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Chairman PAEC addresses IAEA General Conference as Head of Pakistani Delegation

Pakistan accords highest priority to safety in its nuclear facilities

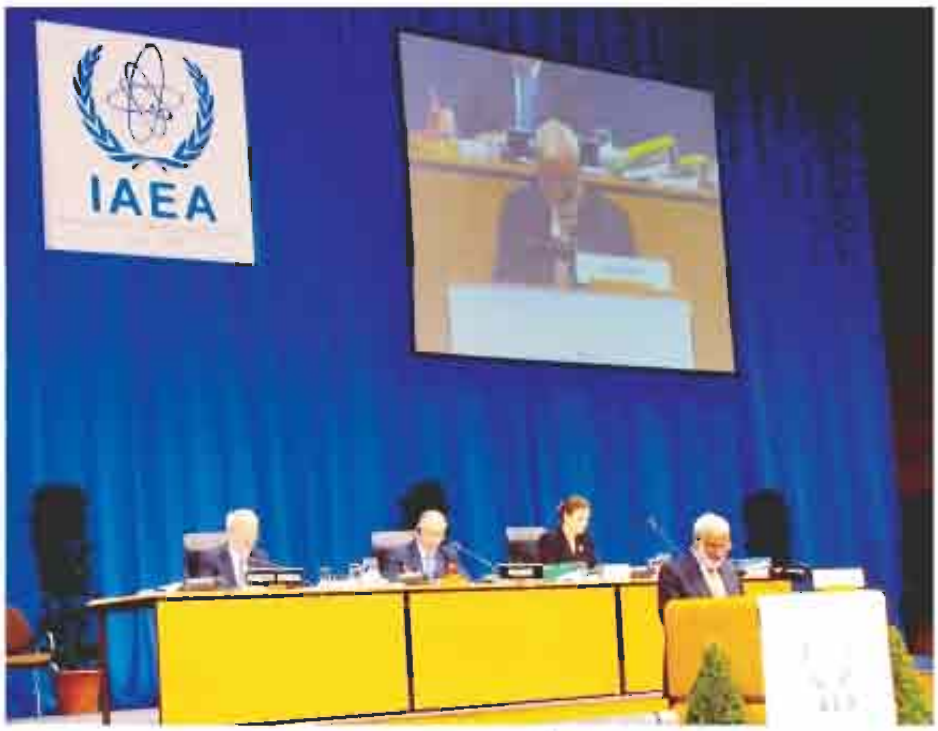
Our safeguards record immaculate

Pakistan amongst top beneficiaries of IAEA Technical Assistance Programme

IAEA has successfully promoted peaceful use of atomic energy

Pakistan committed to utilization of nuclear technology for economic development of its people

Pakistan accords highest priority to safety in its nuclear facilities and has excellent safety record in its nuclear power operations. Our safeguards record has remained immaculate over the past several decades. A comprehensive export control act is in place to ensure control over materials, goods, technologies and equipment related to nuclear and biological weapons and their delivery systems. Pakistan has also established an Oversight Board to monitor the implementation of export controls over the items notified in the National Control Lists that include the lists and scope of export controls maintained by Nuclear Suppliers Group and other international bodies.



Mr. Anwar Ali, Chairman, PAEC addressing the 51st IAEA General Conference at Vienna.

This was stated by Mr. Anwar Ali, Chairman, Pakistan Atomic Energy Commission (PAEC) while addressing the 51st General Conference of International Atomic Energy Agency (IAEA) as head of delegation from Pakistan at Vienna on September 18, 2007.

He said Pakistan has benefited a lot from the nuclear safety expertise available through the IAEA and added that with growing emphasis on meeting higher standards of safety, international cooperation is essential for necessary equipment to ensure safety and reliability of nuclear facilities.

"Pakistan Nuclear Regulatory Authority (PNRA), has used IAEA Safety Standards as a basis for the national regulations to regulate the nuclear installations and facilities effectively and efficiently. The Authority has established fruitful cooperation with IAEA, and we deeply appreciate the valuable assistance received from the Agency in the area of nuclear safety and security", Chairman, PAEC informed.

Chairman, PAEC stated that nuclear power remains the largest impact area of nuclear technology on the socio-economic development as it provides the much needed security of energy supply for energy deficient countries to meet the needs of industrial development.

With climate change threats becoming a reality, nuclear power is the best option as the clean source of energy and a greater share of nuclear power in the energy mix of developing nations will certainly help to meet the challenges posed by global warming. However, it requires the active support of industrialized nations for setting up these nuclear plants, Mr. Anwar Ali stated.

