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Nuclear assets under strong custodial control

President reiterates Pakistan's firm resolve not to indulge in nuclear proliferation

Addressing the Special Session of the 28th International Nathiagali Summer College on Physics and Contemporary Needs, President General Pervez Musharraf reiterated Pakistan's firm resolve not to indulge in nuclear proliferation, saying the strong custodial control would never allow the country's nuclear assets go into wrong hands. Pakistan's nuclear programme was totally indigenous and in response to the threat faced by the country. Pakistan, he said, was following the strategy of minimum defensive deterrence, the country was not in the arms race but would maintain such deterrence at all levels. Reaffirming Pakistan's desire for peace in South Asia through peaceful resolution of all disputes, he said there had to be a balance in conventional and un-conventional means of power and this balance must never be disturbed in the interest of the peace in the region.

He said Pakistan Atomic Energy Commission has played a pivotal role in the national security. Supporting the expansion of nuclear power in Pakistan to pursue a reliable mix of different kinds of electricity production, he referred to the cheaper sources of energy production like hydro, coal, gas and atomic energy, but regretted that due to poor policies in the recent past, over seventy percent of the country's electricity needs were being generated through oil which is very costly. The government is now concentrating on Thar coal, nuclear power and hydro electricity and converting the oil fired plants to gas so as to save on import of furnace oil. By this strategic shift in its objectives of developing its own resources, more funds would be available for priority projects like human resource development, education, health and poverty alleviation.

The government is totally committed to establish a very strong technological infrastructure in the country to help resolve problems being faced by the people of Pakistan. He said since 1999 education and science and technology had remained a top priority. The government took a holistic view of education

and evolved a strategy of improving literacy rate through universalisation of education and adult literacy, improving quality of pri-

on health, education and human resource development. The government had made available massive grants for scientific re-



President of Pakistan General Pervez Musharraf addressing the Special Session of the 28th International Nathiagali Summer College

mary and secondary education and setting up the Higher Education Commission to improve it at university and college levels where the standard was very poor. He said the government is promoting the education of modern subjects in addition to religious education so that the Madrassa students could come into the mainstream of national life.

General Pervez Musharraf expressed dismay over the poverty and backwardness of the Ummah and said the only reason for this was lack of technological development, as the Muslim world was not concentrating on scientific education. The way forward was through enlightenment, moderation, realizing our shortcomings and handicaps and moving through human resource development. We must emancipate ourselves by concentrating

search and upgrading laboratories. By the grace of Allah, the economy was showing improvement and as it continues to strengthen, the funds for education and science and technology would also increase.

In his welcome address, Mr. Parvez Butt, Chairman, Pakistan Atomic Energy Commission said that PAEC will utilize all its resources, its diverse expertise and its innovative and highly dedicated manpower to help fulfill the dream of the President of a peaceful, strong, progressive and prosperous Pakistan.

He said Pakistan was among the few countries in the world which can boast of more than 30 years of experience in operating nuclear power plants. There was a remark-

able resurgence in nuclear power in many regions of the world. The Chairman said that Pakistan's second nuclear power plant supplied by China, was operating well. He recalled that during the recent visit to China by Prime Minister Mir Zafarullah Khan Jamali, a memorandum was signed under which China would supply as commercial contract, its twin second unit.

He said Pakistan was an active member of international organisations such as World Association of Nuclear Operators, the CANDU Owners Group, the London based World Nuclear Association and the International Atomic Energy Agency. The cooperation with IAEA in the peaceful uses of nuclear science and technology is exemplary.

Explaining the aims and objectives of the College, Prof. Dr. Riazuddin, Director NCP, said investment in frontiers of science is imperative for progress because the socio-economic development depends upon progress in science. This importance is being recognized by Pakistan and by investing more in science we are trying to come out of the vicious circle of poverty and lack of resources.

