PAEC provides equipment and services to CERN

The Government of Islamic Republic of Pakistan and European Organization of Nuclear Research (CERN) signed a Cooperation Agreement in 1994 concerning the development of Scientific and Technical Cooperation in the research projects of CERN. Since then, a number of Protocols have been signed and executed by Pakistan Atomic Energy Commission (PAEC) and other national departments like National Centre for Physics (NCP) to implement the above said Cooperation Agreement.

PAEC’s Scientific and Engineering Services Directorate (SES) has, accordingly, worked for LHC, CMS, ATLAS and ALICE Projects of CERN and provided mechanical equipment as well as contributed in design, development, engineering, assembly and installation services. PAEC was also involved in the design and fabrication of laser based tracker alignment system. PAEC scientists and engineers are associated with the recent activities and experiments at CERN.

Noting the high quality of workmanship in sophisticated engineering tasks assigned by CERN to PAEC, the CERN authorities presented “ATLAS Supplier Award” for manufacturing excellence.

CERN, in its recent monthly International Journal of High Energy Physics “CERN Courier” has appreciated Pakistan’s contribution to its programme.
Maintenance Hot Workshop inaugurated at Chashma Nuclear Power Plant -1 (C-1)

For the maintenance of Nuclear Island equipment, in a controlled environment, construction of a Hot Workshop was started in Year 2006 by M/s. SNERDI, China. This Engineering, Purchasing and Constructing (EPC) project of worth Rs.14.5 millions was completed and formally inaugurated by Mr. Zia ul Hasan Siddiqui, Member (NPG), PAEC on October 09, 2008.

In the inaugural/Final Acceptance Ceremony, Member (NPG) and President SNERDI appreciated the efforts of Chinese and Pakistani personnel to accomplish the project successfully in specified period of 28-months.

C-1 fulfilled its obligation specially in providing pre-requisite conditions for site construction, witnessing of QC activities and provision of all interface facilities including arrangement of machine tools. An effective project monitoring and exemplary coordinated work of the contractor and plant teams played important role in the timely completion of the Project including commissioning. This Hot Workshop is a unique and advanced facility to cater maintenance of contaminated equipment, which shall be an important asset to fulfill the needs of the C-1 as well as future plants at Chashma site.

The maintenance Hot Workshop has been constructed for decontamination & maintenance of active components/equipment of the plant. e.g. Reactor Coolant Pumps/ Motors, Nuclear Island equipment and auxiliaries.

The workshop mainly consists of Control Access Area, Reactor Coolant Pump, and Motor Maintenance Areas, Machining and Decontamination Area, Basement Storage Area and HVAC equipment Area. The workshop has been classified into five zones according to contamination levels of the equipment to be maintained. The workshop is equipped with activity monitoring, HVAC, electrical, communication and I&C systems, including demineralized water/air supply & active drainage provisions, etc.

Assignments of PAEC Experts Abroad

Dr. Durr-e-Sabih, Director, MINAR, Multan undertook assignment as Consultant on Preparing Recommendations of the Use of Sentinel Lymph Node Detection Technique at IAEA Headquarters, Vienna (Austria) from 15-19 September 2008.

Mrs. Zamurrad Baig, Deputy Chief Scientist and Mr. Perwaiz Asdaque, Principal Scientist, KNPC, Karachi carried out assignment as National Consultants for Expert Mission at IAEA Headquarters, Vienna (Austria) from 13-17 October 2008 under Project-Improving Safety Features of KANUPP.

Mr. Muhammad Tahir Mian, DCE, DNPES, Islamabad undertook assignment as National Consultant at IAEA Headquarters, Vienna (Austria) from 13-17 October 2008 for Task: Review of the Site Evaluation Report (SER) of C3/C4 under Project-Applicability of IAEA Nuclear Safety Standards for...

Ms. Zainah Adam from Malaysia is undergoing three months Fellowship Training at INMOL, Lahore in the field of Molecular Biology Techniques & Immunodiagnostics from 01 September 2008 to 30 November 2008 under IAEA Technical Cooperation Programme.