The Government of Pakistan has chalked out a plan to expand power generation to meet the demand of its growing economy and the share of nuclear power in the energy mix is 8800 MW which is just 4.5% of the total requirements by the year 2030. Pakistan can raise the level of nuclear power in its energy mix provided there is support from international community, Chairman, PAEC informed.

"Pakistan is amongst the top beneficiaries of the IAEA's technical assistance and cooperation programme, and I have no hesitation in acknowledging the valuable support and cooperation Pakistan has received from the Agency, and, would like to place on record our deepest appreciation for the helpful efforts of the staff of TC department and associated technical officers to achieve a high level of its implementation. We have, on our part, made some contribution towards the Agency's promotional activities by sharing our experience, providing services of experts, offering training placements in our institutions and conducting training courses, etc."

Appreciating the efforts of IAEA, he said "The IAEA has completed five decades of working as a successful organization to promote the peaceful uses of atomic energy in a complex and challenging international environment. The Agency enjoys enormous respect for the role played by it in introducing the beneficial aspects of atomic energy in the diverse areas of power generation, health, agriculture, hydrology, geology, industry environment and basic sciences". "I would like to take this opportunity to thank the Director General Mr. ElBaradei for his dynamic and inspiring leadership of the Agency's work. We assure him our full cooperation".

Mr. Anwar Ali stated "The recent initiatives on 'Assurances of Supply of Nuclear Fuel' are welcome, and we are studying various options with great interest. The basis of acceptance of any such mechanism would be that of trust in the system. It should encourage expansion of nuclear power through the assured supply of nuclear fuel and other related services in a non-discriminatory manner. To support the planned expansion of nuclear power in Pakistan, we have embarked upon establishment of a uranium conversion and enrichment facility that would cater to the needs of fuel for our nuclear power plants. We intend to place this facility under the safeguards of the IAEA".

Pakistan is one of the earliest countries to produce nuclear power. Its first nuclear plant, KANUPP was in operation as far back as 1972, and now with extensive refurbishing and safety upgradation, we have been able to extend its operational life by 15 years beyond its design life. Participating in the Agency's activities in the areas of nuclear desalination under INDAG, Pakistan has undertaken the installation of a demonstration nuclear desalination facility at KANUPP. This facility was expected to be completed this year, but due to delays in the supply of equipment, it will now be commissioned next year. CHASNUPP-1 is operating satisfactorily and construction of CHASNUPP-2 is in progress. We sincerely appreciate the Chinese government for their cooperation in the area of nuclear power, PAEC chief stated.

Pakistan is committed to the utilization of nuclear science and technology for the economic development of its people. Our nuclear agriculture centres have evolved 57 crop varieties characterized by high yield and resistance to pests and diseases. The nuclear medicine and oncology centres operated by the Pakistan Atomic Energy Commission in various parts of the country continue to provide state-of-the-art diagnostic and treatment facilities. Work is in progress on Pakistan's first PET facility, Chairman, PAEC told.

Pakistani Biology Team won Bronze Medal in The 18th I.B.O., held at Saskatoon, Canada

STEM Careers Project is a joint venture of Pakistan Atomic Energy Commission and Higher Education Commission for grooming talented youth for careers in Science, Technology, Engineering and Mathematics.

A team of talented Biology students selected on merit was trained at National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, which represented Pakistan in the 18th International Biology Olympiad (IBO-2007) held at Saskatoon, Canada in July, 2007. NIBGE scientist Dr. Muhammad Sarwar was the coordinator of this team. It is a matter of great satisfaction that a bronze medal has been conferred on the team in a gathering of intellectuals in the hall of University of Saskatchewan. It will not be out of place saying that IBO is one of the annual International events that provides opportunity to pre-university science students from around the world to compete in solving challenging theoretical and experimental biology questions that only the most talented youth can answer.

Pakistani IBO Team at Saskatoon, Canada, July 2007. From left to right: Dr. Muhammad Sarwar Khan (National Coordinator of Biology Talent Contest (NIBGE), Miss Abeera Ali (Participant), Mr. Shoaib (Participant) and Miss Fatima Khurram (Participant).

Biology Talent Contest at NIBGE

As part of Pakistan Atomic Energy Commission's efforts to popularize science among the youth, a training camp of National Biology Talent Contest (NBTC) was held here at PAEC's National Institute for Biotechnology & Genetic Engineering (NIBGE) from September 2 to 7, 2007. Top 43 students who participated in the camp were selected on the basis of their performance through a nationwide screening test held in February 2006 in seven major cities of Pakistan.

