

REGIONAL CO-OPERATIVE AGREEMENT
INTERNATIONAL ATOMIC ENERGY AGENCY



REPORT

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

IAEA - Vienna, 21 September 1994

**TWENTY-THIRD CONFERENCE MEETING OF
REPRESENTATIVES OF RCA MEMBER STATES**

**8:30h Wednesday, 21 September 1994
VIC, C07, Conference Room V**

EXECUTIVE SUMMARY

There were 33 participants from 16 RCA Member States, only Singapore did not send a representative. There were three observers from France. The Agency's delegation was led by Mr. Qian Jihui, Deputy Director General, Department of Technical Co-operation.

The Meeting elected Professor Djaloeis, Deputy Director General, Indonesian Atomic Energy Agency (BATAN) Chairman.

The major highlights of the Meeting were:

- . the acceptance of the RCA Annual Report for 1993.
- . the acceptance of the report of the 16th RCA Working Group Meeting.
- . the approval of the project activities for 1995.
- . the approval of the Budget Estimates for 1995 and 1996.
- . the endorsement of the recommendations from the 16th RCA Working Group Meeting with regard to incorporating the following projects in the RCA programme:
 - the proposals set out in the Project Formulation Meeting Report for Energy and Nuclear Power Planning with the component on the pooling and analysis of effective strategies for implementation of nuclear power programmes to be separated as a specific project;

- the proposals set out in the Project Formulation Meeting Report for Research Reactor Utilization and specifically the need for the evaluation of neutron radiography facilities in the region;
- the proposal for a CRP on Applied Research on Air Pollution using Nuclear Related Analytical Techniques;
- the proposal for an RCM in 1995 for Air Pollution and Lung Function Studies; and
- the proposal for a new project on Irradiated Foods.

the acceptance of the offer by Malaysia to host the 17th RCA Working Group Meeting in 1995.

the recommendation that the appointment of the next RCA Co-ordinator should be made in such a way as to enable a smooth transfer to occur in 1995 and that the present level of the position be maintained.

the decision to delete from the programme the unfunded footnote a/ project on Risk and Reliability, RAS/9/010.

the acceptance of the circulated factual background paper on RCA activities for submission by Indonesia to the 1995 NPT Review and Extension Conference.

the establishment of specific emphasis on those initiatives that would contribute to the UN "Women in Development Programme" and would also be relevant to the needs and priorities of RCA.

the commitment of the following ten RCA Member States to provide cash extrabudgetary support to the programme: Australia, China, Indonesia, India, Japan, Republic of Korea, Malaysia, New Zealand, Philippines and Thailand. In 1995 the total cash deposited by these countries could amount to \$1.25 million.

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**TWENTY-THIRD CONFERENCE MEETING OF
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**8:30h Wednesday, 21 September 1994
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1. OPENING

The Meeting was attended by 33 delegates representing all RCA Member States with the exception of Singapore and three observers from France. A list of those attending is attached as **Annex 1**.

The Meeting was opened by the Interim Chairman, Dr. Carlito Aleta, Director, Philippine Nuclear Research Institute. He welcomed the delegates to the Meeting and thanked all Member States for their support during the last year. He then invited the Deputy Director General, Department of Technical Co-operation, Mr. Qian Jihui to address the Meeting on behalf of the Agency.

Mr. Qian welcomed all delegates on behalf of the IAEA Director General, Dr. Blix. He mentioned that the total RCA membership had now reached seventeen with the joining of Myanmar and New Zealand and all active IAEA Member States in the Asia Pacific region were now signatories to RCA. He pointed to the need for strong integration between RCA and national activities and reflected on the Agency's role of funding RCA projects. In his concluding remarks he congratulated those developing RCA Member States now supporting the projects as cash donors and predicted that from 1995 there might be a total of 10 Member States giving cash contributions. The full text is presented in **Annex 2**.

The Interim Chairman called for nominations for Chairman. Professor A. Djaloelis, Deputy Director General, BATAN, Indonesia was nominated by Malaysia, seconded by Bangladesh and unanimously elected Chairman. Malaysia gave a brief introduction of Professor Djaloelis, pointing out that he had been appointed Deputy Director General of BATAN on 1 September 1994.

Professor Djaloelis expressed his gratitude to the delegates for electing him Chairman. He expressed the wish that, as in the past, all members of the RCA would participate in a co-operative manner and come to consensus agreement on the matters to be decided and thus contribute to a successful meeting.

The Chairman presented the agenda (**Annex 3**) which was adopted unanimously.

2. REPORT BY RCA CO-ORDINATOR

Dr. Easey noted the expansion of the RCA membership to seventeen with the recent addition of Myanmar and New Zealand and looked forward to both becoming active over a range of project work.

He reviewed problems encountered with communications with UNDP Headquarters over the past years which had impacted on three projects. He hoped that the presence in Vienna of UNDP Headquarters staff for the Tripartite Review Meeting (TPRM) on the joint UNDP/RCA/IAEA project RAS/92/073 would enable some resolution of these problems.

He requested Member States to include comments on the linkage between the RCA projects and any related country projects in the future Country Statements.

He supported the view that the IAEA should be regarded as any other potential donor and that the project proposals from RCA should be prepared to reflect this. He requested that other projects competing for IAEA funding should also be assessed using the same criteria as used for RCA.

He noted the continuing needs for the effective interfacing of RCA projects with other bilateral and multilateral initiatives and regretted that his specific requests for coordination with and information about the International Cooperation in Asia programme had not been answered.

He referred to supplementary information on the "Women in Development" programme being part of the forthcoming TPRM and the paper prepared for the UNDP's own Mid-Term Review of the 5th Intercountry Programme Cycle.

He congratulated all those RCA Member States who were now going to be extrabudgetary cash donors to the programme.

In concluding, he asked Member States to consider the expanding role of RCA in development and cooperation and collaboration in the peaceful uses of

nuclear technology. In particular, he suggested that TDCD could be increased within the region and that contacts with the other regional agreements should also be expanded.

The full text of the report is attached as **Annex 4**.

3. SIXTEENTH RCA WORKING GROUP MEETING, BALI, INDONESIA, 22-25 MARCH 1994.

The RCA Co-ordinator pointed out that there was an addendum of 2 pages for this report. These late inclusions had arrived after the report had been printed. They had been included in the distributed report and were also available from the Secretariat.

The Philippines referred to the report and expressed appreciation on the production of diskettes to reduce the volume of paper. With reference to page 25, the RCA Co-ordinator was asked about any developments on the request to bring the region's agricultural specialists together for a specific meeting on subjects of importance in agriculture for the RCA programme. The RCA Co-ordinator replied that he had had preliminary discussions with the DDG-TC and a meeting for agricultural specialists was planned for 1995.

Mr. Qian commented on the various agricultural proposals that had been presented at the last year's RCA General Conference Meeting and the discussion on the proposals that had taken place at the 16th RCA Working Group Meeting. He pointed out the difference in the nature between RCA projects and the regional and national projects, whereby, in RCA projects, the Member States collectively decided on the projects that have highest priorities for them. These priorities were not always the same as the Agency's. In this respect he said that IAEA should be considered like any other potential donor organization and should not be expected to fund everything. He informed the Meeting that the Agency had the intention to initiate two Regional Asian agricultural projects outside the RCA programme and the decision would be left to RCA Member States whether to integrate those into the RCA programme at some future state.

Indonesia recalled the request made by their delegation at the 16th RCA Working Group Meeting for a RCA project on renal disease. A proposal for a new

project, a CRP on renal disease diagnosis and therapy by using nuclear techniques had now been prepared by them for inclusion in the 1995 programme. Indonesia also pointed out that their cash contribution was not on an annual basis but a lump sum for 3 years, for 1994-1997.

The RCA Co-ordinator replied that he was very pleased and was looking forward to receiving a copy of the proposal on the CRP. He said that all new proposals would be included in the briefing documents that will be sent out around the second week of January to all Member States and this proposal would be included. He confirmed that it was on record that the Indonesian contribution was from 1994-1997.

China said that since 1988 its Government had donated support for Training Courses but would now change its procedure and give a cash contribution of US\$50,000, 70% of which would be in US\$ and 30% in Chinese currency. With respect to projects in the field of agriculture, China felt these were very important and asked the Secretariat for help to formulate concrete proposals.

The RCA Co-ordinator replied that efforts needed to be concentrated on the selling of agreed RCA projects. During the last few years much effort had been put into this selling of projects, starting with the production of "donor-friendly" documentation showing the project aims, objectives, outputs and timetable, making clear how donor funds were to be used.

Republic of Korea expressed appreciation to Indonesia for hosting the 16th Working Group Meeting and hoped that a number of the proposed projects could be implemented. It approved of the report of the 16th RCA Working Group Meeting and considered the Meeting had been very beneficial.

Mr. Qian referred to the request from China for help in formulating project proposals and said that the Secretariat had time problems in this respect and a high workload. He said he proposed to establish an interregional project to support the three regional agreements with some selected experts or high level senior persons with scientific background and management skills, to help each Chairman do some specific work. Additional work needed to be done on various subjects after these General Conference Meetings which might require for example: experts in management and co-ordination; or, the formulation of a good

project which is then 'sold' to a donor. If the Chairman, together with the Secretariat, would prepare a list of: subjects; people needed; tasks; then the Agency could support the experts with travel, including airfare and per diem. The required senior experts should be donated cost-free by Member States. This should also facilitate the exchange of personnel and experience amongst the regions. The Agency was interested in receiving specific concrete proposals it could support. The Chairman asked the delegates to discuss this idea at a later time.

The report on the 16th Working Group Meeting report was accepted by the Meeting.

4. RCA ANNUAL REPORT

The Chairman presented the Annual Report 1993 which was accepted by the Meeting without comments.

5. RCA PROGRAMME 1995

5.1 Proposed RCA Project Activities for 1995

The RCA Co-ordinator commented that details on the programme were included in the background papers and went briefly through the individual items. This was then followed by discussion.

Pakistan stated that it had expressed its concern at the RCA/GC Meeting last year on the diminishing importance in the agricultural projects and noted that the situation had remained unchanged. Pakistan expressed the wish that more importance would be given to the energy and agricultural sector in the future. Pakistan expressed its full support for the RCA and asked for assistance in the area of forestry and live-stock. Pakistan said there were identifiable projects in these areas and would be glad to discuss them in appropriate RCA fora.

Mr. Aslam made reference to the comment by Pakistan. He said that the two areas that had been mentioned had already been included in the 1995/96 programme for Regional Asia and the Pacific outside of RCA.

Pakistan referred to the post 1995 RCA activities pointing out that there were no agricultural activities. It was stressed again that Pakistan would like to have agricultural projects and felt that other countries had interests and needs in this area.

China referred to the 1995 training programme (**Annex 5**) and pointed out that there were two similar workshops, one being the Regional Workshop on NDT Applications in Electrical Power, to be held in China and the other one being the Regional Workshop on NDT in Power Industry, to be held in Republic of Korea. China asked why two so similar workshops were offered. The RCA Co-ordinator replied that a tentative list of training courses for 1995 had been put together in July/August 1994. All possible training events had been included in this list and the list would now be refined with the help of all the delegates presently in Vienna. Any possible overlaps would be discussed with the delegates.

Viet Nam expressed its willingness to host the seven events in 1995, as set out in a letter to the RCA Co-ordinator.

India referred to the 1995 list of training courses and asked about the status of the parts of the tables where there were question marks. The RCA Co-ordinator replied that for a number of training events location or date had yet to be fixed. He tried to spread the benefits of hosting the training events as evenly as possible around the region. He had received various letters from Members States offering to host activities. These events needed to be balanced and it needed to be ascertained that the appropriate infrastructure for each training event was present. He hoped to have the list finalized by mid-October.

The proposed RCA Project Activities for 1995 as set out in **Annex 6** were endorsed by the Meeting as were the RCA Budget Estimates for 1995 and 1996 as shown in **Annex 7**.

5.2 RCA Membership

The RCA Co-ordinator welcomed the addition of both Myanmar and New Zealand as the two latest signatories to the Agreement. The full list is given in **Annex 8**.

5.3 New Project Proposals

Concerning the new project proposals (**Annex 9**), Dr. Easey noted that the proposal for a CRP on agricultural countermeasures after nuclear accidents had not been finalized in time to be distributed to Member States. The proposal on irradiated food had been forwarded to Member States for their consideration. He noted Indonesia's intention to submit a proposal for a CRP to the 1995 RCA Working Group Meeting.

The new project proposals were unanimously supported by the Meeting and the Chairman declared the following recommendations by the 16th RCA Working Group Meeting endorsed:

- the proposals set out in the Project Formulation Meeting Report for Energy and Nuclear Power Planning with the component on the pooling and analysis of effective strategies for implementation of nuclear power programmes to be separated as a specific project;
- the proposals set out in the Project Formulation Meeting Report for Research Reactor Utilization and specifically the need for the evaluation of neutron radiography facilities in the region;
- the proposal for a CRP on Applied Research on Air Pollution using Nuclear Related Analytical Techniques;
- the proposal for an RCM in 1995 for Air Pollution and Lung function studies; and,
- the proposal for a new project on Irradiated Foods.

Japan referred to radiotherapy and said that the CRP on radiotherapy which had been supported by Japan, had completed its second phase. To follow-up in this field, Japan considered there were various possibilities and wished to continue to support this topic. It was hoped that the opinions of interested Member States would be passed on, so that a project proposal could be formulated as soon as possible, hopefully at the beginning of 1995.

5.4 RCA Footnote a/ projects

Reference was made on the need for the Meeting to review footnote a/ projects that had been unfunded for over two years. It was noted that the only project in this category was the RCA project on Risk and Reliability, RAS/9/010, which had never been funded (**Annex 10**). The Philippines proposed to have it deleted from the programme. There were no objections and the Meeting agreed that it should be removed from the list of RCA projects.

The DIR-TCPM, Mr. Barretto, commented that there seemed to be a large number of footnote a/ projects during the next TC cycle (1995/96) and noted that the reason for this was an increasing demand in projects but without a proportional increase in available funds. He stressed the need for efforts to sell projects to donors and to question the reasons why a particular project is not being funded after several years.

5.5 List of RCA Counterparts and Co-ordinators

A list of national co-ordinators and counterparts and their contact information was included in the background papers and the RCA Co-ordinator asked all delegates to review those lists and inform him in writing of any changes.

5.6 Venue, timing and administrative arrangements for the Mid-term Review of the joint UNDP/RCA/IAEA project

The RCA Co-ordinator pointed out that two UNDP officials from headquarters would be at the Tripartite Review meeting on Saturday, 24 September. Discussions would be held with them on the programme for the Mid-term review, which should be in early July 1995. This information would be circulated to Member States as soon as available. He pointed out the long lead-time for the Mid-term review and reminded delegates that, under the previous UNDP project, some countries had complained about a lack of opportunity to explain to the review team about local conditions and limitations, before the review team had come to the country. For the next Mid-term review every Member State should be able to table to the review team a document on the implementation of the project in their country. Several delegates suggested that this meeting could take place in New Zealand.

New Zealand acknowledged the proposal to have the Mid-term review meeting held in New Zealand next year. Eventhough it was not possible to make a firm commitment at this Meeting, New Zealand said that the request would be relayed to the appropriate department and it was anticipated that it would be sympathetically considered.

5.7 Recording of the full extent of project activities and project impact

The RCA Co-ordinator asked Member States to provide information on the recording of investments in industrial nuclear technology. This information was valuable for promotion and furthering of the RCA projects. He informed the delegates that the second meeting on the preparation of materials to accurately record and monitor RCA activities had been held in Vienna the previous week. A report on this meeting would be circulated and also a questionnaire would soon be circulated to national co-ordinators.

5.8 Venue, timing and arrangements for the 17th RCA Working Group Meeting

Malaysia informed the delegates that the name of the Nuclear Energy Unit (UTN) had recently changed to the Malaysian Institute for Nuclear Technology Research (MINT). Malaysia extended an invitation to all delegates from RCA Member States to come to Kuala Lumpur, Malaysia for the next RCA Working Group Meeting. The proposed date for the meeting had been set as 27-30 March 1995 and the venue would be the Crown Princess Hotel, Kuala Lumpur. The proposed agenda had already been submitted to the RCA Co-ordinator.

The Chairman thanked Malaysia for this offer to host the meeting, which would be gratefully accepted.

6. COUNTRY STATEMENTS

Member States were requested to submit their country statements in writing. These are presented in **Annexes 11 to 24**.

Thailand announced that it would be giving a cash contribution of US\$10,000 per year from 1995 to 1997.

New Zealand requested that, as this was the first RCA GC Meeting it attended as an RCA Member, a summary of its country statement be read. The Chairman agreed. The full country statement is included as **Annex 19**.

Mongolia thanked the Chairman and all the delegates for the Meeting and for the acceptance of Mongolia as member of RCA. It was very important for the Government to strengthen co-operation with other countries in the Asia and Pacific region in such fields as: nuclear technology, tissue use and nuclear energy. The National RCA Co-ordinator had been nominated and the Government would continue with its efforts for close co-operation and support for the RCA projects. The output from the 16th RCA Working Group Meeting was appreciated. In order to strengthen their co-operation with RCA, Mongolia proposed to host the 17th RCA Working Group Meeting and also the next National Co-ordinators Meeting for the Radiation Protection of Infrastructures Project in Ulaanbaator.

The RCA Co-ordinator commented on the offer by Mongolia to host the 1995 RCA Working Group Meeting and explained that there had been a decision, that the order of the countries that had hosted the Working Group Meeting in the first round from 1979 to 1991 would be followed again. The newer Member States would be given the opportunity to host the meeting after the last country in the first round, Viet Nam (**Annex 25**).

India announced a cash contribution of 50% of their contribution, amounting to about US\$25,000 from 1995 onwards, in addition to the Training Courses already agreed on. In January/February 1995 a Regional Training Course on INIS was planned to be held with support from India.

7. OTHER BUSINESS

The Chairman noted that there were some items for discussion included in Background Papers 2.

The RCA Co-ordinators pointed out three items of Background Papers 2 which might be considered here:

at the 16th RCA Working Group Meeting at Bali it had been agreed that a short factual paper on RCA should be prepared by the

Secretariat in conjunction with other Member States. This paper had been prepared and circulated (**Annex 26**); there was a copy in the background papers. He asked for any further comments or modifications.

extrabudgetary contributions from Member States. The RCA Co-ordinator remarked that the announced new support from Thailand, China and India would be included in a table (**Annex 27**).

late delivery of project documents. The RCA Co-ordinator commented that he was aware that late delivery of reports could cause problems and asked all member states to note when they received documents and let him know so that he could consider appropriate actions.

Philippines and India referred to the table of extrabudgetary contributions in the background documents and asked if all contributions made to RCA could be acknowledged. The RCA Co-ordinator pointed out that the table was not yet complete. He stressed how all Member States were contributing significantly 'in kind' when hosting events. Unfortunately the table did not give full credit to the 'in kind' contributions because they could not be properly quantified. He emphasized that without this 'in kind' contribution, the programme could not be as productive as it is. The traditional 'in kind' contributions from China, India, and Republic of Korea had been marked up in budget tables in previous years and a nominal cash value had been put for their hosting of training activities but this did not adequately represent the actual amount paid by the country. He stressed the generosity of all Member States and the whole-hearted way in which they supported the RCA and he offered his thanks to all of them for this support.

Malaysia welcomed Mr. Wandowo from Indonesia, a long-term expert who will take up his post in Kuala Lumpur from October 1994 and confirmed that all support would be given to him.

The Philippines referred to the delay in mail and asked if the documents were still sent via the Missions in Vienna and if mail was sent via Slovenia.

The RCA Co-ordinator replied that the IAEA had under contract a company in Slovenia dealing with some mail. As a rule, the RCA Co-ordinator's office always sent copies of reports to all RCA Missions as well as to the Co-ordinators directly. He asked all Member States to keep him informed of any delay in mail which could then be brought to the attention of the relevant departments within the Agency.

The Chairman added that it was of particular importance that the Member States receive all mail in good time and asked the RCA Co-ordinator to investigate, with appropriate channels within the IAEA, whether to pay a few cents more might not be better than having important mail delayed.

The Philippines referred to the suggestion made earlier by Mr. Qian to have separate meetings to formulate project proposals and asked whether a follow-on meeting could be considered. After discussion among delegates, it was decided to have the meeting after with a short break, once the RCA General Conference Meeting had closed.

The RCA Co-ordinator referred to a meeting on research reactor facilities and said that the report had now been finalized (**Annex 28**). He asked Member States to have their experts discuss the recommendations and give him feed-back before mid-January 1995 so that it could go in background documents for the 17th RCA Working Group Meeting.

Australia commented on the impressive range of activities in the RCA programme and reminded the Meeting that the present RCA Co-ordinator's term would finish by the end of 1995. It was noted that the position of the RCA Co-ordinator was a very honourous and important one, with a very heavy workload, and should stay on the present level. It was felt that the next RCA Co-ordinator should be appointed on similar terms to the present RCA Co-ordinator; down-grading of the position would not be desirable.

In answer to the Chairman's request for comments, the RCA Co-ordinator pointed out that, when he had taken up this post in 1990, it had been vacant for six months and there was a significant backlog of work to be done. He thought it would be in the best interests of all Member States, if such a situation could be avoided the next time and there could be a smooth take-over by his successor, in

order to guarantee the continuity of a very demanding and complex programme.

Bangladesh supported Australia's comments and proposal for a smooth take-over by the next RCA Co-ordinator and recruitment on the present level.

Japan supported Australia's proposal.

Pakistan supported Australia's proposal and commented that due to the increased workload the RCA Co-ordinator should be given more facilities and resources to carry out his responsibilities.

The proposal for a smooth transfer between the outgoing and incoming RCA coordinators in 1995 and the maintenance of the level of appointment was duly endorsed by the Meeting.

The Chairman thanked the delegates for their positive contributions to the meeting and their expert handling of a very full agenda. He closed the meeting at 11:15 hours.

Summary of decisions taken by the Meeting

1. The Report of the 16th RCA Working Group Meeting, Bali was accepted.
2. The RCA Annual Report 1993 was accepted.
3. The RCA project activities for 1995 were endorsed.
4. The RCA Budget Estimates for 1995 and 1996 were endorsed.
5. The following items were endorsed as part of the RCA new projects:
 - the proposals set out in the Project Formulation Meeting Report for Energy and Nuclear Power Planning with the component on the pooling and analysis of effective strategies for implementation of nuclear power programmes to be separated as a specific project;
 - the proposals set out in the Project Formulation Meeting Report for Research Reactor Utilization and specifically the need for the evaluation of neutron radiography facilities in the region;

- the proposal for a CRP on Applied Research on Air Pollution using Nuclear Related Analytical Techniques;
- the proposal for an RCM in 1995 for Air Pollution and Lung function studies; and
- the proposal for a new project on Irradiation Foods.

6. The project RAS/9/010 on risk and reliability is to be deleted from the list of RCA projects.

7. The offer by Malaysia to host the 17th RCA Working Group Meeting in 1995 was accepted.

8. The Meeting recommended that the appointment of the next RCA Co-ordinator should be made to enable a smooth transfer to occur in 1995 and that the present level of the position be maintained.

9. The acceptance of the circulated factual background paper on RCA activities for background paper on RCA activities for submission by Indonesia to the 1995 NPT Review and Extension Conference.

