



REGIONAL CO-OPERATIVE AGREEMENT
INTERNATIONAL ATOMIC ENERGY AGENCY



IAEA-RCA-95-06

REPORT

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

IAEA - Vienna, 20 September 1995

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

**8:30h Wednesday, 20 September 1995
VIC, C07, Conference Room V**

1. OPENING

The Meeting was attended by 33 delegates representing all RCA Member States. A list of those attending is attached as **Annex 1**.

The Meeting was opened by the Interim Chairman, Professor A. Djaloeis, Deputy Director General, BATAN, Indonesia. He welcomed the delegates to the Meeting. He thanked all Member States for their active participation and support during the last year and expressed the hope that this support would continue. He pointed out future challenges in the structural, financial and personnel situations. He thanked the RCA Co-ordinator for his excellent contribution to the success of the RCA programme and 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 pointed out the uniqueness of the three regional projects within the Agency. RCA, with 24 years experience, had reached a high stage of maturity and the programme enjoyed a high degree of ownership at all levels. He referred to a Joint Inspection Unit report in which the RCA had received highest rating ever received for a UN Agency project. He suggested that Member States needed to take more control of co-ordination, management, organisation and implementation. By taking over some of these functions, the ownership level in the Region could be even further increased. He asked the delegates to consider how to increase TCDC throughout the RCA programme. The full text is presented in **Annex 2**.

The Interim Chairman called for nominations for Chairman. Dr. Ahmad Sobri Haji Hashim, Director General, Malaysian Institute for Nuclear Technology Research was nominated by Bangladesh, seconded by India and unanimously elected Chairman.

Dr. Ahmad Sobri Haji Hashim expressed his gratitude to the delegates for electing him Chairman. He thanked all Member states and the Secretariat for their support and expressed the wish that, as in the past, all members of the RCA would participate in a co-operative manner, contributing to a successful meeting. He welcomed the delegate from Myanmar, who was attending this Meeting for the first time. He highlighted the strength of the RCA with its 17 Member States participating strongly in the programme and reinforced by the extrabudgetary cash contributions from 10 Member States.

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

2. REPORT BY RCA CO-ORDINATOR

In his review of the RCA programme, Dr. Easey firstly referred to the problems that had been recognised by UNDP at their own Mid Term Review and reported at the Regional Development Cooperation Meeting in Kuala Lumpur in March 1995. The issue of ownership was a particular concern to UNDP. It had been shown that the RCA programme had a high degree of ownership because of its unique organizational structure.

The very positive evaluation given by the UN Joint Inspection Unit was referred to and the Member States were urged to publicize this as a way of promoting RCA to other national and international organizations.

He supported Mr. Qian's proposal for the expansion of Member States activities into the management and operational aspects of the programme within the present proven structure.

He commented on the importance of public awareness generally and urged Member States to be more active in this aspect. With specific reference to the joint UNDP/RCA/IAEA project, he said that there would be a strong component dealing with public awareness/public acceptance in the 1996 work plan.

The full text is given in **Annex 4**.

The Chairman referred to the RCA Co-ordinator's comment that the Member States should take over more responsibilities and asked Mr. Qian to comment further on this item.

Mr. Qian said that the RCA Member States were already deeply involved in project design, formulation, monitoring, design and evaluation but full ownership would only be fully reflected if the Member States got more involved in all the aspects of Project management. He informed the Meeting that in AFRA a cost-free expert assisted the Chairman, taking over part of the project management tasks such as arranging the Project Formulation Meetings, communicating with Member States, and lobbying for funds, if necessary. He said that RCA had regional experts, covering projects who could be more involved in project management. He stressed that the RCA Member States relied too much on the RCA Co-ordinator to manage their projects and that more self-reliance from them would not only ease the burden on the RCA Co-ordinator but also contribute to a greater degree of TCDC. He said he wished to stress TCDC in the future and make it into the most important principle in Technical Co-operation. TCDC was a general goal for the United Nations but, unfortunately, was not always in operation. The Agency wanted to further develop TCDC and create excellent examples of how it could function.

Sri Lanka pointed out that, in recent years, the RCA Member States had taken on the role of shareholders in a company which also had resulted in the observed success of the programme. Sri Lanka expressed the view that the recently evaluated regional UNDP project within RCA (RAS/86/073) had probably been the best project ever in the history of UNDP and this demonstrated that the RCA Member States had already committed themselves to the project showing that "ownership" was not something new for RCA.

3. SEVENTEENTH RCA WORKING GROUP MEETING, Kuala Lumpur, Malaysia, 22-25 March 1995.

The RCA Co-ordinator reported that the report had been circulated in advance to all Member States. The important outcomes from the Working Group Meeting were noted as:

- the acceptance and approval of the draft Annual Report for 1994;
- the Action Plan for 1995 and the budget estimates;

- confirmation by the Republic of Korea to support the RCA project on Nuclear Power Planning Strategies;
- recommendation of the Meeting to support the ongoing new project proposals listed in the Background Documents;
- discussion of the role of the RCA Chairman and decision that it should remain unchanged;
- discussion of the RCA Co-ordinator position and decision that it should remain at present level and there should be a smooth transition between the current incumbent and the successor;
- discussion of the system of Project Formulation Meetings, National Co-ordinators Meetings as effective instruments for the development and monitoring the assessment of the RCA programme and decision that they should continue.

Australia recommended that the report be endorsed and the report on the 17th Working Group Meeting was unanimously accepted by the Meeting.

4. RCA ANNUAL REPORT

The Chairman presented the Annual Report 1994 which was accepted unanimously by the Meeting without comments.

5. RCA PROGRAMME 1996

5.1 New Project Proposals (Annex 5)

The RCA Co-ordinator referred to the programme details in the Background Papers and briefly reviewed the individual items. This was then followed by discussion.

Australia asked that the four projects be considered individually. They were: "The Transfer of Technology for the Production of Co-60 Sources to Brachytherapy", "Regional Training Course on Probabilistic Safety Assessment and its Industrial and Environmental Applications", "Proposal in relation to the Storage and Planning for the Disposal of Radioactive Wastes from Non-power sources", and "Marine Contamination and Transport Phenomena". In addition there had been three projects, where Member States had been invited to indicate their interests

following the Working Group Meeting, but these seemed to have received very limited support and were not being pursued any further. Australia asked to be informed on the financial status of these projects.

The RCA Co-ordinator confirmed that there had indeed only been slight interest from the Region in these latter three projects and this information had been passed back to the proposers. Concerning the possible funding attached to the four projects supported, he stated that there was an indication of possible funding by the Government of Japan for the project on Cobalt-60 and the Republic of Korea had confirmed that they would fund the Regional Training Course on Probabilistic Safety Assessment. However there was no indicated funding yet for the last two items. There was a possibility that the proposal on Marine Contamination and Transport Phenomena might be incorporated into the proposal for a new project funded jointly by UNDP in its Sixth Intercountry Programming Cycle and other sources.

Philippines said that another proposal on "Elimination of Radioactive and Heavy Metal Waste Contamination by Biomediation" had been submitted late and asked to be given some time to consider this proposal. The RCA Co-ordinator responded that this proposal had in principle been accepted last year. The Joint Division had made a presentation on a number of aspects where there might be new initiatives in the agricultural area in the RCA programme. At that time there was some tentative indication that there might be some funding possibility for this project. He proposed to follow up this matter outside of the Meeting to establish whether the indicated financing was still a possibility. He noted that all but one Member States had tabled written interest in the project.

Australia commented on the proposal on "Storage and Planning for the Disposal of Radioactive Wastes from Non-Power Sources", pointing out that it had been extensively discussed at the last Working Group Meeting and stressed that, although Australia was in favour of this project, it needed to be planned very carefully and that particular emphasis would need to be put on "non-power sources". Caution was expressed because a very wide scope would be covered and the need for a focussed approach.

The RCA Co-ordinator replied that he took note of the Australian comments on the complexity of the project and the need to ensure that there was no overlap

with other existing projects. He added that the project would be subject to a Project Formulation Meeting, as was the case with all other projects, which would focus the aims, spelling out the objectives of the project and ensuring it would have quantifiable outputs.

India referred to the problem of overlap, pointing out that the Agency's Waste Management Division also had various programmes in this field, and suggested that discussions were held with this Division to avoid problems.

Republic of Korea asked how the project would be financed.

The RCA Co-ordinator explained that the Project Formulation Meeting would be conducted using Agency funds to set up the proposal in a format that could be attractive to donors. He expected it would have footnote a/ status.

Mr. Barretto commented that there were numerous activities in the field of Waste Management and Radiation Protection and numerous requests for funding from Member States. At the time of the PFM the Agency would bring these to the attention of the Member States to avoid overlapping.

Australia referred to the proposal on "Marine Contamination and Transport Phenomena" and the possibility of including this project within the scope of the new UNDP project. Australia added that they would look at the possibility of providing some financial support for work in this area of technology.

The Chairman asked the Meeting to endorse the four project proposals recommended by the RCA Working Group Meeting.

Philippines referred to the other three project proposals that had not been included in the discussion and asked whether bi-lateral co-operation could be undertaken on recognition of the interest registered by some countries. They also enquired about the minimum number of countries that could be involved in such an arrangement.

The RCA Co-ordinator replied that, according to the Agreement three countries were sufficient to start a project. However, in recent years the practice had been that the adoption of a project into the RCA programme was only

recommended when it had received majority support. He referred to Mr. Qian's speech in which it had been suggested that the TCDC component should be expanded. He noted that there could be opportunities under TCDC to handle such minority interests between developing countries. He urged any interested countries to look to TCDC to serve their mutual interests.

5.2 Review of the RCA footnote a/ projects

The RCA Co-ordinator referred to the list of footnote a/ projects which was included in the background documents (**Annex 6**).

Thailand asked if the project on public acceptance and trade in irradiated food (RAS/0/022) would be continued in 1996 or deleted. The RCA Co-ordinator replied that there had only been seed funding from TC for the project on public acceptance and trade of irradiated food in 1995. On the question of its place in the RCA Programme, he noted therefore that it would not come up for examination as a footnote a/ project before 1997. In the meantime funds might become available to implement part or all activities. The only footnote a/ project that was currently unfunded was RAS/6/016. The last funded activity under this project was in 1994 and it should now be considered by the Meeting for deletion from the programme.

The Meeting agreed that RAS/6/016 should be deleted from the programme.

5.3 Review of the proposed RCA 1996 programme

The delegates were referred to the list of proposed activities (**Annex 7**) and the tentative list of Regional and RCA training courses (**Annex 8**).

China proposed to hold a RCA Regional Training Course on "Application of Isotopic and Geochemical Techniques to Exploration and Utilization of Geothermal Resources", Lushan, in 1996 and noted that this activity should be considered as China's extrabudgetary contribution to RCA. China asked for confirmation that this event had been accepted. The RCA Co-ordinator confirmed that this course was included in the list of 1996 training courses in the Background Documents with a tentative date of April 1996.

Indonesia referred to the Training Courses Programme for 1996 and expressed the interest of hosting the training events on: "Upgrading of Analogue Gamma Camera with IBM PC's and Clinical Software"; "Regulatory Aspects of Control of Sealed Radiation Sources", and "QC, QA and GMP for Production of Radiation Sterilize Tissue Graft Materials". Concerning the new project proposal on "Marine Contamination and Transport Phenomena" Indonesia reported that a letter from MEL Monaco had been received which enquired about their interest in taking part in this project. Indonesia expressed its interest to take part in this programme.

Thailand asked about the relationship of RAS/O/022 to the Agency's other food irradiation programmes. The RCA Co-ordinator replied that there were naturally linkages but they would not address the specific needs set out for the RCA project. He asked Member States to consider if they could provide some extrabudgetary funding.

The Meeting endorsed the 1996 programme.

5.4 List of RCA Counterparts and Co-ordinators

The RCA Co-ordinator drew the delegates' attention to the listing of national co-ordinators and counterparts and their contact information in the background papers and asked them to review details and inform him in writing of any changes.

5.5 Venue, timing and administrative arrangements for the 18th RCA Working Group Meeting

Member States were told that they would be informed of the venue, timing and administrative arrangements for the next Working Group Meeting as soon as the details were finalised by the host Government.

5.6 Recording of National Investments in Industrial Nuclear Technology and the full extent of project activities and impacts.

The RCA Co-ordinator said that it was very important for the Member States to provide this information so that there could be a good region-wide record of the utilization of nuclear technology in industry. The data would be invaluable in

substantiating the claims made in the evaluation of the impact of the project and in the formulation of new proposals.

He also referred to the questionnaire that had been distributed to Member States and the importance placed by UNDP on projects being subjected to a more thorough and comprehensive factual analysis. He asked all Member States to provide the required information.

6. COUNTRY STATEMENTS

Member States were requested to submit their country statements in writing. These are presented in **Annexes 9-25**.

7. OTHER BUSINESS

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

The RCA Co-ordinator explained that the materials in Background Papers 2 were for information on the latest developments within the joint UNDP/RCA project. The Mid-Term Review of the project had taken place in March 1995 and the review team had produced 18 recommendations and findings; of these recommendations the Member States did not agree with six. The responses of the Member States had been put together in a consolidated document which had been tabled at the Tripartite Review Meeting, Wellington, New Zealand, 14 July 1995 (**Annex 26**).

The National Counterparts Meeting in Wellington had thoroughly reviewed the project and concluded that the project was running to schedule and made satisfactory progress. There was anxiety about the loss of UNDP funds and the budget cuts imposed by them. The NCM agreed that it was important to embark immediately on planning for a new project with UNDP funding for their Sixth Intercountry Programme Cycle. An extract of the meeting report is given in **Annex 27**.

The RCA Co-ordinator informed the Meeting that the delegate from New Zealand, Dr. P. Roberts, in consultation with Member States, was now putting

together a draft of a project document for submission to the RCA Working Group Meeting, March 1996.

It was noted that concern had been expressed on the need for continuity in the RCA programme when the present RCA Co-ordinator's term finished in November.

The RCA Co-ordinator reported that the Tripartite Review Meeting had been very productive and the UNDP representative, the Deputy Resident Representative from Jakarta, had been very sympathetic to the appeals for more funding. This has been reflected in a fax from UNDP indicating that there might be access to some funds in 1996. The RCA Co-ordinator pointed out that the UNDP programme priorities and requirements for the Sixth Programme Cycle was still being formulated and that the Agency would try to make certain that this new project would be aligned as well as possible with UNDP's priorities, which were expected to have strong requirements in the fields of sustainable human development and poverty alleviation.

Thailand made some comments relating to the former UNDP project (RAS/86/073) and especially with reference to the excellent evaluation in the JIU report. The feeling was expressed that Member States should be very proud of their achievements in this project. Thailand briefly reviewed the history of the work and noted that the Industrial UNDP project had brought a new life to the RCA. It was emphasized that many new management strategies had been tried out during this time, and some of them had now been introduced to other RCA projects and that the Member States had been intensively involved in the management of the project. It was said that the Member States had had the feeling of project ownership for a long time and it had been shown that the Region had a capability to manage on its own projects. The JIU report had confirmed that this approach had been the right one and a successful one.

Thailand made reference to the forthcoming change in the responsibilities of the RCA Co-ordinator and pointed out that the effect would be opposite to the directions advocated in the JIU report. The successful RCA management showed that the RCA Co-ordinator's current responsibilities were an integral part of this structure which had been successfully operating for a number of years. The reason for change was therefore questioned.

The Chairman suggested that Thailand had expressed the feelings of most of the delegates.

Sri Lanka said that the role of the RCA Co-ordinator as well as the role of the Chairman of RCA had been discussed at length during the last Working Group Meeting. The decision of that Meeting had been that they remain unchanged and proposed that this be endorsed.

The Chairman asked for further comments from the Member States.

Indonesia said they shared most of the comments made by Thailand. Indonesia expressed disappointment that, in the process of decision making, the Member States had not been consulted and wanted to get to know the details of the process that had lead to the present decisions.

The Chairman agreed that the position of the Member States had been made clear in the Working Group Meeting and he asked Mr. Barretto for an explanation.

Mr. Barretto commented that there might have been a misunderstanding that the IAEA would decrease its support for RCA but he felt that the responsibilities for the programme should be clearly shared between the IAEA and the Member States, and that included management responsibilities. He pointed out that the IAEA was providing the Secretariat assistance specified in the Agreement. However the grade of Agency staff members was decided by the Agency and had no impact on the Agreement. The intention was to harmonize the structure of three regional agreements within the Agency. The Agency wanted to strengthen regional co-operation and he assured the Member States of the Agency's fullest support. He went on to refer to a Tripartite Meeting scheduled to be held with representatives of RCA, ARCAL and AFRA on the strengthening of co-operation between the regions. The reason for choosing only three representatives from each group was a merely administrative one and aimed at greater efficiency. It was planned to be an informative meeting, not for making decisions.

Sri Lanka expressed satisfaction over Mr. Barretto's assurance to the Member States that there would not be changes in structure of RCA and the responsibilities and authority of the Co-ordinator in carrying out the programme.

New Zealand noted the concerns of Member States about the RCA Co-ordinator's position and shared some of the feelings expressed by Member States. It was agreed that, with the maturing of the RCA, it was right and proper to expect the Member States to take on more responsibilities for management. New Zealand observed that the success of the RCA had come from its being a tightly focussed and very efficient organisation able to change and actually transfer technology.

New Zealand said that in their assessment, the role of the RCA Co-ordinator was very important, not just as an administrative function but there were also advantages in using the experience of someone close to the IAEA. This experience over a five-year term was a great advantage when compared to the proposed role of the Chairman for one year only, and there was an added element of neutrality. The aspects of neutrality, experience and speed of action need to be considered.

Mr. Barretto expressed appreciation for the work that had been done by the RCA Co-ordinator, because it had been done so excellently, but the Agency wanted to establish a system that would not be dependent on just one person. The Agency felt that Member States should assist the RCA Co-ordinator to do a good job.

The Chairman asked Mr. Barretto to take note of the Member States' wish for a smooth transition between the present RCA Co-ordinator leaving and the new one coming in.

Philippines thanked the RCA Co-ordinator for his dedication, commitment and exemplary work in performing his duties. Sri Lanka seconded the proposal from Philippines and proposed that a formal resolution be adopted at the Meeting showing appreciation for the work the RCA Co-ordinator had done for the programme and proposed that it should be part of the proceedings of this Meeting.

The Chairman noted that all the Member States shared that view and agreed that this be done.

Bangladesh referred to the TPR Meeting for AFRA, ARCAL and RCA and asked how it would be decided which three delegates should participate. The

Chairman asked for the views of the Member States. Thailand proposed that delegates from Japan, Australia, and a member of ASEAN be represented. Pakistan said that the issues to be discussed in the meeting would be important to all Member States and it did not seem not appropriate to have only three of them represented since every Member State had an equal role to play the representation should be broader. Pakistan suggested that it was not appropriate to include a representative from only one regional group and leave others out. New Zealand suggested that representation be on development level; one representative from either Australia or Japan, a developing country and a least developed country. Philippines proposed to have the present, past and future Chairman be represented in the Meeting. Thailand observed that this was the first time that RCA was not operating on consensus, with only three representatives being chosen to participate and report to the other Member States. Thailand regreted this step away from the basic spirit from RCA, which was to operate by consensus.

Mr. Barretto said that the decision on representation was up to the Member States. He confirmed that the number three was exclusively chosen to make the meeting as efficient as possible. He confirmed that the meeting would be only informative and not take any decisions.

The Chairman asked to be given the mandate to select two other participants to represent the whole RCA Region and this was agreed.

Pakistan enquired about the mechanism on how Member States would be informed of the outcome of the TPR Meeting.

The RCA Co-ordinator replied that the three representatives attending the TPR Meeting would prepare a consolidated report and transmit it to the RCA Office which would send it to every National Co-ordinator.

The Chairman of AFRA commented that he had often debated the same issue of value of field management. From AFRA point of view he now found great value in it and there were now three members involved in representing the region in field management.

The Chairman, not only in his role as Chairman but also on behalf of his Government, thanked the RCA Co-ordinator for all his efforts and work, and wished him all the best for the future. He noted that the question remained about who the successor would be and what the transition would be like. He asked the Agency to inform Member States as soon as possible.

The Chairman invited the RCA Co-ordinator to say a few words. The RCA Co-ordinator thanked all Member States for their co-operation, collaboration and friendship over the last five years and expressed the hope that it would be maintained into the future.

The Chairman thanked the delegates for their active participation and exchange of ideas and opinions. He closed the meeting at 11:40 hours.

Summary of decisions taken by the Meeting

1. The Report of the RCA Co-ordinator was adopted.
2. The Report of the 17th RCA Working Group Meeting, Kuala Lumpur was accepted.
3. The RCA Annual Report 1994 was accepted.
4. The RCA project activities for 1996 were endorsed.
5. The following four project proposals were accepted for the 1996 programme:
 - the transfer of technology for the production of Co-60 sources to brachytherapy
 - the regional training course on probabilistic safety assessment and its industrial and environmental applications
 - the proposal in relation to the storage and planning for the disposal of radioactive wastes from non-power sources
 - the proposal on marine contamination and transport phenomena.
6. The Meeting recommended that the appointment of the next RCA Co-ordinator should be made as soon as possible to enable a smooth transfer to occur in 1995 and asked to be advised of the progress of the appointment in a timely fashion.
7. The Meeting registered its appreciation of the dedication, commitment and exemplary work undertaken by the RCA Co-ordinator during his term from 1990 to 1995.

LIST OF PARTICIPANTS

AUSTRALIA

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U Win Aung
Ambassador

U Kyaw Mya
Dy Director
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**TWENTY-FOURTH GENERAL CONFERENCE MEETING OF REPRESENTATIVES
OF RCA MEMBER STATES**

Opening Remarks

by

Qian Jihui, Deputy Director General

Mr. Chairman, Distinguished Delegates,

On behalf of the Director General, it gives me great pleasure to welcome you to the 24th General Conference Meeting of RCA Member States.

In my opening remarks I would like to share with you and develop three points which have a bearing not only on RCA but also on AFRA AND ARCAL.

These three regional co-operative agreements are unique in the UN system and offer us a special opportunity to use our imagination and initiative to structure and carry out our programmes uninfluenced by other models or the preconceived ideas of other Agencies. Each agreement is developing with its own characteristics reflecting the differences between the regions with regard to such factors as availability of extrabudgetary funds and indigenous technological resources. There are of course, many aspects that are or will be common to all three agreements.

RCA, being the oldest, with 24 years experience, has reached a mature state and has now incorporated a variety of design, management and implementation strategies that I believe are essential for a truly viable regional co-operative agreement.

Firstly there is the need for the region to have **ownership** of the

programme. The first essential step is the intergovernmental agreement, which is the cornerstone of RCA, and gives ownership at the governmental level. As we all know, RCA is implemented through the "appropriate institution", which is usually the national nuclear research institute. This provides the second strand of ownership at the institute level. RCA has further extended this, by giving a third strand of ownership at the individual level, through the involvement of the national technical experts in the formulation, design, monitoring and evaluation of specific projects at the Project Formulation, National Co-ordinator, Mid-Term Review and Terminal Meetings for all the projects.

The effectiveness of this three tier structure can be judged from the recent evaluation by the UN Joint Inspection Unit when it reviewed ten projects selected in the Asia Pacific Region. The RCA project received the highest rating ever, 96%, with 9 "excellents" out of the 10 possible. The successful networking of the RCA coupled with the strong commitment of the National Counterpart Agencies, the work of the IAEA and the quality of the private sector participation were all singled out for praise. However, we should not be complacent about this success because I firmly believe that there is still room for improvement.

One area I would like to suggest is that of the **sharing of the responsibilities** for running the programme. Although it is well demonstrated that RCA Member States are fully involved in the design, monitoring and evaluation aspects of their programme, the Agency shoulders almost the total burden of **co-ordination, management, organization and implementation**. We have to deal with the fine detail of making the projects work and achieving the implementation of the large number of activities.

We place great store on providing opportunities for manpower development in the RCA by maximizing the use of local technical expertise and scientific facilities. I feel that we could greatly increase this manpower development aspect, if Member States took over some of the operational tasks and such a change could only increase the important ownership aspect at the working level. I am anxious to pursue this further and I ask you all to consider how you can assist in increasing and developing further Member States participation throughout the whole of the RCA programme.

The second aspect of great importance for the regional agreements and the IAEA is **independence**. The programmes should be independent as a part of the maturing process but of course we still need to maintain the close interrelationship between the RCA and the IAEA. Nevertheless, RCA should have structures that are the direct result of the agreed Member States' needs. RCA has proceeded well in this respect. The development of your programme through the open and democratic processes of project formulation, national co-ordinator monitoring and fully documented reporting have been seen to be effective in producing outputs that address regional needs. Good examples of these are the radiation sterilization of tissue grafts, diagnosis of hepatitis B, radiation protection infrastructures and nuclear instrument maintenance.

An important facet of the independence is the independent capability for fund raising. As I have said before, I do not think it is in the spirit of these agreements that every project should be assumed by Member States to be financed by the IAEA. My view is that each project should be assessed on its merits and that the Agency should be viewed like any potential extrabudgetary donor who might pick up the project if it conforms to their priorities and fund availability. RCA is moving very well in this respect. The programme has

five completely funded footnote a/ projects supported by UNDP as well as the Governments of Australia, Japan and the Republic of Korea, as well as cost sharing with the Agency in three other projects by the Government of China, India, Indonesia, Malaysia, New Zealand, Philippines and Thailand. Of the total 1995 budget for the RCA programme, 58% or US\$1.68 million came from sources outside of the IAEA. I am anxious for the other agreements to also move in this direction.

In the Agency's 1995/1996 programme in East Asia and the Pacific there is for the first time for many years, a regional programme of three projects outside of RCA. This programme is based on the Agency's vision of regional needs and I see this regional support on these two levels of RCA priorities and Agency priorities as an effective and efficient use of our funds in response to the total regional needs.

The third and last aspect of importance that I would like to touch on is the need and obligation for us to make the most efficient and effective use of the technology transfer that is being achieved in the regional agreements. The essence of the agreements is "regional co-operation and collaboration" and the partnership between the Member States in achieving the goals set for their projects should provide enhanced opportunities for ensuring sustainability at both the regional and national levels.

If I might make a simple analogy. The programme is the engine, fueled by the funds and lubricated by TCDC. If we want to make the best use of the "fuel" and have the "engine" last a long time, then we need to have a good quantity and quality of TCDC.

I made moves last year to facilitate the interactions between the three regional agreements by setting up an interregional project on this for 1995/1996. I would like to see more interactions between the regions, with successful projects from one region being transferred to another, making good use of the investments in technology as well as giving added impetus to manpower development and the use of regional expertise and facilities.

I would like to further develop the dialogue on these three topics with all three agreements and I have arranged a joint AFRA/ARCAL/RCA Meeting for Thursday, 21 September at 15:00 hours. I understand each delegation has been given a copy of the discussion points. I do not believe it would be profitable to have all Member States represented since it would not be possible to give everyone a chance to participate adequately in the short time available during the crowded General Conference programme. Nevertheless, in the spirit of co-operation and collaboration I would like to ask you to designate three representatives to come to this meeting and arrange for them to brief the other Members of RCA.

In conclusion, I would like to say that I am very happy of what RCA has achieved. You have developed and demonstrated that you have a maturing programme in which all Member States are playing an increasingly important role and are taking on increased responsibility for all aspects. I believe this should continue and Member States should assume even more responsibility and take more initiatives in dealing with the day-to-day programme issues as well as the broader programmatic and implementation aspects. I would like to hear from you on how this can be achieved, because there can be significant mutual benefits for us in pursuing this development.

Thank you.

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

**08:30H WEDNESDAY, 20TH SEPTEMBER 1995
VIC, C07, CONFERENCE ROOM V**

Draft 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. Seventeenth RCA Working Group Meeting, Kuala Lumpur, Malaysia, 27-30 March 1995.

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

4. RCA Annual Report 1994.

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

5. RCA Programme 1996.

The Meeting is invited to comment on the 1996 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 on the joint UNDP/RCA/IAEA project are presented in background paper 2.

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

**REPORT BY RCA CO-ORDINATOR
Dr. J.F. Easey**

Mr. Chairman, distinguished Delegates, Ladies and Gentlemen,

I am pleased to have the opportunity to briefly report on the progress of the RCA programme since the Working Group Meeting in Kuala Lumpur in March. As you will be aware, the most consuming task has been the involvement in the activities associated with the joint UNDP/RCA/IAEA project on industry and environment and, related to that, the future regional priorities of UNDP and how they might effect the support of the RCA programme in future years.

