STRATEGIC VISION INSTITUTE

VISION

VISIONARY INSIGHTS INTO THE STRATEGIC INQUESTS OF NATIONS

SVI FORESIGHT

VOLUME 7, NUMBER 5

MAY 2021

Compiled & Edited by:
Haris Bilal Malik

Strategic Vision Institute
Islamabad

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SVI aims to project strategic foresight on issues of national and international import through dispassionate, impartial, and independent research, analyses, and studies. The current spotlight of the SVI is on national security, regional and international peace and stability, strategic studies, nuclear non- proliferation, arms control, and strategic stability, nuclear safety, and security and energy studies.

SVI Foresight

SVI Foresight is a monthly electronic journal. It has a multi-disciplinary perspective highlighting contemporary strategic and security studies. The Journal is envisioned to be a collection of policy-oriented articles written by its Research Associates, Visiting Faculty, and professional experts. The objective is to provide the readership with a concise all-around and real-time policy-oriented discourse on contemporary strategic regional and international developments, highlighting their relevance to Pakistan.

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Editor's Note

It was May of 1998 when India decided to demonstrate its nuclear capability and Pakistan was left with no choice but to follow the same suit. Consequently, this has turned an already contentious inter-state conflict into a nuclear flashpoint. It is time for the international community to accept a nuclear South Asia so the debate can move towards integrating India and Pakistan into the institutional framework of nuclear non-proliferation. But for any such agreement, the international community must recognize the need for a non-discriminatory nuclear non-proliferation regime for South Asia.

Pakistan has shown remarkable dedication and innovation in the indigenous development of nuclear capability for peaceful purposes. In order to meet its ever-increasing energy requirements, Pakistan has been significantly increasing the role of nuclear power in its overall energy mix that is rather an affordable alternative to fossil fuels. In May 2021, Pakistan formally started the commercial operation of the 1,100 Megawatts (MWe) Unit-2 of the Karachi Nuclear Power Plant (KANUPP) commonly known as the K-2. It was linked to the national grid in March 2021. In an effort to quench the economic woes and energy crisis, Pakistan must continue working on the peaceful application of nuclear technology. The clean history of the utilization of nuclear energy is an indication of Pakistan's commitment towards the utilization of nuclear power for peaceful purposes. Pakistan can rely more on nuclear energy to fulfill its future energy demands. It has an impeccable record of maintaining the safety and security of its nuclear infrastructure. Pakistan is a distinguished member of the IAEA and has served on the board of governors twenty-one times and chaired it twice, which shows the recognition of credentials of Pakistan as a responsible nuclear state. However, the fact remains that regardless of such a track record, Pakistan has been facing discrimination from the international arrangements on nuclear technology and its peaceful uses as compared to its regional counterpart India.

Hypersonic weapons are the latest trend in the revolution of military affairs. The proliferation of hypersonic weapons has also echoed in the South Asian region, with India having tested the hypersonic technology demonstrator vehicle (HSTDV) and is developing BrahMos-II. In South Asia, hypersonic weapons pose a greater risk to regional stability. A region having two nuclear rivals, who have developed tactical nuclear weapons as well, the acquisition of hypersonic weapons, along with the access to the latest technology by India under its deal with the US (BECA), the strategic tilt could be towards India.

This volume of the *SVI Foresight* provides a very thought-provoking insight in view of the overt South Asian nuclearization in 1998. It is opined that the nuclearization was primarily a consequence of India's desire to dominate the security calculus of the region and undermine

Pakistan's security. However, the acquisition of nuclear capability by Pakistan has since then emboldened it with a credible and reliable deterrence posture which ultimately guaranteed a strategic equilibrium in the region. Even now, 23 years after the nuclearization of South Asia, Pakistan's nuclear capability continues to hold the burden of strategic stability in the region. Since India and Pakistan entered the nuclear club, global concerns have aggravated due to the threat of vertical nuclear proliferation in the region. If we go back to history, in 1968, the Non-Proliferation Treaty (NPT) was introduced as a cornerstone to restrain the proliferation. However, due to the US' fluctuating non-proliferation policy towards India and Pakistan, the NPT has lost efficacy, especially in the South Asia context. Pakistan, however over the years has proposed various regional or bilateral non-proliferation agreements but the prospects of all such arrangements have been limited due to severe Indian opposition.

Coming towards a recent incident in India where the authorities have apprehended two men after seizing over fifteen pounds of highly radioactive uranium in Mumbai. This has further exposed the lack of internal security mechanisms for the safety of nuclear material and facilities. Indian private contractors are involved in the illicit procurement of goods and materials for use in unsafeguarded nuclear facilities. It is opined that such a security lapse could have been a top story in international media. Not only just that, but the custodians of the nuclear non-proliferation regime would also have initiated a multilateral investigation of such an incident. India is the only country that has been given the waiver by the NSG to conduct nuclear trade with other states; it was required to put its civilian nuclear facilities under IAEA nuclear safeguards. The recent incident of theft of highly radioactive Uranium is no doubt evidence of Indian non-adherence to the international practices of nuclear safety and security. Unfortunately, this has been deliberately ignored by the proponents of nuclear non-proliferation time and again. Ironically, not just the western powers have remained quiet about this incident; we find no condemnation, not even a statement of concern from IAEA.

