Meeting in a developing country had been held in the Philippines.

Malaysia announced too, that it would be willing to host the 16th RCA Working Group Meeting in 1994.

The Chairman confirmed that the 15th Working Group Meeting will be held in Manila and said that the hosting of the 16th Working Group Meeting will be discussed at a later stage.

The Philippines suggested that even though delegates do not read their country statements anymore, they should be submitted for the records. The Chairman agreed that the country statements would be handed over to the Secretariat for inclusion in the Report.

#### Actions

1. The RCA Member States who would like to host training activities in 1993 and/or financially support them were requested to inform the RCA Office of their intentions as soon as possible.
2. The RCA Co-ordinator was requested to keep the RCA Member States informed on the progress of the UNDP Project Proposal.

#### Summary of decisions taken by the Meeting

1. The Report of the 14th RCA Working Group Meeting, Japan was accepted.
2. The RCA Annual Report 1991 was accepted.



3. The RCA project activities for 1993 were accepted.
4. The RCA budgets for 1993/94 were accepted.
5. The footnote a/ project RAS/5/022 "Control of Tropical Plant Viruses" was deleted from the footnote a/ list.
6. The offer by the Philippines to host the 15th RCA Working Group Meeting in 1993 was confirmed.

The Chairman thanked all delegates for their active co-operation and contribution and said he was looking forward to meeting them next at the 15th RCA Working Group Meeting in the Philippines. The closing remarks are added as **Annex 12**. The meeting was closed at 10:45h.



**LIST OF PARTICIPANTS**

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REMARKS  
BY INTERIM CHAIRMAN  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

Distinguished delegates,  
Ladies and Gentlemen,

First of all, may I, on behalf of all of you, extend our warmest congratulations to Dr. Qian Jihui on his appointment as Deputy Director General in charge of Department of Technical Co-operation, which is very important to the developing countries. We are confident that the technical co-operation between the Agency and Member States in the field of peaceful uses of atomic energy will, under his skillfull guidance and with his responsibility, be further promoted and developed.

I would also like, on behalf of all, to express our sincere thanks to Dr. J.Easey, RCA Co-ordinator, for the tremendous work done by him in the RCA activities.

Distinguished delegates,  
Ladies and Gentlemen,

I am very happy to be informed that almost all RCA countries have given their agreement to the extension of RCA for the next five-year period (1992-1997). It goes without saying that RCA, which started in 1972, has presently entered into the fifth phase and will certainly be very fruitful and efficient in promoting the regional co-operation in the field of nuclear application.

I notice with great pleasure that the RCA comprehensive programmes of activities, which have been formulated through a number of meetings such as RCA Working Group Meeting in Tokyo in March this year, project formulation meetings in Japan, Australia, the Philippines and Sri Lanka are now here for your endorsement. One can certainly see the lively co-operation of RCA countries once these programmes be endorsed and funded.

In conclusion, in the name of my Government, I would like to convey our deep gratitude to all RCA Member States and the Agency for their kind co-operation and understanding. In addition, I believe that this is one of the factors which have greatly contributed to the success of RCA.

May I take this opportunity to wish you all the best of health and the success of the meeting.

Thank you.



**TWENTY-FIRST GENERAL CONFERENCE MEETING OF REPRESENTATIVES  
OF RCA MEMBER STATES**

**Opening Remarks**

**by**

**Qian Jihui, Deputy Director General**

Mr. Chairman, Distinguished Delegates, Colleagues, Ladies and Gentlemen

On behalf of the Director General, Dr. Hans Blix, it gives me great pleasure to welcome you to this Twenty-First Annual General Conference Meeting of Representatives of RCA Member States. This is my first participation in an RCA meeting since I became Deputy Director General and Head of the Department of Technical Co-operation at the beginning of August this year. I look forward to participating in the RCA Meetings and to getting to know you all.

Twenty one years is an auspicious timing, as we all know, marking the transition into maturity. Certainly the RCA programme can be judged as a mature programme and has achieved a significant reputation as a successful vehicle for regional co-operation and for achievement. The RCA programme can be seen as setting the standard for others and I am certain that it will continue to grow in response to the strong climate of technological expansion occurring in the region.

I noted that the 1987 Agreement was extended on 11 June this year with the acceptance of Australia and China of the Extension Agreement and since then Bangladesh, India, Indonesia, Japan, Pakistan, Philippines, Sri Lanka and Viet Nam have also formally accepted. It is hoped

that with this extension, the membership might be increased beyond the current fourteen. Interest has been expressed by the other Governments and RCA materials have been distributed to the Missions of the Democratic People's Republic of Korea, Mongolia, Myanmar and New Zealand. It was very gratifying to learn that Mongolia had observer status at the 14th RCA Working Group Meeting held in Tokyo in March this year.

This Working Group Meeting at which all RCA Member States except Singapore were represented was officially opened by Mr. Takaya Suto, Director General for Scientific and Technological Affairs, Ministry of Foreign Affairs. Mr. Suto referred to the increasing importance of the IAEA and also the important applications of nuclear technology in agriculture, medicine, industry and radiation protection. I think it was an important point that he raised when he urged the Member States to use the principle of scrap and build to enable new projects to be funded within the limitations of our budget.

Mr. Yoshiyuki Sadaoka chaired the Meeting, which had a particularly busy schedule and was able to ensure that the business was effectively dealt with and the tight timetable adhered to. The important outcomes of the Meeting were:

- . the acceptance of the 1991 Annual Report
- . the acceptance of the 1992 Budget and Action Plan
- . the decision to refer the wording and the detail of the draft extension agreement document to IAEA for legal advice.
- . the decision to send to UNDP Headquarters, New York, an agreed statement reaffirming Member States strong support of the new project proposal for the 5th Inter-country Programme Cycle (1992-96) as contained in the Project Formulation Framework currently under consideration by them.

Other matters dealt with by the meeting were: the endorsement of the new project proposal from Australia on Applications of Isotope and Radiation Technology to Regional Development with Special Reference to Industry and Nuclear Medicine; and, the discussion of a number of new project proposals. The Meeting also had two participants from Mongolia present as observers and I hope that this initiative will soon result in Mongolia becoming a member of RCA.

You have been given copies of the 1992 RCA Working Group Meeting Report, 1991 RCA Annual Report as well as three reports of project formulation meetings held this year for the Nuclear Instrument Maintenance, Radiation Protection Infrastructures and Radiation Sterilization of Tissue Grafts projects. Later on this year you will also be sent copies of the Terminal Report for the UNDP Industrial Project. I have been particularly interested in the outcome of the UNDP project, which has shown that in the past 5 years for example US\$ 190 million has been invested in nuclear technology with US\$150 million coming from private enterprise. This clearly indicates that the nuclear technology is getting right to the end user which I think is essential and, where appropriate, I would like to see clear indications of nuclear technologies reaching the ultimate end users in other TC projects. When I was Director General of the Nuclear Power Institute of China I had some experience of the problems involved in interfacing with industry and of achieving transfer of technology to industry and so I have a good appreciation of both the difficulty of and the need for making certain that the real end user of the nuclear technology receives the technology and can use it effectively, efficiently and safely.

In conclusion I must of course pay due credit to the outstanding contribution of Professor Noramly bin Muslim to RCA.

Mr. Chairman, I look forward to this meeting and to my future involvement in RCA during my term as DDG.

Thank you.

OPENING STATEMENT  
BY CHAIRMAN ELECT  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

Distinguished representatives of the IAEA  
Distinguished delegates of the RCA member states  
Ladies and Gentlemen

I would like to express first of all my sincere gratitude to you all for electing me as Chairman of the 21st RCA General Conference Meeting. And I hope that with your assistance and cooperation this meeting will prove to be fruitful.

I would like to take this opportunity to express many thanks of mine on behalf of the Japanese Government for your support and contribution extended during the last Working Group Meeting in Tokyo last March. Your active participation and lively discussion on spring days in Tokyo certainly contributed enormously to make the meeting a success.

This year marks the 20th Anniversary of the establishment of the RCA framework. And in June we observed the Agreement to extend the 1987 RCA Agreement for the further period of five years came into effect. I hope that the next five years will again prove that the RCA framework is workable and fruitful as ever in bringing social benefits to the region.

In August Dr. Qian assumed his post as Deputy Director General in charge of Technical Cooperation to succeed Dr. Noramly, and this is his first RCA meeting to attend officially. Therefore, on behalf of the RCA member countries, I would like to extend a warm welcome to you, Dr. Qian, and do look forward to working with you closely on coordinating and executing the RCA activities.

With these remarks of mine, I now wish to proceed to the items on the Agenda.





**Twenty-First General Conference Meeting of  
Representatives of RCA Member States**

**08:30h Wednesday, 23rd September 1992**  
**VIC, C07, Conference Room V**

**Agenda**

1. Opening

- . Remarks by interim chairman
- . Welcome on behalf of the IAEA
- . Election of chairman
- . Statement by chairman elect

2. Report by RCA Co-ordinator.

3. Fourteenth RCA Working Group Meeting, Tokyo, 24-27 March 1992.

The Meeting is invited to accept the report as presented or with any agreed amendments.  
The basic report is presented as background paper 1.

4. RCA Annual Report 1991.

The Meeting is invited to accept the report as tabled or with any agreed amendments.  
The report was circulated separately.

5. RCA Programme 1993.

The Meeting is invited to comment on the 1993 RCA programme documents presented  
in background paper 2.

6. Other business.



**TWENTY-FIRST GENERAL CONFERENCE MEETING OF REPRESENTATIVES**  
**OF RCA MEMBER STATES**  
**Report by RCA Co-ordinator**  
**J.F. Easey**

Mr. Chairman, Distinguished Delegates, Colleagues, Ladies and Gentlemen

I should like to review the RCA programme of the past year. It has been a very eventful time and has seen a further consolidation of the aims and objectives of the RCA programme. As the DDG-TC Mr. Qian pointed out we are now at our 21st Meeting. With this milestone it is expected that RCA should have achieved a mature status and I believe that this has been clearly demonstrated. There has been a concerted effort to ensure that all Member States are participating in the decision making processes associated with the various RCA projects. This emphasis on increasing regional management and inputs into the decision making processes is, I believe, fundamental to achieving a relevant and viable programme.

This year there have been three project formulation meetings to consider the needs and the desires of the Member States for the projects on Nuclear Instrument Maintenance, Radiation Protection Infrastructure and Radiation Sterilization of Tissue Grafts. The reports of the first two meetings have been circulated to all Member States and the third, which took place in August, is now printed and is being distributed. Copies of these reports are available here if required. These project documents have been set out so that the aims and objectives are clearly stated and are also in verifiable form so that the requirements for the project management are clear and also they are readily evaluated. The efficient use of our resources requires us to ensure that the projects are properly planned and executed and can be properly assessed throughout their life to ensure that they are meeting their defined objectives.

I would also like to follow another of Mr. Qian themes and that is the need to get the new technologies to the end user and not just be concerned with only getting them to the National Nuclear Research Institutes. For the developments to yield the maximum benefit it is essential that the ultimate end user is part of the total technology transfer process.

Currently our credibility with this objective is very high. As was revealed during the preparation of the terminal report for the UNDP Industrial project some US\$150 million was invested in industrial nuclear technology by the private sector with an additional US\$40 million

from the government sector. I would like Member States to continue to monitor national investments and to pass on the information in country statements. However, we should not be complacent and should endeavour to develop the extension of the nuclear technologies to appropriate industries. One important link in this process, from the RCA perspective, is the National Project Co-ordinator, who is the critical interface between the regional programme and the national activities taking place under RCA. It is his or her responsibility to act as the link for a two way communication flow. The choice of candidates is therefore very important and of course, they have to be strongly backed with national resources in order to adequately carry out the tasks. In the past we have had good support in these aspects and we need to maintain and, wherever possible, improve performance to ensure that we are making the best use of our resources. These developments are going to contribute to providing relevant and responsible projects for RCA.

This year has seen the RCA enter a new five year phase through the extension of the 1987 Agreement. To date the Agency has received formal notification of acceptance of the extension agreement by 10 Member States. Another 4 have informally indicated that the official letters will be sent soon. It is very gratifying to hear that a new Member, Mongolia, will soon be joining. I am also pleased to see observers from the Democratic People's Republic of Korea, Mongolia, Myanmar and New Zealand at this meeting.

