

Address by Chief Guest (Dr.D.A.Nethsinghe) at Opening Ceremony of the Meeting of the RCA National Representatives. (Colombo,26th May 2003)

1.Introductory Remarks :

Prof.Hewamanna, Chairperson of the Atomic Energy Authority I thank you and the AEA Board for the honor of inviting me to be the Chief Guest at the ceremonial opening of this important meeting of the RCA National Representatives. It is an honor and privilege to address this meeting of the distinguished National Representatives of the RCA and distinguished guests. I also wish to express my gratitude for giving me the opportunity of meeting with many old friends I had the pleasure of working with in my working life at the Agency , and later at the AEA

To begin with, I must congratulate Prof.Rohini Hewamanna on her appointment as Chairperson of the AEA. Her experience as Head of the Nuclear Science Department both in teaching nuclear science and in end-user oriented research ,particularly in the area of environmental radioactivity and environmental pollution, and also as a member of the AEA Board since 1995 , makes her an admirable successor to Prof. Prinath Dias. Prof.Hewamanna, I wish you all success . I must also congratulate Prof.Prinath Dias who has resigned from the Chairmanship of the AEA to take up a well deserved assignment at the IAEA as the RCA Co-ordinator. His experience in IAEA and RCA technical co-operation programming and project formulation , implementation and evaluation of end user oriented activities will no doubt be a great asset to the member states of the RCA and to the IAEA. I wish Prof Dias and his family all success and a pleasant sojourn in Vienna.

At this point it is pertinent to refer to the success of the AEA of Sri Lanka in building and establishing its own laboratories, a long felt need identified by the AEA's scientific staff and visiting IAEA consultants in the 1980s as a major constraint to the development of nuclear technology and providing services to end users. . I must congratulate the AEA staff ,Board of Management and the out going Chairman Prof.Prinath Dias who has held that position with distinction for over10 years ,and express my appreciation of their dedication and commitment in achieving this goal, effectively utilising technical co-operation opportunities made available under the IAEA and RCA activities. Special mention of this success has been made in the IAEA's Annual Report for 2001 under the chapter on "Management of Technical Co-operation for Development" .

In my address I propose to make some general comments on the role and importance of S&T which includes nuclear S&T for national social and economic development , the need for co-operation both at national and regional levels, highlights of some achievements under the RCA and suggestions for the future. I will also make some observations on the International Atomic Energy Agency as a role model for R&D and for transfer of technology for end user benefits.

2.S&T for Sustainable Development

Science and Technology, (S&T), and this includes nuclear science and technology, are the bases on which the modern world is built.. They are the corner stones and

building blocks for economic and social development of any country, essential pre-requisites for globalization and the liberal open market economic policies ,including trade agreements, which call for globally competitive high quality products and services. Partners in such activities must be adequately developed to play on a level playing field for mutual benefits to be achieved and sustained. No country has achieved economic growth, infrastructure development, enhanced living standards, food security , health care and social advancement for improving the quality of life of its people without the judicious application of S & T. Science and technology made large populations possible, large populations now make science & technology indispensable. However only in industrialized countries, and later in the newly industrialized countries (NIC's) have the population at large benefited from an overall improvement in their socio-economic conditions and quality of life.

Developing countries such as Sri Lanka have still a long way to go. Adverse socio- economic conditions are often the cause of human conflict. Alleviation of such conditions is necessary for reducing and eliminating conflict. With our commitment to globalization, liberalized open market economy and the accent on export oriented production and on tourism, and a target of at least 7% annual growth rate in our economy, we must compete with the rest of the world both in relation to cost and quality of our products and services, whether for local consumption or for export. This can only be achieved through the urgent and well planned application of modern science and high technology to all sectors of development—agricultural production, human health, industry, energy, environment protection. If we fail to provide these corner stones and building blocks , we will remain consumers and shopkeepers with a wealthy minority and a widening gap between the rich and poor ----a sure recipe for social unrest and human conflict social instability and conflict.

Albert Einstein stated " science without religion is lame, and religion without science is blind". If "religion" is replaced with " improving the quality of life and alleviating human suffering", the message is clear.

More recently, early in 2003, the world renowned economist , Professor Jeffrey Sachs, Consultant to the World Bank which advises the Sri Lankan Government on policies related to economic and social development and globalization ,addressing a public meeting in Colombo at the Central Bank stated " One thing I can be sure of is that no country in Sri Lanka's position has been able to achieve a significant level of economic development without significant investments in operating the science and technology capacity of the population and of the engineers and researchers within the economy. Without that technological capacity it won't be possible to attract the kind of foreign direct investment that this island needs, it won't be able to address the ecological challenges, it won't be able to achieve other challenges on social development".