10. The establishment of specific emphasis on those initiatives that would contribute to the UN "Women in Development Programme" and would also be relevant to the needs and priorities of RCA.

LIST OF PARTICIPANTS

AUSTRALIA

Mr. John Rolland
Director
Information Services
Australian Nuclear Science
and Technology Organisation (ANSTO)
Lucas Heights

Mr. Peter Duerden
Counsellor (Nuclear)
Permanent Mission of Australia
Vienna

Mr. Jack Vaughn
First Secretary
Permanent Mission of Australia
Vienna

BANGLADESH

Engr. M. Abdul Quaiyum
Chairman
National Atomic Energy Commission
Dhaka

CHINA

Ms. Liu Xuehong
Deputy Director General
Bureau of International Co-operation
China Atomic Energy Authority
Beijing

Mr. Xu Naicheng
Director, Division of International Organizations
Bureau of International Co-operation
China Atomic Energy Authority
Beijing

Mr. Zhang Jing
Second Secretary
Permanent Mission of China
Vienna

INDIA

Dr. A.N. Prasad
Director
Bhabha Atomic Research Centre (BARC)
Bombay

INDONESIA

Professor A. Djaloeis
Deputy Director General
BATAN
Jakarta

Dr. Nazir Abdullah
Consultant
BATAN
Jakarta

Dr. Ir. Widjang H. Sisworo
Head, Bureau for Programme Development
BATAN
Jakarta

JAPAN

Mr. Hiroshi Tanaka
Special Staff
Science and Nuclear Energy Division
Ministry of Foreign Affairs
Tokyo

Mr. Toshiyuki Ide
Special Assistant
Permanent Mission of Japan in
Vienna

REPUBLIC OF KOREA

Dr. Man-Ki Lee
Director, Atomic Energy
International Co-operation Division
Ministry of Science and Technology
Gwacheon

Dr. Hong-Lae Chang
Head, Office of International Co-operation
Korea Atomic Energy Research Institute
Taejon

Mr. Byoung-Su Kang
Ministry of Science and Technology
Gwacheon

Dr. Myung-Hwan Kim
Korea Atomic Energy Research Institute
Taejon

MALAYSIA

Dr. Ahmad Sobri Haji Hashim
Director General
Malaysian Institute for Nuclear
Technology Research (MINT)
Bangi

Mr. Adnan Hj. Khalid
Head of Planning Unit
Malaysian Institute for Nuclear
Technology Research (MINT)
Bangi

Mr. Raja Abdul Aziz Raja Adnan
Senior Research Officer
Malaysian Institute for Nuclear
Technology Research (MINT)
Bangi

Dr. Razley Mohd. Nordin
Scientific Attache
Permanent Mission of Malaysia
Vienna

MONGOLIA

Mr. Dogsomyn Ganbaatar
First Secretary
Permanent Mission of Mongolia
Geneva

MYANMAR

Mr. Kye Myint
Counsellor
Embassy of the Union of Myanmar
Bonn

NEW ZEALAND

Mr. Alan Cook
Resident Representative
Permanent Mission of New Zealand
Vienna

Ms. Glenys Karran
Ministry of Foreign Affairs and Trade
Wellington

PAKISTAN

Dr. Hasibullah
Director, International Affairs and Training
Pakistan Atomic Energy Commission
Islamabad

PHILIPPINES

Dr. Carlito R. Aleta
Director
Philippine Nuclear Research Institute (PNRI)
Quezon City

SRI LANKA

Dr. Prinath Dias
Chairman
Atomic Energy Authority
Colombo

THAILAND

Dr. Suchat Mongkolphantha
Secretary General
Office of Atomic Energy for Peace
Bangkok

Mr. Chouvana Rodtholgom
Director, Chemistry Division
Office of Atomic Energy for Peace
Bangkok

Mrs. Ketvarong Nukulki
General Administrative Officer,
Office of the Secretary, OAEP
Bangkok

VIET NAM

Dr. Nguyen Tien Nguyen
Director
Viet Nam Atomic Energy Commission
Hanoi

Mr. Bui Van Hung
Director
Department of International Relations and Planning
Viet Nam Atomic Energy Commission (VAEC)
Hanoi

OBSERVERS

Mr. Patrick Charignon
Permanent Mission of France in
Vienna

Mr. Stephane Evo
Permanent Mission of France in
Vienna

Mr. Jacques Journet
Electricite de France
France

**TWENTY-THIRD GENERAL CONFERENCE MEETING OF
REPRESENTATIVES OF RCA MEMBER STATES
21 SEPTEMBER 1994
ADDRESS OF WELCOME
BY
QIAN JIHUI, DEPUTY DIRECTOR GENERAL, DEPARTMENT OF
TECHNICAL CO-OPERATION**

Distinguished Delegates, Colleagues, Ladies and Gentlemen.

On behalf of the Director General, Dr. Hans Blix, it gives me great pleasure to welcome you to the 23rd General Conference Meeting of RCA States.

As you will all be aware, there have been two additional signatories to the Agreement since the Bali Working Group Meeting in March. Myanmar and New Zealand's joining has brought the total RCA membership to seventeen and I warmly welcome the delegations from these countries to their first RCA General Conference Meeting as Members. All active IAEA Member States in the Asia Pacific region are now signatories to RCA. Your collective views on the direction of your programme, your priorities and recommendations are useful inputs to the Agency's broad consideration of planning and strategies on a regional basis.

I believe that RCA can play a leading role in the present shift of focus of technical co-operation towards the achievement of results that have impact within the broader communities both nationally and regionally. Firstly, I think that there must be a strong integration between the RCA activities and the national activities in the various project areas you select. When I say national, I do not mean it just in an IAEA national sense, the total national activity should be addressed. The role of the project should thus be seen in the context of its contribution to the total effort and not a stand alone item. This approach will require everyone to consider their present approach and to take on board this new goal. You must now start to see the contribution from your efforts in the context of much bigger financial budgets, multi-million dollars rather than the thousands of dollars specifically for your immediate project funds. One immediate consequence of this new role will be the increased attention that will be required at the project design stage to ensure that an integrated picture is properly presented and that the project proposal is constructed so that it will gain the interest and attention of potential donors. In this context I am certain that a key factor will be the level of impact that will be the outcome of the work. There should be no doubt that this is a highly competitive environment where there has to be the will to win. Proposals will only succeed if they are properly designed and constructed and, very importantly, if they are properly promoted and sold to the donors. This selling aspect is a key factor and cannot be

overlooked. If you ask me about the criteria for judging projects to determine the best ones, I could of course give you my personal opinions on the various gates that I consider they have to pass through in the assessment process but I believe that you must recognize that the ultimate test of a project's worth is whether it wins support from a donor.

I would like to reflect on the Agency's role in the funding of RCA projects, particularly with regard to the future. RCA Member States enjoy the right to agree amongst themselves the various projects that form part of the overall programme and the Agency does not interfere in this process. The appropriateness of this mechanism has been supported by the effective way in which the project activities have been carried out and have achieved their objectives. Nevertheless, the Agency does not and should not fund every project recommended for the RCA programme. I believe the Agency should be viewed for funding like any other donor and the decisions on financial support should be based on an assessment of how well the project proposals match our criteria and priorities. Any support merely based on the argument that this particular area had been traditionally supported by us is neither a responsible use of our funds nor an effective means of ensuring that RCA's highest priorities can be addressed.

From its own point of view the Agency has priority topics it would like to have as part of the regional programme but, because of the mechanism for the consensus selection of projects by RCA Member States, the Agency has to set these up outside of the RCA. We plan to have three new regional projects in the 1995-1996 Asia Pacific programme funded by TC. This will be the first time for more than 10 years that there will be both regional and RCA projects in the Asia Pacific programme and will bring the regional balance more into line with the other comparable regions.

I would like to emphasize that the regional project initiative has been the mechanism for the Agency to have its view of priority projects put into a regional context. If, at some date, the RCA Member States find that they have a real interest and priority in these projects there is nothing to prevent them being transferred to RCA.

It is my observation that, inspite of all we hear about the shortage of funds, the major problem is a shortage of good projects. The World's Bank Vice President for Africa region said that there were some \$14 billion that could not be implemented.

RCA has had good experience in several projects and this can be developed further. With this combination of RCA experience in projects with impact, coupled with the success in RCA achieving high levels of extrabudgetary funding for many years, you should be well placed to take a leading role in the changes and the experiences you can pass on to the

other regions will be a positive contribution to the total efforts.

Mr. Chairman, before concluding, I would like to make reference to one more thing. I must congratulate the developing RCA Member States for the way in which they have responded to the call for more RCA countries to become cash donors. Malaysia committed US\$50,000 to support the joint UNDP/RCA/IAEA project that started last year. The Philippines also made a cash contribution in 1993. At the Working Group Meeting this year, Indonesia announced a contribution of US\$50,000 for 1994 to 1997 and the Republic of Korea US\$30,000 to 50,000 each year between 1994 and 1997 in addition to the training course it supports. The Philippines reaffirmed its desire to make further cash contributions. Subsequently there are indications that both China, India and Thailand are giving serious consideration to making cash contribution starting in 1995.

I think it is highly probable that from 1995 in RCA we may have a total of ten Member States collectively contributing US\$1.2 million annually. I think this is a very strong demonstration by Member States of their feelings on the relevance and significance of RCA and is a strong symbol of the mature state of the Agreement.

Here I would also like to mention that following last year's meeting of AFRA, ARCAL and RCA groups and wishes expressed to the Secretariat, TC will establish an Interregional Project to strengthen the Management of the three Regional Agreements.

I would like to finish my remarks on this very positive note. I am certain we will have a very useful and productive meeting that will continue to advance the stature and reputation of RCA as an efficient, effective, productive and dynamic programme.

Thank you.

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

**08:30H WEDNESDAY, 21ST SEPTEMBER 1994
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
- . Adoption of Agenda

2. Report by RCA Co-ordinator.

3. Sixteenth RCA Working Group Meeting, Bali, Indonesia, 22-25 March 1994.

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

4. RCA Annual Report 1993.

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

5. RCA Programme 1995.

The Meeting is invited to comment on the 1995 RCA programme documents presented in background paper 1.

6. Country Statements

Member States may choose to provide written Country Statements for inclusion in the Meeting Report. Matters of urgency can be dealt with orally under this agenda item.

7. Other business.

Some items for discussion are presented in background paper 2.

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

Speech

by

John F. Easey, RCA Co-ordinator

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

I would like to make some observations on events that have occurred since the Working Group Meeting in Bali in March.

I was very pleased that, in May and July respectively, both Myanmar and New Zealand became signatories to the Agreement, bringing our total membership to seventeen. I now look forward to both countries becoming active across the range of project work.

One of the important activities in the programme this year was our first Tripartite Review Meeting for the joint UNDP/RCA/IAEA project on the Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development", RAS/92/073, which was planned to be held on 3 May 1994 in Sydney following the National UNDP Counterparts Meeting on 28 and 29 April, also in Sydney. These meetings were planned for this time and location to enable RCA Member States to have an opportunity to participate in the 9th Pacific Basin Nuclear Conference and also to bring the programme and achievements of RCA to the attention of the delegates from other countries involved in this important Conference.

I started our planning on this very early, when I formally requested permission for this from UNDP Headquarters on 22 April 1993 and confirmation was received on 19 May 1993. The rest of the chronology surrounding the events is given in the report of the Meeting. The end result was that no UNDP representative participated and the information on the absence of representation was dispatched so late that the meeting was concluded before the message was received.

This experience with UNDP Headquarters is not an isolated incident. As you may remember, when we were trying to get the joint UNDP/RCA/IAEA project started in 1992 and were seeking UNDP funding support, we were faced by a similar series of considerably delayed communications.

Last year, when we were finalizing the UNDP funded project on Food Irradiation, RAS/5/020, we started preparations for the Final Review Meeting and the Terminal Tripartite Review many months ahead of the agreed dates. After many faxes with no feedback, UNDP eventually nominated their representative for the final review three weeks before the mission was due to take place. This caused severe problems with visa applications and in organization of travel and accommodation.

A similar situation has occurred this year with the UNDP project on Fixation of Nitrogen, RAS/5/021, which will end this year. Again we undertook our preparation early in the year and have reminded UNDP about their responsibilities to provide a nominated member for the review team and other arrangements. We have at last received their response on the team member one month ahead of the mission, inspite of our emphasizing of the need for an eight week lead time to allow sufficient time for the administrative procedures and arrangements to be carried out smoothly and efficiently. We have also had to have the Terminal Tripartite Meeting for this project as an item on the Agenda for the RCA Working Group Meeting in March next year.

I hope that our Tripartite Review Meeting on Saturday, 24 September and prior meetings with UNDP Headquarters officials, can overcome the problems we have had and that our Mid-Term Review next year can be co-ordinated with them in a much smoother and timely fashion.

In the preparation of the submission of the project proposals for the Agency's 1995 and 1996 TC programme, there has been a concerted effort to try to minimize the overlap between the regional and national projects to maximize the use of TC funds and also hopefully, the efficiency of the projects by avoiding needless duplication. To assist in the full assessment of the relevance and impact of specific technologies, I would like all future Country Statements for this and other RCA Meetings to include a description of how the RCA projects interlink with any related Country projects.

I believe Mr. Qian has made a very valid point about the funding of RCA projects through TC. He is, I believe, quite correct in the view that TC should be considered like any other potential donor. We should prepare what we believe are appropriate and well-justified and documented regional projects. It is then up to the Agency to assess whether these fit their priorities.

I would just like to make one plea on behalf of RCA. The projects that RCA put forward are, for the most part, completely documented with regard to aims, objectives, outputs, budget, timetable and Member States support. I would like to see that those projects competing for TC resources are presented in the same thorough way so that there is a "level playing field" for assessing the relative merits.

I would urge all Member States to look also at the effective interfacing of the RCA projects with those projects from other bilateral or multilateral initiatives. The impact of poor or no co-ordination can be very negative. In many of our Member States there are rather small groups working in many areas of nuclear technology and its applications. If they are confronted with competition for manpower and equipment resources, in order to fulfil their obligations to national, bilateral and multilateral agreements, there will be many problems created and all parties will lose, because the commonest approach will be to try to please everyone and in doing so please no one.

One of the significant regional projects in nuclear technology outside the RCA is the programme on International Co-operation in Asia. I regret that, in spite of my repeated calls for communication and co-ordination between these two regional initiatives, I have had no response and not one item of official information has been sent to me by the organizer's to allow me any insight into what projects are being formulated and undertaken. I find it curious to note in the press release from their Fifth International Conference that, quote "the Conference reconfirmed the importance of its activities being complementary to the work of the IAEA/RCA". Perhaps those RCA Member States involved in both programmes and sympathetic to the concerns I have raised, might consider if some appropriate action to rectify this situation could be undertaken. From my side, I am now getting feedback that some counterparts are getting concerned and confused about how to cope with what appear to be competitive demands.

I believe the decision at the Bali Working Group Meeting to incorporate initiatives supporting the "Women in Development" programme into the RCA programme was very timely. As you will see from the supplementary documentation supplied in the blue folder, WID issues will be a component of Saturday's TPRM.

UNDP have also contacted me concerning their Mid-Term Review for the total 5th Inter-country Programme Cycle. They have raised many issues in their "Terms of Reference" document, which has been provided to you in the folder. Although IAEA is not one of the Agencies that will participate directly in their MTR, I have prepared a short paper, also in those additional papers supplied to each delegation, in which I have highlighted those features of the RCA that I consider could be usefully used to address some of UNDP's nominated problem areas. This paper has been sent to UNDP Headquarters and I look forward to their response.

Mr. Chairman, I would like to congratulate all RCA Member States that have moved so effectively to try to provide their extrabudgetary support to RCA in the form of cash payments. I think we can be extremely proud of the situation where more than half of the Member States will be donating cash to the programme.

Finally Mr. Chairman, I would like the Member States to think carefully about the evolving role that RCA can play in contributing to the development and expansion of co-operation and collaboration in the peaceful uses of nuclear technology for others. I think we need to consider two foci. One is to increase the TCDC component in our region and the other is to increase our contacts with the other regional agreements to assist them, by passing on our experience of successful and unsuccessful modalities. I would like us to set some targets for both of these objectives and I would hope that, by the time I finish my term as RCA Co-ordinator after next year's General Conference Meeting, we will be able to point to activities and achievements in both areas. I am certain that, with the usual strong RCA spirit, we will be able to set ourselves appropriate goals that will not only serve to reinforce the value and the appropriateness of our regional agreement as an efficient and effective vehicle for enhancing and enriching technical co-operation and collaboration between countries in our region but will also demonstrate that our democratic and transparent decision making processes can react responsibly in a timely and appropriate manner for the benefit of others.

Thank you.

<p align="center">REGULAR REGIONAL TRAINING PROGRAMME IN THE ASIA AND PACIFIC REGION 1995</p>			
1)	16 January - 3 February	Safety and Reliability Improvements through Optimized Maintenance of NPPS* Daya Bay, China	Tomic
2)	23 January - 10 February	RTC on Management of Waste Spent Radiation Sources and Other Small Nuclear Applications Manila, Philippines	Wallin
3)	6 - 17 March	Synthesis of Modern Radiopharmaceuticals Bangkok, Thailand	Vera Ruiz
4)	6 March - 7 April	Use of Isotopes and Radiation Techniques in Studies of Soil/Plant Relationships with Emphasis on Nutrient and Water Use Efficiency to Increase Crop Production on Acid Soils Bangkok, Thailand	Kumarasinghe
5)	9-27 October	Nuclear Techniques in Soil Erosion, Sedimentation, Sediment Transport and Related Environmental Studies Sydney, Australia	Garcia Agudo
6)	4th quarter	SIT and F-1 Sterility for Control or Eradication of Noxious Insects in Southeast Asia Okinawa, Japan	Hendrichs
7)	November or December (2 weeks)	Pediatric Nuclear Medicine (advanced course) India	Nair
8)	2nd half	RS on Radiation Protection and Nuclear Safety Needs in Education Training Melbourne, Australia	Skornik

RCA TRAINING COURSES PROGRAMME IN ASIA AND THE PACIFIC 1995				
1)	22 January - 4 February	RTC (RCA) on INIS Bombay, India	RAS/0/019- 020 Indian Funds	Chi-Barriero
2)	20 February - 3 March	RTC (RCA) on Advanced Methods for Local Reagent Production for RIA Hepatitis B. Markers and EQAS Bangkok, Thailand	RAS/6/018	Piyasena
3)	27 February - 17 March	RW (RCA) on Protection of Nuclear Instruments Manila, Philippines	RAS/4/008	Xie
4)	1st quarter 1995	RCA (RCA) on System of Notification, Registration, Licensing and Control of Radiation Sources and Installations Jakarta Indonesia	RAS/9/006	Ortiz-Lopez
5)	?	RW (RCA) on Regulatory Aspects of Control of Sealed Radiation Sources ?	RAS/9/006	Griffith
6)	?	RW (RCA) Dissemination of Information on Testing Procedures for Radiation Sterilized Tissue Grafts ?	RAS/7/003	Mukherjee
7)	4th quarter 1995	RTC (RCA) QC, QA and Good Manufacturing Practice for Production of Radiation Sterilized Tissue Graft Materials ?	RAS/7/003	Mukherjee
8)	2nd half 1995	RW (RCA) on Use of Bulk Reagents for Hepatitis B Diagnosis using RIA ?	RAS/6/018	Piyasena

9)	1 week	RW (RCA) on Market Testing of Irradiated Food China	New Project	Loaharanu
10)	2 weeks	RS (RCA) on Public Acceptance of Irradiated Foods ?	New Project	Loaharanu
11)	3 weeks	Regional Workshop on Development and Utilization of CMPM/CMQA Republic of Korea	RAS/4/008	Xie
12)	1 week	RW on Intercomparison including Soft-ware Phantoms Australia	RAS/4/008	Xie
13)	?	RW on Basic Application of Small Angle Neutron Scattering ?	RAS/4/011	Akhtar

**TRAINING COURSES AND SEMINARS WITHIN THE FRAMEWORK OF THE
UNDP/RCA/IAEA REGIONAL PROJECT ON THE USE OF ISOTOPES
AND RADIATION TO STRENGTHEN TECHNOLOGY AND SUPPORT
ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT RAS/92/073
1995**

1)	16 -27 January	RW on NDT Test Pieces Kuala Lumpur, Malaysia	RAS/8/071	Zatolokin
2)	23-27 January	RS on NDT Test Pieces Kuala Lumpur, Malaysia	RAS/8/971	Zatolokin
3)	27 February - 10 March	RTC on Advanced Applications of Radiation Technology - Biomedical Applications ?	RAS/8/070	Markovic
4)	20-31 March	RTC on Applications of Nuclear Techniques in Materials Science Sydney, Australia	RAS/8/069	Lewkowicz
5)	April/May	RW on NDT Applications in Electrical Power Generation China	RAS/0/015 Chinese Funds	Zatolokin
6)	May (2 weeks)	RW on Nucleonic Control Systems in the Small and Medium Sized Paper Industries Beijing/Shanghai, China	RAS/8/071	Vera Ruiz
7)	May (1 week)	RS on NCS in Small and Medium Sized Paper Industries Beijing, China	RAS/8/071	Vera Ruiz
8)	?	RTC on Nuclear Analytical Techniques ?	RAS/8/071	Parr
9)	? 2 weeks	RW on Tracer Techniques to Study Dispersion of Effluents in Groundwaters ?	RAS/8/071	Yurtsever
10)	?	RW on NDT for Non-Metallic Materials ?	RAS/8/071	Zatolokin

11)	?	REMS on Nuclear Analytical Techniques	RAS/8/071	Parr
12)	?	RW on NDT in Power Industry Republic of Korea	RAS/8/071	Zatolokin
13)	2 weeks	RTC on Application of EB Technology to Flue Gases Japan	RAS/8/070	Markovic
14)	2 weeks	RTC on Application of Radiation Processing to Contamination of Liquid Wastes Japan	RAS/8/070	Markovic
15)	1 week	RW on Safe Operation Radiation Facilities Japan	RAS/8/070	Markovic
16)	?	RTC on Industrial Sterilization Regulations Standards and Enforcement Australia	RAS/8/071	Markovic

PROPOSED RCA PROJECT ACTIVITIES FOR 1995

Field	Project	Technical Officer	Project No.
Medical and Biological	Evaluation of radioactive iodine therapy for hyperthyroidism	T. Yamasaki	E1.20.14
	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	G. Nair	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/8/071 (RAS/92/073)
	Sub-projects:		
	- Tracer Technology in Industry	B. Zatolokin/ I. Lewkowicz	
	- Non-Destructive Testing	B. Zatolokin	
	- Radiation Technology	V. Markovic	
	- Nucleonic Control Systems	H. Vera Ruiz	
- Nuclear Analytical Techniques	R. Parr		

PROPOSED RCA PROJECT ACTIVITIES FOR 1995

Field	Project	Technical Officer	Project No.
Agriculture	Public Acceptance of and Trade Developments in Irradiated Food	P. Loaharanu	*
Radiation Protection	Strengthening of Radiation Protection Activities: - Intercomparison of Radioactivity Measurement - CRP: Reference Asian Man Phase II	R. Griffith P. Stegnar/ J. Larosa R. Parr	RAS/9/006 *
General	Research Reactor Utilization Strategies for Implementing Nuclear Power Programmes Energy Electricity and Nuclear Power Planning Development of TCDC in Asia and the Pacific	K. Akhtar P. Molina P. Molina J.F. Easey (Project Officer)	RAS/4/011 F1.20.09 * * RAS/0/015

* new project for 1995/96

RCA BUDGET ESTIMATES FOR 1995 and 1996*

Project No.	Title	Fund Source	BUDGET US \$(000)	
			1995	1996
New	Energy Electricity and Nuclear Power Planning	TC	51.30	242.00
New	Strategies to facilitate Implementation of Nuclear Power programmes	a/**	(50.00)	(50.00)
RAS/0/015	Development of TCDC in Asia and the Pacific	TC IND ROK CPR	98.40 50.00 25.00 50.00	107.00 50.00 25.00 50.00
RAS/0/019	Nuclear Information Systems	TC	22.40	72.00
RAS/4/008 CRP: E1.10.06 E1.10.07	Nuclear Instrument Maintenance	TC	251.20	304.00
RAS/4/011 CRP: F1.20.09	Research Reactor Utilization	TC	99.20	36.00
New	Public Acceptance and Trade Development for Irradiated Food	a/**	(140.00)	(240.00)
RAS/6/018	Radioimmunoassay for Hepatitis B Diagnosis	TC	151.40	152.00
RAS/6/022	Strengthening of Nuclear Medicine in RCA Member States	AUL	117.50	***
RAS/7/003 CRP: E3.10.04	Radiation Sterilization of Tissue Grafts	TC	184.10	134.00
RAS/8/068 RAS/8/069 RAS/8/070 RAS/8/071 (RAS/92/073)	UNDP "Environmentally Sound Technologies"	TC AUL JPN UNDP MAL	160.20 154.50 328.80 822.90 15.00	156.00 *** 351.60 858.24 20.00
RAS/9/006 CRP: J3.20.01	Strengthening of Radiation Protection Infrastructure	TC JPN AUL	122.00 66.50 117.00	108.00 94.00 ***

Project No.	Title	Fund Source	BUDGET US \$(000)	
			1995	1996
CRP	Evaluation of radioactive iodine therapy for hyperthyroidism	JPN	100.00	100.00
CRP	Reference Asian Man Phase II	**		(50.00)
CRP	Cancer Therapy	**		(50.00)
CRP	Agricultural Countermeasures	**		(50.00)
Total			2,957.90	2,859.80

- * Note these figures are estimates only. In particular they do not imply commitment by donor countries.
- ** Unfunded not included in Budget total.
- *** Projects will be completed during 1996 using funds from 1995 allocation.