At the time of the RCA Working Group Meeting, I was also involved in attending the UNDP Regional Development Cooperation Meeting, which was also being held in Kuala Lumpur. This meeting was, in essence, a post mortem on UNDP's Mid-Term Review of their Fifth Inter-country Programme and the start of operations for setting up the Sixth Inter-country Programme, which will start at the beginning of 1997. There were numerous concerns and criticisms raised at that Meeting by UNDP Resident Representatives as well as the Technical Agencies. It was a general view that the UNDP's regional projects were not formulated through any substantial process of dialogue between the UNDP and the Member States. There was a general perception that the projects offered were generally technically 'shallow' and were imposed on Member States who accepted them because they were seen as an extra source of funds but they were not supported with any particular enthusiasm, because no one at the regional level was seen to have any degree of ownership in them. This lack of feeling of ownership and the lack of feeling of commitment had led, in many cases, to very poor implementation. The whole issue of project ownership was a very great concern to UNDP and they were anxious to receive any inputs on mechanisms that could provide greater ownership. I presented a paper at that Meeting entitled "Keeping Pace with Change - the Regional Co-operative Agreement for Asia and the Pacific" in which I outlined where the RCA experience might be useful in addressing a number of the concerns raised during the UNDP's own Mid-Term

Review, copies of which are in the Background Papers. I have had complimentary feedback from UNDP thanking me for the input and also stating that some of the context of what had been raised in the paper would be used for them in the process of conceptualising and formulating the next Intercountry Programming Cycle as noted by the Deputy Assistant Administrator and Deputy Director for the Regional Bureau for Asia and the Pacific, Mr. Paul Matthews. A copy of that correspondence is also in your Background Papers. Certainly ownership has been a continuing theme and I believe quite strongly that the ownership culture that we have been able to develop in the RCA programme is one of the things that has been a very substantial factor moving our programme along.

I felt that the sophistication of the RCA programme and the clear commitment by Member States was worth raising at another forum, and so I wrote and presented a paper at the International Conference on Isotopes held in Beijing in May this year. It highlighted how the RCA programme had a very strongly developed ownership culture which had enabled the programme to develop strongly and produce projects which were: well focused; were bringing benefits to the wider public arena; were fulfilling the specified aims; and, objectives and achieving very practical results.

It was very pleasing for us all to have a major endorsement of the RCA structure this year by a prominent external international body. The UN Joint Inspection Unit published a draft report concerned with the evaluation of ten projects carried out in the Asia and Pacific Region. The results are summarised in the overheads (attached).

As you can see, we performed exceptionally well and, according to the Head of TC Programme Co-ordination, this is the highest rating ever achieved by any project in the UN system. I think this is something we should be significantly proud of and, because this is an outstanding achievement, it is also a thing that we should tell other people about. It is of interest to note that one of the other UN organisations involved in this evaluation was the Asia and Pacific Centre for Transfer of Technology, which is part of ESCAP. They came two ratings of excellent below us, achieving seven excellents. They have been directly set up to manage technology transfer in our Region. I think you can see how the feeling of ownership has worked well in our favour. All parties, in partnership, moved the project

effectively and efficiently forward. This praise is for the Member States, the region's private sector, and of course the IAEA. These projects do not work unless there is this very solid partnership.

The outcome of this inspection by the Joint Inspection Unit has been very timely, coming at a point where we are looking at the possibilities for change within the RCA structure. It could be argued that to be able to achieve these outstanding results, the basic RCA structure is obviously right. If it were not right, we would not be able to be judged better than other agencies in the region. However, I believe, that Mr. Qian's proposal about taking on more responsibility within the established RCA structure, would be a very positive way to move. As he said at the end of his speech, there are mutual benefits for RCA in taking on more responsibility for the programme and for the implementation. The basic structure is obviously set very well, responsive to all the players; at the Government level, the Institute level, at the 'hands-on' technical level, and also at the private enterprise level. We have set up these linkages and they are working effectively. What is now needed is an expansion in the areas where Member States participate, letting them take on some of the burden of the programming and the implementation as well as letting them achieve some of the benefits deriving from this new role. Mr. Qian has said that there is much that can be done in the field of manpower development. The Region can benefit in this respect by having a greater role in the programme.

It has been very important that we have been able to assert that we have a good programme but it has been more important that somebody, remote from the programme, with no vested interest, has said we have a good programme, and given it considerable endorsement. We should be proud of this. We should tell other people about this. It is a very significant achievement and, with it, we will be in a good position to be confident when potential donors come to look at our programme. We can show that one of the achievements has been this good record for implementing projects, of benefit to the Region, in a timely and efficient manner and achieving good outputs and benefits beyond the narrow confines of the interests of the national nuclear research institutes.

Finally Mr. Chairman, moving to our present concerns. Because of the considerable uncertainty about funding for the next year, 1996, I have been continuing to explore how we might finish the present joint UNDP/RCA/IAEA project. We have had some ray of hope in the fax received from UNDP two days ago in

which they have held out the possibility of some funding in 1996, providing that a new work plan is submitted and this work plan addresses a number of items. One particular subject they have highlighted, is the topic of increasing public awareness/public information about the nuclear technologies.

Those present at the Tripartite Review Meeting last year will recall that, as an outcome of the TPR, there were two new outputs placed in this joint project. One was on technician training and the other was on public awareness/public information. As I have indicated earlier, I firmly believe that we must do more on this public awareness and promotion issue and the work plan to UNDP for 1996 will have a strong component in it to deal with this. This is not only an RCA problem, this is a general problem. We still do not do enough on the public acceptance issue. I mentioned this in my remarks when I participated in the closing ceremony for the International Conference on Isotopes in Beijing in May 1995. I noted that there had been a very successful meeting with everybody pleased with the developments in various areas of applications of nuclear technology but, although we had won the technological battles, we had lost the war as far as public acceptance was concerned. Many of us have been at international conferences where everybody was congratulating themselves on the successes of the science and technology but increasingly the public perception of nuclear technology becomes more and more suspicious and nuclear issues become more and more controversial. We must pay more than lip service to this public awareness issue and we must inform other national bodies and international bodies about what we are doing. This is in the same vane as my urging you to say how well RCA has done in the evaluation by the Joint Inspection Unit. This is another way of promoting and projecting our profile. In doing this, RCA will get better chances for collaboration with other bodies, better co-ordination, less overlap.

In an environment where financial resources are becoming far more restricted and where the donor dollar is very difficult to get, the more we can demonstrate our collaboration and partnerships internally and externally, the better will be the chances in the future for the maintenance of our present programme and perhaps even expansion.

With those comments, Mr. Chairman, I like to conclude. Thank you very much.

A DRAFT REPORT HAS JUST BEEN DISTRIBUTED BY THE UN JOINT INSPECTION UNIT (JIU) ENTITLED "UN SYSTEM SUPPORT FOR SCIENCE AND TECHNOLOGY IN ASIA AND THE PACIFIC", (A.186 FEBRUARY 1995), IN WHICH 10 PROJECTS SELECTED IN THE ASIA PACIFIC REGION WERE CLOSELY EVALUATED. THE REPORT'S FINDINGS WERE DERIVED 50 PERCENT FROM FIELD INVESTIGATIONS, 30 PERCENT FROM AN INFORMATION CHECKLIST FROM THE EXECUTING AGENCIES AND 20 PERCENT FROM DESK REVIEW, ESPECIALLY MID-TERM AND TERMINAL PROJECT EVALUATIONS.

ONE OF THESE TEN PROJECTS WAS THE RCA INDUSTRIAL PROJECT RAS/86/073, PART FUNDED BY UNDP, WHICH TERMINATED AT THE END OF 1991. THIS PROJECT ACHIEVED THE HIGHEST RATING FOR ITS OUTPUT PERFORMANCE (96 PERCENT) WITH RATINGS OF "EXCELLENT" IN NINE OF THE TEN CATEGORIES. THE NEXT PROJECT ACHIEVED SEVEN "EXCELLENT" RATINGS.

"THE SUCCESSFUL NETWORKING OF RCA WITHIN THE REGIONAL INDUSTRIAL CONTEXT RESTED ON THREE MAIN FACTORS: (A) THE EXCELLENT JOB DONE BY IAEA IN PROJECT CONCEPTION, PLANNING AND EXECUTION; (B) THE STRONG COMMITMENT OF NATIONAL COUNTERPART AGENCIES AND READINESS OF PARTICIPATING GOVERNMENTS TO COLLABORATE ACTIVELY WITH CAPTAINS OF PRIVATE INDUSTRY; AND (C) THE RESOURCEFUL AND TECHNOLOGICALLY ADVANCED PRIVATE SECTOR THAT PROVED ABLE TO ABSORB AND BUILD ON THE PROJECT'S RESULTS".

"AS SHOWN IN THE OUTPUT PERFORMANCE TABLE, RCA WAS IN MANY RESPECTS A REMARKABLY SUCCESSFUL UNDERTAKING INVOLVING CLOSE INTERACTIONS AMONGST SEVERAL KEY ACTORS, NAMELY THE HOST GOVERNMENT., IAEA., UNDP., ABOUT 18 NATIONAL IMPLEMENTING AGENCIES OR CENTRES OF EXCELLENCE., AND OVER 100 PRIVATE SECTOR COMPANIES..."

"RCA AND RNAM (THE SECOND RATING PROJECT) STAND OUT IN SEVERAL RESPECTS AS EXCELLENT CASE STUDIES ON HOW UN SYSTEM ORGANIZATIONS CAN AND SHOULD SUPPORT CAPACITY BUILDING IN THE DEVELOPING COUNTRIES IN ORDER TO ACCELERATE THEIR ECONOMIC AND INDUSTRIES GROWTH. THE MAIN LESSON IS THAT PROJECTS SHOULD NOT BE PLANNED AND EXECUTED IN AN IVORY TOWER BUT IN FULL AND ACTIVE PARTNERSHIP WITH THE MAIN STAKEHOLDERS, ESPECIALLY THE EXPECTED USERS OF PROJECT OUTPUTS".

b) NEW PROJECT PROPOSALS

The 17th RCA Working Group Meeting recommended the following new project proposals be supported as part of the RCA programme:

- Transfer of Technology for the Production of ⁶⁰Co sources for Brachytherapy.
- Regional Training Course on Probabilistic Safety Assessment and its Industrial and Environmental Applications.
- Storage and Planning for the Disposal of Radioactive Wastes from Non-Power Sources.
- Marine Contamination and Transport Phenomena.

These proposals are attached for reference.

The following three items were requested to be given further elaboration and Member States were asked to register their interest by the end of April.

- a) Determination of Glomerular Filtration Rate;
- b) Enhancement of the Production and Quality Control of Radioisotopes and Pharmaceuticals; and,
- c) Regional Training Course on Noise Analysis and its Applications.

At the end of May only four responses were received supporting item (a), none on (b) and only three responses were received for (c). Because of the lack of consensus on the projects no further action was taken.

A proposal carried over from the 23rd General Conference Meeting in 1994 because of late finalization of the document is attached.

- (d) Elimination of Radioactive and Heavy Metal Waste Contamination by Bioremediation.

RCA FOOTNOTE A/ PROJECTS 1996

Project Number	Approval Date	Project Title	Status	Comments
RAS/0/021	1994	Nuclear Power Planning	Funded	Supported by Republic of Korea
RAS/0/022	1995	Public Acceptance and Trade in Irradiated Food (RCA)	Unfunded	Part TC funded for 1995 only
RAS/6/016	1988	Use of Computers for Technetium-99m Imaging (RCA)	Unfunded	Supported by Australia from 1989 to 1991 and TC in 1994
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

PROPOSED RCA PROJECT ACTIVITIES FOR 1996

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	J. Mircheva	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
	Transfer of Technology for production of ⁶⁰ Co. sources for brachytherapy	.	.
Industry and the Environment	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	I. Lewkowicz	
	- Non-Destructive Testing	M. Walsh	
	- Radiation Technology	V. Markovic	
	- Nucleonic Control Systems	I. Lewkowicz	
	- Nuclear Analytical Techniques	R. Parr	
Marine Contamination and Transport Phenomena	.	.	

PROPOSED RCA PROJECT ACTIVITIES FOR 1996

Field	Project	Technical Officer	Project No.
Agriculture	Public Acceptance of and Trade Developments in Irradiated Food	P. Loaharanu	RAS/0/022
Radiation Protection	Strengthening of Radiation Protection Activities: - Intercomparison of Radioactivity Measurement - CRP: Reference Asian Man Phase II Storage Planning for Disposal of Radioactive Wastes from Non-Power Sources	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/0/021 RAS/0/023 RAS/0/015

• to be assigned.

**REGULAR REGIONAL TRAINING COURSES PROGRAMME
IN THE EAST ASIA AND PACIFIC REGION
1 9 9 6**

1)	4 - 22 March	FAO/IAEA RTC on the Use of Immunoassay Technologies for Studies on the Diagnosis and Control of FOOT-and-MOUTH DISEASE in South Asia HO CHI MINH CITY, Viet Nam	RAS-5.031-001 (US\$145,000)	Jeggo (Mandorff)
2)	1 - 14 July	RTC on Molecular Approaches, Mutations and other Biotechnologies for the Improvement of VEGETATIVELY PROPAGATED PLANTS KUALA LUMPUR, Malaysia	RAS-5.032-001 (US\$100,000)	Ahloowalia (Pechmann)
3)	7 - 25 October	RTC on Quality Assurance in RADIATION THERAPY DOSIMETRY MANILA, Philippines	RAS-6.025-001 (US\$115,000)	Matscheko (Pechmann)
4)	November (2 weeks)	RTC on Regulatory Control of NPP TAEJON, Rep Korea	RAS-9.016-001 (US\$105,000)	Mrabit (Pechmann)

**RCA TRAINING COURSES PROGRAMME
IN THE EAST ASIA AND PACIFIC REGION
1 9 9 6**

1)	18 - 29 March	RW (RCA) on NUCLEAR INFORMATION SYSTEMS KUALA LUMPUR, Malaysia	RAS-0.019-002	Atieh
2)	April	RTC (RCA) on Application of Isotopic and Geomechanical Techniques to Exploration and Utilization of GEOTHERMAL RESOURCES LUSHAN, China	RAS-0.015-029 (Chinese funds)	Yurtsever
3)	May	RTC (RCA) on ENPEP BANGKOK, Thailand	RAS-0.023-001	Molina
4)	26 August - 5 September	RW (RCA) on Development and Utilization of CMPM/CMQA SEOUL, Republic Korea	RAS-4.008-007	Xie
5)	October (originally planned for 1995)	RTC (RCA) on PROBABILISTIC SAFETY ASSESSMENT on Industrial and Environmental Applications TAEJON, Republic of Korea	RAS-0.015-027 (Korean funds)	Gubler
6)	October (3 weeks)	RW (RCA) on Upgrading of Analogue GAMMA CAMERA with IBM PC's and Clinical Software JAKARTA, Indonesia	RAS-4.008-008	Xie
7)	November	RTC (RCA) on Implementation of the BASIC SAFETY STANDARDS BOMBAY, India	RAS-0.015-028 (Indian funds)	Griffith
8)		RW (RCA) on Regulatory Aspects of Control of SEALED RADIATION SOURCES to be informed	RAS-9.006-014	Thompson

9)		RTC (RCA) on QC, QA and GMP for Production of Radiation sterilize TISSUE GRAFT MATERIALS to be informed	RAS-7.003-009	Mircheva
10)		RW (RCA) on CONTAMINATION MONITORING TOKAI, Japan	RAS-9.006-015 (Japanese funds)	Griffith

**TRAINING COURSE PROGRAMME
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
IN THE EAST ASIA AND PACIFIC REGION**

RAS/92-073

1 9 9 6

1)	15 - 19 January	RTC on INDUSTRIAL STERILIZATION: Regulations, Standards and Enforcement KUALA LUMPUR, Malaysia	RAS-8.071-015	Markovic
2)	5 - 9 February	RTC on Application of Electron Beam Technology for Purification of FLUE GASES TAKASAKI, Japan	RAS-8.070-007 (Japanese funds)	Markovic
3)	11 - 13 March	REMS on the Application of Nucleonic Control Systems to COAL PROCESSING OPERATIONS MAE MOH, Thailand	RAS-8.064-009	Thereska
4)	11 - 22 March	RW on the Application of Nucleonic Control systems to COAL PROCESSING OPERATIONS MAE MOH, Thailand	RAS-8.064-010	Thereska
5)	March	REMS on Nuclear Analytical Techniques in ENVIRONMENTAL STUDIES BANGKOK, Thailand or DALAT, Viet Nam	RAS-8.071	Parr
6)	April	RW on NDT for NON-METALLIC MATERIALS ev. SINGAPORE	RAS-8.071-012	Dobrowolski
7)	May	RTC on Process and Quality Control in RADIATION PROCESSING TAKASAKI, Japan	RAS-8.070-010 (Japanese funds)	Markovic
8)	June	RW on Nucleonic Control Systems in PAPER INDUSTRY SHANGHAI or BEIJING, China	RAS-8.071-008	Thereska

9)	June	RS on Nucleonic Control Systems in PAPER INDUSTRY SHANGHAI <u>or</u> BEIJING, China	RAS-8.071-009	Thereska
10)	August	RTC on RADIATION CURING TAKASAKI, Japan	RAS-8.070-011 (Japanese funds)	Markovic
11)	October	RW on Regulation and Inspection of Operation of RADIATION FACILITIES Ev. JAKARTA, Indonesia	RAS-8.071-016	Markovic
12)	October	RW on NDT TEST PIECES - Pipes BANGKOK, Thailand <u>or</u> MANILA, Philippines	RAS-8.070 (Japanese funds)	Dobrowolski
13)	October	RS on NDT TEST PIECES - Pipes BANGKOK, Thailand <u>or</u> MANILA, Philippines	RAS-8.070 (Japanese funds)	Dobrowolskii
14)	November	RW on QA-QC and Application of ISO-25 to NUCLEAR ANALYTICAL TECHNIQUES HYDERABAD, India	RAS-8.071-017	Parr

TRAINING COURSE PROGRAMME
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 IN THE ASIA AND PACIFIC REGION
RAS/92/073
1996

1)	January	RTC on Application of EB Technology to FLUE GASES Japan	RAS-8.070-007 (Japanese fund)	Markovic
2)	January	RTC on INDUSTRIAL STERILIZATION Regulations, Standards and Enforcement Kuala-Lumpur	RAS-8.071-015	Markovic
3)	March	REMS on NAT in ENVIRONMENTAL STUDIES Bangkok or Dalat	RAS-8.071-012	Parr
4)	April	RW on NDT for NON- METALLIC MATERIALS Singapore?	RAS-8-071 or Japanese funds)	Dobrowol ski
4)	May	RTC on Process and QC in RADIATION PROCESSING Takasaki	RAS-8.070 (Japanese funds)	Markovic
5)	June	RW on NCS in PAPER INDUSTRY Shanghai-Beijing	RAS-8.071	Walsh
6)	June	RS on NCS in PAPER INDUSTRY Shanghai-Beijing	RAS-8.071	Walsh
7)	August	RTC on RADIATION CURING Australia		Markovic

8)	October	RW on Regulation and Inspection of Operation of RADIATION FACILITIES Jakarta?	RAS-8.071	Markovic
9)	October	RW on Pipeline NDT TEST PIECES Bangkok or Manila?	RAS-8.070 (Japanese funds)	Dobrowol ski
10)	October	RS on Pipeline NDT TEST PIECES Bangkok or Manila?	RAS-8.070 (Japanese funds)	Dobrowol ski
11)	November	RW on QA-QC and Application of ISO-25 to NAT Hydrabad	RAS-8.071	Parr

COUNTRY STATEMENT

AUSTRALIA

TWENTY FOURTH GENERAL CONFERENCE MEETING OF THE REPRESENTATIVES OF RCA MEMBER STATES

VIENNA 20 SEPTEMBER 1995

Mr Chairman, Delegates, Ladies and Gentlemen

On behalf of the Australian delegation I would like to congratulate you, Mr Chairman, on your election to the position of Chairman for the Twenty Fourth 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. At the same time I would like to thank the Interim Chairman for his service to the RCA over the past year.

Overall the RCA has yet again had a successful year, continuing to provide an efficient and effective vehicle for the peaceful application of nuclear science and technology in regional Member States. The implementation of high quality projects has been the trademark of RCA activities and this has continued with further refinement of their objectives and outputs, taking into account the more stringent requirements placed upon development assistance by both donor states and organisations.

The additional resources provided for RCA activities by the individual RCA Member States indicate their commitment to the RCA and in no small way contribute to its continuing success. It is pleasing to note that these resources have continued to grow over the past year, a fact that will permit the successful expansion of activities within the region. Australia would like to thank those members who have provided funds and resources and encourage others to consider what contribution they can make and the benefits that will accrue from them.

Australian Funded Projects

Australia has provided funds for activities which are organised under the umbrella of the joint UNDP/RCA/IAEA 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. The activities commenced in 1993 and will continue during 1995 with total funding of A\$1,500,000. However, these activities will be completed during 1996 using funds remaining from the 1995 allocation.

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 which in turn provides the basis for a series of national seminars. This series is now nearing completion and has covered 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.

By the end of this year it is anticipated that national seminars will have been staged in Bangladesh, China, Republic of Korea, Mongolia, Myanmar, Pakistan, Sri Lanka, Thailand and Vietnam. The topics covered in the national seminars, defined by consultation with national coordinators, include application of nuclear techniques to process materials in the chemical and refining industries, radiation sterilisation, application of nuclear techniques to the metals and manufacturing industries, application of nuclear techniques to coastal engineering and application of radioisotope technology to the coal and mineral industries.

A training course on applications of nuclear techniques in materials science was held in March 1995 at ANSTO, Sydney. The unique capabilities of analytical techniques such as neutron activation analysis, accelerator mass spectrometry and x-ray and gamma ray spectroscopy and of structural characterisation techniques such as neutron diffraction and small angle neutron scattering were demonstrated. The complementary nature of these techniques in the broader context of the more conventional methods was outlined using examples of metals, ceramics, semiconductors, polymers and cement. The usefulness of techniques such as ion implantation and neutron radiography were also demonstrated.

Industrial Radiation Protection

The application of distance learning techniques has provided a useful approach to the problems associated with the development of basic minimum radiation standards and practices as well as the infrastructure for the implementation of these standards and practices. The development and distribution of high quality training manuals for use in the

region by both industrial users and regulators is progressing with 15 basic modules on radiation protection being developed with an additional small group of modules for regulators. Each module includes self assessed tests at appropriate points to ensure that part of the module is understood before the student progresses to further parts. It is planned to stage a regional workshop in Sydney in late 1995 to enable participating country representatives to review the material prior to trials of the package in the region during 1996. These trials will be supported by regional seminars and practical laboratory workshops.

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 provides for the achievement of a higher standard and uniformity of education in nuclear medicine technology in the region. The materials being developed are suitable for use at an individual level or they may be integrated into existing courses of training. A Project Advisory Board Meeting was held in July 1994 followed by a workshop for course developers. A series of two day workshops for national course coordinators in Malaysia, Indonesia, India and Sri Lanka were held in January 1995. Preliminary testing of the draft material took place from January 1995, with actual pilot testing with students commencing in June 1995. Mid course workshops in participating countries are planned for the period November 1995 to January 1996.

Following successful completion of the project it is to 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 national training program.

Joint UNDP/RCA/IAEA Project

The activities under the Joint UNDP/RCA/IAEA Project have achieved success in the transfer of nuclear technology in a range of disciplines throughout the region. However the large cuts to the country program for 1995 imposed by UNDP are of considerable concern to Australia and indeed all RCA Member States. We are concerned at the possibility that the overall viability of the program will be seriously affected, just as the ability to sustain development at the national level in the industrial and medical applications of nuclear science and technology is being realised in many RCA Member States. Australia has raised these concerns with UNDP directly and urges others to continue to press for the level of funding to be restored as soon as possible.

This matter was discussed at the National Counterparts and Tripartite Review meetings in Wellington in July along with the question of a further joint project funded by the 6th UNDP Intercountry Program. Australia would like to encourage the IAEA Secretariat to take all available steps to ensure both the continuation of funding for the current project and also for the development of the required proposal document for a new joint UNDP/RCA/IAEA project.

RCA Coordinator Position

Australia has concerns that the restructuring of the RCA Coordinator position and its downgrading from D1 to P5 level may have serious consequences for the administration and implementation of the RCA program. Over its lifetime the RCA has been a most successful regional cooperation program and has been used as an example both within and without the Agency. This success has to a considerable extent resulted from the excellent calibre of the persons appointed to the RCA Coordinator position in the last 15 years. Over that time the size of the program has grown considerably as has its quality. It would be a major disappointment, both to Australia and the other Member States if either of these factors were to be diminished. Unfortunately we consider that this is a distinct possibility if the RCA Coordinator does not have the high level of technical and project management skills that a person at D1 level would necessarily possess.

We encourage the Department of Technical Cooperation to monitor carefully the effects of these and any other changes it introduces upon the implementation and outputs of the whole RCA program and ensure that there is no diminution in either regard.

Australia wishes to express its appreciation to Dr John Easey, the RCA Coordinator for the past five years. His drive and enthusiasm, coupled with the high level of his technical skills and project management abilities have assured the incorporation of continual improvements to all aspects of the RCA program. Under his guidance, the program has grown not only in size and output, but also in impact and effectiveness. We thank him sincerely for this and wish him a successful future.

Conclusions

The ability to sustain development at the national level in applications of nuclear science and technology in industry and medicine is now being realised in Member States under the RCA program. Australia firmly believes that this results from RCA activities which have resulted in the development of expertise, technical networks and national infrastructures. These developments have contributed greatly to the peace and prosperity of the region. Australia also considers that the strong commitment currently demonstrated by all RCA Member States will ensure the future success of the RCA and the goals of regional cooperation.

Finally, we would like to recall the paper presented on behalf of those RCA members who are parties to the NPT to the NPT Review and Extension Conference earlier this year. The decision to extend the NPT indefinitely, and the related decisions covering principles and objectives for nuclear non-proliferation and disarmament and an enhanced review process, have enhanced confidence in the permanence of the international non-proliferation regime. Such confidence is essential if nuclear cooperation is to proceed unimpeded by worries about nuclear weapons proliferation. The RCA, and indeed nuclear trade and cooperation generally, can only benefit from the outcomes of the Conference.

Australia looks forward to the continuation of its participation in RCA activities.

Statement of the Chairman, Bangladesh Atomic Energy Commission in the 24th RCA General Conference Meeting Vienna, 1995

Distinguished delegates

At the outset I would like to extend our deep appreciation for the efforts of the IAEA for achieving the targets set for the past one year under various projects under the Regional Cooperation Agreement. I believe that the RCA as conceived originally has been successful in building an effective infrastructure in member countries of RCA in selected fields of peaceful applications of nuclear techniques.

Ladies and Gentlemen

Bangladesh as before has been active in various fields and projects of RCA. I would now like to briefly apprise you with the salient features of these activities.

So far as the utilization of our research reactor is concerned, we are primarily concentrating on neutron beam research, neutron activation analysis and isotope production. The Triple Axis Spectrometer has been tested using standard samples. Structural analysis and magnetic properties of samples including the locally developed magnetic materials have been studied. An on-line PC has been installed for facilitating analysis of different experimental data and results. Matching softwares are also being developed. Neutron Radiography set-up has been installed, tested and basic radiographic parameters have been studied. This method has been used for studying absorption of water in construction materials and quality of samples of leather, plastic and rubber. Basic laboratory facilities for neutron activation analysis have been installed and these are being used to analyse geological and biochemical samples including concentration of uranium, thorium and rare earth elements. The radio-isotope production laboratory is in operation and is capable of producing Tc-99m and I-131 for use in our various nuclear medicine centres. Tracer radioisotope Sc-46 was also produced for studying the silt movement in and around the harbour in Chittagong. Based on the experience at the laboratory scale, we plan to utilize such techniques for quality control and analysis of different materials important to different fields of national development and also to study their environmental effects. In parallel to this, we hope to reduce dependence on imported radioisotopes to the extent possible.

We are also offering our facilities to different local individuals and institutions for conducting R & D in different fields, like marine pollution, electrochemistry and human health and diseases. We hope to enhance scopes of such collaborative research programmes in future.

Ladies and Gentlemen

Analytical methods in chemistry have been traditionally one of our thrust areas. We have successfully developed different methodologies and techniques in our laboratories and continue to provide similar services to different agencies in the public and private sectors. Recognizing the vast potential of such techniques and their relevance to our national needs we are planning to establish an Ion-chromatography and Digital Ion-analyzer System for Cationic and Anionic species along with an Environmental Surveillance Sampling Station, We hope that the Agency would favourably consider our proposal submitted in this connection. We also hope to utilize internal resources for establishing a GC-MS and HPLC Analytical System for analysis of organic compounds. We propose that RCA organizes a Workshop on Characterization and Analytical Standardization of materials for quality control in national analytical services. Formulation of a hard-core training programme encompassing fields like GC-MS, Graphite Furnace Atomic Absorption Spectroscopy may also be considered for the future.

In NDT, Bangladesh is primarily engaged in development and use of techniques in the fields like Q/A and Q/C in industries. BAEC continues to provide such services to different local enterprises like thermal power plants, fertilizer factories, oil and gas network, ship building, oil refinery, paper mills, steel mills, commercial aircraft, railways, barrages and other manufacturing industries. We are also active in the field of development of human resources in NDT, including training and certification. In addition to the RCA, the IAEA and UNDP are providing valuable support to our HRD programme in NDT. BAEC also offers its facilities to different educational and R & D institutions for conducting various R & D programmes. Scope of NDT related activities are being enhanced to achieve self-reliance in due course.

