

Chapter 18

The Pakistani National Perspective on Nuclear Non-proliferation



Muhammad Naeem

I would like to thank the organizers of the 21st Amaldi Conference for giving me an opportunity to speak on Pakistan's perspectives on nuclear non-proliferation. In doing so I shall cover aspects of nuclear safety, safeguards, nuclear security and other measures to strengthen non-proliferation efforts in Pakistan.

Ladies and Gentlemen,

Pakistan is a country of over 220 million people which makes us the 6th most populous country of the world. Pakistan is a developing economy, which is seriously threatened by climate change and we are making best efforts to meet the UN sustainable development goals.

In the contemporary world, concerns about nuclear proliferation and security have taken a centre stage as these are thought to be dangerous threats to international peace and stability. Pakistan remains committed to the objectives of enhancing non-proliferation efforts. For the purpose Pakistan has been fully engaged with international community for promotion of nuclear safety, security and safeguards.

The areas where Pakistan has instituted measures in the broader realm of nuclear non-proliferation and nuclear security are, legislative, legal, regulatory, institutional development, enforcement and international cooperation. I shall dilate upon each of these, but let me first underscore that Pakistan appreciates the measures taken by IAEA and UN through various conventions and initiatives.

This conference would enable us to coordinate and synergize the work of the international community in the theme areas of this conference.

Ladies and Gentlemen,

The genesis of Pakistan's nuclear program was when we joined the US 'Atoms for Peace' programme in late fifties. We were among the founding members of the International Atomic Energy Agency (IAEA).

M. Naeem (✉)

Pakistan Atomic Energy Commission, Islamabad, Pakistan
e-mail: chairman@paec.gov.pk

© The Author(s) 2020

L. Maiani et al. (eds.), *International Cooperation for Enhancing Nuclear Safety, Security, Safeguards and Non-proliferation*, Springer Proceedings in Physics 243, https://doi.org/10.1007/978-3-030-42913-3_18

115

Since the establishment of Pakistan Atomic Energy Commission in 1956, we have been working to use nuclear science & technology for socio-economic development and have made some significant strides.

To follow the military path of nuclear energy was forced on Pakistan by events of separation in 1971 and so-called peaceful nuclear explosion in our neighborhood in 1974. Despite this, our military nuclear capability is for self-defence and we have always demonstrated restraint and responsibility. From 1974 to 1998, Pakistan made several proposals for keeping South Asia free of nuclear weapons; which also included proposals for application of Comprehensive Safeguards Agreements in South Asia. However, the events in 1998 ended the prospects of a nuclear weapons free South Asia.

I would like to raise here briefly the spectre of serious developments taking place in our region, marked by one country's quest to establish its hegemony despite pending UN resolutions. Its relentless accumulation of arms and nuclear capabilities coupled with aggressive policies & doctrines is likely to affect the regional stability. Suffice to say that Pakistan is compelled to take certain measures in safeguarding our security and sovereignty.

For us, the best guarantee, for peace and stability and against any arbitrary actions by bigger powers, remains a strong non-discriminatory rule-based global order. A robust non-proliferation regime is the central pillar of such a rule-based order, and the IAEA safeguards are a critical component of this regime.

Since our nuclear testing in 1998, Pakistan started formalizing its nuclear institutions under unified authority called 'National Command Authority' (NCA) established in 2000, with Strategic Plans Divisions (SPD) as its secretariat. NCA is the apex decision making body, chaired by the Prime Minister which exercises complete control over all aspects of policy, procurements, operations, employment and nuclear security; in open and military aspects. Within this framework, SPD develops technical solutions, personnel and human reliability programs, and intelligence capabilities to deal with nuclear security, non-proliferation and WMD terrorism.

When it comes to non-civilian area, I can assure this August House with confidence that all our strategic assets are fully secure and under the effective centralized command and control of the National Command Authority.

Ladies and Gentlemen,

Pakistan is among the oldest operators of nuclear power plants. Currently, PAEC operates five nuclear power plants while two 1100 MWe each near Karachi are expected to be connected to grid in next two years. In line with our Government's vision, our national goal is to expand our nuclear energy capacity to about 40,000 MWe as envisaged in our National Nuclear Energy Vision 2050.

In pursuance of our commitment to the global non-proliferation objectives, Pakistan continues to support the IAEA safeguards system and has always worked with other IAEA member States in strengthening the safeguards system while ensuring its credibility, objectivity and robustness. Pakistan accords highest priority to the nuclear safety at the plant and the regulatory levels. A system peer reviews is supplemented by WANO and IAEA's missions. After Fukushima accident, Pakistan carried out

detailed assessment of its NPPs. We revised all safety parameters, emergency preparedness and response besides improving the operator's training, response protocols and procedures.