The co-operation of all Member States in achieving the extension of RCA is gratefully acknowledged.

The progress with the new UNDP project proposal is slow. In many countries there has been a lengthy process of discussion between the UNDP field office, the national economic planning unit and the national nuclear research institute. The slippage has meant that UNDP headquarters in New York has not been able to respond to us with their comments on our Project Formulation Framework (PFF) in the context of the perspective of the UNDP field offices. We are therefore in the difficult position of not knowing what, if any, constraints have been placed on the full scope of our PFF and so it has not been possible to prepare the project document. However, as can be seen in the background papers, we do have a project number and are able to proceed with aspects of the work under pre-project activities. In order to be able to respond as quickly as possible to UNDP requests for the project document, work has gone ahead with the preparation of budgets for the activities in the PFF and the assessment of "in-kind" contributions.

Further work is being planned. As will be seen in the budgets presented in the background papers, it has been assumed that US\$1 million will be required each year in 1993 and 1994. If this assumption is correct then the level of funding for RCA will be at a satisfactory level to give adequate project activity to maintain progress and sustain interest. During this meeting we may hear more about the levels of extra-budgetary funding for RCA planned by the traditional donors as well as offers from developing Member States. I am also looking at taking initiatives to increase funding from other international organizations and I hope to have proposals for consideration and discussion by the time of the next RCA Working Group Meeting which is to be held in Manila on 23-26 March 1993.

In the future RCA has got to look carefully at its programme and have, as part of its spirit, the will to terminate old projects so that new ones can be taken on. In his opening address for the 14th RCA Working Group Meeting, Dr. Takaya Suto, Director-General for Scientific and Technological Affairs, Ministry of Foreign Affairs put this point very succinctly when he said that the "principle of scrap and build needed to be explored".

When it comes to issues of finance, I believe that the critical factor is the project proposal. If a project can be formulated correctly, with achievable and appropriate development aims and objectives, a realistic budget and timetable, and can stand technical scrutiny, it will have a good chance of securing funds. In the present climate, requests which are unstructured, ambiguous and without development imperatives are unlikely to be supported and will cast doubt on the credibility of those proposing them. I believe that the success of RCA has come from a package of responsible projects, which have been well-run, well-supported and well-monitored. RCA has the credentials that Member States can "deliver the goods" and there can be little doubt that success breeds success.

Mr. Chairman, before I conclude my report. I would like to refer the distinguished delegates to the background papers before them. The first paper deals with the 14th RCA Working Group Meeting. In the second paper, item (a) is a memory jog to ensure that important items do not get forgotten and (b) to (f) are specific information items which will assist when Agenda item 5 is discussed.

I thank you for your attention and I welcome any comments or questions.



**PROPOSED RCA PROJECT ACTIVITIES FOR 1993**

<b>Field</b>	<b>Project</b>	<b>Technical Officer</b>	<b>Project No.</b>
Medical and Biological	Quantitative Evaluation of Nuclear Medical Procedures for Diagnosis of Liver Diseases (Phase II)	G. Nair	E1.30.06
	Improvement of Cancer Therapy in Asian Countries (Phase II)	F. Durosini-Etti	E3.30.08
	Use of Computers in Tc-99m Imaging	A. Cuaron	RAS/6/016
	Radiation Sterilization of Tissue Grafts	R. Mukherjee	RAS/7/003 E3.10.04
	Radioimmunoassay for Hepatitis B Diagnosis	R. Piyasena	RAS/6/018
	Care and Maintenance of Nuclear Medical Equipment	Y. Xie	RAS/4/008 E1.10.06 E1.10.07
	Strengthening of Nuclear Medicine in RCA Member States	+	RAS/6/022*
Industry	Regional Project for Asia and the Pacific (RCA) on "Environmentally sound Technologies"	J.F. Easey (Project Officer)	RAS/8/068* RAS/8/069* RAS/8/070* (RAS/92/073)
	Sub-projects:		
	- Tracer Technology in Industry	I. Lewkovicz	
	- Non-Destructive Testing	B. Zatolokin	
	- Radiation Technology	V. Markovic	
	- Nucleonic Control Systems	R. Mani	
	- Nuclear Analytical Techniques	+	

**PROPOSED RCA PROJECT ACTIVITIES FOR 1993**

<b>Field</b>	<b>Project</b>	<b>Technical Officer</b>	<b>Project No.</b>
Agriculture	Food Irradiation Process Control and Acceptance	P. Loaharanu	RAS/89/044 (UNDP) RAS/5/020
	Increasing the Yield and Nitrogen Fixation Capabilities of Common Grain Legumes	S. Danso	RAS/89/045 (UNDP) RAS/5/021
Radiation Protection	Strengthening of Radiation Protection	P. Strohal	RAS/9/006
	Activities: - CRP: Reference Asian Man	R. Griffith	J3.20.01
General	Research Reactor Utilization Including Basic Science Using Research Reactors	K. Akhtar	RAS/4/011 F1.20.09
	Energy and Nuclear Power Planning	P. Molina	RAS/0/013
	Nuclear Information System	+	RAS/0/019*
	Development of TCDC in Asia and the Pacific	J.F. Easey (Project Officer)	RAS/0/015

+ Technical Officer to be appointed

\* New Project for 1993-94, subject to Board approval



**RCA BUDGET AND BUDGET ESTIMATES FOR 1993 - 94\***

Project No.	Title	Fund Source	BUDGET US \$K	
			1993	1994
RAS/0/013	Energy and Nuclear Power Planning	TC ADB	10.35 -	80.80 100.00
RAS/0/015	Development of TCDC in Asia and the Pacific	TC IND ROK CPR	41.40 50.00 25.00 25.00	94.80 50.00 25.00 25.00
RAS/0/019**	Nuclear Information System	a/	-	66.60
RAS/4/008 CRP: E1.10.06 E1.10.07	Nuclear Instrument Maintenance	TC	165.75	168.00
RAS/4/011 CRP: F1.20.09	Research Reactor Utilization	TC	80.70	80.80
RAS/4/012	Nuclear Instrument Maintenance	TC	157.00	147.00
RAS/5/020 (RAS/89/044)	Food Irradiation Process Control and Acceptance	UNDP	172.50	-
RAS/5/021 (RAS/89/045)	Improvement of Grain-Legume Rhizobium Symbiosis to fix Atmospheric Nitrogen	UNDP	203.60	74.50
RAS/6/016	Use of Computers in Technetium - 99m Imaging	a/	-	132.00
RAS/6/018	Radioimmunoassay for Hepatitis B Diagnosis	TC	237.45	204.80
RAS/6/022**	Strengthening of Nuclear Medicine in RCA Member States	AUL	114.00	110.00
RAS/7/003 CRP: E3.10.04	Radiation Sterilization of Tissue Grafts	TC	151.40	153.20
(RAS/92/073) RAS/8/068** RAS/8/070** RAS/8/069**	UNDP "Environmentally Sound Technologies"	UNDP TC JPN AUL	1000.00 103.15 304.20 147.50	1000.00 150.40 320.00 155.00

Project No.	Title	Fund Source	BUDGET US \$K	
			1993	1994
RAS/9/006 CRP: J3.20.01	Strengthening of Radiation Protection Infrastructure	TC JPN AUL	61.05 100.00 110.00	92.40 200.00 102.50
CRP: E1.30.06	Imaging Procedures for Diagnosis of Liver Diseases (Phase II)	JPN	48.00	48.00
CRP: E3.30.08	Improvement of Cancer Therapy (Phase II)	JPN	58.90	58.90
Total			3366.95	3639.70

\* Note these figures are estimates only. In particular they do not imply commitment by donor countries.

\*\* New Project for 1993-94, subject to Board approval.

**TENTATIVE LIST OF REGIONAL AND RCA TRAINING COURSES FOR 1993**

	<b><u>TITLE</u></b>	<b><u>LOCATION</u></b>	<b><u>DATE</u></b>
<b><u>REGIONAL</u></b>			
1.	Spatial Data Integration for Uranium Exploration, Resource Assessment and Environmental Studies,	Beijing, China	13 Sept-1 Oct. 1993 (3 weeks)
2.	Radioisotopes and Molecular Techniques in Radiobiology Applications for Human Health	Tokyo, Japan	25 Jan-19 Feb. 1993 (4 weeks)
3.	Calibration Procedures in an SSDL,	Sydney, Australia	3 weeks in February 1993
4.	Radiotherapy Treatment Planning	Bangkok, Thailand	3 weeks in November 1993
5.	Use of Immunoassay and Related Techniques for Studies on Animal Production and Disease Diagnosis	Colombo, Sri Lanka	4 weeks in May 1993
6.	Use of Accelerators and Neutrons in Material Research and Characterization	Beijing, China	6-30 April 1993 (3.5 weeks)
<b><u>RCA</u></b>			
1.	Regional Workshop on Evaluation of Modern Spectroscopy Amplifiers	Dalat, Viet Nam	7-23 Jan. 1993
2.	Regional Training Course on Data Transfer and Software Phantoms	?	?
3.	Regional Training Course on Research Reactor Utilization	?	?
4.	Regional Training Course on Trouble Shooting and Repair of Gamma Cameras	Bombay	?
5.	Regional Training Course on the Production and Characterization of Hepatitis B of Primary Reagents for RIA	Beijing	April 1993
6.	Regional Training Course on Principles and Practices of Tissue Banking	?	?
7.	Regional Workshop on Quality Control and Manufacturing Practices for Tissue Grafts Materials	?	?

8.	Regional Workshop on Radiation Protection Related to Industrial Applications of Ionizing Radiation	?	?
9.	Regional Workshop on Training Techniques for Radiation in Industrial Radiography	?	?
10.	Regional Workshop on Measurement Dosimetry and Applications in the Study of Geophysical Processes	Islamabad	?
11.	Regional Workshop on the Applications of NCS in the Paper Industry	Japan	?
12.	Regional Workshop on Off-Site Emergency Planning and Preparedness	?	?

**UNDP**

(To be announced later).

**TABLE 5e OF THE BACKGROUND PAPERS**

UNDP/RBAP/RPD/24 03 92

**ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT**

**EN.1 Environmental policy and research**

EN 1.1 Development of Least-Cost Plans for Reducing Greenhouse Gas Emissions RAS/92/069

EN 1.2 Programme for Asian Cooperation on Energy and the Environment RAS/92/071

**EN.2 Environmental technology development and dissemination**

EN 2.1 Integrated Application of Remote Sensing and GIS for Sustainable Natural Resource and Environmental Management RAS/92/070

EN 2.2 Promotion of Motor Vehicle Emissions Reduction Strategies in Asia RAS/92/072

EN 2.3 Environmentally Sound Technologies RAS/92/073

**EN.3 Agricultural resource management**

EN 3.1 Training and applied agricultural research for technology adaptation and transfer to small farmers in dry/rainfed farming areas in Asia RAS/92/065

EN 3.2 Network on plant biotechnologies RAS/92/068

EN 3.3 Support to improved natural resource systems management for the humid tropics RAS/92/066

EN 3.4 Integrated Pest Management RAS/92/062

EN 3.5 Sustainable forest conservation, management and environmentally sound utilisation of forests RAS/92/064