Training of Foreigner under IAEA Technical Cooperation
PAEC’s Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad has released another high yielding and disease resistant variety of kabuli chickpea. The variety named CM 2008 was approved by the Punjab Seed Council in its 36th meeting held on 9th September 2008 at Lahore, for general cultivation in the Punjab province. CM 2008 has been developed by creating genetic variability through the use of chemical mutagen EMS (0.2% Ethylmethane Sulphonate) in a local variety Pb-1. CM 2008 was evaluated for yield and adaptation in several multi-location trials conducted during crop seasons 2001-02 to 2007-08. In these trials, CM 2008 exhibited 30-34% higher yield than the best variety CM 2000, also released earlier by NIAB.

NIAB has a very productive breeding program aiming at the evolution of high yielding and disease resistant varieties of chickpea through the use of induced mutations and related breeding methods. The first chickpea variety of NIAB CM 72 was released in 1983 followed by CM 88, CM 98 and CM 2000, all having resistance against diseases, high yield and better quality characteristics. Large scale cultivation of these varieties has greatly helped to stabilize/increase chickpea production and since their release no serious blight epidemic has been reported in the country.

In Pakistan, the average yield of chickpea (800 kg/ha) is low due to many factors such as lack of bold seeded, high yielding and multiple disease resistant varieties. The new variety CM 2008, the 5th of chickpea varieties evolved by NIAB so far, is resistant to diseases. Its large scale cultivation will help increase the average yield and production of kabuli chickpea in the country. The credit for evolution of CM 2008 goes to Chickpea research team led by Dr. M. Ahsanul Haq, the members include M/s Tariq Mahmud Shah, Babar Manzoor Atta, Dr. S. Sarwar Alam, Ms. Hina Ali and Mr. Mahmudul Hassan (Pr. Scientist (R)).

Visit of Foreign Experts to PAEC

- Mr. Wong Voon Wai from Malaysia visited NIBGE, Faisalabad from 21-22 August 2008 for service and calibration of equipment.
- Professor Kadambot Hamza Mohamed from Australia visited NIAB, Faisalabad from 11-14 October 2008 for Meeting with NIAB Officials to Explore the Possibilities of Collaboration.
- Dr. Neil Forrester from Australia visited NIBGE, Faisalabad on 16th October 2008 and NIAB, Faisalabad on 17th October 2008 to discuss cotton scenario in Pakistan.
- Prof. Dr. Nicolaas Cornelis Van de Giesen and Dr. Maurits Willem Ertsen, Technical University, Delft, Netherlands visited experimental sites as well as NIAB Laboratories, Faisalabad on 20th October 2008 to check the progress of work of his Ph.D. Student.
- Dr. Osman A. Gutierrez from Republic of Venezuela, Postdoctoral Associate Cotton Breeding of Mississippi State University of USA appointed as Foreign Consultant through FAO of the United Nations for Research and Development Cotton Program in the country visited NIBGE, Faisalabad on 22nd October 2008 and NIAB, Faisalabad on 23rd October 2008.

Ph.D. Degree with Distinction for PAEC Scientist

Dr. Shakeel Abbas Roofi, Principal Scientist has completed his Ph.D. degree from Beijing Institute of Technology (BIT), Beijing, China. He returned to Pakistan and joined PAEC in July 2008. He was awarded the scholarship by Higher Education Commission, Government of Pakistan. His topic of research was related to Dynamics of Materials. He completed his Ph.D. in a period of 2 years and 10 months and was given best student of the year award for 2007. His Ph.D. thesis was placed in the outstanding category. During his stay at BIT, he published 8 international papers.
Mr. Jamshed Azim Hashmi, Chairman, Pakistan Nuclear Regulatory Authority (PNRA) visited Chashma from August 12-14, 2008. On August 13, 2008, Chairman, PNRA held a meeting with Mr. Zia ul Hasan Siddiqui, Member (NPG) & C-1 Management at C-1. The plant is shutdown these days for its 5th refueling and some design modifications. Mr. Safder Habib, Director General (C-1) briefed Chairman, PNRA about indigenization efforts of plant personnel for accomplishment of major tasks of RFO-5 including fuel unloading and loading operations. Chairman, PNRA appreciated the efforts of PAEC towards indigenization and emphasized to ensure nuclear safety and quality in all primary-side activities.

Chairman, PNRA also graced the flag hoisting occasion of 14th August 2008 at C-1 as chief guest.