Annex 8

**STATUS LIST OF ACCEPTANCES OF AGREEMENT TO EXTEND
THE 1987 RCA AGREEMENT**

**AGREEMENT TO EXTEND THE REGIONAL CO-OPERATIVE AGREEMENT
FOR RESEARCH, DEVELOPMENT AND TRAINING RELATED TO NUCLEAR
SCIENCE AND TECHNOLOGY, 1987**

<u>STATE</u>	<u>DATE OF RECEIPT OF NOTIFICATION</u>	<u>ENTRY INTO FORCE</u>
Australia	10 June 1992	11 June 1992
China	11 June 1992	11 June 1992
Pakistan	26 June 1992	26 June 1992
Sri Lanka	13 July 1992	13 July 1992
India	16 July 1992	16 July 1992
Viet Nam	12 Aug. 1992	12 Aug. 1992
Philippines	27 Aug. 1992	27 Aug. 1992
Malaysia	28 Aug. 1992	28 Aug. 1992
Bangladesh	31 Aug. 1992	31 Aug. 1992
Japan	11 Sep. 1992	11 Sep. 1992
Indonesia	21 Sep. 1992	21 Sep. 1992
Mongolia	19 Oct. 1992	19 Oct. 1992
Republic of Korea	4 Dec. 1992	4 Dec. 1992
Thailand	15 Dec. 1992	15 Dec. 1992
Myanmar	14 Mar. 1994	14 Mar. 1994
Singapore	16 Mar. 1994	16 Mar. 1994
New Zealand	14 July 1994	14 July 1994

The Agreement entered into force, in accordance with Article 2, on the date of receipt by the Director General of the second notification of acceptance, i.e. 11 June 1992.

1994-07-15

NEW PROJECT PROPOSALS

The 16th RCA Working Group Meeting recommended the following new project proposals be supported as part of the RCA programme:

- the proposals set out in the Project Formulation Meeting Report for Energy and Nuclear Power Planning with the component on the pooling and analysis of effective strategies for implementation of nuclear power programmes to be separated as a specific project;
- the proposals set out in the Project Formulation Meeting Report for Research Reactor Utilization and specifically the need for the evaluation of neutron radiography facilities in the region;
- the proposal for a CRP on applied Research on Air Pollution using Nuclear Related Analytical Techniques; and
- the proposal for an RCM in 1995 for Air Pollution and Lung function studies.

The following item was recommended subject to agreement on detailed project activities:

- the proposal for a new project on Irradiated Foods (attached).

**Title : Public Acceptance of and Trade Development
in Irradiated Food in Asia and the Pacific**

Background Information

The Asian Regional Co-operative Project on Food Irradiation-RPFI (Phase-III), a project under the RCA since 1980, has demonstrated the effectiveness of irradiation as a technology for reducing food losses and food-borne diseases and facilitating trade. The technology has been successfully transferred to local industries in several Asian countries including Bangladesh, China, Indonesia, Republic of Korea, Pakistan, the Philippines, Thailand and Vietnam. All of these countries have promulgated regulations to control the application of this technology as well as having built demonstration/commercial irradiation facilities to introduce irradiated foods into the markets. Market testing of food in several countries in the region have been successfully carried out. Several food items are being irradiated for commercial purpose in Bangladesh, China, Indonesia, Republic of Korea, and Thailand. A model regulation has been prepared by senior food control officials from the region, who attended the Workshop on Harmonization of Food Irradiation Regulations in Australia, 7 to 16 December 1993. Acceptance of this regulation by the RCA countries will facilitate trade in irradiated foods in the region of Asia and the Pacific.

The achievements of RPFI complement the IAEA General Conference Resolution 588 on "Practical Utilization of Food Irradiation in Developing Countries", unanimously adopted in September 1992 and the approval of the IAEA Board of Governors at its June 1993 Session of the detailed project proposal requested by the Resolution 588.

The Agreement on the Application of the Sanitary and Phytosanitary Measures adopted during the Uruguay Round of GATT Multilateral Trade Negotiations, will enter into force in 1995 following the recent endorsement at the ministerial level in Morocco, 15 April 1994. The Agreement and Measures will add further incentive to an international trade in irradiated food. Under the Agreement, no government which has been a signatory of GATT or a member of the World Trade Organization can deny entry of food (including irradiated food) which is processed according to an international standard into its territory, unless it can prove that the food could endanger health of its citizens, plants and animals. With regard to irradiated food, there is already a Codex General Standard for Irradiated Foods which is supplemented by a number of international recommendations issued by the International Consultative Group on Food Irradiation.

To assist developing countries to develop markets for safe, high quality and value added products through the use of irradiation, a pilot project on international trade in irradiated spices has been developed for joint implementation by FAO, IAEA, WHO and ITC, subject to necessary funding. Such an international trade project, if successful, will be applied to products such as tropical fruits and seafood where irradiation has been shown to offer advantages.

It could be stated that the past three phases of RPFI have made significant contribution for practical application of food irradiation; therefore, the objectives of these phases of RPFII have been met. There is a need to further co-ordinate activities of food irradiation in the region, particularly with those countries, i.e. Bangladesh, China, Indonesia, Republic of Korea and Thailand, which have necessary regulations and are commercially irradiating limited quantities of food, to ensure wide acceptance by the public and free circulation of irradiated food within and among these countries. The experience and achievements made in these countries for commercial application and free circulation of irradiated food will be transferred to other RCA countries in the next phase. Therefore, it is proposed that this phase of RPFII (2 years) should be supported by TC as a "model project" according to the following plan :

1. Market Development for Irradiated Foods

Studies related to test marketing and limited commercial application of irradiated onions, garlicks, pulses and beans were successfully conducted under the RPFII Phase III. Scaled up commercial irradiation of these food items, with active participation of industries, will be carried out under this phase. Inter and intra-country storage and transportation studies will be done in order to evaluate the quality of the products and the packaging materials. These will be followed by studies on marketing and cost-economics of irradiated food in order to generate concrete data on cost effectiveness of food irradiation processing. In addition, countries will be encouraged to irradiate items of their national interest in order to demonstrate commercial viability of the food irradiation technology. Such data are urgently needed to attract financing in this technology by the private entrepreneurs in order to facilitate wider application of food irradiation in this region.

Two Regional Workshops will be funded from this project. Participants from other RCA countries will be invited to participate in these workshop to share the experience. Details of activities conducted by each country are given in Annex I.

2. Public Information Seminars

A number of national seminars will be organized at the time these countries are introducing irradiated food in the market on a commercial scale. Media, relevant government officials, consumers' organizations, industries and trade, nutritionists,

physicians, etc. will be invited to participate in these seminars. The seminar will serve the purpose of not only informing the local public of the safety and benefits of irradiated foods but also neutralizing and counteracting any negative views from activists/opposition groups of the technology. It could facilitate removal of perceived consumer resistance and build up confidence on food irradiation as a benefit to health and economy.

Public information materials such as booklets, leaflets, etc. will be produced in local languages and available materials on this subject will be provided from FAO/IAEA and ICGFI for distribution through appropriate levels, such as department of health, education, welfare, consumer affairs, etc. to reach the target groups. Surveys will be conducted in these countries to monitor the progress of this element of this project.

A total of six such seminars, each of 3 days duration, are envisaged under this project.

3. Expert Services

Expert services will be provided to the participating countries prior to and during the sale of irradiated food (1m/m per country). This will facilitate proper market development of irradiated food in these regional countries.

4. Free Exchange of Irradiated Foods

Subject to local regulations, irradiated foods produced in one country should be allowed to enter and put on sale in another country, under the Articles of RCA, without any restriction. Such a free exchange would provide a strong incentive to international trade in irradiated food in the region and possibly worldwide. The Agreement on the Application of Sanitary and Phytosanitary Measures, which will enter into force in 1995, should reinforce regional and international trade in irradiated food and agricultural products.

5. Regional Seminar

The experience on public acceptance, market testing and commercial sale of irradiated food, import/export of such food, etc., and data generated on cost benefit and public awareness will be presented at this regional seminar which will be attended by key policy makers from the region, i.e. representing governments, food industry and trade, consumers organizations, the mass media. Such a seminar should be organized at the end of the tenure of this project. Other RCA countries will also be invited to participate in this seminar.

6. Evaluation Mission

An evaluation mission will be sent to these countries, immediately before the Regional Seminar, to evaluate the achievements and assess the effectiveness of the support provided by the all parties concerned, as per objectives of the project. The mission will submit its report to the Regional Seminar.

7. Participating Countries

Bangladesh, China, India, Indonesia, Republic of Korea and Thailand will be participating in all the above mentioned activities of the project.

The countries which will participate in Workshops and Regional Seminar are Australia, Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam.

8. Budget

Regional Workshop on Market Testing of Irradiated Food	
- A total of two	US\$ 100,000
National Seminar on Public Information	
(a total of 6)	US\$ 72,000
Regional Seminar	US\$ 65,000
Expert Assistance (one m/m per country, total 6)	US\$ 72,000
Evaluation Mission, 2 experts, 6 countries (3m/m)	<u>US\$ 36,000</u>
Contingencies	US\$ 15,000
TOTAL	<u>US\$ 380,000</u>
Year 1	US\$ 140,000
Year 2	US\$ 240,000

SUMMARY OF PROPOSED WORK PLAN (1995-96)

	1995	1996
1. Market Development for irradiated food	+	+
Regional Workshop on Market Testing	1	1
2. Public Information Seminar	3	3
3. Expert Assistance in Market Development	3m/m	3m/m
4. Free Exchange of Irradiated Food	+	+
5. Regional Seminar		1
6. Evaluation Mission		3m/m

+ = Activities to be carried out at no cost to the Agency

Annex 10

RCA FOOTNOTE A/ PROJECTS 1994

Project Number	Approval Date	Project Title	Status	Comments
RAS/6/016	1988	Use of Computers for Technetium-99m Imaging (RCA)	Funded (1994 only)	Supported by Australia from 1989 to 1991
RAS/6/022	1992	Strengthening Nuclear Medicine in RCA Member States	Funded	Supported by Australia
RAS/8/062	1987	Radioisotopes in Industry (RCA)	Funded	Supported by Japan and TC funds
RAS/8/064	1988	Radioisotopes in Industry (RCA)	Funded	Supported by Australia
RAS/8/069	1992	Isotopes and Radiation in Industry and the Environment (RCA)	Funded	Supported by Australia
RAS/8/070	1992	Isotopes and Radiation in Industry and the Environment (RCA)	Funded	Supported by Japan
RAS/9/006	1987	Strengthening of Radiation Protection Infrastructures (RCA)	Funded	Supported by TC funds, Japan and Australia
RAS/9/010	1991	Risk and Reliability (RCA)	Unfunded	Never funded

COUNTRY STATEMENT AUSTRALIA

**TWENTY THIRD GENERAL CONFERENCE MEETING
OF THE
REPRESENTATIVES OF RCA MEMBER STATES**

VIENNA 21 SEPTEMBER 1994

Mr Chairman, Delegates, Ladies and Gentlemen

The Australian delegation would like to congratulate you, Mr Chairman, on your election to the position of Chairman for the Twenty Third General Conference Meeting of the Representatives of the RCA Member States. We feel that your leadership and guidance during the course of the meeting will ensure the cooperation of all delegates and a successful outcome.

During the past year the RCA has continued to provide an efficient and effective vehicle for the peaceful application of nuclear science and technology in regional Member States. This success stems from the implementation of the high quality of the wide range of RCA projects which have been designed to meet development goals and to which have been assigned measurable outputs. As many agencies are applying more stringent requirements on development assistance these factors have to be carefully integrated into all projects.

At the Working Group Meeting held last March in Indonesia, several RCA Member States announced that they would be making available resources for RCA activities. These additional resources will assist in ensuring the successful expansion of activities within the region and Australia would like to thank those members and encourage all RCA Member States to provide further resources.

The membership of the RCA has again increased and Australia welcomes the addition of Myanmar and New Zealand. The now near full regional membership is a further factor in the success of the RCA. The active participation of these two new members will add to this success.

Australia also welcomes recent evidence that the Agency is seeking to integrate women in development (or WID) objectives into its Technical Cooperation program. Australia along with many other donors places fundamental importance on the need to

ensure that women's central role in economic and social life is reflected in all development activities. We particularly commend the Agency for establishing the model project in Ghana on "National Radiotherapy and Nuclear Medicine Network" with its emphasis on remedying the inadequate number of nurses trained in basic radiation therapy practices. Australia hopes that this will be the first of many similar WID oriented projects that will encompass other regions including the Asia Pacific.

Australian Funded Projects

Australia has provided funds for activities which are organised under the umbrella of the RCA/UNDP project on applications of isotope and radiation technology to regional development with special reference to industry and nuclear medicine. The Australian supported project has been specifically designed to meet IAEA and UNDP requirements and has close linkages to the activities and outputs of several parts of the UNDP project. Activities commenced in 1993 and will continue to 1995 with total funding of A\$1,500,00.

Industrial Applications of Isotope & Radiation Technology

This sub-project has been designed to achieve technology transfer through a process in which graduates from a series of regional training courses will augment the existing RCA structure to form a network providing a basis for a series of national seminars. Training courses have already been held in radiation technology and industrial isotope applications with a materials science training course now scheduled for 1995. A program of national seminars has been initiated and will continue on a regular basis until the end of 1995. The topics covered in the national seminars have been defined by consultation with national coordinators and thus cover a range of subjects such as application of nuclear techniques to process optimisation in the chemical and refining industries, application of nuclear techniques to the metals and manufacturing industries and application of nuclear techniques to coastal engineering reflecting the various developmental needs of individual Member States.

Industrial Radiation Protection

Through the application of distance learning techniques this sub-project seeks to provide countries with the support necessary for the development of basic minimum radiation standards and practices as well as the infrastructure for the implementation of these standards and practices. The first stage involves the development and

distribution of high quality training manuals for use in the region by both industrial users and regulators. Some 15 basic modules on radiation protection are being developed with an additional small group of modules for regulators. Each module will include self assessed tests at appropriate points to ensure that part of the module is understood before the student progresses to further parts. Following the introduction and trial of the developed materials at a regional training course a series of regional seminars and practical workshops are planned.

Nuclear Medicine

The objective of this sub-project is the development of a program of distance education for nuclear medicine technologists who do not have specialist training in the nuclear medicine field. This program will provide for the achievement of a higher standard and uniformity of education in nuclear medicine technology. The materials being developed will be suitable for use at an individual level or they may be integrated into existing courses of training. Before finalisation of the material it will be used in a pilot scheme. A Course Advisory Board Meeting was held in July 1994 and will be followed by a workshop for country coordinators in November.

Following successful completion of the project, it could be expected that the nuclear medicine community within the RCA member countries would have acquired a level of self-sufficiency with the training materials and methods provided during the project to be able to provide a continuing training program.

In April 1994, Australia hosted the National Counterparts meeting for the Joint UNDP/RCA/IAEA Project for Asia and the Pacific on "The Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development" (RAS/92/073) at the Australian Nuclear Science and Technology Organisation. This meeting was followed by a Review Meeting which has served as a precursor to the Tripartite Review Meeting to be held on 24 September in Vienna.

Conclusions

There is ample evidence that the RCA program has achieved success in the transfer of nuclear technology in a range of disciplines throughout the region. Such success is most dependant on proper planning, development of human resources and support for appropriate infrastructure development. However it is activities such as training courses, workshops, seminars, fellowship training, provision of expert services and the

supply of equipment which contribute to the capacity and capability of the individual Member States to use and develop nuclear technology for peaceful applications. The ability to sustain development at the national level in the industrial and medical applications of nuclear science and technology is now being realised in member States under the RCA program.

Australia believes that the technical cooperation and national and regional knowledge and infrastructure developed as a result of its involvement in the RCA are greatly beneficial for the peace and prosperity of all. Australia looks forward to continued participation in RCA activities. This, together with the strong commitment of all RCA Member States will ensure further successful achievement of the goals of regional cooperation.

**Statement of Chairman,
Bangladesh Atomic Energy Commission
in the Meeting of RCA
in the 38th Session
of the General Conference of the IAEA**

Mr. President

The Country Statement of Bangladesh in the present Session of the General Conference of IAEA reiterated that we consider RCA as a powerful instrument for addressing problems common to many countries in the region. Over the years its projects and programmes have provided opportunities and new avenues for application of nuclear techniques in various sectors of economy. We are happy to state that Bangladesh has associated itself with almost all the major programmes and projects of RCA. We have been immensely benefitted from such an association. As such we hope that the activities of RCA should not only continue, but also its activities need to be diversified further.

Mr. President

I would like to take this opportunity to appraise this august gathering of the status of various RCA project being pursued in Bangladesh now.

Bangladesh has been involved in all components of the Industrial project. In the case of NDT, the role of BAEC include both services to the national industrial sector and dissemination of the technology. We continuously provide NDT services to power plants, fertilizer factories, natural gas network, ship building, aircraft, oil refinery, communication and other development related agencies in the public and the private sectors.

Bangladesh Atomic Energy Commission has been traditionally active in development of human resources in NDT. During the last year activities in this connection included a two day seminar for senior level executives, a one-day national seminar on NDT, Radiographic Testing levels I & II and also academic research at the post graduate level. It has been possible to train about 250 NDT personnel to date. In parallel to the on-going training programme for NDT personnel, efforts are being made to harmonize national NDT training and certification scheme with the regional schemes.

In Radiation processing, BAEC scientists are now engaged in wood plastic surface coating using UV techniques. A pilot plant is planned in future for application of research results in the field of wood plastic composite surface coating, curing and radiation vulcanization of natural rubber latex.

IAEA GC 94, RCA

Nuclear analytical techniques like Particle Induced X-Ray Emission (PIXE), X-ray fluorescence, Proton Induced Gamma Ray Emission, Atomic Absorption Spectrophotometry and Gamma Chromatography are now being used for analysis of trace elements in biomedical and industrial samples. Direct application of these include bio-medical investigation in metabolic diseases related to alteration of trace elements and deficiency diseases. Analytical services are provided to the health and industrial sector of the country on a regular basis.

Radioisotope trace technology is applied on a limited and demonstration scale in the country. This includes mercury inventory in electrolytic cells and flow calibration in the national gas grid. The technique is planned to be used in fertilizer factories and power plants in future.

Efforts are being made to improve utilization of the 3 MW TRIGA Mark II type research reactor of the country. A Triple Axis Spectrometer has already been installed in the piercing beam port, while a neutron radiography facility has been set up in its tangential beam port. Research programmes include studies on absorption of water in building materials and on quality of several types of leather, rubber and plastics. Laboratory for neutron activation analysis has been developed. Rare earth materials are analyzed by irradiating samples of rock and soil.

**Mr. President
Distinguished Delegates**

Bangladesh has been very active in programmes on medical and biological applications of nuclear techniques. It has been possible to develop 10 laboratories for Radioimmunoassay (RIA) of Thyroid related hormones. Bangladesh is also participating in External Quality Assurance Programmes with other countries in the region, namely Pakistan, Singapore and Indonesia. Inter-laboratory Quality Control Programme has also been initiated recently. We are also participating in the RCA project on diagnosis of viral hepatitis using RIA with kits and equipment received from China through IAEA.

Bangladesh has total support for the future programme on strengthening of nuclear medicine, which is expected to be very helpful to development of human resources. At present BAEC conducts short training courses on operation, maintenance and instrumentation of medical equipment and Diploma Courses on Nuclear Medicine for physicians of the country.

Utilizing opportunities provided under Radiation Sterilization of Tissue Grafts

IAEA GC 94, RCA

project of RCA, Bangladesh now processes sterilized amniotic membrane for dressing burn wounds and bone pieces for use in orthopaedic and dental surgery. It is expected that the production has to increase in order to meet the growing demand.

Bangladesh takes great interest in RCA project on Maintenance of Instruments of Nuclear Medicine. In addition to providing routine repair and maintenance services, BAEC is now involved in upgradation and improvement of image quality in several gamma cameras of the country. The idea of receiving upgraded and refurbished second hand scintillation cameras is welcome.

Bangladesh hopes to participate in two future projects of RCA, namely Improvement of cancer Therapy and Use of Radioiodine in Management of Thyrotoxicosis.

Mr. President
Distinguished Delegates

Under the RCA project on Maintenance of Nuclear Maintenance, BAEC takes active interest in development of a) general purpose microcontroller, b) sample changers and c) temperature controllers. In addition to maintenance and upgradation of in-house instruments, BAEC personnel also offers similar services to other research and educational institutions and private sector laboratories of the country. The RCA project on Energy and Nuclear Power Planning has been successful in enhancing capabilities of planners in the RCA countries in the use of analytical tools like WASP, MAED, ENPEP and their various modules. This, we believe, would have far reaching impacts on energy planning in these countries. The on-going training programme and the envisaged programme on training of national trainers would benefit the countries by facilitating development of human resources in energy planning.