EN 3.6 Aquaculture and environment RAS/92/060

EN 3.7 Sustainable fisheries management RAS/92/063

**EN.4 Marine Environment**

EN 4.1 Marine pollution RAS/92/074

**EN.5 Disaster Mitigation**

EN 5.1 Disaster Preparedness and Mitigation RAS/92/067

## PROGRAMME WORK PLAN 1992

<p><u>Major theme:</u> Environment and Natural Resource Management</p> <p><u>Programme area:</u> EN.2 Environmental technology and energy development</p> <p><u>Programme area objective:</u> To encourage the development and adoption of environmental technologies, in private and public sector companies, that reduce wastage and promote the sustainability of natural resources.</p>	<p style="text-align: center;"><u>Responsible</u></p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; width: 50%;"><u>HQ</u></td><td style="text-align: center; width: 50%;"><u>Field</u></td></tr> <tr> <td style="text-align: center;">JPA</td><td></td></tr> <tr> <td style="text-align: center;">WS</td><td></td></tr> </table>	<u>HQ</u>	<u>Field</u>	JPA		WS	
<u>HQ</u>	<u>Field</u>						
JPA							
WS							
<p><u>Title:</u> EN 2.3 Environmentally-Sound Technologies. Use of isotopes and radiation to strengthen technology and support environmentally sustainable development.</p>							
<p><u>Objective:</u> Adaptation of technologies (tracer, radiation, non-destructive testing, nucleonic control systems, etc.) for urban pollution control, industrial pollution control and process optimization by industry.</p>							
<p><u>Programme Mandate:</u> Fora, such as meetings of the Representatives of RCA Member States, National Counterpart Meetings and the like, made the proposal, and supported by Australia and Japan who have already pledged \$2.5 million for the purpose.</p>							
<p><u>I-C Approach:</u> Proposal shall address common technical concerns because participating countries are facing similar challenges for the transfer/adaptation of technology and these issues can be more efficiently tackled at an inter-country level than merely a country-by-country basis. Proposed participating countries: Bangladesh, China, India, Indonesia, Republic of Korea, Malaysia, Pakistan, People's Democratic Republic of Korea, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam.</p>							
<p><u>Formulation strategy:</u> I) P.F.F. <u>developed</u> after extensive interaction between the RCA Member States, their experts and technical officers; and <u>endorsed</u> by member states. II) PFF sent with covering letter to all participating countries on 4 March 1992 to ascertain the continued interest and commitment of the governments III) Formulation mission be mounted <u>thereafter</u> which may be followed by inter-government consultation in the form of a workshop. IV) Possible host countries: Malaysia, India, Indonesia, Sri Lanka.</p> <p>PAPERS IN FILE: RAS/92/061</p>							
<p><u>Financing of preparations:</u> I) May be charged to project RAS/86/073 by extending its duration from December 1991 to _____ for limited activities; or II) P.A. Phase</p>							
<p><u>Role of UNDP field offices:</u> I) To offer opinion on P.F.F.; and II) cooperation with formulation mission.</p>							
<p><u>Role of UN Agencies:</u> I.A.E.A. shall play major role in formulation and implementation</p>							

Related ICP 5 project submissions: I) P.F.F. from I.A.E.A.; and II) Comments from various participating countries (please see file RAS/92/061 and RAS/86/073)

Related ongoing ICP 4 projects: i) RAS/06/073-II which terminated in December 1991  
ii) RAS/79/061 which terminated in 1986.

Related sub-regional projects:

THEME: ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT							
Programme area	ICP 5 programme submissions	Status	ICP 4 related projects	Formulation Timetable 1992			
				Approach	2nd Qtr.	3rd Qtr.	4th Qtr.
EN 2.1. Integrated Application of Remote Sensing and GIS for Sustainable Natural Resources and Environmental Management	Preserving Coastal Ecosystems Bio-diversity, Stability and the Sustainable Use of Resources within the Context of the Mean Sea Level (UNESCO) Regional Geo-technical Plan for Managing and Protecting the Coast against Man-Made and Natural Hazards (CCOP) Disaster Management/Reduction	Draft PFF prepared by ESCAP	RAS/86/141 Regional Remote Sensing Programme	Draft PFF to be sent to RRs and Governments for comments and endorsement; coordinate with proposal from Outer Space Affairs Division; lead Field Office: UNDP Bangkok, Thailand	Formulation missions	Intergovernmental consultations	
EN 2.2. Promotion of Motor Vehicle Emission Reduction Strategies in Asia	GEF	Finalization of current proposal with UNIDO consultant for review by IC (Fourth Tranche)	RAS/89/047 Control and Regulation of Motor Vehicle Emissions	Free-standing Programme/merger with EN 1.1.		Finalized version of programme to be submitted to Implementation Committee	
EN 2.3. Use of Isotopes and Radiation to Strengthen and Support Environmentally Sustainable Development	PFF from I.A.E.A; Comments from various participating countries	PFF	RAS/79/061 RAS/86/073	PFF sent to RRs and Governments for comments and endorsement on 4 March	Formulation Missions	Intergovernmental Consultations/Workshop	



**RCA AND REGIONAL ASIA FOOTNOTE a/ PROJECTS 1993-94**

<b>Project Number</b>	<b>Approval Date</b>	<b>Project Title</b>	<b>Status</b>	<b>Comments</b>
RAS/0/?	1992	Nuclear Information System	Unfunded	
RAS/4/012	1990	Nuclear Instrument Maintenance	Unfunded	Supported by Germany 1990 and 1991
RAS/5/022	1990	Control of Tropical Plant Viruses (RCA)	Unfunded	Preliminary funding by Japan
RAS/6/?	1992	Strengthening of Nuclear Medicine in RCA Member States	Funded	To be supported by Australia
RAS/6/016	1988	Use of Computers in Technetium - 99m Imaging	Unfunded	Supported by Australia until 1992
RAS/8/062	1987	Radioisotopes in Industry (RCA)	Funded	Supported by Japan (and TC funds)
RAS/8/064	1988	Radiation and Isotope Applications in Industry (RCA)	Funded	Supported by Australia
RAS/8/065	1989	Marine Contamination and Sediment Transport	Unfunded*	Supported by USA until 1992
RAS/9/006	1987	Strengthening of Radiation Protection Infrastructures (RCA)	Funded	Supported by Japan and Australia
RAS/9/010	1991	Risk Management and Comparison in Large Industrial Areas	Unfunded	

\*Residual funds sufficient to support until 1993/94.



CLOSING REMARKS  
BY CHAIRMAN  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

Distinguished representatives of the IAEA  
Distinguished delegates of the RCA member states  
Ladies and Gentlemen

Now it seems that we have completed successfully our work on all the items of the Agenda.

As Chairman I would like to thank all of you for your kind cooperation and active contribution to this General Conference Meeting. It has been an enormous privilege for me to serve you as Chairman.

And I am looking forward to the next occasion that we will see each other again at the 15th Working Group Meeting of the RCA in Manila next year.

Now I have the duty and honour to declare this 21st RCA General Conference Meeting officially closed.



## AUSTRALIAN COUNTRY STATEMENT

### TO THE TWENTY-FIRST GENERAL CONFERENCE MEETING OF REPRESENTATIVES OF RCA MEMBER STATES

Mr Chairman, Delegates, Ladies and Gentlemen,

Australia is looking forward to the continuing successful cooperation and achievements between RCA Member States as we enter a new phase with the extension of the RCA Agreement for a further five year period to 1997. This Statement presents details of progress on the development of the new Australian sponsored RCA project for 1992-95, RCA activities undertaken by Australia during 1992 and reports on recent significant nuclear technology developments within Australia.

#### **New Project 1992-1995**

The new Australian RCA project to be funded to a total amount of A\$1,500,00 by Australia's extra-budgetary contribution has been further developed within Australia and will commence at the beginning of 1993. The Project was announced at the 1991 RCA General Conference meeting and a project proposal document forwarded to the IAEA in October 1991 so that Member States could evaluate the proposal and advise their intentions on participation and any comments or suggestions for improvements. There was substantial expressions of support for, and participation in, the project.

The overall objective of the Project is to contribute to regional development through a combination of Institute infrastructure development, personnel training and equipment support implemented through activities related to the industrial and medical applications of isotopes. The Industrial Applications component of the Project will conduct two regional training courses in Australia which will be complemented by seven expert missions each to two recipient countries and each specialising in an industry sector requested by the recipient country. Each expert mission will conduct a national seminar organised and supported by the local Atomic Energy Authority and attended by industry participants. This component has close linkages with outputs or activities of the proposed UNDP project.

The Industrial Radiation Protection component will support the Industrial Applications component and also sponsor the development and distribution of high quality training manuals for use in the Region. The Nuclear Medicine component has been designed towards developing a correspondence course for the benefit of medical technicians. The syllabus will be developed in close consultation with national experts and accreditation sought through a body such as the Asia and Oceania Society of Nuclear Medicine.

The Project component budgets for the first two years are as follows:

Component/ Budget:	1992-93 (A\$)	1993-94 (A\$)
Industrial Applications	190,000	200,000
Radiation Protection	70,330	171,430
Nuclear Medicine	79,550	116,840
<b>TOTAL        A\$</b>	<b>339,880</b>	<b>488,270</b>

## **RCA Activities during 1992**

There have been two RCA workshops held in Australia in 1992. The workshop on "The Development of Techniques and Materials in Instruction in Radiation Protection" was attended by 14 experienced radiation protection specialists from 12 RCA countries. This workshop was successful in identifying for further development a valuable set of training materials and techniques for future regional training programs in radiation protection covered in Australia's new project. The course on "The Use of Computers in Nuclear Medicine" was attended by 16 participants from 9 RCA countries. The purpose of this course was to provide participants with advanced training and practical experience in the application of computer techniques for analysis of gamma camera data. Australia has also provided industrial demonstrations of tracer technology to Indonesia and the Philippines as part of the bridging activities in the Industrial Project.

Australia also hosted the project formulation meeting on "Maintenance of Nuclear Instruments", held in Sydney in February 1992. This formulation meeting produced a number of proposals and recommendations to enhance participating countries implementation of quality control and preventative maintenance programs, and the upgrading and refurbishment of gamma cameras. Project Formulation Meetings are very useful for ensuring proper planning and long-term success for RCA projects and it is commendable that they are being undertaken.

## **Nuclear Technology Developments in Australia**

The National Medical Cyclotron operated by the Australian Nuclear Science & Technology Organisation was officially opened in March 1992. The need for a medical cyclotron was recognised by the Australian Government in 1986 when it was decided to locate one at the Royal Prince Alfred Hospital in Sydney. The cyclotron is providing radioisotopes to the PET centre located at the RPAH nuclear medicine department as well as extending the range of imaging techniques using SPECT around Australia and within the region.

The Australian Government has recently announced a public inquiry into a new research reactor for Australia. This follows advice early in 1992 in a report to the Government from the Australian Science and Technology Council that a new high flux research reactor be one of several proposed major facilities for development over the next 5 to 10 years. The inquiry will review the present operations of the thirty-four year old 10 MW reactor HIFAR and its decommissioning, and will evaluate the scientific and commercial costs and benefits of building a new research reactor for Australia. If the inquiry decides a new research reactor is needed, it will recommend a preferred location and consider the reactors environmental impact and management. The inquiry is expected to report to the Government by the end of 1993.

## **Conclusion**

Australia agrees with the concluding remarks of the 1991 RCA Annual Report that in a maturing association such as the RCA it would be natural to expect a wider spread of Member States to accept the responsibilities as well as the benefits of RCA membership. Australia looks forward to the continuing successful cooperation in RCA activities that we have enjoyed in the past with other Member States.

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Country Statement of Bangladesh  
Twenty First General Conference Meeting  
of Representatives of RCA Member States  
23rd September, 1992

by  
Dr.M.A.Mannan,  
Chairman, Bangladesh Atomic Energy Commission

Mr. Chairman,

At the very outset I would like to congratulate you on your unanimous election as the Chairman of 21st General Conference Meeting of the Representatives of Member States of RCA. We like to assure you of our full support and cooperation in discharging your very important responsibilities. We consider this meeting to be of special significance, especially as it will be the beginning of the next cycle of RCA covering the period from 1992 to 1996.

Mr. Chairman,  
Distinguished Delegates,

You will probably agree with me that various programmes under RCA, even at the initial stage of its existence, have benefitted all its Member States. I feel that this has been made possible by the spirit of cooperation and mutual understanding. The common basis and the regional dimension play the key role in drawing up programmes and activities which address problems and development strategies common to such countries. Sharing of experience and solutions to common problems also offer an opportunity to the Member States to maximize benefits from investment made by individual countries.

Mr. Chairman,

We note with great satisfaction the contributions made in the past by different countries, and in particular Australia, China, Japan, Indonesia, India and Malaysia which were instrumental in bringing phenomenal successes to the RCA within during period of its existence. We sincerely hope that larger contributions will be pledged for the next cycle of RCA and that the richer countries will be more generous in helping RCA to achieve the desired goal.

Bangladesh is continuing its activities under various programmes of RCA. In keeping with the RCA spirit, we are concentrating on development of human resources at different levels and are participating in various R & D projects. We have started accepting trainees from abroad in some identified fields. In additions to this we have also started hosting Technical Committee Meetings and Regional Training Courses with support and assistance of the IAEA.

Mr. Chairman,

I would like to take this opportunity to brief you on salient features of RCA related activities accomplished in Bangladesh in the last year.