The invited faculty consisted of ten renowned scientists from Austria, Canada, China, Germany, Ireland, Italy, Switzerland and USA. The audience consisted of nearly 140 participants including twenty foreign delegates from Azerbaijan, Brunei, Bangladesh, China, Egypt, Ghana, Kazakhstan, Morocco, Nepal, Sri Lanka, U.K. and USA. Participants from Pakistan included scientists from research organizations, universities and colleges.

Nathiagali Scientific Discourse - 2003

The scientific sessions of the College began in real earnest from the afternoon of the 30th June. The first academic week of the College was devoted to the Safety of High Technology Systems, and the second week focussed on Condensed Matter Physics.

The scientific programme began with the very exciting lectures of Dr. Fredrich Nei-



NPTC Awards

At the sidelines of Special Session of Nathiagali Summer College, the President awarded cash prizes and merit certificates to five outstanding young students, the winners of 6th National Physics Talent Contest, organised by Pakistan Institute for Engineering and Applied Sciences (PIEAS). Apart from the prizes given by the PAEC, the President also announced cash prize of Rs 100,000 for Umer Sadiq, Rs 50,000 for Wajahat Faheem, Rs 25,000 for Talal for securing first, second and third position respectively. Mr. Ahmed Qureshi and Hamoon Zafar won the honourable mention.

haus from IAEA who gave an overview of use of PSA in design, operation and maintenance of NPP with emphasis on the need of identifying weaknesses in design through PSA. Safety Performance Indicators (SPI) and Severe Accident Management program of IAEA was described. IAEA is developing a sub-set of SPI which can be used by the regulators for monitoring the safety performance of a plant. In severe accident management, estimates of time scale during the in-vessel phenomena and the need to incorporate design features that can prevent the severe accident in PWR or delay the progression of severe accident using preventive and mitigative strategies were discussed.

He also described the IAEA Incident Reporting System (IRS) and the International Nuclear Event Scale (INES).

The concept of Delay - Delay - Delay - Decay - Decay - Decay, introduced by Dr. David Meneley reverberated throughout the week-long proceedings and almost all the speakers not only agreed to this concept but also stressed the need that measures either through design or procedures should be taken to delay the progression of severe accident as the decay heat even after shutdown of the plant is around 1% of the total power of the reactor which reduces to about 0.1% in 8 to 10 days. The best way to ensure this delay is to keep cooling the fuel. In modern CANDU this is possible because of the availability of large amount of moderator water. Dr. Neihaus also stressed on the need of high reliability approach in design and operation where culture of reliability is essential and denial of responsibility should be avoided at all cost.



Glimpses from the inaugural session of the 28th INSC at Nathiagali

Dr. Xioang Benhe gave very useful presentation on the current status of Chinese nuclear industry. He stressed the need for management of design, quality assurance, independent verification, use of operational experience feedback and severe accident management considerations quite early in the design of NPP. His most useful presentation from Pakistan's point of view was the operational experience feedback from PWR and PHWR. Dr. Xioang divulged at length on ten significant safety concerns in both the PWR and PHWR. He explained their causes, safety significance and measures that should be taken to prevent them.

Dr. Reiner Schmidt from CERN talked about safety including fire prevention, detection and mitigation in new large accelerator facilities such as CMS in CERN, and risk reduction in chemical industry, and radiation protection and the development and application of BS-115 "Radiation Protection guidelines" of IAEA.

Dr. Kerstine Dahlgren from IAEA talked about the concept and common understanding of "safety culture" and the different stages in the development of safety culture in nuclear power plant. She stressed the need for the top management commitment for safety and having a safety policy. A top down approach is suitable and so it is the responsibility of top management to inculcate strong safety culture within the organization. She also stressed the need and encouraged that both regulators and operators should conduct a self-assessment of safety culture within their organizations.