All our civilian nuclear power plants remain under IAEA safeguards with an excellent implementation record and we intended to continue this approach in the future as well. In order for safeguards to remain as guarantor in the non-proliferation regime, it is essential that there be no loopholes, which could allow any state to pursue pathways of diversion. States with similar safeguards measures without any exception. Non-discriminatory and even-handed approaches are essential for the credibility of the IAEA safeguards system.

Ladies and Gentlemen,

Nuclear safety and security continues to remain subjects of paramount importance for Pakistan. We take them seriously because of our own national interest. I earlier spoke a little about our extensive civilian nuclear program. It is of utmost importance that the civilian nuclear program continues to enjoy the public confidence in Pakistan and that can happen only when nuclear technologies are pursued in safe and secure manner.

Safe and sustainable nuclear energy is essential to advance our development agenda. We believe that it is imperative for the sustainability and expansions of nuclear power. Pakistan has been running a safe civilian nuclear power program for about five decades.

Overtime, the Pakistan Nuclear Regulatory Authority (PNRA), an autonomous body, has developed a sustainable nuclear safety regulatory system for the power reactors, and established response and recovery capabilities for radiological sources. Our efforts in nuclear safety were publicly recognized by the late Director General Yukiya Amano when he visited Pakistan in early 2018.

PNRA continues to review and update its regulations in light of extensive national experience and IAEA safety standards. For instance, during preceding year three additional regulations have been issued. The regulatory oversight program of PNRA is based on International proven practices and has been subjected to peer reviews by the experts from other nuclear regulatory bodies through various IAEA Expert Missions such as International Regulatory Review Team (IRRT), Education and Training Appraisal (EDuTA) and International Regulatory Review Service (IRRS).

In pursuit of safe use of nuclear technology, PNRA is now building capacity of other embarking countries. Pakistan has provided expert services to different countries in Asia, Africa and Europe for developing nuclear safety and physical protection infrastructure for nuclear power programs. For instance, it has recently concluded an agreement with Nigerian Regulatory Authority under IAEA aegis and arranged a training course for Malaysian Atomic Energy Licensing Board.

As a party to the Convention on Nuclear Safety, the Convention on Early Notification of Nuclear Accident, and the Convention on Assistance in case of a Nuclear Accident or Radiological Emergency, Pakistan has been contributing to the nuclear safety framework. We are also implementing instruments such as Code of Conduct on Safety and Security of Radioactive Sources, along with its two Supplementary Guidance documents, and the Code of conduct on the Safety of Research reactors.

Pakistan Atomic Energy Commission is running 18 nuclear oncology medical centres where approximately one million patients are treated each year. We have been actively using radioactive sources in cancer therapy in these medical centres in the country to treat local and patients from our neighboring countries. Besides this, PAEC also runs four agriculture and bio-technology research centres, which have produced over a hundred high yielding, drought and pest resistant crop varieties and are also working in other nuclear techniques for pest management. Our regulatory authority maintains and inventory of all radioactive sources in the country and also conducts periodic physical inspections to ensure their safe management throughout their lifecycle.

Having made considerable progress in the nuclear research and development, Pakistan has also attained significant supplier's capability. We have in the past and are currently also manufacturing heavy parts and equipment and providing technical assistance to CERN.

Ladies and Gentlemen,

Now I will highlight some of the efforts we have made in nuclear security. Pakistan strongly supports the fundamental principle that nuclear security is a State Responsibility. Effective measures taken at the national level contribute to nuclear security internationally.

Pakistan has always maintained that the IAEA has a central role in coordinating international activities in the field of nuclear security, which leads to strengthening nuclear security globally. We acknowledge the IAEA's role in assisting states, upon their request, in their efforts to put in place effective nuclear security measures.

As a responsible state with advance nuclear technology, Pakistan has developed and deployed a comprehensive nuclear security regime that encompasses not just physical protection of materials and facilities, but also material control and accounting, transportation security, prevention of illicit trafficking, border controls, and have prepared plans to deal with any future radiological emergencies.

Our large security force is professional and agile and it also includes a Special Response Force (SRF) which has a rapid air lift capability based on dedicated aviation resources. An integrated intelligence system has been instituted to provide depth in defense. Multi layered defence is the corner stone of Pakistan's nuclear security architecture and deploys a variety of physical and technological systems. We run a strict Personnel Reliability Programme to deal with non-proliferation and insider threats, maintaining a Material Protection Control & Accounting (MPC&A) Program with a holistic goal of physical security, safety, accountability and verification.

We regularly review and update our nuclear security regime in the light of IAEA guidance documents and the international best practices. We have developed "Regulations on Physical Protection of Nuclear Material and Nuclear Installation (PAK/925)", which are based on IAEA nuclear security recommendations contained in INFCIRC/225/Rev5.

Pakistan is party to important international instruments and conventions related to nuclear security; for instance, the Convention on Physical Protection of Nuclear Material and its 2005 Amendment. We have been participating in the IAEA Incident and Trafficking Database (ITDB).