Ladies and Gentlemen

R & D programme of Bangladesh in radiation processing include wood plastic surface coating using UV techniques and radiation vulcanization of natural rubber latex. We plan to establish a pilot plant in order to commercialize the results in

limited scale. Our scientists have demonstrated the usefulness of tracer technology in assessing mercury inventory in electrolytic cells and flow calibrations in the national natural gas grid. We plan to use this technique in fertilizer factories and natural gas based power plants.

Use of nuclear techniques in medicine is one of our thrust areas and BAEC has been active in many RCA projects related to this. Ten laboratories for Radioimmunoassay have already been developed in the country. Bangladesh is also participating in External Quality Assurance Programme with three countries in the region, namely Pakistan, Singapore and Indonesia. We have also recently initiated an interlaboratory quality control programme within the country. Bangladesh actively participates in RCA programme on RIA for diagnosis of Hepatitis B. Five local laboratories are participating in this project, where medical groups, pregnant mothers, neonates and blood donors are the target groups. Arrangements have been made to immunize HBsAg negative babies. Other activities include participation in the projects like Diagnosis of Liver Diseases and Radioaerosol Permeability Studies with BARC Nebulizer. Bangladesh attaches high priority to the ensuing RCA project on Strengthening of Nuclear Medicine. The orientation and short courses on operation and maintenance for technicians is expected to benefit the countries of RCA. In this regard I would like to inform that BAEC is involved in Diploma Courses in Nuclear Medicine in the country.

A programme on Radiation Sterilization of Tissue Grafts is in operation in the country. Radiation Sterilization of amniotic membrane for dressing burn wounds and bone pieces for use in orthopaedic surgery are being produced on a limited scale. Their availability even in limited quantities has already stimulated substantial demands within the country. Bangladesh is interested to participate in other RCA projects, namely Improvement of Cancer Therapy and Use of Radioiodine in management of Thyrotoxicosis. We also welcome offers to provide refurbished and upgraded secondhand Scintillation Cameras.

Ladies and Gentlemen

Maintenance of nuclear medicine and other equipment is of special interest to us, especially in view of paucity of resources. One group of BAEC personnel are involved in upgradation and maintenance of equipment in various laboratories of BAEC and other local organizations. In addition to this, the group is also engaged in development of general purpose microcontrollers, sample changers, temperature controllers and other items used in various R & D programmes.

The Nuclear Safety and Radiation Protection Act of Bangladesh is in force. Related regulations have been formulated, which await governmental approval. Development of human resources is in progress. In the meanwhile, activities like control on imported food stuff, personnel monitoring of radiation workers and radiation safety of existing ionizing sources like X-Ray machines in different places of the country are being conducted on a regular basis.

In the agriculture sector, Bangladesh is participating in RCA projects like Isolation of Rhizobium Strain from Grain Legumes Grown on Acidic Soils, Green House Experiments on Symbiotic Interaction and Lime Piloting Experiments. It has been possible to produce Rhizobial Inoculates in the country on a limited scale, which are distributed for field application. It is planned to conduct agroecological studies in different parts of the country. Extension of HYV mutants of different crops is also continuing,

The Irradiator, established with the assistance of the IAEA as a joint venture with a private sector company has been functioning on a commercial basis since 1993. Market survey and acceptance of irradiated food stuff like onion, potatoes, spices and grains are being conducted. Scopes for implementation of CODEX standards are being studied.

Ladies and Gentlemen

Need for nuclear power in an energy starving country like Bangladesh can hardly be over-emphasized. We note with satisfaction the way the project of RCA related to this has been reformulated. Indigenous capabilities in use of analytical tools for nuclear power planning has already now attained a remarkable level in most of the countries. The newly introduced component on sharing of experience in identifying bottlenecks of implementation and delineation of appropriate strategies is expected to benefit many RCA countries. We hope that scopes under this project will be further widened to assist the countries in implementing their respective nuclear power programmes on a sustainable basis.

The brief account of our involvement in various RCA projects and their benefit bear the evidence of our firm conviction in their effectiveness in using nuclear techniques for peaceful purposes. In Bangladesh, we have reached a stage, from where we should be able to apply such techniques in different sectors of national economy so

as to help attain goals of national development on a sustainable and long term basis. Scopes for sharing experience with the countries in the region are considered invaluable in this context, We need help from others, and for this RCA is an excellent forum. Its activities should not only continue, rather we hope that the scope will also extend in future.

Thank you all.

Country statement of the People's Republic of China
at the Twenty- ~~4th~~ General Conference Meeting
of Representatives of RCA Member States
September 1995, Vienna, Austria

Mr. Chairman, distinguished delegates, ladies and gentlemen:

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.

We are very pleased to participate in the Annual Meeting of Representatives of RCA Member-States being held along with the 39th General Conference. May I recall that China has actively participated in almost all activities in the frame work of RCA since being as the member state from 1985, and will maintain its active contribution in the future programmes. We are confident that RCA is an effective instrument of regional cooperation in nuclear science and technology and all member countries in Asia and the Pacific region have gained much more from this cooperation. We do believe that through this regional cooperation the transfer of nuclear science and technology has been enhanced.

Subsequently, I would like to take this opportunity to briefly report on the activities carried out in China during the period of 1995 and our suggestions for Future RCA activities, as follows:

Industrial Application Project

Tracer Application

We proposed a Regional Training Course on application of Isotopic and geochemical techniques in exploration and utilization of medium to low temperature geothermal resources that will be held in Lushan, China next year. This activity can be considered as a Chinese extrabudgetary contribution to RCA in 1996.

The International Conference on Isotopes was held from 7-12 May 1995 in Beijing. At the same dates, IAEA organized an Expert Advisory Group Meeting (EAGM) on Computer Modeling of Tracer Flow Experiments in Beijing parallel with the ICI.

Nucleonic Control System (NCS) Application

A Regional Workshop on NCS in Paper Industry and a REMS on the same title have been arranged at Shanghai and Beijing, respectively, but postponed to next year.

NDT

A UNDP/RCA/IAEA Regional Workshop on NDT Technology used in Power Stations will be held in Shanghai, 6-17 Nov. 1995. This is a activity supported by Chinese RCA extrabudgetary contribution,

Radiation Processing

In China, there are more than 50 ^{60}Co γ facilities (designed capacities larger than 100kci) has been installed. All the facilities were designed and constructed in China. Only three were imported. The total installed ^{60}Co γ capacities: 6 Million Curies, total designed ^{60}Co γ capacities: 24 Million Curies.

There are more than 30 industrial accelerators have been installed in China. Some of them are domestic made, the others are imported from USA, Russia and Japan. One China made accelerator has been exported to Indonesia and operated well.

The total annual output of radiation processing industry in China is about 500 Million RMB Yuan. The main radiation processed products are: crosslinked wire and cable, heat shrinkable materials and low temperature adhesives.

The economic beneficial operation of radiation facilities is very important both for China and other RCA countries. We are prepared to organize a National Workshop on this title next year in Qingdao, China..

A National Training Course on Radiation Sterilization will be held in Beijing from 9-17 Oct. 1995.

The National Workshop on Radiation Curing Materials will be held in Shanghai from 18-22, Sept. 1995.

The Rad Tech Asia '95 Conference will be held in Guilin, China from 20-24 November 1995. This is the fifth International Conference on Radiation Curing.

A National Training Course on Radiation Vulcanization of Natural Rubber Latex was proposed in Suzhou. Suzhou Medical College will be the host.

Radiation and Environment

The environment problem caused by the increased world energy demands are becoming of growing importance internationally. Radiation Technology can be used to solve some these problems. Flue gas treatment using EB accelerator to remove SO₂ and NO_x have been demonstrated in Poland, Japan and other countries. In China, there are

several institutes interested in this technique: Qinghua University, China Institute of Atomic Energy, Shanghai Institute of Nuclear Research, Beijing Institute of Machinery Automation, they contact with some power plants in Sichuan, Guangdong, Jiangsu and Liaoning provinces. Some conceptual design of (pilot) plants for Flue Gas treatment by EB irradiation have been finished. In some provinces, for example Sichuan Province, the end-user are in favor of EB processing in comparison with the common chemical processing. We need more cooperation with IAEA and other countries in this area. For the development of this technique, it is important to get support from national decision makers and executive managers at this stage, So a NEMS on EB processing of Flue Gas was proposed, this seminar will be held in Beijing in 1996 under RCA support.

Nuclear Analytical Techniques

Nuclear analytical techniques are very important techniques for environment, health, industry, agriculture and archeology.

China actively participated all the RCA Subprojects:

Environmental nuclear analysis, intercomparison, mercury in human hair, airborne dust particle, air pollution study, and others. We hope some activity related will be held in China.

Food and Agriculture

In recent years, China had irradiated foods about 20,000 tones per year, the main product is garlic. The main use of irradiated foods is for domestic consumers.

From August 1994, China participated the International Consultative Group on Food Irradiation (ICGFI). The Chinese National Coordination Group on Food Irradiation (NCGFI) was organized since 1988. Up to now, eighteen kinds of irradiated foods have been proved by Chinese authority.

A Regional Workshop on Food Irradiation Commercialization Market Testing was held in Beijing from 29 May to 2 June 1995. More than twenty participants from different countries of Asian Pacific region attended. Market Testing of different foods from different countries was discussed in detail. The results show good perspective of food irradiation in this region.

The final FAO/IAEA Research Coordination Meeting (RCM) on Irradiation as a Quarantine Treatment of Mites, Nematodes and Insects other than Fruit Flies was proposed held in China next year.

Two Chinese institutes participated the Regional Project on Improvement of Grain-Legume Rhizobium Symbiosis to fix atmospheric Nitrogen. This project has been finished this year.

China strongly support the idea to broading food and agriculture area under the RCA umbrella.

Medical and Biological Application

A National Training Course on QC of Nuclear Medicine Instruments was proposed in Beijing next year.

A National Training Course on Nuclear Medicine doctors and technicians will be held November 1995, in Shanghai and Suzhou respectively.

China strongly supports and participates following nuclear medicine activities: Use of computer for Tc^{99m} imaging for diagnosis of respiratory diseases; Air pollution and lung factions, distance learning for nuclear medicine; Radiotherapy of carcinoma of cervix; I-131 treatment for hyperthyroidism; Upgrading of analogue gamma cameras; QA in Nuclear Medicine and others.

Radiation Protection

The rapid development of nuclear power and application of isotopes and radiation in China demands higher management level of radiation protection and safety. We are actively participated almost all subprojects of Radiation Protection.

A National Seminar is arranged in 1995 to study and exchange ideas on BSS (International Basic Safety Standard for Protection against Ionization Radiation and for the Safety of Radiation Sources)

Research Reactor, Energy and Nuclear Power Planning

In China, there are six research reactors and two nuclear power plants in operation. Seven Miniature Neutron Source Reactor (MNSR) have been in operation, four in China, three in other countries.

We are very interested in the all application-oriented activities of research reactor utilization.

With regard to the Energy and Nuclear Power Planning Project, China has actively participated the related activities, for example, the effective strategies for nuclear power programme implementation, the WASP, MAED and ENPEP Model related activities, Optimized Maintenance of NPP and many others.

Mr. Chairman, China will continue her support to the UNDP/RCA/IAEA joint project and all RCA subproject. Now, RCA enter a new stage, some old projects have been finished. The new "support environmentally sustainable development" Isotope and Radiation Project (RAS/92/073) has been in operation. In the future, RCA faces a new stage. From 20th century to 21th century, RCA should meet the human sustainable development target, that is, how to help solve the problems by using nuclear science and technology in the following areas: human health, energy, water, environment, mineral resource. human heritage. We should arrange some new projects oriented to these areas. We will do our best for the next step's project formulation, and look forward to the

further development of RCA as an efficient, effective, productive and dynamic programme.

Thank you.

Country Statement - INDIA

24th Meeting of RCA Member States, Vienna, Sep 20, 1995

It gives me a great pleasure to participate in the 24th meeting of the RCA Member States being held along with the 39th General Conference. We welcome the entry of New Zealand into the RCA family and look forward to their contribution with their wealth of experience and more active participation among the Member States in the year ahead. The current year had seen substantial progress in all the RCA projects; some of them had been concluded in 1994/95. The UNDP/RCA/IAEA Project on The Use of Isotopes and Radiation to Strengthen Technology and support Environmentally Sustainable Development had, however, been subject to some budgetary constraints from UNDP. The year also saw a mid-term review mission which had commented on the performance of the current phase of the UNDP/RCA/IAEA Project.

RESEARCH REACTOR UTILISATION

Basic Research

During the year, activities that have been carried out in the research reactors at Trombay are:

Neutron reflectivity measurements using a prototype reflectometer set up at Dhruva to study thin films, multilayers etc at grazing angles, so that the reflectivity profile gives information about the nature of the film under study;

Preliminary results have been obtained in 2D detector systems consisting of 80 cm dia, 2-dimensional neutron detector fabricated and assembled with suitable grids (73x73 cells of nearly 5 mm x 5 mm) to act as a 2 dimensional neutron detector. While the test using radioactive x-ray source has been very encouraging, it is planned to fill the chamber with helium gas for neutron detection; this detector is expected to be available for small angle neutron scattering during the course of this year;

Neutron Structural study of $\text{La}_{1-x}\text{MnO}_{2-y}$ system, 1201 superconductor, Structural investigations of Sr-based 123-Superconductor system, Neutron diffraction study of the cation substituted (123) superconductor, Tb-Mn-Fe, Structural phase transitions in ferroelastic TlNO_3 , Magnetic study of $\text{Fe}_{90-x}\text{Ru}_x\text{Zr}_{10}$ Amorphous alloys in mesoscopic length scale, study of nuclear spin conversion in $\text{NH}_4/\text{Alkali-Halides}$ system by time-resolved INS technique at RAL in collaboration, inelastic neutron scattering on CESn_2In , and from $\text{Na}_3\text{BaCl}_{52}\text{O}$ powder, Zr_2NiH_5 , SANS from SDS/Alkali halide solutions, neutron reflectometry from 380 Å thick gold film on float glass and Ni/C multilayers on float glass.

Efforts to develop liquid methane cold neutron source at Dhruva are in progress. Design and development of microstrip detectors for neutrons using printed board circuits is in progress. The first experiment aimed at directly verifying Pauli anti-commutation was implemented with a neutron interferometer in a collaborative experimental program between BARC, Atom-Institut at Vienna and Missouri University Research Reactor at Missouri. Neutron Scattering data from amorphous GeSe systems have been analysed using a reverse Monte Carlo program developed at BARC. A small angle neutron scattering spectrometer at Cirus reactor has been upgraded by installing a position sensitive detector. As a result the throughput of the instrument has increased by atleast a factor of 20 in data collection rates.

The National Coordinator from India had tried to explore with the other counterparts a CRC with the Agency for developing a neutron diffractometer in the region as per the decision of the Project Formulation Meeting held in Korea in April 1994; however, the response has not been very encouraging.

A workshop was organised on Neutron Data Analysis in collaboration with the Inter Unit Consortium at Indore.

An Agency Regional Workshop on SANS was held at BARC during April 17-28, 1995, which was attended by 11 participants from 7 RCA member states besides India.

Neutron Radiography:

Neutron Radiography of a zircaloy pressure tube in which hydride formation was induced in the laboratory, was taken using the direct technique with Gd converter. The existing NR facility has been updated to record pressure tubes. The aim is to identify the hydride blisters or patches in the tube sample. A thick lead cask to house the sample and a lever arrangement to operate from outside the NR set up, to lift the sample for neutron exposure has been provided. The transfer technique using the Dy screen will be used to record the radiographs. Radiographs of a non-radioactive zircaloy sample have been recorded to optimise the exposure and transfer parameters.

MEDICAL AND BIOLOGICAL APPLICATIONS

On the Project on RIA for Hepatitis-B Diagnosis, work has been carried out in improving the reagents and in trouble shooting as one of the expert laboratories involved in the evaluation of Chinese reagents and kits. As part of the phase II of this project, the following work has been completed: Preparation & evaluation of coated beads as a component of bulk reagent, Preparation of Q.C. samples for local use and limited clinical evaluation of high risk group.

We are participating in the CRP on Modern Techniques in Brachytherapy with Special Reference to Developing Countries and our program involves Radical Irradiation for Conservative Management of Early Breast Cancer and role of Bio-effect models. The first RCM of this CRP was held at the Tata Memorial Hospital, Bombay during 4-7 September, 1995.

A study aimed at the evaluation of the efficacy of Mitomycin-C as an adjunct to radiotherapy in advanced cancers of the oral cavity and oropharynx has been taken up for investigation of Head and Neck cancers Multimodal therapy as a part of a CRP on "Randomized Clinical Trial of Radiotherapy combined with Mitomycin-C in the treatment of advanced Head and Neck Tumours". The CRP on Introduction of Computer Assisted dosimetry and database in radiotherapy of the Cervix in Asian Countries initiated a study on Clinical Trial for Carcinoma of the Uterine Cervix. The results showed that there was overall concordance of isodose levels among the data generated by conventional treatment planning software and IAEA supplied PC-based system. The study has since been concluded.

The RCA Project for the Radiation Sterilization of Tissue Grafts, which involves the Tissue Bank at Tata Memorial Hospital, processed nearly a dozen different tissues amounting to nearly 750 samples obtained from cadavers and surgical procedures. These freeze-dried, sterilised allografts have found a variety of clinical applications in the treatment of burns, brain tumour, dural replacement, repair of abdominal and thoracic wall, varied orthopaedic conditions and bone replacement.

The Agency's program on The Use of Isotopes in Studies to Improve Yield and Nitrogen Fixation of Grain Legumes with the Aim of Increasing Food Production and Saving N- Fertilizer in the Tropics and Sub-tropics of Asia, in which International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Andhra Pradesh, participated, had terminated by December 1994 and a final report had been sent to the Agency.

NUCLEAR INSTRUMENTS MAINTENANCE

Gamma Camera to PC Interface Card

Two versions of PC add-on cards, ANUGAMI-P with on-board processor and ANUGAMI-S without on-board processor have been developed to provide intelligent interface between Gamma Camera and IBM PC compatibles. After evaluation of various cards at the Malaysia Workshop on "Upgradation of Analog Gamma Cameras with PCs and relevant Software" the Agency has selected ANUGAMI-S as the Agency Upgrade System along with Clinical Software package developed by M/s Leapfrog Technology Ltd., UK. The Agency has envisaged large requirement of these Upgrade Systems for distribution to Latin American and Asian countries where there are number of old Analog Gamma Cameras which need upgradation.

Five sets of ANUGAMI-S cards were initially fabricated, extensively field tested and installed successfully one each at Nuclear Medicine Centres in Argentina, Brazil, Chile, Columbia and Peru. Additional 50 sets of these cards have been assembled and are under process of testing. Above orders are expected to be fulfilled progressively and completed by Nov.-Dec. 95.

During the course of this development activity, various experts mission were also undertaken for demonstration and educating users for Analog Gamma Camera Upgradation. This year, experts mission to Cuba and Bogota (Columbia) were arranged. Two more missions to Bangladesh and Mongolia are under preparation.

Electrical Power Conditioning Expert System has been developed to give advice for problems related to electrical power line for the instruments and systems in a nuclear laboratory or plants. The package helps the user to learn the basics of power conditioning and understand systematically the steps to be taken for proper power conditioning. The package was demonstrated and distributed to the participants of the Workshop on Nuclear Instruments Power Conditioning held at Manila, Phillipine during Feb-March 1995.

IAEA Inter Regional Workshop on Maintenance of Gamma Camera is scheduled to be held at Bhabha Atomic Research Centre, Bombay during Nov. 1996.

RADIATION PROTECTION INFRASTRUCTURE

We are participating in the Regional Personal Photon Dosimetry Intercomparison Project and have made substantial contribution to the regional Coordinated Research Project Asian Reference Man along with China and Japan. Four participants from the RCA countries were trained during Dec. 94 - June 95; we are planning to host in 1996, a regional training course on the Implementation of the Basic Safety Standards. Our scientists have participated as resource persons as well as trainees in eight different training courses/workshop activities during the year.

ENERGY AND NUCLEAR POWER PLANNING

Following the recommendations of the Advisory Group Meeting held at Bangkok in November 1994, a Regional Workshop was held during June 1995 in the Republic of Korea, wherein the National reports of the RCA Member States relating to effective strategies of implementation of nuclear power programme were discussed. These recommendations are to be reviewed by a senior expert meeting during second half of 1995. India will participate in the Regional Workshop on Input Information for Energy, Electricity and Power Planning, scheduled for October 1995 at Manila.

At the international level, the following key issues were brought out for implementation on the nuclear power programme:

- i) the non-standardisation of nuclear power plants as well as differing technologies and unit sizes prevalent at the international level;
- ii) changing regulatory review procedures due to continually evolving safety standards;
- iii) increases in construction and operating costs of nuclear power plants;
- iv) the need for assurance of supply of plant equipment, fuel and related services on a continuing basis;
- v) constraints in nuclear power technology transfer;
- vi) a generally unfavourable international climate for investments in nuclear power projects.

We are interested in organising a workshop/seminar in India during 1996 on Energy and Nuclear Power Planning with emphasis on Barriers and Strategies for Nuclear Power Programme in the Asian Region.

JOINT UNDP/RCA/IAEA PROJECT FOR ASIA AND PACIFIC ON THE USE OF ISOTOPEES AND RADIATION TO STRENGTHEN TECHNOLOGY AND SUPPORT ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

We have actively participated in all the four sub-components, viz., Nuclear Analytical Techniques, Nucleonic Control Systems and Tracer Technology, Non-Destructive Evaluation and Radiation Technology. The respective National Coordinators actively participated in the mid-term meetings of all the sub-projects held during 1994-95.

The Chief Technical Officer for the Project Prof. Pham Hien visited India during the week of March 20 and had discussions with all the Coordinators and visited the facilities:

NUCLEAR ANALYTICAL TECHNIQUES

We had participated in the intercomparison of three samples from the Agency as part the Nuclear Analytical Techniques sub-component, results on which were presented at the Workshop at Singapore. The combination of Expert Workshop on Application of ISO-25 and other international standards in laboratories employing nuclear and complementary analytical techniques along with the second meeting of the National Coordinators for the sub-project on Nuclear Analytical Techniques, held during February 1995 at Sydney, provided a good opportunity for preparing for accreditation protocols. The applications to earth sciences and forensic science continued to be supported through working group meetings and analysis of referral samples. The National Centre for Compositional Characterisation of Materials has a 3 MV Tandem Accelerator installed for carrying out different types of ion beam analysis. Other equally sensitive methods like RIMS, mass spectrometry and total reflection X-ray fluorescence are being set up in metal free clean laboratories in order to provide cross validation of results. The analytical competence of the facilities at the Centre are already finding use in characterisation of raw materials and catalysts for petro-chemical and fertiliser industries, requiring both assay of major (precious) metal components with high accuracy and the determination of impurities, several of them at ppb levels for petrochemical industry.

NUCLEONIC CONTROL SYSTEMS AND TRACER TECHNOLOGY

Tracer Technology

Specialised services using tracers have been provided for several applications, notably, location of leak in a 11 km long ethylene gas pipeline, tracer method for flow calibration and comparison with sonic nozzle method in collaboration with Fluid Control Research Institute, pollutant dispersion study off Bombay coast with the National

Environmental Engineering Research Institute and radiotracer study on the residence time distribution in two different evaporator units in a sugar factory.

Nine RCA Member States participated in the training course on the Application of Isotope methods in process optimisation in November 1994, hosted by Bhabha Atomic Research Centre, Bombay. Faculty was drawn from academic institutions and private industries and four overseas resource persons were provided by the Agency.

A UNDP/IAEA/RCA Tracer Mission consisting of Mr. Wandowo, Long Term Expert, UNDP Regional Project and Dr. Joon-Ha Jin, National Coordinator for Tracer Technology & NCS, Republic of Korea visited Bombay during 28 Jan - 2 Feb, 1995 to assess the status and potential of tracer technology in India. Besides having discussion with the National Tracer Group, the experts visited number of laboratories and industrial units.

Nucleonic Control System

The Electronics Corporation of India Ltd. have been producing radioisotope gauges for applications in the following two major categories:

- gauging techniques for the determination of level, density, weight and thickness of sheet metals
- analytical techniques for on-line determination of moisture in coke and ash in coal on conveyor belts.

There are nearly 600 institutions with installed nucleonic control systems with the number of installations exceeding 4000.

NON-DESTRUCTIVE EVALUATION

During the last year the Department of Atomic Energy has taken initiative to make available advanced NDT techniques to all industrial sectors. Towards this end, a dialogue has been initiated with representatives of Confederation of Indian Industries (CII) to apprise them of the NDT technologies available with the Department of Atomic Energy. The offer included NDT equipment developed indigenously and NDT services. Department of Atomic Energy has also offered to impart training to technical personnel in various NDT techniques so that they can get qualified and certified.

Indian National Standard for Training, qualification and certification of non-destructive personnel is now published. This is based on ISO standard 9712. The Indian standard also includes IAEA-TEC-DOC 628 which gives training guidelines for various NDT methods for different levels. Indian Society for Non-Destructive Testing (ISNT) now conducts the certification scheme as per the above Indian standard.

The National Governing Council of ISNT has formulated a Committee for Qualification and Certification of NDT personnel. The Committee has representatives from various industrial sectors, research establishments and academic institutions active in the field of Non-Destructive Testing.

As per the Indian Standard published, the first examination for Level-III in UT, PT, MT and RT was conducted in January - February 1995. 23 candidates have passed Level-III examination in various techniques.

A scheme for accreditation of NDT laboratories in accordance with international standard has been formulated. Courses have been conducted by the Indian Institute of Quality Management to train assessors for accreditation of various laboratories including NDT laboratories.

The 14th World Conference on Non-Destructive Testing will be held in New Delhi, India in December 1996. A series of pre-conference tutorial sessions and exhibition of NDT equipment have been planned along with 14th WCNDT.

There was an urgent need for Level-III certification of personnel in several countries in this region, all of whom wanted the support of the Agency to conduct such a course. Although we had agreed to make the input for the database on the examination questions and distribute the diskettes with the information and the software, the general paucity of funds was a major factor in the implementation of this component.

RADIATION TECHNOLOGY

Country's first commercial radiation sterilization plant "ISOMED" completed 20 years of successful operation with a several fold increase in the volume handled and revenue earned. The source strength of this facility has been augmented by 50% to process 15,000 cubic metres of materials annually. The two other irradiators at Bangalore and Delhi have also performed very well while the RVNRL Facility for demonstration has been working at Kottayam. A National Seminar on the topic of the RVNRL has been planned for later this year. The enhanced appreciation for role of sterilisation of medical products has demanded large growth in the number of irradiators both in the Government sector as well as in the joint sector.

The new Gamma Chamber-5000 with an installed capacity of 12,000 Ci of Co-60 has been developed and type approved and will be available commercially in a few months time; many Regional Member States and others have expressed interest through the Agency's programmes.

Mid-term Review

The mid-term review mission conducted during Feb-Mar 1995 had come up with findings and recommendations which found general (qualified) agreement with the representatives of Member States. However, there were a few points that were not quite acceptable to the Member States. After detailed discussions, the National Coordinators meeting found rather large disparity in the evaluation between the two reports. While the UN Joint Inspection Unit (JIU) had given ratings of 'excellent', in 9 out of 10 categories, the present Review Mission had found deficiencies in some areas. This wide disparity in perception/evaluation was discussed at the Tripartite Meeting held in Newzealand during July 1995 in which UNDP representative was also present. The Coordinators pointed out the damaging effects such review mission reports can cause to the progress and funding of the project, particularly at a time when the UN was already imposing severe resource crunch. In view of the fact that the next UN country cycle programme will start from 1997 January, the National UNDP Counterparts feel that there is a need for preparing a detailed new project report emphasizing programme components not covered so far. We feel that continued support and input from UNDP is quite essential for full exploitation of the applications of isotopes and radiation to strengthen technology and support environmentally sustainable development. It should also be recognised that programme for the next project cycle should concentrate on areas like materials science development and applications, resource prospecting and exploitation and the impact on environment, so that we can maintain a sustainable human development.

This report has to be ready for discussion at the next RCA Working Group Meeting, early 1996.

HRD and Public Awareness

India has placed significant emphasis on manpower training and development through a variety of courses and training programmes. In addition, the Department has a multipronged approach to the strategy of public awareness and public acceptance. One of these successful exercises is the annual essay competition in which more than 500 contestants across the country submit essays in English or any other regional language on two topics chosen every year by the Department. This exercise has found very favourable response among students community with direct consequences for a positive disposition towards the nuclear programme.

Extra Budgetary Contribution

10 out of 17 Member States of the RCA are making extra budgetary contribution in cash in addition to some contribution in kind like India. There is a need to examine to ensure that these contributions and the next UNDP cycle will support industrial development to alleviate poverty and at the same time help maintain environmentally sustainable human development.