#### Non-Destruction Testing

NDT programme in Bangladesh includes Research and Development, Training and Services. Services are regularly offered by BAEC for development of human resources in different sectors of national economy. In addition, NDT services are also offered to private sectors by Bangladesh Atomic Energy Commission (BAEC) for specialized jobs. Research and Development Programme on different NDT methods are being carried out in collaboration with the universities.

NDT Personnel Certification Committee in collaboration with BAEC organized a number of training courses. These included Surface Method Level-II, Eddy Current Testing Level-II and Ultrasonic Testing Level-I. A course on Radiography Testing Level-I is



scheduled to be held in October-November this year.

Participants from a number of public sector Organizations of Bangladesh and a private sector enterprise had attended these courses. Two experts on NDT provided valuable assistance in organizing these courses under RCA programme.

During this period, BAEC also rendered valuable NDT services to ten local organizations in sectors like industries, power, fertilizer production, shipbuilding and the national airlines.

#### Future NDT Programmes

In the light of the proposal of the 6th NDT National Coordinators Meeting, held at Shanghai, China in April, 1990, the NDT Personnel Certification Committee provisionally fixed up the priority of the NDT training programme for Bangladesh under UNDP/IAEA/RCA Industrial project for the proposed Third Phase (1992-96), which are given below:

1. To train NDT practitioners to levels II & III in accordance with ISO DLS9712 using IAEA TECDOC407 Syllabi.
2. To conduct qualification examinations for Level I, II and III in accordance with ISO DLS9712 guidelines.
3. To develop regional standard test pieces for training purposes and for qualifying examinations.
4. To strengthen National NDT Societies or National Coordination Committees.
5. To adopt a National Standard on Qualification and Certification of NDT Personnel in accordance with international guidelines.
6. To conduct proficiency testing programmes for Level II ultrasonic and radiography personnel.

7. To substitute expatriate NDT personnel by indigenous NDT Personnel.
8. to support the development of NDT application in specific industries.
9. To promote technology transfer of new or advanced NDT techniques.
10. To initiate a regional committee of ISO TC135 to promote NDT Research and Development.
11. To support the development of NDT laboratory accreditation schemes in the region.

#### Tracer Technology

The application of radiotracer technique is considered particularly important for different industrial production processes and operation, especially in chemical, petroleum, cement, fertilizer and some other industrial processes. This technology was first introduced in Bangladesh in year 1986 through a National Executive Management Seminar. At a later stage, in 1988 a field demonstration was carried out in a chemical industry in Chittagong for mercury inventory under RCA Programme. This was followed by the second IAEA/RCA/BAEC/UNDP National Executive Management Seminar on Industrial Tracer Application. A field demonstration on calibration of the gas-flow meters in gas transmission and distribution network was then conducted in December, 1991 in order to detect the leaks in embeded gas lines. As many as 43 participants from the different organizations of the country took part in this task.

The Tracer Group in Bangladesh is reasonably equipped with laboratory based equipment. It requires some field equipment for further demonstration purposes. We would like to build up a group of qualified manpower through in-depth training in advanced laboratories of RCA Countries.

The seminar held so far on this technique generated a great deal of interest in the managerial level people of different industries. With the help of RCA/IAEA/UNDP, BAEC wants to organize a number of seminars to disseminate information and to show the effective use of this technique.

Further demonstration and field surveys in collaboration with experts from RCA/IAEA/UNDP/BAEC need to be carried out in industries like cement, chemicals, fertilizer and petrochemicals.

### Radiation Technology

Radiation Technology is one of the sub-projects on Industrial Application of Isotopes under RCA programme. The phase-II programme of this sub-project started in 1983 and continued till 1991.

Related activities with adoption of technology by BAEC included fields like Curing of surface coating, Crosslinking of wire and cable, Vulcanization of Natural Rubber Latex, Sterilization of medical products and radiation engineering.

Significant progress has been made in radiation sterilization of medical products and appliances. Laboratory investigations were accomplished with the help of a 50,000 Curie Co-60 source. There exists market- potential and the programme is ready now for commercialization. In the case of surface-coating, cross-linking and vulcanization of natural rubber, laboratory scale studies have been completed. BAEC would like to set-up a pilot plant for this purpose in the near future with the assistance of RCA/IAEA/UNDP.

Mr. Chairman,  
Distinguished Delegates,

I hope that this brief description will help you form an idea about the interest of Bangladesh in the RCA and its projects, which we feel have direct relevance to our development process. I would like to quote the statement made by the leader of our delegation to the General Conference: "We find the RCA Activities to be of special significance and benefit, because its programmes address problems specific and common to the countries of RCA. We hope that RCA activities should not only continue, but their scope should also be broadened further."

I wish continued success of the RCA and its activities in the Member States.

Thank you all.

COUNTRY STATEMENT - CHINA  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

Mr. Chairman,

My delegation would like, first of all, to congratulate you on your election as Chairman of this General Conference Meeting of Representatives of RCA Member States. I believe that under your able leadership this annual meeting will be surely successful and fruitful results will be achieved.

Mr. Chairman, Ladies and Gentlemen,

The past year is another one of remarkable years during RCA existence. Many activities which are very favourable to nations' economic development were successfully conducted in different countries in the region. Here on behalf of the Chinese Government, I would like to take this opportunity to express to all the RCA member states and RCA coordination section of the Agency our sincere appreciation for your great contributions and excellent organization work that was been done.

Like in other member states, in 1991-1992 regional training courses, workshops and other kinds of activities in various aspects for nuclear technique applications were organized in China. From a technical point of view, they are related to biological N<sub>2</sub> fixation of grain legume, neutron transmutation doping technology application, NCS application in steel industry, and material characterization using research reactor, etc. All of these activities have attained good results. For instance, after the workshop on NCS application in steel industry, some participants from abroad have shown their interests in the NCS application technology and related instruments such as nuclear weight scaler, coal ash gauge and level gauge. It means clearly that the low cost NCS steel is very promising in some countries like the case of low cost NCS paper.

As you know, the food irradiation is a very important field of radiation application in China. Up to now, some 40 thousand tonnes of irradiated foods have entered the domestic market. The overall output value is about 100 million yuan (US\$17 million). Four big cities including Beijing have arranged at some stores for selling irradiated food products. The public response and acceptance are positive, thus achieving a reasonable economic benefit.

China has accumulated plenty of experience in the irradiator design, construction and operation. We also have successful experience in the food irradiation process research and irradiated food market survey and promotion. We wish to see that all of these could make more contributions to the IAEA/RCA food irradiation project.

Mr. Chairman,

Just a few days ago, the Eighth International Meeting on Radiation Processing was successfully convened in Beijing, which was attended by some four hundred participants. And about two hundred papers were presented to the meeting. Dr. S. Machi, DDG of the Agency gave a lecture in title of Radiation Processing Technology in 1990's at the meeting. This meeting gives us a signal once again that nuclear technology application will play more important role in boosting the economic development of each country and thus become a great approach to help enhance the nation's prosperity.

Mr. Chairman, Ladies and Gentlemen,

China has been actively participating in almost all of the RCA activities since its inception. We will continue to support the activities carried out under the framework of RCA in the coming years.

Thank you.

COUNTRY STATEMENT - INDIA  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

## INTRODUCTION

India is happy to participate in the Annual Meeting of the representatives of RCA Member States being held in conjunction with the 21st General Conference. The meeting provides an opportunity to take stock of the RCA activities and assess the present status of the applications of nuclear science and technology in the RCA member states. While India has actively participated and supported a number of activities conducted under the RCA so far, it looks forward to widening the scope of the co-operative projects that may be undertaken in the RCA in the future, particularly in the area of nuclear power.

India continues to pursue vigorously the nuclear power programme and has recently commissioned the first unit of the Kakrapara Atomic Power Project in the western part of India. Nuclear techniques are already playing an important role in many areas of national development and we are committed to use these techniques in future also.

## MEDICAL AND BIOLOGICAL APPLICATIONS

Under the project entitled "Aerosol imaging for diagnosis of respiratory diseases in developing countries" India has made available a relatively simple technique for the diagnosis of respiratory diseases using the readily available reactor produced radioisotope, namely Tc-99m. We are happy to note that other participants have found the equipment provided by India under this project suitable for use in their own countries.

India has played a major role in the project on "Maintenance of Nuclear Medicine and Equipment" by organising regional training courses for scientists and engineers from RCA member states. This is an important area and needs constant attention for upgrading the skills of technicians who are responsible for the maintenance of electronic equipment. India will be happy to extend its assistance in the future for organising further training programmes and workshops in this area. Under an IAEA technical assistance programme, India is assisting Bangladesh in setting up of facilities for the preparation of Tc-99m column generators used in nuclear medicine, based on the know-how developed in India.

## FOOD AND AGRICULTURE

The Bhabha Atomic Research Centre has undertaken a major programme for the development of improved crop varieties through mutation breeding programme using ionising radiations. Many mutant varieties of commercially important crops like ground-nut and rice are being cultivated in the field. We will share our experience in this area by conducting a regional training course on the subject during November 1992 at BARC, Bombay. India is also participating in the Asian Regional Co-operation Project on Food Irradiation with emphasis on Process Control and Acceptance. India has made useful contributions to the study on hygienisation of spices and studies on inter-country transportation.

## RADIATION PROTECTION

India has contributed significantly to the project on "The Reference Asian Man" by collecting useful data and formulating characteristics of the Reference Asian Man. Apart from collecting a number of anthropometric parameters of population in different age groups, the daily average intake of certain biologically important trace elements have also been studied using neutron activation analysis and atomic absorption spectrometry. Interesting data has been obtained on the intake of these elements as found in urban and rural population.

India conducted a Regional Training Course on Safety Aspects in Industrial Applications of Radiation Sources in December 1991 which was attended by 18 participants. The course was funded from India's contribution to the RCA and was very well received. India would be willing to participate in other projects proposed under the Programme on "Radiation Protection Infrastructure".

## RESEARCH REACTOR, ENERGY BASED AND GENERAL PROJECTS

India has consistently supported the RCA activities in the area of utilisation of research reactors. We believe that many developing countries can benefit substantially from research programmes under this broad field e.g. use of neutron beams, isotope production, neutron activation analysis etc. as it helps in preparing trained manpower for taking up other challenging jobs in the area of nuclear technology. India supports the new project proposal on Nuclear Techniques in the Development of Advanced Ceramic Technologies. India will organise a school on applied aspects of neutron scattering for the scientists of RCA region during 1993. This activity will be funded from India's extrabudgetary contribution to the RCA.



India hosted a regional workshop on Image Processing in Material Science and Non-Destructive Testing at BARC during 1992. The workshop, which was attended by 10 participants from RCA member states and 7 national participants, included lectures, demonstrations covering basics of image processing, image enhancement techniques and various application areas.

#### INDUSTRIAL APPLICATIONS OF RADIOISOTOPES AND RADIATION TECHNOLOGY

India has in the past supported the activities carried out under the phase 1 and phase 2 of the UNDP industrial project. India's contribution to the sub-projects on tracer technology and radiation technology have been recognised by the project management and the RCA countries. India welcomes the new UNDP funded project on use of isotope and radiation to strengthen technology and support environmentally sustainable development. With over 3 decades of experience in the applications of isotopes and radiation in industry, India will continue to act as a resource country for the new project by providing training facilities, experts etc. India will also consider funding some activities of the project. India strongly advocates technology transfer from within the region for achieving the objectives of the new project.

#### CONCLUSION

As a founder member of the RCA, India is happy to be a party to its extension for a further period of 5 years from June 1992. India pledges its continued support to the RCA and would be happy to offer its facilities, experts and resources for furthering the objectives of regional cooperation in the development of nuclear science and technology in the RCA region.



**COUNTRY STATEMENT OF INDONESIAN DELEGATION  
AT THE TWENTY FIRST GENERAL CONFERENCE MEETING  
OF REPRESENTATIVES OF RCA MEMBER STATES  
23 SEPTEMBER 1992  
VIENNA, AUSTRIA**

Mr. Chairman,

My Delegation would like first of all to join the previous speakers in congratulating you upon your election as Chairman of this important meeting. I am confident that under your wise guidance the meeting will give important and useful results.

It is my great pleasure to participate in the twenty first General Conference Meeting of Representatives of RCA Member States here in Vienna, Austria.

Indonesia has maintained its active contribution in almost all activities of RCA since 1972 and will remain as an active member in the future activities of the RCA. It is undoubted that RCA is the most effective vehicle in regional co-operation, mainly in the transfer of nuclear science and technology to all member states in the region. We have confidence that much benefits have been gained by Member States from this productive co-operation.

