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47th Annual General Conference of International Atomic Energy Agency World urged to review policy of technology denial to developing countries

Chairman, Pakistan Atomic Energy Commission, Mr. Parvez Butt has urged the advanced countries to take a fresh look at their policy of technology denial to developing countries. Addressing the 47th Annual General Conference of International Atomic Energy Agency (IAEA), held in Vienna, Austria, from 16-19 September, 2003, he said that the embargoes and restrictions on transfer of advanced technologies is hampering the International Atomic Energy Agency's efforts to transform the developing countries from dependence to self-reliance.

Mr. Parvez Butt stressed that an important requirement of Pakistan, as a developing country, is access to equipment and material from the industrially advanced countries. However, various embargoes and restrictions on the availability of such equipment act as an impediment in accelerating economic development of many countries, which have attained a certain level of advancement with the IAEA's Technical Cooperation Programme. "This policy has not been result oriented in the past nor it would be in the future. We would like that Standing Advisory Group on Technical Cooperation (SAGTAC)



Mr. Parvez Butt, Chairman PAEC, addressing the 47th Annual General Conference of the IAEA in Vienna, Austria, on 17 September, 2003 as Head of the Delegation from Pakistan

Pakistan elected to the IAEA Board of Governors

Pakistan has been elected as a member of the IAEA Board of Governors for the period 2003-2005.

Pakistan's candidature for the membership of the executive organ of the IAEA was unanimously decided by the Middle East & South Asia (MESA) Group at the International Atomic Energy Agency.

Pakistan has previously served on the Board for fourteen terms. The re-election of Pakistan to the IAEA's Board of Governors speaks of the trust and confidence that the international nuclear community places in Pakistan for its relentless efforts to promote the objectives of the Agency and the interests of the developing member states.

Mr. Parvez Butt, Chairman PAEC attended the meeting of the Board held on 23 September, 2003, as Governor from Pakistan.

should deliberate on this matter and advise the Agency on how to facilitate the transfer of technology from the advanced countries to the developing countries in an effective and sustainable manner."

Pakistan has made significant achievements in the peaceful application of nuclear energy for the socio-economic uplift of the country. These advancements were in line with our national social and economic developmental plans where our nuclear activities made contributions either in a direct way or they were instrumental as complimentary activities to the main programmes of the country.

In the field of agriculture alone, the application of nuclear techniques has led to an increased revenue of Rs. 6 billion per year. With this money, a small to medium sized nuclear power plant can be installed every six to seven years. This is the regenerative effect of introducing nuclear technology in Pakistan and we appreciate the cooperation of IAEA, the Chairman added.

"The acquisition of sustainable energy for the economic development is the right and the necessity of every country. This reality has been amply recognized in the Statute of the Agency. Pakistan is perhaps one of the most

prominent countries in the developing world where nuclear electricity can play a vital role in its economic development. We have been encouraged by the reported bright future of nuclear power in the USA and in South Asia and the Pacific region. We are also extremely sensitive to the risk of industrial pollution expected as a result of economic growth. This further obligates us to resort to the nuclear power in the coming years. Pakistan is fully alive to this situation and will move forward to enhance the use of nuclear power for its economic development with a proper energy mix. Our excellent operational and safety record of our two nuclear power plants, KANUPP and CHASNUPP, and the existence of a reliable infrastructure relevant to the nuclear power plants have encouraged us to acquire another nuclear power station similar to CHASNUPP.

PAEC Chairman further stated that future activities will not be limited merely to the installation of more power plants but to further extend the utilisation of these facilities for powering desalination plants. "We are actively working with IAEA for establishing the country's first demonstration desalination unit at KANUPP. We are keen to play serious role in the international efforts to promote international project on innovative nuclear

reactors and fuel cycle so that Pakistan could benefit from safe, cost-effective and proliferation-resistant nuclear power plants."

Pakistan's cooperation with the Agency in the area of safeguards had always remained exemplary and we have had a spotless record. We believe in credible, effective and economically viable safeguards of the Agency. "We once again assure the world community that we are fully committed to the cause of the Agency's safeguards system. Pakistan will put all its efforts to keep the safeguards fully functional and will oppose any impediments which could negatively effect its smooth operation.

"We would like to reiterate our earnest desire to continue fulfilling all our obligations under existing safeguards agreements. We are confident that our cooperation with the Agency, in this area, will further strengthen during the coming years", he said, adding, "while fully acknowledging the importance of safeguards as one of the main pillars of Agency's activities, my country places equal emphasis on the balanced approach to other Statutory functions of the Agency. We firmly believe that maintenance of a proper balance between the promotional aspects and safety or security related concerns in all the Agency's functions is essential to success. It is difficult to comprehend why a simple notion of harmonious balance should become a matter of contention among some Member States. We would like to emphasize the need for cohesion and greater understanding among all the members of the Agency to push forward the Agency's mandate. This would enhance its strength and credibility".