India will continue to contribute towards these broad objectives as in the past. In the emerging scenario of open markets and competitiveness, our programmes should contribute to the development of the expertise and ambience towards achieving the planned outputs.

A.N. Prasad
Director, BARC.

COUNTRY STATEMENT - INDONESIA
AT THE TWENTY-FOURTH GENERAL CONFERENCE OF
THE REPRESENTATIVES OF THE RCA MEMBER STATES

Vienna, Austria, September 20, 1995

Mr. Chairman, Distinguished Delegates, Ladies and Gentlemen,

On behalf of the Indonesian Delegation I wish to extend our sincere congratulations to the Chairman of this twenty-fourth General Conference of the Representatives of the RCA Member States, held to-day 20th September 1995. I am convinced, that under your wise guidance and your able leadership this Meeting will successfully meet its objectives.

It is the view of my Delegation, that the RCA programmes of activities have significantly contributed towards the progress of peaceful application of nuclear science and technology in the Member States, in particular in the fields of agriculture, animal husbandry, health/medicine and industry. I wish to recall that Indonesia has maintained its active participation in the RCA programmes since the beginning, and intends to remain an active member in the future. My Delegation is pleased to note that Indonesia has gained great benefits from the RCA programmes.

Let me now present a brief summary of activities which have been carried out in my country in the framework of the RCA programme.

1. Regional Industrial and Environmental Project

1.1. Radiation Technology

- 1.1.1. Mr. Marga Utama, staff member of the BATAN Center for the Application of Isotopes and Radiation (CAIR) was recruited as IAEA expert to Philippines under the project No. Phi/8/013-03 for a three week mission to assist the PNRI in setting up of gamma ray irradiation facility for RVNRL. Dr. Mirzan T. Razak (CAIR-BATAN) participated at the Regional Seminar on Flue Gas Treatment, held at Takasaki Radiation Chemistry Research Establishment - JAERI, Japan, October 17-21, 1994.
- 1.1.2. RVNRL is routinely produced by CAIR-BATAN based on the utilization of n-Butyl-Acrylate (-n-BA) as sensitizer using irradiation dose of 15 kGy. About 1.5 ton RVNRL has been supplied for adhesive company.
- 1.1.3. Irradiation technology for commercial purposes, such as food irradiation and sterilization of medical products has been successfully transferred to a private company (INDOGAMA). The quantity of irradiated goods increased from 735 tons in 1992 to over 6000 tons at the end of October 1994 and a volume of about 25,500 tons is expected to be reached at the end of this year.
- 1.1.4. Irradiation curing technique using electron beams in the plywood industry in Indonesia has so far not been favoured, presumably due to the relatively high cost of irradiation curing process. Hence the existing 300 keV Electron Beam Machine (EBM) of CAIR is mainly used for R&D and demonstration purposes. The 2 MeV EBM of CAIR is planned to be used for R&D as well as for a pilot scale demonstration plant for cross-linking of wire and

cable insulation. As regards the flue gas treatment, CAIR-BATAN has taken steps to introduce this new technology to interested institutions.

- 1.1.5. A National Seminar on the Application of Radiation and Radioisotopes was conducted at CAIR, December 13-15, 1994. More than 80 scientific papers were presented and discussed. In addition, a National Seminar on Radiation Processing in Cosmetic and Pharmaceutical Industries was held at Jakarta, 24 - 25 January 1995. Dr. Brian D. Ried, from Nordion International took part as IAEA expert.

1.2. Non-Destructive Examination (NDE)

- 1.2.1. NDE Programme in Indonesia for 1994/1995 was concentrated mainly on trainings and seminars. The training programme was focussed on the training of personnel for level 1 and 2 specialist of UT, RT and surface methods.

Three national seminars on NDT were conducted in the country for participants from the industries, petrochemicals, shipping and aircraft companies, NDT associations and other interested participants in this field. Shortage of level 3 specialists was the main constraints in conducting level 3 training in all NDT methods. In view of this, training of specialist for level 3 in all NDT methods should be given a high priority in the future.

- 1.2.2. At the Proficiency Testing Programme (PTP) Meeting held in Melbourne, Australia, January 1994, a consensus was reached that PTP for UT and RT specialist level 2 would be conducted on a stepwise basis.

1.3. Tracer Industries and NCS

- 1.3.1. A project on sediment movement was carried out using Au-198 labelled sediment at the estuary of Musi river near Palembang harbour, South Sumatera in 1994/1995.
- 1.3.2. Leakage of buried drinking water pipe line was detected for the first time using Tc-99m in Bontang, East Kalimantan. The total length of the pipe line is about five kilometers.
- 1.3.3. Verification of geothermal field using environmental isotopes has been executed in South, West and in North Sumatera.
- 1.3.4. In the verification of ground water exploitation at Bontang Basin, East Kalimantan, environmental isotopes and radiotracers were used in determining the origin of water, dating, sea water intrusion, water balance and permeability of the formation in the recharge area.
- 1.3.5. Radiotracer techniques have been introduced to industries in solving problems of mixing process in paper plant in Bandung and mercury inventory at caustic soda plant in Surabaya.
- 1.3.6. Shielded source activity has been introduced to column scanning in column distillation of Asahimas Subentra Chemical, Cilegon, West Java, concrete wall scanning in Jakarta, and scaling in pipe line at Kamojang, West Java.
- 1.3.7. Very recently BATAN has succeeded in making thickness gauge prototype and one piece gauge will be delivered to a paper manufacture at Padalarang, West Java.

1.4. Nuclear Analytical Techniques (NATs)

Activities done under the NATs programme in the last two years may be summarised as follows.

- 1.4.1 Validation of neutron activation analysis procedures for multi elements quantification. The activities were implemented by the analytical laboratories of BATAN.
- 1.4.2. Neutron activation analysis of environmental samples. Neutron activation analysis of airborne particulate matter was carried out by BATAN in cooperation with the Environmental Impact Management Agency (EIMA) and Environmental Assessment Office (EAO).
- 1.4.3. Application of nuclear analytical techniques medicine was carried out in cooperation with the Department of Internal Medicine, School of Medicine, University of Padjadjaran in Bandung.
- 1.4.4 Scientists from Indonesia took part in the IAEA Workshop on Environmental & Industrial Applications of NATs in Bombay, India and the Training Course on Gamma-ray Spectrometry in Tokyo, Japan.

In the future the following activities are planned:

- 1.4.5. Continuation of the neutron activation analysis of environmental samples. Sampling will be carried out under various experimental and environmental conditions.
- 1.4.6. A workshop on the utilization of nuclear analytical and related techniques on elemental quantification of airborne particulate samples will be organized by BATAN in cooperation with the environmental agencies (EIMA and EAO).
- 1.4.7. In a study on the development of marine pollution, neutron activation analysis will be used to determine elemental composition of coral reef. Determination of the elemental composition will give information on the history as well as the changes in the environmental conditions during the time of coral formation.
- 1.4.8. The efficiency of selenium ingestion in Acute Myocardial Infarction and Heart Failure patients will be studied. The efficiency of selenium treatment to selenium deficient patients will be monitored through clinical improvement and healing process of infarction
- 1.4.9. As a follow-up of the above preliminary study in Dieng Plateau, further investigation to determine mercury content in blood, water supply and foodstuff taken by the inhabitant will be performed. The study aims at revealing the possible effect and correlation between Lippoprotein and mercury in the environment.

2. Medical and Biological Applications of Nuclear Techniques

2.1. Radioimmunoassay for Hepatitis B Diagnosis

- 2.1.1. Indonesia has been participating in the TC Project of Radioimmunoassay for Hepatitis B Diagnosis (RAS/6/018) since 1992. Indonesia is one of the countries which has an indication of a high prevalence of Hepatitis B. Indonesia has recently been able to produce all parts of Hepatitis SPRIA Kits (e.g. coated beads for HBsAg and anti Hbs as well as iodinated HbsAG and anti Hbs as tracers, as well as negative and positive controls). Since

1994 Indonesia has been supplied by the Agency with raw materials for reagents. The product of Hepatitis B reagents produced by BATAN will be distributed to local participating laboratories for clinical studies. The clinical studies for this year will be emphasized on the prevalence of Hepatitis B in pregnant mothers and the babies, and the prevalence of Hepatitis B in patients with liver abnormalities.

- 2.1.2. The next programme will be to spread the application of Hepatitis B reagents nationwide in Indonesia before introducing them to RCA member countries. As stated by the Indonesian Delegation at the sixteenth Working Group in Bali, March 1994, Indonesia is going to start a feasibility study on the production of Hepatitis B kits in the near future.

2.2. Radiation Sterilization of Biological Tissue Grafts

- 2.2.1. At present radiation sterilized lyophilized amniotic membrane and radiation sterilized air-dried amniotic membrane are produced on a routine basis by CAIR-BATAN Tissue Bank and Sitanala Leprasorium Tissue Bank, respectively. About six to ten pieces of amniotic membranes are processed weekly at CAIR-BATAN Tissue Bank.
- 2.2.2. In 1992 CAIR-BATAN Tissue Bank introduced the application of radiation sterilized lyophilized cancellous bovine and human bones to Siaga Raya Orthopedic and RSCM Hospitals in Jakarta. As has been reported previously, the results were promising and none of the patients showed any symptoms of rejection and the growth quality of the new bones is similar to the imported ones from Germany.

The future programme of activities can be summarised as follows.

- 2.2.3. Setting-up a Tissue Bank at Dr. M. Jamil Hospital in Padang, with equipment expected to be furnished by the Agency. Around 100 sqm of space and several tools needed for setting up the tissue bank have been made available. Equipment for Dr. Jamil Hospital Tissue Bank consisting of a freeze dryer, a deep freezer, a laminar flow cabinet, a bone cutter and an electric sealing machine is scheduled to be available in 1995, while the equipment for CAIR-BATAN Tissue Bank (a freeze dryer, a deep freezer and a bone cutter) is expected to be acquired in 1996.
- 2.2.4. A six month job training in the UK was arranged for Dr. Asril Zahari of Dr. Jamil Hospital and a four months training in USA was proposed for Mr. Basril Abbas of CAIR-BATAN (scheduled for 1996).
- 2.2.5. Dissemination of information on donor selection and application of surgical grafts to several hospitals in Surabaya and Medan is planned to be carried out.
- 2.2.6. A National Workshop on Procurement, Preparation and Application of Tissue Grafts is planned to be conducted in January 1996.

2.3. Standardization of I-131 Treatment for Hyperthyroidism to Optimize Radiation Dose and Treatment Response

- 2.3.1. Indonesia has been selected to join the project. Prof. Dr. Nursal Asbiran, School of Medicine, Andalas University at Padang, West Sumatera acts as the National Coordinator.

2.4. Nuclear Instrument Maintenance

- 2.4.1. The major part of activities in this project consists of supporting the application of techniques in medicine through preventive maintenance of equipment. On BATAN side, the tasks are coordinated and performed by a special Nuclear Medicine Equipment Maintenance Team. The team also gives technical consultancy on matters related to the purchase new nuclear medicine equipment and provides supervision on the installation of new nuclear medicine equipment in Indonesia. Scheduled is the supervision activity on the forthcoming installation of seven gamma cameras which have been procured through the Protocol France Gamma Camera Project.
- 2.4.2. Various obstacles are still encountered by the Maintenance Team, mainly due to the problems arising in allocating staff members to do the required tasks and to the difficulty in obtaining sufficient and timely financial resources by the end user to implement the service contract.
- 2.4.3. Two BATAN staff members participated at the Training Course on Regional (RCA) Workshop on Quality Assurance in Nuclear Medicine Imaging Hardware and Software Aspects, Bangkok, Thailand, 12-16 December 1994.

3. Agriculture Projects

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

- 3.1.1. Although Indonesia did not participate in this project, a similar activity has been carried by the staff of CAIR-BATAN. Some promising results have been achieved.

3.2. Public Acceptance and Trade in Irradiated Food

- 3.2.1. Food preservation is particularly important for the countries in tropical region because of its warm and humid climate. Irradiation process is an important alternative for extending the storage life of food and for preventing food from spoilage. However, the main issue of food irradiation is still the public acceptance. Being a tropical country with a large population, Indonesia considers food irradiation technology to be a very important element in the effort to ensure food safety and food security .
- 3.2.2. The Indonesian Health Authority has issued clearance of three groups of irradiated food commodities since the end of 1987. Clearance has been approved for cereals (maximum 5 kGy), spices (maximum 10 kGy) and tubers/rhizome (maximum 0.15 kGy). On 10 February 1995 a clearance was issued for two other irradiated foods, namely frozen shrimps and frog legs (maximum 7 kGy) and dried fish (maximum 5 kGy).
- 3.2.3. Seminar on Food Irradiation Information was organized by BATAN in October 1994 in collaboration with the IAEA. This seminar was attended by more than hundred participants from various government institutions, universities, mass media and private companies. The seminar was intended as a means to disseminate information on the food irradiation technology and to stimulate exchange of views on its practical applications in order to achieve wider public acceptance. Based upon the recommendations of the seminar, the Agency agreed to provide experts to assist in conducting a proper economic feasibility study on wider commercial application of food irradiation in Indonesia. This study will be started this year (1995) under a TAC project INS/5/025.

4. Research Reactors, Energy and General Project

4.1. Reactor Utilization

- 4.1.1. The RSG-GAS 30 MW research reactor and its facilities located at Serpong, Indonesia, which were established as a centre of excellence in Asia and the Pacific region in 1989, are open to those interested in doing R&D activities.

To achieve and maintain optimal operation and utilization of the reactor, the following activities have been carried out or planned since 1994:

- 4.1.2. Increasing the availability and reliability of the reactor by optimizing the O and M schedule, establishing and improving the operation of irradiation and experimental facilities and the upgrading the manpower capability.
- 4.1.3. Completing the studies, analyses, tests and development of silicide fuels as a substitute of oxide fuel.
- 4.1.4. Establishing coach systems for design, analysis and operation of the reactor and its systems by 1997 to support safe and optimal operation and utilization.
- 4.1.5. A Regional Training Course (RTC) on Noise Analysis Methods and its Applications on Research Reactor was submitted to the RCA Working Group Meeting for approval, for the inclusion in the future programme of RCA for 1996. Indonesia expects to host the RTC.

4.2. Energy and Nuclear Power Planning

- 4.2.1. RCA Meeting of National Experts on Data Requirements of IAEA's Planning Models for Energy, Electricity of Nuclear Power Planning with Emphasis on the WASP Models was conducted in the period 12 - 16 December 1994 in Jakarta, Indonesia. The meeting was attended by the participants from Bangladesh, Korea, Malaysia, Pakistan, Philippines, Viet Nam and Indonesia.
- 4.2.2. Four participants from Indonesia attended the Regional Training Course on Safety and Reliability Improvements through Optimized Maintenance of NPPs, Daya Bay, China, 20 February - 10 March 1995.

5. Radiation Protection Projects

5.1. Radiation Protection Infrastructure

- 5.1.1. At present around sixty regulations, including government regulations, presidential decrees and the Director General's of BATAN decrees have been derived from the National Act No. 31 of 1964 on Basic Provisions of Atomic Energy.
- 5.1.2. In 1994 a new decree of the Director General of BATAN on the safe transport of radioactive materials was announced. This decree uses the IAEA Safety Series No. 6 (as amended in 1990) as a reference and is stipulated to replace the old one that has been in force since 1974.

- 5.1.3. Three other decrees of BATAN concerning the environmental impact management have also announced in 1994. These decrees are in line with the Government regulation and with those of the Ministry of Environment on the same subject.
- 5.1.4. BATAN has used the opportunities to send staff members to participate at various occasions of RTC and ITC on radiation protection and related matters. Last year about ten staff members of BATAN took part at those courses.

5.2. Reference Asia Man

Indonesia has been actively involved in the CRP on Reference Asia Man since the beginning of the programme. In the survey, the cultural and socio-economic levels of each ethnic group were taken into consideration. The data obtained from Jakarta, North Sumatera, East Java and East Nusa Tenggara were presented at the last meeting. Considering the fact that there are over three hundreds ethnic groups living in Indonesia, the data obtained so far are regarded neither sufficient nor representative of the population. For this reason research will be continued to include the data from ethnic groups in Java and some of the people living in western and eastern part of Indonesia. The research is financially supported by the government budget.

6. Strengthening Nuclear Medicine: Distance Learning Project

A coordination meeting on the implementation of "Distance Learning Project" for operators/technicians of Gamma Camera was organized by BATAN in Jakarta 9-10 January 1995. The meeting was attended by the Country Coordinator of Distance Learning Project, the Supervisors from Fatmawati and RSCM Hospitals (Jakarta) and Hasan Sadikin Hospital (Bandung), the Course Coordinator from Royal Prince Alfred Hospital Sydney, Australia and some staff members of BATAN. The usefulness of distance learning for operators of Gamma Camera and the syllabus were discussed, lectures on the function of a nuclear medicine technician, QA, the roles of supervisor, country coordinator and teaching strategies were presented.

7. INIS

Indonesia participated at the Twenty Second Consultative Meeting of INIS Liaison Officers, held in New Delhi, India, 26-28 April 1994. Decisions and recommendations of the meeting have been circulated to the liaison officers of the member states.

Mr. Chairman, Ladies and Gentlemen, I thank you for your attention.

JAPANESE COUNTRY STATEMENT
at
The 24th RCA General Conference

Vienna, Austria
September 1995

Mr. Chairman, distinguished delegates, ladies and gentlemen,

Japan always finds the RCA a very serviceable architecture and is pleased to note the continued progress of the RCA activities. Seeing that the increasingly expanded use and application of nuclear-related techniques in the RCA countries have so far brought enormous advantages in such fields as industry, environment and medicine, we should stress the importance of promoting further peaceful application of nuclear technology so as to bring sustained economic development in, and social benefits to, the region. Therefore, Japan is as willing as ever to continue supporting RCA activities, not only with its technical expertise but with its financial resources, the RCA being one of the most important vehicles for cooperation of this kind. And Japan hopes to see the spirit of mutual cooperation, self-reliance, and mutual understanding, which has indeed distinguished the RCA as a guiding light for other regional co-operative undertakings a fact of which the RCA is so proud.

Regarding further development of RCA co-operation, Japan believes that it depends upon (1) the selection of promising projects which well correspond with the real needs of the RCA Member States and upon (2) the Member States manifesting a spirit of self-help. Of course, smooth communication and coordination should be maintained between the IAEA and the Member Countries. It also seems sound and appropriate to take into consideration the limit of the RCA's financial resources. If financial limits exist when considering a new project, we have to explore with courage the possibility of employing the scrap-and build principle. Japan also believes that it is indispensable to have and maintain an appropriate "review process" in a project so as to ensure the efficiency and effectiveness of the project. Bearing the aforementioned points in mind and expecting them to be paid due attention by other Member States, Japan is eager to continue to support and contribute to the RCA to the greatest extent possible. Emphasis should be placed on the further development of human resources in the region through such measures as sending Japanese experts and receiving foreign experts to the meetings held in Japan, with a view to seeing the region further prosper.

Mr. Chairman,

Japan reiterates on this occasion its strong support of the Environment Project, a UNDP/RCA project. Japan has intended to provide as much technical and financial support as possible to this project like it did in the past UNDP/RCA Industrial Project. From this viewpoint, in 1994, Japan hosted various meetings and had several Japanese experts attend meetings overseas. We are proud of having been able to assist in the smooth start of the "Environment Project".

Mr. Chairman,

With respect to the Medical and Biological applications Project, Japan will in 1995 extend as much technical and financial support as possible in such sub-projects as "Standardization of I-131 Treatment for Hyperthyroidism". As for project to succeed the "Computer-assisted Planning and Dosimetry in Radiotherapy of Carcinoma of the Cervix" (or the "Improvement of the Cancer Therapy" project) that was funded totally by Japan, Japan intends to see that an appropriate project materializes as its successor.

Concerning its activities in 1994, Japan sent several experts to meetings overseas where related matters have been discussed, including the Meeting on IAEA Co-ordinated Research Program.

Regarding the Phase III Food Irradiation Project, due to its domestic circumstances, Japan ceased its financial support of food irradiation at the completion of Phase I. Japan, however, remains interested in considering in-kind cooperation to limited aspects of receiving foreign trainees and sending its experts on a case-by-case basis.

Regarding the Research Reactor Utilization Project, Japan will continue to extend possible support on a case-by-case basis through, for instance, sending its experts, accepting foreign researchers and trainees, etc., taking into account the RCA financial situation. In 1994 Japan sent an expert to a regional workshop.

With regard to Strengthening of Radiation Protection Japan will in 1995 continue to support this project technically and financially, bearing in mind the importance of nuclear safety in the RCA Member States where uses and application of nuclear techniques are expanding. Japan intends to contribute especially to a sub-project, the "Compilation of Analytical, Physiological, and Metabolic Characteristics for a Reference Asia Man". In 1994, Japan sent several experts to meetings abroad, including the Final Research Co-ordination Meeting for CRP for "Compilation

of Analytical, Physiological, and Metabolic Characteristics for a Reference Asia Man". Japan also hosted the Expert Meeting on Intercomparison of Radioactivity Measurement for Environmental Samples.

Japan in principle supports the Proposed RCA Project Activities for 1995.

As for the RCA budget for 1995, Japan is not in a position to commit itself to a specific amount at this stage. As in the past, however, Japan will provide as much financial support as possible to the RCA in 1995. From 1980 to 1994 Japan provided an extra-budgetary contribution of about U.S. \$6,200,000 to the RCA activities.

With regard to the question of trans-regional financing of RCA projects, Japan believes that a regional cooperation scheme such as the RCA should function to plan and implement such projects that highly interest its Member Countries and that a project should be planned and implemented based on the principle of self-reliance and within its own cooperative framework. It is likely that receiving financial support from outside the Member Countries introduces other consequences, if not dangerous, elements to the RCA's tradition.

In the case that the RCA budget does not correspond with the strong willingness expressed by Member Countries to increase the number or to expand the scale of activities, realistic approaches would need to be adopted. It would be necessary in such a case to consider the possibility of putting some projects with lower priority on the RCA footnote a/ project list to look for interested donors out of the region, or explore a possibility of the RCA finding alternative multilateral sources of funding.

Thank you, Mr. Chairman.

**Country Statement of the Republic of Korea
The Twenty-fourth General Conference Meeting of
Representatives of the RCA Member States
20 September 1995, VIC Austria**

First of all, on behalf of the Korean delegation I would like to express my gratitude to the Agency for the arrangements made for us and offer my appreciation to the Government of New Zealand for the warm hospitality they extended to us at the National Counterparts Meeting held in Wellington last July. The Republic of Korea has been participating in almost all activities of the RCA and has benefited from the technical cooperation, contributing to our national socio-economic development since the inception of the RCA.

A brief description of the 1995 RCA Project activities in Korea is given below:

1. Regional, Industrial, and Environmental Project (RAS/92/073)

1.1. Tracer Technology and Nucleonic Control Systems

Members of the Korean National Tracer Group (NTG) and many industrial engineers have been trained through various regional and national activities supported by the UNDP/RCA/IAEA Projects. The Korean industry was then informed of tracer technology developments and there were frequent inquiries and demands for NTG's service from local industries. The NTG will continue its technology development and expand service to local industry. The continuous supports of the Project are very essential for the sustainable development of the technology in Korea.

1.2. Non-Destructive Evaluation

An expert on non-destructive testing took part in the regional workshop on the Fabrication of NDT Test Pieces from 16 January to 27 January 1995 in Malaysia.

Two experts on non-destructive testing plan to participate in the regional workshop on NDT applications in electric power generation from 6 November to 17 November 1995 in Shanghai, China. Since these workshops will be beneficial to nondestructive testing technology in the regional member countries, it is desirable to increase the number of workshops supported by IAEA.

1.3. Radiation Technology

UNDP/RCA/IAEA Projects have made considerable contributions thus far in the technology transfer from advanced countries to developing countries. A number of member countries have a keen interest in investment in industry using radiation technology. Private companies in Korea introduced 13 electron beam accelerators for the purpose of wire crosslinking, polyolefin foam, shrinkable tube, precuring of tire rubber and curing of coating material. Also research on radiation treatment of pollutants such as flue gas and waste water has been conducted. Local companies have much interest in UNDP/RCA/IAEA projects as the level of their radiation technology is relatively low. Because the projects have the function of transferring radiation technology from advanced countries to developing countries and sharing of information among member countries, it is recommended that UNDP support the project continuously to promote the technology transfer to local companies in developing countries.

1.4. Nuclear Analytical Technique

Air pollution has emerged with industrial development as one of the significant public issues in the Asian region including Korea. Nuclear Analytical Techniques (NAT) is recognized as one of the most suitable techniques for analyzing environmental samples. Because this project is thought to be appropriate in NAT, the Republic of Korea is planning positive participation in this project and its related cooperation projects.

2. Medical and Biological Applications of Nuclear technology

2.1. Radioimmunoassay for Hepatitis B Diagnosis (RAS6/018)

Seoul National University played the role of reference laboratory in Korea. The

department of nuclear medicine made radioimmunoassay kits with reagents supplied by China according to project RAS/6/018, and compared the performance of these kits with commercialized kits. The department made standard sera and has been comparing the performances of radioimmunoassay kits with enzyme-immunoassay kits. The performance data will be used as the reference for the analysis of bulk-reagent-prepared radioimmunoassay kits.

2.2. Radiation Sterilization of Tissue Grafts (RAS/7/003)

The Processing and Tissue Banking Room was renovated and the setting up of a new Processing Room was completed at Dan-kuk university. Surgical application of demineralized bone powder was performed in forty-five cases and twenty five related seminars were held. Radiation sterilization of biomaterials, surgical application of biomaterials, and evaluation of tissue graft will be implemented next year. The Republic of Korea is also willing to join this program next year.

2.3. Nuclear Instruments Maintenance (RAS/4/008)

We are grateful that the IAEA has helped us introduce and spread up-to-date technologies for nuclear medicine equipment maintenance. With the continuous and rapidly increased use of nuclear medicine equipment in Korea, it is necessary to expand the project.

3. Agricultural Projects

3.1. Food Irradiation Process Control and Acceptance (RAS/0/022)

According to technical transfer to local industry under the Korean government policy, the government has agreed to increase the commercial utilization of food irradiation technology by domestic industry and accelerated the public information and consumer education concerned with the wholesomeness of irradiated food. Accordingly, the Korean government authority approved six additional items of irradiated foods on 18 May 1995.

The Korean government joined ICGFI on 18 October 1994 and will contribute to the

ICGFI programme. Concerning the RPII-phase IV project, investigation for irradiation effect on functional components of herbal plants followed by commercial irradiation are in progress under the RCA Research Agreement. The Korean government is participating in the coordination research programme on "Public Acceptance of and Trade Development in Irradiated Foods in Asia and the Pacific Region" proposed by the Agency.

3.2. Improvement of Grain-legume Rhizobium Symbiosis to Fix Atmospheric Nitrogen (RAS/5/021)

Korea is willing to participate in the program "Induced Mutation and Related Biotechnologies for Improvement of Vegetatively Propagated Crops" as proposed by the Agency. In Korea the biotechnologies related to the improvement of crop plants have been studied since the 1980s. The techniques of in vitro mutagenesis have also been developed for crop improvement ; various genetic resources in rice, soybean, hot pepper, perilla, etc. were obtained by in vivo and in vitro mutagenesis. KAERI is interested in the development of biotechnologies and DNA recombinant techniques for crop improvement in cooperation with RCA Member States.

4. Research Reactor and Energy-based General Project

4.1. Research Reactor Utilization (RAS/4/011)

We will participate in related meetings, and in parallel with the sequential completion of these facilities we will draw programmes to hold NTC and RTC on nondestructive testing by neutron radiography and characterization of materials by neutron diffraction.

4.2. Energy and Nuclear Power Planning (RAS/0/023)

Recently, Southeastern Asian countries emerged as a new nuclear power plant market. The RCA Project RAS/0/023 can contribute to the establishment of both the national energy and the related policies of the countries. Korea is ready to share the experiences of a successful nuclear power program with these countries through the RCA Project.

4.3. Nuclear Information System Project (RAS/0/019)

The 'Nuclear Information System' Project has as its objective the establishment of the electronic mechanism for sharing of resources within all countries in the region. Integral parts of the project would include the enhancement of telecommunications capability and specialized training. And this project will promote technical cooperation and the sharing of information resources in the region. For establishing the telecommunications infrastructure of regional member states, each needs to improve its electronic mechanism and environment (such as inherent node, e-mail connection, etc.).

4.4. Nuclear Power Planning (RAS/0/021)

A workshop titled "Effective Strategies for Nuclear Power Programmes among RCA Countries" was held in Korea from 12 June to 16 June this year. In this workshop, most countries in the RCA region actively participated and exchanged information and opinions focused on nuclear power projects. Also during this workshop period, the action plan for the future implementation of the project was figured out in detail. Korea believes this project can provide more practical opportunities for the successful implementation of nuclear power projects and we hope for close cooperation among countries in the region in providing fruitful results.