One of the articles analyzes how Afghanistan's sputtering peace process effectively stalled following President Biden's announcement of a delayed timetable for US troop withdrawal from the country. The US unconditional exit threatens to take the country back to square one, some twenty years ago. If the US exit from Afghanistan is going to be a clean one, the Biden administration must put a premium on the intra-Afghan talks on one hand and compliance with the Doha deal on the other. On the Palestine issue, a very significant analysis is provided in this volume the *SVI Foresight*. From time to time, the Palestinian-Israeli conflict resurfaces and takes many precious lives. The recent ceasefire between Hamas and Israel, although violated within a few hours, holds so far; since the situation is returning to normal. However, more than 217 Palestinians, including 63 children and 38 women, have been martyred and 1400 wounded. The Israeli side lost 12 people, including two children. The question is: who will help settle the

Palestine issue and stop Israeli brutality and unlawful acts? The United Nations is nothing but a tool in the hands of five powerful states. Whenever there is any resolution in favor of Palestinians in the UN Security Council, it is vetoed by the US. Washington is providing Israel with around $3 billion annually besides its strategic, political, technical, and technological support. It's the responsibility of the great powers to help settle this issue rather than taking sides. At the very least, the Muslim world must raise its voice in support of Palestinians. In this regard, Pakistan was active in highlighting the Palestinian issue on an international level and stressed ending the Israeli brutalities in Gaza and West Bank. This would discourage future Israeli aggression and help push the UNSC, the EU, and the international community to work for a permanent resolution of the Palestinian conflict.

It is hoped that readers will find a good blend of articles focusing on various aspects of the contemporary security discourse in South Asia.

The *SVI Foresight* team invites and highly encourages contributions from the security and strategic community in the form of opinion-based short commentaries on contemporary political, security, and strategic issues. Any suggestions for further improvements are welcome at our contact address. Please see here the copy of the *SVI Foresight* electronic journal. You can find us on Facebook and Twitter and can also access the SVI website.

Research Associate

Haris Bilal Malik

A Nuclear Non-Proliferation Regime for South Asia: Current Trends

Khawaja Dawood Tariq[*]

It was May of 1998 when India decided to demonstrate its nuclear capability and Pakistan was left with no choice but to follow the same suit. Consequently, this has turned an already contentious inter-state conflict into a nuclear flashpoint. In the last two decades, both states have considerably increased the size of their nuclear arsenal and modernized their delivery system. The proponents of nuclear deterrence propagate that the presence of nuclear weapons raises the threshold in case of escalation in the conflict. The purpose of this article is not to validate nuclear proliferation but to ascertain how to strengthen the nuclear non-proliferation regime. India and Pakistan are two of the three states to never sign the Non-Proliferation Treaty (NPT). These two states represent almost twenty percent of the world population and the fastest-growing nuclear arsenal. Without involving these two states it is impossible to strengthen the international nuclear non-proliferation regime. It is time for the international community to accept a nuclear South Asia so the debate can move towards integrating India and Pakistan into the institutional framework of nuclear non-proliferation.

The Non-proliferation Treaty (NPT) is widely regarded as the cornerstone of the international nuclear non-proliferation regime. The treaty legally restricts states from acquiring nuclear weapons. It designates five states as nuclear-weapon states (NWS), only those who conducted nuclear tests before 1967. Before we start, first thing first, this designation is discriminatory in nature. Second, in spirit NPT envisions eventually to ensure global denuclearization and disarmament but the current trends in the international strategic environment don't point in any such direction. The United States, Russia, and even China are not going to give up their nuclear weapons anytime soon. Nor will India or Pakistan give up their weapons. The most rational thing that can ensure regional strategic stability and minimize any mishap would be to integrate India and Pakistan with independently verifiable internationally accepted safeguards and protocols.

Some of this integration is already happening. Pakistani strategists believe that India has been on the receiving end of preferential treatment from the international community. It is the only country that is not a member of NPT and yet it is still permitted to engage in nuclear trade. India has signed a civilian nuclear deal with the United States with the formal approval of the Nuclear Supplier Group (NSG). In the last decade or so, the United States and its allies have pledged their support publically for India's inclusion into the nuclear non-proliferation regime.

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Well, the fact that the U.S and its allies realize that South Asia has to be a part of the international nuclear community, it is incumbent on those strategists to engage Pakistan as well. They will be well served to remember that NSG was formed in response to India's first nuclear test in 1974.