The project is being implemented by Pakistan Atomic Energy Commission in collaboration with the Higher Education Commission. During the camp experienced scientists and professors delivered their deliberations on various disciplines of biological sciences.

Front row from left to right: Ms. Kalsoom Akhter (NIBGE), Dr. Shahid Mansoor (NIBGE), Dr. Qaiser M. Khan (NIBGE), Dr. Zafar M. Khalid, Director(NIBGE), Dr. Muhammad Sarwar Khan (National Coordinator of Biology Talent Contest (NIBGE), Dr. Shaukat Parvez (NIBGE), Dr. Javed A. Qureshi (NIBGE) and Dr. Sajjad Mirza (NIBGE).

Third-Party Inspection of Qadirpur Gas Field and Uch Power Plant conducted by PAEC's National Centre for Non-Destructive Testing (NCNDT)

Third-party inspection (TPI) is an activity carried out by qualified inspectors on behalf of the owner, contractor or material supplier. The owner, contractor, material supplier and third-party inspector have a vital interest in the success of a project. Effective TPI contributes to the success of a project by ensuring quality and reducing needless delays, costs, general disruptions and rifts between owners, contractors and material suppliers. NCNDT is providing TPI services to different organizations in the country. In the months of July and August, this service was provided to Qadirpur Gas Field, Ghotki, Sindh and Uch Power Station, Balochistan. The TPI teams of NCNDT were responsible for carrying out the following tasks:

i) **Audit and control of NDT contractor's Activities.**
ii) **Review of NDT results of Contractors.**
iii) **Preparation of summary of NDT Results.**
iv) **Preparation of defect track Sheet.**

• Qadirpur Gas Field, Ghotki, Sindh

TPI of new weld joints and selected portion of bends of wellhead assemblies of well # 20, 23 & 24 at Qadirpur Gas Field near Ghotki, Sindh of Oil and Gas Development Corporation Ltd. (OGDCL) was carried out by a team of NCNDT. The welding was done by OGDCL team. The NCNDT third-party inspection team was responsible for monitoring magnetic particle testing, ultrasonic thickness measurement and non-destructive hardness testing.

• Uch Power Station at Balochistan

TPI of Uch Power Plant near Dera Murad Jamali, Balochistan was also carried out by one engineer and two technicians of NCNDT from 16-30 August, 2007. The job comprised of TPI during NDT of boilers' components. This was sixth consecutive TPI activity of NCNDT on this power station since 2002. The team monitored magnetic particle testing, dye penetrant testing, ultrasonic flaw detection & thickness measurement.

Thickness measurement of Heat Recovery Steam Generator (HRSG) lowerdead spaces at Uch Power Station.

Ultrasonic testing of fuel gas pipe weld at Uch Power Station.

Integrated Farming System at PAEC's Nuclear Institute for Food and Agriculture (NIFA)

A multi-component integrated farming system has been introduced/ implemented at PAEC's Nuclear Institute for Food and Agriculture (NIFA), Peshawar. The system components are mutually supportive and inter-dependent. This is a pilot scale demonstration/production facility to serve as a model for implantation on a larger scale that will cater for organic food production.

Cotton Field Day at PAEC's Nuclear Institute of Agriculture (NIA), Tandojam

PAEC's Nuclear Institute of Agriculture (NIA), Tandojam has played a pivotal role in developing successful varieties in wheat, rice, cotton, sugar cane, mungbean and lentil through the use of nuclear techniques and biotechnological approaches. The released varieties of different crop plants with space and time proved their wide adaptability, apart from having high yield, improved qualities and in built resistance/tolerance against prevailing abiotic and biotic stresses. The Institute contributes significantly in national economy by enhancing the productivity in different agricultural crops.

The institute has a distinction in maintaining linkages with the farmers and other stakeholders, Govt/ private seed agencies and sugar mills to provide the pre-basic and basic seed of approved varieties of different crops. Furthermore, the Institute provides technical guidance in terms of different technologies to the end-users, which help in raising their crops harvests on sustainable basis.

