

PAEC to add another 2200 MW electricity to national grid: Muhammad Naeem

*Exclusive Interview of Chairman,
Pakistan Atomic Energy Commission (PAEC)*



■ By M. Naeem Qureshi

EU: Please share principal areas where PAEC does work??

Mr. Naeem: We are humbly contributing towards the socio-economic sectors in the country. Our principal activity in energy sector is the generation of electricity through nuclear power plants. As the nuclear science and technology has wide applications in the area of human need, PAEC also has worked extensively in the agriculture and health sectors. We started our first agriculture research centre NIA back in year 1961 at Tando Jam in Sindh. Now we have four PAEC agriculture research centres in the country. The others are, two in Faisalabad with the names Nuclear Institute of Agriculture and Biology (NIAB) and National Institute of Bio-technology and Genetic Engineering (NIBGE) and one in Peshawar namely Nuclear

Pakistan Atomic Energy Commission (PAEC) under its mission to expand capability of the country to generate electricity through safe, secure, and environment friendly process of utilizing nuclear energy will add another 2,200 Megawatts of power to the national grid in coming years.

After commissioning of Chashma-3 and Chashma-4 nuclear power plants, in 2016 and 2017, 680MW electricity has been added to the national grid. While K (KANUPP)-2 and K-3 nuclear power plants, near to completion in Karachi, would further add 2,200 MW electricity by the year 2021-22, said PAEC Chairman Mr. Muhammad Naeem.

Energy Update (EU) had the privilege of asking few questions from the Chairman of Pakistan Atomic Energy Commission Mr. Muhammad Naeem, HI (Crescent of Distinction), SI (Star of Distinction), so that our readers may be informed about the contributions towards the socio-economic development of the country by PAEC. These contributions include generation of electricity, use of nuclear science and technology in agriculture sector and in treating cancer patients.

Here are some important excerpts of the interview of Chairman PAEC who has been in service of the Commission since 1972 and after serving in various senior and important positions, he was elevated by the government to the highest position as Chairman of PAEC in April, 2015. And since then he is leading the organization in laudable manner.

Institute of Food and Agriculture (NIFA).

In the health sector, apart from general health care, we established nuclear medical centres for the diagnosis and treatment of cancer. The first one was established in Karachi, in 1961, at Jinnah Postgraduate Medical Centre with the name of Atomic Energy Medical Centre, now it is called Atomic Energy Cancer Hospital Karachi. Now, Alhamd-o-Lillah, we have 18 Atomic Energy Cancer Hospitals established throughout the country. These are well-equipped hospitals for the diagnoses and treatment of cancer. These hospitals are situated in all major cities and even in remote populous areas such as Swat, D.I. Khan, Larkana and Bannu. Another Atomic Energy Cancer Hospital is under construction and near to completion in Gilgit. In addition to these cancer hospitals, PAEC has established General Hospitals in Islamabad, Chashma and other cities where PAEC has major setups.

PAEC has developed human resource development centres to feed manpower in its work. We established Pakistan Institute of Engineering and Applied Sciences (PIEAS) at Nilore in Islamabad. PIEAS is a top ranking engineering university of the country. Recently, PIEAS has been declared IAEA Collaboration Center by IAEA to educate and train human resource of other IAEA Member States. In short, beside contribution towards ensuring and maintaining national security, which is well known to the nation, all tasks and targets assigned to PAEC were fully accomplished and achieved. Therefore, we can humbly say that PAEC is a success story in this country.

EU: What are the most important core values in your organization?

Mr. Naeem: PAEC core values are based on its commitment to promote Safety Culture and Quality Culture. We have impeccable safety record of running nuclear power plants as well as other setups. The hall mark of PAEC achievements is the strict adherence to its safety, quality and merit policies. We believe in merit right from recruitment to promotions of the personnel. We have a very strict merit-based system for taking decisions and which is second to none.

EU: Please share about services of PAEC in the area of medicine in treating cancer patients?