A lot has been said about Pakistan's nuclear weapon program; some bad, some worse. But nothing and no one can blame Pakistan for initiating a nuclear arms race in South Asia. It was India's first nuclear test in 1974 that prompted Pakistan to initiate its nuclear program. In May of 1998, it was once again the Indian government that decided to hold a nuclear test and all Pakistani leadership did was to communicate their resolve and conducted nuclear tests only in response to Indian provocations.

Since then Pakistan has developed a robust nuclear security regime. Pakistan was termed the most improved country by the 'nuclear security index' in their 2020 annual report. Pakistan has made considerable improvements in security and control measures as new laws and regulations have come into effect. But Pakistan is still being ostracized by the international community. This discriminatory behavior will not serve the purpose of nuclear non-proliferation. It is not possible for a state that developed nuclear weapons as the ultimate form of self defence against a provocative and belligerent adversary. The international community can well easily trace the origins of Pakistan's nuclear program. It developed only to counter India's hegemonic regional designs and it would make for a prudent context for future policy discourse in non-proliferation. Pakistan has demonstrated that it is a responsible nuclear state and it is high time it is treated as such.

Whatever happens in South Asia won't stay in South Asia. It is a global nuclear flashpoint and the international community needs to institutionalize the mechanism that can stop any catastrophe from happening. It cannot force India and Pakistan to back roll their nuclear programs. It can only help establish a non-proliferation regime that can allow both India and Pakistan to maintain strategic maneuverability while ensuring strategic restraint.

Right after India and Pakistan conducted a nuclear test, the Clinton administration made a futile effort to compel both of these states to adopt CTBT and place a permanent ban on the production of fissile material. From a state-centric perspective, it is simply not possible for these states to ban the production of fissile material if they are not allowed to legally engage in nuclear trade even for civilian and peaceful use. However, India and Pakistan can choose to limit their ballistic missile inventories. They can also ensure that warheads are not mounted atop missiles and that missiles are not deployed close to borders. But for any such agreement, the international community must recognize the need for a non-discriminatory nuclear non-proliferation regime for South Asia.

http://southasiajournal.net/a-nuclear-non-proliferation-regime-for-south-asia-current-trends/

Has the US killed the peace process?

Zafar Iqbal Yousafzai[*]

Afghanistan's sputtering peace process effectively stalled following President Biden's announcement of a delayed timetable for US troop withdrawal from the country. And while he failed to acknowledge that this revision violated the US-Taliban Doha agreement — the Taliban, nevertheless, responded by announcing a boycott of all peace talks. Indeed, the Istanbul process scheduled for April 24 was postponed due to the Taliban no-show. Instead of injecting pep and vigor into the process — the US unconditional exit threatens to take the country back to square one, to some twenty years ago.

There remain three main parties to the Afghan peace process: the US, the Taliban, and the Afghan government. Yet prior to September 12, 2020, when the inaugural session of the intra-Afghan talks was held in Doha, Kabul was shockingly sidelined from the peace process. That the US entered into bilateral negotiations with the Taliban simply reinforced the group's position Former president, Hamid Karzai, did his utmost to convince the Taliban to rethink things, yet to no avail. The Taliban are, of course, Afghans and are familiar with their country's politics. It, therefore, appeared illogical for them to talk to Kabul when Washington wasn't ready to. After all, any bilateral deal with the government would have no worth, as the US made blatantly clear.

The US violation of the Doha deadline has dented the country's image. Following last year's talks in the Qatari capital, the Taliban upheld their end of the deal. Washington did not, as was evidenced by a US targeted strike against the group. Surprisingly, the latter overlooked this violation, possibly with one eye on the crucial issue of imminent US and NATO troop withdrawal. Yet the subsequent delay on this front has proved one area where the Taliban refuse to compromise.

The US wants to get out of Afghanistan and bring to an end the longest war waged in its history; no matter that there is no sustainable roadmap to peace. Washington has seemingly forgotten the lesson of the 1988 Geneva Accords, which focused, in part, on time-tabling the Soviet withdrawal from Afghanistan. Then, as now, no attention was paid to what would happen post-drawdown. The fall of the Soviet-installed Najibullah government within four years plunged the country into civil war. The US would do well to remember this for two main reasons. Firstly, a political settlement is vital to a stable Afghanistan that will neither threaten US interests nor its

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national security. Secondly, Washington would be able to tell the whole world that the legacy of its longest war was a secure and peaceful Afghanistan as well as the broader region.

In the meanwhile, there is now an expanded 'troika' comprising the US, Russia, China, and Pakistan, calling for a comprehensive roadmap to the September 11 deadline; commemorating the 20th anniversary of the 9/11 terrorist attacks. Among the key points of the drawdown are the orderly and safe withdrawal of troops; continuation of the peace process; a ceasefire during the talks; the shelving of the Taliban spring offensive; review of UN sanctions on the Taliban; expanding the UN role in the peace process; and ensuring an "independent, sovereign, unified, peaceful, democratic, neutral and self-sufficient Afghanistan".