My delegation wishes to take this opportunity to present its brief report on activities conducted in Indonesia during the year 1992 up to present. May I firstly report on the bridging activities in the context of UNDP/IAEA/RCA Regional Project on Industrial Application of Isotopes and Radiation under RAS/86/073, although the project has been officially terminated at the end of 1991.

**UNDP/IAEA/RCA Regional Project INS/86/073**

**1. Radiation Technology**

Radiation technology is one of the Indonesian sustainable nuclear technology program although the official UNDP/IAEA/RCA Regional Project on Industrial Application under INS/86/073 has been terminated at the end of 1991.

Radiation vulcanization of natural rubber latex (RVNLR) is still used in various industries, namely in the Condom Factory at Banjaran, Bandung, the Glove and the Rubber Foam Factories near Jakarta. Export of RVNLR to Germany is still done last year. It seems that a bigger capacity of latex irradiator is urgently needed to meet the consumers demand, since the existing latex irradiator at CAIR-BATAN has a limited capacity of about 1.5 ton latex per day.

Radiation sterilization of medical products' activities are continuously carried out by CAIR-BATAN. Irradiation services are still going on for R and D activities only. Irradiation for commercial purposes has been transferred to a private owned INDOGAMMA Irradiator which has been commissioning last April 1992. Up to present this commercial irradiator is running with about thirty percent of its irradiation capacity. INDOGAMMA has its initial source of 400 kCi of  $^{60}\text{Co}$  and can be scaled up to 3000 kCi.

Radiation curing of surface coating has been carried out in collaboration with a private-owned company. R and D on appropriate technique for curing of wood surface coating on painting-frame is in progress, with special emphasis on curing of frame edges. R and D on curing of coating on ceramic and gypsum tile' surface is still going on.

## **2. Non Destructive Testing (NDT)**

During 1992 several National Training Courses on NDT have been carried out in Indonesia. NDT has been widely used in Indonesia not only by government owned institutions but also by private sectors co-ordinated by an association on inspection techniques.

An acoustic emission technique (AE) and a RT III have been conducted once each with the expertise provided by the Agency. Three NTC on UT I, three RT I, two UT II, two RT II and one SM II are planned to be conducted during 1992.

A Proficiency Test Program (PTP) on RT II and UT II has been conducted with the assistance of four experts provided by the Agency.

## **3. Tracer Industry**

The Indonesian National Co-ordinator of the Sub-project Tracer Industry (Mr. Wandowo) was invited by the the Agency to participate at a demonstration on the use of tracer technique for leak testing of burried pipe lines held in Sri Lanka in March 1992.

A National Executives Management Seminar (NEMS) was held at CAIR-BATAN Jakarta in August 1992 and was attended by approximately 20 participants. A demonstration on measurement of velocity of steam in a pipe line in Kamojang geothermal site was included in the program. The seminar was supported by expertise provided by the Agency.

Activities in connection with tracer application carried out by CAIR-BATAN during 1992 are as follows:

i) Tracing of water injected into oil wells (water flood) in the oil field at Ramba, South Sumatera by using tritium and  $^{60}\text{Co}$  in a complex compound is still continued and monitoring on samples collected from the surrounding injected well is still going on.

ii) Tracing of water (condensed steam) injected into the well of a geothermal field at Kamojang, West Java, by using tritium and Xenon-133. Injection was done in June 1992. The purpose of the test is to investigate the relation between injection and production wells.

## **OTHER ACTIVITIES**

### **1. Radioimmunoassay of Thyroid Related Hormones (RAS/6/011)**

As a follow up of the project, research work on "antibodies immobilization on magnetic particles" is now being conducted, supported by a research contract provided by the Agency.

Immobilization of T3 and T4 antibodies on several kinds of magnetic particles has been successfully done and immobilization of anti-TSH on magnetic particles for IRMA-TSH is in progress.

External quality assessment schemes (EQAS) program is continued in 1992 under the organization of INMOL (Pakistan). The program is carried out in the frame work of TCDC participated by Singapore, Bangladesh, Pakistan and Indonesia. The EQAS program will be continued in 1993.

### **2. Radioimmunoassay for Hepatitis B Diagnosis (RAS/6/018)**

Four laboratories in Indonesia have been included in the project, namely Hasan Sadikin Hospital (Bandung), Laboratory for Clinical Pathology, Cipto Mangunkusumo Hospital (Jakarta), Laboratory for Nuclear Medicine, Fatmawati Hospital (Jakarta), and Radioisotopes Production Centre-BATAN (RPC-BATAN) in collaboration with the DKI Indonesian Red Cross (Jakarta).

Four topics of studies have been formulated, namely:

- i) Study on prevalence of Hepatitis B in pregnant mothers and the babies (Hasan Sadikin Hospital);
- ii) Study on prevalence of Hepatitis B in the high risk groups/prostitutes (Cipto Mangunkusumo Hospital);
- iii) Prevalence of Hepatitis B in medic and para-medic staff of Fatmawati Hospital (Fatmawati Hospital);
- iv) Comparative study on using PHA/RPHA and radioimmunoassay method in blood screening (RPC-BATAN and DKI Red Cross).

Each participating laboratories have been supplied with an automatic bead washer and several SPRIA kits containing anti HBs and HBsAg.

### **3. Radiation Sterilization of Tissue Grafts (RC.4280/RB)**

R and D on Radiation Sterilization of Tissue Grafts have been carried out at CAIR-BATAN in collaboration with several hospitals in Indonesia, namely Cipto Mangunkusumo and Fatmawati Hospitals in Jakarta, Sintanala Hospital (Leprosarium) in Tangerang, Djamil Hospital in Padang and Sutomo Hospital in Surabaya. Three surgeons and two scientists have been participated at the Regional Training Courses under the IAEA program this year and three other surgeons will be participating at the same course in China.

The objectives of the program are :

- i) To set-up a non viable surgical Tissue-Bank in each of those hospitals
- ii) To prepare sterilized bone grafts by irradiation and other biological materials such as amnion, skin (pig and human) and tendon.

Indonesia with a population more than 180 millions has no tissue bank at present, and therefore a surgical tissue bank is urgently needed.

Up to now about 10,000 pieces of freeze-dried radiation sterilized amniotic membranes with a size of 10 x 10, 10 x 15 and 15 x 15 cms have been

produced at CAIR-BATAN and about 5,000 pcs of them have been applied for open wound dressings, burn wound and leprosy-ulcers at the hospitals mentioned above with promising results. The rest of amniotic membranes were used for R & D.

The existing irradiation facilities for R & D at CAIR-BATAN consist of one Gamma Cell 220 (600 Ci), one panoramic irradiator (84 kCi of  $^{60}\text{Co}$ ), one latex irradiator (140 kCi of  $^{60}\text{Co}$ ) and one Electron Beam Machine of 340 keV. A 2 Mev, 10 mA Electron Beam Machine will be installed in mid 1993 and will be commissioning as soon as possible. Another Gamma Cell of 10 kCi will be installed this year at CAIR-BATAN. To support the establishment of a tissue bank at Surabaya Hospital (about 500 km from Jakarta) and in Padang (800 km from Jakarta) a Gamma Cell is urgently needed at each hospital.

#### 4. Improvement of Cancer Therapy Phase II

A Computer set PC/386 with a floating point processor, a color graphics screen, a keyboard, a printer and a color plotter were supplied by the Agency and were installed at Cipto Mangunkusumo Hospital, Jakarta.

Ms.S.Syabudi has participated at the workshop held in Bombay, 1-5 June 1992. Results of experiment on dose calculation exposed at the bladder and the rectum of carcinoma cervix patients were reported at the workshop.

Experiment on TLD dosimeter was continued with similar casus at Cipto Mangunkusumo Hospital. The results will be compared with using Treatment Planning System of TSG-Radplan.

#### 5. Commercial irradiation of grains and spices (Part of Co-ordinated Program : Asian Regional Co-operative Project on Food Irradiation with Emphasis on Process Control and Acceptance, RPTI Phase III)

Food irradiation has been approved by the government to be applied commercially in Indonesia since December 1987, for spices, grains, tuber and root crops. Food industries tended to have increasing demand to use this technology for improvement of hygienic quality of various products. Therefore, efforts have been done to extend the existing clearance on irradiated food.

This project has entered the third year program. The activities carried out in the second year were : market testing on irradiated food, quality evaluation of irradiated rice after storage, consumer acceptance test, and commercial trial on irradiated food.

Achievements obtained are as follows :

i) So far, no negative reactions were found during the market testing on irradiated food.

ii) Irradiated rice packaged in polyethylene bags and stored for 2 years seems still free from insects and still acceptable to the consumers, although the colour has slightly changed and the stickyness has decreased.

iii) Food irradiation technology is still less recognized by the public, even amongst the high level educated people. Therefore attempts to introduce this technology to the public should be continued.

iv) Acceptance of food irradiation by food industries is increasing.

More than 36 tonnes of spices and grains have been irradiated at CAIR for commercial use during the first half of 1992.

A Joint-seminar between BATAN and the Direktorat General of Food and Drug of the Department of Health was held late July 1992 to consider the expansion of clearance for other irradiated food items.

#### **6. Improvement of Grain-Legume *Rhizobium* Symbioses to Fix Atmospheric Nitrogen**

Although Indonesia recently is not joining the project, similar activities related to this project are carried out with a title "Nitrogen Fixation by Soybean Mutant Lines on Acid Soils".

During the last two years research activities on N fixation of soybean mutant lines on acid soils stress have been carried out to study on the compatibility of *Rhizobium* strains-soybean legumes in the field. It was observed that inoculation has improved plant performance by enhancing N fixed by the plant as well as plant production. It was also shown that *Rhizobium* strains-soybean lines specificity was more pronounced under certain conditions.

The on-going activities on N fixation program are isolation of *Rhizobium* strains from soybean nodules grown on acid soils, greenhouse experiments on symbiotic interaction on soybean mutant lines and more lime pelleting experiments. While in the field the experiments will be focused on compatibility studies and the effect of lime pelleting on crop improvement and grain yield.

#### **7. Personal Dosimetry**

Personal dosimeter intercomparison study is still going on. Centre for Standardization and Radiation Safety Research (CSRSR-BATAN) has sent 27 TLD LNG-0670 personal dosimeters to Japan, to be irradiated at JAERI. Irradiated dosimeters were sent back to CSRSR-BATAN for evaluation. The evaluation results were reported to JAERI, and finally the irradiation dose data sheet was sent back to CSRSR. Deviation of results have been calculated using a formula :

$$\text{Deviation (\%)} = \frac{\text{Dose estimation (CSRSR)} - \text{Irradiation dose (JAERI)}}{\text{Irradiation dose (JAERI)}} \times 100$$

#### **8. Reference Asian Man**

Data were collected from a survey done in Jakarta (1989-1990) and was continued with a data collection from a survey in Timor, East Indonesia (1990/1991). Similar methodology was used in both surveys. Another survey in Medan, North Sumatra is in progress. A complete report will be accomplished soon.

During the fiscal year 1992/1993, beside an extended survey in North Sumatra, analysis on foodstuff and human tissues for trace element studies are being done. Results will be reported by mid 1993, while in the fiscal year 1993/1994 the survey will be focused on Java only.

7. Interregional Project on Nuclear Instrument Maintenance (RAS/4/008)

It is undoubted that all participating countries have benefited much from the project to the national program on maintenance and quality control of nuclear instruments. Development of manpower through incoming of experts and training of staff are utmost important to strengthen infrastructure in nuclear maintenance and repair work. In addition, the provision of electronic trouble shooting equipment and spareparts from the Agency is very helpful to back up the increasing efficiency of instrument repair

Training of professional staff and the development of training on maintenance of nuclear and related instruments should be continued in the future program.

Mr Chairman,

Before coming to the end of my report, may I take this opportunity to express our sincere appreciation to Prof. Nooramly bin Muslim the former Deputy Director General of Technical Assistance and Co-operation for his outstanding efforts done to the RCA program activities. RCA has gained much from his collaborative performance under the spirit of regional co-operation. My delegation would also like to express its cordial welcome to the new Deputy Director General Mr. QIAN Jihui to the RCA program.

Thank you.