5. Radiation Protection

5.1. Radiation Protection Infrastructure (RAS/9/016)

Many experts have joined consultation meetings, training, and workshop programs in the five fields of radiation protection and they have benefited from the programs. Korea hopes that the project formulation meeting for the 3rd phase of RCA radiation protection would be held in Korea.

5.2. Reference Asian Man

To estimate the reference values of Koreans for establishing Reference Asian Man, we took up a nationwide survey for Koreans aged 2 to 20 with about 7,000 subjects.

The survey results are as follows: Only sitting height has a similar value to that of Reference Asian Man. Body height, body weight, chest girth, surface of the total body, lean body mass, and total body water are slightly larger than those of Reference Asian Man and body fat percentage is lower than that of Reference Asian Man. Korea is planning to set the reference values of body masses (weight of internal organs and tissues).

6. Conclusion

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

Country Statement of Malaysia
Twenty-fourth General Conference Meeting of
Representatives of RCA Member States,
20 September 1995

The Malaysian delegation would like to congratulate you, Mr. Chairman on your election to the position at the Twenty-fourth General Conference Meeting of Representatives of RCA Member States. The Malaysian delegation also would like to express its sincere appreciation once again to all delegations of the RCA Member States for their participation at the Seventeenth RCA Working Group Meeting hosted by Malaysia in Kuala Lumpur last March.

Malaysia has actively participated in almost all of RCA activities since its inception in 1975. We believe that the RCA programme will continue to be one of the useful and important vehicles for promoting peaceful uses of nuclear technology in the field of industry, agriculture, medicine and safety in the region.

The summary of activities carried out in 1994 and 1995 in relation to RCA programme is as follows:

1. **RCA/UNDP Industrial and Environmental Project:**

In the field of **Non-Destructive Testing (NDT)**, this technique is now widely accepted and recognized by most industries and government agencies in Malaysia. To date more than a thousand of practitioners has been trained and certified in accordance with national NDT Qualification and Certification Scheme which is in accordance to the ISO 9712 requirements. Efforts are being made to pursue a new application of NDT, in particular applications for non-metallic materials. In this matter experts assistance has been requested through the IAEA/TC project MAL/8/003 to assist MINT in conducting training course, seminars and to assess the balance between industrial status and NDT requirements in Malaysia.

With regard to establishing regional capability in the production of test pieces, Malaysia hosted the Regional Workshop on the Fabrication of NDT Test Pieces (16-27 Jan. 1995) and the Regional Seminar on the Evaluation of NDT Test Pieces (23-27 Jan. 1995). These activities were jointly organised by MINT and SIRIM.

As for **Tracer Technology**, the Malaysian industries responded positively towards the applications of these techniques in the area of process optimization and environment. To meet the demand of the industries, Malaysia through MINT established a pool of nuclear scientists specialised in the management of the applications of tracer/sealed source of radioisotopes, as well as for planning and executing tracer/sealed source research. The group has successfully developed the techniques known as TAFLOSS for analyzing the integrity of storage tank floor and COLSCAN for external scanning of distillation columns, and marketed as rapid noninvasive diagnostic tool in industry. In relation to Retention Time Distribution (RTD) analyses, MINT has received the IAEA expert twice. The first mission was in October 1993 to assist the group with

various aspect of tracer application in industry and introduction of RTD programme. The second mission was in September 1994 to demonstrate the utilisation of RTD0 and RTD1 programmes to be used in the oxidation pond study.

Radiation Technology is one of the intensive research area MINT is working on. It comprises of four projects namely;

EB and UV curing of surface coating
Radiation Sterilization
Radiation Crosslinking of Wire and Cable Insulation,
Vulcanisation of Natural Rubber Latex (RVNRL)

With regard to **EB and UV curing of surface coating** the printing industry in Malaysia is the largest user of UV curing technology followed by the electronic industry. However, the application of radiation curing in wood based industry is rather small. Nonetheless, the number of companies who are using UV radiation for curing of coatings in wood based industry has increased from four in 1993 to ten in 1994. MINT continues to promote the use of radiation curing in various sector of our industries.

With respect to **Radiation Sterilization**, irradiation of medical product by gamma irradiator is progressing very well. The gamma plant located at MINT was awarded ISO 9002 in 1992 and is providing irradiation services to local medical product manufacturers in Malaysia. This technology has been transferred to local industry whereby a commercial gamma plant was established last year. Beside providing services, MINT is also carrying out research on radiation compatible materials in order to provide technical advice to the manufacturer of medical products. Work is also being carried out to study the sterilization technique by using electron beam accelerator. Malaysia will host the Regional Training Course on Industrial Sterilization, Regulations, Standards and Enforcement in January 1996.

In the field of **Radiation Crosslinking of Wire and Cable Insulation**, the availability of high energy Electron Beam Accelerator (NHV 3.0MeV, 30mA) has enabled research on material development of radiation crosslinkable polymers to be carried out. Most of the work is being performed with the collaboration of local manufacturers of wire and cables. The wire and the under-beam handling system will be fully operational by end of 1995 to accelerate the R & D of radiation crosslinking of wire and cable. The system will also be offered to the industries for irradiation services. A few companies have indicated their intention of irradiating PVC wire and cables. A National Executive Management Seminar cum workshop on Product Development of Radiation Crosslinking of Wire and Cables is planned to be held after the installation and operation of the under beam handling system.

As for **Radiation Vulcanisation of Natural Rubber Latex (RVNRL)**, a pilot plant of the capacity to produce 6,000 cubic metres/year of RVNRL at 1.0 MCi is expected to be commissioned in December 1995. Several local and oversea companies are currently cooperating with MINT in developing the applications of RVNRL, product testings as well as the market acceptability of the products. MINT will organise an International Symposium on RVNRL in July 1996.

With regard to **Nuclear Analytical Technique** MINT is undertaking Air and Marine Pollution studies in collaboration with other research organizations such as Department of Environment, National University, Department of Fisheries, Agricultural University and Fisheries Research Institute. The accuracy and precision of the analytical techniques used are examined by analyzing Standard Reference Material (SRM) obtained from IAEA or NBS of NIST, USA. Malaysia also participated in a New RCA Co-ordinated Research Programme on Applied Research on Air Pollution Using Nuclear-related Analytical Techniques.

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

Malaysia participated in four projects in the field of medical and biological applications of nuclear techniques. The project on **Radioimmunoassay for Hepatitis B Diagnosis** is conducted by Clinical Diagnostic Laboratory, University Hospital, University of Malaya (UM), in collaboration with Institute for Medical Research (IMR), University Science of Malaysia (USM), Kelang General Hospital (KGH) and Medical Microbiology (MML) of University Hospital. The Clinical Diagnostic Laboratory has successfully developed two techniques for diagnosis of hepatitis B using radioimmunoassay. Malaysia hosted the Regional Workshop on Detection of Markers for Hepatitis Infection by RIA on 11-15 September 1995.

With regard to the project on **Radiation Sterilization of Tissue Grafts**, two tissue banks have been established acting as a national and research tissue bank located at USM and MINT respectively. Both banks are involved in the processing of amnions and human bones. Work on xenografts has been initiated in order to produce bovine bone and animal skin.

With respect to the project on **Care and Maintenance of Nuclear Instrument**, Malaysia hosted the Regional Workshop on Upgrading of Gamma Camera in September 1994.

3. **Agriculture and Food**

Malaysia participated in the **RCA Regional Project on Increasing Crop Yields in the Tropics of Asia and Pacific Through Agroforestry**. Malaysia also hosted the Terminal Tripartite Review Meeting on UNDP funded CRP on **Increasing the Yield and Nitrogen Fixation Capabilities of Common Grain Legumes**.

4. **Radiation Protection**

With regard to the **Strengthening of Radiation Protection Infrastructure Project**, Malaysia has participated in almost all radiation protection activities scheduled for 1994 and 1995 under this project and will continue to support and participate in future activities in order to further strengthen radiation protection programmes in the country.

5. **Research Reactor Utilisation and Energy-Based Project**

In the field of **Research Reactor Utilisation project**, with the availability of 1MW Research Reactor at MINT as a source of neutrons, a Small Angle Neutron Scattering Spectrometer (SANS) has been installed. MINT will receive two experts from IAEA to perform commissioning test and assess its total performance as well as limitation. In conjunction of the commissioning of SANS, MINT will organise a National Workshop on Small Angle Neutron Scattering in November 1995.

In the field of **Energy and Nuclear Power Planning**, the first phase of the activities have contributed to the upgrading of national energy planning tools and methodologies in Malaysia whereby a self-sufficient core group of expertise on the use of WASPS, MAED and ENPEP have been established within Tenaga Nasional Berhad (TNB). However with the privatisation of TNB, a new alternative core group of expertise is to be established within the Malaysian public sector with active participation of MINT.

With regard to **Nuclear Information System**, Malaysia is willing to host the Second Regional Workshop on INIS next year.

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

Last but not least, my delegation would like to put on record our most sincere appreciation to Dr. John Easy, for his tireless efforts during his tenure as the RCA Co-ordinator and we wish good wishes in his future undertakings.

STATEMENT BY THE REPRESENTATIVE OF NEW ZEALAND

**24th General Conference Meeting of RCA Member States
VIENNA, 20 SEPTEMBER 1995**

Mr Chairman, Distinguished Delegates, Ladies and Gentlemen

New Zealand joined the RCA Agreement in July 1994 and has been active in its projects since January 1995. This brief experience has been sufficient to confirm that the Agreement provides an excellent mechanism to improve the health, environment and economies of the region through wise applications of, and co-ordinated training in, nuclear science and technology.

The activities undertaken in 1995 have been intended to expose some of our senior scientists to a range of the problems and projects of interest to Member States. Their purpose was to allow identification of how New Zealand can best contribute to the RCA programme and how it may, in turn, benefit.

Environmentally Sound Technologies

National co-ordinators participated in NCM's in Nucleonic Control Systems and Tracer Technology, in Nuclear Analytical Techniques and in Non-Destructive Evaluation. An expert in analytical techniques using small accelerators participated in a regional workshop/training course on Nuclear Analytical Techniques.

New Zealand was represented in an Expert Advisory Group meeting on Mathematical Modelling of Tracer Flow Experiments, and the scientist concerned will be part of a small group which will develop a software system to put modelling studies on a common basis in the Region.

Lectures to another Regional Workshop (Tracer Technology to Study the Dispersion of Effluents in Groundwater) are being presented this week in Indonesia.

New Zealand was honoured to host the joint UNDP/RCA/IAEA project mid-term and tripartite review meetings in Wellington from 10-14 July 1995. The meeting provided an excellent forum for scientists from the Region to see many of the industrially orientated projects being undertaken in New Zealand, and added to the appreciation of all participants of how the nuclear science expertise of New Zealand can best benefit the programme.

All these activities have confirmed that the Joint UNDP/RCA/IAEA project is an area in which New Zealand can make a major contribution to the RCA through the nuclear science expertise of the Institute of Geological & Nuclear Sciences. I am pleased to confirm that New Zealand has committed NZ \$60,000 (approximately US\$ 40,000) as extra budgetary funds towards the Joint Project for 1995.

At the mid-term and tripartite review meetings in Wellington, considerable concern was expressed about the uncertainties surrounding future UNDP funding and the need for action

by Member States and the RCA office in Vienna. New Zealand endorses the conclusions and recommendations of the meetings on these issues. This project has the potential to provide significant advances towards the goal of environmentally sustainable development. The techniques being used are notable for their flexibility and adaptability. They can and must be adapted to the changing needs of the Region.

Radiation Protection

Radiation protection is another area in which New Zealand is contributing expertise through its National Radiation Laboratory. One of their scientists attended a workshop on calibration of dosimeters and survey instruments. Subsequently a consultants' meeting was held in New Zealand to plan the protocols and schedules for an inter-comparison of personal dosimetry services in the region in which New Zealand will contribute its primary standard and expertise. The National Co-ordinator attended the NCM for Radiation Protection Infrastructures.

New Zealand believes that a network of linked radiation protection agencies working to common standards is of the utmost importance to the application of nuclear science in the Region.

Medical and Biological

It is expected to be some time before New Zealand takes a major interest in this topic within the RCA. However there are definite opportunities which are being actively pursued in the areas of nuclear medicine and in tissue banking.

General

New Zealand welcomes the inclusion of the International Nuclear Information System within RCA projects. This database on national nuclear skills and activities is important to the rapid and straightforward transfer of information and technology within the region. The INIS liaison officer has, for the first time, been able to attend a meeting of INIS liaison officers and to receive training on the operation of the system.

Conclusion

New Zealand has a strengthened belief in the value of the RCA to the Region. It notes that the financial contributions from developing countries continue to increase. This is evidence that the other Member States also consider the RCA to be a success and of value. New Zealand looks forward to increasing opportunities to participate in and contribute to the work of the RCA. Together with other Member States we can ensure that the RCA is a major force in the Region for the application of peaceful nuclear technologies to the benefit of all. States we can ensure that the RCA is a major force in the Region for the application of peaceful nuclear technologies to the benefit of all.

COUNTRY STATEMENT - PAKISTAN
FOR
TWENTY FOURTH GENERAL CONFERENCE MEETING
OF
RCA MEMBER STATES
VIENNA, SEPTEMBER 1995

Mr. Chairman, distinguished delegates, ladies and gentlemen.

I wish to take this opportunity to express warm facilitations on your election as Chairman of this General Conference Meeting of Representatives of RCA Member States. I believe that under your able guidance this annual meeting will be successful and fruitful results would be achieved.

My delegation is very happy to state that RCA is an effective instrument of regional co-operation between all member countries in South East Asia and the Pacific over the past 20 years of its existence and we do believe that it will continue to play a useful role in promoting peaceful uses of nuclear techniques in industry, agriculture, biology and medicine.

May I recall that Pakistan has actively participated in almost all activities in the framework of RCA since 1974 and will maintain its active contribution in the future RCA programmes. The summary of activities carried out in Pakistan during 1994 is as follows:-

1. Industrial Projects

The emphasis on the application of nuclear techniques in the industry and environment problems is being laid in Pakistan through the RCA activities under Joint UNDP/IAEA/RCA Project on the Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development. The above UNDP Project has progressed well and Pakistan would stress that UNDP may continue to provide financial support for activities in all the four areas of this project, i.e., Non Destructive Evaluation, Radiation Technology, Tracer Technology and Nucleonic Control Systems.

1.1. Non-Destructive Testing

The development of non-destructive testing is making a steady progress in Pakistan. Many 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). Fourteen industrial concerns in the private

sector and thirteen national organizations in public sector have benefitted from various courses in NDT in ultrasonic testing, surface methods, radiography and liquid penetration testing. During September 1994 until August 1995, seven such courses were organized in Islamabad which were attended by 106 participants. National Centre for Non-Destructive Testing started functioning since April, 1995.

National Co-ordinator for the NDT Sub-Project acted as a short-term NDT expert in Bangkok, Thailand for a period of two months. During this assignment, the expert completed the following two books which will later be used as text books in the region:

- Lecture notes for NDT Appreciation Course for Managers.
- Lecture notes for Ultrasonic Testing of Materials at Level 2.

1.2 Tracer Technology 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. Neutron activation techniques and radioactive tracer techniques are now extensively applied for environmental and marine pollution studies on a larger scale.

1.3 Radiation Technology

A new formulation for radiation resistant fire retardant thin wire has been developed indigenously. Potential for radiation processing of flue gas treatment has been investigated at the national level. The emission of NO_x and SO_2 from coal and oil fired plants can be very conveniently treated by electron beam.

1.4. Nuclear Analytical Techniques

- Environmental Studies:

In collaboration with the National Institute of Oceanography, we undertook the evaluation of samples obtained by the Second Pakistan Antarctica Expedition. To achieve data of environmental significance, coastal and marine sediments obtained from different sites and depths were analyzed using neutron activation analysis and WD-XRF. About 40 elements including major, minor and trace elements were studied. The data retrieved during these studies can be of use to reconstruct the past incidental variation in lower toposphere of antarctica and also to estrapulate their impact and degree of pollutants

induction. A paper based on these results was presented in the Second National Symposium on Modern Trends in Contemporary Chemistry held at Islamabad from 4-6 April, 1995.

- Geological Studies

The characterization of a large number of alkaline igneous complexes of Northern Pakistan for mineralogy and trace elements, especially of the rare earth elements is being performed in a joint study with Centre for Nuclear Studies. Such studies will provide information regarding the genesis of rock formation and their economic worth.

- Health Related Studies

Nuclear analytical techniques were used in the study of human hair, nails, blood and other body fluids from certain referred patients to assess the possible role of trace and toxic elements.

- IAEA Research Project

In December 1994 an IAEA Research Contract on "Monitoring of Pollutants in Environmental Media utilizing NATs" was awarded by IAEA to PINSTECH. This will enable us to perform much needed environmental monitoring in industrial areas of Pakistan. National Co-ordinator from Pakistan attended the National Co-ordinators Meeting of UNDP/RCA/Sub-Project on Nuclear and Analytical Techniques held at Sydney, Australia from 20-24 February, 1995.

1.5 New Project Proposal

Marine Pollution Studies

The new project proposal entitled IAEA Regional Asian Project on Marine Containment and Transport Phenomena as submitted by Dr. Terry Hamilton (IAEA-MEL/Monaco) to IAEA, Vienna contains a very useful programme from marine pollution view point in the South East Asian region. The aims and objectives of this proposal are quite in line with the existing and long term programme of PAEC regarding coastal/marine water pollution studies along the coastline of Pakistan. We are pleased to express our interest in this new project proposal.

2. Medical Projects

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

Pakistan is participating in 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 Agency has now decided to extend the permeability studies to more than one city 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 Recurrent Colorectal Cancer using Tc-99m Labelled Anti CEA Monoclonal Antibody

Immunoscintigraphy was performed in 32 patients with suspected recurrent Colorectal Cancer using Technitium-99m labeled anti CEA monoclonal antibody received from Germany. In 30 patients the results for recurrent Colorectal Cancer were positive. This test was found to be highly sensitive and specific for detection of early recurrence and was recommended in patients suspected to have recurrence of the cancer, when the CT scan results are not conclusive or when there is definite clinical suspicion and the CT scan results are negative. The final report on this project was presented in an IAEA meeting at Sydney, Australia from 19th to 22nd October, 1994.

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, Lahore for production of reagents and their use. In this respect glass beads coating techniques for antigen/antibody has been completed. Next step will be to use these locally produced coated and radiolabelled Ag/Ab for clinical and correlation studies. The Agency may arrange to supply the required unlabelled Ag/Ab. These studies are being continued under the regional project and related research contract on hepatitis B virus. The National Co-ordinator of the Project participated in the National Co-ordinators meeting held at Sydney, Australia from 24-28 October, 1994.

A request has been submitted to the Agency to provide expert services for 3 weeks during 1995 in the field of hepatitis B marker reagents production and for related clinical studies. PAEC would welcome to host the National Co-ordinators Meeting of Project RAS/6/018 Diagnosis of Hepatitis B by Radioimmunoassay at INMOL, Lahore during 1996.

2.4 Care and Maintenance of Nuclear Medicine Instruments

Quality control is now accepted as an integral part of

routine procedures in the overall programme of nuclear medicine departments in Pakistan. Some seminars have been conducted at INMOL, Lahore to familiarize technologists with relevant quality control practices. Situation regarding preventive repair and maintenance has already improved. Three laboratories for repair and maintenance of nuclear medicine equipment have been established by PAEC.

2.5 Computerized Dosimetry in Brachytherapy and Radiotherapy of Carcinoma Cervix

This project was awarded to Nuclear Medicine, Oncology and Radiotherapy Institute (NORI), Islamabad and Institute of Nuclear Medicine and Oncology (INMOL) Lahore by the IAEA. So far 185 patients have been treated in NORI, Islamabad and 132 by INMOL, Lahore. After the completion of this project INMOL, Lahore is utilizing the software for the personnel computers in radiotherapy treatment planning. INMOL has decided to organise a National Workshop from 3-5 October, 1995 on the same subject. Medical Physicists and Radiotherapists from all the Radiotherapy centres in the country have been invited to participate in the workshop. They will be given practical training on the PCbased radiotherapy treatment planning system using the software provided by the IAEA. A copy of the software will be distributed to all the participants to be utilized at their centres. They will also be assisted in selecting and procuring the PC based system from the local market. The purpose of the workshop is to provide expertise to all radiotherapy centres in Pakistan to use this technology PC based radiotherapy treatment planning with minimum cost, maximum flexibility and less maintenance problems.

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 planned 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 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.

2.7 CLINICAL APPLICATION OF RADIOSENSITIZERS IN CANCER RADIOTHERAPY IN PAKISTAN

Cancer of cervix constitutes 6.7% of all cancer cases registered at NORI, Islamabad. Nearly 35-40 % of all these cases were in stage III of the disease. The result of the treatment with radiotherapy alone is not very encouraging in these cases. One of the causes of poor local control is the high rate of radioresistant hypoxic cells in large tumours. The effectiveness

of radiotherapy can be improved by the concomitant use of hypoxic cell sensitizers. The trial on the usefulness of AK-2123 sensitized radiotherapy will make a valuable contribution towards the improved quality of cancer control. The first Research Co-ordination Meeting was held from 17-21 January, 1995 at Kyoto, Japan. Chief Scientific Investigator of the project attended the meeting and presented a paper entitled "Clinical application of radiosensitizer in cancer radiotherapy in Pakistan". Under this project 10 patients of cancer cervix have been treated using AK-2123 as the radiosensitizer.

2.8 RANDOMIZED CLINICAL TRIAL OF RADIOTHERAPY COMBINED WITH MITOMYCIN-C

The aim of the project is to study the improved effectiveness of radiotherapy, if Mitomycin-c is used as an adjunct to it. If the therapeutic benefit of Mitomycin-c is established, a large number of patients would be benefitted and the result of the treatment in advanced head and neck tumours would improve.

2.9 NUCLEAR INVESTIGATION OF CEREBRAL FUNCTION IN PAKISTAN

The aim of the project is to evaluate the usefulness of Tc-99m-HMPAO in the diagnosis of various brain disorders. The project was awarded to NORI, Islamabad in August 1992 and further extended twice till November, 1995. A report of the project was submitted to IAEA by the Chief Scientific Investigator in September, 1994. More than 600 patients of various brain disorders have been studied under this project. Their studies have remarkable results specially in cases of brain tumours and cerebrovascular accidents.

2.10 Quantitative Evaluation of Nuclear Medical Procedures for Diagnosis of Liver Disease

Routine quality control tests of ultrasound equipment and gamma camera are being carried out regularly and patients suffering from variety of focal as well as diffuse liver diseases are scanned ultrasonically as well as scintigraphically.

2.11 Radiation Sterilization of Tissue Grafts.

During the period of September, 1994 to August, 1995 about 100 batches of placentae were collected, processed, freeze-dried and radiation sterilized by gamma radiation of 2.5 Mrad which are utilised at Liaquat Medical College Hospital, Jamshoro and at in Karachi Civil Hospital for the burns patients. The results are quite satisfactory. 10 heads of femoral bones are collected from the Liaquat Medical College Hospital, Jamshoro during the total hip replacement and partial hip replacement operations. These heads of femoral bones are pasteurised and stored in a deep freezer after proper cleaning procedure. Band saw has been received from Agency in January, 1995. The bone bank is

going to function regularly in the near future.

2.12 Strengthening Nuclear Medicine in RCA Countries

A meeting of the Regional Advisory Board of the Project was held at Chiang Mai, Thailand from 27-29 July, 1994. The Member of the Regional Advisory Board from Pakistan attended the meeting. He presented in the meeting the information regarding the present status of training of Nuclear Medicine Technologists in Pakistan. The facilities available and the programmes undertaken for the training of technologists at PAEC's medical centres and Centres for Nuclear Studies were mentioned. The meeting recommended that with the existing facilities, Pakistan may start one year's training programme for Nuclear Medicine Technologists. Such programme has already been finalised and the first diploma course of one year's duration in Nuclear Medicine is being started from 1st January, 1996 at the Institute of Nuclear Medicine & Oncology (INMOL), Lahore and AEMC, Jinnah Hospital, Karachi. The curriculum for this course has been prepared and the list of faculty members finalized. In addition to the teaching material prepared by the faculty, we shall also utilize the material provided by the Australian Coordinators from the Department of Nuclear Medicine Royal Prince Alfred Hospital, Sydney.

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. A commercial plant is already in operation in Lahore providing services to industry in radiation sterilization of medical products.

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

Under the project on food irradiation and processing experiments were conducted on enhancing shelf-life of potatoes and onions, and decontamination of spices and poultry meat. The results showed that the marketable life of potatoes and onions were extended upto eight months and of spices for a year and poultry meat upto three months.

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 the 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

Pakistan is taking active interest in the RCA Project on Improvement of Grain Legume Rhizobium Symbiosis to Fix Atmospheric Nitrogen. The project has stimulated collaboration among participating countries and provided the technical knowledge in the use of N-15 isotope methodology required for quantifying BNF by grain legumes.

4. Research Reactor Based Projects

Research Reactor Utilization

We feel that this project should be more oriented to productive utilization for making economic benefits. The utilization of 10 MW Swimming Pool Reactor at PINSTECH, Islamabad is being done for radioisotope production and physics experiments.

5. Energy Based Projects

Energy and Nuclear Power Planning

- Under the RCA Project on Energy and Nuclear Power Planning, Phase II, a Meeting of National Experts from selected RCA countries was organized in Jakarta, Indonesia from 12-16 December, 1994 to discuss data requirements of IAEA's Planning Model for Energy, Electricity and Nuclear Power Planning with emphasis on WASP Model. A senior PAEC scientist participated in this meeting. Other experts were drawn from Bangladesh, Indonesia, Republic of Korea, Malaysia, Philippines and Viet Nam.

The meeting proved to be very fruitful as all the objectives of the meeting were fully met. The main problem areas with respect to input data of WASP model were identified and recommendations for future actions and activities to be undertaken under this project were prepared. PAEC feels that the future activities envisaged for this project will considerably enhance the capabilities for Energy, Electricity and Nuclear Power Planning in RCA countries.

An Expert Advisory Group Meeting on Strategies for Nuclear Power Programmes in RCA countries was held in Bangkok, Thailand from 7-11 November, 1994 in which Pakistan was also represented to identify the key issues and to consider strategies for implementation of nuclear power programmes in RCA countries. This meeting was a part of the continuing programme of the RCA Project on Energy and Nuclear Power Planning with specific objective to facilitate national implementation of nuclear power programme through the pooling and analysis of information on effective strategies used in RCA Member States. The main output of this project would comprise analysis of recent strategies and recommendations for successful implementation of nuclear power projects in RCA Member States. After deliberations, the members of the Expert Advisory Group have drawn up the format, guidelines and recommended the table of contents for preparation

of national report on experience and issues related to planning and implementation of nuclear power programmes in RCA countries. Besides, other activities were also recommended by the experts to be continued through this project in the regional context.

6. Radiation Protection Project

This project is being carried out with the collaboration of IAEA to strengthen radiation protection infrastructure in the country. A PAEC scientist participated in the Project Formulation Meeting for the Reference Asian Man Phase-II-Ingestion and Body Content of Trace Elements of Importance in Radiological Protection held at Nakimanto, Japan from 27 February to 3 March, 1995. The National counterpart attended the National Co-ordinators Meeting for Mid-Term Review of RCA Project on Radiation Protection Infrastructure held in Kuala Lumpur, Malaysia from 20-24 March, 1995. We stress that the emphasis of the project Radiation Protection Infrastructure be further placed on the operational safety of irradiation facilities.

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 / Institutes 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
24TH GENERAL CONFERENCE MEETING OF RCA MEMBER STATES
VIENNA, AUSTRIA
SEPTEMBER 1995**

Mr. Chairman:

First of all, I would like to congratulate you, Mr. Chairman, on your election to steer this year's General Conference Meeting of RCA Member States. I am positive that through your chairmanship this meeting will be a success.

We would also like to express our deepest appreciation to the IAEA and the Government of Malaysia for the excellent organization and the hospitality it has extended to us in the 17th RCA Working Group Meeting in Kuala Lumpur last March.

Since the inception of the RCA in 1972, the programme has been continuously successful in achieving its goals to promote the peaceful uses of nuclear energy through cooperative research, development and training related to nuclear science and technology. We are pleased to note on the continuous progress of RCA projects, as revealed in the 1994 RCA Annual Report, despite limited funds to support the current RCA programme due to some funding cuts.

The Philippines will therefore continue to support the endeavours of the RCA programme through active participation and extrabudgetary contribution. It is with pleasure to inform that this year, the Philippines has contributed about US\$10,000 and has hosted two training courses. We shall be hosting 3 more activities in the last quarter of 1995.

New Project Proposals

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

- a. **Transfer of Technology for the Production of ^{60}Co sources for brachytherapy of uterine cancer in the RCA Member States.**

We support Japan's initiative in the transfer of technology on the manufacture of Co-60 sources in order to promote regional self-sufficiency in the use of the sources for brachytherapy of uterine cancer.

