

PAKISTAN-IAEA COOPERATION SET TO STRENGTHEN

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(Views expressed in the brief are those of the author, and do not represent those of ISSI)



Pakistan and the International Atomic Energy Agency (IAEA) are all set to increase collaboration in peaceful applications of nuclear and technology, particularly in agriculture and medicine. Director General IAEA Mr. Rafael Mariano Grossi visited Pakistan on February 15-16, 2023. During his visit, he was given a glimpse of how Pakistan is using nuclear technologies in the field of energy, agriculture, medicine and industry to promote socioeconomic development. Pakistan has an impeccable nuclear safety and security record that makes Pakistan's peaceful nuclear programme a success story.

Director General Grossi met with Prime Minister Shehbaz Sharif, Foreign Minister Bilawal Bhutto Zardari, and Minister of Planning and Development Ahsan Iqbal, and spoke on the effects of Climate Change and how nuclear science and IAEA are helping mitigate the effects of Climate Change. Pakistan is one of the top ten most vulnerable countries in the world. While it is responsible for only 0.4 per cent of global carbon emissions it has borne the brunt of Climate Change in the form of devastating floods in 2022 that not only claimed lives but caused widespread displacement and damages to the tune of more than US\$ 30 billion.

One of the biggest achievements of nuclear technology in Pakistan is in the nuclear energy sector which was showcased to Mr. Grossi who visited Chashma Nuclear Power Plant and inaugurated the site's new spent fuel dry storage facility. Pakistan has six nuclear power reactors at two sites that

generate 12 per cent of the total energy mix.¹ It is a low-carbon-emitting energy source and produces about one-fourth of the country's low-carbon electricity. Pakistan plans to increase nuclear power generation in its energy mix, which will go a long way toward its goal of achieving zero carbon emissions for the energy sector by 2050. All of Pakistan's nuclear power plants are under IAEA safeguards. Moreover, Pakistan has had an impeccable nuclear safety and security record for almost six decades of nuclear power generation.²

Pakistan has made remarkable achievements using nuclear technologies in the health sector. Mr. Grossi visited the Nuclear Medicine Oncology and Radiotherapy Institute in Islamabad, which is one of the 19 cancer hospitals providing treatments to over 1 million patients annually.³ He inaugurated a new cancer treatment facility Cyberknife. Under the IAEA initiative – Rays of Hope - Pakistan would be able to support neighbouring countries for cancer treatment access by becoming a regional centre. Through Rays of Hope IAEA seeks to increase cancer care access in low and middle-income countries by improving radiation medicine capacities and building a cancer care workforce.⁴

Pakistan also has considerable achievements in successfully applying nuclear technologies in Agriculture. Mr. Grossi visited the Nuclear Institute for Agriculture and Biology (NIAB) in Faisalabad and designated it as an IAEA Collaborating Centre in agriculture and biotechnology. The two have already been collaborating in developing Climate-Change-resilient cotton varieties. For years Climate Change has affected the production of cotton in Pakistan but through IAEA collaboration, new and improved varieties of cotton were released, which are resistant to harsh weather and improved production of cotton by 30 per cent since 2016.⁵ Using nuclear technology Pakistan has developed more than 125 crop varieties with higher yields, better quality and stress tolerance. Pakistan has also used nuclear technologies in the agriculture sector for pest control technologies, plant nutrition and water management, animal health and productivity, food decontamination and preservation. NIAB is also a national laboratory under the IAEA's ZODIAC initiative for combating zoonotic diseases that are spread by animals and future pandemics.