"The world community is witnessing dramatic changes of the perceptions of international peace and security since the turn of the cen-

ture. These changes are presenting taxing challenges to the Agency in fulfillment of its central role as a promoter of world prosperity through the safe and peaceful uses of nuclear technologies. My country has been watching with interest and appreciation the way the Agency is taking these challenges and steering itself clear through the difficulties with commendable skills and wisdom. We are pleased that the statutory interests of the Member States, particularly those of the developing countries, have been given due importance while toiling through these new challenges. Pakistan will continue to provide its full cooperation to the Agency in its future endeavours, he said.

"We have further strengthened the security measures around our nuclear installations to avoid any possibility of nuclear terrorism or of illicit trafficking of nuclear material. In order to enhance cooperation with the IAEA we are participating in the Agency's activities and are pleased to renew our commitment to a safer world in line with the Agency's nuclear security plan. Our active participation in the Agency's initiative to strengthen the Convention on the Physical Protection of Nuclear Materials will continue. We are desirous of an early conclusion of the deliberations on the CPPNM with the hope that this important Convention will enable us to enhance our capabilities to protect our nuclear installations and the material in a more effective manner.

Speaking on the Agency's financial constraints, PAEC Chairman said Pakistan has always believed that Agency must be supported by the Member States for its financial needs in order to fulfill its statutory obligation. "We emphasize the need for constituting a working group of the interested Member States to study and advise the Agency on

Pakistan has made significant achievements in the peaceful application of nuclear energy for the socio-economic uplift of the country. These advancements were in line with our national social and economic developmental plans where the nuclear activities made contributions either in a direct way or they were instrumental as complimentary activities to the main programmes

how to overcome the financial problems in a realistic way". Realizing the importance of this matter, Pakistan has consistently adhered to the practice of paying all its contributions in full and in a timely manner regardless of its economic problems. Pakistan's support to Agency will continue in the future as well, he assured, and placed on record deep gratitude to the Agency for its help and assistance through its technical cooperation programme.

The Chairman commended the excellent work SAGTAC has been doing for the past several years to refine the Agency's technical cooperation programme. It would be helpful for the Member States if the recommendations of SAGTAC are periodically brought to their notice. He said that Pakistan greatly appreciates the role the regional agreements are playing in supplementing the developmental activities of the Agency. Pakistan has benefited from the programmes of the RCA and would like further strengthening of its activities.

Supporting the idea of formation of the World Nuclear University, he said that Pakistan has already indicated intention to participate in its activities and contribute to its success. "Pakistan has recently joined the SESAME Project. The Synchrotron Light for Experimental Science and Applications in the Middle East is going to be an international center for research and advanced technology under the auspices of UNESCO and the active support of the IAEA.

The PAEC Chairman extended appreciation for the commendable work the Director General has been doing both for the Agency and the Member States in very difficult and challenging international environment of the present times. He expressed profound sense of gratitude to the Director General, Deputy Directors General and the staff of the Secretariat for their valuable help and cooperation to Pakistan throughout the year.



The delegation from Pakistan to the 47th Annual General Conference of IAEA

International Conference on Current trends in Radiopharmaceuticals

Utilization of nuclear technology remains a vital force behind generating electric power, evolution of high yield soil suitable crop varieties, diagnosis and treatment of cancer-related diseases and development of local industry through nuclear techniques and applications. Multi-disciplinary research efforts of Pakistan Atomic Energy Commission have resulted in solid contribution to national defence, economic development and health care services and focus will remain on all round advancement in these areas. This was stated by Mr. Parvez Butt, Chairman, Pakistan Atomic Energy Commission while inaugurating the International Conference on Current trends in Radiopharmaceuticals, from 23-25 October, 2003, at Islamabad.

Mr. Parvez Butt said cancer related diseases are increasing and a big effort is needed to combat this menace. For running a nuclear medical center for public benefit, the major input by cost are diagnostic and treatment kits and medicines, which if imported, are very expensive and render the treatment of the disease beyond the reach of the common man. PAEC is already manufacturing major components of these kits and aims at undertaking preparation of more such medicines to bring down the cost.

Dr. Kauser Abdulla Malik, Member (Bio-Sciences) PAEC, in his welcome address said



Mr. Parvez Butt, Chairman, PAEC inaugurating the International Conference on Current Trends in Radiopharmaceuticals,

that PAEC has an elaborate research and training programme for doctors and technologists needed for its nuclear health care programme. He said that better understanding of molecular structure and human genome has made it possible to effectively cure cancer-related diseases.

Dr. Cornelis Hoefnagel, IAEA expert, apprised that nuclear techniques are more precise and effective for the diagnosis of many diseases, because, by the very nature, they focus on the function of disorder and not the

anatomy of the body and hence, offer disease specific diagnosis. He also elaborated the efforts undertaken by IAEA to combat this disease.