During the second week, seven speakers gave presentations on Condensed Matter Physics. Professor Francesco Montalenti, from University of Milano, Italy focused on salient features of the molecular dynamics and Kinetic Monte Carlo methods for simulating and understanding temperature dependent characteristics of surfaces and nanostructures. He made specific application of the technique to understanding the factors controlling thin film growth on metal surfaces and the shapes and stable structures of quantum dots on semiconductor surfaces. He also introduced the recently developed "temperature accelerated" molecular dynamics technique which offers promise of overcoming the limitations of the time scales accessible in traditional molecular dynamics simulations.

Professor Rahman introduced the audience to a recently developed Kinetic Monte Carlo (KMC) scheme which being based on a smart pattern recognition technique overcomes the limitations of ordinary KMC algorithms. This new method, together with the "temperature accelerated" scheme, has the potential to carry out theoretical and simulation studies of nanostructures and surfaces



CERN-PAEC Protocol

In continuation of its efforts to actively collaborate with international organizations engaged in scientific and engineering research, Pakistan Atomic Energy Commission signed another protocol with CERN (European Organization for Nuclear Research), Geneva, for special contribution by Pakistan towards LHC Project. The Protocol was signed in the presence of a large local and world scientific community, at the sidelines of the Special Session of 28th International Nathiagali Summer College.

The agreement was signed by Chairman, PAEC, Mr. Parvez Butt, and Dr. Riazuddin, Director, National Centre for Physics (NCP) Quaid-i-Azam University, Islamabad. Dr. Diether Blechschmidt, Advisor to DG CERN, witnessed the signatures.

Paying tribute to the contribution of PAEC to this scientifically sophisticated and advanced project, Dr. Diether Blechschmidt stated: "with signing of this protocol, Pakistan, with the support of PAEC and through NCP, has joined a special club of nations at CERN,

namely Canada, India, Israel, Japan, Russia and the USA. These are the only non-European nations that so far have made a substantial contribution to 'one of the costliest, most challenging and exciting cutting-edge projects of the new millennium: the Large Hadron Collider at CERN which will start operation in 2007. The LHC will look deeper than ever before into the secret beauties of our nature - and who knows will provide us with another invention, such as the WWW, which was invented at CERN, just as a tool for basic research.

Speaking on the occasion, Mr. Parvez Butt, Chairman PAEC said that the close cooperation with CERN is in a number of areas and we have, as a part of our contribution, already manufactured and shipped equipment worth about \$ 4 million, and with this protocol, we will manufacture complex, high precision additional equipment worth as much as \$10 million. Although the amount involved is not huge, but indicative of the potential in the years to come.

for realistic length and time scales, which have not been possible so far. Two lectures given by Professor Rahman were dedicated to first principles electronic structure calculations and their applications to understanding reactivity of metal surfaces and nanostructures. She also discussed her recent work on stepped metal surfaces and how microscopic features at the sub-atomic level can be responsible for providing signatures by which steps of differing geometry may be recognized.

The theme of the lectures by Professor S. Ismat Shah from University of Delaware, Delaware, USA, was "Nanostructured Materials for the Environmental Applications". He described the physics behind the unique properties of materials that can only be ob-

tained if the material is present in the nanostructured form and showed how the electro-optical, chemical, and structural properties of materials change as the size decreases. His second lecture was dedicated to the discussion of nanomaterials for fuel cells. A new type of material, namely the transition metal carbides, was described which could be an alternate electrocatalyst. Professor Shah described why nanoparticles are important for the environmental remediation by photocatalysis and gave specific examples. He discussed the synthesis and characterization of titanium dioxide nanoparticles, which are cheap, self cleaning, self-regenerating photocatalyst that can be used very efficiently for the remediation of the organic and inorganic pollutants in air or aqueous medium.