The Institute organizes Field Days of major crops every year. This time a get-together of farmers and researchers / extension workers was arranged on the occasion of 'Cotton Field Day' on 12th September, 2007. In spite of hot weather, a good number of cotton growers from surroundings and far-reaching areas participated. Syed Khursheed Hussain Shah, Director, NIA welcomed the participants and highlighted the achievements of NIA. The participants had a round trip to the cotton experiments and multiplication plots of varieties Chandi-95, Sohni, and Sadori. The growers were explained about the management techniques of minimizing attack of insect pests in cotton particularly mealy bug and CLCV in NIA fields.

The growers also visited the plots of sugarcane and rice and requested for the supply of seed of high yielding varieties of different crops developed by NIA.

Participants of Cotton Field Day at NIA, Tandojam.

Workshop on Forage Production in Saline Environments by NIAB

Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad organized a Workshop on "Forage Production in Saline Environments" at Shorkot and Pind Dadan Khan on August 27-28, 2007 in collaboration with Agency for Barani Area Development (ABAD), Rawalpindi. The workshop was sponsored by International Center for Biosaline Agriculture (ICBA), Dubai, UAE, who is coordinating an Inter-Regional Project on "Saving Fresh Water Resources with Salt-Tolerant Forage Production Systems in Marginal Areas of West Asia and North Africa (WANA) Region- an Opportunity to Raise the Incomes of Rural Poor". Mr. Riaz Fatyana, Chairman, Parliamentarians Commission for Human Rights, Pakistan, was the chief guest. The workshop was attended by scientists of NIAB, ABAD, line departments and project farmers at both places in Shorkot and Pind Dadan Khan. The objective of this workshop was to brief the participants about the outcome of the project in Pakistan and popularize salt-tolerant plants and the seed sowing methods in saline environments for optimum seed germination and the later growth. In his address, the Chief Guest appreciated the efforts of the project staff to help farmers to rehabilitate salt-affected soils and to manage brackish ground-water for a profitable use. Dr. M. Ahsanul Haq, Director NIAB, Mr. Amjad Ali Toor, Director ABAD, Dr. Zahoor Aslam (NIAB), Dr. Mohy-ud-Din (ABAD) and local farmers also spoke on this occasion. A field visit to the project sites at both places followed. The cultivation of salt-tolerant plants is a key component of Saline Agriculture Technology and the participants were impressed with the good performance of salt-tolerant plants on salt-affected soils.

MINAR holds a Seminar and Demonstration on Photodynamic Therapy in the Treatment of Cancer

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analysis. It is the consensus among the local physicians that, in selected patients, photodynamic therapy offers a unique modality to easily and effectively treat lesions in a manner that is superior to and more acceptable than other existing modalities like surgery, radiotherapy and chemotherapy.

Photodynamic therapy is a relatively new technique that uses the combined effect of intense light (~630 nm), in the form of laser or LED emissions and photosensitizers to treat body surface and also intra cavity lesions. These include both cancerous as well as noncancerous lesions like skin cancers, psoriasis, severe acne vulgaris, esophageal cancers, bladder cancers etc.

Photodynamic therapy does not exist as a routine treatment facility within the country as yet. It offers an easy alternate in situations where conventional therapy is very invasive, painful or costly. Surface lesions involving the skin and mucosa can be difficult to treat with conventional therapy without resulting disfigurement. A large body of literature exists testifying to the almost dramatic results of Photodynamic therapy in selected patients, including skin and oral cancers. There have been reports of a good response in esophageal cancers; the last is an invariably fatal disease that can be held at bay at least to improve the quality of life of these terminal patients.

A PC1 for establishing a clinical photodynamic centre at MINAR has been submitted and if approved this treatment should become available to the public within the next few months.

Dr. Christina Kurachi from the University of Sao Paulo, Brazil delivering a lecture at "A Seminar and Demonstration on Photodynamic Therapy in the Treatment of Cancer" arranged by PAEC's Cancer Hospital MINAR, Multan.

One day seminar on Nanotechnology at NIBGE

A one day seminar on "The Role of Nanotechnology in Diagnosis and Treatment of Disease" was organized at PAEC's National Institute for Biotechnology and Genetic Engineering (NIBGE) on September 10, 2007 with the cooperation and financial assistance of Pakistan Association for the Advancement of Science (PAAS).

Dr. N.M. Butt, the chief guest and Chairman, PSF and National Commission on Nano-science & Technology (NCNST) presented a comprehensive overview of nanotechnology and its applications with specific reference to Pakistan.

It was attended by about 200 participants from across the country. Various scientists and engineers from NIBGE, PIEAS, LUMS, COMSATS and HEJ-RIC delivered interest provoking lectures to highlight the potential of nanotechnology in biotechnology with specific reference to disease diagnostics and treatment.