The Conference, organized jointly by Pakistan Institute of Nuclear Science and Technology (PINSTECH), and Nuclear Medicine, Oncology and Radiotherapy Institute (NORI), with active cooperation of IAEA, was attended by scientists and doctors from nuclear medical centres, R&D centres and organisations engaged in medical products

National Oncology Conference at MINAR

Inaugurating the two-day National Oncology Conference organised by Multan Institute for Nuclear Medicine and Radiotherapy (MINAR), Mr. Parvez Butt, Chairman Pakistan Atomic Energy Commission, said that the scientists of PAEC are serving the nation not only in the field of defence but are also engaged in application of nuclear technology in health, agriculture and industry for socio-economic development.

PAEC is rendering invaluable service to the ailing humanity specifically in the field of cancer diagnosis and treatment. He said the Commission's targeted beneficiaries are the poor patients and poor peasants who cannot afford costly treatment though they have given their blood and sweat to the country. PAEC is running 13 medical centers all over the country where some 3,00,000 cancer patients are being treated annually. Commission wants to expand its medical facilities by opening more centers, particularly in the remote areas and currently new medical centers are being set up at Nawabshah, Gilgit, Swat, Gujranwala and Bannu, which will be

equipped with modern facilities. The existing medical facilities at Hyderabad, Larkana and Quetta will be upgraded.

He said that PAEC has also earned name in power-generation by setting up two power plants while the third one is being contemplated. It is because of such multifaceted and diverse initiatives, that PAEC has grown into a large industrial concern. PAEC is manufacturing equipment previously imported by Pakistan. Commission is imparting skills to the local industry in the form of training and certification. Due to the efforts of the nuclear scientists the production of several crops has gone up by Rs.6 billion per annum for which the credit solely goes to the PAEC.

He stressed that the excellent efficiency of PAEC's nuclear facilities lies in its purely merit-based selection policy, which will not be compromised at any cost. PAEC is aiming to manufacture low cost cancer medicines at its own centers for the benefit of common man. PAEC has set up an irradiation facility

to sterilize syringes to eliminate chances of contamination.

Dr. Kauser Abdulla Malik, Member, Bio-Sciences and Administration, PAEC, in his welcome address, said that PAEC's nuclear medical centres have achieved an enviable position with our oncologists and nuclear physicians committed to serve patients in different regions of the country.

Dr. Amjad Aziz, Director, MINAR, highlighted the aims and objectives of the Conference. The scientific programme of the Conference comprised of six sessions covering discussions on various issues of cancer prevention, diagnosis and treatment by eminent specialists in the field. More than hundred experts from all over the country participated and shared their experience in the prevention and management of cancer.

Dr. Nadeem Zia Abbasi, Consultant Oncologist, MINAR Cancer Hospital, conducted the proceedings as the Scientific Secretary of the Conference

Joint IAEA-PAEC-PNRA National Workshop on Radiation Protection and Quality Assurance in Radiotherapy PAEC committed to harness nuclear technology for public good with due emphasis on safety and security

PAEC is committed to harness nuclear technology for public good and with due emphasis on safety and security. This was stated by Dr. Masud Ahmed, Member Physical Sciences, PAEC while inaugurating joint IAEA-PAEC-PNRA National Workshop on Radiation Protection and Quality Assurance in Radiotherapy, held at NORI, Islamabad.

Dr. Masud lauded the efforts of IAEA for initiating quality assurance programmes for the education of professionals and creating awareness for public good. He assured to extend all possible support and assistance to the Agency in this noble task. The Workshop aimed at improvement of therapeutic conditions in the treatment of cancer. With a view to provide a sound basis for addressing the safety related issues emerging out of the use of radiation, PAEC has started M.Sc. programme in Medical Physics at Pakistan Institute for Engineering and Applied Sciences (PIEAS), as no other university in the country awarded degree in this discipline.

IAEA Expert in Quality Assurance in Radiation Therapy, Professor Novatony, highlighted the importance of radiation therapy to the cancer patients. He emphasised the importance of exchange of individual experiences for making radiotherapy to cancer patients a success and without costly errors.



Dr. Masud Ahmed, Member Physical Sciences inaugurating the IAEA-PAEC-PNRA National Workshop on Radiation Protection and Quality Assurance in Radiotherapy, held at NORI, Islamabad

Syed Badshah Hussain, Member Corporate, Pakistan Nuclear Regulatory Authority (PNRA), said that quality assurance in radiation therapy is a commitment which results in safety and quality and attainment of these desired results came through good education and training of personnel administering the treatment. He reiterated PNRA's mission to

ensure safe operation of nuclear facilities and to protect the radiation workers, general public and the environment from the harmful effect of radiation by formulating and implementing effective regulations. Mr. M. Afsar, Coordinator of the Workshop, explained the aims and objectives of the Workshop.