- b. **Storage and Planning for the Disposal of Radioactive Wastes from Non-Power Sources.**

We reiterate our full support to this proposal and expect to actively participate in the activities which will be agreed upon. A formulation meeting should be convened to

provide the necessary focus, establish priority areas and integrate future work programmes consistent with available resources and the type and volume of radioactive wastes being generated in the region.

c. Marine Contamination and Transport Phenomena

We support and expect to participate in the proposed project as it will provide important information on environmental radioactivity and protection of coastal and marine resources which is continuously a major public concern and scientific interest in the region. The project is expected to contribute to radionuclide monitoring and assessment and to manpower development. It aims, among others, to identify, quantify and map regional levels of key anthropogenic isotopes and naturally-occurring radionuclides in the marine environment.

d. Determination of glomerular filtration rate by nuclear medicine techniques: validation of the plasma clearance and external counting methods and its application in the management of diabetic nephropathy

We support Indonesia's initiative on the determination of the glomerular filtration rate (GRF) by nuclear medicine techniques as an alternative to the Cr-51 EDTA which is very expensive and not readily available in some countries in the region. It is our hope that this will be a significant development of the application of nuclear techniques in medicine.

e. Enhancement of the production and quality control of radioisotopes and pharmaceuticals

We support the project for it is envisioned to increase regional and national expertise in the field of radioisotope and radiopharmaceuticals production and improved laboratory facilities to provide a greater availability and supply of medical and industrial radioisotopes.

f. Elimination of radioactive and heavy metal waste contamination by bioremediation

We support and expect to participate in the project for it touches environmental concerns related to nuclear power program specifically the biological decontamination of radioactive and mining/milling waste from soil and/or water systems. The project hopes to address the problems of radioactive and/or heavy metal waste contamination in some Asian countries.

We are also looking forward participating in the following proposed training courses:

- a. IAEA Regional RCA Training Course on Probabilistic Assessment and Industrial Application
- b. Regional Training Course on Noise Analysis Method and Its Application on Reactor

Philippine Participation

The Philippines, for its part, has participated in various activities in 1994 - 1995. Allow me, therefore, to present to you the highlights of our participation.

1. Industrial and Environment Applications

1.1 Nucleonic Control Systems and Tracer Technology

The Philippines has participated in the training course on the Application of Isotope Technique in Process Optimization (Malaysia), the EAGM on Mathematical Modelling of Tracer Flow Experiments (Beijing, China, 7-12 May 1995) and the executive management seminar on application of nucleonic control system to coal processing operations held in Thailand. We are also participating in the Regional Training Courses on "Effluent Dispersion in Groundwater (Jakarta, 18 Sept. - 6 October 1995) and in the "Nuclear Techniques in Soil Erosion, Sedimentation, Sediment Transport and Related Environmental Studies (Sydney, 9-27 October 1995).

Dr. J. Thyn has visited PNRI on 15-19 May 1995 to give the national tracer group (NTG) members hands-on experience on the use of RTD programs that he developed which will be applied in the mathematical modelling project.

On our local tracer activities, the study on the migration of landfill leachates to groundwater and surface waters has started in August. Monitoring of well, springs and rivers within a 500 m radius will be undertaken for about two years. Likewise, industry and government companies have been able to do tracer and sealed sources applications on their own or with the help of the NTG, their mother companies or other foreign service firms.

1.2 Radiation Technology

The Philippines had a two-week national training course on Radiation Chemistry which was sponsored jointly by the PNRI and the Philippine Council for Advanced Science and Technology Research and Development in November 1994. We also participated

in the Regional Seminar on Radiation Technology for Biomedical Applications and on the Regional Training Course on Advanced Applications of Radiation Technology.

1.2.1 Radiation Sterilization

Because of the closure of the only local service facility offering ethylene oxide sterilization, the medical products and pharmaceutical manufacturers have no other option except sterilization by radiation. PNRI is therefore swamped with inquiries from former clients of the local service facility on the possibility of radiation treatment of their products such as rubber gloves, empty containers/closures and spices. However, PNRI's pilot scale facility cannot meet these additional demands for gamma irradiation services. Several meetings were held with industry to address the problem. As a stop gap measure, PNRI requested funding assistance from the Department of Science and Technology (DOST) amounting to P6.5 M to increase its Co-60 loading to a total of 200,000 Ci. With the approval of the funds, the PNRI hopes to upgrade its facility before the end of the year. The PNRI is also considering upgrading its present facility into a commercial scale.

R and D activities are being undertaken to test the applicability of radiation sterilization/decontamination of medical products, pharmaceuticals, tissue and bone grafts. PNRI continuously provides technical assistance to industries in their studies. Clearances from the Bureau of Food and Drugs (BFAD) have already been obtained for some of these products.

There is also a keen interest by a private company to set up a commercial radiation sterilization facility. A request for an expert to assist this company was submitted to IAEA.

In view of the above developments, PNRI is planning to organize a national training course on Radiation Sterilization with support from the project in terms of experts.

1.2.2 Radiation Curing

Dr. Istvan Czajlik had a one-week expert mission on UV curing of surface coating at Forest Products Research and Development Institute (FPRDI) on Sept. 12-16, 1994. During the mission, a one-day seminar/workshop was held at FPRDI wherein 26 participants attended.

1.2.3 Radiation Vulcanization of Natural Rubber Latex

PNRI is continuing its R & D on radiation vulcanization of natural rubber latex.

1.2.4 Electron Beam Treatment of Flue Gases

Philippines participated in the Regional Seminar on Electron Beam Technology for Purification of Flue Gases in Takasaki, Japan, 17-21 October 1994.

1.3 Nuclear Analytical Techniques

The Philippines participated in the two intercomparison exercises that were initiated under this project (1) for total mercury and methyl mercury in human hair, and (2) for multi-element studies of three bulk materials which are similar in composition and particle size distribution to airborne dust. The Philippines is also participating in the Regional CRP on Applied Research in Air Pollution which started in June 1995 and has also attended the Workshop on Nuclear Analytical Techniques in Environmental Research and Monitoring in Singapore, 3-7 July 1995.

The Sub-project National Coordinator also participated in the combined national coordinators meeting and expert workshop on application of ISO - 25 and other relevant international standards held at ANSTO, Sydney, Australia last February 1995.

PNRI is actively participating in the Quezon City Science Community (QCSC) ENVINET Program. Different agencies and research institutions have formed a monitoring network for the periodic monitoring of the total environment of Quezon City. The PNRI commitment is for radioactivity and elemental analysis of aerosol and water samples by NATs. The overall end of the activity is to generate a database for the formulation of environmental quality indices with which to evaluate the status of the total environment of Quezon City.

Other groups are also informed of the project's activities such as the Environment and Natural Resources Accounting Program (ENRAP) and the Metropolitan Environmental Improvement Project (MEIP) which are potential end-users of data to be generated by the project.

With the expected arrival of sample carriers being provided by the IAEA, TRXRF analysis of aerosol samples can be undertaken.

In order to promote public awareness, the project also participated in various information exchange program such as the setting up of exhibits on NAT applications in air pollution - for the Technofair which was held in Cebu City, in conjunction with the National Science and Technology Week. A paper was also presented in the Asian Chemistry Congress on "Lead and Zinc Concentrations in Selected DENR Metro Manila Monitoring Stations." During the 1994 Atomic Energy Week Celebrations, a seminar on Nuclear Analytical Techniques Applications in Air

Pollution was given to students, university professors and other researchers. A national training course is also being planned for 1996.

1.4 Non-Destructive Testing

For the period under review, 16 NDT Training courses on RT, UT, ET (various levels) were conducted. A total of 220 participants completed the courses.

Local certification of NDT practitioners involved 70 personnel in RT, UT and SM.

A national seminar on industrial applications of NDT for managers and supervisors and another on NDT equipment and regulations were conducted. The national convention of the Philippine Society for Non-Destructive Testing, Inc. was also held on November 18, 1994.

We would like also to take this opportunity to thank the IAEA for providing assistance in the form of expert services in the national training course in NDT applications in the aircraft industry conducted by the IAEA expert, Mr. Derek A. Olley on 26-30 June 1995. The training course has been a success in which 24 participants attended.

The Philippines also participated in the training course on industrial application of NDT evaluation in Korea and the national coordinators meeting. We will also be participating in the Regional Workshop on NDT Technology in Power Stations, Shanghai, China on 6-17 November 1995.

2. Medical and Biological Application of Nuclear Techniques:

2.1 Radioimmunoassay for Hepatitis B Diagnosis

The Philippines is participating in the Workshop on Detection of Markers for Hepatitis Infection by Radioimmunoassay, September 11-15, 1995, in Malaysia.

Using the protocols introduced at the regional training course in Beijing in 1993, RIA kits from bulk reagents supplied by the IAEA were prepared. These were used in assays done on professional blood donors, pregnant women and health care staff.

Development of local QC sera, solid phase RIA and local traces will be undertaken.

2.2 Radiation Sterilization of Biological Tissue Grafts

The Philippines attended the training course on open learning techniques held in Suzhou, China and the national

coordinators meeting. We also participated in the country working mission at the Berlin Tissue Bank in May 1995. We shall also be participating in the Regional Workshop for the RCA Tissue Banking Project to pilot curriculum with the tissue banking operators in the RCA region to be held at the National University Hospital in Singapore. We are looking forward to the scheduled executive management seminar for decision makers from 13-27 November 1995.

The project has achieved the following during the period under review:

- a. There has been a continuing effort towards limb salvage surgery using allografts (both deep frozen and freeze dried) in the UP-PGH and in other nearby centers. Six (6) limb procedures were done, most of these were cases of different bone tumors, one hand reconstruction and one hip surgery.
- b. There has also been a progress regarding the harvest of deep frozen allografts. A resident physician is now assigned at UP-PGH Tissue Bank to undertake the continuous harvest of fresh bone. In an effort to increase the production of deep frozen allografts, the project coordinator made representations with a Philippine government institution for financial support for the purchase of a 20 cu. ft. ultra-low freezer. All necessary requirements are now being submitted and hopefully the request will soon be approved.

For 1996, the project plans to undertake the following activities:

- a. Continue with the production and increase the volume of freeze-dried allografts for use in hospital and in other centers as well;
- b. Continue the harvest and processing of deep frozen massive allografts for reconstruction procedures in limb salvage surgeries;
- c. Promote limb salvaging as an alternative to ablative surgery;
- d. Start processing deep frozen anterior cruciate ligaments for anterior cruciate reconstruction;
- e. Attend/conduct/participate in conferences, symposia, meetings regarding tissue banking and the various uses of allografts; incorporation of tissue banking topics in the lectures for medical students;

- f. Complete documentation of all tumor cases at FGH thru the orthopedic tumor registry and its computerization for easy access and review;
- g. Continue on-going researches by the Orthopedic Tumor and Tissue Bank;
- h. Coordinate with the FGH Tumor Board and appoint a representative to the FGH Transplant Team.

2.3 Use of Computers in Technicium 99m Imaging

The Philippines participated in the training course on the use of computers in nuclear medicine held in Australia last 31 October - 18 November 1994.

2.4 Strengthening Nuclear Medicine in RCA Member States

The Philippine representative to the Regional Advisory Group has submitted his comments to the initial modules and teaching manuals distributed to advisory group members. The applicability of the modules to the Philippine setting is now currently being studied.

2.5 Coordinated Research Programmes

2.5.1 The Standardization of I - 131 Treatment for Hyperthyroidism

The Philippines will be hosting the first coordination meeting to be held on November 7-10, 1995. Preparations for the purpose are now in progress.

Studies are now being undertaken on patients for the project.

2.6 Projects with TC and CRP components

2.6.1 Maintenance of Nuclear Instruments

We participated in the workshops on the upgrading of analogue gamma camera with IBM PCs and relevant software held in Malaysia and on the quality assurance in nuclear medicine imaging-hardware and software aspects held in Thailand. The national coordinator also participated in a regional mid-term review meeting held in Ho Chi Minh City, Vietnam in May 1995.

The Philippines hosted the workshop on protection of nuclear instruments held in 27 February - 17 March 1995, attended by 13 foreign participants from 11 RCA member states and 9 local participants. The workshop covered state

of the art technology of measurements and recording of various electrical disturbance and electromagnetic interference, new strategies of protection, new protective devices and elements. The seminar was rated by the participants as a very successful one.

The formation of representatives for the national users group has started and the list will be submitted to the IAEA once completed.

For the next months, the Philippines will be preparing for the conduct of the national workshop tentatively scheduled this December.

3. Agriculture Projects:

3.1 Biological Nitrogen Fixation in Food Legumes

Though the project ended in June 1995, PNRI and the Institute of Plant Breeding (IPB) in Los Banos, Laguna continue the breeding work using single seed descent (SSD) method. In addition, mutation breeding for acid tolerant varieties was started. Initial phase of the work will be done in a greenhouse. Two papers were submitted to IAEA for publication.

PNRI planned to continue the selection of mungbean genotypes using acid soils in the greenhouse through mutation breeding and the hybridization activity single seed descent method at IPB, UPLB, in Los Banos, Laguna.

3.2 Public Acceptance and Trade in Irradiated Foods:

The Philippines shall be hosting the first coordination meeting on October (27-31), 1995.

The Philippines participates in this project through a research agreement on consumer acceptance and market testing of irradiated food products. For 1995, storage evaluation, market testing and consumer study for yellow granex onions is currently being undertaken and about 95% complete. The data, however remains to be statistically analyzed and evaluated. Some important preliminary results are as follows:

- a. Irradiated onions has better quality after four (4) months storage. The irradiated lot has at least 90% good bulbs compared to 62% for the controls. The study confirmed that irradiation significantly controls storage losses and can result in 30% difference in yield between marketable bulbs after storage, due to irradiation.

- b. Market testing data showed a preference of irradiated bulbs although this was not consistent on a day to day basis. At some days, irradiated onion sold at levels higher by as much as 50% compared to the non-irradiated onions.
- c. Although results are still preliminary, the study showed that there is a low level of consumer awareness of the safety and benefits of food irradiation. Unless proper information is provided, many educated consumers will not purchase irradiated foods. These attitudes and perceptions, however, are readily corrected when proper information is disseminated and health concerns are addressed.

4. Research Reactor, Energy Based and General Projects:

4.1 Research Reactor Utilization

On its manpower development program, Philippines has participated to the trainings on Neutron Spectrometry held in Illinois and on the Analysis of Nuclear Raw Materials at Seibersdorf Laboratory which started last 1 September. Our country also participated in the Regional Workshop on Research Reactor Utilization and on the 9th Basin Nuclear Conference, both held in Sydney, Australia.

Considering that the first Philippine Research Reactor (PRR-1) is presently under repair, institution building programs and linkages with possible non-PNRI reactor users are temporarily shelved. The submission of an IAEA TC proposal for a conventional double-axis powder diffractometer has been deferred.

However, while awaiting the completion of the research reactor, various R & D activities are being undertaken under this project namely:

- a. High Technology Materials Development: Preparation and Characterization of Superionic Conductors.

Samples of potassium beta ferrite superionic conductors were sent to Serpong, Indonesia for structural determination using the High Resolution Powder Diffractometer at the Neutron Scattering Facility of the RSG-GAS Reactor. The ambient temperature run was completed and the Rietveld analysis is being performed.

- b. Development of Gel Column for the Mo-99/Tc-99 m Generator

In view of the inoperability of the PRR-1, only the cold process could be undertaken. Using cold molybdenum,

repeated gel preparations were made to produce a constant product based on texture, appearance and x-ray diffraction.

c. Air Pollutant Characterization in Metro Manila

Since the PRR-1 is not operational, non nuclear techniques were employed to measure the trace elements in air filters collected at various DENR sampling stations in Metro Manila. Non nuclear techniques were also used in the interlaboratory comparison exercises.

d. Nuclear Materials Exploration

Sediment, soil and heavy mineral samples from Northern Palawan and soil samples from Marinduque have been processed for determination of elemental composition by NAA. A Philippine IAEA fellow who is on training at Seibersdorf Laboratory will analyze these materials by NAA, as part of his training.

4.2 Energy and nuclear power planning

Recognizing the need of nuclear power as a potentially viable energy source to potentially fill the required energy gap between years 2004 - 2010 in the Philippines, Executive Order No. 243 creating a nuclear power steering committee is issued by the President of the Philippines on May 12, 1995. The Committee is tasked to provide policies, direction, monitoring, evaluation and other functions necessary and appropriate to attain the objectives of the overall nuclear power program of the country. Aside from being a member of the steering committee, PNRI is also the lead agency in 2 two subcommittees, namely, nuclear safety and nuclear fuel cycles and the radioactive waste management committees. Work plans are now being formulated which shall be presented to the President before the year ends.

The Philippines has also participated in the meeting of national experts on data requirements of IAEA's planning models for energy, electricity and nuclear power in Jakarta, Indonesia and in the regional expert workshop on effective strategies for nuclear power programmes in RCA countries, held in Daejon, Korea.

We are also glad to host the regional expert workshop on input information for energy, electricity, and power planning which will be held in Manila on October 23-27, 1995.

4.3 Nuclear Information System

The Philippines participated in the 2nd expert group meeting in Vienna, Austria on 19-22 May 1995.

We also furnished all RCA member states with the PNRI Serial Holdings in diskette to every RCA member states. We also acknowledge the receipt of serial holdings in diskette from Vietnam, India, Korea and New Zealand. We also appreciate very much the inclusion of the Philippines among the countries eligible for the document delivery service. We have already received the coupons for this purpose.

It was unfortunate that the duty trip to the Philippines of Ms. Joyce Amenta, Director, Division of Scientific and Technical Information of the IAEA scheduled in 27-28 June 1995 did not materialize. We hope that the trip will be arranged later part of this year.

5. Radiation Protection Projects

5.1 Radiation Protection Infrastructure

The Philippines conducted a national workshop on radiation protection and waste management to review current practices and to identify problems and possible enhancement measures to further strengthen existing infrastructures in radiation protection and waste management. The workshop has provided for the opportunity for all national agencies involved in radiation protection and representative end-users of nuclear technology to discuss common concerns and to develop a work programme which will ensure that nuclear applications can be aggressively pursued without the unnecessary risks from radiation hazards.

The output of this workshop will be a valuable input to the proposed formulation meeting for Phase 3 of the project. Likewise, priority areas to strengthen the radiation protection infrastructure in the Philippines has been identified and a project proposal is submitted to the IAEA for possible technical assistance.

The Philippines recently hosted the Regional TC on Management of Spent Radiation Sources and Other Wastes from Small Nuclear Applications.

5.1.1 Off-Site Emergency

The reconstituted PNRI Task Force on Radiological Emergency Planning and Preparedness has reviewed the National Radiological Emergency Preparedness and Response Plan and the PNRI Disaster Preparedness Plan. Likewise, the task force is in the process of reviewing the revised editions of the PNRI Emergency Response Plan and the PRR-1 Radiological Emergency Plan.

The task force has also conducted a briefing on the newly revised PNRI Disaster Preparedness Plan and a workshop on the Procedure Preparation for the PNRI Disaster Control Organization.

The task force is currently designing a training program for PNRI Radiological Emergency Planning and Preparedness Program and coordinating with the Training Action Team in the development or revision of PNRI training courses, to include topics on emergency planning.

5.1.2 Dosimetry (External and Internal)

The Philippines participated in the Regional Workshop on Calibration of Dosimeters and Survey Instruments to Photons, Ibaraki, Japan.

The PNRI is currently implementing the new TC project on TLD dosimetry for its personnel monitoring service which is national in scope providing services to about 2,500 radiation workers in about 210 licensed institutions and at least 500 X-ray technicians. The PNRI with the Radiation Health Services (RHS) of the Department of Health is implementing the provisions of a Memorandum of Agreement with RHS on SSDL operation under the umbrella of the National SSDL Organization.

The operations of the PNRI cytogenetic laboratory is being sustained to provide biological dosimetry services in cases of accidental exposures to radiation and to undertake, among others, genetic counselling services. A routine bioassay monitoring service to radiation workers involved in the use of unsealed sources is being established.

The Philippines gives its full support and commitment in the forthcoming project activities on intercomparison of personal doseimeters (Phase 2).

5.1.3 Reference Asian Man

The Philippines attended the Project Formulation Meeting in Japan for the Phase 2 of the CRP on Reference Asian Man which will be launched by early 1996. In line with the objective of the second phase, which is the determination of elemental composition of human tissue and food/diet sample, the Philippines is presently collaborating with the Food and Nutrition Research Institute to secure food samples and with the Philippine National Police (PNP) Crime Laboratory for tissue culture.

5.1.4 Regulations

PNRI is currently organizing a national regulatory conference, which shall be held in the last quarter of 1995, to provide opportunity for the regulatory group at PNRI and the PNRI licensees to meet to thresh out issues regarding safety initiatives and regulatory issue. In view of the current developments in radiation protection and waste management and in view of radiological accidents involving radiation sources leading to major revisions in national regulations involving the administration of medical safety programmes in some countries, the conference can enhance and promote a better understanding of present and future regulatory issuances to improve radiation safety. The conference is organized by sector, e.g. medical, industrial, research, etc.. PNRI in-house regulatory information conference has already been undertaken in preparation for the said national conference.

In conclusion, the Philippines wishes to express its gratitude for the support and assistance our country has received as well as for the efforts exerted by the RCA states and the IAEA in sustaining the activities of the RCA programme for the year 1994-1995. I would like to commend the cooperation and support shown by all RCA states towards the attainment of the objectives of the various projects. I hope that our cooperative efforts will continue to promote the peaceful applications of nuclear energy in the region in the next years of the program implementation.

The Philippine delegation would like also to take this opportunity to extend our invitation to the representatives from all member states in the 3 more RCA activities we shall be hosting in the last quarter of 1995.

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COUNTRY STATEMENT - SRI LANKA

24th Meeting of the RCA Member States
Vienna, 20 September 1995

Mr. Chairman, distinguished delegates and other participants,
Please accept the congratulation of my delegation 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 achieved through regional co-operation in promoting research, development, training and application of Nuclear Science and Technology. Sri Lanka has benefitted from RCA activities in a number of areas by way of awareness, development of skilled manpower, and application of knowledge for solution of national problems. My delegation wishes to express its gratitude to all those who contributed to the success of the RCA.

INDUSTRIAL APPLICATIONS

As a result of the UNDP/RCA/IAEA project on the Use of Radiation and Radioisotopes to Strengthen Technology and Support Environmentally Sustainable Development, and the previous UNDP supported Industrial Projects it has been possible for a number of institutes to acquire NDT facilities and the Atomic Energy Authority has developed the capability of conducting regular training courses for NDT technicians up to level 2. About 400 technicians have been trained up to now, and a national standard (SLS 996) has been adopted for training and certification of NDT personnel.

Sri Lanka is planning to construct an irradiator to vulcanize natural rubber latex by radiation. The Ministry of Plantation Industries has very strongly recommended that Sri Lanka should adopt RVNRL technology to vulcanize latex. Negotiations have been initiated to finance the project.

A demonstration of gamma scanning of a distillation column of the refinery of the Ceylon Petroleum Corporation was carried out with the assistance of an expert. As a result of this exercise the technical staff of the Petroleum Corporation have acquired the competence to scan the columns without any further assistance.

A national tracer group has been formed and several industrial problems that can be solved with nuclear tracers have been identified.

Two participants from Sri Lanka attended the Workshop on Environmental and Technical Application of Nuclear Analytical Techniques held in India. A national committee on NAT has been formed and the Committee members participated in the intercomparison exercises on total mercury and methyl mercury in human hair and minor and trace elements in air-borne dust samples. Sri Lanka will participate in CRP on air pollution.

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 Government Cancer Institute, National Blood Bank, Colombo General Hospital, and

the Medical Faculties of 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. The Human Tissue Bank established as an IAEA model project became operational in July this year. Tissues removed from several cadavers have been processed as some of them have been already used in state hospitals. Although it is a small beginning the Tissue Bank should be able not only to meet the national requirements for tissue grafts but also the regional requirements, in the future.

Sri Lanka is using RIA for screening of donor blood for hepatitis B and is a participant of the RCA project on Diagnosis of Hepatitis B by RIA. Under this project, 2000 from pregnant women, 2050 from general population and 195 from patients with liver diseases have been tested.

Sri Lanka participated in the CRP on Computer assisted Planning and Dosimetry in Radiotherapy of Carcinoma of the Cervix.

FOOD AND AGRICULTURE

Sri Lanka participated in the CRP on Improvement of Grain-Legume Rhizobium Symbiosis to Fix Atmospheric nitrogen and the CRP on Food Irradiation.

RADIATION PROTECTION

Sri Lanka places high priority on development of infrastructure for radiation protection activities as it is an essential prerequisite for all nuclear related projects. Among activities undertaken during the recent past are, formation of a separate division of radiation protection, recruitment of additional staff and acquisition of equipment, updating of radiation protection regulations, and regular training courses on Radiation Protection.

ENERGY BASED PROJECTS

The AEA has been conducting a 3 day national workshop on Nuclear Power and Energy Planning since 1992. This year this workshop was extended to five days and conducted with the assistance of two experts provided under the RCA project. Three participants from overseas in addition to about 25 local participants, attended the workshop.

A number of personnel from the Ceylon Electricity Board have been trained on WASP and it is being used by the CEB for Generation Planning.

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COUNTRY STATEMENT OF THAILAND
AT THE 24th GENERAL CONFERENCE
OF REPRESENTATIVES OF RCA MEMBER STATES
20th SEPTEMBER 1995

Mr. Chairman,

First of all, let me congratulate you, on behalf of the Thai delegation, on your unanimous election as the chairman of this RCA General Conference.

On this occasion, I have a great pleasure to make a review with comments on the activities being implemented in connection with the RCA project and their impacts to development of Thailand.

In collaboration with UNDP, IAEA and contributions from all the member states, RCA project has widely accelerated peaceful uses of nuclear technology generating a great deal of benefits to the countries in this Asia and the Pacific Region. Thailand is not an exception, the application of nuclear technology has rapidly expanded throughout the country in various fields, for instance; medicine, agriculture, industry, environment, etc.

Thailand is a member of RCA and also participating the Joint UNDP/RCA/IAEA Project for Asia and Pacific on the Use of Isotopes and Radiation to Strengthen Technology and Support Environmentally Sustainable Development (RAS/92/073). There has been strong national infrastructure supporting RCA regional network of technical cooperation and implementation. This include the management by national counterpart though national coordinators in linking with 33 individuals, 10 organization and 24 immediate beneficiaries.

There have been 42 participants from Thailand participated in regional events and 525 participants in national seminars and training since 1993. More over, there are 12 national and regional events to be further conducted till 1996 to fulfill the requirements from the end users. In addition, more than one thousand persons have been trained in radiation protection to be responsible for all safe applications of radioisotopes and radiation in the country.

The outputs of the project are clearly indicated at the current phase. For example, most Thai industries eg. paper, coal, oil& gas, cement etc. have been well aware of using Nucleonic Control system in the plants. There has been increasing demand for

tracer technology in oil and gas industries due to the benefit of several million US dollars per year in saving shut-down time and optimising the production processes. Application of nuclear analytical techniques are progressing well for the environmental studies. The sustainable of core personnel introducing NDE technology is being developed. RVNRL has become a national research topic supported by the Ministry of Science, Technology and Environment. Other RCA projects are progressing very well.

Thailand would like to support the recommendations regarding the 17th RCA Working Group Meeting in Malaysia and the National Counterparts meeting in New Zealand. Consequently, Thailand would also like to emphasize the concept of ownership as the following;

All sub-projects under the project RAS/92/073 were firstly formulated as according to the most priority needs from all RCA member states in the National Coordinators meetings. Secondly, they were evaluated by IAEA experts and then by UNDP. In fact, this project can be considered as the most well planned projects in providing valuable opportunities to optimising economical and social development of the people in the region. The benefits and outcomes of the project are again clearly observed.

Thailand has realized the importance in maintaining a dynamic approach to our RCA programs. In this connection, Thailand is taking part in supporting the project with extra budgetary contribution of 50,000 US dollars for 3 years in 1995. Distribution in kind in term of national budgetary in running the project and arranging regional and national seminars and training as well as the expert office has also been supported.

The role of RCA co-ordinator in stimulating dynamic approach of the RCA project had been very essential. In our view, it was achieved by having the RCA coordinator equip with management flexibility at the D-1 position. The achievements had been beneficial to all RCA member countries. Unfortunately, the Agency had different view and degraded the position to P-5, which to our regret.

In conclusion, it is well recognized that the RCA project has provided valuable opportunities for all delegations from all member states to know each other, to share experiences, to stimulate economic and social development for the welfare of the people and more importantly, to keep peace with in the region. Thailand is happy and proud to share our RCA project with all of member states.

Finally, I would like to thank IAEA, UNDP, and all donor countries for contributions to all RCA programmes in Thailand in the past years. In particular, we are grateful to the contribution of Dr. John Easey, the present RCA co-ordinator, to keeping RCA effective and promoting spirit of RCA among its member countries. We are confident that the good deed of his contribution would carry him to every future success.