Pakistan's Centre of Excellence for Nuclear Security has grown into a regional and international hub for nuclear security training and has conducted various IAEA courses with participants from over 45 countries. It won accolades from the late DG IAEA when during his visit to the Centre in March 2014, said "It is very impressive that you organize the training in a very systemic and operational manner". The previous US Under Secretary Rose Goettmueller had also appreciated the Centre of Excellence on record during a US Congressional hearing.

As a further demonstration of our commitment towards nuclear security, Pakistan has recently joined Nuclear Security Contact Group by subscribing to INFCIRC/899. Moreover, Pakistan is also actively considering undertaking an IPPAS Mission at the earliest opportune time.

A systematic effort to upgrade nuclear security at all Nuclear Power Plants (NPPs) and nuclear medical centres is being continuously undertaken. Under the IAEA-Pakistan Nuclear Security Cooperation Program, physical security at Karachi Nuclear Power Plant (KANUPP) is being upgraded through installation of a sophisticated land-based physical protection system. Moreover, in order to address threat from sea-side, an integrated Maritime surveillance System (IMSS) is being installed to enhance detection and response capabilities. Similarly, physical protection measures at the 14 nuclear centres with category-1 sources are being upgraded.

As part of its safety and security regime, Pakistan has established PAEC Emergency Response and Coordination Centre (PERCC), which remains operation around the clock to coordinate response activities in case of any emergency at PAEC facilities. A Nuclear Emergency Management System (NEMS) has been established at the national level to handle nuclear or radiological emergencies. Under NEMS, 30 Radiological Assistance Groups (RAGs) have been established and trained to perform response actions in the affected areas. Several training courses for the first responders, emergency response personnel and officers have been conducted for emergency preparedness and response.

National Radiation Emergency Coordination Centre (NRECC) and nuclear security Emergency Coordination Center (NuSECC) have been established at the headquarters of our regulatory authority as a national contact point with the international community and the IAEA.

Over the years, Pakistan has acquired considerable experience as well as expertise in the field of nuclear safety and nuclear security. We are willing to offer assistance to interested States in response to specific requests in this area.

In furthering our non-proliferation efforts, Pakistan has also instituted stringent national export control regime, which is at par with best international standards. The regime consists of legislative, regulatory, administrative and enforcement measures. Comprehensive Export Control legislation was enacted in 2004, also published as IAEA document (INFCIRC/636 Nov 30, 2004).

Strategic Export Control Division was established in 2007 at our Ministry of Foreign Affairs as an implementing arm which contributes towards non-proliferation and security through effective export management of sensitive goods and technologies. Pakistan's National Control List (NCL) are harmonized with the export controls

maintained by NSG, Australia Group and MTCR, which are regularly updated, last one published as INFCIRC/928 in January 2019.

The national Detection Architecture (which is a work in progress) includes use of detection devices at several entry and exit points as well as other random check points to deter, detect and prevent illicit trafficking of nuclear and radioactive materials. The integrated Cargo Container Control (IC-3) facility at Port Qasim near Karachi is a Container Security Initiative (CSI) compliant port. Pakistan is among the few states who have submitted five reports to the UN Security Council's 1540 Committee.

Ladies and Gentlemen,

Pakistan recognizes its obligations as a responsible nuclear State. We have strengthened our national control systems, nuclear export controls and nuclear security system at par with international standards. Pakistan has clean sheet with regards to nuclear safety and security incidents. In last two decades there has not been even the slightest of blemish on Pakistan's part with regards to nuclear proliferation.

Having said this, it is imperative for global non-proliferation norms to flourish in such a way that no amount of political, strategic or commercial interests should be allowed to side-step it. Civil nuclear cooperation should follow only after such sufficient legally binding assurances on non-proliferation are obtained. However, unfortunately we have seen instances where cooperation increasingly taking place despite the fact that pathways exist for diversion. This is resulting in huge imports of fissile materials and technologies thereby significantly adding to their military capability. On the other hand, barriers are placed in the way of gaining equitable and non-discriminatory access to the international civil nuclear market for legitimate peaceful uses.

Pakistan believes in an equitable, non-discriminatory and criteria-based approach to advance the universally shared goals of non-proliferation and promotion of peaceful uses of nuclear energy. Pakistan applied for membership of the Nuclear Suppliers Group (NSG) in May 2016. As a country with significant nuclear program and advance nuclear technology with ability to supply items controlled by the NSG, Pakistan's participation will further the non-proliferation objectives of the Group. Pakistan, therefore, sees its NSG membership as a mutually beneficial proposition.

We also strongly believe that there is a need to strengthen global non-proliferation norms. But any progress will only be sustainable, if it is based on non-discriminatory criteria and does not seek to maximize the interests of few at the expense of global and regional strategic stability.

Let me thank the organizers of Amaldi Conference once again for inviting me and providing me the opportunity to present Pakistan's perspective on these important issues.

Thank you indeed.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