3.S&T Capacity and the decision making Process

S&T capacity, as reflected in the allocation of both financial and human resources varies markedly between regions and countries, with the industrialized nations accounting for about 80% of global capacity. The financial allocation to R&D in Industrialized countries is in the order of 2 to 3 percent of the GDP, whereas the corresponding figure for some developing countries in Asia, including Sri Lanka is under 0.2 percent. Is this due to lack of resources, or failure to recognize the importance of S&T for development at the policy and decision making levels? My guess is that it is the latter. Science and technology considerations should play a vital role in the highest decision making processes pertaining to national social and economic development. Decision making should not be the exclusive preserve of politicians and bureaucrats who seem unaware of the paramount importance of S&T. This has unfortunately been the problem in some of the developing countries, including Sri Lanka, even for many decades following independence. In contrast, at the dawn of India's independence over 50 years ago, that great Indian Statesman and visionary Pandit Jawaharal Nehru who had a science education in Cambridge gave S&T the leading role in combating that new nation's daunting problems of economic and social development beginning with the establishment of the Tata Institute of Fundamental Research and the Bhaba Atomic Energy Research Centre in the early 1950's. These institutions, although government funded, functioned as independent organizations under dynamic leadership of Nehru, Tata and Bhaba. The Indian Prime Minister was the President of the Council of Scientific and Industrial Research and the relevant Minister was its Vice-President. The Government of India declared its statement on Science Policy in the late 1950's and simultaneously an action plan with appropriate mechanisms and infrastructure for implementing policy, and for regular monitoring and evaluation of the implementation process. The Republic of Korea took at least 10 years after pronouncing its S&T policy early in the 1960's to build its foundations for S&T..and thereafter made rapid progress.. As that country's former Minister for S&T and founder President of the Korean Institute for S&T Hyung Su Choi said "not only active support but continuous involvement of the Head of Government is essential for utilizing science and technology for development". In Malaysia, the Prime Minister Dr Mahathir Mohamed who is himself a medical doctor plays an active role pursuing S&T development and ensuring that scientists take a leading part in development planning. Amongst other developing countries in the Asian region which have given serious recognition to S&T in their national development plans, as not just one aspect but a vital factor are China, Pakistan, Thailand, Singapore, Indonesia, Philippines and Vietnam.

A major obstacle to development in some developing countries is the lack of appreciation and understanding of the vital and indispensable role of S&T by non-scientists, particularly politicians and ministerial bureaucrats who are largely responsible for making and implementing development policies. Socio-economic development must be a collaborative effort in which scientists, media personnel, policy makers, administrators, economists, entrepreneurs, marketing specialists and financiers should work together as a team for improving the quality of life and alleviating human

suffering. In this connection I quote the following statement made the Guest Speaker Dr G.Thyagarajan, Scientific Secretary, Committee on S&T in Developing Countries, International Council for Science ,Chennnai at the First Biennial Conference on Science and Technology-BICOST 1-held in August 2000 organized by the National Science and Technology Commission of Sri Lanka-:

“ The State must free S&T from bureaucratic controls and be seen as a facilitator and not as a regulator or a mindless dictator. Irrespective of political ideologies or affiliations S&T based economic development ought to be the new order. Scientists must be actively involved in decision making mechanisms and not treated as passive spectators to whom econiums are paid from time to time to keep them in good humor. Experience has shown that S&T has flourished and delivered where ever there was political will and commitment.....The S&T community should become constructively demanding and aggressive, away from its subservient and mute stance of sitting in on an ivory tower insensitive to the social and economic changes and demands around them. It is their duty to advise and alert the polity to S&T prospects and choices”

4.Regional Co-operation :

(1) General Comments: Co-operation for the exchange of ideas and information amongst the philosophers and scientists based on the premise that two heads are better than one has been an age old practice which has helped greatly in development and continuation of human intellectual creativity. This meeting is an example of such practice.