Nathigali Scientific Discourse - 2003: (From L to R) Dr. Montalenti, Dr. Serik, Dr. Reiner Schmidt, Dr. Dahlgren and Dr. Neihaus delivering lectures

Dr. Mazhar Ali Bari from Trinity College, Dublin, Ireland presented a series of lectures on Nanoscale Spin Electronics. He introduced the CINSE research facilities based at the SFI Trinity NanoScience Labs. and an overview of the field of Spin Electronics including Materials, Structures, Devices and Phenomena. The lecture on Spin Electronic Materials discussed Half-metallic materials such as Fe₃O₄, CrO₂ and their classification. His lecture on Structures described the physics and operation and fabrication of GMR TMR devices. The last lecture focussed on anti-dot Arrays and Magnetobiology phenomena.

Dr. Armin Dadgar from Otto-von-Guericke-Universitat Magdeburg, Germany, delivered a series of four lectures. Group-III nitrides are the material of choice for light emitters in the green to UV wavelength region and for high-power, high-frequency, and high-temperature devices as e.g. microwave amplifiers for third generation mobile phone base

stations and radar applications. After a short summarization of the basic properties of semiconductors and especially group-III nitrides the most commonly used growth technique for these materials metal-organic chemical vapor phase epitaxy (MOVPE) were presented. He also presented different ways to solve the cracking issue and reduce the dislocation density in a simple way, crack-free seven micron thick GaN layers as well as thick, crack-free LED and FET devices on Si substrates were discussed.

Concluding Ceremony

The concluding ceremony, held on 12 July, 2003, was presided over by Dr. Khalil A. Qureshi, Member (Fuel Cycle), PAEC. In his address on this occasion, he emphasised the interaction of country's scientists with those from advanced countries as beneficial for achieving common goals and objectives. It is in this spirit the Nathigali Summer College

has been organized regularly despite odds and difficulties over the last 28 years. Dr. Qureshi said a strong scientific indigenous base is pre-requisite to advancement, solution of local problems and added that PAEC has always been aiming at country's local priorities and these efforts coupled with international liaison have been the basis of our peaceful nuclear programme.

"A team of our dedicated scientists and engineers is operating nuclear reactors, running the industrial units and operating various agriculture and medical centers. Our aim is to provide more electrical power to the national grid, support and encourage manufacturing, introduce new high yield varieties of crops, and extend health facilities to the needy," he added. He said that PAEC is conscious of its national and international responsibilities. In keeping with the significance and utility of this international event, PAEC plans to establish a permanent secretariat building of the College, which will cater for interaction of scientific community throughout the year. It will offer better communication and conferencing facilities, he added.

In his welcome address, Executive Secretary of the College, Mr. M. Munim Awais said that this annual scientific activity has served as a forum for people of different nationalities where personal contacts are established, ideas exchanged and communicated in a leisurely and relaxed environment. Dr.: Hafeez Hoorani, Scientific Secretary of the College presented a summary of the proceedings.

The scientific proceedings of the College invited lively questions and generated heated discussions. There was a great deal of enthusiasm and various groups of participants had an ideal opportunity for individual discussions with the faculty members. The major aim of the Summer College was to develop close interaction and personal contact among the delegates and this goal was more than fulfilled.



Dr. Khalil A. Qureshi, Member (Fuel Cycle) PAEC, addressing the Concluding Session of the INSC

NIAB 999: A promising new variety of cotton

Nuclear Institute for Agriculture & Biology (NIAB), Faisalabad, after intensive field experimentation, has developed NIAB-999, a high yielding, CLCuV resistant and heat tolerant cotton variety. The variety was approved for general cultivation by Punjab Seed Council in its 28th Meeting. This is the 5th Cotton variety developed by the Institute, the other four being NIAB- 78, NIAB-86, NIAB-26N and NIAB Karishma.