National Executive Symposium on Technologies Developed for Commercialization - Challenges and Opportunities

Nuclear Institute for Food & Agriculture (NIFA), Peshawar, in collaboration with Small & Medium Enterprise Development Authority (SMEDA) and Export Promotion Bureau (EPB), organised "National Executive Symposium on Technologies Developed for Commercialization - Challenges and Opportunities, from September 21-22, 2003. The Symposium, comprising five technical sessions and panel discussions, was attended by over 200 participants comprising policy makers, scientists, engineers, economists, academician and students. An exhibition was also arranged to introduce R&D achievements and product range of organizations.

Inaugurating the symposium, NWFP Minister for Food, Excise and Taxation, Mr. Fazale Rabbani called for providing all possible facilities to the scientists in order to achieve high agricultural growth in the country and emphasised bridging the missing link between the researchers and growers for maximum utilization of indigenous achievements of nuclear technology for the benefit of mankind. He

lauded achievements of PAEC in various sectors for national development.

Dr. Kausar Abdulla Malik, Member Biosciences, PAEC, said that the transfer of technology to the users was of utmost importance to develop indigenous production. The development of high yield, soil suitable crops by PAEC resulted in a significant enhancement in the agri production and to complement these efforts, role of industry is important for value addition. He highlighted the importance of maintaining quality, in view of coming era of the World Trade Organization (WTO).

Dr. Sanaullah Khattak, Director NIFA, explained the role and achievements of NIFA for boosting the agricultural productivity in the country. Dr. Jamil Qureshi, former Director NIFA presented the aims and objectives of the symposium and urged the need for scientific research in the competitive regime. Director EPB, Mr. Tauheed Jan, emphasised R&D efforts in the agri sector, being the mainstay of economy. Mr. Sultan Tiwana, General Manager, SMEDA proposed that PAEC should

showcase its research for the benefit of investors and the farmers.

Chief Organizer of the symposium, Dr. Ihsanullah said that this symposium was organized as a first attempt to dig out the hidden knowledge and technologies, which could have a potential to play a viable role in giving boost to the economy of the country. It would provide an opportunity to the R&D organizations to highlight and discuss their commercially feasible projects before a gathering of policy makers and investors. An endeavor would be made to create a workable liaison between R&D organizations and industry, a long felt missing link between the two sectors.

The symposium was helpful in increasing public awareness about the scientific and technological advancements made in the country. The potential investors were apprised about the setting up of feasible technologies based on sound R&D work to boost the socio-economic condition of the people by the commercialization of developed technologies.

Joint ventures suggested for setting up nuclear power plants

As a result of international collaboration, Pakistan has benefited tremendously from nuclear technology and suggests resolve for knowledge sharing and technology transfer to usher in an era of cheap and safe electricity to boost industrial output, create more jobs and contribute to peace, prosperity and security worldwide. This was stated by Mr. Parvez Butt, Chairman, Pakistan Atomic Energy Commission, at the World Nuclear Association annual Symposium - 2003, held in London on 5 September, 2003. Excerpts from his talk titled "Knowledge Sharing for Sustainable Development of Nuclear Power - An Investment for Future Generations":

Pakistan is an active member of the IAEA, WANO and COG and we appreciate the tremendous sharing of knowledge that takes place in these fora. But we also have to face embargoes, restrictions and denial of information and technology. Pakistan has only recently joined World Nuclear Association. We have joined WNA to interact with a more diverse nuclear community and further enhance cooperation, particularly in nuclear power. It also provides us an opportunity to share our views. We hope that, all of us together, can change the situation for the better of us, I repeat, 'for all of us'.

Nuclear power electricity is economical, eco-friendly and an energy source of the future. The OECD countries are investing some US \$ 2,700 million per year in public sector research and development in nuclear fission and a comparable amount is also being invested by the private nuclear industry. The West, it seems, is waiting impatiently to increase on a large scale, its share of nuclear power generation. The reduction in greenhouse gases, the economic advantages, the impetus to industrial development and the resulting increase in well being and happiness of the people needs no elaboration.

With the sharing of nuclear power experience worldwide under the aegis of IAEA and WANO, nuclear power industry worldwide has seen tremendous improvements in reliability, availability and sustainability. Safety breeds reliability. Greater reliability leads to greater revenues and greater viability. In the OECD countries, for example, where embargoes on technical and material exchange do not apply, in the period 1986 to 2002 while the number of operating NPPs increased by 10%, from 324 to 355, the electricity generated increased from 1,372 Tera Watt Hours to 2,309 Tera Watt Hours, an impressive increase of 68%1. This is the advantage of

knowledge sharing. And this improvement is in spite of the difficulties created by the so-called anti-nuclear organizations.