COUNTRY STATEMENT - JAPAN  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

Mr. Chairman,

On behalf of the Japanese Government I would like to thank the IAEA for its support and coordination at the 14th Working Group Meeting in Tokyo last March. I would also like to express our thanks to the RCA member states for your kind cooperation and active participation during the Working Group Meeting. I am sure that all this contributed enormously to make the Meeting a success.

I wish to offer on behalf of the Japanese Government my congratulations to the IAEA and the RCA member countries on the Extension Agreement of the 1987 RCA Agreement coming into effect on 11th of June this year. The RCA framework is thus being secured legally for the further period of five years. Japan received in Vienna, as the IAEA's covering letter puts it, "a copy of the agreed text" on 29th of June, and after clearing the national formalities Japan notified the IAEA's Director General of its acceptance of the Extension Agreement on 11th of this month. I would like to take this opportunity to invite those countries which have not yet notified their acceptance to complete their necessary procedures as early as possible.

Mr. Chairman,  
Ladies and Gentlemen,

Japan sees the RCA a very serviceable architecture, and is pleased to note the continued progress of the RCA activities. Considering the expansion of uses and applications of nuclear techniques in the RCA countries which has so far brought enormous advantages especially in the fields of industry, medicine, radiation protection, and agriculture, we should not disregard the importance of peaceful applications of nuclear energy so as to develop economies in and bring social benefits to this region. Japan will therefore continue to support the RCA activities as ever, not only technically but financially, as most important vehicle for cooperation of this kind. And Japan hopes to see continuously the spirit of mutual cooperation, self-reliance, and understanding which has indeed distinguished the RCA as a guiding light for other regional cooperative undertakings, the very fact of which the RCA is so very proud.

On the further development of the RCA cooperation, Japan believes that a successful co-operation depends on picking up promising projects which well correspond to the needs of the RCA Member States on one part, and on the

Member States' manifesting self-help spirit on the other. Of course, smooth communication and coordination as we have today should be maintained between the IAEA and the Member Countries. It also seems sound and appropriate to take into consideration the limitation of the RCA finance, if it exists, at the time we consider a new project, and therefore to explore with courage the possibility of employing the principle of scrap and build when it is needed. Bearing those in mind, Japan is eager to continue to extend as much support and contribution to the RCA as possible, with emphasis on the further development of the human resources in the region, as ever, through sending the Japanese experts and receiving foreign experts, with a view to seeing the region further prosper.

Mr. Chairman,

Japan reiterates on this occasion its support to the realisation of a new UNDP/RCA project titled "the Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development", an "Environment Project" to be short.

In order to secure the realisation in 1993 of the Environment Project, in October last year Japan asked the UNDP Headquarters in New York, together with Australia, to support the Project financially. Again in January this year at the UNDP Meeting of Aid Coordinators in Asia and the Pacific (MAC-5) held in Manila, a Japanese representative made a statement to ask the UNDP to give due and favourable consideration for the Environment Project.

Japan will technically and financially provide as much support to this Project as possible like it did for the past UNDP/RCA Industrial Project. I must note, however, that the past performance explicitly indicates Japan has been a major financial contributor to the RCA projects on one hand, and that Japan has not been in a position to commit itself to a specific amount of future financial contribution on the other. In this regard I wish to point out that the UNDP's PROGRAMME WORK PLAN 1992 reproduced in 5.d) of this Meeting's BACKGROUND PAPERS is inaccurate in describing Japan having already pledged a certain amount of contribution, and therefore ask the IAEA Secretariat for necessary explanation to the UNDP.

Mr. Chairman,

Japan supports the Proposed RCA Project Activities for 1993. With regard to a Regional Workshop on the Application of NCS in the Paper Industry in Tokyo tentatively listed in 5.d) of this Meeting's BACKGROUND PAPERS, I would suggest

to hold a few national workshops in a few countries instead, to which Japan would be despatching its experts. I am sure that we would be better off in this way from the cost-benefit point of view.

As for the RCA budget for 1993, Japan is not in a position to commit itself to a specific amount of contribution. As in the past, however, Japan will technically and financially provide as much support to the RCA in 1993.

With regard to the question of financing the RCA project from outside the region, Japan is of the view that a regional cooperation such as the RCA should be carried out for projects of high interests among member countries, based on the principle of self-reliance, and within its own co-operative framework. It is perhaps likely that receiving finance from outside introduces consequently certain other elements to the RCA's tradition.

In case the RCA's endeavour to secure the UNDP's financial contribution should fail, realistic approach needs to be adopted. It will be necessary then to consider the possibility of putting some projects being in financial trouble on the footnote /a project list to look for interested donors from outside, or of RCA's finding alternative multilateral sources of funding.

Mr. Chairman,

As for the bridging project in 1992 in the field of industrial application, Japan is extending its support as much as possible. Japan believes this will hand over the ample momentum to an "Environment Project".

With respect to Medical and Biological Applications Project Japan will extend technical and financial support as possible as before in sub-projects on Imaging Procedures for the Diagnosis of Liver Diseases, Improvement of Cancer Therapy, and Compilation of Anatomical, Physiological, and Metabolic Characteristics for a Reference Asian Man.

With regard to Strengthening of Radiation Protection Infrastructure Japan hosted last June the Project Formulation Meeting for Phase II. In light of the importance of nuclear safety in the RCA member states where uses and application of nuclear techniques are expanding, Japan will continue to support this project technically and financially.

Regarding Phase III of the Food Irradiation Project, Japan ceased its financial support, due to its domestic reasons towards food irradiation, at the completion

of Phase I. Japan remains interested, however, in considering in-kind co-operation on a case-by-case basis to limited aspects of receiving foreign trainees and sending its experts.

As regards Research Reactor Utilisation Project, Japan will continue to extend possible support through, for instance, sending its experts, and accepting foreign researchers and trainees etc.

Thank you, Mr. Chairman.

COUNTRY STATEMENT - REPUBLIC OF KOREA  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

Republic of Korea's position to the RCA

The Republic of Korea firmly believes that the RCA is an effective and a successful vehicle for the promotion of the peaceful application of nuclear techniques to industrial, agricultural and medical fields. The Republic of Korea strongly supports all the RCA programmes and will actively participate in the related sub-projects for the benefits of Korean economic and social development.

Extension of RCA Agreement

The Republic of Korea fully agrees to extend the RCA Agreement for additional 5 years beginning from 1992. In this regard, the Government of the Republic of Korea will notify its firm intention to extend the Agreement in the nearest future through official channels. The notification was somewhat delayed due to inter-ministerial administrative processes within the government.

Review of RCA Technical Projects

In the implementation of the Regional Industrial Project a KAERI staff member, Dr. Joon-ha Jin finished his 1-year assignment at the UNDP Jakarta Office last December. The Republic of Korea is willing to provide its resources to the regional industrial projects for a better implementation.

A regional NDE training course has been held at KAERI during October 7-27, 1992 with the participation of 10 trainees from 8 countries in the region. The Republic of Korea also wants to express its firm wish to hold such valuable and extrabudgetary training courses at any convenient time.

Regarding radiation sterilization of medical products, the UNDP supported 60 kCi Irradiators removed to Daeduk site from Seoul in November 1992. The Co-60 Irradiation for the ample research and development endeavors at the KAERI head office in accordance with the move of the Seoul branch office to Daeduk site.

The application of radiation technology also has been widely implemented in private sectors. The Gold Star Cable Co. has been operating 3 EB machines for manufacturing radiation cross-linked wire/cable. In addition to facilities, 7 local

private companies have installed EB machines respectively which are now under test operation.

The Republic of Korea also strongly participated in the field of medical-biological project such as radioimmunoassay of thyroid related hormones to expand its proper technology. 38 laboratories in Korea have been participating for conducting external quality control, programming of database and evaluation. The Korean government wishes to increase the number of QC participating laboratories from 38 to about 50. The result of QC will be published and officially evaluated possibly by the experts from the Korean Society of Nuclear Medicine.

Regarding the agricultural project, 450 kCi Co-60 irradiator is now in commercial operation by private industry, the Greenplatech Co., since 1987. A total of 17 items have been approved by the government authority for gamma irradiation.

The Republic of Korea also assigned its staff to participate in and give a lecture to the training courses, workshops and other courses held abroad. A total of 5 staff were assigned to participate in and 1 staff was assigned to give a lecture in training courses/workshops by September 1992. In addition to this course, 3 personnel are expected to attend the due course.

#### New Proposal

The Republic of Korea believes that all the peaceful nuclear programmes should meet the needs of a changing world. In this connection, the Republic of Korea wishes that the RCA could embrace nuclear power related programmes since some of the countries in the region have positive plans to construct nuclear power plants within this century and beyond. The Republic of Korea hopes to share its experience and technological disciplines with other member states of the RCA when they begin to implement nuclear power programmes.

**Malaysian Country Statement  
Twenty First General Conference Meeting  
of Representatives of RCA Member States  
23 September, 1992, Vienna**

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The Malaysian delegation conveys its appreciation to the former DDG, Head of Department of Technical Cooperation Mr. Noramly Muslim who has contributed a lot to the smooth running of the RCA programme and to welcome his successor Mr. Quan Jihni. My delegation is confident that, he, like his predecessor, will bring with him a wealth of experience and knowledge that will no doubt lead to the successful implementation of the RCA programme.

We are pleased to state that the Malaysian Government has agreed to endorse the extension of the Regional Cooperation Agreement for the next five years (1992-1997).

The Malaysian delegation is encouraged by the continuing progress made through the RCA programme during the past years. We strongly believe that the RCA will continue to be one of the useful and important vehicles for nuclear technical cooperation in the Asia and Pacific Region. The four major activities in the RCA programme i.e. Medical and Biological Applications of Nuclear Technique, Food and Agriculture, Research Reactor and Energy Based Project and the UNDP Regional Industrial Project have fulfilled the current needs of the region in the development and promotion of Nuclear Science and Technology.

With regards to the New UNDP/RCA Projects Proposal entitled "The Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development", the Malaysian Government strongly supports and will contribute a sum of \$US 50,000 for the successful implementation of the new RCA/UNDP project provided the IAEA, the UNDP and all the RCA member states agree for its implementation of the 1992-1997 cycle. Many of the regional UNDP/RCA project proposals fit well with the country's Industrial Master Plan and the National Action Plan for Industrial Technology and Development which were launched in 1987 and 1990 respectively.

In order to assist in maintaining the momentum generated by the ten year activities stipulated in the Industrial Project in the Region, Malaysia has implemented several Bridging activities. The Malaysian Government hosted a Proficiency Testing Programme for NDT on 11 - 18 August 1992. The programme attracted 11 participants and 3 experts from Japan. Malaysia will also organise a National Seminar on NDT for Non-metallic materials in December 1992.

To further increase awareness among industries on the application of tracer technology, the Nuclear Energy Unit will hold two National Seminars for 1992 namely:-

- i) a National seminar on Radioisotopes Applications in oil and gas industries which was held in 10 February 1992, and
- ii) a National Seminar on Tracer Applications in Sediment Transport Studies, Hydrology and Industries, tentatively being planned for October 1992.

In the field of Radiation Technology, Malaysia organised the National Training Course on Industrial sterilization of Medical Products - Sterility Assurance and Material Compactibility on 26 July - 1 August 1992. The National Workshop on Product Development of Radiation X-linking of wire and cable insulation, will tentatively be scheduled for June 1993.

In the field of Medical and Biological Applications of Nuclear Techniques, Malaysia is participating in 4 projects namely Radioimmunoassay for Hepatitis B Diagnosis, Improvement of Cancer Therapy (phase II), Computerised Dosimetry for Carcinoma of cervix in Asian Countries, Radiation of Tissues Grafts and Nuclear Instrumentation.

The project on "Radioimmunoassay for Hepatitis B Diagnosis" which is implemented by the University Hospital of Malaysia is progressing well. Malaysia received 3 types of reagents, namely HBsAg and HBcAb and HBsAb from China. The reagents are being evaluated and a suitable supplier for the project is being identified.

The Coordinated research project on "Improvement of Cancer Therapy (phase II), Computerized Dosimetry for Carcinoma of Cervix in Asian Countries" is being carried out by the National University of Malaysia.