Introduction of nuclear power plants in the developing countries is in general difficult and the identifiable problems include lack of confidence of the suppliers, potential financiers, including the international development financing institutions in the issues like safety of nuclear power, waste management and disposal, nuclear proliferation, environmental pollution, capability of the developing countries in operating a nuclear power plant safely and reliably, cost-economics of nuclear power viz-vis its alternatives, return on investment and in particular capability of such a project in making repayment on loan. The RCA can play a positive role so far as convincing the international and regional financing institutions and the suppliers in the region on such issues.

Mr. President

Bangladesh takes active interest in the RCA project on Improvement of Grain-Legume Rhizobium Symbiosis to Fix Atmospheric Nitrogen. About 1.5 tons of rhizobial inoculant has already been produced and distributed to different organizations for field application.

Under the project on Food Irradiation and processing, the on-going activities include market survey and acceptance of irradiated food items. A commercial irradiator facility, founded in collaboration with the private sector, is already in operation.

Mr. President

The role of radiation protection and safety in use of nuclear technology can hardly be over-emphasized. We are now formulating regulations and drawing up action programmes for effective implementation of the Nuclear Safety and Radiation Control Act, which was promulgated in 1993. Secondary Standardization of radiation dose and calibration facilities are now being used for calibration of X-Ray machines. Separate programmes on personal dosimetry, inventory of radiation sources in the country and waste management are being drawn up.

We during the last one year participated in training courses, meetings and workshops under RCA during the last year. Such activities on exchange of experience and information was very useful in implementing our own R & D programmes. We also hope to continue hosting some of these activities.

Mr. President

The statement on involvement of Bangladesh in various RCA projects is an evidence of Bangladesh's firm commitment to use nuclear power solely for peaceful purposes and also the importance Bangladesh attaches to regional co-operation in this connection. We want to express our concern over the challenges all countries, especially those in the developing world, are apprehended to face in the path of their socio-economic development in the next century. It needs concerted effort and co-operation in enabling them to pursue a desirable path of economic development. As such we expect that the scopes of RCA will be enhanced further in the existing and new fields of nuclear application.

Before I conclude, I would like to thank you all for your patient hearing.

Country Statement--China
23rd General Conference Meeting of RCA Member States
Vienna, Austria, 21 September 1994

Mr. Chairman:

First of all, may I, on behalf of the Chinese delegation, congratulate you on your election as the chairman of this meeting. I also wish to extend our warm welcome to the Governments of Myanmar and New Zealand for their joining RCA.

We believe that the RCA activities have benefited the RCA member states a lot and continuous progress are being made due to great support from all RCA member states. China has noted with pleasure that some new projects have been included in 1995 and 1996 RCA programme. Unfortunately, they are unfunded. Considering the fact that RCA resources are limited, it is worth mentioning that the priority of all new project proposals should be discussed by RCA working Group Meeting and approved by General Conference Meeting so as to meet the common and urgent needs of RCA member states. During the last year, China participated in and supported a number of RCA activities and will continue our cooperation with other RCA member states in the future years. Since 1988, China has financially supported two training courses each year, and now we have decided to change such kind of contribution to cash payment of 50000US\$ a year (70% in US\$ and 30% in Chinese currency).

Mr. Chairman, now, I would like to present the highlights of some RCA activities.

Energy and Nuclear Power Planning

China holds the views that the recommendations made by the Project Formulation Meeting on RCA Project "Energy and Nuclear Power Planning" should be given high priority in RCA programme. Many RCA member states now have nuclear power programme or are doing feasibility study to introduce nuclear power.

However barriers exist in RCA developing member states. It is important to identify the barriers which give negative influence on the planning and implementation of nuclear power and make recommendations on effective strategies for introduction or expansion of nuclear power in RCA region. In this regard, I hope that the Agency would make every efforts to explore enough budget to support the new project "Energy Electricity and Nuclear Power Planning" and "Strategies to facilitate Implementation of Nuclear Power Programme."

Strengthening Nuclear Medicine in RCA

As the utilization of nuclear medical instruments, SPECT and γ camera, are expanding in most developing countries, strengthening education and training for nuclear medicine technologists are in urgent needs in many countries. China will make efforts to use the distance learning materials developed under this project to enhance our training.

Radiation Sterilization of Tissue Grafts

In June 1994, China hosted a RCA training course on Open Learning Techniques Applied to Radiation Sterilization of Tissue Grafts and the 5th Asia-Pacific Conference on Tissue Bank. The Suzhou Medical College is now developing total quality system to promote Good Management Practice (GMP) and Good Radiation Practice (GRP).

Maintenance of Nuclear Instruments

In order to strengthen the national cooperation, a expert consultative group on quality control of nuclear medicine instruments was established in China. The group will make nation-wide survey on the quality control and formulate quality control standards for γ camera and SPECT. Also, a technical service center for quality control and maintenance of nuclear medicine instruments will be established soon.

Food Irradiation

In 1994, 10 new hygienic standards for irradiated food, such as pollen, preserved fruits, tomato, sweet potato wine, etc. were issued in China. The production of

irradiated garlic in recent years has increased a lot, reaching 20000tonnes a year and were sold in market.

China supports the new project proposal on Public Acceptance of and Trade Development in Irradiated Food in Asia and the Pacific. Enhancement of public acceptance and reinforcement of regional and international trade would be an important step to promote practical utilization of food irradiation.

In 1995, China will host a Regional Workshop on Market Testing of Irradiated Food.

Radiation Protection

The emphasis of the project "Radiation Protection Infrastructure" should be further placed on training trainers to strengthen the local sustainable training capability and on the operation safety of irradiation facilities.

Recently China established a Radiation Safety Inspection Center for Radioisotope Products, which will carry out the review and inspection of radiation safety during design, production and sale of radioisotope products.

In 1994 China financially supported a RCA training course on assessment of internal and external dose. In 1995, China will financially support a regional workshop on IAEA Basic Safety Standards and ICRP 60 Publication.

Research Reactor Utilization

This project should be more oriented to productive utilization to make economic benefits.

Radiation Processing

UNDP/IAEA/RCA project has played important roles in transferring technologies of radiation processing to end users. In China, the annual output of radiation processing products has reached 500 million Chinese Yuan RMB. In 1994 one National Workshop on Radiation Cross linking and one National Workshop on

Radiation curing were held in China. And a Regional Seminar on Radiation Technology for Biomedical Application will be financially supported by and held in China in Dec. 1994.

Non-Destructive Testing (NDT)

In 1995, China will financially support a RCA workshop on NDT Applications in Electrical Power Generation with Emphasis on Nuclear Power.

Nucleonic Control System (NCS) Application

In 1995, China will host a Regional Workshop on NCS in the Small and Medium Sized Paper Industries.

In addition, The International Conference on Isotope will be held in Beijing, China from May 7-12, 1995, sponsored by Chinese Nuclear Society and Isotope Society of China.

Radiation Technology for Environment

Electron Beam processing technology has shown its potential to apply to treatment of flue gas. Economic and technical feasibility study is being made in China for some coal-fired power plants. It is important to get support from national decision makers at this stage. In this connection, China will hold a National Executive Management Seminar in 1995 and wishes to have support from the RCA programme.

In addition, China also supports the proposal for a new RCA Coordinated Research Program on Applied Research on Air Pollution using Nuclear-Related Analytical Techniques.

In conclusion, Mr. Chairman, China recognizes RCA as a important vehicle to promote the regional cooperation in the peaceful use of atomic energy and looks forward to the further development of RCA activities in the future.

**Country Statement - INDIA
23rd Meeting of RCA Member States Vienna, September 21, 1994
(38th General Conference)**

Country Statement - INDIA
23rd Meeting of RCA Member States Vienna, September 21, 1994
(38th General Conference)

We are very happy to participate in the Annual Meeting of Representatives of RCA Member-States being held along with the 38th General Conference. India has participated actively right from the inception of the RCA and has initiated and participated in a number of RCA activities. The last year saw the second phase of the UNDP/RCA/IAEA activity in addition to the regular RCA component.

Applications of radioisotopes & nuclear techniques in health care, industry and agriculture have not only proved to be advantageous, they also enjoy the benefit of providing high societal impact in the non-power applications of nuclear science & technology over the last three decades. Radioisotopes and radiation techniques have been successfully applied in the major areas solving problems of national development. In the second phase of UNDP funded industrial project, Nuclear Analytical Technique has been a new component, while the other major components of Nucleonic Control and Tracer Technology, Radiation Technology and Non-Destructive Evaluation have got established in the first phase and have already begun to show substantial benefit in the National scene.

India has actively participated in a variety of areas ranging from RIA Hepatitis diagnosis, Radiation sterilisation of tissue grafts, Imaging procedures for diagnosis, Improvement of cancer therapy. Radioaerosol inhalation imaging for diagnosis of respiratory diseases; all these components have been supported by a good programme on Nuclear Instrument Maintenance to provide uninterrupted service for areas of applications of nuclear medicine. We have also participated in the Improvement of Grain-Legume Rhizobium Symbiosis to fix atmospheric nitrogen and the use of Irradiation Process Control for Preservation of Food and Perishables with emphasis on process control and acceptance.

RESEARCH REACTOR UTILISATION

We participated in the project formulation meeting of RCA Project, Research Reactor Utilisation; this meeting has agreed and suggested an extension of this project to a second phase during 1995-99 with two major components; a TC project on small angle neutron scattering and the other, a CRP on design and development of modular components for neutron diffraction work and a minor component to support an expert review of capabilities in each member states for standard neutron radiography. The meeting also emphasised on priority for CRP on Development of Spectrometer components as there are many research reactors in this region; in this context, we have good expertise at BARC and have supplied against a purchase order from the Agency a full fledged triple axis spectrometer to a member state in the region.

An RCA Workshop on Applied Aspects of Neutron Scattering was conducted at BARC during Nov-Dec 1993. *We are interested in convening a meeting of technical experts in the field of neutron scattering under the aegis of IAEA an AGM or CM on Neutron Beam Instrumentation.*

MEDICAL AND BIOLOGICAL APPLICATIONS

India hosted the final RCM of the Project on Radioaerosol Inhalation Imaging for diagnosis of respiratory diseases. A report has been prepared on the Agency Co-ordinated multicentric study on the usefulness of Tc-99m DTPA radioaerosol clearance studies of the lung and its relation with air pollution. On the project on RIA for hepatitis B diagnosis, clinical evaluation of reagents was carried out on a limited scale involving detection of HBsAg & anti-HBs in high risk groups, involving 150 dental surgeons, 160 pregnant women and 200 women in reproductive age group (16-40 years), since participants were encouraged to prepare their own reagents in the phase II of this project.

The tissue bank processed nearly 450 samples of 13 different types of grafts obtained from cadavers, limb amputations and other surgical procedures. These freeze-dried, gamma irradiated allografts have found a variety of clinical applications. The programme of tissue bank benefited from the visit of a member of the RCA Coordinating Team, who had given valuable suggestions on the layout of the tissue bank and quality control; a member of this project attended the RTC on Open Learning Techniques Applied to Radiation Sterilisation of Tissue Grafts. The expected passage of the proposed "Transplantation of Human Organs Bill" 1992 will enhance the scope through harvesting of tissues from brain dead, unclaimed donors.

NUCLEAR INSTRUMENTS MAINTENANCE PROGRAMME

During the year, development of an interface card from gamma camera to PC, publishing & distribution of Handbook of Nuclear Medicine Instrument (1300 copies have been sent to various RCA Member States through UNDP for distribution to Nuclear Medicine Centres), expert system for electronic power conditioning and the Computerised Management of Quality Assurance in Nuclear Medicine Instruments are the highlights of the nuclear instruments maintenance programme. We are planning for an inter-regional workshop on Gamma Camera to be held during late 1995 - early 1996.

FOOD AND AGRICULTURE

The final Research Co-ordination Meeting of the Asian Region Cooperative Project on Food Irradiation with emphasis on Process Control and Acceptance (RPFI Phase III) of the CRP was held at Korea in September 1993. India had two research agreements under this project which have been completed and the final

reports submitted at this meeting. The major investigations were on the hygenisation of the spices by gamma irradiation and comparative studies on the efficacy of the gamma irradiation - vapour heat treatment and refrigeration as a quarantine treatment of mango fruit. It is heartening to note that the International Organisation of Consumer Unions (IOCU) have recently accepted radiation processing of spices as a method which is indispensable, atleast at present. With the formal approval by our Government for the acceptance of irradiated onions, potatoes and spices, we are now poised to set up commercial gamma irradiators for these items.

RADIATION PROTECTION INFRASTRUCTURE PROJECTS

India actively participated in the Regional Workshops on Applications of the ICRP's 1990 recommendations for Radiation Protection, and Radiation Monitoring, Preparation of Off-Site Emergency Plans and Countermeasures and Personnel monitoring for external radiation. We shall also participate in another workshop to be held on Off-Site Emergency. In addition, we have participated in Consultants and Expert Advisory Group Meetings relating to Off-Site Emergencies, Protocols for measurement and dosimetry and Radiation Protection Infrastructure. The Indian Association for Radiation Protection (IARP) is organising an International Conference on Internal Radiation Dosimetry: Occupational Workers and Public (IC-IRDOP-95), co-sponsored by International Radiation Protection Association, Department of Energy, USA and Atomic Energy Regulatory Board, India during February 21-24, 1995 at BARC, Bombay.

ENERGY AND NUCLEAR POWER PLANNING

The Project on Energy and Nuclear Power Planning has discussed two main areas, viz., Modelling for Energy Planning and Implementation of Nuclear Power Programmes in different Nations. We feel that the future RCA activities on this project should be to strengthen new project implementation involving pre-project

activities, financial planning, siting, bid preparation and evaluation and project implementation including construction management. Many developing countries in the Asian region have conducted Electricity Planning studies, but for various reasons have not launched first nuclear power plant. India can contribute inputs from our experience and share it for the benefit of the countries in the Asian region. India also conducted an International Regional Training Course on Strengthening Project Management and provided expert assistance for the IAEA Workshop on Fundamentals of Nuclear Power Plant, held in Indonesia.

An International Conference on Applications of Radioisotopes & Radiation in Industrial Development (ICARID-94) was organised at Bombay during February 7-9, 1994 by National Association for Applications of Radioisotopes & Radiation in Industry (NAARRI) in cooperation with the IAEA and co-sponsored by the Department of Atomic Energy, Government of India and Indian Nuclear Society. The Conference, which was attended by over 300 participants including about 50 from overseas, discussed the present status of industrial applications of tracer technology, radiation processing, nucleonic control systems, non-destructive testing and nuclear analytical techniques. The conference also provided an opportunity to discuss the progress made in the Asia-Pacific Region in industrial applications through the implementation of the UNDP Industrial Project under RCA.

India`s Extra Budgetary Contribution to RCA : A Regional Training Course on INIS is planned to be held during 22 Jan - Feb 4, 1995 in Bombay, while we propose to organise a Regional Workshop on Strategies on Implementation of Nuclear Power Programmes in RCA countries which could discuss among other things,

i) Energy resource profile in the countries of the region, role of nuclear power and its timing of introduction.

- ii) Setting up of essential infrastructure relevant to nuclear power development.
- iii) Experience on siting, construction and operation of nuclear power plants.
- iv) Other relevant issues such as funding, construction schedules, public acceptance, standardization of designs, regulatory aspects and improvement in performance levels.

**Joint UNDP/IAEA/RCA Project for Asia and the Pacific on
the Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development**

We have participated in the first meeting of the National Co-ordinators for all the four major components (of this new UNDP project), Nuclear Analytical Techniques, Nucleonic Control Systems and Tracer Technology, Non-Destructive Evaluation and Radiation Technology. Nuclear Analytical Techniques being the new component introduced in this phase of the industrial project, the other three areas have already benefited substantially, thanks to the successful operation of the first phase of the project. India hosted the first major event of the new sub-project on Nuclear Analytical Techniques in the form of Regional Workshop on Environmental & Industrial Applications of Nuclear Analytical Techniques during January 24 - February 11, 1994, which laid equal emphasis on lectures and hands-on experimental work. 15 persons from nine countries and two observers, from industry, from India participated in the workshop.

The National Symposium on "Strategic and Hi-Tech Metals: Extraction and Process Characterisation" with special session on Environmental Impact and Analytical Methods for detection, estimation and recovery of rare and precious metals from the different stages of base metal production was conducted in March 1994 as part of this sub-project on Nuclear Analytical Techniques. Failure to recover these metals leads to their release into the environment, substantiating the adage "Pollutant is resource at the wrong place"!

Coinciding with this symposium, the Department of Atomic Energy, organised, as part of the efforts towards enhanced public awareness, a countrywise essay contest among students, research scholars & teachers on the role of analytical chemistry in environmentally sustainable mineral exploration and exploitation.

NUCLEONIC CONTROL SYSTEM AND TRACER TECHNOLOGY

The Radiotracer Services Group of Isotope Division, BARC continued to offer specialised services to industry in the areas of leak detection, column scanning, flow measurements, sediment transport, pollutant dispersion studies etc. The use of nucleonic control systems in various industries is increasing and different types of NCS for the specific applications are now made by the Electronics Corporation of India Ltd.

A Regional Training Course on Application of Isotope Technology in Process Optimization is planned under this component for 7-25 November, 1994 at BARC, Bombay.

NON-DESTRUCTIVE EVALUATION

With over 500 users of industrial radiography and other non-destructive techniques for evaluation of components, a national standard for qualification & certification of NDT personnel has been evolved. The ISO Standard DIS 972 has been accepted as the reference standard and IAEA-TEC-DOC has been of great help in the formulation of the standard and setting the guidelines.

While a National Seminar on Demand of Quality Assurance in ISO-9000 and relevance of NDT was organised in 1993 by Board of Radiation and Isotope Technology, a score of courses at levels 1 and 2 are planned for 1994 and a course at level 3 will follow ISO standard and IAEA curriculum. During 1995, we are planning for the proficiency of level 2 & 3 people in LT & RT under this UNDP/RCA/IAEA Project.

RADIATION TECHNOLOGY

Radiation Sterilization of medical products showed sustained steady growth requiring upgradation of cobalt-60 sources installed in the various commercial plants to meet the increased demand. We are happy that our Government have cleared the irradiation of onions, potatoes and spices for both internal consumption and export. This will give the necessary fillip for setting up of the irradiators for commercial exploitation and possible extension of the irradiation process to the preservation of valuable perishables like prawns, shrimps. A National Workshop on Radiation Vulcanisation of Natural Rubber Latex is planned for 1994-95.

We also feel that a CRP on Tribology using nuclear technique will contribute to the optimal use of the materials and finished components and this is particularly relevant in nuclear power stations where the worn out particles contribute to the undesirable activity transport. This regional CRP can be an extension of the global CRP on this topic.

Regional Cooperation Agreement (RCA) has been a binding force for the scientists of the Asia & Pacific region for working on problems of common interest to the region. The successive extensions of the Agreement, the increase in the number of participating countries and the widening scope of co-operative projects, is a clear proof of the importance which participating countries attach to this programme and its beneficial results. Besides being a founder member of RCA, India has always been in the forefront of the various scientific activities conducted under the RCA and has provided active support in kind, to various RCA activities. *In view of the persistent preference in the Agency for cash contributions, we have decided to make the contributions partly in cash and partly in kind.*

India values its long-standing association with the RCA Member States and looks forward to continued and sustained participation from all the Member States in the future activities of RCA. We, on our part shall continue to offer support in the implementation of various scientific and technical programmes under the RCA.

**COUNTRY STATEMENT OF INDONESIAN DELEGATION
AT THE TWENTY THIRD GENERAL CONFERENCE
MEETING
OF REPRESENTATIVES OF RCA MEMBER STATES
21 SEPTEMBER 1994
VIENNA, AUSTRIA**

Mr. Chairman,

On behalf of my Delegation I would like first of all to join the previous speakers in congratulating you upon your election as Chairman of this important meeting. I have confidence, that under your wise guidance the meeting will give fruitful results.

It is my great pleasure to participate in this Twenty Third General Conference Meeting of Representatives of RCA Member States, here in Vienna the metropolitan of Austria.

May I recall that Indonesia has actively participated in almost all activities in the frame work of RCA since 1972, and will maintain its active contribution in the future programmes. We are confident that RCA is an effective instrument of regional co-operation in nuclear science and technology and all member countries in South Asia and the Pacific have gained much from this co-operation. We do believe that through this regional co-operation the transfer of nuclear science and technology has been enhanced.

My Delegation would like to take this opportunity to express its sincere appreciation once again to all delegations of the RCA Member States for their active participation at the sixteenth RCA Working Group Meeting hosted by Indonesia in Bali, 22-25 March 1994.

Subsequently, I would like use this opportunity to briefly report on the activities carried out in Indonesia during the period of 1994 and its progress, as follows:

1.The Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development (RAS/92/073)

1.1.Radiation Technology

1.1.1.An expert for techno-economic benefit analysis of radiation processing of fluegasses, Dr.H.Namba from TRCRE-JAERI, Japan has visited the National Atomic Energy Agency (CAIR-BATAN), July 27 - August 7, 1994

1.1.2. An expert for techno-economic benefit analysis of sewage sludge and municipal waste water processing, Dr. Hashimoto from TRCRE-JAERI Japan is expected to visit CAIR-BATAN around December 1994.

1.1.3. Two participants from Indonesia, Dr. Jarnuzi Gunlazuardi (University of Indonesia) and Mr. Joseph Sassung (BATAN) have participated at the UNDP/RCA/IAEA Regional Training Course on Fundamental Aspects of Radiation Technology and Environmental Applications, 6-17 June 1994, Takasaki, Japan.

1.1.4. A National Seminar on Application of Electron Accelerators was held in Jakarta, August 1, 1994 attended by 140 participants from various institutions (Industries, Research Institutions, and Universities).

Lectures were given by local experts and three experts from the IAEA, Vienna (Mr. Ueno, Mr. M. Ochi and Dr. H. Namba) and two from TRCRE-JAERI, Japan (Dr. W. Kawakami and Dr. K. Makuuchi)

1.1.5. Two participants from Indonesia, Mr. Anis Dewanto (PT. Perkasa Sterilindo, Jakarta) and Ms. Kustantinah (Ministry for Health) have attended a Regional Training Course on Radiation Sterilization Validation, Routine Control and Application of ISO Standard, Bangkok, Thailand, 4-15 July 1994, sponsored by UNDP/RCA/IAEA.

1.1.6. Beside the activities in the context of UNDP/RCA/IAEA Project mentioned above the current on-going R. & D activities carried out at CAIR-BATAN are as follows:

- (a) New radiation crosslinking products (hydrogel, insulation cable, plastic foaming and thermoplastic elastomer)
- (b) Radiation curing of surface coating (wood, gipsum, etc.)
- (c) Application of RVNRL
- (d) Radiation Application of biomedical materials
- (e) Radiation treatment for environmental protection (waste water and sludge)
- (f) Introduction and disseminating information to industries
- (g) Setting up a quality assurance (QA) for a 2 MeV Electron Beam Machine

1.2. Non Destructive Examination (NDE)

1.2.1. Indonesia has participated at the NDT Proficiency Programme Review Meeting, Melbourne, Australia, January 1994. Some follow-up activities of the programme formulated at the meeting have been executed

1.2.2. The on-going activities in the context of NDE are as follows:

- (a) Collecting inquiries for data base/bank is still in progress. It is expected that the data base for level I and II can be realized soon.
- (b) Efforts have been done to overcome problems in the preparation of test specimens for future PTP Programme.

- (c) Preparation for the setting up of a research group for pre-service inspection of a nuclear power plant

1.2.3. In collaboration with NTA Australia a PTP programme on UT thickness measurement will be carried out in the period of August-December 1994 .