Being a member of the 'troika', Pakistan's role is vital for multiple reasons. Any instability in Afghanistan threatens to spill over on to this side of the border; as was the case during the Soviet invasion back in 1979 and the subsequent civil war and the post-9/11 US occupation of the country. Pakistan's security and economy are intrinsically linked to the situation next door. All Islamabad requires and seeks is a neutral government in Kabul. Pakistan has a long border with eastern adversary India and therefore can't afford a hostile regime on the other side. Islamabad has long been accused of interfering in Afghanistan but if we look at its position, in many instances, the steps were defensive rather than offensive. Any other country in Pakistan's position would have implemented the same policies towards its neighbour.

If the US exit from Afghanistan is going to be a clean one, the Biden administration must put a premium on the intra-Afghan talks on one hand and compliance with the Doha deal on the other. If nothing is achieved in the coming four months, the most responsible and powerful party to the conflict will be held responsible. If the US misses the new withdrawal deadline and if the Afghan government doesn't show seriousness towards the peace process — the Taliban will be left with nothing to lose by launching a major offensive that could see them ultimately take Kabul.

https://dailytimes.com.pk/755241/has-the-us-killed-the-peace-process/

Role of Nuclear Power in Pakistan's Economic and Sustainable Development

Sher bano[*]

On March 18th, 2021 'Pakistan's Atomic Energy Commission' (PAEC) announced that the 1,100 MW reactor of (KANUPP-2), the second unit of the 'Karachi Nuclear Power Plant' was connected to the national grid. This reactor is ACP-1000 or Hualong One and was supplied on a turnkey basis by 'CNNC' (China National Nuclear Corporation). KANUPP-2 would provide Pakistan with a more reliable and cost-effective source of electricity. This in turn would prove to be beneficial for the economic growth of the country. In order to meet its ever-increasing energy requirements, Pakistan has been significantly increasing the role of nuclear power that is rather an affordable alternative to fossil fuels. Hence this shift towards more reliable, modern, and affordable energy sources would lead Pakistan towards a more sustainable and equitable future.

To achieve the 'SDGs' (United Nations Sustainable Development Goals), Pakistan had been using nuclear technology for the country's socio-economic development. There are diverse fields such as health, hydrology, electricity generation, environment, basic sciences, and agriculture in which nuclear technology is being used. The civil nuclear program of Pakistan is serving as an engine for the achievement of sustainable development goals that is to improve the energy security of the country by further utilizing the nuclear energy potential and becoming less dependent on fossil fuels. The operationalization of KANUPP-2 has further accentuated the aspirations of Pakistan to use nuclear energy for enhancing the power generation capacity of Pakistan. The KANUPP-2 workable life is expected to be 60 years that can be further extended to 80 years and is Pakistan's first nuclear power plant with 1,100 MW of electricity generation capacity. The nuclear power plants are more reliable with a high capacity availability factor, are environment friendly and due to less fuel cost, the electricity price also remains sustainable.

Pakistan had faced an energy crisis during the previous decade primarily because of the existence of a huge gap in the supply and demand of electricity. According to the 2011-2012 report of the Economic Survey of Pakistan, the country was losing around USD 4.8 billion of Gross Domestic Production (GDP) annually for almost five years due to the energy crisis. According to few scholars, the reason behind the energy shortage also lies within the energy mix of Pakistan, which relies excessively on thermal sources (natural gas, oil, and coal) causing high prices of electricity. Today at the end of the decade energy crisis in Pakistan is mitigated by

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planting several new energy generation plants (some of them were part of CPEC) and according to the most recent estimates of April 2020, the energy generation capacity in Pakistan is 35,972 megawatts as compared to 33,452 megawatts of April 2019. In one year Pakistan's electricity generation capacity saw a growth rate of 7.5 %. At present energy demand in Pakistan is 25,000 megawatts; however, transmission and distribution capacity is only 22,000 megawatts, which explains interruptions in power supply in the country. At the moment through nuclear power, Pakistan is generating 8% electricity in total energy mix with five operational nuclear power plants and now KANUPP-2 would also be included.

The function of nuclear power generation falls under the domain of the Pakistan Atomic Energy Commission, along with the promotion of peaceful use of nuclear technology in the field of agriculture, medicine, and industrial projects. Pakistan aims to produce 8,800 MW of electricity from nuclear power by the year 2030 and after advice from PNRA and IAEA six new sites have been selected for this purpose. Usage of nuclear energy for peaceful purposes has always been the main focus of Pakistan, considering the growing energy needs of the country under CPEC nuclear energy would provide Pakistan with a clean and reliable energy source. Unlike thermal sources of electricity generation, nuclear energy protects air quality by producing a massive amount of carbon-free electricity.