In the Nuclear Instrumentation Project, Malaysia is participating in the project Basic Care, Preventive Maintenance and Operative Control of Nuclear Medicine Equipment which started in 1989. The Nuclear Energy Unit has played a major role in upgrading skills in the maintenance of nuclear instrumentation in the country, through training courses and demonstrations. Malaysia hosted the Regional Training Course on Repair and Maintenance of MCA CARDS on 11 May - 5 June 1992 and the Regional Workshop on the Utilization and Further



Development of Computerized Management of Preventive Maintenance (CMPM) on 7-11 September 1992. Malaysia participated in the Second Project Formulation Meeting in Sydney, 24-28 February 1992.

The project on Radiation Sterilization of Tissue Grafts is being implemented by the Nuclear Energy Unit (UTN) in collaboration with the University Science of Malaysia (USM). Steady progress has been achieved, whereby amnion from human placenta is clinically produced for treatment of burn patients. Routine production of high quality radiation sterilised grafts will be established for use by various hospitals in Malaysia. Malaysia participated in Project Formulation Meeting on Radiation Sterilization of Tissue Grafts in Manila, 3-7 August 1992.

Malaysia participated in the IAEA/RCA Radiation Protection Formulation Meeting for the second Phase regarding Strengthening the Radiation Protection Infrastructures Project on 22-26 June 1992, Tokai, Japan.

Malaysia participates in two projects in Agriculture and Food, namely Food Irradiation and the CRP on the Use of Isotopes in the studies to improve yield and nitrogen fixation of common grains. Malaysia has successfully implemented the pilot project and process control in Food Irradiation (RPFI - phase II).

Malaysia is planning to carry out inter-country trial shipment studies on irradiated food imported from China. Malaysia participates in the CRP in the Use of Isotopes in the Studies to Improve Yield and Nitrogen Fixation of Common Grain Legumes. This project is implemented by the Rubber Institute of Malaysia in collaboration with the Nuclear Energy Unit (UTN). Under this project a promising line of Arachis hypogaea with superior performance in BNF and yield compared to the standard variety was identified. A study on isotopic techniques for evaluation of BNF performance in groundnut was carried out.

Finally the Malaysian delegation reiterates its sincere appreciation to the IAEA and all the RCA member states for the successful implementation of RCA programmes. Malaysia supports the New RCA programmes and looks forward to closer cooperation in the future.

TKP:A:CSM  
16 September 1992.



COUNTRY STATEMENT - PAKISTAN  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

Mr. Chairman,

My delegation is very happy to remark that the RCA has proven to be a valuable link between the IAEA Member States of South East Asia and the Pacific over the 20 years of its existence. Pakistan has been associated with the RCA activities since its very inception and has greatly benefited from it. We are confident that it will continue to play a useful role in promoting peaceful uses of nuclear techniques in industry, agriculture, biology and medicine. Pakistan wishes to express its warm appreciation to the Agency and all the RCA Member States for their cooperation and assistance in RCA activities.

Renewal of RCA Agreement 1992-97:

2. It is indeed a recognition of the usefulness of RCA activities, that the Agreement has been extended for a further period of 5 years from 1992-97. Pakistan has already informed the Agency about its agreement to the extension of RCA Agreement for a further period of 5 years.

UNDP/RCA Industrial Project:

3. The Phase-II of the Regional Project on Industrial Applications of Isotopes and Radiation Technology has been completed. It is a matter of satisfaction that the objectives set forth for the Phase-II of this project have been generally achieved to the desired level. PAEC is continuing with the programme of training of personnel in Non-Destructive Testing Techniques (NDT) and more than 40 organizations in the public and private sectors have benefitted from it. During 1991, six courses were organized in Pakistan, which were attended by more than 100 participants. During 1992, two such courses have already been held while two more courses will be conducted before the end of the year. Efforts are being made to launch a professional body solely devoted to NDT in Pakistan. In view of the continued interest in NDT and its relevance to industrial sector, it would be useful if RCA could provide further support to these activities.

4. The activities carried out relevant to Tracer Technology included application in paper industry, overall density profile of the critical portion of a refinery atmospheric distillation, build-up and wear measurement in pipelines, etc. Under Radiation Technology sub-project on radiation crosslinking of wires

and cables, a Radiation Testing Laboratory has been set up and studies have been initiated on the effect of antioxidants and other additives on crosslinked cables. We are working in close cooperation with the industry in this regard. The provision of an expert by the IAEA for this project was very helpful in making it functional.

#### New UNDP/RCA Project Proposal:

5. Pakistan expressed its support to the new project proposal for UNDP funded ICP-5 (1992-1996) entitled "The Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development", during the 14th RCA Working Group Meeting held at Tokyo, Japan. We have conveyed our views to the UNDP Representative in Pakistan with the request to inform the UNDP Office in New York of our interest and support in this regard. Pakistan hopes that the Agency will continue its efforts in getting the UNDP funding for the 5th cycle of the ICP.

#### New Project Proposal from Australia:

6. The Australian proposal for the RCA Project on "Application of Isotopes and Radiation Technology to Regional Development with Special Reference to Industry and Nuclear Medicine" is composed of 3 segments namely, Industry, Industrial Radiation Protection and Nuclear Medicine. We understand that this project proposal is an interlude between the recently completed UNDP Regional Industrial Project and the proposed new UNDP/RCA Project. Pakistan fully supports the Australian proposal and has shown its interest to participate in this programme.

#### Medical and Biological Applications of Nuclear Techniques:

7. All the major objectives of the project on Radioimmunoassay (RIA) of Thyroid Related Hormones have been met. Pakistan was identified as one of the countries for the supply of RIA reagents in the region for coordination in EQAS. A new advanced software developed at INMOL, Lahore for EQAS data processing is being made available to the Agency for distribution to EQAS coordinating centres in the region. This project has resulted in significant reduction in the cost per test and in the establishment of sustainable regional capability for production of many of the reagents.

8. Concerning the project on "Maintenance of Nuclear Medicine Instruments", we consider it important to pay increased attention to the spare parts services, upgradation of the instruments, information exchange, and conversion of

analogue gamma cameras to digital operation using PCs. Pakistan would welcome the idea of having cheaper second-hand scintillation cameras which have been refurbished and upgraded.

9. Pakistan is interested to participate in an important project proposal on Advanced Brachytherapy Techniques for Cancer Management. This Coordinated Research Project was floated by Japan at the 14th RCA Working Group Meeting and it was anticipated that it will be a global CRP with a number of research projects and agreements.

#### Agricultural Projects:

10. Pakistan is conducting pilot scale studies on preservation of various food materials by gamma irradiation. We are in the process of formulating Regulations for Commercial Food Irradiation for which an IAEA expert visited Pakistan in May 1992. The Agency is requested to consider provision of a commercial demonstration irradiator to Pakistan.

11. For the project "Improvement of Grain-Legume Rhizobium Symbiosis", it is suggested that studies on the ecology of rhizobia and soil microflora using biotechnological tools may also be considered in future.

12. The new National Institute for Biotechnology and Genetic Engineering (NIBGE) has started functioning at a newly constructed complex at Faisalabad since January 1992. Pakistan offers to provide training to the scientists from the region in relevant fields through TCDC.

13. Pakistan is interested to participate in the following 3 new project proposals in the field of agriculture:

a) Use of Sterile Insect Technique to Protect Fruit and Vegetables from Destruction by Tropical Fruit Flies.

b) Amelioration of Environmental Pollution by F-1 Sterility for Controlling Caterpillar pests of Horticulture and Field Crops.

c) Regional Technical Cooperation Project to Develop Strategies for Improving Animal Production and Health in Asia.

Research Reactor, Energy Based and General Projects:

14. Under the project "Application of Personal Computers to Enhance the Operating and Management of Research Reactors", a personal computer-based system has been developed for radiation monitoring channels installed at various locations in the reactor building of PARR-I at PINSTECH. On utilization of research reactors emphasis may be given to experiments on material structure examination and investigation of micro-structure defects in reactor materials.

15. A Regional Training Course on "Power System Expansion Planning" was held in Lahore from 26 April to 4 June 1992. It is proposed that further courses on Nuclear Power Planning be held in the Region.

16. The New Project Proposal on "Nuclear Techniques in Development of Advanced Ceramic Technologies" was referred back after being tabled at the 1991 General Conference Meeting. Pakistan expressed its support to this proposal at that time and would do so if it comes up for consideration again.

Radiation Protection Projects:

17. Under a Government Ordinance, the Directorate of Nuclear Safety and Radiation Protection has been assigned the regulatory aspects of nuclear applications including medical uses of radioisotopes and X-ray machines. The Directorate is in the process of setting up the implementation infrastructure in the country.

18. Pakistan is planning to organize a Workshop during 1993 on Radon Measurements for Dosimetry and Applications in the Study of Physical Processes. We would like to request the Agency to cover 50% of the estimated expenditure of around US\$ 40,000.

19. At the 14th RCA Working Group Meeting, the Pakistan delegate had proposed the inclusion of a project on Nuclear Information under RCA. It was emphasised that this project can play a significant role in regional cooperation in the field of Information Exchange based on INIS System. This proposal was supported by other delegates. It was suggested that Pakistan may submit a detailed proposal to the RCA Coordinator and Pakistan is now in the process of submitting the proposal to the Agency.

Other Comments:

20. Pakistan is providing training to the scientists from the region at its Nuclear Institute for Agriculture and Biology (NIAB) Faisalabad in the relevant fields and would be glad to continue this cooperation.

21. Pakistan is keen to send its experts to the Member States for short duration as and when required. A list of the available experts has been sent to the Agency.

22. Keeping in view the importance of Civil Engineering in the area of public welfare including soil investigation, materials testing, water resources management and sewerage engineering, Pakistan would like to propose that this area may also be given due importance under RCA Programme.

23. In conclusion, Pakistan wishes to express its satisfaction with the implementation of various RCA activities and would work with other Member States to further promote regional cooperation in peaceful uses of nuclear energy.





COUNTRY STATEMENT - PHILIPPINES  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

Mr. Chairman, Distinguished Delegates:

It is with great pleasure that my delegation expresses its congratulations to the Chairman on his election to chair this meeting. We would also like to congratulate the new Deputy Director General for Technical Co-operation on his appointment. We would like to take this opportunity to express our deep appreciation for the total support and encouragement shown by the immediate past Deputy Director General for Technical Co-operation Professor Noramly bin Muslim to the RCA Programmes. This total support and encouragement has contributed in no mean measure to the stature of the RCA today.

Now on its fourth five-year extension, the RCA faces uncertainties which are in the same breadth new challenges. As of this date, commitment of UNDP support to the new project proposal in the 5th Inter-country Programming Cycle (1992-1996) has yet to be formally received. In the face of possible decreased funding support from UNDP, the RCA will have to tap other sources for funding. It is noted that in the proposed 1994 budget, funding from the TACF is down to a little less than 30% compared to almost 54% of the 1993 proposed budget but increase in funding from countries within the region went up by only 2%.

At this juncture, we wish to express our appreciation to donor countries, Australia, People's Republic of China, India, Japan and Republic of Korea. We hope they will continue and even increase their support to the RCA Program. We are confident that as the other economies in the Asia and Pacific mature, we will have more donor countries. Also, we will be pleased to welcome Mongolia as a future member country of the RCA.

It may be informed that the Philippine Government is reaffirming its interest in participating in the programme proposal for the Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development, which was presented to the UNDP for funding.

For the year under review, the Philippines participated in 15 projects being undertaken under the RCA. Allow me to highlight our participation in the following projects:

## 1. Regional UNDP Industrial Project

### 1.1 Tracer Technology in Industry

A tracer demonstration experiment earlier planned under PHI/8/015, will now be undertaken as a bridging activity under the regional project.

### 1.2 Nucleonic Control Systems

We are pleased to inform that although there was no bridging activity undertaken under this subproject, national investments in nucleonic control systems during the period under review came up to P7 million.

### 1.3 Non-Destructive Testing

a. Under this sub-project, five (5) national training courses were conducted: UT-2, RT-2, UT-1, SM-2, and RT-3. There were 50 participants to these courses.

b. Regular certification examinations were held for UT-2 and RT-2 on March 16-20, 1992 and March 23-27, 1992, respectively.

c. NCB certification examinations for RT-3 and UT-3 were held on August 20 and 27 respectively and were conducted by Mr. Roy Gilmour.

d. Exposure area for the radiography facility will be completed before the year ends.