There has been an explosive development of science and technology in the last century in various disciplines relevant to practical applications such as nuclear energy, genetic engineering bio-technology, information technology. R&D in these fields call for sophisticated and expensive equipment and teams of highly specialised scientists. It is recognised that no single nation ,not even amongst the wealthy industrialised one, can afford to work in isolation without the pooling of equipment and other physical facilities, S&T personal and of course knowledge even in sensitive areas of modern and competitive industries. In the case of small developing countries such as Sri Lanka with limited funding for R&D entirely borne by the taxpayer, and without a critical mass of specialised R&D personnel both for effective team work and for fruitful discussion and scientific debate, co-operation with the outside world is imperative. This is being met through bi-lateral ,regional and international co-operation.(eg. CIDA, SIDA, NORAD, IAEA, FAO, UNIDO, WHO).

Co-operation at the regional level, as under the RCA, has the advantage that it would not only be more cost effective (experts ,training, equipment and participation in workshops and seminars cost much more if held in far away industrialized countries), but also more related to our local environment ecology , social conditions and needs. Better focussing on regional needs and problems is possible with guidance of regional specialists. Regional co-operation need not replace, but should complement bi-lateral and international co-operation.

A spin-off benefit of regional and international co-operative group activities is the promotion of human understanding, harmony and life long friendships amongst individual participants, who may not have the opportunity of meeting scientists outside their own country

The Regional Co-operative Agreement (RCA) amongst Member States in the Asia and Pacific region of the IAEA which was initiated 1972 celebrated its 30th anniversary in the year 2002. Today it has a membership of 17 states. It promotes and co-ordinates co-operative research, development and training through end-user oriented projects for solving common problems and meeting development needs. The projects which are carried out through national nuclear research institutes and regional centres of excellence cover a wide spectrum of disciplines in the application of nuclear science and technology ranging from energy planning, agriculture, industry, health, water resources development to dam safety and sustainability, environmental pollution, potable water, marine environment protection, radiation protection, an radiation waste management, research reactor applications. It is funded by the IAEA, UNDP and member states. During the period 1987-1999 a total of 55 projects were implemented worth some 32 million US dollars Following the success of the RCA in the Asia and Pacific Region, The IAEA has established similar programs in Africa and Latin America.,

(2) Some Achievements

(i) Amongst the most successful projects in the transfer of nuclear project implemented under the RCA in the Asia and project is the IAEA/ UNDP /RCA project on Industrial applications of Nuclear Technology with an input of 12million US dollars over the 12 year period 1980-1992 This project resulted in total investments of nearly 200million US dollars I regional industries in the developing countries.. These were mainly private sector industries in the use of nucleonic control systems in paper ,coal and steel industries, radiation sterilization of medical supplies and non –destructive testing. The program which included training, demonstrations, workshops not only for scientists and technologists, but also for company executives was held at regional centres of excellence,. Fourteen countries participated in the program, including Australia and Japan. It is a pleasure to note the presence at this meeting of Drs Sueo Machi, Sadaki Kobasyashi and John Easy who were responsible for this project at the IAEA at various stages.

(ii) Another was the regional project in Asia and the Pacific on Radio-Immuno Assay of Thyroid related hormones (1986-1991) aimed at improving patient services. This six year US \$ 50,000 project lead to development of the bulk production of RIA reagent at a cost of US \$ 0.5 cents per patient sample when the cost of imported kits was US \$ 2.50. In addition the project helped some 150 RIA laboratories in the region to upgrade the quality their analytical services and a 177% increase in the number of patients handled by the regional laboratories. I am pleased to note that Dr Rienzil Piyasena who handled this project as Technical Officer at the IAEA is also with us in this room today.

(iii) The project on development of urea –molasses –multi-nutrient blocks (UMMBs) as a feed supplement for cattle for the optimum utilization of locally available crop residues and other agricultural by-products is another success story under the RCA program. The project has helped to increase milk yields by 1-2 litres per animal per day, growth rates of grazing cattle by 300grams per day per animal, reduced the calving age from 5 years to 2 years and reduced inter-calving interval from 4 months to 12-15 months. Economic impacts have been recorded in China, Indonesia, Myanmar, Sri Lanka, Thailand and Vietnam. It is with pleasure that I note the presence of Dr Nobel Jayasuriya who handled this project as the Technical Officer at the IAEA.