Front row from left to right: Dr. Zafar M. Khalid, Dr. N.M. Butt, Prof. Dr. M. Saleem Chaudhry, Dr. Mazhar Mahmood and Dr. Irshad Hussain.
Back row: Dr. Arshad Saleem Bhatti, Dr. M. Sabieh Anwar and Dr. M. Raza Shah.

Chairman's Assignment Abroad

Mr. Anwar Ali, Chairman, PAEC attended the Meeting of the IAEA Board of Governors held at Vienna (Austria) from 10-14 September, 2007. He also led Pakistan delegation to the 51st Annual General Conference of IAEA held at Vienna from 10-14 September, 2007 and 17-21 September, 2007.

Assignment of PAEC Experts Abroad

i. Dr. Durr-e-Sabih, Director, MINAR, Multan and Mr. Muhammad Aslam Sial, Principal Scientist, PAEC, Islamabad undertook assignment as National Consultants at IAEA HQ, Vienna (Austria) from 24-27 July, 2007 under Project - Developing a Quality Assurance Programme for Radiation Medicine.

ii. Mr. Hafiz Ullah Khan, Deputy Chief Engineer, Karachi Nuclear Power Complex (KNPC), Karachi started assignment as KANUPP Representative with Candu Owners Group (COG) Office, Toronto, Canada for 6 months from 29 July, 2007.

iii. Mr. Ghulam Rasul Athar, Principal Scientist, Applied Systems Analysis Division, PAEC, Islamabad undertook assignment as an IAEA Lecturer for Regional Training Workshop on Sustainable Energy Development in Sub-Saharan Africa held at Arusha, Tanzania from 30 July to 3 August, 2007.

iv. Khawaja Munir Samad, Director (International Affairs), PAEC HQ, Islamabad carried out assignment as National Consultant on Implementation Issues of Human Resource Development (HRD) Project, Training on PCMF and Upstream Work for 2009-2011 Programming Cycle at IAEA H.Q, Vienna (Austria) from 5-17 August, 2007.

v. Mr. Muhammad Imtiaz, Principal Scientist, Applied Systems Analysis Division, PAEC, Islamabad undertook assignment as Lecturer for National Training Course on MAED held in Botswana from 03-14 September, 2007.

vi. Mrs. Zamurrad Baig, Deputy Chief Scientist and Mr. Perwaiz Asdaque, Principal Scientist, KNPC, Karachi carried out assignment as National Consultants for Review of Critical Functions Algorithm at IAEA HQ, Vienna (Austria) from 17-21 September, 2007 under Project - Improving Safety Features of KANUPP (Phase-II).

vii. Mr. Muhammad Naeem Khan, Principal Engineer and Mr. Muhammad Haneef, Senior Engineer, KNPC, Karachi carried out Mission as National Consultants for Training/ Inspection of Eddy Current Improving Safety Features of Equipment For KANUPP Steam Generator at Tecnatom, Spain from 24-28 September, 2007 under Project - Improving Safety Features of KANUPP (Phase-II).

Assignment of IAEA Expert in Pakistan

Mr. John William Stetkar (USA) carried out Mission at KNPC, Karachi from 09-13 July, 2007 for Task: Fire PSA - Second Interim Review under Project - Improving Safety Features of Karachi Nuclear Power Plant, Phase II.

Visit of Foreign Delegations

i. A three member delegation comprising H.E. Dato Abdul Hanan bin Alang Endut, Secretary General, Ministry of Science, Technology and Innovation of Malaysia (MOSTI), Dr. Daud Mohamad, Director General, Malaysian Nuclear Agency and Dr. Azali Muhamad, Senior Research Officer, Malaysian Nuclear Agency visited PINSTECH and PIEAS, Islamabad from 09-10 July, 2007 and discussed matters of mutual cooperation.

ii. A four Member WANO-TC Technical Support Mission on Optimization and Improvement of Preventive Maintenance Programme comprising Mr. Shen Ping, Mr. Seon-hak Lee, Mr. Susumu Takada and Mr. Kazuhiro Komori visited CHASNUPP-1, Kundian from 18-24 August, 2007.