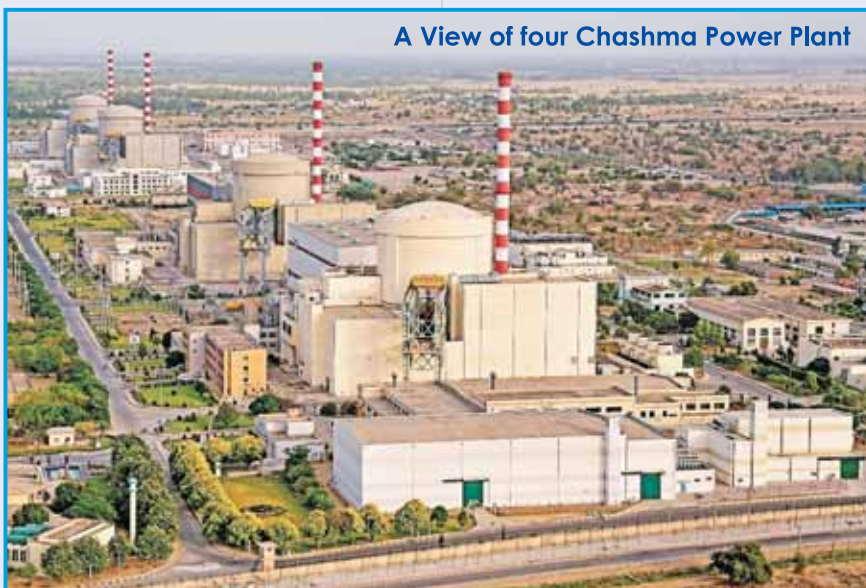
Mr. Naeem: I have already mentioned earlier that PAEC has established 18 Atomic Energy Cancer Hospitals. Just to inform you that we are catering more

than 80% of the total number of registered cancer patients in the country. In all the hospitals run by PAEC, some 1,000,000 (1 million) cancer patients come for treatment every year. More such hospitals are in planning stage. We are very grateful to the federal government as well as to all the provincial governments for their continued support, in this regard.

More importantly, we don't refuse treatment to any cancer patient coming to our hospitals neither on the account of financial status of the patient nor on the account of stage of specific cancer disease. Other hospitals in the country

radioisotopes are administered for the diagnostic and therapeutic treatment of cancer patients. We have a research reactor at our R&D institute PINSTECH (Pakistan Institute of Nuclear Science & Technology), where we develop these useful radioisotopes. Some of these radioisotopes are also used for agricultural work, as well.

We are very careful about quality of our products which is always considered important in the nuclear industry. Similar is the case of production of radioisotopes as we stringent control to maintain quality. Apart from our cancer hospitals, there are 38 other hospitals in the country



A View of four Chashma Power Plant

treating cancer could refuse a patient on the basis of his or her stage of the disease, while leaving the patient without treatment. This is, I think, a big contribution of PAEC in health care sector. Our hospitals are equipped with modern equipment of Sterilization of medical items. Diagnostic techniques are enhanced by employing applications of Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) to aid the physician in diagnosis. Our scientists and engineers are actively engaged in collaboration with IAEA. We are also getting benefits from the cooperation of International Atomic Energy Agency (IAEA) in terms of equipment and other technical support through IAEA projects.

EU: What indigenous capability PAEC has achieved in treating cancer patients?

Mr. Naeem: Radioisotopes are applied in such kind of treatment. We develop radioisotopes indigenously. These

where cancer patients are being diagnosed and treated, using the radioisotopes produced at PINSTECH that we provide as per their need.

EU: Please brief about services of PAEC in the area of power production?

Mr. Naeem: In the area of energy production, we started to work in mid-sixties on our first nuclear power plant KANUPP near Karachi that was connected to the national grid in December, 1972. We have more than 47 years' experience of safely operating this nuclear power plant. All the nuclear power facilities of PAEC are being operated under safety guidelines of Pakistan Nuclear Regulatory Authority (PNRA) and IAEA.

When India conducted nuclear tests in 1974, all the pressure shifted on Pakistan. Suppliers stopped nuclear fuel being used for KANUPP. I think that was a turning point for us as it proved like a blessing in disguise. We started working to develop fuel for KANUPP, indigenously. Ever since we have successfully

fuelled KANUPP with our own resources, while maintaining zero failure rate. That is because PAEC believes in vigilant, dedicated team work, while being quality conscious for the end products.

In the year 2000, we got another nuclear power plant namely Chashma-1 of generation capacity, 325 MW. Then in the year 2011, we started our Chashma-2 nuclear power plant, of 325 MW followed by connection of Chashma-3 and Chashma-4 to the national grid in, 2016 and 2017. Hence 1330 MW is added to the national grid by all nuclear plants at Chashma.

EU: What is your opinion regarding reservations and concerns of certain circles regarding development of K-2 and K-3 plants near Karachi?