In East Asia, nuclear power plants continue to be built to meet the ever increasing demand for electricity. On the other hand, countries like Pakistan are finding it difficult to develop nuclear power. According to our current assessment, based on official economic growth targets, the projected electricity generation capacity requirements in Pakistan by the year 2020 will be some 44,000 MWe up from 18,000 MWe installed presently. The plans are to build an additional 10,000 MWe hydro capacity, leaving a gap of some 16,000 MWe, which could be met by burning coal, nuclear power or imported gas. Use of imported oil for power generation is prohibitively expensive.

A popular saying amongst nuclear operators is that a "nuclear accident anywhere is a nuclear accident everywhere". On the same analogy, one could say that a "nuclear power plant anywhere avoids greenhouse gases everywhere". In our region, where economic development is picking up, we are experiencing a unique phenomenon during winters. A huge cloud of smog covers the vast area along the Himalayan mountains from near Islamabad in Pakistan to Calcutta in India. It badly disrupts life and economic activities. According to some experts, this recent phenomenon, which is getting worse with time, is a direct result of increased burning of coal in our neighboring country as its economy is growing. And we will soon join them in burning coal from our recently discovered vast coal fields at "Thar".

During the last 3 years, our nuclear power generation has avoided the release of about 4 million tons of carbon dioxide; a small, but nevertheless significant figure. This is the situation in a country which has a large population and a small per capita energy consumption but good experience in operating nuclear power plants. The choice is between polluting fossil fuels or environment friendly nuclear power.

Pakistan started work on its first nuclear power plant as long ago as 1965. This plant "KANUPP", a CANDU-type is now undergoing re-lifing after having completed its design life in December 2002. While, we can boast of being amongst the "oldest generators of nuclear electricity in the world", we wish KANUPP had a higher availability factor. While we had access to operational experience and safety related information, KANUPP's availability has been low because of denial of equipment and services. KANUPP has been self-sufficient financially

for over 25 years and is carrying out the refurbishment required for re-licensing indigenously and from its own financial resources. The safety-related assistance provided by IAEA, WANO and COG is highly appreciated.

Our second nuclear power plant, CHASNUPP, began operation in September, 2000 and is presently operating quite well. We have plans to start work on its twin in the near future. During the construction of the first unit as many as 3,000 workers were directly involved. It has contributed significantly to the local economy and the advantages to the community continue to accrue. Installation of the second unit at Chashma would boost the economy creating many more jobs.

Pakistan has a meticulous record in safety, safeguards and security. Both our nuclear power plants are under IAEA safeguards. We have demonstrated the capability to safely operate nuclear power plants. We need to set up many more. We know that these plants will help generate jobs, accelerate economic development and bring smiles to our people. We believe that increased use of this energy resource is bound to lead to a more prosperous, peaceful and secure world.

We welcome the safety related information and exchange of operating experience available to us but, we feel that denial of equipment is not reasonable. The 68% increase in the growth of nuclear energy in the period 1986 to 2002 in OECD countries contrasts sharply to low growth in the regions having restricted access to technology and materials.

In addition to cooperation in the related fields of agriculture, medicine and industry, the greatest impact of international cooperation is in nuclear power generation. This is a huge industry. "There is, and has been, substantial cooperation in nuclear power technology between, among others, industrial giants in the USA with utilities in France, Japan and Korea. Subsequently, there was cooperation between France and China also. We in Pakistan look forward to such cooperation. We feel that for lasting peace in the world, no people should be denied the advantage of economic development. We need to find a way out to allay the concerns of some governments on nuclear proliferation.

We would like to suggest joint ventures for setting up nuclear power plants in Pakistan. To alleviate proliferation and other concerns, nuclear power plants can be treated in a special manner. Several NPPs could be constructed in a designated zone, the boundaries of which are specially secured to the

satisfaction of all concerned. It can be ensured that the plant and the associated facilities are fully safeguarded. This could be a solution for Pakistan.

Pakistan is very fortunate in having the support of the international community in its efforts to apply nuclear technology in agriculture, medicine and industry. As a result of this international collaboration and knowledge sharing, Pakistan has benefited tremendously in the development of new varieties of various agriculture crops. Our cotton and rice exports have increased and contributed significantly to increase in our gross national product. Additional income of some \$100 million per year is estimated from crops developed by nuclear techniques at our agriculture institutes. With this kind of money a small to medium sized nuclear power plant can be added every 5 to 6 years. In the field of agriculture, Pakistan has shared its development with many countries through the IAEA.

In the field of health care, knowledge sharing has increased our grasp of nuclear diagnostics and therapeutic techniques. In the process we have set up 13 nuclear medical centers all over Pakistan. Over a million patients have been treated at these centers in

the last 4 years. And, I might add here, a sizable fraction of the patients in the centers located near the Afghan border were refugees from that country. The fees charged at these medical centers are very nominal and in most cases the treatment is gratis. We are in the process of setting up 5 additional such centers.