Ph.D. Degree for PAEC Engineer

Syed Faisal Ahmed Bukhari (Principal Engineer), who is a faculty member at KINPOE, KNPC has returned to Pakistan recently after completion of his Ph.D. study from the University of Manchester, United Kingdom. He accomplished his research in the field of information technology. His topic of research was 'Development of tomography based control system using electrical capacitance tomography measurements'. He published eight research papers during his Ph.D. study and presented his work in Germany, Japan, Poland and China. Dr. Syed Faisal Ahmed Bukhari pursued his Ph.D. studies on a merit scholarship from Ministry of Education, Govt. of Pakistan.

PAEC Scientist Honoured

Dr. Irshad Hussain, Senior Scientist, National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad won Professor Atta-ur-Rehman Gold Medal/Prize of Pakistan Academy of Sciences (PAS) in the field of Chemistry in recognition of his outstanding scientific achievements and research publications in high impact international journals. Dr. Hussain has pioneered nanobiotechnological research in Pakistan and has established an internationally recognized research group on metal nanoparticles synthesis and their applications in biotechnology.

Scholarship for Ph.D. Studies abroad

Mr. Muhammad Shafique presently working as Scientific Assistant-II, in the Health Biotechnology Division of NIBGE, Faisalabad is proceeding abroad for his Ph.D. studies at the University of Groningen, Netherlands in the subject of Molecular Virology. He has won this scholarship on open merit under the Overseas Scholarship Programme of H E C. He did his B.Sc (Hons.) in Agri. Entomology from Agricultural University, Faisalabad. Mr. Shafique pursued his M.Phil studies at Quaid-i-Azam University (NIBGE Campus) in the domain of Health Biotechnology securing 1st Division.

PAEC's Cancer Hospital MINAR holds a Seminar and Demonstration on Photodynamic Therapy in the Treatment of Cancer

Treatment facility based upon this technology to be installed soon

PAEC's Multan Institute of Nuclear Medicine and Radiotherapy (MINAR) was recently selected by the PAEC to conduct a pilot project on photodynamic therapy in collaboration with international experts from the University of Sao Paulo, Brazil.

The project was initiated by Dr. Badar Suleman, DG, ROAMIC and the Chairman PAEC, Mr. Anwar Ali very kindly allowed funds to sponsor the event. The management committee nominated by Member, Science included Dr. Durr-e-Sabih, Director MINAR, Dr. Masroor Ikram Dean of research, PIEAS and Dr. Mohammed Aleem from the Directorate General of Nuclear Medicine and Oncology.

The notables present on the occasion were Dr. Ansar Parvez, Member, Science, Maj. Gen (R) Khalid Mushtaq, Member Admin, Dr. Tariq Jamal Solaija, DG Planning, Dr. Badar Suleman, DG ROAMIC, Dr. Masroor Ikram, Dean of Research, PIEAS, apart from senior doctors and surgeons from Bahauddin Zakariya University, the Combined Military Hospital and Nishtar Medical College Multan.

Prof. Dr. Vanderlei Salvador Bagnato, and Dr. Christina Kurachi from the University of Sao Paulo, Brazil delivered lectures and applied the treatment in selected patients. They had brought with them all the equipment and the photosensitizers. Dr. Bagnato is a physicist who has recently installed Bose Einstein Condensation in his Laboratory. His interest range from developing the first atomic clock in the South Americas to medical applications of lasers. He holds over 20 patents and has published over 200 papers. His activities transcend pure science and he is a very active community worker too, holding educational seminars, lectures and even running an educational TV channel.

Dr. Kurachi is a trained dental surgeon and holds PhD in physics. She is currently exploring the diagnostic potential of laser fluorescence spectroscopy.

Praying for the strength to serve the sick after the inauguration of the new Block at MINAR, Multan. In the front row clockwise are Dr. Tariq Jamal Solaija D.G,(Planning), Dr. Ansar Parvez, Member (Science), Dr. Durr-e-Sabih, Director (MINAR) and Maj. Gen. (Retd.) Khalid Mushtaq, Member (Admin).

The project at MINAR included seminars, workshops and actual treatment demonstrations. The treated patients were and still are being closely followed up for efficacy of technique, adverse effects and a cost-benefit

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Group photo on the eve of Seminar (first row), from left to right are Mr. Arif, SS (MINAR), Mr. Mumtaz, Administrator, (MINAR), Dr. Durr-e-Sabih, Director (MINAR), Dr. Rab Nawaz Maikan, SMO (MINAR), Dr. Vanderlei Salvador Bagnato (Brazil), Dr. Cristina Kurachi (Brazil), Dr. Badar Suleman, D.G, (ROAMIC) and Dr. Zahida Sabih, PMO (MINAR).

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