Thank you.

COUNTRY STATEMENT OF VIETNAM
Twenty-fourth General Conference Meeting of
Representatives of RCA Member States
20 September 1995 - VIC - Vienna - Austria

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Mr. Chairman,

First of all, allow me to extend, on behalf of the Vietnamese Delegation, our warm congratulations on your election as Chairman of the 24th General Conference Meeting of RCA Member States. I am confident that with your experience and wise guidance, this Conference will be crown with fruitful successes, thus contributing greatly to promote cooperation in the field of peaceful uses of atomic energy in our dynamic region.

We also would like to express our gratitude to the IAEA and the Government of Malaysia for the support and excellent organization of the 17th Working Group Meeting in Kuala Lumpur last March.

Secondly, I would like to draw attention of Member States on the Agency's efforts to move towards the integration of women in development objectives into its Technical Cooperation Programme, which is line with the UNDP policy and the outcomes of the 4th World Women's Conference concluded in Beijing last week. As a country with the traditional oriental culture and heritage, Vietnam has committed itself to the women's movement for peace, development and equality in the whole as well in the field of nuclear science and technology development. Therefore, Vietnam would welcome every initiative for action in this regard.

Mr. Chairman,
Distinguished delegates,

Vietnam is very happy to see the increase in membership of the RCA community as well in extrabudgetary contribution. Again, we would like to renew our gratitude to the RCA traditional donors: the Governments of Japan and Australia and to express our appreciation to the Government of Indonesia, Republic of Korea, Malaysia, the Philippines, China and New Zealand for their bound to contribute to the RCA cash fund. All this is a convincing evidence of the mature of the RCA, which is providing many countries in the region with opportunities and new ways for applica-

tion of nuclear techniques in various sectors in their respective economies. We are very glad to state that Vietnam has associated itself with most of the major projects of the RCA and we have been largely benefited from such an cooperation. As such we hope that the successful activities of the RCA should not only continue, but they also need to be developed further.

Subsequently, I would like to use this opportunity to briefly report on the RCA activities carried out by Vietnam.

1. Environmentally sound project (UNDP/IAEA/RCA/RAS/92/073)

i) Vietnam has gained quite a lot benefits from regional events under the project. A number of our scientists have obtained training and got opportunities to exchange knowledge and experiences in application of such nuclear techniques as: NDT, NCS, radiotracers, radiation technology and nuclear analysis. This has greatly contributed to manpower development in general as well as to promote these technologies in the country in particular. Along with participation in the regional training activities, the following national events were organized with the assistance of RCA programmes and the Government:

- + A National Seminar on Nuclear Techniques Applied to Coastal Engineering;
- + National seminars on Radiation Sterilization of Medical Products were held respectively in the North and the South of Vietnam;
- + A National Coordinators meeting for Radiation Technology;
- + Six National Training Courses on UT and RT; one National Workshop on NDE for Concrete;
- + A National Training Course on Waste Management

ii) With the development of the national economy, the demand for applying nuclear techniques in various sectors has been growing rapidly, which significantly facilitate the promotion of the techniques. During the last years we have seen that:

- Radiotracer techniques have been used for damp leakage study at hydropower stations Tri An and Hoa Binh, and the study of bedload transport by using Sc-46 labelled sand (blended at the NRI research reactor) to contribute to the fight against the sedimentation problem in Haiphong port area;
- Radiation technology has increasingly and widely been recognized and utilized for sterilization and disinfecting of products of a wide range from industrial, agricultural to medical ones. All this resulted in the need to set up a new irradiation facility for sterilization in Ho Chi Minh City, to which a green light of the Government has been given;

- A national NDT Society has been being established with the acceptance of ISO Standard 9712 as one of the national NDT standards. The technique has been used widely in civil engineering, road and other infrastructure construction projects. The technique has been also highly appreciated and encouraged by the Directorate of Standardization, Metrology and Quality Control (STAMEQ) as an effective way to cater the growing demand in quality control for the booming infrastructure building in the country;
- More than 100 nucleonic control system of cement plants, paper mills and other manufacturing factories have been repaired and upgraded to meet the requirements of production and safety;
- The role of nuclear analytical techniques has been perceived in the country as an effective tool for air and water pollution monitoring. Two air sampling stations have contributed to the air pollution in Ho Chi Minh City and Dalat by using INA and polarographic methods for element characterization of air-borne particles.

Within the framework of the project, there was a Mid-term Review Mission to Vietnam, executed by Messrs. K.P. Steinmeyer, C.K. Beswick and V.K. Iya, from 2 through 8 March 1995. We believe that through the mission report, the UNDP, IAEA and RCA could well understand the real situation and endeavour of Vietnam in approaching the project's objectives so as to make appropriate decision and policy in the technical cooperation programme in promoting the use of radioisotopes and radiation technology in the region.

II. Medical and Biological Applications

It would be said that nuclear techniques have been being brought into the societal life significantly, in which there is unquestionable contribution of all activities deployed under the RCA project on nuclear medicine.

The implementation of the project on *Diagnosis of Hepatitis B by RIA* over last years has brought wide use of RIA tests to carry out diagnosis, epidemiological surveys and clinical studies. The technique was introduced to various municipal hospitals in Hanoi, Hue, Thai Nguyen, Hai Phong, Hai Hung provinces to diagnose and to ensure safety of blood transfusion as well as to carry out research on Hepatitis B. In particular, the project activities in 1994 help to screen 6200 blood samples for HBs AG with RIA assay and 2300 clinical samples were tested by RIA. There has been set up a cooperative relationship among different hospitals in the North of Vietnam in studying longitudinal follow up of Hepatitis B markers and alpha-foeto-protein in chronic HBs AG carriers and in patients suffering hepatitis. The crucial impacts of the project implementation

to the people's health care: the introduction RIA techniques as an effective common method to hospitals in routine screening of blood donors for Hepatitis B diagnosis. RIA, IRMA techniques became familiar with physicians and technicians at hospitals. Some RIA kits for monoclonal anti-HBs were locally prepared from bulk reagent provided by IAEA.

With respect to activities of the project on *Radiation Sterilization* we would say that the project has led to the proposal for setting up the first tissue bank in Vietnam which has been submitted to the Ministry of Health for consideration. This is the result of constant efforts in recent years to widen the use of a range of tissue grafts sterilized by γ -radiation. The high percentage of safety in using gamma sterilized tissues has increased their demand. Along with the promotion of radiation sterilization of tissue grafts (about 3000 units/year) QC process is also of our concern. An integrated system of tissue graft production and quality assurance based on the model of ISO-9002 standards has been developed. Briefly, Vietnam now has focused its effort on tissue bank establishment and QC process.

Regarding the activity of the project on *Nuclear Instrument Maintenance*, VINATOM has moved a considerable step in acting as technical supervisor in repair, maintenance and quality control of nuclear devices, especially those of medical use through qualified staff trained by VINATOM and through RCA training courses. However, due to the lack of appropriate equipment provision, QC process has not been carried out properly. We appreciate the support of the project in supplying spare parts, which partly helped us in particular cases to face the local difficulties.

Vietnam has expressed its warm welcome to the CRP on *Standardization of I-131 Treatment for Hyperthyroidism* and very much eager to participate in the programme.

3. Agricultural Applications

Recently, 500 tons of tobacco leaves have been irradiated for mould control that could help to establish GMP (good manufacture practice) for treatment of raw material for the light industry, Research and demonstration test of food irradiation are going on, particularly, a new trial for insect control for ten tons of rice with different packaging. New experiments are being carried out on preservation of spices and shelf life extension of fresh mushroom in order to meet export demand. the Hanoi irradiation centre in collaboration with the fruit and vegetable corporation, the Hanoi Union of food Companies has been studying the preservation procedures of onions, bananas radiation at a pilot scale. The trial on irra-

diated onions at commercial scale is being now conducted. Vietnam now puts a great effort on the issue of a regulation of irradiated food, whose draft was submitted to the Minister of Health for approval, and market development for irradiated food.

As a contractor, Vietnam has participated in the project on *Increasing the yield and Nitrogen fixation Capabilities of Common Grain Legumes*. The crucial impact of the project is to make agricultural sector aware of the great potential of nuclear techniques, especially the use of breeding and mutation techniques.

4. Research Reactor Utilization

Vietnam's only Nuclear Research Reactor in Dalat has effectively been utilized in a range of studies. Namely.

- A research on the utilization of experimental neutron channel has been carried out, Two filtered neutron beams have been extracted from the reactor, giving rise to thermal and quasi-monoenergetic neutrons used for nuclear data measurements and other applied purposes.
- Research on radioisotope and radiopharmaceutical production serving nuclear medicine and other users have gained merits in the country.
- Nuclear Analysis Techniques have been developed with the utilization of the reactor for getting environmental data, geological sample assessment.

The utilization of Dalat Nuclear Reactor has really contributed to promote the role of Nuclear Techniques in the national economy as environment monitoring. The Dalat Nuclear research Institute's reactor operation team has got lots of benefits from participating in this project, especially through the training courses held under the project programme.

5. Energy and Nuclear power Planning

Vietnam warmly welcomes the split of project RAS/0/013 into two projects on Nuclear power planning and on Energy, Electricity and Nuclear Power planning. Being at the stage of preparation to introduce nuclear power into the country, Vietnam sees the participation in the project as a useful tool for manpower training and feasibility study of nuclear power introduction, Two national seminars on nuclear power planning and nuclear power introduction to Vietnam were held during last year.

6. Radiation protection

The need to strengthen radiation protection infrastructure has become imperative in the country with the increasing demand for using nuclear techniques in various sectors of the economy.

Two national seminars on radiation protection regulations and one national training course on radiation protection in industrial radiography were held in 1994. Personal dosimetry service in the country has been promoted significantly along with the calibration services for dosimeters.

Two institutions of Vietnam have actively participated in the Inter-comparison programme of Radioactivity Measurement for Environmental sample.

Vietnam would like to participate in the second phase of the CRP on Reference Asian Man.

New Project Proposals

Upon the results we have achieved in recent activities and in order to integrate effectively RCA activities with other nuclear R&D activities, Vietnam expresses its support to the following new project and activity proposals presented in the background papers of this conference as recommended at the 17th RCA WGM in March:

- Transfer of Technology for the Production of ^{60}Co Sources for Brachytherapy.
- Regional Training Course on Probabilistic Safety Assessment and its Industrial and Environmental Applications.
- Storage and Planning for the Disposal of Radioactive Wastes from Non-Power Sources.
- Marine Contamination and Transport Phenomena.
- Elimination of Radioactive and Heavy Metal Waste Contamination by Bioremediation (carried over from the 23rd General Conference Meeting).

We would also support and take part in projects on:

- Enhancement of the Production and Quality Control of Radioisotopes and Pharmaceuticals; and
- Regional Training Course on Noise Analysis and its Applications.

Other Comments

We strongly believe that RCA can and will continue to play a vital role in strengthening the capability in industries in the region. This mission would be executed only through persistent efforts of all member countries, especially those designated to represent them as national co-ordinators or counterparts. Therefore, we fully agree with the statement of the Agency that *the practical functioning of the programme requires more than words and money, and the success of RCA has only been possible because Member States have strongly backed it at all levels*. Vietnam would also share the perception other Member States of importance of the Agreement in enhancing the peaceful application of nuclear science and technology for benefits of all members of our community.

Six years have lapsed since Vietnam actually engaged in RCA activities. It is evident that the national network for the coordination of the regional activities and the national ones is constantly improved. In parallel, Vietnam's contribution to RCA has increased through hosting regional, national events, Vietnam would like to renew its support to RCA programmes and any initiatives to consolidate this mode of cooperation.

*Mr. Chairman,
Distinguished delegates,*

On behalf of the Vietnamese delegation, I would like to express our appreciation to the great efforts of the Agency, RCA Member States, especially the donor countries, the RCA coordinators in realizing RCA ideals and I would like to reaffirm, on behalf of VINATOM and Vietnamese Government, our continued strong support for the RCA projects.

Thank you all for your kind attention.

MID TERM REVIEW MISSION**REPORT****THE USE OF ISOTOPES AND RADIATION TO STRENGTHEN
TECHNOLOGY AND SUPPORT ENVIRONMENTALLY
SUSTAINABLE DEVELOPMENT****RAS/92/073****RESPONSE OF RCA MEMBER STATES TO THE FINDINGS AND
RECOMMENDATIONS**

RCA Member States have discussed the Mid-Term Review Mission Report 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 produced following the mission from 26 February to 17 March 1995 by Mr K Paul Steinmayer, Dr V K Iya and Mr C Kenneth Beswick to China, Viet Nam, Malaysia and Bangladesh.

The National UNDP Counterparts recognised the difficult task given to the Mid-Term Review Team who were faced with the mission to review activities in five diverse technology areas in four countries in the Asia Pacific region. In spite of the logistic requirements for air travel between the countries and the associated time penalties for movements from hotels to airports and hotels to institutes, the team were able to spend one day in Beijing, one day in Shanghai, one day in Hanoi, one day in Ho Chi Minh City, 2 part days in Dalat, two days in Kuala Lumpur and two and a half days in Dhaka having discussions with a total of 15 different technical institutions or organisations in the four countries.

Although there was agreement, or qualified agreement, with the majority of the mission findings and recommendations, there were six points which could not be accepted by the Member States. In view of the severe time constraints placed on the review mission, the National UNDP Counterparts considered that the high degree of correspondence between their own perceptions and knowledge of the project performance and those of the mission reflected well on the seriousness and dedication of the reviewing team to their mandate.

The National UNDP Counterparts believe that it would have been very difficult for the reviewers to fully appreciate the complexities of the six points at issue in the limited time available.

It was emphasised that the responses of the Member States on this report should not be taken to be criticisms of the Review Team, who had clearly done their best under difficult time and logistic constraints. Nevertheless, because of the importance of the fundamental issues being addressed and the ramifications if UNDP were to recognise these as valid points, it was felt necessary to make a formal response detailing evidence to support Member States' positions. Before dealing with these points, two items should be raised to bring an increased level of understanding about the positions adopted by the Member States:

1. The Project Document covering project RAS/92/073 was approved through the RCA's programme procedures and then through the UNDP's. This document has been, in essence, the contract between the various parties involved in the project and has steered the design of the activities to meet the stated approved outputs. While the Review Mission may, with the benefit of hindsight, legitimately criticise the project document and the contents, it has been, nevertheless, the embodiment of what was approved to be undertaken and could not be altered without approval of UNDP and the Member States;
2. The RCA is an intergovernmental agreement involving 17 Member States in the Asia Pacific region. All decisions are made by consensus, with all interested parties present. The RCA Member States pride themselves on the openness and transparency of the decision making process and also its democratic nature. This Agreement has been in existence for 24 years and continues to go from strength to strength. All active IAEA Member States in Asia and Pacific Region are members and ten of these provide cash donations to the project.

The unique nature of the RCA networking, which has ensured a high degree of ownership at the Governmental, Institutional and Individual level has been a strong factor in achieving a strong, highly focused programme, giving impact to the wider communities in the Member States.

In order to deal with the Review Mission's findings and recommendations in an evenhanded way and not to overemphasise the points of disagreement, comments have been given in the attached Table to each of the eighteen points, of which six are directly agreed, six are agreed with qualification and the remaining six are the subject of disagreement.

At the start of their Mission Report, the Review Team acknowledged the influence of previous UNDP supported work in these areas of technology on a regional basis in Asia Pacific, noting that the level of competence and technology transfer achieved was the result of continuing cooperation and support and they were unable to separate the influence of previous project inputs when trying to assess the outputs obtained.

At this point, it is essential to bring to UNDP's attention the information that in February 1995 the UN Joint Inspection Unit (JIU) published a draft report A-186 entitled "UN System Support for Science and Technology in Asia and Pacific". In this document the JIU reported their results of a detailed evaluation of 10 projects selected in the Asia Pacific region. The report's findings were derived 50 percent from field investigations, 30 percent from an information checklist from the executing agencies and 20 percent from desk review, especially mid-term and terminal-project evaluations.

One of these ten projects was the RCA Industrial Project RAS/86/073, part funded by UNDP, which terminated at the end of 1991. This project achieved the highest rating for its output performance (96 percent) with ratings of "excellent" in nine of the ten categories. The next project achieved seven "excellent" ratings.

The present joint UNDP/RCA/IAEA project RAS/92/073 utilises all the networking and management practices and procedures that operated with RAS/86/073. The following quotations from the report are pertinent to the support of the continuing use of these structures:

"As shown in the output performance table, RCA was in many respects a remarkably successful undertaking involving close interactions amongst several key actors, namely the host government ... IAEA... UNDP ... about 18 national implementing agencies or centres of excellence ... and over 100 private sector companies ..."

"The successful networking of RCA within the regional industrial context rested on three main factors: (a) the excellent job done by IAEA in project conception, planning and execution; (b) the strong commitment of national counterpart agencies and readiness of participating governments to collaborate actively with captains of private industry; and (c) the resourceful and technologically advanced private sector that proved able to absorb and build on the project's results".

"RCA and RNAM (the second rating project) stand out in several respects as excellent case studies on how UN system organisations can and should support capacity building in the developing countries in order to accelerate their economic and industries growth. The main lesson is that projects should not be planned and executed in an ivory tower but in full and active partnership with the main stakeholders, especially the expected users of project outputs".

It can be seen that there is a wide disparity in the views expressed by the JIU and the review team on certain issues. Given the relative efforts that could be expended by the two different evaluations and the varying experience and qualification backgrounds of those undertaking these tasks, Member States were not surprised that the short Mid-Term Review Mission was not able to properly assess the more complex administrative and management aspects. However, Member States were particularly concerned about the negative statements by the Review Team on those matters relating to their networking and their commitment to the project. They were concerned that these comments would become fixed in UNDP's memory as legitimate problems and criticisms of the ability of RCA Member States to effectively and efficiently carry out the regional project work. Member States request that these contested points in the Mid-Term Mission report be clearly and unequivocally identified as erroneous.

RCA has taken great pains to establish itself as a highly focused and highly motivated goal oriented programme. Its success is substantiated by its ability to secure substantial extrabudgetary funding from Australia and Japan, currently just under \$1 million dollars a year by extrabudgetary cash funding of around \$200,000 a year from seven developing RCA Member States; and by New Zealand and Singapore's participation in the programme on the basis of their independent assessment of the positive benefits provided in the region.

The Member States felt that the review mission was inevitably cursory, and were concerned

that, as such, its findings have the potential to be highly damaging for the future. UNDP is requested to investigate more efficient mechanisms of Mid-Term Review that would produce constructive and realistic analysis of the project performance and contribute to the improvement of the attainment of the project output, goals and objectives.

This text and the attached Table were agreed as the considered response from the National UNDP Counterparts at their Meeting, 10-13 July 1995 and these documents are requested to be tabled at the Tripartite Review Meeting on 14 July 1995.

Peter Roberts
Chairman
National Counterparts Meeting

13 July 1995

TABLE

CONSOLIDATED RESPONSES OF RCA MEMBER STATES TO THE FINDINGS AND RECOMMENDATIONS OF THE MID-TERM REVIEW MISSION

STATEMENT	RESPONSE	COMMENTS
<p>6.1 The Mission observed that, in a limited way, this Project has contributed to the UNDP Priorities for Sustainable Human Development.</p> <p>In environmental improvement, the use of tracer technology is vital in studying groundwater pollution, effluent dispersal patterns in surface waters, and to the solution of pollution problems resulting from the operation of fossil-fuelled power stations.</p> <p>In the countries visited, the Mission noted a significant percentage of women employed in scientific activities related to the Project.</p> <p>Some of the Project activities have given employment opportunities in small and medium sized enterprises as they take advantage of the new technologies available. For example, tens of thousands are employed in the region of the application of NDT for quality control. This can be related directly to previous and present Project activities. (TOR-1)</p>	<p>Agree</p>	<p>There was agreement with this finding. However, regret was registered that the opening sentence contained the phrase "in a limited way" which did not reflect the real contribution made by the project's activities to the achievement of the broad range of UNDP priorities. If more examples of the Project's contribution had been examined and listed by them, this contribution would have been more apparent.</p>

<p>6.2 The immediate objectives of the Project are well defined in the Project Document. However, the Outputs indicated for each of the five Sub-Projects are too low and the success criteria have been met too easily and the Outputs have already been fulfilled. These outputs do not justify the level of activities indicated in the Project Document. (TOR-2).</p>	<p>Disagree</p>	<p>In disagreeing with this finding, the Member States noted that the Project Document had been approved at the outset by UNDP. The ten Outputs listed were selected so that the Member States of the lowest stage of development in the particular technical aspect could attain the minimum acceptance level of training while the others would be able to use the additional inputs to develop their skills, knowledge and experience to build up the necessary preconditions for sustainability.</p>
<p>6.3 All the technologies, with the exception of the detoxification of flue gases, are appropriate to the needs of the countries in the region. The Mission finds a lack of relevance to country needs in activities related to the detoxification of flue gases. None of the countries in the region appears to be seriously considering the introduction of this advanced technology which is still at the stage of development in industrialised countries. (TOR-3)</p>	<p>Disagree</p>	<p>The Member States disagreed with this finding. Numerous examples of national interest and commitment of resources were cited which involved the spectrum of involvement from universities and research institutes to industrial organisations and power utilities.</p> <p>The Asian region has experienced a large growth in the demands for electrical energy in the past decade and these are expected to continue. The need for the treatment of flue gases and the importance of the technology to the region is recognised and a number of Member States are interested in the technology, at the same time noting that the technology is not yet fully developed. Contributions have been made to the Model Project with the expectation of a flow on effect in the region. It should be recognised that industrial development in the region covers a wide spectrum and that it is not unreasonable that several countries are sufficiently developed to develop and absorb such technology.</p>

<p>6.4</p> <p><u>Finding:</u> In general, progress has been rapid in spreading awareness of the technologies throughout the region. Whilst in some areas, management has responded adequately to the changes and reorientated its strategy, in a few areas management has not been able to respond as rapidly as may have been desirable. For example, non-destructive testing is widely used throughout the region as a result of present and previously related projects. While there are an abundance of trained personnel at levels 1 and 2, sufficient attention has not been paid to training at level 3 or to the certification process. Only a few countries have a national standard for the qualification and certification of NDT personnel conforming to ISO recommendations. (TOR-4).</p> <p><u>Recommendation:</u> In the countries which have a national standard for the qualification and certification of NDT personnel, short-term level 3 international experts should participate in the first level 3 qualification examination under the national standard. This would ensure transparency and be the step needed to enable the national scheme to be self-sustaining. In those countries where a national standard has not yet been introduced, priority should be given to the acceptance of international recommendations and their formal acceptance of the national level.</p>	<p>Agree</p>	<p>Member States agreed with the finding. The recommendation on the introduction of international recommendations for the qualification and certification of NDT personnel into national standards was noted and would be passed to the appropriate authorities.</p> <p>It was suggested that assistance of experts for level 3 courses should be provided to Member States who request it but further actions would be dependent on factors outside of the scope and control of the project.</p>
<p>6.5</p> <p><u>Finding:</u> Project support has been effective in all countries. The same cannot be said for project monitoring where the mechanism used does not appear to be adequate. (TOR-5).</p> <p><u>Recommendation:</u> A system of external audit would be more effective and give credibility to project monitoring.</p>	<p>Disagree</p>	<p>Member States, while agreeing on the finding on project support, disagreed with the finding on project monitoring. It was pointed out that, in addition to the reports of experts, each Member State reported on the progress in each project of both the RCA Working Group and General Conference Meetings as well as the National Coordinators Meetings, Tripartite, Mid-term and terminal review meetings were also held as part of the UNDP requirements and these include project monitoring.</p> <p>Member States indicated it would be desirable for regional expertise to be used for external auditing should more monitoring be seen to be justified but the expense of such a move was questioned.</p>

<p>6.6 <u>Finding:</u> The Project counterparts and their institutions have ample knowledge of the technologies involved and have passed the necessary information to the relevant agencies. However, the actual transfer of the technologies to commercial reality is still incomplete and may not be fully achieved by the end of this Project. The responsibility to nurture and foster these technologies rests with the national and local counterparts and their institutions. (TOR-6 and 7).</p> <p><u>Recommendation:</u> In the remaining stages of the Project, emphasis should be given to those specific areas where relatively small inputs would be sufficient to overcome the few remaining obstacles to full implementation of technology transfer.</p>	<p>Agree</p>	<p>Member States agreed with this finding. It was pointed out that this would largely be through national level activities rather than regional in order to be effective.</p>
<p>6.7 <u>Finding:</u> Counterpart institutions have been very effective in furnishing the necessary information to national authorities and local industries and plan to continue to do so for the remaining part of the Project. (TOR-8).</p>	<p>Agree</p>	<p>Member States agreed with the finding.</p>
<p>6.8 <u>Finding:</u> The impact of this Project on the total national effort in technology transfer has been very limited. There is a reluctance to transfer nuclear technologies to other sectors.</p> <p><u>Recommendations:</u> These technologies should no longer be the exclusive property of nuclear institutions and should be made available to others so that they may find their rightful place among the competing technologies. (TOR-9).</p>	<p>Disagree</p>	<p>Member States disagreed strongly with the statement in the findings that there was reluctance to transfer technologies to other sectors. They cited the JIU observations that there is a strong commitment on the part of national agencies and governments to collaborate with private industry and that the private sector absorbs and builds on the project's results.</p>

<p>6.9 <u>Finding:</u> Sufficient training has already been given through training courses, workshops and seminars to bring most countries to the level of sustainable technological capability. These countries have taken full advantage of Project inputs and even at this stage are in a position to provide technical backstopping. (TOR-10).</p> <p><u>Recommendation:</u> In those countries where sustainability is yet to be reached in specific areas, and where critical inputs would enable the programmes to achieve this, selective inputs should be provided without regard to equal distribution of funds.</p>	<p>Agree</p>	<p>Member States agreed with both the finding and recommendation. It was noted that the three recent National Co-ordinators Meetings for Radiation Technology, Nuclear Analytical Techniques and Nuclonic Control Systems and Tracer Technology had already identified these points.</p>
<p>6.10 <u>Finding:</u> The number of meetings for Project/Sub-Project coordination is far in excess of those required to meet the objectives of the Project (Annex 7.5).</p>	<p>Disagree</p>	<p>Member States did not agree with this finding. The Mission Review team did not take into account the RCA consensus process that is set out in the Agreement and the requirement for project formulation, National Coordinator, Tripartite, Mid-Term Reviews and Terminal Review Meetings. The importance of these events in reviewing, monitoring and progressing the project activities in a democratic, efficient, open and transparent manner was emphasised. They referred to the evaluation of this by the JIU which fully supported the RCA networking and management structures as factors that had produced exceptional project performance.</p>
<p>6.11 <u>Finding:</u> The Mission finds that an adequate number of personnel are now trained in the majority of the participating countries (with the exception of the recent entrants Mongolia and Myanmar).</p> <p><u>Recommendation:</u> The number of future regional training courses should be severely reduced.</p>	<p>Qualified Agreement</p>	<p>The Member States gave qualified acceptance to the finding and recommendation, again noting that recent National Co-ordinators Meetings recognised this when monitoring the project performance and had made reductions in the number of regional training events. They questioned the use of the words "severely reduced", noting that this would be difficult as only 9 regional training courses have been held in the 1993-1996 years. Three are programmed to be scheduled for each of 1995 and 1996. It was also noted that RTC's have been utilised in TCDC manpower development (train the trainer) to provide experts for national courses.</p>

<p>6.12 <u>Finding:</u> Networking is weak. There is little communication between specialists in the region except during meetings of regional counterparts or coordinators, regional training courses, workshops and seminars, an extremely inefficient and costly way of networking.</p> <p><u>Recommendation:</u> The Mission recommends that a strong effort should be made to increase communication between countries in the region. This would permit a considerable reduction in the need for regional meetings, thus reducing expenses. The introduction of an electronic mail network would go a long way to resolve this problem.</p>	Disagree	<p>Member States disagreed with the finding that networking was weak and cited the comments of the JIU.</p> <p>They did agree with the recommendation to make efforts to increase communications between Member States. It was noted that some countries did not have access to e-mail. Although better communications might reduce the length of meetings and be useful for technical matters, they could not replace the regional meetings where the importance of face to face discussions cannot be overemphasised especially in the RCA environment where all decisions are by consensus.</p>
<p>6.13 <u>Finding:</u> The selection of short-term international experts has been generally very good, particularly in the areas of radiation processing, crosslinking and tracers. However, the utilisation and selection of long-term experts needs to be re-examined. Some countries have expressed dissatisfaction both with the level of expertise and dedication to the task.</p>	Qualified Agreement	<p>Member States gave qualified agreement to the comments. They agreed that the selection of short-term experts had been very good. It was noted that the selection and recruitment of long-term experts was undertaken according to IAEA procedures and their utilisation was recommended in the Terminal Report for the previous project RAS/86/0/3. The contribution of these posts to enhanced manpower development opportunities was cited as an additional benefit for Member States.</p>
<p>6.14 <u>Finding:</u> In spite of assistance provided through the present and previous Projects over a period of 14 years, there is a wide disparity in the levels of technology transfer achieved among countries in the region.</p>	Agree	<p>Member States agreed with the finding. They referred to the general wide disparity in infrastructure facilities and states of industrial development in RCA Member States as an indicator of the variability in the industrial climate in each country and noted that the realisation of the technology transfer in terms of end user products or processes had to be contingent on the ability of industry to exploit the commercial advantages.</p> <p>These points have been clearly set out in the project document.</p>