I wholeheartedly support the idea of establishing the World Nuclear University, as it would play a vital role in disseminating knowledge about peaceful use of nuclear energy. PAEC has a full fledged university, PIEAS, which imparts education at Master's and Ph.D. level in areas of Nuclear Engineering, Nuclear Medicine, Systems Engineering and at the B.S. level in Computer Sciences. I request that PIEAS be associated with World Nuclear University as such international linkages play a crucial role for the good of humanity. We are sharing our knowledge by training professionals from many countries at these hospitals. In addition many foreigners have received M.Sc. Nuclear Medicine degrees at our training centers.

Knowledge sharing leads to a win-win situation for all, with benefits to the world as a whole. Knowledge sharing increases business worldwide. Egalitarianism is enhanced

through reduction in the Rich - Poor Gap, which will enhance peace, prosperity and security all over the world. The "Global Village" concept could be realized much earlier.

May I therefore suggest that we resolve to usher in an era of cheap and safe nuclear electricity for posterity. This needs knowledge sharing and will boost industrial output, create more jobs, and contribute to peace, prosperity and security worldwide. President Eisenhower's dream was to harness the tremendous energy in the atom for the benefit of mankind. This is my dream too and I am sure that we all share it.

[Editor's note: The World Nuclear Association (WNA), erstwhile The Uranium Institute, seeks to promote the peaceful uses of atomic energy. This annual symposium is a premier event for the international nuclear industry, bringing together a large number of representatives of organisations involved in all stages of nuclear fuel cycle from all over the world. The opening day session of this symposium was dedicated to the memory of President Eisenhower and his famous "Atoms for Peace" speech in December 1953 which paved way for the creation of IAEA and diversified use of atomic energy towards peaceful purposes.]

8th National Physics Talent Contest

PAEC to remain at the forefront of grooming scientific talent

Pakistan Atomic Energy Commission will remain at the forefront of initiatives aimed at grooming scientific talent. This was stated by Chairman PAEC Mr. Parvez Butt while addressing a ceremony of certificate distribution to the winners of 8th National Physics Talent Contest (NPTC), an activity undertaken by PAEC every year for popularizing science among the youth. Winners of 7th NPTC were also given away cash prizes on behalf of President General Pervez Musharraf. The President had announced these prizes of Rs 100,000, Rs 50,000 and Rs. 25,000 to the students securing 1st, 2nd and 3rd positions respectively, in addition to the cash prizes from PAEC, on the occasion of a special session of 28th International Nathiagali Summer College on July 7, 2003, an event of international scientific significance. *[Reported in June-August 2003 issue of PakAtom.]*

Mr. Parvez Butt said PAEC felt strengthened and rewarded by President General Pervez Musharraf's personal interest in this national task which is amply reflected by manifold increase in science and technology budget during the last few years. Mr. Butt declared that PAEC owes its success entirely to merit and growth of its scientists and engineers. National progress and prosperity depends



upon brilliant work of its scientists and engineers, and the existing generation has risen to the occasion by providing security and scientific infrastructure for the country despite heavy odds in their way, by forsaking attractive careers abroad. He urged the youth to come up with similar sacrifices by choosing to work for the country after completion of their studies.

Dr. Abdullah Sadiq, Rector, PIEAS explained the working of National Physics Talent Con-

test and its future programme. The winners of the 7th national Physics Talent Contest were selected after Nationwide screening test and several experimental camps where they were trained and tested by eminent scientists. These young students represented Pakistan in 34th International Physics Olympiad held in Taiwan in July and won laurels for the country by winning a bronze at the Olympiad. Nearly 60 countries including scientifically advanced countries participated.

Bridging the gap between production and demand of electricity in the coming years

Nuclear power best option for Pakistan

Addressing the inaugural session of the Second National Conference on "Non-Destructive Testing", Special Advisor to the Prime Minister on Strategic Programme, Dr. Ishfaq Ahmad said that technology to generate nuclear electricity being fully mature, safe, cost competitive and large-scale source, is the best option for Pakistan to bridge the gap between production and demand in the coming years. The Conference was organised by National Centre for Non-Destructive Testing (NCNDT), SES Directorate of PAEC. The first Conference was held in October 2001.

Dr. Ishfaq Ahmad, a former Chairman of Pakistan Atomic Energy Commission, was of the view that fossil fuel being presently the mainstay of our electricity generation is imported and prohibitively expensive, apart from being a polluter of the environment. It is a likely cause of global warming, which has created dangerously erratic climatic conditions - drought at one place and floods at another.