Best ever performance by Pakistani team in International Physics Olympiad

The 39th International Physics Olympiad (IPhO) was held in Hanoi, Vietnam (July 20-29, 2008). This year 376 students from 82 countries participated in the Olympiad. The Pakistani team was led by Dr. Masroor Ikram and Dr. Shahid Qamar from PIEAS. For the first time, Pakistani team not only won a Silver medal but also one Bronze and two Honorable Mentions. Mr. Hamza Aftab from Atchison College won the Silver medal for Pakistan while Ms. Madiha Hussain from Lahore Grammar School won the Bronze medal at IPhO 2008. She is the first female Pakistani Bronze medallist in IPhO. Two other students, Syed Waqas Raza Jafri from Lahore Grammar School and Mr. Ahmed Bilal Asghar from Cadet College, Hasan Abdal won Honorable Mentions.

PAEC’s Pakistan Institute of Engineering and Applied Sciences has been organizing this activity since 1995. Initially, the activity was launched for the school/college students of Rawalpindi-Islamabad. Later, it was extended all over the country. The activity involves the selection of top fifty students on the basis of their performance in a nationwide competition. Then selection of a final team of five students for the IPhO through a series of training and coaching camps at PIEAS. Pakistani team has been participating in IPhO since 2001 and had won Bronze and Honorable Mentions several times; however, this is the first time that any Pakistani team has won a Silver medal. It is the team effort of the participating students and faculty members from PIEAS that has culminated in a moment of joy and pride for the whole nation.
The 25th two week postgraduate training course on the “Use of Nuclear and other Techniques in Food and Agricultural Research” will be held at NIFA, Peshawar during November 3-14, 2008. The detailed information about the course is given as under:

INTRODUCTION

The Nuclear Institute for Food and Agriculture (NIFA), an establishment of Pakistan Atomic Energy Commission, is actively involved in basic and applied research in selected areas of food and agriculture. NIFA is well equipped with modern laboratory facilities and trained manpower. The institute maintains an active collaboration with PAEC establishments and other national and international organizations engaged in similar pursuits. Utilizing the expertise and the facilities available at the institute, NIFA organizes, annually, a two-week postgraduate training course on the application of nuclear and other techniques in food and agricultural research. The course is participated by university/college faculty members, researchers and postgraduate students from all over the country including Azad Jammu and Kashmir.

The course is designed to acquaint the participants with theoretical and practical aspects of nuclear and other contemporary techniques. Apart from lectures in the specialized fields, the course also provides the participant a practical exposure to various on-going research projects at NIFA.

Required Qualification

The minimum qualification required is B.Sc./B.Sc. (Hons.) Agriculture.

Application

Applications duly completed on the prescribed format should reach, to the course organizer. In-service candidates must apply through proper channel.

Award of Certificates

The certificates will be awarded at the concluding ceremony of the course.

Registration Fee

Rs. 750/-

TRAVEL AND LODGING

The participants or the nominating agencies will bear the expenses for travel and stay at Peshawar. NIFA will, however, help in arranging accommodation if requested in advance. Pick and drop facility and working lunch will be provided by NIFA.

OUTLINE OF THE TRAINING COURSE

LECTURES

A. Radiation Concepts
   Fundamentals of radiations, radioisotopes and their applications in Food, Agriculture, Health, Industry and Environment
   Irradiation for Food Safety and Security
   Quantities and units in Radiation Protection
   Effect of Ionizing Radiation on Living Organisms

B. Food Nutrition and Engineering
   Extrusion Technology
   Nutritional Evaluation of Foods

C. Crop Breeding
   Biotechnology
   Mutation Breeding

D. Entomology
   Biological Control
   Nuclear Techniques in Pest Control

E. Soil Science
   Biological Nitrogen Fixation
   Isotopes in Soil Science and Plant Nutrition
   Organic/Integrated Farming

F. Modern Analytical Techniques
   Chromatography
   Spectroscopy

G. Data Analysis
   Statistical Designs
   Economic Analysis

H. Special Lectures
   Environmental issues/Global warming
   Medicinal Plants
   Personality development

LABORATORY EXPERIMENTS/DEMONSTRATIONS

- Use of radiation sources, Counters and Dosimetry
- Use of Neutron Moisture Meter
- Radio-Sensitivity of Insects
- Chromatographic Techniques
- UV Vis., NIRS & Atomic Absorption Spectroscopy & ¹⁵N analysis
- Analysis of Phytic Acid
- Quality Indices of Oils and Fats
- DNA Extraction, quantification and PCR analysis
- Analysis of Protein through Electrophoresis
- Tissue Culture Techniques

For Further Information:
Visit NIFA website: http://www.nifa.org.pk/Trainingcourses.htm

CONTACT INFORMATION:

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Fax: 091-2964059
Email: trainingcourse@nifa.org.pk
Shehzadisam@yahoo.com
**Atomic Energy Medical Centre, Karachi wins Best Poster Award**

Radiological Society of Pakistan organized 15th National Radiological Conference at Sheraton Hotel in Karachi dated 12th-14th October, 2008. It was a continuation of the RSP’s educational and scientific activity and organized in collaboration with Radiology Society of SAARC Countries (RSSC).