1.2.4. A National Seminar on NDT in Specific Industry and the Remaining Life of the Plant will be conducted by the end of 1994.

1.3. Tracer Industries and NCS

1.3.1. Since early 1994 several activities of Executive Management Seminar on Nuclear and Other Advanced Techniques in Oil Industries have been carried out in Indonesia.

1.3.2. Indonesia has participated at the International Conference on the Application of Radioisotopes in Industrial Development (ICARID 94) in Bombay, India, February 1994. A paper on Industrial Application of Radiotracer in Indonesia was presented at the Conference.

1.3.3. Beside the activities mentioned above, other routine work has been carried out by BATAN as follows:

- (a) A Project Investigation on Leakage of Underground Water Pipe Lines at the LNG Plant Sites in East Jawa using Tc-99m Tracer has been carried out by a Team of CAIR-BATAN.
- (b) Preparation has been made for a leak study on Urea /Ammonia storage vessel at Kujang Fertilizer Plant, Cikampek, West Jawa and another study on dispersion of suspended sediment as a result of agitated dredging operation at the harbour of Palembang
- (c) R & D on Preparation of Iridium glass for tracer material has been carried out by CAIR-BATAN to support the sustainable application of tracer technology in the country.
- (d) Preparation of a nuclear device for concentration measurement of sediment has been conducted by CAIR-BATAN to be tested at the end of 1994.
- (e) A one day Seminar on Nuclear and Other Advanced Techniques in the Oil Industry was held in Jakarta, January 1994 by CAIR-BATAN in collaboration with AEA Technology, UK and was attended by sixty participants mostly from the oil companies.

1.3.4. Regular Training Courses on NCS and Nuclear Gauges have been carried out by CAIR-BATAN with special emphasis on basic principles and radiation safety in handling of instrumentations.

1.4.Nuclear Analytical Techniques (NATs)

The Nuclear Analytical Techniques' Group is continuing its studies on pollutants in Cikapundung river which crosses the city of Bandung, and on selenium, mercury and zinc level in human serum taken from a volcanic area. Inter-comparison of results obtained by neutron activation analysis with the existing methods in the determination of elements in airborne particulate samples is postponed due to the delay in getting a suitable filter (membrane filter).

Recently a contact with the Environmental Protection Agency has been made and the possible use of nuclear analytical techniques to solve the environmental problems has been discussed. A national workshop will be held to demonstrate nuclear analytical techniques capabilities in solving environmental problems.

2.Medical and Biological Applications of Nuclear Techniques

2.1.Radioimmunoassay for Hepatitis B Diagnosis

Indonesia has participated in the TC project of Radioimmunoassay for Hepatitis B Diagnosis (RAS/6/018) since the beginning of the project. During the first year of the project, SPRIA Hepatitis B Kit has been supplied by China. Four institutions in Indonesia are participating in the project, namely Fatmawati Hospital, Jakarta, General Hospital RSCM, Jakarta, Hasan Sadikin Hospital in Bandung, and the Centre for Radioisotopes Production, Serpong, Jakarta.

During the second year, reagents were not more available in form of a kit, but in the form of raw materials. The Centre for Radioisotopes Production has prepared "coated bead" and then a product of SPRIA Hepatitis B Kits have been made by the centre.

Some progress has been made mainly in studies on various cases of Hepatitis B included the screening of donors and the practical use of SPRIA Hepatitis B Kits provided by China. Subsequently the Centre for Radioisotopes Production has succeeded in the preparation of reagents.

We are expecting to be able in the production of SPRIA Hepatitis B Kits as a whole, and therefore assistance from the Agency is seriously needed.

2.2.Radiation Sterilization of Biological Tissue Grafts

At present lyophilized radiation sterilized amniotic membrane and radiation sterilized air-dried amniotic membrane have been routinely produced by CAIR-BATAN Tissue Bank and Sitanala Leprosium Hospital. About 6 to 10 pieces of amniotic membranes have been processed weekly and about 1000 pcs of the product (10 x 10 cms) have been applied by Dr.Jamil Hospital in Padang for burn wound dressing from January to September.1994

Up to now, BATAN Tissue Bank has received 31 pcs of human femoral head from Siaga Raya Hospital for radiation sterilization process and were sent back to the same hospital for application. Its have been used to three patients (one patient received AAA Cancellous bovine bone and two patients femoral head). The result was very promising none of the patients gave any symptom of rejection.

One participant (Dr.Asril Zahari, Dr.Jamil Hospital in Padang) has been accepted for the Open Learning Techniques Applied to Radiation Sterilization of Tissue Grafts, Suzhi, China, 13-24 June 1994, but due to miscommunication of the air-plane tickets arrangement he could not participate at the training course.

Preparation in the setting up of a Tissue Bank at Dr.Jamil Hospital has been initiated. It is expected that the setting up of this tissue bank will be realized in the next 1995 program. Assistance from the Agency is promptly needed.

Standardization of I-131 Treatment for Hyperthyroidism with an Intent to Optimize Radiation Dose and Treatment Response

Since there were two institutions in Indonesia have been applied (Dr.Jamil Hospital in Padang and Hasan Sadikin Hospital in Bandung) to participate in the program, we are expecting the two applicants could be accepted.

2.4.Nuclear Instrument Maintenance

Indonesia has participated in CRP on Quality Control and Maintenance for Nuclear and Related Instruments in Medicine (RC/7667/RB). The project has promoted an intensive efforts to establish national capability to implement QC and maintenance of nuclear medicine instruments in hospitals. PM protocols for Spect/Gamma Camera are very essential in order to assist technicians without enough experience and skill to carry out maintenance work. On the job training and guidance seem to be effective and will give great benefit for the proper implementation of QC. Inter-laboratory comparison tests are being performed and will be accomplished soon.

3.Agricultural Projects

3.1.Food Irradiation Process Control and Acceptance

Some activities on various aspects of food irradiation are still going on at CAIR-BATAN. The main difficulty which is common to all nations with its food irradiation program is public acceptance. Although several food items have been cleared by the Health authorities in Indonesia, irradiated foods are still difficult to bring in the market. Therefore we do hope that continuous efforts could be done in the national level as well as in the international level to make irradiated foods acceptable to the public and the international trade.

3.2.Improvement of Grain-Legume Rhizobium Symbiosis to Fix Atmospheric Nitrogen

Indonesia is not participated in this program since the beginning, however, a slightly similar activity has been carried out by CAIR-BATAN. Some promising results have been achieved.

4.Research Reactor, Energy and General Project

4.1.Reactor Utilization

Indonesia would like to propose one Regional Training Course and one Coordinated Research Program for 1996 as follows:

A Regional Training Course on Noise Analysis Methode and Its Application on Research Reactor in Mid 1996. Indonesia is expecting to be host of the training course and partly of the financing will be borne to Indonesian Government (mainly for local expenses).

A Coordinated Research Program on Inspection of used research reactor fuel using neutron radiography. Time : in 1996. We do hope that this Coordinated Research Program will be financed by IAEA and we invited interested Member States of the RCA to join this project.

Detailed proposals will be submitted to the next seventeenth RCA Working Group Meeting in Kuala Lumpur.

4.2.Energy and Nuclear Power Planning

Some activities with the objectives to further promote energy, electricity and nuclear power planning have been carried out in the country, with special emphasis on:

- Enhancing and improving the reliability and quality of forecasting, planning and analytical capabilities for future energy and electricity needs and impacts
- Facilitating national implementation of nuclear power programmes through the pooling and analysis of information on effective strategies used in Regional Co-operation Agreement (RCA) among Member States.
- Monitoring the effectiveness of the second phase of the project and its implementation and recommend appropriate actions.

5.Radiation Protection Projects

5.1.Radiation Protection Infrastructure

Intercomparison activities between JAERI and the Centre for Standardization and Radiation Safety Research (CSRSR-BATAN) on personal dosimetry have been

terminated. It seems that these activities have given a great benefit to both parties concerned, my Delegation would like to suggest that such activities should be continued in the years to come.

5.2. Reference Asia Man

RCA Project "Compilation of anthropometric, physiologic and food consumption in the context of studies on Asian Reference Man" has been terminated in 1993. Data evaluation and final meeting to discuss about the establishment of Asian Reference Man was held in October 1993, however, Indonesia is still continuing this activity to get sufficient reliable data.

Thank you for your attention

Vienna, 21st September 1994.

JAPANESE COUNTRY STATEMENT
ON THE OCCASION
OF THE 23rd GENERAL CONFERENCE MEETING
OF REPRESENTATIVES OF RCA MEMBER STATES

21 SEPTEMBER 1994
VIENNA, AUSTRIA

Mr. Chairman,

I would first like to congratulate you on your election as Chairman of this 23rd General Conference Meeting of the Representatives of RCA Member States. Having you here as Chairman, I feel assured that this Meeting will surely add one more distinguished page to the history book of RCA cooperation.

I would also like to take this opportunity to express my deep appreciation to the Government of the Republic of Indonesia for its superb preparation and kind hospitality shown to us all during the 16th Working Group Meeting in Bali last March.

Mr. Chairman,

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, and radiation protection, 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 co-operative undertakings, the very fact of which its Member States are very proud.

On the further development of the RCA co-operation, 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.

It is worthwhile to note here that with a successful RCA project there is always a technical officer or an expert leading the project who is not only competent technically and administratively but also has strong eagerness and devotion to the project with full understanding of the RCA purposes.

Of course, smooth communication and coordination as we have today should be maintained between the IAEA and the RCA 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 scrap-and-build principle when it is needed. Bearing those factors in mind, Japan is

eager to continue to extend as much support and contribution to the RCA as possible, with emphasis on 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 basically supports the Proposed RCA Project Activities in 1995.

In this connection I would like to bring three issues to the attention of this Meeting. First is on Nuclear Medicine. Japan has cooperated technically and financially in the Coordinated Research Project on Imaging Procedures for the Diagnosis of Liver Diseases since 1983, and with enormous and recognised success this project completed at the end of the last year. To continue to support the RCA cooperation in the important and useful field of Nuclear Medicine, Japan announced its technical and financial support for a new CRP project proposal on Evaluation of Radioactive Iodine Therapy for Hyperthyroidism, which was strongly supported and approved at the 15th RCA Working Group Meeting in Manila and also followed up at the 16th Working Group Meeting.

Second is about Radiotherapy. The CRP on Improvement of Cancer Therapy, which Japan has also actively supported in technical and financial terms, completed its 2nd phase at the end of last year. To follow up and enhance an achievement in this field, various possibilities on a

successor project are now being considered positively among experts. Japan has a strong intention to continue to support as ever a good project in this field, and hopes that opinions of interested Member Countries will be coordinated through various channels, so that a project proposal can be considered and approved as early as possible, hopefully in the first quarter of 1995. As for a specific project proposal, Japan is eager to seek the possibility to start up a project to transfer the technology for manufacturing radiation source for treatment of Uterine Cancer.

Third and last is concerned with the CRP on Reference Asian Man. To conclude the 1st phase of this CRP at the end of this year, the Final Research Coordination Meeting is to be hosted by China in October this year. There the future direction of the 2nd phase was discussed and considered in detail. Japan has an intention to continue to support actively the 2nd phase of Reference Asian Man as much as ever.

Mr. Chairman,

As for the RCA budget for 1995, 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 1995.

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 project of high interests among Member Countries, based on the principle of self-reliance, and within its own cooperative framework. It is perhaps likely that receiving finance from outside introduces consequently a certain other elements to the RCA's tradition.

In case the RCA budget does not correspond to a very strong willingness of the Member Countries to increase the number or expand the scale of activities, a realistic approach needs to be adopted. It will be necessary then to explore a possibility of RCA's finding alternative multilateral sources of funding, or to consider a possibility of putting some projects of lower priority on the RCA footnote a project list to look for interested donors from outside.

As for the Environment Project which started last year, Japan is extending active support as much as possible, recognising, among other things, the importance of environment conservation. For this project, Japan has already extended extra-budgetary contribution for 1994.

With respect to Medical and Biological Applications Projects, Japan will continue to extend technical and financial support as much as before in sub-projects on Nuclear Medicine, Radiotherapy, and Reference Asian Man. For these projects, Japan has already extended extra-budgetary contribution for 1994.

With regard to Strengthening of Radiation Protection Infrastructure, Japan will continue to support this project

technically and financially with in mind the importance of nuclear safety in the RCA Member States where uses and application of nuclear techniques are expanding. For this project, Japan has already extended extra-budgetary contribution for 1994.

As regards Phase III Food Irradiation Project, Japan ceased its financial support, due to its domestic reasons and so on towards food irradiation, at the completion of Phase I. Japan remains interested, however, in considering in-kind cooperation 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 on a case-by-case basis through, for instance, sending its experts, and accepting foreign researchers and trainees etc.

Before concluding this statement, I would like to raise two other issues.

Firstly, we now have before us a "Factual Paper on RCA for Presentation at the 1995 NPT Review and Extension Conference" drafted by the RCA Secretariat to brief the conference on the activities of the RCA and to demonstrate the RCA's usefulness in promoting co-operation for peaceful uses of nuclear science and technology in the Asia and Pacific region. Japan fully supports submission of this paper to the Conference.

Secondly, I would like to raise for your attention a potentially administrative issue about the status of the

RCA Co-ordinator. The RCA Co-ordinator is now endowed with D-1 rank in the IAEA bureaucracy. Japan believes that the RCA Co-ordinator deserves the rank for he is, and will be, charged with, among other things, co-ordinating and negotiating with various organs in and out of the IAEA on technical and administrative matters in relation to the RCA projects. And the RCA projects are expected to be more diverse and more significant compared with those of other regional co-operation schemes in the IAEA. In light with the above-mentioned background, Japan would be opposed to a possible future move to downgrade the rank of the RCA Co-ordinator, and asks for support from other Members.

Thank you, Mr. Chairman.

**Country Statement of the Republic of Korea
The Twenty-Third General Conference Meeting of
Representatives of the RCA Member States
September 21, 1994 VIC Austria**

First of all, on behalf of the Korean delegation I would like to express my gratitude to the Agency for the detailed arrangements made for us and would like to offer our appreciation to the Government of Indonesia for the warm hospitality they extended to us at the sixteenth RCA Working Group Meeting held from 22 to 25 March, in Bali.

It is also a great pleasure to give a heartfelt welcome to the delegations of New Zealand and Myanmar who joined the RCA and my delegation desires that these two Member States join in cooperation with other Member States for the promotion of peaceful uses of nuclear energy.

The Republic of Korea has been diligently participating in almost all activities of the RCA and has greatly benefitted from the technical cooperation, enhancing our national socio-economic development since the inception of the RCA.

A brief description of the 1994 RCA Project activities in Korea are given below:

1. Regional, Industrial, and Environmental Project

1.1 Tracer Technology and Nucleonic Control System

The national seminar on process optimization using tracer technology in the chemical and refining industries was held from 22 to 24 March at the Korea Atomic Energy Research Institute with the participation of three IAEA experts, one expert from Australia, one local lecturer, and 20 participants from local industries and research institutes.

Two Korean experts attended "A Regional Workshop on the Use of Tracer Technology to study Dispersion of Effluents in Surface Water" from 5 to 21 September in Malaysia. We plan to dispatch one expert to India in November 1994 to take part in the regional training course for the application of isotope techniques in process optimization.

Korea has been carrying out research activities on tracer technology based on the technical guidance of "the 1993 RTD analysis computer programme" supported by IAEA experts.

1.2 Non-destructive Testing

The Republic of Korea hosted a regional training course on industrial application of non-destructive testing and evaluation from 30 June to 21 July with 15 participants from 10 Member States in the region under the extra-budgetary contribution to the IAEA/RCA with the cooperation of the Korea International Cooperation Agency. The training course was comprised of lectures and demonstrations on the industrial applications of non-destructive testing methodologies such as metallurgy, radiographics, ultrasonics, eddy current testing etc.

The project coordinator took part in a proficiency testing programme evaluation, which was undertaken by the Agency from 26 to 28 January in Japan. The Korea Atomic Energy Research Institute (KAERI) hosted a national training course on perspective and in-service inspection of NPP components, level-II, UT, PT, MT and VT at the Nuclear Training Center of KAERI from 27 June to 8 July with 15 local participants.

1.3 Radiation Technology

The Republic of Korea has been conducting research activities in the field of high polymer material development, pollutant treatment techniques, flue gas treatment techniques and reactor design. In this regard, Korea is willing to participate in consultant activities with the attendance of an IAEA expert for one week in October.

Last June in Japan, one Korean specialist participated in the regional training course on fundamental aspects of radiation technology and environmental applications. Also, Korea would like to participate in other Agency meetings such as the second national coordinator meeting being held in Vietnam during November and the regional seminar on radiation technology for bio-medical applications to be held in China during December.

1.4 Nuclear Analytical Techniques

The project coordinator attended an UNDP/IAEA/RCA expert meeting concerning an inter-comparison program of radioactivity measurement for environmental samples. The Korea Atomic Energy Research Institute has carried out research on analysis of Hg in hair samples and has also implemented the Agency's AQCS programme entitled, "Inter-comparison Study Relevant to Air Pollution Studies of Nuclear Analytical Techniques" jointly with the state-run institutes, KIGAM AND NIER.

Korea is planning to participate in the regional seminar on environmental and industrial applications of nuclear analytical techniques in Bombay, India.

2. Medical and Biological Applications of Nuclear Techniques

2.1 Radioimmunoassay for Hepatitis B Diagnosis

The Department of Nuclear Medicine of Seoul National University was designated as a reference laboratory in Korea. The department has conducted a comparative analysis and assessment of Radioimmunoassay (RIA) kits of hepatitis B antigens and antibodies which are made in China with local products. Also, the university measured the basic properties of RIA kits such as positive and negative control and background and nonspecific binding. RIAs were performed with five different pool serums comparing them with the results of commercially available kits.

2.2 Radiation Sterilization of Tissue Grafts

Korea actively participated in the first phase (1988 - 1992) of this RCA project concerning radiation sterilization of human tissue allografts for the intended clinical use in reconstructive surgical repair of damaged-tissue-related disabilities and will be resuming the second phase of project RAS/7/003. During 1993, Korea initiated the establishment of a muscular skeletal tissue bank at Dankuk University with installation of some equipment provided by the Agency.

Some fellowship training is also included in implementation of this project in conjunction with that of the Agency's regular programme. Korea is also willing to participate in the 1994 program.

2.3 Improvement of Cancer Therapy (Phase III)

Korea participated in the CRP on computer-assisted planning and dosimetry in the radiotherapy of carcinoma of the uterine cervix with the meeting being held in the Asia and Pacific Region. In addition to the activities of the CRP, Korea hosted the final research co-ordination meeting of this project at the Korea Cancer Center Hospital of KAERI from 28 to 30 March, 1994 with 10 Chief Scientific Investigators representing India, Indonesia, Japan, Pakistan, the Philippines, the Russian Federation, Sri Lanka, Thailand and the Republic of Korea.

Furthermore, to activate this project, Korea also hosted a regional training course from 5 to 16 September, 1994 concerning radioimmunoassay and immunoscintigraphy for the early detection and management of cancer with attendees from 14 countries including Korea.

2.4 External Quality Assessment Scheme(EQAS) for Thyroid Related Hormones (RAS/6/001)

The Seoul National University Hospital is one of the three regional centers in this EQAS. In 1993, the hospital was in its third year of operation in the EQAS project with 8 laboratories from the Philippines and 52 laboratories from Korea participating in the regional center. In these laboratories, the hospital maintained external quality control of T4, T3 and TSH hormones. Furthermore, the hospital expended the EQAS project for other RIAs including beta-HCG and alpha-fetoprotein.

In January of this year, the hospital started its fourth year of operation in the

EQAS with participation of several laboratories of the Philippines.

2.5 Nuclear Instruments Maintenance

When the CRP was initiated in Korea in 1984, 48 SPECT cameras were installed in some hospitals in Korea and have now increased to 128 in number. The Chief Scientific Investigator visited about 80 medical centers where the cameras were installed to carry out QC tests and to present lectures. As a result of this visit, the number of medical centers adopting this procedure have rapidly increased although some medical centers are still not in a position to carry out QC on a regular basis. Korea performed QC tests at four hospitals in 1994.

3. Agricultural Projects

3.1 Food Irradiation Process Control and Acceptance

In 1994, Korea studied the use of gamma irradiation for the commercial storage of dried red pepper and dried anchovy. The Korean governmental authority has approved a total of 18 food items for gamma irradiation. A private company, the Greenplatech Co. is operating a 450 kCi Co-60 irradiator for radiation sterilization of medical products and additional food items.

From 1993 to 1994, the government of Korea has taken the opportunity to acquire a wide and deep understanding of the safety and effectiveness of food irradiation through a series of ten seminars (two international and 8 national) cosponsored by the Korea Atomic Energy Research Institute and the Greenplatech Co.

The government of Korea is pleased to participate in the Coordination Research Programme on public acceptance of trade development in irradiated food in Asia and the Pacific region scheduled to commence in 1995 as proposed by the Agency.

3.2. Improvement of Grain-legume Rhizobium Symbiosis to Fix Atmospheric Nitrogen

Korea is willing to participate in the program "Induced Mutation and Related

Biotechnologies for Improvement of Vegetatively propagated Crops" as proposed by the Agency.

We propose that the Agency and the RCA member states support this project in order to promote technology and to pursue mutual interests and social benefits in the region.

Korea also maintains the position that Agency and RCA member states will support the new proposal, "The Environmental Advantages of Fruit Fly Control with the Sterile Insect Techniques". Korea is interested in the use of the sterile insect techniques to protect pumpkin and water melon fruits from destruction by the pumpkin fruit fly (*Paradacus Depressus*)

4. Research Reactor, Energy based and general project

4.1 Research Reactor Utilization

A study of material properties by neutron beam application has been continued by the Korea Atomic Energy Research Institute which participated in the regional workshop on research reactor utilization from 26 April to 13 May, 1994 at ANSTO, Australia.

The government of Korea, recognizing the importance of this project to the Member States in the region, holds the position that the Agency strongly support the future 5-year programme(1995 - 1999) as recommended by the Project Formulation Meeting in Korea last year.

4.2 Energy and Nuclear Power Planning

Korea has diligently participated in the first phase of the project to strengthen co-operation amongst the RCA Member States in the fields of energy, electricity and nuclear power planning with a special emphasis on the Agency's computer model. Concerning the second phase of the project implementation, the Republic of Korea strongly supports the conclusions and recommendations drawn from the 1993 Project Formulation Meeting held in Jakarta, Indonesia.

Korea has already committed support to this project by a cash contribution,

totaling 200,000 US dollars for a 4-year period beginning in 1995. In order to facilitate national implementation of nuclear power programmes through use of an information pool, which contains effective strategies for the RCA Member States, the government of Korea is considering implementation of this program with the assistance of the IAEA.

4.3 Korea's Extra-budgetary Contribution to the RCA

"The Regional Training Course on Industrial Application of Non-destructive Testing and Evaluation" sponsored by the Republic of Korea was successfully held in cooperation with the Agency and the Korea International Cooperation Agency last June, Korea is also pleased to organize another regional training course for probabilistic safety assessment and industrial applications in 1995.