(3) Suggestions for future:

(i) Collaboration between scientists and politicians:

Initiate a project (a) to identify countries in the Asia and Pacific region in which strong political commitment has been made to strengthen and use S&T activities for social and economic development and the approaches, psychology and strategies which have been used to develop such commitment (b) to hold seminars for senior executives, senior scientists and media specialists, entrepreneurs, market specialists, and financiers to disseminate information gathered from (a), and to advise on how they can be persuaded to collaborate in persuading politicians to give S&T a high place in national development

(ii) Electrical Energy:

Considering the growing demands in the region for electrical energy, the hazards of the green house effects on the environment and the relatively small contribution that can be expected from alternate and renewable forms of energy, countries which have the technological capability in the region for nuclear power should be encouraged to do so. At the same time set up a project to study and advise on the technical and economic aspects of cross border transmission of nuclear power from countries which have nuclear power plants to those which do not have the capability to build such plants

(iii) Electron beam (EB) facility for cleaning of flue gases from coal plants

Many countries in the region like Sri Lanka find that the only economical and viable option for large scale generation is coal. But public concern regarding environmental pollution stands in the way of coal plants. Set up a model regional project to demonstrate the techno-economic feasibility of the EB facility

5. The IAEA as a Role Model for the Transfer of S&T and Good Management

At the 41st annual General Conference of the IAEA held in Sept. 1997, Ambassador Poolokasnngham, leader Sri Lanka's delegation stated " The promotional activities of the IAEA have been responsible for most, if not all of the transfer of technology for peaceful applications of nuclear energy in developing countries, including Sri Lanka. The

IAEA is held in high esteem globally because of its good management and success as a scientific and technical organization without undue bureaucratisation and politicisation. These have given it remarkable financial stability. The IAEA is rated amongst the best, if not the best of the UN's specialized agencies in efficiently fulfilling its mandate of not only technology transfer, but also supporting research and development (R&D), and for explicitly ensuring through its technical co-operation programme that the results of these activities lead to visible end user benefits.. These range from energy planning, safety in nuclear installations and radiation protection to medical diagnosis and therapy, increased and sustainable agricultural productivity, value addition to industrial products and judicious exploitation of water resources. As nuclear science and technology is considered only a further tool for integrated use with conventional methods in these multi- sectoral activities, an important spin-off benefit of the IAEA's work is the tremendous impetus it has given to the overall development of S&T in its developing member states..... "It should be noted that quite correctly a major part of the Agency's budget for technical co-operation has been for non nuclear-power related sectors such as agriculture, industry and medical applications ,these, in addition to energy planning being priority sectors in most developing countries, including Sri Lanka."

Paying a tribute to outgoing Director General of the IAEA, Mr.Hans Blix, Ambassador Poolokasingham also stated " Perhaps the best tribute to the retiring Director General Mr Hans Blix and the Agency is reflected in the following words of the President of the IAEA Staff Council at the 39th Ordinary Staff Assembly held in December 1996-:

" Unlike in many other organizations, the Agency has a long tradition of openness and transparency in its staff management relations.....We have benefited from the unflinching support of our Director General who has made no bones about the prime need for competence and integrity when recruiting staff—The Director General and Staff Council are united in their conviction of the need to maintain a truly independent and competent civil service..." This is a fundamental pre – requisite for the success of any organization, and we as Member States responsible for the Agency must ensure that the Agency must not only continue to maintain, but also strengthen this most valuable attribute."

At the IAEA GC Sept 1998, 42nd Regular Session of IAEA. Ambassador Poolokasingham, Leader of Sri Lanka's delegation stated "It will be recalled at that the 41st General Conference last year, my delegation referred to the need for maintaining and strengthening the collaborative efforts of the Director General with the staff for maintaining a truly independent and competent international civil service with the highest standards of efficiency, technical competence and integrity. .The recent decision of the Agency to adhere strictly to its statutes in not requiring Government sponsorship for recruitment of its staff, is a further progressive and positive step in this direction."

I have quoted these statements as they have been formally made by Sri Lanka's representative at the IAEA General Conferences and they reflect officially our views on the need to ensure end-user benefits in our S&T endeavors and need for transparency , competency , integrity and independence from politics in management of our S&T institutions. The recent initiative taken by our Minister for S&T and Economic Reform the Hon.Mr Milinda Moragoda in promoting and developing Information Technology (IT). in Sri. Lanka is encouraging . However IT alone is not enough. We hope that it is a

harbinger of greater thrusts on S&T developments in all other sectors. His recent comments on the need to de-politicize our public administrative services is also most encouraging.

The IAEA should serve as a role model for all our S&T institutions in the conduct of our activities to ensure that our programs are explicitly directed to end user benefits , and that they are competently managed independent of partisan politics. Personal considerations should not be allowed to supersede public benefit.