The variety is widely adapted, early maturing, has better ginning-out-turn and superior fiber quality characteristics. It has shown, on the average, 28.4 mm fiber length, 4.64 µg/inch fineness, 86.9% maturity and 50.2 uniformity ratio. It has high boll bearing capacity and boll retention at very early node. It has exhibited a better degree of tolerance to sucking pests, such as, thrips, whitefly and Jassid and lower damage by bollworms. It also showed better tolerance to salinity. NIAB-999 has been tested in National Coordinated Yield Trials for two years and produced a yield of 2615 kg/ha and ranked third among all the entries during 2002-2003. It exhibited the highest yield of 3015 kg/ha in PSC trials at Khanewal.

With the approval of NIAB-999, the total number of mutant varieties developed by NIAB has reached 21: five of cotton, two of rice, nine of mungbean, four of chickpea and one of lentil. In addition to development of crop varieties, the Institute works on animal health and reproductive problems. Oil adjuvanted vaccines have been prepared against Hemorrhagic septicemia disease of cattle and Newcastle disease of poultry. NIAB Feed Blocks to supplement the nutritional require-



ments of livestock have been prepared which improve general physique of animals, increase their milk yield and regularize their reproductive cycle. These products have been commercialized. The work on biosaline agriculture has generated information on utilization of saline wastelands and brackish underground water for biomass production that is currently being utilized by 10 countries of the region under an IAEA Interregional Project. The Institute has developed good facilities for analyses of pesticides and their residues.

Launching Ceremony of the new cotton variety was attended by a large number of agricultural scientists, progressive farmers, and representatives of seed corporations. The Chief Guest Dr. Kauser Abdulla Malik, Member Biosciences and Administration, PAEC appreciated the efforts of cotton breeding group in particular and the scientists of NIAB

in general for upholding the research activities in the country. He advised the cotton breeders to maintain the seed purity of NIAB-999 in the coming years and advised cotton breeders to find new and better sources of resistance against CLCuV to incorporate them into elite cotton varieties. PAEC is planning to establish a seed company to ensure the supply of best quality seed to the farmers. He urged the scientists to promote and disseminate Integrated Pest Management in order to avoid injudicious use of insecticides.

Hopefully, this variety will cover substantial cotton growing area in the country in the coming years and will result in significant increase in cotton production in the country. Madam Shahida Daultana, a progressive grower from Vehari, admired the efforts of NIAB in the development of high yielding, heat tolerant and CLCuV resistant varieties.

Inauguration of wheat harvesting at NIAB

Wheat, the leading food grain of Pakistan and staple diet of the people, occupies a central position in agricultural economy. Cultivated on an area of 8 million hectares with production of 19.0 million tons, it contributes 12.5 percent to the value added in agriculture and 2.9 percent to GDP. At NIAB Experimental Farm, seed of important wheat varieties is multiplied on 22 hectares of land. This year the wheat harvesting at NIAB was inaugurated by Mr. Ansar Hussain Shamsi, Member Finance, PAEC, by operating the 'Combine Harvester' and harvesting a portion of the field plot. Speaking on the occasion, he lauded the efforts of NIAB scientists for developing high yielding and disease resistant varieties of cotton, rice and pulses and congratulated them for adoption of latest technologies in crop management practices.



Mr. Ansar Hussain Shamsi, Member (Finance) PAEC inaugurating the wheat harvesting at NIAB

Workshop on Very Large Scale Integration (VLSI) Design

The Higher Education Commission (HEC) has sought collaboration with Pakistan Atomic Energy Commission (PAEC) to strengthen higher education system required for socio-economic development in the country. "The PAEC human resource development programme is commendable and based upon diversity, quality and infrastructure." This was stated by Dr. Atta-ur-Rehman, Chairman, HEC, while addressing the participants of "Very Large Scale Integration (VLSI) Workshop" organized by Computer Training Centre (CTC), an establishment of PAEC. A large number of experts from research and defence organizations participated.

Dr. Atta-ur-Rehman said focus on training of high quality manpower during the last three years has made headway and IT education facilities are now available across the country. He said free bandwidth has been made available to accelerate the rate of scientific development through interactive learning and access to international scientific journals.