Pakistan's adherence to international practices of nuclear safety and security is evident from the very fact that for the past 48 years, Pakistan is producing electricity through nuclear power reactors and not a single major accident has occurred so far. IAEA has declared that the KANUPP-2 reactor ACP-1000 meets the safety standards of the 'Generic Reactor Safety Review' (GRSR). The review of ACP-1000 by the IAEA shows that the reactor has active and passive technology and that it fulfills the safety standards and requirements. Moreover, since March 2017 this reactor has been under IAEA safeguards. Such strong credentials are no doubt an acknowledgment of Pakistan's efforts for peaceful uses of nuclear technology. At the same time, it would help Pakistan to meet the energy demand through a more peaceful, secure, and safe use of nuclear energy.

Hence in order to attain a sustainable future, Pakistan is increasing its reliance on more clean energy alternatives. Pakistan is on its way to building more nuclear power plants to further increase the role of nuclear power in overcoming future energy needs. Pakistan would also need international cooperation to meet its goal to have self-sufficiency in nuclear power and to further develop its nuclear power industry.

http://southasiajournal.net/role-of-nuclear-power-in-pakistans-economic-and-sustainable-development/

Operationalizing the K-2: Another Milestone towards Nuclear Energy

Haris Bilal Malik[*]

Peaceful use of nuclear technology is a subject of great deliberation whenever the dual-used technologies are to be discussed and analyzed at the international level. Pakistan has shown remarkable dedication and innovation in the indigenous development of nuclear capability for peaceful purposes. It possesses a robust peaceful nuclear program, roots of which go back to the early 50's when the US 'atoms for peace' initiative was launched. Along with serving as a key component of ensuring the strategic deterrence at the regional level for which it was compelled to do so, the nuclear program is primarily focused on meeting the energy demands of the country and other purposes of sustainable development while adhering to the international practices of nuclear safety and security. Currently, nuclear power generation comprises approximately 10% of the overall energy mix of the country. It implies that there is a potential that Pakistan can increase nuclear power generation to further enhance its prominent role in the energy mix. This becomes more relevant and justifiable given the country's future energy requirements for which nuclear energy would serve as a cheap, clean, and sustainable source.

Many states have acquired nuclear technology to overcome the energy challenges they are facing. Since the last few years, in particular, nuclear technology has increasingly become a key source for achieving energy security. Countries that possess nuclear technology, for instance, the US, France, Russia, China, India, and many others have utilized nuclear technology as a cheaper, reliable and sustainable source of energy to fulfill their increasing energy demands. Pakistan has also successfully utilized nuclear technology for peaceful purposes since the inception of its nuclear program. In this regard, Pakistan has been relying on nuclear technology as a cheaper and clean source of electric power generation to fulfill its ever-increasing energy demands. The rationale behind this is to improve the economy of the country while serving a cheaper, reliable, and sustainable source of power generation.

Very recently, in March 2021, Pakistan successfully operationalized its second and much-awaited 'Nuclear Power Plant' (NPP) in Karachi. The Unit-2 of the Karachi Nuclear Power Plant (KANUPP) commonly known as the K-2 has been linked to the national grid. It has the capacity to generate 1,100 Megawatts (MWe) of electricity thus further adding to the nuclear energy component of the overall energy mix of the country. The K-2 is Pakistan's first-ever NPP that has a high generation capacity of 1,100 MWe. The nuclear fuel loading K-2 was initiated in

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December last year since the Pakistan Nuclear Regulatory Authority (PNRA) has given final clearance for that. Further, it was in a critical phase since February this year and was going through various safety and tests before being connected to the national grid; as per the international practices of nuclear safety and security. Likewise, the Unit-3 of KANUPP (K-3) of 1,100 MWe is also at the final stage and expected to be connected to the national grid by the end of this year. Both of these NPPs are under the safeguards of the International Atomic Energy Agency (IAEA). This shows Pakistan's adherence to international practices of nuclear safety and security and commitment towards peaceful uses of nuclear technology.

It is pertinent to mention that Pakistan was the first country in the underdeveloped world to have built a nuclear power plant. In this regard, the Pakistan Atomic Energy Commission (PAEC) constructed Unit-1 of the Karachi Nuclear Power Plant (KANUPP) in 1972 with a power generation capacity of 135 MWe. This later on led to the construction of four additional nuclear power plants at Chasma commonly known as 'Chasma Nuclear Power Plant' (CHASNUPP) these include; CHASNUPP-1, CHASNUPP-2, CHASHNUPP-3, and CHASNUPP-4. These again are under IAEA safeguards, along with support by the US Department of Energy. Pakistan also intends to build the fifth unit of CHASNUPP and two other NPPs at Muzaffargarh with a collective capacity of 3300 MWe. Further, Pakistan has a long-term plan to enhance its capacity of generating electricity by utilizing nuclear energy to a total of 40,000 MWe by the year 2050. As per some other estimates, Pakistan also intends to construct 32 nuclear power plants to boost up its nuclear power generation and contribute towards peaceful uses of nuclear technology. Based on these credentials, Pakistan has been included among those 30 countries that have fully operational nuclear programs. In addition to this, Pakistan has achieved another milestone since it has been included in the 10 countries in the world which have completed the nuclear fuel cycle so far.