<p>6.15 <u>Finding:</u> With the exception of 2 or 3 facilities visited, the need for a comprehensive radiation protection programme in some of the countries is apparent. In some cases there appeared to be no routine procedures in place to control entry into potentially very high radiation areas, and no confirmatory radiation surveys were performed prior to entry into such areas.</p> <p>In some of the centres in China the need to upgrade the level of radiation safety measures is apparent. For instance, it was stated that none of the teletherapy centres has a medical physicist to ensure accurate dose delivery to patients. While the medical use of radiation is outside the scope of this Project, it is brought to the attention of IAEA because of the serious nature of the situation. China also reported that there were few health physicists available to oversee the protection of workers and the public.</p> <p>In Viet Nam, while the number of portable radiation detectors is very small, the level of awareness on their usage was high and in conformity with established health physics practice.</p> <p><u>Recommendation:</u> An overall upgrading of health physics programs in parallel with the growth of these nuclear technologies should be a matter of priority in the Project.</p>	<p>Qualified Agreement</p>	<p>Member States agreed with the overall recommendation noting the need to upgrade the regulatory system to take account of the IAEA Basic Safety Standards. Most Member States are in the process of doing this.</p> <p>China disagreed with the specific finding concerning the numbers of health physicists in China and labelled it absolutely incorrect.</p>
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<p>6.16 <u>Finding:</u> It is common practice to hold training courses in those countries considered to be advanced in the particular sub-contract. This arrangement allows for the training of one and sometimes two persons per country, except in the host country which is able to train a larger number of participants. The host country also benefits from the presence of international experts, and from some items of equipment which are donated. This system serves to further strengthen those already advanced countries, leading eventually to a widening of the technological gap within the region.</p> <p><u>Recommendation:</u> Whenever feasible, training courses should be held in a country which is less advanced but making serious efforts to apply the specific technology, and has the ability to support the training event, so that a larger number of persons in that country could be prepared.</p>	<p>Qualified Agreement</p>	<p>Member States agreed with the finding but pointed out that the hosting was usually done on the basis that all necessary infrastructure was already in place and no equipment was usually required. In the current project, should there be any additional equipment needs, these would be largely dealt with through hiring or borrowing.</p> <p>The recommendation had qualified agreement because of two major points that needed to be taken into consideration. One was the fact that the decision on hosting of an event was the prerogative of the Member States and could not be enforced and the second was that financial constraints did not permit the provision of significant equipment purchases to enable proper provisioning of an event.</p> <p>Such courses are also used for TCDC manpower development (see 6.11).</p>
<p>6.17 <u>Finding:</u> The Mission could find no evidence of any testing laboratory having been accredited to ISO-25 recommendations.</p> <p><u>Recommendation:</u> Steps should be taken in all the countries of the region to achieve this since this would give more credibility to test results, increasingly necessary for international commerce. Furthermore, it will also become necessary that processes conform to ISO 9000 for quality assurance and eventually ISO-14,000 for environmental protection.</p>	<p>Qualified Agreement</p>	<p>The Member States agreed that the finding and recommendation were correct but noted that training on ISO-based procedures was part of the 1995 and 1996 programme in Nuclear Analytical Techniques as set out in the report of the National Co-ordinators Meeting. It was also noted that the NDE activities were carried out to ISO-standards and that the industrial sterilisation of medical products output (2.1) was based on an ISO standard.</p> <p>It was noted that ISO-25 accreditation is a lengthy and costly process and not within the scope of the present project.</p>

<p>6.18 Finding: The Mission noted that some countries were almost entirely dependent on IAEA technical assistance programmes for equipment and training. This dependency is not a healthy practice as this assistance should not become a substitute for government support. There is a tendency to look towards the RCA Project as another vehicle for further assistance.</p> <p>Recommendation: IAEA/UNDP assistance should be conditioned by a clear government indication of priority through the commitment of hard funds to the different components of the programme</p>	<p>Qualified agreement</p>	<p>Member States had only qualified agreement with the finding which it was felt did not properly recognise the current situation and reference was made to the JIU report. They pointed out that governmental support was providing hard cash to fund the national activities occurring under the project as well as support the hosting of regional events, the national networking, etc. It was unfortunate that these inputs were categorised as "in-kind" contributions since this title carried with it some implication of being without cost.</p> <p>The recommendation as far as it affected RCA projects was redundant because under Article V(3) each Participating Government has to contribute to the effective implementation of the programme.</p>
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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

JAMES COOK CENTRA HOTEL, WELLINGTON, NEW ZEALAND

10-13 JULY 1995

The National Counterparts Meeting was held at the James Cook Centra Hotel, Wellington, New Zealand, from 10-13 July 1995. It was attended by 22 participants from 16 RCA Member States, only Mongolia was not able to send a representative. The full list of participants is given in Annex 1.

1. SESSION 1: OPENING

1.1 Welcome on behalf of the Government of New Zealand, the Institute of Geological & Nuclear Sciences (IGNS) and the International Atomic Energy Agency (IAEA).

Dr. David Ross, Chief Executive, IGNS, opened the meeting with welcoming remarks on behalf of his Institute to the representatives from the 16 RCA Member States present and said it was an honour to have this important Meeting in Wellington, particularly as New Zealand was the newest member of RCA, only joining one year ago. He outlined how IGNS had been formed in 1992 out of the restructuring of New Zealand's Government research efforts which had established it as one of the Crown Research Institutes and it operated as a company. He noted that IGNS continued the mandate of the previous research organisations in being committed to pursuing excellence in science for the benefit of New Zealand. There was a strong emphasis on technology transfer to both national and international clients. He gave examples of how nuclear sciences had combined with earth sciences

to give the Institute additional skills capabilities. He also spoke of the wide applications of nuclear technology to industry and medicine.

He referred to the outward looking policy adopted by them in nuclear science, which extended beyond New Zealand and the decisions that were taken which led to their membership of RCA - a decision of which they were very proud. He reviewed the other organisations in New Zealand that had decided to collaborate in other projects in the RCA programme. He noted the importance of the current meeting and wished all delegates success in their deliberations. A full text of his speech is given in Annex 2.

Dr. Peter Englert, Group Manager, Nuclear Sciences added his welcome to that of Dr Ross. He noted the value of co-operation and collaboration and said that all parties could benefit from such interactions. He hoped that New Zealand's contribution would be useful to the Member States. He invited the delegates to visit the Institute on Wednesday afternoon and noted that many of the activities were of direct relevance to the priorities in RCA, especially the joint UNDP/RCA/IAEA project, giving illustrations of specific examples.

He referred to the situation in North America and Europe where the use of nuclear techniques, even though they might be more cost effective or efficient, was considered as the last choice for the solution of problems. He said that this situation resulted from misunderstandings in industry as well as with the general public about nuclear technology and noted with pleasure that the joint UNDP/RCA/IAEA project was giving increased attention to public information and public awareness about nuclear science and technology. In concluding, he offered the representatives any support required to facilitate the Meeting and assist them in their stay in Wellington. The full text of his address is given in Annex 3.

Dr. John F Easey, RCA Coordinator, thanked the Government of New Zealand and IGNS for agreeing to host the Meeting. He noted the recent entry of New Zealand into the Agreement and their rapid moves to support the joint UNDP/RCA/IAEA project technically and financially. He referred to the importance of this Mid-Term Review Meeting and the Tripartite Review Meeting which would take place on 14 July. He welcomed all the participants to the Meeting noting that sixteen of the seventeen RCA Member States were represented. He concluded with thanks for the good meeting arrangements and organisation by the hosts. A full text of his speech is given in Annex 4.

1.2 Official Opening

The official opening of the Meeting was made by the Honourable Mr. Simon Upton, Minister for Research, Science and Technology. In his opening remarks, Mr. Upton welcomed all the participants on behalf of the New Zealand Government noting that there were 16 Member States represented. He reviewed how science and technology had been restructured in New Zealand and the way it was now managed and funded.

He mentioned that New Zealand was actively seeking to further develop links with the scientific communities in the Asia Pacific region and that he had led two science and technology missions to the region to explore the possibility of new collaborative activities.

He detailed the changes that had led to the establishment of the Crown Research Institutes and noted that the move to join RCA had been initiated by the Institute of Geological and Nuclear Sciences and they persuaded the Government on the benefits of joining RCA. He noted the broad range of topics covered in the RCA programme and commented that this mirrored the broad role such techniques had to play in a modern society. He believed that RCA could assist in getting better publicity to inform the public about the work and the benefits as well as strengthening industrial technology.

In his concluding remarks, he touched on the issues of Women in development as well as the extrabudgetary funding situation where 10 of the 17 Member States were prepared to give direct cash support. He repeated his wishes that the delegates would have a successful meeting and hoped that they would be able to achieve some sightseeing in spite of a busy schedule. He concluded by declaring the Meeting open. The full text of his remarks is given in Annex 5.

1.3 Remarks by RCA Coordinator

Mr. Easey reviewed the draft agenda for the Meeting, alerting the delegates to those items that would be of particular significance for the Tripartite Review Meeting taking place on the Friday, 14 July. He noted that there was an urgent need to begin the planning for any project proposal to cover the UNDP sixth inter-country programme cycle which would run from 1997 to 2001. He informed the delegates that UNDP was trying to start this cycle on time at the beginning of 1997 and that the project document would need to be submitted to the 1996 RCA Working Group Meeting in order to fit into this timeframe.

1.4 Comments by the Chief Technical Officer

Professor Pham Duy Hien welcomed the participants to the Meeting. He noted that both the high standing of the delegates and the high level of attendance were very good indicators of the value that Member States placed in the RCA programme and specifically in the joint UNDP/RCA/IAEA project.

He reviewed the tasks that were ahead of the Meeting and pointed out the importance of the report of the Mid-Term Review Mission report. He touched on problems associated with the current budget cuts made by UNDP and the uncertainties concerning 1996. He also referred to the positive trends and growths in the project activities being implemented. He noted that while China and India had well developed programmes covering the whole spectrum of nuclear science and technology, they still were participating strongly in and benefitting from the joint project regional training events.

Concerning the difficulties foreseen with the current joint project because of the budget cuts by UNDP, he asked the delegates to carefully consider the priorities for the rest of the project and inform the Meeting of their views so that the appropriate adjustments could be made, while still taking account of the needs for sustainability.

1.5 Election of Chairperson

Mr. Easey called for nominations for Chairperson for the Meeting. Pakistan proposed the New Zealand UNDP Counterpart, Dr. Peter Roberts, and this was seconded by Singapore. Dr. Roberts was unanimously elected Chairman.

Dr. Roberts thanked the delegates for the honour of being elected as Chairman. He noted the tradition for the Meeting to come to consensus on all the issues so that there could be a united approach. He requested all the delegates to ensure that they voiced their opinions so that the decisions would be representative.

He passed on the apologies from Mongolia. Professor Sanjbegz Tumur-Ochir had been prevented at the last moment from attending because of domestic problems.

1.6 Acceptance of Agenda

The draft Agenda was accepted without modification and is given in Annex 6. Dr. Garth Hogg, Australia, agreed to act as rapporteur for the Meeting.

2. SESSION 2: MID-TERM REVIEW

2.1 Report of Review Mission - Comments by the RCA Coordinator

Mr. Easey outlined what had occurred at the RCA Working Group Meeting held in Kuala Lumpur in March 1995 when the report of the Mid-Term Evaluation team had been circulated and their findings and recommendations discussed. He noted that Member States had disagreed with some of the statements

in the report and each Member State had been asked to respond to him in writing on the document. These responses had been collated and analyzed by the RCA Coordinator, who had produced a document summarising the views of Member States. He reviewed each of the 18 points made in the "Findings and Recommendations".

It was also noted that there had been a report by the UN Joint Inspection Unit on their evaluation of ten projects in the Asia Pacific region, one of which had been the UNDP Industrial Project RAS/86/073. The JIU had evaluated this project as the best and had given it very strong praise. This draft report is given in Annex 7. It was noted that management and administrative aspects cited by the JIU as being outstanding were the same ones criticised by the Mid-Term evaluation team.

2.2 Review of Country Responses

The RCA Coordinator led the Meeting through each of the 18 points made in the "Findings and Recommendations" section of the report of the Mid-Term evaluation team and Member States gave their comments to each specific point and thoroughly discussed the issues.

2.3 Discussion on the draft paper on the Review Mission for submission to the Tripartite Review Meeting

The comments of Member States were noted on each point and a common response was developed and incorporated into a revised draft by the Rapporteur and the RCA Coordinator. This was circulated to the delegates and discussed further.

2.4 Agreement of final text of the paper to be submitted to the TPR Meeting

It was agreed by the delegates that the response of the Meeting to the Mid-Term Review evaluation report was satisfied by the revised text submitted to them and approved by them (Annex 8) and this should be the formal response of the Meeting at the TPR.

3. SESSION 3: REVIEW OF PROJECT SINCE LAST NCM

3.1 Overview of the Project and TPRM by RCA Coordinator

Mr. Easey reviewed the project and associated issues. He firstly overviewed the financial situation and showed that there had been strong support from both the IAEA and Member States for the RCA programme with both parties steadily increasing their financial contributions. He noted with pleasure that some of the developing Member States had taken on the role of cash donor and seven were now signalling that they would be making extrabudgetary contributions through the Agency's accounts.

He noted the problems associated with the cuts in UNDP funding for the three years (1994, 1995 and 1996) and briefed the delegates on the background behind these. It was noted that the size of the UNDP cuts was much larger than the increased cash contributions from the IAEA and Member States and that contraction of the project activities would be necessary, if no replacement UNDP funds were available, following the UNDP Executive Council Meeting which would be making decisions on their future financial allocations.

He went on to review the outcome of the TPRM held in Vienna in September 1994 and the decisions to include two new outputs relating to technician training and public awareness and public acceptance. He explained that additional funds had been requested from UNDP to allow these to be implemented but this had been overshadowed by the unforeseen UNDP budget cuts which had affected all the UNDP regional projects, not just RAS/92/073. He said that the project now had an obligation to try to implement some of these new activities which had been approved by UNDP and requested Member States to review whether they had any mechanisms to facilitate and support them using additional resources.

In the concluding part of his presentation, Mr. Easey showed how the original project design as set out in the Project Document had been modified in order that the UNDP budget cuts had the minimum impact on the achievement of the project outputs. He noted that the current project design required two approaches, one concerned with the finalisation of the project in the absence of future UNDP funds and the other based on the resumption of all or part of the UNDP funding. Copies of the overhead transparencies used are given in Annex 9.

3.2 Report on National Coordinator's Meetings by the Chief Technical Officer

Professor Pham Duy Hien briefed the meeting on the outcomes of the three recent National Coordinators' Meetings on Radiation Technology, Nucleonic Control Systems and Tracer Technology and Nuclear Analytical Techniques. Extracts from the Meeting reports is given in Annexes 10, 11 and 12 respectively.

He reviewed the major events that had been or would be carried out in 1995. He paid particular attention to the outcome of regional training events carried out in 1993 and 1994 stressing the need to follow-up on the effectiveness of existing arrangements for assessing how the benefits from participation in regional training events flows on to others at the national level. He presented a sample questionnaire he had designed to monitor this. Copies of the overheads used in his presentation are given in Annex 13.

3.3 Review of 1994/1995 Project Activities

Each delegate presented a country report on the 1994/1995 project activities for inclusion in the Meeting report. In addition, each made comments on specific points that they thought important to bring to the Meeting's attention.

The Country Reports are given in the following annexes:

Australia	-	Annex 14
Bangladesh	-	Annex 15

China	-	Annex 16
India	-	Annex 17
Indonesia	-	Annex 18
Japan	-	Annex 19
Republic of Korea	-	Annex 20
Malaysia	-	Annex 21
Myanmar	-	Annex 22
New Zealand	-	Annex 23
Pakistan	-	Annex 24
Philippines	-	Annex 25
Singapore	-	Annex 26
Sri Lanka	-	Annex 27
Thailand	-	Annex 28
Viet Nam	-	Annex 29

3.4 Extrabudgetary Funding 1994/1995

The RCA Coordinator noted that seven developing Member States had said that they would provide financial support to the project in 1995 and some countries had already deposited funds with the Agency. He asked the remaining countries to provide the funds as soon as possible and urged any of the Member States able to provide new or additional cash funds to make them available so as to minimise the effect of the loss of UNDP funding.

3.5 TCDC Activities

The RCA Coordinator asked Member States to check that they were recording their TCDC efforts and notifying his office of their efforts. He said that while it was possible for the Agency to monitor only those aspects of TCDC that were funded through the RCA TCDC project, other initiatives were invisible. He suggested that there were probably many additional examples of TCDC that did not require any

project support because the institutes involved were covering the cost through their own budgets. He emphasised the importance of TCDC to the general furthering of cooperation and collaboration in the region and the necessity for RCA to advertise what it was doing in this area to emphasise the commitment of Member States.

A number of examples were given by the delegates of TCDC activities that had been taking place. All delegates were asked to send details to the RCA Coordinator's Office so that they could be collated for future reference and use.

3.6 Project Monitoring and Quantification of Inputs

The RCA Coordinator referred to the September 1994 TPRM where the initiatives on the recording of inputs to the project had been discussed and UNDP had said that such data would be extremely valuable in furthering RCA's credentials as an efficient and effective implementing body for UNDP funded projects.

He reviewed the efforts that had gone on since 1993 on the design of a suitable questionnaire to record the necessary information and the follow-up actions that had been taken to revise the document to make it more suitable to the project requirements. He noted that there had not been full responses from Member States as yet and asked them to provide these by 31 August. He announced that he had planned to convene an Expert Meeting the week before the General Conference so that the responses could be analyzed and reported at the RCA General Conference Meeting.

3.7 Review of the Project Performance Evaluation Report (PPER)

The Chairman asked all delegates to review the PPER (Annex 30) and notify him in writing of any inaccuracies so that these amendments could be inserted prior to the TPRM. No changes were requested.

4. SESSION 4: FUTURE ACTIVITIES

4.1 Work programme for 1995/96

Professor Pham Duy Hien presented an outline of the current status of each of the ten project outputs and noted the activities that were yet to be completed. It was pointed out that there were many options possible concerning the future funding status of the 1996 component. This ranged from zero to full UNDP contribution. It was noted that at present cuts to the UNDP budget had forced the abandonment of the output on NCS (Item 1.1) as well as fellowship training and the replacement of Long Term Experts following the departure of the Long Term Experts for NDE and Tracer technology during 1995.

It was hoped that the TPR meeting on Friday might give some clarification of the possible future options because the UNDP Representative might come with briefing on the outcome of the June UNDP Executive Council Meeting and any discussions on the Fifth Intercountry Programme Cycle funding.

Professor Hien then discussed each of the project outputs in turn and identified where additional efforts were needed to complete the proposed full list of activities. Because of the complexity of the issue, no formal handouts would be issued until the financial position was clearer.

4.2 Extrabudgetary Support 1995/1996

Australia informed the meeting that the activities approved for support under their extrabudgetary programme were continuing to be funded and there would be funds set aside to enable the full programme to be completed, probably by mid-1996.

China said that it has decided to make a donation of \$50,000 per year, 30% of which would be in local currency. This was a continuation of the current level of funding.

India announced that there would be a continuation of their donation of \$25,000 and there would also be the "in kind" contributions.

Indonesia commented that US\$40,000 had already been donated to RCA as part of the US\$50,000 commitment for three years and the outstanding US\$10,000 would be lodged shortly.

Japan announced that it would continue to support RCA technically and financially to the best of its ability.

Republic of Korea informed that they had already picked up an RCA footnote a/ project and would carefully examine where additional support might be possible in future years. They would continue to provide "in kind" assistance and it was noted that the forthcoming Regional Training Course on Probabilistic Safety Assessment would be covered by this.

Malaysia said that they would be depositing the final instalments of the US\$50,000 pledge for the joint project by next year. Future financial support would be considered but would depend on specific project proposals.

New Zealand confirmed that around US\$35,000 would be deposited with the Agency in 1995 and favourable consideration would be given to support for the 1996 project activities.

Philippines announced at the 17th RCA Working Group Meeting In Kuala Lumpur the intention to deposit US\$10,000 for use in the RCA project.

Thailand confirmed that it was intended to deposit a total of US\$50,000 for use in the RCA for three years (1995-97). Currently US\$10,000 had been forwarded and US\$20,000 would be made available for each of the next two years.

Singapore announced that the National Science and Technology Board had reviewed the activities of RCA and given it a good approval status as a focused and dynamic regional vehicle for cooperation and collaboration in science and technology. However, Singapore had still to evaluate its role and goals within the RCA, including any future extrabudgetary assistance.

Pakistan said that the issue of extrabudgetary funds was important and the results of these discussions would be reported to higher authorities to explore the possibilities for achieving some additional contribution.

4.3 Public Awareness/Promotional Activities

Mr. Easey briefed delegates on the background to this item starting with the TPRM in Vienna in September 1994. He noted that this was now an additional output for the project following submission of a project plan to UNDP in November 1994. (Annex 31). However, because of the UNDP budget cuts, it had not been possible either to get additional support to fund the activities or to minimise the cuts - he pointed out that there was an obligation to address this item within the financial constraints and asked delegates whether they were able to assist.

Delegates detailed their own national programmes on public awareness and public acceptance and it was observed that some areas of nuclear technology such as medical applications had a much higher level of acceptance than other applications such as food irradiation or nuclear power.

It was emphasised by Mr. Easey that this project was only dealing with the promotion of the five technologies being employed and that there was a need to ensure that the potential users of these technologies in each Member State, that international bodies, such as UNDP, were aware of the benefits and utilisation of these technologies so that wider use was made of them as well as providing wider knowledge.

4.4 Technician Training Activities

Mr. Easey briefed delegates on the background to this item, noting that, like the issue of Public Awareness/Promotional Activities in the previous agenda item, the new output was taken on in response to a UNDP suggestion at the September 1994 TPRM.

Some Member States mentioned that they had technician training centres that could be of assistance in such training.

Mr. Easey reviewed the strategy for this work that had been proposed to UNDP which was also in Annex 31. He noted that the use of open and distance learning (ODL) materials in such cases, could offer additional sustainability to the work. He explained that much of the approach would be on the issue of ODL in a generic way. In the specific instance of radiation protection he said that, Australia had prepared specific ODL materials as part of their extrabudgetary assistance to RCA and these would greatly benefit the output. He advised Member States that there would be follow up actions as well as the distribution of copies of the written materials. Although these activities were included under the RCA Radiation Protection Infrastructures project, the main thrust was for use in support of the industrial applications of radiation and radioisotopes.

4.5 TCDC Activities 1995/1996

Mr. Easey reminded delegates of the importance of recording all their TCDC activities held under the umbrella of the RCA programme. Such information would also contribute to emphasising the degree of networking that was occurring between the Member States.

Professor Pham Duy Hien said that, in the Nuclear Analytical Techniques activities, some Member States were not able to do their own analyses because of the lack of facilities in their centres. He asked Member States to sympathetically review whether they could provide such assistance.

A number of Member States signalled their willingness to help and it was agreed that individuals should not have problems in getting such assistance in view of the positive responses.

4.6 Prediction of overall achievements and status of outputs for each project at 31 December 1996.

Professor Pham Duy Hien reviewed the programme and showed that most outputs would be achieved, provided that the UNDP funds for 1996 were available at the previously indicated levels.

4.7 Project activities beyond 1996 - discussion and formulation of a strategy to prepare a new project to start 1 January 1997.

Mr. Easey introduced the subject and explained the technical and the presentation needs for preparing a suitable project document. He reviewed the results of the two regional meetings he had recently attended concerned with setting up regional priorities for the future - the High-Level Meeting on Environmentally Sound and Sustainable development in Asia and the Pacific, Manila, 7-10 February 1995, and the UNDP Asia Pacific Regional Development Cooperation Meeting, Kuala Lumpur, 25-29 March 1995. He noted the strong emphasis on the environment and science and technology at the UNDP meeting.

Delegates discussed the possible mechanisms for initiating and developing materials to formulate, design and structure a new project proposal. It was agreed that there was an urgent need to proceed with this since any proposal to start in January 1997 would require the project document to be presented and agreed by the 1996 RCA Working Group Meeting and then approved by the 1996 RCA General Conference Meeting. In order to conform to these restrictions, it was concluded that the draft project document would have to be prepared by January 1996 so it could be circulated with the Background Documents for the RCA WGM and give adequate time for Member States to be briefed by their technical advisors. Because of the absence

of any specifically assigned funding for this preparative work, there was little possibility of arranging major meetings. The delegates resolved to undertake at least the initial planning using fax and other communication so that the choices could be reduced to two or three options.

Because of the RCA Coordinator vacating his position at the end of November 1995 and the departure of the Chief Technical Officer in early 1996, it was recognised that there would be little chance of using the major inputs from them to achieve the final design and document. It was concluded that it would be best if an individual could be identified by the Member States who had the correct qualifications and experience to undertake the task. Australia and Japan agreed to assist the Chairman to identify a suitable candidate who could take the project from the initial formulation to the project document.

5. SESSION 5: CLOSING SESSION

5.1 Review of Project Issues

Singapore offered to support the RCA programme with a centre of excellence in Nuclear Analytical Techniques based at the National University of Singapore.

Many delegates considered that the RCA Coordinator should be stationed at a regional centre in Asia Pacific rather than in Vienna. They argued that it would project a more positive image of RCA and would have many spin-off benefits including closer proximity to the Member States and closer ties with International and National Agencies in the region.

5.2 Review of Other Issues

New Zealand made a statement of appreciation of the way the RCA Coordinator had carried out his duties. The delegates all asked to be associated with the statement and for it to be included in the Meeting report (Annex 32).

Concern was expressed by the Member States that there was still no advertisement issued by the IAEA for the RCA Coordinator position and that it would now be impossible to have the smooth transition requested and recorded at the 1994 RCA General Conference Meeting and the 1995 RCA Working Group Meeting. They viewed with concern any possibility of a change in the arrangements and conditions attached to the position and requested assurance that nothing would be unilaterally introduced that would have a detrimental follow on effect to the RCA programme.

5.3 Conclusions and Recommendations

The following are the agreed conclusions and recommendations from the Meeting:

- the Meeting concluded that the joint project was running to schedule and was making satisfactory progress and on track to complete most outputs
- the Meeting concluded that the restoration of UNDP funding in 1995 and 1996 would be necessary to ensure that the final outputs were achieved on time
- the Meeting concluded that the report of the Mid-Term Review Mission was not accurate on a few of its recommendations and findings and recommended that a document detailing these points and presenting the Meeting's opinions on them should be formally tabled at the Tripartite Review Meeting on 14 July 1995
- the Meeting concluded that it was essential to immediately begin to construct a proposal for the next UNDP intercountry cycle to run 1997 to 2001 and requested the IAEA to assist and support the preparation of the project document

- the Meeting concluded that the likely absence of an RCA Coordinator and a Chief Technical Officer from the project at the end of 1995 and beginning of 1996 would have a negative effect on the present and future RCA programme and recommended that a communication should be sent to the Director, TC Programmes, to request clarification of the current position and seek assurances that there would be no diminution of the level of support from the RCA Office during this transition period.

5.4 Concluding Remarks

Dr. Peter Englert said that he had been very pleased to have the presence of the delegates for the technical visit to Nuclear Sciences on Wednesday. He expressed the desire to have closer contacts with the Member States and saw the present interactions as an encouraging start to achieving wider cooperation and collaboration. He repeated that it had been an honour for New Zealand and IGNS to host the Meeting and he hoped that the results of the deliberations would give continued momentum and progress in the project. In conclusion, he wished the delegates a safe homeward journey.

Mr. Easey thanked the New Zealand Government and IGNS for their very good arrangement for the Meeting and their strong secretariat support during the sessions. He gave special thanks to the Chairman, Dr. Roberts, for his strong contribution to the smooth running of the Meeting and to the secretarial support from Ms. Freda Harrison. He also thanked the delegates for their contributions that had seen a successful conclusion to a complex and crowded agenda. He concluded by thanking them for their assistance over the years and expressed the hope that there would be future opportunities for contact.

Dr. Roberts thanked the IAEA for their contribution to the Meeting and the delegates for their contribution and cooperation which had greatly assisted him in his role as Chairman. He echoed Dr. Englert's comments on the value of the Meeting towards bringing about further future cooperation and collaboration between New

Zealand and the other RCA Member States. In closing the Meeting he expressed the hope that all the delegates had been able to enjoy their stay in Wellington and would take away good memories of their visit.