Mr. Naeem: K-2 and K-3 are third generation nuclear power plants being constructed in the country with enhanced safety features. These plants will have double containments to withstand any accident regardless of its severity. Regarding Tsunami and other natural calamities, a lot of work has already been done during our 47 years of operating experience of KANUPP. For all such risks, the soil and geological features of the plant sites have been thoroughly investigated. We have also performed studies to ascertain seismological type of the area. You must have come to know that firstly Canadians worked a lot on this site and then Chinese also extensively worked here. PAEC also has very strong teams dedicated for site selection. Site selection for such a project is never an easy job and requires a specialized and unique set of skills and expertise. We fully understand threats posed by the possibilities of a tsunami and other natural calamities but K-2 and K-3 are at a much higher elevation than the maximum height of waves that could be generated.

Considering the safety margins designed in these plants, we can claim with certainty that no safety consideration have been left unaddressed. All the reviews of international standards were carried out to assess the safety of K-2 and K-3. Furthermore, Chinese experts have gained a lot of experience in the construction of nuclear power plants and they have now achieved excellence in this field.

EU: Please inform, is Pakistan capable to run and maintain these power plants?

Mr. Naeem: Pakistanis are fully responsible for maintenance and operations of KANUPP and four nuclear power

plants at Chashma. Chinese will remain here until the installation of the new nuclear power plants. They will hand over the control of nuclear power plants to us upon completion. Our scientists, engineers and technicians are well qualified and skilled to operate and maintain NPPs.

EU: What is contribution of PAEC for promotion of agriculture sector?

Mr. Naeem: Agriculture is a very important area where we have performed exceptionally well. We have given to our farmers 115 varieties of various important crops including that of wheat, cotton, and oil seeds. We developed bio-control techniques in which friendly insects are used to eliminate harmful insects that destroy important crops. We observe a farmers' day every year where leading farmers representing different rural areas of every province are invited. The farmers who attend this event are always full of praise for the services PAEC has been rendering for them. Now 30 to 40 percent of the total cropped area of some crops utilise the seed varieties developed by PAEC centres. We have developed indigenously land levelling system using LASER technology, which is being used by our farmers for land levelling.

It is very encouraging to hear that people have confidence in us. PAEC has always been given preference, whenever there has been a need to analyse any pesticide or fertilizer in the country. We also have an institute for performing research in genetic engineering named NIBGE in Faisalabad. Then we have another institute NIAB also in Faisalabad for developing new varieties of crops. We need more land for multiplying our seed production and for increasing our contribution in agriculture sector. Take a look at varieties of cotton seed, NIAB-78 and NIAB-81 which have revolutionized production of cotton in the country with cumulative impact that would go into billions of rupees.

EU: Would you like to share contribution of PAEC in development of human resource in the field of nuclear and allied sciences?

Mr. Naeem: We have our own university PIEAS to develop human resource according to our need. PIEAS is a top ranking engineering university in the country. It is ranked 375th best university in the world in the discipline of engineering. It has also ranked in top 50 world universities that are less than 50 years of age. We have a commitment to train human resource utilizing highest research

and development standards. We have established training centres, namely KIN-POE and CHASCENT for training of personnel of nuclear power plants. In Pakistan Welding Institute (PWI), we train latest welding techniques to manpower from local as well as foreign industries on state of the art welding tools. We also organize International Nathiagali Summer College for last 45 years where renowned experts and academicians, including Nobel Laureates, are invited from all over the world to share their research with our people. We have MS degree programme in the fields of Oncology, Radiotherapy, and Nuclear Medicine for the doctors who join us in our 18 cancer hospitals.

EU: Please share the work done by PAEC for socio-economic uplift of the people hailing from less developed areas?

Mr. Naeem: The population living in the surrounding areas of any type of PAEC project is the primary beneficiary as they get jobs, education and health facilities. We open dispensaries and schools in remote areas. We also provide clean water to them, which is a great problem for residents of such low developed areas. Local people always get preference for jobs according to their qualification wherever our projects are being built. Only if people of the area do not qualify on merit for some of our jobs, we bring people from other parts of the country to fill these positions and that too on merit as we are a national organization.

EU: And lastly, we are these days facing challenges imposed by Covid-19 Corona virus pandemic. Could you share performance and activities by PAEC to control Covid-19 and treatment of patients?

Mr. Naeem: PAEC took initiative in utilizing all its means to fight against Covid-19 pandemic. Upon PAEC request, IAEA has agreed to provide machines, Kits and Level-3 Cabinets for the testing of Covid-19 virus. PAEC has established testing service at PAEC General Hospital, Islamabad. We are also engaged with authorities to establish Isolation Centres for Covid-19 patients. We are also producing hand sanitizers and disinfectants in bulk which is being provided to National Disaster Management Authority (NDMA). Moreover, all PAEC employees have contributed according to their seniority, one to three-days pay in Prime Minister's fund for Covid-19. ■