While summarizing it all, it is quite evident that Pakistan has very successfully utilized nuclear technology for peaceful purposes. There is proper, organized, and very strict regulatory control over all nuclear-related activities and developments. Pakistan has been adhering to the international practices of nuclear safety and security by following IAEA guidelines. This makes it one of the most committed states that have utilized nuclear technology for peaceful purposes. However, the fact remains that regardless of such a track record, Pakistan has been facing discrimination from the international arrangements on nuclear technology and its peaceful uses as compared to its regional counterpart India. Very recently, India has been badly exposed since a significant quantity of highly radioactive material i.e. uranium was detained by Indian officials from two unauthorized persons. Ironically, the proponents of international non-proliferation have deliberately turned a blind eye to it. This raises questions on the credibility of international arrangements. Regardless of facing such discrimination over the years, Pakistan has demonstrated its commitment and adherence to international norms and successfully utilized nuclear technology for peaceful purposes. Last but not the least; Pakistan should

continue to remain committed to its magnificent journey of peaceful uses of nuclear technology.

https://strafasia.com/operationalizing-the-k-2-another-milestone-towards-nuclear-energy/

Role of Nuclear Energy for Combating Climate Change in Pakistan

Ahyousa Khan[*]

Climate change can be regarded as one of the biggest threats to the future of humanity because of its direct relation with water, food, and human security. Pakistan is among the countries which are highly vulnerable to climate change despite only being responsible for releasing 1% of total greenhouse gas emissions. Since Pakistan is an underdeveloped country with an agrarian base, it has become imperative for the state to take more serious measures to combat the effects of climate change. In this regard, the biggest hurdle for Pakistan is its reliance on thermal sources of power generation. Therefore, in the future to generate more sustainable and environment-friendly electricity, Pakistan can rely more on nuclear energy. Nuclear power generation is a renewable, sustainable, and green source of electricity production. Pakistan while having a very robust peaceful nuclear program can generate electricity from it. So, nuclear energy provides Pakistan with a reliable solution to the two most serious issues to its economic, societal, and national security.

NASA declares "climate change" as a situation where change or fluctuation is observed in the normal weather conditions of a certain area, region, or city; this change could be an overall change in earth's temperature or change in the amount or timings of rainfall or change of temperature in a certain area. Scientists and scholars pin climate change on two reasons; one is natural and the second is unnatural. A natural phenomenon that causes climate change happens because when the Earth revolves around the sun in its orbit annually. It is the unnatural causes of climate change that are degrading the environment of the Earth which primarily is occurring because of the greenhouse gas emissions. Today environmental issues like pollution, sea-level rise, global warming, floods, droughts, and heat waves occur primarily because of fossil fuel burning. This results in the emission of greenhouse gases followed by the release of carbon dioxide. The UN has declared climate change as the most "systematic threat to humankind". However, states are struggling to reduce the effects of climate change and greenhouse gas emissions, according to the estimates these emissions have gone higher than 40 % since 2000. In 2015 "Paris Agreement" was signed to handle the issue by adopting more progressive actions and to keep the rising global temperature below the 2 'C.

One of the important measures to reduce the consumption of thermal sources for energy generation would be to reduce the amount of thermal energy generation by states all around the world. Today the ratio between thermal electricity generation and all other sources of

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electricity generation is 65:35. So, the electricity produced worldwide is causing greenhouse gas emissions which could be reduced by producing electricity through nuclear power. Scientists have estimated that nuclear power reactors produce almost one-third of less carbon dioxide emissions than solar power generators, also emit less carbon dioxide than hydropower generators, and produce the same amount of carbon dioxide as wind power generators. Thus, in this regard nuclear power is one of the substantial alternatives that could bring more diversification in the global energy mix by significantly reducing the global warming and effects of climate change. Pakistan is one of the most vulnerable countries to climate change; every year it faces huge damages because of untimely rains, floods, and heat weave. With the realization that Pakistan needs to counter climate change, the country has started producing electricity more from nuclear energy and is carefully considering not going ahead with two more coal power plants. Pakistan is a signatory of the Paris Agreement of 2015 which works toward lowering down the Earth's temperature to avoid the worst impacts of climate change. To achieve the goal of lowering the temperature it is necessary that by the mid of the century to reduce the greenhouse gas emissions by power generation sources to zero percent.

In such an objective nuclear power is a key player. Other than nuclear power, hydropower is also an important source of power generation which is based on green and renewable energy. However, with growing climate change, drought, underground water shortage, and hanging water crisis with India, nuclear energy would be a source for Pakistan without any outside variable to cause hindrance. Today Pakistan operates a nuclear capability of 2,332 MWe and an additional 1,100 MWe is under construction. Moreover, it would also allow Pakistan to be part of energy diplomacy by offering its capabilities to other states. However, Pakistan's participation in this diplomacy and trade is dependent on the Nuclear Suppliers Group that regulates nuclear and nuclear-related exports to ensure the adherence to the principle of non-proliferation written in the Non-proliferation treaty. Ironically, NSG has given a waiver to India, a non-signatory of NPT, to make a nuclear deal with the US, which was against the non-proliferation principles and norms. Pakistan on the other hand, regardless of its adherence to international practices of nuclear safety and security, has been facing discrimination at the international level.