Conference highlights included pre conference workshop on ultrasound and didactic lectures by renowned national and international speakers.

Almost 40 scientific papers and 78 posters were presented. AEMC, Karachi received the Best Poster Award entitled “Clinical Management and Outcome of Well Differentiated Thyroid Cancer Presenting with Metastasis at Diagnosis: A New Paradigm” at the concluding session. The Certificate was received by Dr. Rafia Toor (SMO, AEMC Karachi).

**ISO Certification of KANUPP Engineering Support Divisions**

Design and Development Division (D&D) was established in 1978 with the objective to ensure availability of mechanical spare parts of plant equipment, components and systems for the safe operation of KANUPP. This objective was achieved by enabling the plant to operate beyond its design life. Design and Development Division has been providing a vendor like support to KNPC, which includes engineering design, reviews control and manufacturing of mechanical spares/component, and non-destructive examination services as per applicable codes and standards.

Computer Development Division (CDD) of KNPC encompasses diversified areas of work such as:

- Design, development, installation & commissioning of PLC based Distributed Control Systems (DCS) for upgradation of control & monitoring of CANDU PHWR
- Installation and commissioning of I&C related infrastructure equipments & systems
- Obsolescence & ageing management, design & development support, software maintenance for DCS & computerized support systems
- Software development & implementation of computerized support systems for operation, maintenance, engineering & management of NPP
- Configuration management of software based systems
- Installation, configuration and maintenance of networks

In order to standardize, organize and systematically review the existing quality management activities of the D&D and also to improve all the design and development processes within the scope of the CDD, an MoU was signed with Directorate of Quality Assurance (DQA) to develop a Quality Management System (QMS) for both divisions as per requirement of ISO 9001:2000 standard. Their QMS were evaluated for compliance with the requirements of ISO 9001:2000 Standard and D&D and CDD has satisfactorily complied with the requirements and has been recommended for registration and issuance of the ISO 9001:2000.
PAEC Scientist honoured

A delegation of six scientists of National Tokamak Fusion Program (NTFP) was invited to participate in International Workshop on the Frontiers of Modern Plasma Physics held at Abdus Salam International Centre for Theoretical Physics (AS-ICTP) Trieste, Italy from 14th July to 25th July 2008. The Workshop activity was mainly focused on Tokamak Fusion Physics with special reference to ITER and thus was very much relevant to our Tokamak Fusion Program. Our group made presentations at the conference which were very well received.

Dr. Riaz Khan also presented his research work in the conference as an oral presentation of 30 minutes duration on 17th of July and a poster presentation on 23rd of July 2008. Both of his presentations were very well appreciated. His poster presentation entitled “Nonlinear Simulation of Edge Localized Modes in Tokamak Plasmas” was given Best Poster Prize of the International Workshop on the Frontier of Modern Plasma Physics, with a cash prize of 200 Euro, a Trophy and a Certificate Awarded by Institute of Physics (IOP) Publishing, Bristol, U.K. In addition, he will receive Gold Medal from IOP for the high quality of his research. Ceremony held in this regard at the Conference Dinner gave Dr. Riaz as well as the PAEC Fusion Program lot of prominence and publicity. Lots of discussion took place about his work. Some scientists showed keen interest to collaborate in our future research work.