5. Radiation Protection

In 1994, the government of Korea established a network for this project on the basis of sub-projects i.e. off-site emergency, dosimetry, reference Asian man, regulations, and manpower training. Three experts participated in the advisory group meetings on radiation protection infrastructures in Melbourne, in the regional workshop on external dose assessment in Taiyuan, and in the regional workshop on preparation of off-site emergency plans in Sydney. Two more experts will participate in the regional training workshop on calibration and maintenance from 28 November to 2 December in Tokai, Japan.

In addition, the government of Korea is planning in hosting on regional workshop on external dosimetry in 1996 or 1997 with cooperation of the Agency under extra-budgetary contribution from Korea.

6. Conclusion

Korea's participation in the RCA programmes has been very productive, and the government of Korea would like to express its satisfaction with the outcome of various activities of the RCA resulting from the strong commitment of other Member States.

**COUNTRY STATEMENT OF THE MALAYSIAN DELEGATION OF
THE 23RD GENERAL CONFERENCE MEETING OF THE
REPRESENTATIVE OF RCA MEMBER STATES
21 SEPTEMBER 1994, VIENNA**

First of all the Malaysian Delegation would like to welcome Myanmar and New Zealand to the RCA programme.

Malaysia has maintained its participation in, and support for, RCA/UNDP activities during the past years and began to contribute fund for the RCA/UNDP activities for the period 1993-1997.

The summary of activities which have been carried out in relation to RCA programme is as follows:

1. RCA/UNDP Industrial and Environmental Project

In the field of **Non-Destructive Evaluation (NDE)**, a concerted effort by the Malaysian Institute For Nuclear Technology Research (MINT), the Standards and Industrial Research Institute of Malaysia (SIRIM), the National Vocational Training Council (NVTC) and the Atomic Energy Licensing Board (AELB) in the implementation of National NDE activities and programme has resulted in a safe as well as systematic and efficient practise of such activities in Malaysia.

By the end of 1993, a total of 1583 NDE personnel have been trained, from which 773 have sat for the national examination. New areas of NDE applications are being pursued, in particular application for non-metallic materials. In this matter IAEA expert assistance has been requested to assist MINT in conducting course on Coating Inspection for oil and gas industries sector. Malaysia is very interested to host the Regional Workshops and Seminar on the fabrication of test pieces and validation in 1995.

With regards to **Tracer Technology** Malaysia hosted the IAEA/UNDP/RCA Regional Workshop on the Use of Tracer Technology in Surface Water Effluents Studies from 5-21 September 1994 at MINT. The workshop was attended by 21 participants from 13 countries in the Asia and Pasific region and 10 observers from Malaysia. The objective of the workshop is to equip participants with radiotracer field data evaluation techniques for surface water mathematical modelling, in preparation of future national activities that could be undertaken under the framework of the RCA.

With respect to **Radiation Sterilization**, gamma plant located at MINT is providing services to local medical product manufacturers in Malaysia. Beside providing services, MINT is also conducting preliminary discussions on

product diversification plan with the aim to reduce dependence on rubber gloves irradiation and moving into new markets such as the pharmaceutical, cosmetic and healthcare products. A national seminar on Radiation Processing In The Cosmetic and Pharmaceutical Industries was held on 6-7 July 1994 with assistance from 3 IAEA experts. The seminar discussed the benefits, advantages and potential of radioactive processing in the cosmetic and pharmaceutical industries. Work is also being carried out to study the Sterilization Techniques by using electron beam accelerators. A National Seminar on application of electron Accelerators was jointly organised by MINT/IAEA/JAERI on 4 August 1994. The aim of these seminar is to introduce electron accelerator technology; to disseminate information on current applications of this technology in industry and its economic benefits and to discuss its potential application in Malaysia.

The availability of two electron beam machines in Malaysia, 3.0 Mev and 200 keV located at MINT has enable research on **crosslinking of wire and cable insulation, crosslinking of plastic film, foam and tubing and curing of surface coating of cement board** be carried out. Most of the work are being performed in collaboration with local manufacturers.

With regards to **RVNRL**, a pilot plant for latex irradiation will be constructed at MINT to promote the exploitations of RVNRL in Malaysia. Recently MINT have signed a memorandum of understanding with Guthrie Group Bhd. To carry out research and development in radiation vulcanization of natural rubber latex using Guthrie's latex and to commercially exploit the findings.

With respect to **Nuclear Analytical Technique**, Malaysia participated in the Regional Workshop on Nuclear Analytical Techniques from 24 January - 11 February 1994, Bombay, India.

2. **Medical and Biological Application of Nuclear Techniques**

Malaysia participated in four projects in the medical and biological application of nuclear techniques. The project on Radioimmunoassay for Hepatitis B diagnostics is conducted by Clinical Diagnostic Laboratory, University Hospital, University of Malaya (UM) in Collaboration with Institute for Medical Research (IMR), University of Science Malaysia (USM), Kelang General Hospital (KGH) and Medical Microbiology (MML) of University Hospital.

With regard to the project on **Radiation Sterilization of Tissue Grafts**, two tissue banks have been established namely a national tissue bank located at USM and research tissue bank at MINT. The national tissue bank at USM will

be launched in November 1994. Both banks are involved in the processing of amnions and human bones. Up to now about 30 burnt patients have been treated by amnion, while bone graft are used in orthopaedic surgery by General Hospital, Kuala Lumpur.

With respect to the project on **Care and Maintenance of Nuclear Instrument**, Malaysia hosted the Regional Workshop On Upgrading of Analogue Gamma Cameras with IBM PC's and relevant Software on 4 - 22 September 1994. The workshop was attended by 16 participants from 11 countries in the Asia and Pacific Region. The aim of the workshop is to provide participants with background knowledge and practical experience in IBM Pc's based gamma camera upgrading system.

With respect to the **Strengthening of Radiation Infrastructure Project**, Malaysia participated in the Expert Advising Group Meeting on Radiation Protection Infrastructures, Melbourne, Australia from 14-18 February 1994 and followed by Experts Training Workshop On The Preparation Of Off-Site Emergency Plans and Counter Measures, Australian Laboratories, Melbourne, Australia from 21-25 February 1994 and Expert Meeting On Intercomparison Programme of Radioactivity Measurement for Environmental Samples, 21-25 February 1994, Tokai, Japan.

3. **Agricultural and Foods**

Malaysia through Rubber Research Institute of Malaysia participates in the project **Improvement of grain legume - Rhizobium Symbiosis to fix Atmospheric Nitrogen**. The project is progressing well and the study on the Nitrogen transfer is to be continued at selected sites in Peninsular Malaysia in collaboration with MINT.

4. **Research Reactor Utilization**

Malaysia participated in the Technical Committee Meeting on Establishment of a Programme for Regional Sharing of Research Reactor facilities held in Dhaka, 6-7 July 1994. The report of this meeting was circulated to MINT staffs involved in research reactor operations and facilities for their awareness.

Finally, the Malaysian delegation would like to reiterate our strong support and continuous participation in RCA activities and appreciation to the IAEA, UNDP, donors and all RCA member states for the successful implementation of RCA programme.

The Malaysian delegation would like to extend warm welcome to Mr. Wandowo, as a long term expert for RCA/UNDP/IAEA project and will give full support and cooperation to him.

The Malaysian delegation also would like to take this opportunity to extend invitation to all member states to Malaysia for the next RCA Working Group Meeting to be held in Kuala Lumpur on 27-30 March 1995.

23RD GENERAL CONFERENCE MEETING OF RCA MEMBER STATES

STATEMENT BY THE REPRESENTATIVE OF NEW ZEALAND

New Zealand is very pleased to have joined the Regional Cooperative Agreement for Asia-Pacific as the 17th Member State. The importance of the work of the RCA is reflected in the participation of almost all the States within the Region.

In making its decision to join, New Zealand has noted the emphasis and success of the RCA in translating the peaceful applications of nuclear science and technology into assistance for the sustainable development of the Region.

At this time we are assessing the details of how New Zealand can most appropriately contribute to the goals of the RCA. But we intend our participation to be an active one. We anticipate learning a great deal about the operation of the RCA during the coming year and, with the assistance of the RCA Co-ordinator, this will help us target our efforts into those projects in which we can offer the greatest assistance and mutual benefit.

New Zealand has no nuclear reactor programme for power generation, nor does it have research or training programmes in reactor technology. There is, however, considerable use of medical applications of radioisotopes and a well-developed radiation protection infrastructure. We hope to participate in those areas of the work of the RCA, although it will take some time to inform fully the relevant scientists and medical practitioners of the opportunities presented by membership of the RCA.

New Zealand has considerable experience in the application of nuclear science to industry. Much of the expertise is to be found within a research organisation, the Institute of Geological and Nuclear Sciences, in industrial tracing, surface and ground water studies, nucleonic control systems and analytical techniques.

Initially therefore, it will be both appropriate and practical for the New Zealand effort to emphasise industrial applications through the joint UNDP/RCA/IAEA project to strengthen technology and support environmentally sustainable development. Discussions are well advanced for New Zealand to make a small but significant financial contribution to this project.

COUNTRY STATEMENT - PAKISTAN
FOR
TWENTY THIRD GENERAL CONFERENCE MEETING OF RCA MEMBER STATES
VIENNA, SEPTEMBER, 1994

Mr. Chairman, distinguished delegates, ladies and gentlemen.

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 successful and fruitful results would be achieved.

My delegation is very happy to state that RCA has proven to be a valuable link between the IAEA Member States of South East Asia and the Pacific over the past 20 years of its existence and it is our expectation that it will continue to play a useful role in promoting peaceful uses of nuclear techniques in industry, agriculture, biology and medicine etc.

Pakistan has maintained active participation in the various RCA Projects over the past several years. The summary of activities carried out during 1993 by Pakistan in relation to the RCA programme is as follows:

1. Industrial Projects

1.1 Non-Destructive Testing

The development of non-destructive testing is making a steady progress in Pakistan. Most industries and the government organizations seem to be getting well aware of the needs for inspection, testing and quality control using NDT methods. PAEC is continuing training of personnel in non-destructive testing techniques (NDT) and more than twenty organizations

in the public and private sectors have benefitted from various courses in NDT in ultrasonic testing, surface methods and radiography testing. During September 1993 until August 1994 four such courses were organised in Islamabad which were attended by more than seventy participants.

Efforts are being made to launch a professional body solely devoted to NDT in Pakistan. It is hoped that the NDT related activities would receive further support from RCA.

1.2 Tracer Technology in Industry and Nucleonic Control Systems

National Tracer Group which looks after the radiotracing, radiogauging and other radioisotope applications on national basis made consistent efforts to popularise nuclear techniques in industrial sector through national mass media and undertook industrial surveys to explore the possibilities of radiotracer applications.

1.3 Radiation Technology

The sub-project on "Radiation Technology" is covered under the recently approved UNDP Project entitled "The Use of Isotopes & Radiation to Strengthen Technology and Support Environmentally Sustainable Development". The First Meeting of National Co-ordinators for Radiation Technology was held at Takasaki, Japan in September, 1993 to discuss plan of action for the next 2 years in the following areas which have relevance to environmental problems:-

- i) Radiation processing of sewage sludge and municipal waste water.
- ii) Radiation processing of flue gases.
- iii) Advanced applications of radiation technology of importance to regional industries.

These applications are currently at various stages of development, and we do not have an active programme in these areas in Pakistan for the present. Our interest would be

initially to keep ourselves well informed on the technical, and economic aspects of these applications and pass this information on to the concerned agencies, like Water and Power Development Authority, municipal authorities etc. in Pakistan.

2. Medical Projects

2.1 Radioaerosol Inhalation Imaging for the Diagnosis of Respiratory Diseases in the Developing Countries

Pakistan is participating in the the RCA Project and continued studies on Tc-99m DTPA Radioaerosol Inhalation Scintigraphy for the measurement of Permeability of Alveolar Membrane in healthy population and compare the results with the state of environmental pollution in the area. This study was continued at Institute of Nuclear Medicine & Oncology (INMOL), Lahore and 23 normal subjects were studied for Alveolar Membrane Permeability. The results have been compiled. The data of environmental pollution is being obtained from the concerned department. The Agency has now decided to extend the permeability studies to more than one cities of the participating countries and provide another Nebulizer to each country for this purpose. As soon as another Nebulizer is received, the work will be extended to other cities of Pakistan.

2.2 Immunoscintigraphy of Recurrent Colorectal Cancer using Tc-99m Labelled Anti CEA Monoclonal Antibody

Immunoscintigraphy of the patients with recurrent colorectal cancer was performed with the antibody received from Germany on 14 patients. The results of all the cases were positive for recurrent colorectal cancer because the study was performed in recurrent cases only and not in primary tumours. After the second meeting of the coordinated group, more antibody was received from IAEA to perform these studies in recurrent colorectal tumours and not in primary tumours. This study was done in 9 more cases. No problem has been faced in labelling the antibody with Tc-99m or in performing immunoscintigraphy.

2.3 Hepatitis B Screening

Kits for hepatitis B markers were received from China and distributed to the participating centres in the country. These were used to study the methodology, performance and properties and their applications for different clinical groups (blood donors, pregnant women, and liver cancer patients). Currently studies have been started at INMOL for production of reagents at INMOL and their use. In this respect glass beads coating technique for antigen/antibody has been completed. Next study will be to use these locally coated Ag/Ab and to radiolabel Ag/Ab provided IAEA could arrange to supply the required unlabelled Ag/Ab.

2.4 External quality assessment scheme (an ongoing activity - as a satellite project)

This activity completed under RCA project RAS/6/011 was followed up during the RAS/6/018 National Coordinators Meeting (1993) as a satellite meeting. Country report on the project was submitted during the meeting and the next year work plan of the project was prepared. INMOL, Lahore is participating as one of the regional coordination centres alongwith Chula Longkorn Univ., Bangkok and NUH, Seoul.

2.5 Computerized Dosimetry in Brachytherapy and Radiotherapy of Carcinoma Cervix

This project was awarded to Nuclear Medicine Oncology and Radiotherapy Institute (NORI), Islamabad by IAEA. So far 185 patients have been treated. A paper was presented by the Chief Investigator of the Project titled "Introduction of computerized planning and dosimetry in intracavitary treatment of carcinoma of cervix, Final Report and Conclusions" at Seoul, Korea in March, 1994.

2.6 Computer Assisted Planning and Dosimetry in Radiotherapy of Head and Neck Cancer

NORI, Islamabad was also awarded a research contract under the above RCA Project. Under this project, 417 patients of cancer of head and neck were treated in the said period. The patients

were provided treatment with radiotherapy, surgery and chemotherapy, after the treatment strategy being decided in Joint Cancer Clinic, comprising of ENT specialists, oncologists and radiotherapists. The planning of the patients was done on the dedicated computer to provide accurate and uniform dose distribution to the target organ. Final RCA meeting of the project was held in Vienna, Austria on 20-22 September, 1993. Chief Investigator of the project attended the meeting and presented the final report.

2.7 Nuclear Investigation of Cerebral Function in Pakistan

Since the start of the project in September, 1992, fifty patients have been investigated and their studies have shown quite remarkable results specially in patients having brain tumours and cerebrovascular accidents. The first RCA meeting of the project was held in Turkey on 14-16 February, 1994. The Chief Scientific Investigator attended the meeting and presented the report.

2.8 Application of Tc-99m Hexakis-2-Methyisobutlye Isonitirite in Clinical Oncology

This project was started in 1993. It is proceeding successfully. Under this project so far more than 55 patients of brain, bone, breast and lung cancer have been studied using Tc-99m MIBI and Tl-201.

2.9 Computer Assisted Planning and Dosimetry in Radiotherapy of Carcinoma of the Cervix in Asia and the Pacific Region

IAEA provided PC-based treatment planning system alongwith the software in 1992. The project was completed in three phases. The first consisted of the application of PC in radiotherapy and preparation of optimum software. The second was to compare the two different softwares to finalise the best among them. The third and final part was successfully completed in 1993. Considering the comparison of the two treatment planning systems using the traditional approach for Ca-Cervix patients. We constituted two parallel arms including 50 patients of Ca-Cervix in each arm. The Isodose distribution, dosimetry, acute and

chronic reactions were compared. It was found that there was no difference in any of these parameters. The conclusion drawn is that PC-based computerised treatment planning system is cheap, more versatile, easily accessible and simple to operate and it is an ideal method of treatment planning for the developing country, to better their existing facilities.

3. Agricultural Projects

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 in Pakistan for which an IAEA expert visited Pakistan in May, 1992. The Agency is requested to consider provision of a commercial demonstration irradiator to Pakistan.

3.1 Food Irradiation Process Control and Acceptance (RPFI-III)

Experiments were conducted under the IAEA Research Contract on enhancing shelf-life of potatoes and onions, and decontamination of spices and poultry meat.

3.2 Utilization of Radiation-Induced Mutations and Somatic Cell Genetics for Development of New High-Tech Varieties of Food and Fibre Crops

Radiation Induced Mutations have played a vital role in developing new varieties of crop and plants. Atomic Energy Agricultural Research Centre, Tandojam is one of the centres of excellence of contemporary Mutation Breeding in the World. The proposed project envisages to combine Radiation and Chemical Mutagenesis in conjunction with Somatic Cell Genetics for solving the plant breeding problems of 21st century. This technology is being successfully used at this Centre with highly significant economic impact on our predominantly agricultural country.

3.3 Improvement of Grain Legume Rhizobium Symbiosis to Fix Atmospheric Nitrogen

For the project on Improvement of Grain-Legume Rhizobium Symbiosis, it is suggested that studies on ecology of rhizobia and soil microflora using biotechnological tools as an important

area be considered in future.

4. Research Reactor Based Projects

Research Reactor Utilization:

A Project Formulation Meeting was held on RCA Project Research Reactor Utilization in Republic of Korea, 18-22 October, 1993 and a presentation was made on Utilization of Research Reactors at PINSTECH, PARR-1 and PARR-2 by the Principal Investigator of the Project. The meeting recognized neutron beam research as an important area for research reactors utilization.

5. Energy Based Project

Energy and Nuclear Power Planning

The first phase of this Project Energy and Nuclear Power Planning had been useful in providing some regional experience in the use of methodology. Three major areas of need for the future in the general field of energy, electricity and nuclear power planning were identified for future five years programme. Very briefly these comprised:

- (i) Need for further training courses in WASP, MAED & ENPEP
- (ii) Input information for conducting energy and nuclear power planning analysis
- (iii) Problems associated with the slow pace of implementation of nuclear power in the region.

The recommended future five year programme will be quite useful in meeting these needs.

6. Radiation Protection Project

This project is being carried out with the collaboration of IAEA to strengthen radiation protection infrastructure of the country. In this regard data collection of physical parameters i.e. height, weight, chest and head circumference of both sexes were made for all age groups ranging from 0, 5, 10, 15, 20-29, 30-39, 40-49 and 20-50 years. During this period data of 15,000 males/females were

collected from various ecological areas of Pakistan. Statistical analysis was made on the total collected data of 45,000 subjects. The evaluated data on physical characteristics and food consumption status of reference Pakistani man for Asian countries was presented in Final Research Co-ordination Meeting of IAEA/RCA held at Tianjin, China from 21-29 October, 1993.

7. Other Comments

Pakistan is providing training to the scientists from the region at its Nuclear Institute for Agriculture & Biology (NIAB), Faisalabad in agriculture and biology and also in Nuclear medicine at our nuclear medical centres and would like to continue this cooperation so that other countries in the region could also avail this offer through TCDC. Pakistan is also keen to send its experts to the Member States for short duration as and when required.

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 be given due importance under RCA programme.

In conclusion, Pakistan wishes to express its satisfaction on the implementation of various RCA activities so far. Pakistan fully supports RCA activities and has great desire to further promote regional co-operation in peaceful uses of nuclear energy.

PHILIPPINE STATEMENT
23RD GENERAL CONFERENCE MEETING OF RCA MEMBER STATES
VIENNA, AUSTRIA
SEPTEMBER 1994

Mr. Chairman,

First of all, allow me to extend, on behalf of the Philippine delegation, our warm congratulations on your election as Chairman of this General Conference Meeting of RCA Member States.

We would also like to extend our thanks to the IAEA and the Government of Indonesia for the support and excellent organization of the 16th Working Group Meeting in Bali, Indonesia last March.

We welcome to the RCA family, our three newest members, the Governments of Myanmar, Singapore, and New Zealand. We are confident that their participation in the RCA can only propel the RCA into greater heights of achievement and higher level of cooperation.

We wish to express our appreciation for the highly perceptible efforts of the RCA Co-ordinator to improve procedures and for the excellent presentation of this year's background documents for this General Conference.

New Project Proposals

The Philippines expresses support to the following new project proposals as part of the RCA Programme:

- the proposals set out in the Project Formulation Meeting Report for Energy and Nuclear Power Planning with the component on the pooling and analysis of effective strategies for implementation of nuclear power programmes to be separated as a specific project

- the proposals set out in the Project Formulation Meeting Report for Research Reactor Utilization that the major thrusts be through a TC project on Small Angle Neutron Scattering (SANS), a CRP on the design of inexpensive modular neutron diffraction equipment and specifically the need for the evaluation of neutron radiography facilities in the region

- the proposal for a CRP on applied Research on Air Pollution using Nuclear Related Analytical Techniques (we have submitted a research contract proposal); and

- the proposal for an RCM in 1995 for Air Pollution and Lung Function Studies.

We would also like to express our support for the following proposed projects and are prepared to submit project proposals under these:

-CRP on Public Acceptance of and Trade Development in Irradiated Foods in Asia and the Pacific;

- CRP on Agricultural Countermeasures Following a Radiation Accident (which we believe is better placed under Radiation Protection)

- Induced Mutations and Related Biotechnologies for Improvement of Vegetatively Propagated Crops (much interest was generated by this proposal and several project proposals will be submitted)

- Fruit Flies in Asia: The Environmental Advantages of Fruit Fly Control with the Sterile Insect Technique

- Increasing Crop Yields in the Tropics and Subtropics Thru Agroforestry

With regards to the project on Audiovisual Teaching Aid in Open and Distance Learning for Nuclear Medicine, we find it most welcome and useful. It is recommended that the program should cover a full range of useful practical subjects and should be accompanied by prescribed and synchronized audio portion to ensure optimum delivery and prevent misinterpretation.

Philippine Participation

During the period under review, the Philippines participated in eleven (11) projects. Allow me to present the highlights of our participation.

1. Regional Industrial and Environmental Project

1.1 Nucleonic Control Systems and Tracer Technology

The Philippines is participating in the Regional Workshop on the Use of Tracer Technology to Study Dispersion of Effluents in Surface Waters", Kuala Lumpur, Malaysia, 5-21 September 1994. A planned National Seminar on "Applications of Nuclear Techniques to Waste Management and Minimization" was postponed.

1.2 Radiation Technology

1.2.1 Radiation Sterilization

The PNRI, in cooperation with some local manufacturers, did studies on the radiation sterilization of rubber gloves and orthopedic implants and on decontamination by radiation of some veterinary drugs and raw ingredients for cosmetics. Two participants from the Philippines, one of whom came from a private company manufacturing surgical rubber gloves, attended the Regional Training Course on Radiation Sterilization - Validation, Routine Control and Application of ISO Standard, Bangkok, Thailand, 4-15 July 1994.

1.2.2 Radiation Curing

A one-week expert mission on UV-curing of surface coating is scheduled on 12-16 September 1994 at the Forest Products Research and Development Institute (FPRDI), Los Banos, Laguna. During the mission, a one-day seminar-workshop was conducted at FPRDI.