Realpolitik would play its course, what is important for Pakistan is that in the meantime it diversifies the energy mix by adding more renewable and clean energy generation sources to it. One of the best options available to Pakistan with a huge capability of electricity generation is nuclear power, which should be implored further for less reliance on imported oil and gas for electricity generation. As it would reduce carbon dioxide emission in the country and strengthen Pakistan's action towards mitigating the effects of climate change.

https://www.eurasiareview.com/17052021-role-of-nuclear-energy-for-combating-climate-change-in-pakistan-oped/

India's Pursuit of Hypersonic Weapons: Effect on Strategic Stability in South Asia

Amber Afreen Abid[*]

Hypersonic weapons are the latest trend in the revolution of military affairs. These weapons are believed to travel more than five times the speed of sound, difficult to be detected, and nearly impossible to be intercepted. The major military powers of the world, which includes the US, Russia, and China are investing huge sums of money in the acquisition of this technology. The South Asian region also holds importance and relevance in this regard, as seen by the advancements made by India in the pursuance of hypersonic weapons. Since the advent of mass nuclear power, a stable strategic environment has served as the foundation of peace in the region, which could be averted because of the introduction of such weapons and deterrence equilibrium could be shaken.

Hypersonic weapons are a new trend in the progression of technology. A hypersonic weapon is the amalgam of ballistic and cruise missiles, by adaption of the best features from both; the speed of the ballistic missile, and low altitude flight maneuverability from cruise missiles- thus creating the best kind of weapon in the present era. Hypersonic weapons are generally of two categories, the self-powered hypersonic cruise missile (HCMs) and the hypersonic boost-glide vehicles (HGVs). Both of these types entail the conventional rocket motor for the initial boost. The hypersonic cruise missile is powered by scramjet engines, which generally have a speed of around Mach 5- Mach 10 and operate at relatively low height, in the region of 30 km. Hypersonic Glide Vehicles, on the other hand, travel around 100 km, in space and attain an incredible speed of about Mach 20 while gliding through the upper atmosphere. Alongside many other technical details of the hypersonic weapons, the two foremost features of the weapons comprise high-speed and maneuverability.

The proliferation of hypersonic weapons has also echoed in the South Asian region, with India having tested the hypersonic technology demonstrator vehicle (HSTDV) and is developing BrahMos-II. India has also conducted the scramjet engine test in September 2020, which has been developed for the hypersonic technology demonstrator vehicle (HSTDV). As per the Indian calculations, the development of the scramjet engine would be the key component for the development of hypersonic cruise missiles in near future. Though India has tested the scramjet engine, with a minimum speed of Mach 5, which shows its technological advancement and intent for developing hypersonic weapons in the future, considering the minimum speed of the test, there is a long way to go for India, in developing hypersonic and counting itself in the

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league of elite nations. Very recently, India has reportedly started the coupling of HSTDV-03 with its booster of which the test might be conducted very soon.

Considering India's intent to develop Hypersonic Cruise Missile, there isn't any security concern for India to go for such a venture. The hypersonic missiles potently endow advantage against the nuclear missile defence system, because of its most important specification of maneuverability and speed. But that claim could not be justified as India doesn't have any such kind of threat from either Pakistan or China, as both countries haven't shown any serious intent in the acquisition of such technology. Hence India's acquisition of hypersonic weapons is driven by prestige factors. India, in its acquisition of global power status, to be at par with the US, Russia, and China, is heading towards technological advancements. Also, the domestic political factor plays a huge role in the decision making of India; the scientific community also shores up such ambitious acts, and the Hindutva sentiment being awakened by politicians in their political railings also provoke the acquisition of new technologies, which can inflict huge damage in the South Asian strategic calculus.

The psychology of Mutual Assured Destruction, which upheld the balance of power for decades, could be evaded because of the reliance on hypersonic weapons by the respective states. In South Asia, hypersonic weapons pose a greater risk to regional stability. A region having two nuclear rivals, who have developed tactical nuclear weapons as well, the acquisition of hypersonic weapons, along with the access to the latest technology by India under its deal with the US (BECA), the strategic tilt could be towards India. Moreover, India, following its war-mongering approach, could go the adventuresome venture by conducting the counterforce strike against Pakistan. In the same vein, the Indian aggressive behavior could compel Pakistan to go for the preemptive strike; it might also compel Pakistan to follow the same suit as a countermeasure. Thus, the hypersonic weapons irrespective of their payload-nuclear or conventional- and their efficacy, create instability in the south Asian region and thus leave a dilemma for Pakistan; which would be left with no choice but to revisit its strategy to deal with this Indian threat. In this regard, Pakistan needs to address the issue by either developing supersonic or hypersonic missiles or should at least figure a plausible way out by the provision and implementations of concrete steps vis-à-vis India, in its doctrine and policy-making, for maintaining the deterrence equilibrium in the South Asian region.