The nuclear technology is the ultimate choice for Pakistan to meet its future energy requirements. To achieve higher level of GDP, approximately 30,000 MW electricity will be needed in the coming decade and to meet such degree of electricity demand, we will have to exploit our available energy option like coal and hydro. Despite exploitation of these resources along with renewables, big gap will be left for nuclear to bridge.

Pakistan has a big incentive to go for nuclear option as it has developed an extensive infrastructure necessary for nuclear power. A big responsibility and a challenge lies for Pakistan Atomic Energy Commission for this venture. He expressed optimism that given the resources of manpower, technical competency and available infrastructure, PAEC will certainly meet this gigantic national task as demonstrated by its indigenization successes.

The role of NDT in modern industry cannot be overemphasized. It is now one of the most essential requirements for areas such as modern production, transportation, communication as well as defence. "PAEC's pioneering role for establishing assist-industry skills and techniques in the form of welding, non-destructive testing, designing and manufacturing will go a long way for the promotion of its own programme and the local industry," Dr. Ishfaq added.

In his welcome address, Mr. Parvez Butt, Chairman PAEC stated that the economic progress and prosperity of a nation depends mainly on the production of quality products. It is necessary for a country like ours to keep



Dr. Ishfaq Ahmad, Special Advisor to the Prime Minister on Strategic Programme, presiding over the Inaugural Ceremony of Second National Conference on "Non-Destructive Testing"

abreast of new technological advances to meet the challenges of the 21st century. The Commission has the honour of being pioneer of quality culture in its own programme and in imparting the same to the local industry in the form of training and certification of welders, NDT inspectors, designers and manufacturing methods. Almost all the Non-Destructive Testing personnel working in various organizations of the country have been trained and certified by PAEC. He reiterated that PAEC's entire technical skills and know-how are available to the industry and it plans to enhance this cooperation with the local manufacturers in line with the national development.

About the future power generation programme of the Commission, Parvez Butt said "we must resort to all available options of power generation including hydro and coal and added that PAEC is fully prepared to meet the remaining gap of demand through nuclear if it is entrusted to PAEC."

Director, National Center for Non-Destructive Testing (NCNDT), Mr. Asghar Ali Khan traced the development of Non-Destructive Testing facilities in Pakistan. Realising the importance of NDT for producing quality products, PAEC established facilities and developed expertise in NDT and made it available to industry in Pakistan to upgrade and improve the overall national manufacturing capability. Thus started regular training of persons from industry. NCNDT has also continued to provide expert advice and services to various industries.

As at present the NCNDT has trained more than 1600 persons (through 142 courses). It remains to be the only institution in Pakistan that is producing certified NDT inspectors. Besides, third party inspection has also been started to benefit the national industry. Life assessment and failure analysis services are also being provided. This activity is quite appropriate and timely keeping in view the aged condition of local industrial plants. NCNDT has shown great progress and promise through its regular training and certification programme and expert services open both to public and private sectors. It is well in touch with local industries and research institutions. It also has good contacts with the relevant institutions abroad.

The Conference provided a national forum to present research and development work, overview the advancements and share mutual experiences in the field of NDT, the present state of development of NDT technology in Pakistan. The Conference comprised eight technical sessions focusing on main themes of current status and development of NDT activities, NDT during fabrication, In-service inspection, non-conventional methods of NDT, NDT of concrete, condition assessment of plants. Scientists, engineers, managers and professionals of the field in a large number attended this conference. Local industry was well represented and an exhibition was also arranged for projecting various equipment and services in NDT.

Dr. M. Asif Khan, SPE, NCNDT, conducted the proceedings as Secretary of the Conference.

PAEC develops virus resistant cotton

The National Institute for Biotechnology and Genetic Engineering (NIBGE) has been able to eliminate Cotton Leaf Curl Virus (CLCV) which caused heavy loss to cotton crop in 1990s by developing genetically engineered cotton variety. This was disclosed by Dr. Kauser Abdulla Malik, Member (Bio-Sciences), PAEC, while addressing the "World Cotton Bio-tech Moot" held at International Centre for Biosaline Agriculture in Dubai.

This project is a joint venture among the University of Arizona, USA, John Innes Centre, UK and NIBGE, Faisalabad, Pakistan. The six-year project was sponsored by the International Cotton Advisory Committee (ICAC) and funded by the Common Fund for Commodities (CFC).

The recovery of cotton production in Pakistan from 6.8 million bales to currently 10.8 million bales is a testimony of focused research and deep interest and funding by various government and international agencies to solve the epidemic of CLCV. He elaborated the pioneering work being done by PAEC for the control of CLCV, which has culminated in the development of genetically engineered cotton, a variety inherently pest resistant. This is presently under cultivation on the fields of progressive farmers for its evaluation and extension, he added.