### 1.4 Radiation Technology

#### A. Radiation Sterilization

a. The Philippine Nuclear Research Institute (PNRI) and the Bureau of Food and Drug (BFAD) are working together towards the setting up of regulations on radiation sterilization.

b. PNRI has completed the final draft of rules and regulations on the licensing of large gamma irradiators.

c. R & D on radiation sterilization of medical products, pharmaceuticals, tissue and bone grafts are on-going.

PNRI in cooperation with a local manufacturer has obtained clearance from BFAD to use irradiation for the decontamination of empty gelatin capsules.

#### B. Radiation Curing

a. The UV-curing system has been installed at Forest Products Research and Development Institute (FPRDI).

b. It is planned to hold a national seminar/workshop on UV-curing of surface coatings of wood products during the last week of November 1992.

c. Request for a five-day expert for above seminar/workshop as well as for resins and other chemicals required for UV-curing was submitted to IAEA.

#### C. Radiation Vulcanization of Natural Rubber Latex

a. PNRI is starting R & D work on radiation vulcanization of natural rubber latex.

b. An expert on radiation vulcanization of natural rubber latex under IAEA technical assistance project PHI/8/013 is scheduled to come in November of this year.

#### D. Upgrading of the Multipurpose Gamma Irradiation Facility

a. The source of the multipurpose gamma irradiation facility is scheduled to be upgraded with an additional 50 kCi Co-60 this year through IAEA TC project PHI/8/013.

b. Also under this project, equipment such as infra-red spectrophotometer, instron, data module for HPLC, etc. were received. These are being used for R & D on applications of radiation processing.

## 2. Medical and Biological Applications

### 2.1 Radioimmunoassay for Hepatitis B Diagnosis

The Philippines attended the formulation meeting in Sri Lanka in October 1991 and since then as a participant, it has been a recipient of RIA kits for HB AgS, anti-HB AgS, anti-HBe, HBe and anti-HBe from 2 Chinese companies. A project team has been established and kits have been distributed to various participating hospitals for use in the detection of HB AgS, anti-HB AgS, anticore, HBe and anti-HBe in different patient group samples. Three sets of auto beadwashers and dispensers have been received. Radioimmunoassays of the different HB workers in various groups are going on.

### 2.2 Inhalation Imaging for Diagnosis of Respiratory Diseases

To date, the project counterpart has already finished studies on six (6) patients and have completed gathering air pollution data in the locality.

### 2.3 Radiation Sterilization of Tissue Grafts

a. The Philippines was pleased to host the Project Formulation Meeting on Radiation Sterilization of Tissue Grafts held in Manila from 3-7 August 1992. Fifteen (15) participants from the region and two (2) IAEA officials attended the meeting.

b. A technician of the UP-PGH Tissue Bank participated in the Regional (RCA) Training Course on Radiation Sterilization of Tissue Grafts with Emphasis on Clinical and Sterility Quality Assurance Criteria held in Beijing, China from 1-12 September 1992.

### 2.4 Imaging Procedures for Diagnosis of Liver Diseases (Phase II)

This project is now on its third year and the work programme for this year includes the following:

a. QA/QC of nuclear medicine and ultrasound instrumentation to be used to image patients suffering from liver disease.

b. Interpretation by a group of nuclear medicine and ultrasound specialists of some liver scans and ultrasound being sent to the project counterpart from Chiba, Japan. The specialists will also interpret images being sent by the participating countries.

c. Statistical analysis on the outcome of the study both on instrumentation and physicians of the liver images.

## 2.5 Radiation Therapy

The research contract entitled "Introduction of Computerized Dosimetry and Database in the Radiation Therapy of Cancer of the Cervix in the Philippines" is being undertaken at the Jose R. Reyes Memorial Medical Center.

Twenty-six (26) patients with carcinoma of the cervix who have undergone radiation therapy using low and high dose rate were included in the study. The evaluation of the first group of patients is still on-going although only 60% have returned for follow-up. Efforts are being made to encourage the remaining 40% to come back for follow-up examinations.

Initial experience with manual calculations computerized treatment planning using mini-computer as well as PC-based systems with commercially available software showed the advantage of the latter as to convenience and efficiency. As to accuracy, the result of TLD measurement and the treatment response of the patients will determine the level of uncertainty in dose calculations. More patients are needed for future follow-up.

## 2.6 Care and Maintenance of Nuclear Medical Equipment

The Philippines participated in the Second Formulation Meeting of the Project held in Sydney, Australia, 24-28 February 1992. We also participated in the Workshop on Utilization and Further Development of Computerized Management of Preventive Maintenance held in Kuala Lumpur, 7-11 September 1992.

We are pleased to offer the Philippines as host of the regional training course on the Protection of Nuclear Equipment (in 1994).

### 3. Radiation Protection

#### 3.1 Radiation Protection Infrastructure

The Philippines participated in the Second Formulation Meeting held in Tokai in June 1992. The RCA project document clearly identifies the priority areas and work programmes to further strengthen the radiation protection infrastructure in the region. We wish to express support to the recommendations contained therein.

In support of two particular recommendations, we wish to inform that the Philippines may be considered as host to a Regional Training Course in Cytogenetics and a Train-the-Trainers Workshop in Radiation Protection in Industrial Radiography.

#### 3.2 Compilation of Anatomical, Metabolic and Physiological Characteristics of Reference Asian Man.

The Philippines participates in this project through a research contract. Certain local difficulties which are expected to be resolved were encountered by the project.

#### 3.3 Intercomparison of Personnel Dosimeter

The project is on its third and final year. The results of the Third Phase will be reported in the last meeting to be held in Tokai in October this year.

### 4. Agricultural Projects

#### 4.1 Food Irradiation Process Control and Acceptance

The project whose objective is to enhance the marketability of seafood products for export through the application of gamma irradiation to control pathogenic contamination and to extend shelf-life is on its second year of implementation. This year, the evaluation of Salmonella in irradiated and non-irradiated prawns were done. The prawns were inoculated with Salmonella and the effect of freezing and irradiation on Salmonella count was evaluated.

#### 4.2 Improvement of Grain Legume Rhizobium Symbiosis to Fix Atmospheric Nitrogen

Work on this project included the screening of 15 mung bean cultivars to identify their ability to fix atmospheric nitrogen in acid soils. Chemical analysis are in progress.

Results for the total N and N-15 analysis are being awaited from Vienna.

#### 5. Research Reactor and Energy Based Project

With the acquisition of six sets of interface cards, the project now has all the major hardware items needed to complete the project. Only the opto-isolation serial interface between PCs is unavailable. Since this is not commercially available at a reasonable cost, it must be fabricated by the project. Likewise, software development was started immediately when the interface cards became available.

A request for an extension of the project from 1992-1993 was submitted to the IAEA. No additional funds were included in the request.

#### Concluding Statement

The Philippines reaffirms its commitment to the RCA and to its programmes. We are thus grateful for the opportunity to host the 15th RCA Working Group Meeting in March 1993. It is hoped that all the 14 member-states could attend the meeting.

As I stated earlier the RCA faces uncertainties which are in the same breadth challenges. We are confident that the RCA will measure up to the challenges.





COUNTRY STATEMENT OF THAILAND  
21ST GENERAL CONFERENCE OF  
REPRESENTATIVE OF RCA MEMBER STATES  
23 September 1992, IAEA-VIENNA

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Mr. Chairman,

On behalf of the Thai delegation, I would like to congratulate you on your unanimous election as the chairman of our RCA General Conference. I am confident that under your guidance, Mr. Chairman, this RCA General Conference will be successful in completing its important agenda.

The RCA has made great contributions to the promotion of the peaceful uses of nuclear energy in Asia and the Pacific Region and RCA is a most effective programme to accomplish regional co-operation for accelerating the benefits of nuclear technology among the member states.

Thailand supports the proposed programme on the Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development, the purposes of which are combatting the degradation of the environment, strengthening industrial development and improving aspects of public health care, especially those which are the follow-up of the earlier projects RAS/79/061 and RAS/86/073.

Thai industrialists have now realized the importance of the use of nuclear technology in development of industry. Apart from its benefits in improving the production efficiency with good quality products and saving of energy and raw materials, emphasis is also placed on environmental conservation.

The Regional Programme on the Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development has significance to all RCA Member Countries in bringing up their industrial growth to the same level as other developed countries. The utilization of nuclear technology is believed to be one of the best way to help achieve the above objective. Consequently, The roles of technology transfer to industrial sectors to expand the use of nuclear technology are very important tool to ensure proper use of the technology enabling achievement of the project objectives.

The Royal Thai Government, through the Office of Atomic Energy for Peace (OAEP), has available a number of necessary scientific and technical facilities and trained personnel to co-operate in transferring technology to industry under various project activities. Moreover the Thai Government is willing to provide scientists, engineers or technical experts to assist other member countries as well as to accept the scientists, engineers and technical experts designated by the Project or other participating states to work at the designated institutions in Thailand for the purpose of implementing the co-operative project and the technical cooperation between developing countries (TCDC).

In conclusion, Thailand wishes to express her full support to the extension of RCA Agreement and its activities for promoting regional cooperation in the peaceful uses of the nuclear technology, especially the project of the use of isotopes and radiation to strengthen technology and support environmentally sustainable development.

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COUNTRY STATEMENT - VIETNAM  
21ST MEETING OF THE RCA MEMBER STATES  
VIENNA, 23 SEPTEMBER 1992

Mr. Chairman,

It is my great pleasure to be here, at the 21st RCA General Conference Meeting and on behalf of the Vietnamese delegation I would like to congratulate you on the success of Chairman Election of this meeting.

Regarding RCA activities in 1991-1992 I would say that though the activity frequency has become lower due to funding reduction, most RCA programmes have been implemented effectively with great efforts of the Agency, RCA Member States, especially of donor countries in the Region through the RCA network.

Concerning RCA activities in the field of Nuclear Medicine, at this meeting, Vietnam would like to express its concerns with all projects related to Nuclear Medicine, among which are RAS/6/018, CRP.E3.30.08, RAS/7/003. To pay our contribution to RCA, Vietnam would like to be the host country for a Regional Training Course on Tissue Graft in 1993. And we are prepared to take part in the CRP on Improvement of Cancer Therapy (Phase II), which we found very useful. In this connection, we strongly support the project on Nuclear Instrument Maintenance, to which our contribution is the hosting a Regional Workshop on Evaluation of Modern Spectroscopy Amplifiers, Dalat, 19-23 January 1993. To continue gaining benefits from this project, Vietnam totally agrees to put it to be a new project proposal as proposed at the Project Formulation Meeting in Tokyo.

As regards the new UNDP/IAEA project proposal, Vietnam wishes to join other RCA Member States to urge UNDP Headquarters to fund this project. Vietnam would like to reiterate its support to the project proposal of Australia.

Looking to the 1992 Bridging Activities under the framework of the Industrial Project we would like to express our sincere thanks to Dr. Easey, RCA Co-ordinator, Dr. Makuuchi from Japan and Dr. Hilmy from Indonesia for their kind assistance in managing to bring the trial programme on Radiation Vulcanization of Natural Rubber Latex into reality.

As regards Agricultural projects Vietnam supports the CRP on the Use of Isotopes in Studies to Improve Yield and N<sub>2</sub> Fixation of Grain Legume, from which we have gained benefits. Seeing 3 new project proposals in this area beneficial, we would like to take part in, once they get approved.

Vietnam keeps on its involvement in the project on Research Reactor Utilization and hopes to see its action plan busier. We are willing to host a Regional Training Course on Research Reactor Utilization at the end of 1993 in Dalat and would like it to be put in the RCA 1993 action plan.

A very important part of RCA activities is Radiation Protection. With the strong support from the Agency, the Government of Australia, Japan and India, activities under the framework of project RAS/9/006 including CRP on Reference Asian Man and Intercomparison programme on Personal Dosimeters have been successfully implemented. Vietnam sees the proposed future 5-year programme of the project promising and hopes it will be approved and continuously get support from Agency, Australia and Japan. Concerning the new project proposals in this field, Vietnam would like to express our willingness to take part in their activities, which, we found, integrated with the planned future programme proposed at the PFM. Personnel Training in Radiation Protection and Regulations are of our expectation to this programme.

Mr. Chairman,  
Distinguished Delegates,

Vietnam has officially announced its commitment to the RCA Extension Agreement. This reflects the success and effective activities of RCA and our willingness to cooperate with the countries in the Region for Peace and Prosperity. By the same token, I wish our meeting success.

Thank you.