During the one-week expert mission of Dr. Chmielewski on 30 May- 3 June 1994, a one-day seminar on electron beam treatment of flue gases was organized by PNRI and conducted at the National Power Corporation (NPC) Headquarters. Twenty-nine participants from 14 companies/agencies attended the seminar. The NPC seemed to be keenly interested in the technology. A smelting plant also indicated keen interest. The two Philippine participants to the Regional Seminar on Electron Beam Technology for Purification of Flue Gases, Takasaki, Japan, 17-21 October 1994, come from this two organizations.

The National Coordinator of this subproject attended the Regional Workshop on Radiation Processing - the Economic Benefits held at Beijing, China, 11-16 October 1994. She is nominated to participate at the Regional Workshop on Radiation Processing in Industry-Process Control and Dosimetry, Takasaki, Japan, 19-23 December 1994.

1.3 Nuclear Analytical Techniques

The Philippines is participating in the study utilizing nuclear analytical techniques using XRF while our reactor is under repair. The Department of Environment and Natural Resources, the Institute of Chemistry of the University of the Philippines in Diliman has indicated interest to collaborate with PNRI in studies that will characterize air pollution in Metro Manila. The Quezon City Science Community has organized the ENVINET, a monitoring group

covering all aspects of the environment in the Quezon City area. PNRI participation is in air pollution studies. The intercomparison exercises on mercury analysis of hair and on the multi-element analysis of materials relevant to air pollution studies is being participated in by five local laboratories with the PNRI as coordinating laboratory. It is planned to conduct a national training course on "Nuclear Analytical Techniques Application in Air Pollution Research" in early 1996.

1.4 Non-Destructive Testing

A survey questionnaire on local NDT companies to determine their capabilities and available equipment was disseminated and we are awaiting the responses.

For the period under review, 11 NDT courses on RT, UT, ET (various levels) were conducted. A total of 145 participants completed the courses.

Local certification of NDT practitioners involved 27 personnel in RT, UT and SM.

We are pleased to report that the Formal 3-year NDT course (which has been on-going for the last 5 years) at the Manila Technician Institute of the Technological University of the Philippines, has graduated some 40 NDT technicians who are presently employed in local and overseas NDT companies. The PSNT is cooperating and providing the facilities of the training center as well as the expertise of its members.

The Philippines reiterates its offer to host the Proficiency Testing Programme on the first half of 1996.

2. Medical and Biological Applications of Nuclear Techniques

2.1 Strengthening Nuclear Medicine in RCA Member States

The Philippine representative to the Regional Advisory Committee Board for RAS/6/022 entitled "Strengthening of Nuclear Medicine in RCA Member States" attended the Board Meeting in Chiang Mai. He reported on the issues of Training of Nuclear Medicine Technologists in Developing Countries.

2.2 Air Pollution and Lung Function

The Chief Scientific Investigator is proceeding with the collection of additional clinical and air pollution data, in anticipation of the RCM.

2.3 Standardization of I-131 Treatment for Hyperthyroidism

The Philippines has submitted a research contract proposal and is awaiting feedback on its submission.

2.4 Radioimmunoassay for Hepatitis B Diagnosis

Four hospital laboratories are participating in the project, namely: Philippine General Hospital, University of Santo Tomas Hospital, Rizal Medical Center and the Veterans Memorial Medical Center. The PNRI also intends to assay blood serum collected from its personnel and their relatives. The participating hospitals have been requested to submit mini-papers regarding their use of the bead washers and the reagents. Emphasis on the clinical implications of their findings was also solicited.

2.5 Radiation Sterilization of Tissue Grafts

The Tissue Bank is currently utilizing more of the large segment allografts for limb salvage procedures. Steps have been initiated towards the eventual commercialization of the Tissue Bank.

Together with another orthopedic doctor, the National Coordinator attended the Regional TC on Open Distance Learning Techniques Applied to Radiation Sterilization of Tissue Grafts which was held in China, 13-24 June 1994. The National Coordinator intends to submit a research proposal on tendons under the Research Contract Program.

2.6 Maintenance of Nuclear Instruments

The National Coordinator participated in the Regional Planning Meeting on Quality Assurance in Nuclear Medicine in Bangladesh, 28 November - 2 December 1993. The Project was able to procure a power line analyzer which is a portable diagnostic instrument designed to monitor the AC deviation in a RAM. This power analyzer is being tested in some selected hospitals in the region.

The IAEA Technical Officer was briefed on the preparations undertaken for the Philippine hosting of the Regional Workshop on the Protection of Nuclear Instruments planned to be held in May 1994 but deferred for 1995. Confirmation of the exact date for this workshop is awaited from IAEA.

3. Agricultural Projects

3.1 Biological Nitrogen Fixation in Food Legumes

Quantification of nitrogen fixation in mungbean genotypes under field conditions was undertaken at PNRI and

the Institute of Plant Breeding (IPB), University of the Philippines at Los Banos. Nitrogen transfer to cereal crop (corn) experiment and some hybridization experiments were also undertaken.

4. Research Reactor, Energy Based and General Projects

4.1 Research Reactor Utilization

The National Counterpart attended the National Coordinators Meeting held in Bangladesh July 1994.

5. Radiation Protection

5.1 Radiation Protection Infrastructures

A national program for strengthening of radiation protection infrastructure is under development. The program includes three main components: a legal framework for setting forth legal, technical and administrative requirements; enforcement mechanisms for enabling applications of the regulations through notifications, registration and licensing of radiation sources; and a capable technical base for the provision of various radiation protection service.

Within the framework of the RCA Project RAS/9/006 and in accordance with the priority areas established in the last Expert Advisory Group Meeting in Australia in February 1994, following activities were undertaken:

5.1.1 Off-Site Emergency

Three Philippine participants are attending the Regional Workshop on Off-site Planning and Countermeasures for Radiological Emergencies, Mount Macedon and Sydney, Australia, 11-23 September 1994.

The PNRI Task Force on Radiological Emergency Planning and Preparedness was reconstituted. The Task Force is reviewing PNRI policies, practices and activities in national radiological emergency planning and preparedness and will submit recommendations thereof.

The Philippines participated in the Formulation Meeting of the intercomparison programme on measurement of radioactivity in environmental samples.

An inventory update of the national capability in off-site emergency preparedness will be undertaken soon.

5.1.2 Dosimetry (External and Internal)

The Philippines participated in the Regional Workshop on External Dose Assessment, Taiyuan, China, July 1994. The new ICRU operational quantities is being implemented in our routine monitoring of personnel exposure to radiation and in calibration protocol.

We are also participating in the Regional Training Course on Calibration and Maintenance, Tokai-Mura, Japan, October 1994. Phase 2 of the intercomparison run for personnel dosimetry will be initiated.

The Philippines reiterates its support to the activity involving a regional training course on biological dosimetry, including chromosome aberration. We would like to offer to host said training course in 1996.

5.1.3 Reference ASEAN Man

The Philippines participated in the Final Research Coordination Meeting of the CRP on Reference ASEAN Man.

5.1.4 Regulations

One Philippine participant attended the Workshop in Kuala Lumpur regarding the implementation of ICRP 60. A study group has been created to review and assess available data specific to licensee operation and PNRI facilities and to make specific recommendations on the adoption of ICRP 60. Seminars and workshops were conducted in cooperation with concerned professional societies and organizations, like the Philippine Organization of Medical Physicists, the Philippine Association for Radiation Protection, and the Radioisotope Society of the Philippines.

5.1.5 Training

Development of distance learning materials for nuclear medicine technologists is being undertaken with the active participation of the Philippine Society for Nuclear Medicine. Pilot testing and assessment of a training program designed for nuclear medicine technologists is being undertaken, the course syllabi of which, was submitted as part of a training program designed for nuclear medicine technologists.

COUNTRY STATEMENT - SRI LANKA
23rd Meeting of the RCA Member States
Vienna, 21 September 1994

Mr. Chairman, distinguished delegates and other participants.

Please accept my congratulations Mr. Chairman, on your selection to the Chairmanship of this meeting.

Sri Lanka, which has been a party to RCA since 1972, notes with satisfaction the success which regional cooperation has achieved in meeting the goals of the RCA to promote and coordinate cooperative research, development, and training projects in nuclear science and technology through the sharing of regional resources, including facilities, equipment and expertise, and the pooling of knowledge and close communication between scientists. Sri Lanka has benefitted from RCA activities in a number of areas by way of awareness, development of skilled manpower and application of knowledge to the solution of national problems. I wish to express our gratitude to the IAEA, UNDP, donor countries, national institutes and coordinators in RCA countries and all others who have contributed to the success of the RCA.

It is the declared policy of the Government of Sri Lanka to give highest priority to sustainable development programmes which will bring about improvements in the economic and social conditions, and the quality of life of our people without environmental degradation. The Government has recognized that the proper application of modern science and technology, including Nuclear Science and Technology is essential for achieving its stated objectives.

INDUSTRIAL APPLICATIONS

The new UNDP/IAEA/RCA project on the Use of Radiation and Radioisotopes for Sustainable Development has made it possible for Sri Lanka to further develop and expand the activities started under the previous UNDP/RCA project in Industrial Applications.

Under the previous project 246 NDT personnel were trained in Level I and Level II training programmes in all NDT methods except eddy current testing. Under the

new project a Level III qualifying examination on Radiographic Testing was conducted and six persons qualified.

A Level II national training course on surface methods will be held in October to be followed by a Level II training course on Ultrasonic Testing.

Following a successful production trial using rubber latex irradiated in Indonesia with the assistance of the project, the AEA is in the process of preparing a feasibility report for commercialization of radiation vulcanization of rubber. A national executive seminar on RVNRL was held in May with the assistance of experts Dr. K. Makuuchi and Dr. T.D. Pendle.

Initial studies were conducted on using nuclear tracers to study leachate propagation at a solid waste disposal site for Colombo Municipal Council and for training ocean sewage discharge for the Central Environmental Authority. Further assistance would be required for the implementation of these two activities depending on the final outcome of these studies.

A national committee on NAT has been formed for harmonization of procedures on Nuclear Analytical Techniques.

MEDICAL APPLICATIONS

Medical applications have been among the more successful nuclear activities in Sri Lanka. IAEA technical assistance has been provided to several medical centres including the Government Cancer Institute, National Blood Transfusion Service, Colombo General Hospital and the Medical Faculties of the Peradeniya and Ruhuna Universities to upgrade and modernize the existing nuclear medicine facilities and to establish new ones. These include the development of RIA facilities for in-vitro diagnosis, the establishment of computer supported Gamma camera equipment for in-vivo diagnostic imaging, and the improvement of radiation therapy for cancer patients by the introduction of a high dose rate Co-60 Brachytherapy system.

Sri Lanka is in the process of establishing a Tissue Bank under an IAEA Model Project. The construction of a building for this purpose has been completed and a Co-60 irradiator for sterilization of the tissues will be installed within the next two months. This project is of regional interest since the other countries in the region can benefit from the project once the tissue bank is fully operational.

A screening programme for Hepatitis-B positive blood using RIA has been introduced with IAEA assistance at the central Blood Bank in Colombo.

The development of national capability for nuclear instruments maintenance and repair is a high priority programme for Sri Lanka. Under the IAEA project on this subject, national workshops have been held on the quality control and preventive maintenance and services are provided on maintenance and repair. The Atomic Energy Authority has established a centre for maintenance of Nuclear Instrumentation under an IAEA Technical Cooperation project to provide an efficient service and to develop local manpower.

FOOD AND AGRICULTURE

Under the RCA project on Food Irradiation, microbiological studies on irradiated commodities have been carried out, to determine the total mesophilic count, coliform count and fungal count.

The RCA project on Grain Legume and Rhizobium Symbiosis is an important activity for Sri Lanka because of the need to enhance biological nitrogen fixation by field crops. This will help to reduce dependence on expensive inorganic nitrogen fertilizers. A workshop on N-15 analysis was held with the assistance of an expert.

RADIATION PROTECTION

Sri Lanka places high priority on development of infrastructure for radiation protection activities as this is an essential pre-requisite for all nuclear related projects. National regulations have been revised incorporating the most recent recommendations of the ICRP. A workshop on radiation protection for radiologists was held in 1994 with IAEA assistance. Several training programmes have been conducted for industrial users.

ENERGY BASED PROJECTS

A number of persons from the Ceylon Electricity Board have been trained on the use of WASP which is being used now by the Generation Planning Branch of the CEB. Sri Lanka supports the continuation of this activity.

**COUNTRY STATEMENT OF THAILAND
AT THE 23RD GENERAL CONFERENCE
OF REPRESENTATIVES OF RCA MEMBER STATES
21st September 1994**

Mr. Chairman,

On behalf of the Thai delegation, I would like to congratulate you on your unanimous election as the chairman of this RCA General Conference.

On the regional basis, this particular meeting provides a valuable opportunity to ensure that all activities and their benefits will be shared by all countries in the region. From this vantage point we should be able to assess the impact of the past-year undertakings and offer some observations on the current state of affairs. I am, therefore, pleased to make a review on the RCA activities undertaken in Thailand and their effects. Comments on the new projects being implemented during the current phase are also made on this occasion.

Resulting in significant improvements in strengthening the efficiency and productivity in industry, Thailand, joining with the other member states, strongly supports the implementation of the new UNDP/IAEA/RCA project entitled "The Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development", the benefits and outcomes of which are clearly anticipated. Moreover, we take into account the improvement of capabilities of the key scientists and industrialists in using isotopes and radiation technology and techniques in addressing problems of environmentally sustainable development. In this regard, the Office of Atomic Energy for Peace (OAEP) has made recommendations on the specific industrial applications by utilizing isotope and radiation technology and has proposed for the Government's approval for budget allocation and personnel recruitment.

Assuring the full and consistent support to all endeavors under the RCA project, more and more, in the recent past, Thailand is being chosen as the location for international assemblies and it is an encouraging trend. We are very proud of our newly acquired role as an international crossroad of information, knowledge, of goodwill and friendship. During 4-15 July 1994, Thailand hosted the Regional Training Course on Radiation Sterilization - Validation, Routine Control and Application of ISO Standard. In November 1994, Thailand has planned to host the Regional Seminar and Training Courses on the Application of Nucleonic Control Systems to Coal Processing Operation.

With regard to the new project proposals submitted at the 16th RCA Working Group Meeting in Bali in March 1994, Thailand would like to express our support to the following topics:-

- Applied Research on Air Pollution Using Nuclear-Related Analytical Techniques
- Induced Mutations and Related Biotechnologies for Improvement of Negatively Propagated Crops
- Establishment of a Regional Rinderpest Seromonitoring Network in Asia in Support of the South Asia Rinderpest Eradication Campaign (SEREC)
- The Environmental Advantages of Fruit Fly Control With Sterile Insect Techniques
- Agricultural Countermeasures Following a Nuclear or Radiation Accident

Today, Thai industrialists are increasingly aware of the significance and usefulness of the RCA programs in achieving the industrial development goals and overcoming obstacles impeding the progress. Recognizing the importance of the RCA role, the Government itself has paid ever greater attention to this collaboration and would like to take part in the contribution of 10,000 US dollars per year to support the RCA project activities for the period of 1995 - 1997. In addition, Thailand is honored and has great pleasure in welcoming the opening of the UNDP/IAEA/RCA Regional Office for Dr. Shi Jihua, the regional NDE expert, at the OAEF as an "in kind" contribution from Thailand.

A highly significant progress and development in Thai industries during the recent years is the remarkable success of the programs under RCA. I wish, therefore, to stress that RCA project should be on-going -- that is perhaps never-ending.

I would like to commend UNDP, IAEA and all donor countries for their important efforts and supports to promote the RCA activities and I would like to reaffirm, on behalf of the Thai Government, our continued strong support for the RCA project. We trust that RCA will continue to play a vital role in strengthening the capability in industry for the benefits of the member countries in the region.

Thank you.

COUNTRY STATEMENT - VIETNAM

23rd Meeting of the Representatives of RCA Member States

21st September - Vienna

Mr. Chairman,
Distinguished Delegates,
Ladies and Gentlemen,

On behalf of the Government of Vietnam, I would like to thank the Agency and the Government of Indonesia for the support and excellent hosting the 16th RCA working Group Meeting in Bali last March. I also would like to extend our congratulations to the delegations of RCA Member States, especially to the delegates from Mongolia, Myanmar and New Zealand - the new parties to the RCA, present here, at this meeting to review all our activities implemented during the last year and to set out an appropriate action plan for the next period of our RCA community.

Mr. Chairman,

Vietnam is very happy to see the increase in member of RCA Member states and cash contributors to the RCA budget. Again, Vietnam would like to review our gratitude to the RCA traditional extrabudgetary donors: the Governments of Japan and Australia and to express our appreciation to the Governments of Indonesia, Republic of Korea, Malaysia and the Philippines for their bound to contribute to RCA in cash payment. All this is a convincing evidence of the mature of the RCA life.

Looking into our contributions to the RCA activities during the period of 1993-1994 Vietnam would say that there have been great efforts made by our National project counterparts and coordinators as well as institutions involved. Namely,

1. UNDP/IAEA/RCA project on Environmentally sound Technologies:

- Vietnam has organized the National Seminars on Radiation Technology Utilization in the North and the South for people from Industry, Health Care sectors. A National Seminar on RVRL was held in HoChiMinh City for industrial people. Along with these, a National Coordinators Meeting for Radiation Technology will be held in HoChiMinh City in this November. We are very glad to say that the effective work done by Hanoi Irradiation centre has well disseminated the Radiation Technology and has significantly contributed to convince the Government in Establishing a new centre for Radiation Sterilization of medical products in HoChiMinh City.

- The application of radioisotopes has been well demonstrated in the country by a series of such activities as study on ground water movement in the lakes of Hoabinh hydropower station, Trian hydropower station and leakage of their dams; study on the sedimentation in Haiphong port. A National seminar on applications of Nuclear Techniques to Coastal Engineering will be held in this December under project RAS/8/069, which attracts people from various sectors: industry, transportation, environmental protection.

- To enhance NDT in Vietnam, a technical committee for NDT licensing and examination has been established upon the approval of VAEC and the State General Department for Standards of Measurement and Quality. There are in Vietnam NDT groups taking part in quality control process for civil engineering, oil and gas pipelines, boiler manufacture, roads and bridges.

- Vietnam actively participates in the subproject on Nuclear Analytical Techniques in the hope to strengthen the role of on Nuclear Analytical Center in the Environment Monitoring.

2. Nuclear Medicine:

- Vietnam warmly welcomes the first activities of project RAS/6/022 and the CRP on "Evaluation of Radioactive Iodine therapy for hyperthyroidism" and believes that the implementation of these project will bring benefit to enhancing the national network of nuclear medicine and promote the effective technique for the treatment of the very common disease - hyperthyroidism in Vietnam

- The appropriate incordination between the regional programme and national programme on Radiation Sterilization of Tissue Grafts has brought great success in contributing to public health care as well public awareness of the technique. This results in the permission given by the Ministry of Health for the utilization in the country of irradiated tissue grafts produced by the Institute for Nuclear Science and Techniques of VAEC and the approval of the Agency to support Vietnam to enhance Tissue Banking within the framework of the TC program of 95-96 cycle.

3. Radiation Protection:

Vietnam has steadily set up its national legal system for Radiation Protection and Nuclear Safety. An Ordinance on Radiation Control is being appraised by the National Assembly Committees for Laws and Science, Technology and Environment to be passed by the end of this year. National Seminars and training courses on Nuclear Safety licensing and inspection have been organized in line with the regional events under project RAS/9/006 to strengthen manpower to meet the growing needs of the country

4. New proposals of RCA activities in 1995:

Vietnam is really glad to participate in the new projects on "Electric Energy and Nuclear Power Planning" and on "Strategies to facilitate Implementation of Nuclear Power Programme". The objectives of these projects are well serving for our present national strategy to the year 2010 in the country's infrastructure development in which the study on a long-term plan for Nuclear Power Plants is to be carried out.

Moreover, Vietnam would like to contribute to the RCA activities in 1995 by hosting some regional events on Radiation Sterilization of Tissue Grafts, Nuclear Analytical Techniques NDT and Nuclear Research Reactor Utilization.

Finally, Vietnam would like to express its appreciation to the great efforts of the Agency, RCA States, especially donor countries, the RCA coordinator in realizing RCA ideals.

Thank you!



VIỆN NĂNG LƯỢNG NGUYÊN TỬ QUỐC GIA

VIETNAM NATIONAL ATOMIC ENERGY COMMISSION

Address : 59 Ly Thuong Kiet - Hanoi

Telephone : 2-56479

Cable : VINATOM HANOI

FAX : 84-42-66133

TELEX : 411518 VAEC

INFORMATION RELEASE

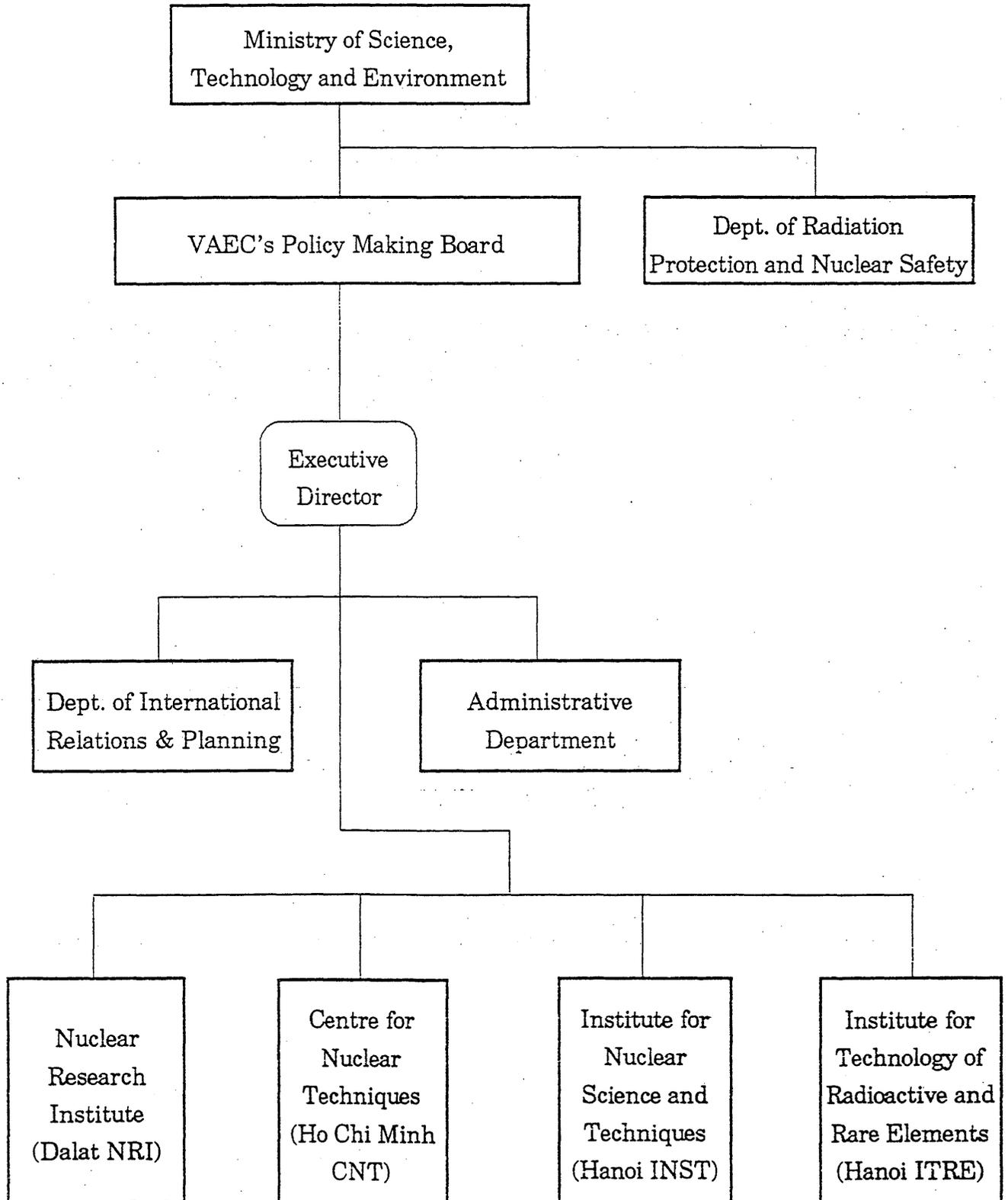
of Vietnam Atomic Energy Commission (VAEC)

The Vietnam Atomic Energy Commission has the honor to inform about its reorganization, whereby, the Department of Radiation Protection and Nuclear Safety is separated from the VAEC and both are placed under the Ministry of Science, Technology and Environment.