Assignments of PAEC Experts Abroad

- Mr. Mirza Safeer Ahmad, Junior Scientist and Mr. Khurrram Shahzad Ahmad, Senior Engineer, NCNDT, SES Directorate, PAEC, Islamabad undertook assignment as IAEA Experts to deliver lectures at the Regional Training Course on Visual Testing-Level 2 held in Amman, Jordan from 17-28 August 2008.
- Mr. Ghulam Rasul Athar, DCS, ASAD, PAEC undertook assignment as an IAEA Expert to assist the National Team in Evaluating the Sustainable Energy Strategies for Addressing Climate Change Issues by applying IAEA Analytical Tool in Manila, Philippines from 25-29 August 2008.
- Mr. Muhammad Nadeem Ahmed, Deputy Chief Engineer, Karachi Nuclear Power Complex (KNPC), Karachi is currently undertaking assignment as KANUPP Representative with Candu Owners Group (COG) Office, Toronto, Canada for a period of six months from 20 August 2008.
- MINAR appoints house officers
- MINAR is the only PAEC Medical Centre recognized by the PMDC for Nuclear Medicine house jobs. MINAR recently appointed two medical graduates as house officers in Nuclear Medicine. Hopefully this will translate into a regular induction of human resources and also give the chance to young doctors to familiarize themselves with the Ministry of Health and its various functions.

MINAR appoints house officers

PAEC Scientist Awarded Ph. D. Degree

Dr. Shams-ud-Din, Principal Scientist, Micro Seismic Studies Programme (MSSP), Pakistan Atomic Energy Commission (PAEC), Islamabad, has been awarded Ph.D. degree in the field of Geophysics from the Quaid-i-Azam University, Islamabad. The title of research was “Crustal Modeling of Bannu-Kohat Area with the Help of Integrated Geophysical Data”. He completed his research work under the supervision of Professor Dr. Shahid Nadeem Qureshi, Department of Earth Sciences, Quaid-i-Azam University, Islamabad. Dr Shams has interpreted the gross crustal structures of Bannu-Kohat area up to Mohorovici discontinuity incorporating the Gravity, Seismicity and Landsat Thematic
Pakistan Institute of Engineering and Applied Sciences (PIEAS) organized an International Conference on Advancements in Process Engineering (ICAPE 2008) from 13-14 October 2008. ICAPE 2008 is the first of the serial conferences to be held for dissemination of the research-based knowledge in the field of Process Engineering. Faculty of Process Engineering at the Department of Chemical and Material Engineering, PIEAS have conceived and matured the idea. It will be annual event to be organized by some of the chemical engineering department at other universities in Pakistan such as, Punjab University Lahore, UET Lahore, MUET Jamshoro, NFC IEFR Faisalabad and PIChe Lahore.


A total of 42 oral and eight poster presentations were accommodated in this two-day event. One hundred and forty participants were registered who belonged to sixteen different universities and seventeen R&D organizations.

Three foreign experts Dr. Ruben Avila, Dr. Gustavo Sosa and Ma. Virginia R Mora from Mexico participated in the conference. Two short courses were also organized, one prior to the conference and the other after the conference i.e., Computational Methods in Fluid Mechanics: SEM & MLPG from 06-09 October 2008 and Regional Atmospheric Modeling: Plume Dispersion and Photochemistry from 15-17 October 2008. The conference and short courses were outcome of a team effort under patronage of Dr. Muhammad Aslam, Rector, PIEAS.

The host institute PIEAS has a multifaceted programme and is the leading educational and training institute run by Pakistan Atomic Energy Commission to cater for requirements of human resource for its high-tech programme. The need for such a facility within Pakistan was acutely felt because of the problems of exclusive dependence upon foreign countries for higher level training and education in the specialized fields. Other than PAEC, the graduates of this institute are serving in leadership positions in the Strategic Organizations of the country.

PIEAS has emerged from a modest Reactor School established at PINSTECH in 1967, which was upgraded as Centre for Nuclear Studies (CNS) in 1972 offering M.Sc. in Nuclear Engineering. It acquired degree awarding status in the year 2000 and is presently offering M.Sc. and Ph.D. in Nuclear Engineering, Process Engineering, Nuclear Medicine, Medical Physics, Materials Engineering, System Engineering, Laser Technology, and Information Technology.

Due to quality education, academic discipline, faculty resources, and educational and training infrastructure available, PIEAS has been declared as number one Engineering University of Pakistan by the HEC.

Higher Education Commission (HEC), Pakistan Accumulators Pvt. Ltd. and Abid Rafique and Company sponsored the event.

Dr. Shoaib Ahmed, Member (Physical Sciences), PAEC, and the Patron-in-Chief of the conference concluded the event. The conference was inaugurated by Dr. Inam-ur-Rehman, former Rector, PIEAS.