Chairman, PAEC, Mr. Parvez Butt said ultimate aim of any scientific and technological endeavour is the economic development and we in PAEC are mindful that development needs to be uniform and balanced in many fronts where one area cannot be ignored at the expense of others. He said to achieve this balanced development, PAEC is engaged in a multifaceted programme embracing development of educational system for high-tech needs, improvement and innovation in agriculture for higher yield crops, application of atomic energy for the treatment of cancer related diseases, mineral exploitation for in-

dustrial and defence needs, service to the industry and nuclear power generation.

He stressed scientists and engineers in Pakistan should adopt and develop technologies appropriate to our own requirements. "We must expand our role in socio-economic development through indigenous engagement to attain prosperity and prevent brain drain, which occurs when the scientists are not in touch with local problems," he added.

Miss Nasim Bhatti, Director of Computer Training Centre, in her welcome address, explained the services rendered by the institute towards education and training in IT sector. She said the Institute is offering Master's programme in IT and six-month postgraduate computer orientation course in addition to short courses on various topics.

Participation of young Pakistani scholars in the Meeting of Nobel Laureates

The grooming of young scientists and engineers is imperative for taking up challenges of competitive world and undertaking the urgent task of socio-economic uplift, this was stated by Chairman, Pakistan Atomic Energy Commission, Mr. Parvez Butt, while addressing the Orientation Camp jointly organised by PAEC and Higher Education Commission (HEC) to prepare eight young scholars in the field of medicine/physiology from the universities and research institutions of the country for representing Pakistan in the Meeting of Nobel Laureates in Lindau, Germany in July.

PAEC, as a nation building department, is at the forefront of the supporting any activity which aims at promoting science among the youth. In this regard, PAEC holds a Physics



Talent Contest annually and the winners represent Pakistan in International Physics Olympiads. President General Pervez Musharraf takes a keen interest in this activity and to sustain its continuity, he sanctioned an endowment of Rs. 10 million for this purpose. It is because of the success of our programme which comes from quality manpower that we in PAEC are always eager to support any effort aiming at stimulating scientific talent. "We have supported this participation in Nobel Laureates Meeting Programme and will continue to extend cooperation to this activity," he said.

The Forum for the Meetings of Nobel Laureates was formally established in 1951 where Nobel Laureates in Chemistry, Physics and Medicine convene in turn at intervals of three years in Lindau for one week. These annual events are organized and conducted by the Committee for the Meetings of Nobel Prize winners. Previously only students from industrially advanced countries used to participate in this august and unique forum which aims at developing and sustaining basic research in science and inculcation of the fraternity among the nations. Pakistan's participation in the meeting is for the first time.

NIFA's research activities benefiting NWFP farmers

Lt. Gen (R) Syed Iftikhar Hussain Shah, Governor NWFP, while visiting NIFA's Exhibition Stall during Golden Jubilee celebrations of PCSIR Labs. Peshawar, praised the useful result oriented research programme of NIFA. He also appreciated the active collaboration that NIFA is extending to NWFP Agricultural Research and Extension systems for the uplift of Agriculture and Human Resource Development of the province. Chairman PCSIR, Dr. Anwar-ul-Haq also accompanied the Governor NWFP. Dr. M. Jamil Qureshi, Director NIFA briefed the Governor about the role of NIFA in the province and the major achievements of NIFA's scientists in the discipline of Food and Agriculture.



Glimpses from certificate distribution ceremony of Workshop on VLSI Design Techniques at CTC

Cancer Awareness and Oncology OPD Program launched by MINAR

A cancer awareness and oncology OPD program at various DHQ hospitals in the vicinity of Multan has been started by MINAR Cancer Hospital. This program is in line with the cancer awareness program of PAEC at the national level for the prevention and early detection of different malignancies. A team of doctors of MINAR visits DHQs at Khanewal, Vehari, Lodhran and Muzaffargarh on weekly basis, where lectures are delivered on cancer awareness and management of various malignancies. Team also attends oncology patients at these hospitals, providing specialized medical advice at their doorstep.