The conference was attended by 37 scientists from 15 countries including USA, UK, Australia, India, Egypt and Pakistan. Presentations on research work called for a joint effort for the solution of cotton epidemic by proposing guidelines. Dr. Mohammad Al-Attar, Director General of International Centre for Biosaline Agriculture, Dubai facilitated the organization and conduct of this International Conference.

Cotton/Rice Field Day at NIA

Nuclear Institute for Agriculture (NIA), Tandjam, arranged 'Cotton/Rice Field Day' on 25th September 2003 at the experimental farms. The farmers and the extension officers of agriculture departments participated in the event and observed the performance of different varieties, candidate/advanced lines of these crops. They appreciated the performance of NIA rice varieties, Shadab, Shua-92, Khushboo-95 and Sarshar, which have already covered approximately 60% of the cultivated area in Sindh and Baluchistan. The farmers showed keen interest in the newly evolved aromatic mutants particularly Basmati-15-2 and Basmati-20-1.

The participants also visited cotton fields where all the prevailing varieties grown in Sindh were growing side by side to the varieties evolved by this Institute and appreciated the candidate lines of cotton developed by the Institute and showed their keen interest in these lines especially NIA 76, NIA 77 and NIA 79 for their outstanding performance in boll bearings and uniform opening. The visitors also appreciated the performance of "Chandi-95" and the newly released cotton variety "Sohni". The participants were shown the performance of sugarcane variety NIA 98 and other promising lines.

NIA is playing an important role in the management of insect pests of important crops through eco-friendly techniques. All these activities were practically explained in the field to the farmers for the control of insect pests of rice, cotton and sugarcane crops. The farmers showed keen interest in the bio-control technology developed by NIA for management of the cotton bollworms and the sugarcane borers. Dr. Naqvi, Director NIA, thanked the growers for their participation in the function and promised to hold Field Days for each crop regularly so that the farmers/growers could get more information about research achievements of NIA.

Training Course on Nuclear Techniques at NIFA

The 20th postgraduate training course on the use of 'Nuclear and other Advanced Techniques in Food and Agricultural Research' was held at NIFA, Peshawar from 8-19 September, 2003. The course was designed primarily to provide training in the application of radiation and radioisotopes and other techniques in field of food and agriculture.

The course comprised 25 lectures and 10 practical sessions on various aspects of food and agriculture including basic concepts of radiation, biotechnology, chromatography, spectroscopy, spectrophotometry and application of nuclear and tracer's techniques in mutation breeding, soil studies, entomological studies and food preservation. Experts from various centers of PAEC and Agricultural University of Peshawar delivered specialized lectures. The thirty participants were drawn from research organizations, teaching staff and post-graduate students.

Addressing the concluding ceremony, Qari Mehmood Provincial Minister for Agriculture, Livestock and Cooperation commended the efforts made by NIFA scientists in different fields of agriculture and food. He emphasized the role played by the trained manpower in the development of food and agriculture sector in the country. By organizing such courses

regularly, NIFA is undoubtedly contributing significantly in providing the trained manpower. This training would certainly provide the participants with new insights and skills to become more knowledgeable and more productive.

The organizer of the course, Dr. Ihsanullah said that NIFA has qualified and trained manpower and good facilities for conducting such important courses which serve as an essential tool for the participants to enhance their technical capabilities. So far NIFA has provided training to more than 600 participants in different courses.

Dr. Sanaullah Khan Khattak, Director NIFA highlighted the achievements made by NIFA's scientists in the field of food and agriculture and the efforts made in human resource development for sustainable agriculture productivity.

Welfare Activities of PAEC Foundation

PAEC Foundation spent Rs. 7.860 million during the year 2002-2003 under different schemes for the welfare of PAEC employees. The major share of the amount was spent on Daughters' Marriage Grant (Rs. 3.279 m), Misc. CFP Schemes (2.12m), Merit Scholarships (1.266 m), Community Welfare & Industrial Homes (0.513 m), Educational Grants (0.302 m) and Widows' Welfare Grants (0.286 m).

Under the Foundation's Haj sponsorship scheme for PAEC employees in BPS 1-15/SPS 1-5, Chairman PAEC conducted the draw at a simple ceremony held on August 29, 2003 at PAEC HQ, Islamabad.

Out of 93 applications, 20 were selected on merit for grant of scholarship of Rs. 6,000 per annum under the HSS Merit Scholarship Scheme for the children of employees who secured a minimum of 75% marks in Matriculation Examination and undergoing studies at HSS level in science subjects from the academic year 2003.

The Foundation has granted twentyfive scholarships for undergraduate studies for the children desirous of taking admission in the professional fields of medicine, engineering, pharmacy and IT related subjects. Out of 25, 15 scholarships are reserved for the employees in BPS 1-16/SPS 1-7 and 10 for the employees in BPS 17 & above/SPS 8 & above.

Two scholarships will be awarded for post-graduate studies in natural sciences, agriculture and engineering.