¹ "Energy," Pakistan Economic Survey 2021-2022, P.266

² For more information see Ghazala Yasmin Jalil, "Nuclear Energy in Pakistan: Prospects and Challenges," Issue Brief, December 21, 2022, <https://issi.org.pk/issue-brief-on-nuclear-energy-in-pakistan-prospects-and-challenges/>

³ "Cancer Hospitals," Pakistan Atomic Energy Commission, <https://paec.gov.pk/Medical/>

⁴ "Pakistan and IAEA Accelerate Nuclear Cooperation to Address Climate, Food and Health," February 16, 2023, <https://www.iaea.org/newscenter/news/pakistan-and-iaea-accelerate-nuclear-cooperation-to-address-climate-food-and-health>

⁵ Carley Willis, "Cotton in Pakistan: How Nuclear Techniques are helping the Textile Industry," IAEA, January 22, 2021, <https://www.iaea.org/newscenter/news/cotton-in-pakistan-how-nuclear-techniques-arehelping-the-textile-industry/>

The Director General IAEA also visited the Pakistan Institute of Nuclear Science and Technology (PINSTECH) and inaugurated a dosimetry laboratory. He also visited the Pakistan Centre of Excellence in Nuclear Security (PCENS) and appreciated the high standard of the facility and expressed a wish for further collaboration. The Director General also inaugurated the National Radiation Emergency Coordination Centre (NRECC) in Islamabad. Furthermore, he also toured the National Institute of Safety and Security (NISAS) of the Pakistan Nuclear Regulatory Authority (PNRA) which is already an IAEA Collaborating Centre for nuclear security education, training and technical support since October 2022.⁶ It is one of only ten IAEA collaborating centres around the world on nuclear security. It is a matter of great pride for Pakistan and serves to underscore the high standards in nuclear safety and security that it has maintained.

Pakistan is a founding member of the IAEA since 1957. Pakistan and the IAEA have a long history of collaboration. Pakistan has benefitted immensely from IAEA collaboration and is now in a position to help other countries under the ambit of the IAEA. In September 2021, IAEA and Pakistan signed an agreement called Practical Arrangements to enhance cooperation and share Pakistan's technical expertise with Member States.⁷ It is providing an IAEA-sponsored forum for African countries' collaboration in agriculture, human health, training and regulation. The visit of the Director General IAEA afforded an opportunity to further strengthen Pakistan-IAEA cooperation in the area of peaceful applications of nuclear technology for the socioeconomic development of the country.

Pakistan has been using nuclear technology for power generation, health, agriculture, hydrology, industry and the environment. Nuclear technologies are helping achieve many of the 17 UN sustainable development goals (UNSDGs) in Pakistan like health and well-being, zero hunger, clean water and sanitation, affordable and clean energy, quality education, industry innovation & infrastructure, mitigation of Climate Change, sustaining life on land and below water and to increase cooperation with other countries to achieve SDGs. The promotion of peaceful nuclear technology is not only playing an important role in national development but will also help fight the scourge of Climate Change. Pakistan has been using nuclear technology to advance socio-economic development and progress. Moreover, Pakistan has a spotless record of the safety and security of its nuclear power plants as well as maintaining high standards of nuclear safety and security. The

⁶ Vasiliki Tafili "Pakistan National Institute of Safety and Security Becomes IAEA Collaborating Centre for Nuclear Security Education, Training and Technical Support," October 12, 2022, <https://www.iaea.org/newscenter/news/pakistan-national-institute-of-safety-and-security-becomes-iaea-collaborating-centre-for-nuclear-security-education-training-and-technical-support>

⁷ Omar Yusuf, "IAEA and Pakistan Atomic Energy Commission Sign Agreement for the Peaceful Use of Atomic Energy," October 4, 2023, <https://www.iaea.org/newscenter/news/iaea-and-pakistan-atomic-energy-commission-sign-agreement-for-the-peaceful-use-of-atomic-energy>

country is also in a position to assist other regional countries in benefiting from peaceful uses of nuclear technology.

Enhanced Pakistan-IAEA cooperation will not only benefit Pakistan but will also be beneficial to regional countries within the framework of IAEA. The visit of the DG IAEA was a step in the right direction for promoting these objectives. It not only helped showcase Pakistan's achievements in peaceful nuclear technologies but also highlight the country's impeccable safety and security record, thus, promoting the positive image of a responsible nuclear state.