Research activities at MINAR

A phase II study of weekly combination chemotherapy with Gemcitabine and Cisplatin in advanced or recurrent cervical cancer was inaugurated at MINAR, Multan. Started in collaboration with the gynecology department of Nishter Hospital, Multan, the study comprises 40 patients of advanced or recurrent cervical cancer in a period of approximately six months. The principal investigator Dr. Nadeem Z. Abbasi, Consultant Oncologist at MINAR highlighted the background and rationale of the project. Dr. Sami Akhter, Professor of Gynecology, Nishter Hospital, assured full cooperation and assistance in conducting the study. Such academic activities would create a close liaison between Nishter hospital and MINAR, which would ultimately help in better management of the cancer patients.

Visitors Book



A committee consisting of Mufti Ghulam Sarwar Qadri, Member, Central Zakat Council, Senior Joint Secretary, Ministry of Religious Affairs, and Mr. Shafiq Bukhari, Secretary Zakat & Ushr, Punjab, visited MINAR to check the available facilities for the treatment of cancer patients. The committee expressed full satisfaction on the treatment and diagnostic facilities being provided by MINAR. The Provincial Zakat Council has recommended the assistance from Zakat Fund for the poor patients at MINAR.



Glimpses from the Handing Over/Taking Over Ceremony of the Hospital Building

PAEC Foundation Activities for the welfare of employees

As a part of welfare activities, the PAEC Foundation distributes bicycles and sewing machines every year to some employees of PAEC in BPS-1-7 & SPS 1-3. At a simple ceremony held at the PAEC Foundation office, Dr. Masood Ahmed, Member (Physical Science) distributed these items among the successful employees of the establishments located in Islamabad.

The Board of Governors, PAECF has also approved a proposal to offer 20 merit scholarships for studies at the Higher Secondary School level in science subjects for the children of the employees who qualify matriculation/O-Level examinations and obtain admission in F.Sc. / A-level in pre-medical, pre-engineering and general science subjects. The scheme will be effective from the academic year 2003.

These scholarships will be in addition to the 25 merit scholarships already offered for undergraduate and 2 for post-graduate studies.

The Foundation has also invited applications from the employees in BPS 1-16/SPS 1-6 for one scholarship leading to full boarding & lodging assistance of a child admitted to reputed public educational institutes at the middle school level.

A one-time cash rewards have also been announced for children of serving and retired employees of PAEC who have attained first, second or third position in various groups of SSC and HSSC and equivalent examinations in 2003. This reward will be in addition to any award announced by PAEC

PAEC Hospital

The building of erstwhile Kidney Centre, Islamabad, has been acquired by PAEC with the intention to utilize it as PAEC General Hospital, to cater to the health needs of its employees. The handing/taking over of the building took place in the presence of Mr. Parvez Butt, Chairman, Pakistan Atomic Energy Commission and Mr. Abdul Sattar Lalika, Federal Minister of Labour, Manpower & Overseas Pakistanis. Federal Secretary of the Ministry, officials of Workers Welfare Fund, Members and Secretary, PAEC and other PAEC officials, witnessed the ceremony.

The building is erected on a plot of 7.50 Acres, with basement, ground floor, three operation theaters and an indoor capacity for 50 beds hospital. To convert it into a full fledged modern general hospital, the medical facilities will be provided in phases. This would certainly enable PAEC to achieve its prime commitment for promotion of health services in the country.