The VAEC's organization chart and a list of VAEC's Key Persons with their addresses are attached herewith.

ORGANIZATION CHART

VIETNAM ATOMIC ENERGY COMMISSION



LIST OF VAEC'S KEY PERSONS

1. VAEC'S BOARD

Chairman: Prof. Nguyen Dinh Tu
Vice-Chairman Prof. Tran Huu Phat
Address: 59 Ly Thuong Kiet, Ha Noi
Tel: 84-4-256479
Fax: 84-4-266133
Telex: 411518 VAEC

2. VAEC's Executive Director

Director Dr. Nguyen Tien Nguyen
Vice-Director Dr. Bui Van Tuan
Address: 59 Ly Thuong Kiet, Ha Noi
Tel: 84-4-256479
Fax: 84-4-266133
Telex: 411518 VAEC

3. Department of International Relations and Planning

Director Dr. Bui Van Hung
Address: 59 Ly Thuong Kiet, Ha Noi
Tel: 84-4-256479
Fax: 84-4-266133
Telex: 411518 VAEC

4. Dalat NRI

Director Dr. Tran Ha Anh
Address: 13 Dinh Tien Hoang, Da Lat, Lam Dong
Tel: 84-6-322191
Fax: 84-6-321107

5. Ho Chi Minh CNT

Director Dr. Ngo Quang Huy
Address: 217 Nguyen Trai, Dist. 1, Ho Chi Minh City
Fax: Tel: 84-83-93775
Telex. Fax: 84-83-22361

6. Hanoi ITRE

Director **Dr. Thai Ba Cau**
Address: 32 Lang Ha - Dong Da - Hanoi
Tel: 84-4-534139

7. Hanoi INST

Director **Dr. Tran Thanh Minh**
Address: P.O Box 5T-160 Nghia Do, Tu Liem, Hanoi
Tel: 84-4-344825

8. Department of Radiation Protection and Nuclear Safety

Acting Director **Dr. Tran Ung**
Address: 59 Ly Thuong Kiet, Ha noi
Tel: 84-42-56625
Fax: 84-42-66133

Hosting of RCA Working Group Meetings 1979 to 1994

1. 1st RCA Working Group Meeting, Tokyo, Japan 15-19 October 1979.
2. 2nd RCA Working Group Meeting, Manila, Philippines, 27 March-1 April 1980.
3. 3rd RCA Working Group Meeting, Jakarta, Indonesia, 21-27 May 1981.
4. 4th RCA Working Group Meeting, Kuala Lumpur, Malaysia, 16-21 June 1982.
5. 5th RCA Working Group Meeting, Dhaka, Bangladesh, 11-16 May 1983.
6. 6th RCA Working Group Meeting, Kalpakkam, India, 20-23 March 1984.
7. 7th RCA Working Group Meeting, Lahore, Pakistan, 25-28 March 1985.
8. 8th RCA Working Group Meeting, Seoul, Republic of Korea, 25 April-2 May 1986.
9. 9th RCA Working Group Meeting, Colombo, Sri Lanka, 23-26 March 1987.
10. 10th RCA Working Group Meeting, Beijing, China, 11-14 April 1988.
11. 11th RCA Working Group Meeting, Sydney, Australia, 13-16 March 1989.
12. 12th RCA Working Group Meeting, Chiang Mai, Thailand, 19-22 March 1990.
13. 13th RCA Working Group Meeting, Ho Chi Minh City, Viet Nam, 4-7 March 1991.
14. 14th RCA Working Group Meeting, Tokyo, Japan, 24-28 March 1992.
15. 15th RCA Working Group Meeting, Manila, Philippines, 16-19 March 1993
16. 16th RCA Working Group Meeting, Bali, Indonesia, 22-25 March 1994

THE REGIONAL CO-OPERATIVE AGREEMENT (RCA) FOR ASIA AND THE PACIFIC.

Background paper submitted by Indonesia on behalf of Australia, Bangladesh, China, Japan, Malaysia, Mongolia, Philippines, Republic of Korea, Singapore, Sri Lanka, Thailand and Viet Nam for the 1995 NPT Review and Extension Conference.

The Regional Co-operative Agreement (RCA) for research, development and training related to nuclear science and technology is an intergovernmental agreement and was first brought into force for a five year period on 12 June 1972. It was subsequently extended for two further five year periods in 1977 and 1982. A modified agreement was negotiated in 1987 and this was extended in 1992. The parties to the RCA, the RCA Member States, undertake, in co-operation with each other and the International Atomic Energy Agency (IAEA), to promote and co-ordinate co-operative research, development and training projects in nuclear science and technology through their appropriate national institutions. This is a recognition of the existence of areas of common interest for Member States, within their national atomic energy programmes, where mutual co-operation can promote the more efficient utilization of available resources. As of 14 July 1994 there are seventeen Government signatories to the current extension: Australia, Bangladesh, China, India, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Myanmar, New Zealand, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and Viet Nam.

The function of the IAEA within the framework of the Agreement is: to perform the secretariat duties required under the Agreement; to support the co-operative projects through technical assistance and other IAEA programmes as resources allow; to administer the project funds; and, to prepare an annual report. The IAEA is not a signatory to the RCA.

The total scope of the RCA programme is determined solely by the Member States by consensus. The Agreement sets out the mechanisms by which the technical programme can be initiated and also details the obligations of Member States in the review and monitoring of the programme they have established. Nevertheless, the practical functioning of the programme required more than words, and the success of RCA has only been possible because Member States have strongly backed it at all levels. The first and most important factor has been the high quality of the people selected by the Member States to participate in the programme especially those designated to be the counterparts.

The smooth functioning of RCA over its 22 years of existence is a testament to the strong collective desire for the Agreement to succeed and the recognition of the positive contribution of the programme to the National programmes through the furthering of these beneficial applications of peaceful uses of nuclear science and technology.

The biannual meetings of RCA review the total programme, examining issues such as implementation progress and priorities. These meetings have an added advantage of providing a forum to enable the projects to be continually assessed and, if necessary, fine tuned to match the evolving needs and priorities of the Member States as well as the technical advances and changes. The extensive use of country nominated counterparts for all the technical projects and their participation in periodic meetings to advise on all technical aspects, has presented the participating Member States with an equal opportunity to make technical inputs into the formulation, monitoring and evaluation of the regional projects.

Extensive use is made of the networks of national counterparts and they are the information interfaces between the IAEA and their national activities. The importance of their role has been noted on many occasions and Member States have responded by nominating appropriate, highly knowledgeable, experienced and capable individuals for these demanding tasks, irrespective of whether they are part of the national nuclear institutes, the formal counterparts for this Agreement. The National RCA Co-ordinators are progressively playing an increased role in the co-ordination of the various technical project activities to assist in increasing the efficiency and the effectiveness of the RCA programme at the national level.

The second programme requirement, after securing the participation of the high quality personnel in the programme, has been the need to have projects that are formulated to satisfy the regional needs. This has been achieved through the use of project formulation meetings attended by National Counterparts from each Member State wishing to participate in the project. This mechanism has allowed the formulation and design of these regional projects to take place in a democratic and transparent manner, ensuring that the benefits are experienced by participating states as widely as possible. This approach has had major benefits because it has led to well-planned, well-structured project proposals whose aims, objectives and outputs are clearly spelt out. This has facilitated the management and the monitoring and evaluation of the project. In recognition of these advantages, all projects in the 1993 programme were defined in the reports from their project formulation meetings.

The third important factor in the RCA programme has been the securing of adequate financial resources to allow the activities to be implemented. RCA is exceptional because of the high level of extrabudgetary support it has attracted. Currently, two thirds of the budget is financed from these extrabudgetary sources, with the remaining one third of "seed funding" coming from the IAEA.

The major extrabudgetary donors are UNDP and the Governments of Australia and Japan. However, these are not the only sources of extrabudgetary or project support.

There has been a growing recognition by developing RCA Member States of the maturing of RCA and with it, the need to begin to assume more of the financial burden of the programme. In 1994, as well as the training courses financially supported by the Governments of China, India and the Republic of Korea, pledges of future extrabudgetary cash payments or actual payments had been made by the Governments of China, India, Indonesia, Republic of Korea, Malaysia, Philippines and Thailand which together would add another \$170,000 annually to the approximately \$3 million cash budget from 1995. New Zealand will also become a cash donor in 1995.

In addition to the cash budget, there is an extensive 'in-kind' budget covering the local costs for the programme which are provided by the National Governments to support the various project activities. Such support ranges over many aspects from providing the support cost for implementing regional events hosted in their country, through to the provision of cost free experts and facilities for project use, to the provision of facilities and support for long-term project staff stationed in the region. Although these 'in-kind' contributions are not quantified in terms of their actual cost, the contribution and magnitude of the support in terms of facilitating the programme is extremely significant. The demonstrated commitment of Member States to the ideals of the Agreement and their recognition of the role it can play in actually achieving co-operation and collaboration in nuclear science and technology and providing a wide range of benefits to their countries, has resulted in the programme being dynamic, focussed and having a high level of achievement. It is widely perceived that the RCA programme is responsive, relevant, realistic and produces results. In 1994 there were 12 Technical Co-operation projects and 5 Co-ordinated Research Programmes being undertaken within the framework of RCA.

The largest field of activity in the programme is Industry and the Environment which is largely covered by the joint UNDP/RCA/IAEA project on "The Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development" (RAS/92/073). This has been planned to operate for the four year period 1993 to 1996 and has an overall budget of some US\$6.48 million. This project accounted for around 46% of the estimated budget for 1994.

The main aims and objectives are to upgrade the capabilities of key personnel in science and industry in the technology and techniques using isotopes and radiation suitable for addressing the problems of environmentally sustainable development. Five basic technologies are being exploited to achieve these ends. Nucleonic control systems and tracer technology are being used to improve and optimize industrial processes. Nuclear analytical techniques and tracer technology are being used to study environmental pollution. Radiation technology is being used to treat industrial and municipal wastes as well as reduce process emissions through new industrial applications. Non-destructive evaluation is being used to minimize the failure of industrial equipment with consequent minimization of environmental pollution.

The second largest field of activity in the use of nuclear techniques in medicine and this was 25% of the 1994 budget. The areas of interest were in: the Maintenance of Nuclear Medical Equipment; the Diagnosis of Hepatitis B Using Radioimmunoassay; the Establishment of a Total Quality System for Tissue Banking Using Radiation Sterilized Tissues; the training of Nuclear Medicine Technologists; the Use of Computers in Technetium-99m Imaging; and, the Treatment of Hypothyroidism Using Iodine-131 Therapy.

The third largest field is radiation protection which concentrates on five aspects: internal and external dosimetry; emergency response to radiological accidents; training in radiation protection for industrial users of ionizing radiation; compilation of reference data for Reference Asian Man; and the interpretation of ICRP-60 Recommendations. Radiation Protection activities accounted for 14% of the 1994 budget.

The remaining 15% of the budget is used to support projects in Information Systems, Energy and Nuclear Power Planning, Research Reactor Utilization, assisting Technical Co-operation between Developing Countries and the Fixation of Atmospheric Nitrogen using Rhizobium Legume Symbiosis.

The RCA activities for each project can cover items such as training events, seminars, fellowship training, co-ordinated research and provision of experts and equipment, depending on the specific outputs required. Most of the projects are designed to have an impact in the wider community and the process of technology transfer aims at establishing national self-reliance to backstop the technology as well as producing the end user impact.

The RCA has been an important vehicle for promoting co-operation and collaboration in the peaceful uses of nuclear science and technology in the Asia Pacific region. Member States have experienced, at first hand, the benefits that have flowed, not only to the national nuclear centres but to the wider community. Through their own decisions and actions they have formulated realistic and relevant projects in their areas of regional priority by consensus. The dynamism of these projects has been maintained through the review and revision process built into the RCA. The enthusiasm and commitment of the Member States has ensured the maintenance of high standards of results and achievement and they have backed the Agreement with significant levels of resources. The maintenance of the unusually high levels of extrabudgetary funding has to be seen as indicative of the donors' endorsement of the success of Member States in setting and achieving the various project goals in an efficient and effective manner. The increased number of Member States who are also becoming extrabudgetary donors is continuing evidence of their endorsement and commitment to the RCA ideals.

Annex 27

MEMBER STATES EXTRABUGETARY CONTRIBUTIONS TO RCA PROGRAMME

Country	Cash Donation	Fully Paid Training Course
Australia	A\$1.5 million/3 years (1994-1996)	-
Bangladesh	-	-
China	US\$50,000/year*	-
India	US\$25,000/year*	2 (est \$50,000)
Indonesia	US\$50,000/3 years (1994-1997)	-
Japan	US\$478,900/year**	-
Republic of Korea	US\$200,000/year (1995-1998)	1 (est \$25,000)
Malaysia	US\$50,000/3 years (1993-1996)	-
Mongolia	-	-
Myanmar	-	-
New Zealand	xxx	-
Pakistan	-	-
Philippines	US\$2,000/year***	-
Singapore	-	-
Sri Lanka	-	-
Thailand	US\$10,000/year(1995-1997)	-
Viet Nam	-	-

* Starting 1995

** Subject to available resources, this contribution has been given each year from 1988 to 1994.

*** Subject to available resources.

xxx To be notified.

**ESTABLISHMENT OF A PROGRAM FOR
REGIONAL SHARING OF RESEARCH
REACTOR FACILITIES**

**REPORT OF TECHNICAL COMMITTEE MEETING
ORGANIZED BY THE
INTERNATIONAL ATOMIC ENERGY AGENCY
AND HELD AT DHAKA, BANGLADESH
4-7 JULY 1994**

1. INTRODUCTION

The Asia Pacific region has largest concentration of nuclear research reactors among the developing countries. The region also has a mixture of industrialized, newly industrialized, and developing economies and of diverse backgrounds. The establishment of nuclear research reactors and laboratories represents significant investment for each of these countries. It was felt that a regional cooperation should be developed so as to make the best utilization of these facilities for mutual benefit. The International Atomic Energy Agency (IAEA), therefore, organized a Technical Committee Meeting, 4-7 July 1994, at Dhaka, Bangladesh to explore ways and means for initiating regional cooperation and to identify areas where meaningful cooperation for the region could be effected.

The meeting was attended by eleven regional countries including the host country, Bangladesh. A list of the participants is given at Annex-I.

The participating experts presented experiences in utilizing their research reactors and experimental facilities. The papers presented are attached as Annex-II. A panel discussion followed, considering several issues, and available potential and needs for developing a program for regional cooperation. Outcome of the discussions is presented in the text that follows.

2. TOPICS DISCUSSED

Following topics were discussed to determine areas which would be most suited for regional cooperation:

- Scope for bilateral, multilateral and regional cooperation;
- Short term and long term goals;
- Feasibility of designating appropriate research institutes as 'centers of excellence' for regional collaboration;
- Regional sharing of research reactor facilities;
- Finding a regional answer to overcome shortages of human, hardware and financial resources;
- Regional cooperation for upgrading/refurbishing of research reactors;
- Extending benefits to regional countries where there is no research reactor at the moment;
- Follow-up actions.

3. POSSIBLE AREAS OF COOPERATION

After a thorough discussion among the participating experts, the following areas were identified to be the most appropriate for regional cooperation:

- Education and training,
- Sharing of research reactors experimental facilities;
- Upgradation/refurbishing of research reactors covering instrumentation & controls, electrical, mechanical equipment, reactor analysis, safety, experimental facilities, problem-solving;
- Establishment of a regional nuclear data program;
- Information exchange.

3.1 EDUCATION AND TRAINING

Availability of well qualified and skilled manpower is a pre-requisite for successful implementation of any program. This is particularly true for the utilization of research reactors. However, some countries in the region are facing a shortage of suitably trained manpower in various fields of nuclear science and technology. A major cause for this situation is the decline of opportunities for academic and specialized training not only for the scientists and engineers but for the technical support staff as well. The support for higher education and training at universities and other institutions in the industrialized countries is limited by the high cost and other constraints. It was, therefore, considered useful to explore the possibility of improving academic qualifications and on-the-job training through regional collaboration. This would reduce the financial costs as well as promote mutual cooperation in the region.

3.1.1 Academic Training

Academic training at post-graduate and doctorate levels, as well as specialized courses in the fields of Nuclear Engineering and related subjects, can be arranged in some countries in the region. These facilities may be available to the Member States, possibly, through Agency arrangements. A collaboration program can be developed to meet specific regional needs and to support national efforts for the development of manpower.

3.1.2 On-the-job Training

Practical training is needed to improve skills and on-the-job experience. The needs and

interests may vary in specific cases but following fields were identified to be of common interest:

- Reactor operations and maintenance;
- Neutron scattering, neutron diffraction;
- Neutron activation analysis;
- Neutron radiography;
- Reactor safety;
- Radioisotope production;
- In-service inspection of reactor and associated systems.

The level of expertise in these fields differs widely at various institutes. There are some institutes which can offer training facilities while others can benefit from such opportunities. A collaborative program may be established after needs and priorities are defined and an appropriate frame work is established.

3.2 SHARING OF RESEARCH REACTOR EXPERIMENTAL FACILITIES

Many research reactors in the region are under utilized. Major causes were identified by participating experts to be:

- Lack of experimental facilities to perform a wide range of investigations;
- High cost of instrumentation which imposes a limit on installation of new facilities;
- Outdated facilities which cannot be run efficiently;
- Shortage of manpower resulting in the reduction in number of research programs.

It was generally agreed that a program of sharing research reactor experimental facilities would help overcoming the above problems. Sharing will also help in the following areas:

- Enable researchers in Member States with no research reactors to initiate and participate in reactor-based techniques;
- Assist countries, whose reactors might be shut down for extended periods for maintenance, refurbishment, upgrading or other reasons, to continue their programs in research reactor utilization;

- Provide access to better facilities such as with higher flux, better resolution, better instruments, modern software, etc

The Committee discussed the possibility of sharing of experimental facilities. It was suggested that an assessment of the needs and availability of facilities must be made in the first instance.

3.3 UPGRADING/REFURBISHING OF RESEARCH REACTORS

Several of the research reactors in the region have been built in the 1960s and 70s and have now seen considerably long periods of operation. These are facing problems arising from ageing related degradation, retrofitting requirements to satisfy new safety criteria, obsolescence of equipment and nonavailability of spare parts. The programs for upgrading and refurbishing are generally aimed at resolving such issues. In some cases the upgrading may be desirable for conversion of core to low enriched fuel, improving the reactor availability, or for enhancing neutron flux, reactor utilization.

3.3.1 Experience

Significant experience in upgrading/refurbishing of research reactors is available in the region. This comprises completion of activities related to renovation of instrumentation and controls, reactor core analysis, safety improvements, replacement of electrical and mechanical equipment, and experimental facilities as well as enhancing the power level.

Experience also exists for detailed analysis and solution of problems related to corrosion, vibrations, etc. Ageing related studies and in-service-inspection have also been carried out in some cases. The results of such studies are helpful in determining the health of important components and for assessing their useful residual life. This know-how and experience is extremely valuable in the identification of scope of refurbishing/upgrading requirements, planning and preparatory work for extending the useful life of the facility in a cost-effective manner.

3.3.2 Scope

The requirements generally comprise one or more of the following types of upgrades:

- Instrumentation and controls;
- Safety;
- Reactor performance for enhancing e.g. neutron flux at specific location, improved fuel management;
- Reactor power;
- Equipment.

It was observed that some countries have completed such activities while some of the other countries have taken up such programs or are planning for it. It was concluded that collaboration in this area would be feasible.

Since Ageing of research reactors is a common problem in the region, cooperation in this field is expected to bring significant benefit. In this direction, the TCM recommends that the IAEA may consider: (1) initiating a Coordinated Research Program (CRP) on "Ageing Management of Research Reactors"; and (2) organizing a Scientific Workshop on some aspects of upgradation/refurbishing of research reactors.

3.4 Nuclear Data

Necessity of establishing a Nuclear Data Center for the Region was strongly felt. Since the establishment of a new center would involve considerable financial and human resources, it is proposed that one of the existing centers in the region might be identified and developed as a regional Nuclear Data Center. Experienced scientists of the region in this field can collaborate with the regional center and share their knowledge to generate nuclear data libraries which will cater to the needs of the participating countries. This task will involve collecting state-of-the-art basic nuclear data bases, data files and for processing into customized libraries and carrying out benchmark exercises for evaluation and validation.

To fulfil the above regional need for the establishment of a nuclear data center, the committee recommends that the IAEA provide assistance, on a priority basis.

3.5 Information Exchange

It was strongly felt that exchange of information pertaining to research reactors would be one of the vital areas of cooperation. This would fulfil a need for establishing an information dissemination mechanism regarding research reactor activities among the regional (and other) countries.

Various options and modalities for developing an effective prograde for this purpose were explored. The kind of information that would prove to be of practical value to the region were also discussed.

On the basis of the above considerations it was recommended that a "Quarterly Research Reactor Bulletin" should be published through which appropriate communication may be maintained among the regional (and other) countries having (or planning to have) research reactors.

4. RECOMMENDATIONS

The exchange of ideas and discussions among the participating experts led to the following general and specific recommendations:

1. A program for sharing of research reactor facilities in the Asia Pacific region is feasible and desirable;
2. Technical requirements have been identified as described in section 3 of this report. This takes into account the available expertise, facilities and needs but details and priorities should be decided;
3. In the field of education and training a need for higher academic qualification,^s on-the-job training for scientists and engineers and practical training of supporting technical staff was recognized;
4. More details are needed for establishing a program of sharing experimental facilities. Data must be obtained regarding the needs and availability of research instrumentation and programs;
5. Efforts should be made to establish a regional center for nuclear data;
6. A bulletin on research reactor related activities in the region (and other countries) will serve to provide vital information and for promoting collaboration;
7. A scientific workshop on upgrading and refurbishing is of interest to several countries in the region;
8. A Coordinated Research Program on 'Ageing Management of Research Reactors' merits favorable consideration;
9. The role of IAEA in establishing a collaborative program will be extremely important. This is needed to establish a framework as well as to provide some financial support for travel, training and some equipment;
10. Steps may be taken to seek support and approval from the participating countries.

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