Dr. Masud Ahmad, Member (Physical Sciences) distributing items donated by PAECF for welfare of PAEC employees

PAEC Chairman emphasises nation building programme for socio-economic uplift

Chairman, PAEC Mr. Parvez Butt paid glowing tributes to the scientists, engineers, administrative/financial managers and staff of the Commission for their untiring efforts in accomplishing the success in its activities related to defence, nuclear power, basic & applied research, agriculture development, health care, industrial services and education. He was addressing Heads of Establishments and senior scientists and engineers of the Commission at a gathering held at PINSTECH. He eulogized the visionary leadership of the past Chairmen of PAEC, Dr. Nazir Ahmed, Dr. I.H. Usmani, Mr. Munir Ahmad Khan and Dr. Ishfaq Ahmad who successively handed down flourishing legacy and splendid work ethics.

Referring to the multi-disciplinary programme of PAEC, Mr. Butt declared that Commission's areas of interest and activities are diverse and diversity is its strength to deliver at many fronts. He said while our contributions to the defence have been recognized, we ought to lay emphasis in our nation building programme for the socio-economic uplift of the country. Our efforts in these areas have already earned high appreciation of government and public.

PAEC has evolved 43 high yield, disease resistant varieties of various crops, and other services related to agriculture sector such as bio-fertilizer, vaccine for cattle and chicken, pesticide control techniques, etc., and we will now be launching a vigorous campaign to sell and deliver the fruit of these services at the door steps of the farmers. On health side, PAEC is running thirteen medical centres providing diagnostic and treatment facilities to cancer related diseases and five more similar centres will be established soon.

Basic and applied research work by PAEC has been acknowledged at international level and by the local industry, and the knowledge accruing from this work has been useful for

our own programme. Because of the utility of this research work, we plan to restructure and re-strengthen Pakistan Institute of Nuclear Science & Technology (PINSTECH).

PAEC will aim to further assist the local industry by expanding the working facilities of Pakistan Welding Institute, National Centre for Non-Destructive Testing and our state-of-the-art engineering workshop which have capability to design and manufacture high tech industrial plants and components related to oil & gas, and chemical processing and fabrication plants. Instrumentation and control expertise developed by the Commission is being made use of for its own needs and the same is available to the local industry. KANUPP will be working on our own computers and control systems. CHASNUPP is running successfully. We have adequate manpower for nuclear operation along with necessary support services and there will be greater indigenous contribution in the second unit of Chashma nuclear power plant.

Our success in contributing to the security and prosperity of the nation owes entirely to dedicated human resource which we induct and promote on merit alone. PAEC's education and training programme forms the backbone of its working capability. This programme, aiming at education and practical training in nuclear engineering, health physics, and related fields, was initiated 30 years ago as the manpower required for PAEC programme was not available from local universities and foreign training was denied to our scientists and engineers. He urged the scientists and engineers to set new standards of excellence for the Commission and for putting in their best for higher productivity, better economy superior quality and impeccable safety for national development. Having contributed to national security and prosperity as per expectations of the government and the people of Pakistan, we in PAEC look forward to newer and higher goals and a bigger future.



Chairman PAEC addressing Heads of PAEC Establishments at a get-together arranged at PINSTECH

Announcement

SECOND NATIONAL CONFERENCE ON NON-DESTRUCTIVE TESTING Islamabad, October 22-24, 2003

National Centre for Non-Destructive Testing (NCNDT), Scientific & Engineering Services Directorate, Pakistan Atomic Energy Commission, is holding the Second National Conference on Non-Destructive Testing (NDT), from 22-24 October, 2003, in Islamabad. The major objectives are:

- To present research & development work in NDT
- Overview the advancements in NDT
- Share mutual experience in the field of NDT
- Poster session & industrial exhibition

The scientific programme of the Conference comprises presentations and discussions on the following topics:

- Development of NDT, personnel certification, NDT and quality assurance, codes and standards
- Current status of NDT in different national organizations and activities of private NDT companies
- Non-destructive inspection during fabrication.
- Non-destructive in-service inspection for condition assessment
- Conventional and advanced NDT techniques
- Non-destructive metallographic testing, NDT and fracture mechanics
- NDT of non-metallic materials

Scientists/engineers from industries, universities and public / private sector organizations for participation may please contact:

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