https://www.eurasiareview.com/18052021-indias-pursuit-of-hypersonic-weapons-effect-on-strategic-stability-in-south-asia-oped/

Pakistan's Nuclear Capability: Holding the Burden of Maintaining Strategic Stability

Haris Bilal Malik[*]

The South Asian region has always remained vulnerable to conflicts and escalation for many decades. This is primarily because of its ever-increasing volatility and the complex security dynamics of the region. Given the hostile nature of the relationship between India and Pakistan, both countries have fought full-fledged wars and limited conflicts in the past. Even now there exists a continuous fear of war and escalation in the region. For many decades, and even now, the regional security dynamics were all determined by the conventional asymmetry, Indian warmongering attitude towards Pakistan, its acquisition of offensive nuclear capabilities. In such a scenario where Pakistan was facing existential threats from India, the acquisition of nuclear capability by the former was more of a strategic compulsion to enhance its security and preserve its sovereignty. However, since the overt nuclearization of South Asia in 1998, the region has emerged as one of the most crucial regions in the world. The acquisition of nuclear capability by Pakistan has since then emboldened it with a credible and reliable deterrence posture which ultimately guaranteed a strategic equilibrium in the region. Even now, 23 years after the nuclearization of South Asia, Pakistan's nuclear capability continues to hold the burden of strategic stability in the region.

The overt South Asian nuclearization was primarily a consequence of India's desire to dominate the security calculus of the region and undermine Pakistan's security. It became inevitable for Pakistan to take concrete steps to enhance its security. The fact remains that it emerged as a strategic obligation for Pakistan to demonstrate its nuclear capability in order to maintain a balance of power in the region. Pakistan's pursuit of a credible nuclear capability has no doubt equalized the regional strategic balance while neutralizing a broad range of threats coming from India. This notion continues to prevail even today as well. However, the subsequent Indian attempts to undermine the existing strategic balance of the region would likely challenge Pakistan's nuclear threshold. Evidence comes from how India has been actively involved in an all-encompassing and offensive military modernization, its provocative and self-obsessed notions of 'surgical strikes' under a nuclear scenario, and insinuations of drifting away from its stated nuclear use doctrines. These emergent dynamics combined have further undermined the strategic stability of the region in general and Pakistan's nuclear threshold in particular. This becomes more impactful when Pakistan's posture of full-spectrum deterrence that is within the ambit of minimum credible deterrence is to be assessed specifically in the contemporary regional security environment.

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In pursuit of its long-term hegemonic designs and great power aspirations, India has been rapidly augmenting its offensive military capabilities against Pakistan. The ongoing extensive military modernization drive is all aspired to re-adjust the strategic balance of power in its favor. Further, it also intends to be at the decisive end while dominating the escalation ladder of the region. In this regard, India possesses a diverse inventory of ballistic and cruise missiles ranging from short to long-range and also ICMB (Inter Continental Ballistic Missiles). It has developed Ballistic Missile Defence (BMD) Systems and has an agreement with Russia for the supply of the S-400 Air Defence System which is no doubt one of the world's most advanced missile defence shields. Likewise, India has also developed and operationalized some of the world's fastest supersonic missiles and has been rigorously working on the development of hypersonic weapons and space weapons. These advanced missiles are obviously meant for delivering nuclear warheads while providing a significant edge to India and tilting the strategic balance of power in favor of India. Further, India has also acquired Rafale fighter jets from France which are among the most advanced jets in the world. This brief analysis of the Indian military modernization drive indicates that it intends to become a regional hegemon while dominating the region militarily. Thus, further increasing the threat perception of Pakistan and compelling Pakistan to hold the burden of strategic stability in the region.

In addition to these, India's attempt to undermine the strategic stability of the region is also evident in its self-proclaimed existence of 'new normal' in South Asia. Especially at a time when the region seems to be still under the impact of the Pulwama-Balakot crisis of 2019 that resulted in an exchange of hostilities between India and Pakistan; however, Pakistan's nuclear capability emerged as the decisive factor at that time and the crisis did not go beyond a certain level of escalation. This again implies that the burden of maintaining the strategic stability in the region ultimately comes on Pakistan.

To sum up this whole debacle, the Indian strategic aspirations coupled with its offensive military modernization would likely further destabilize the already fragile South Asian region. Similarly, these appear as a deliberate Indian attempt to undermine Pakistan's nuclear threshold and to endanger the strategic environment of the region. Pakistan, on the other hand, which already relies on very calculated response options; the nuclear capability would likely continue to play the decisive role. Given the economic difficulties of the country and its reluctance to indulge in an arms race with India, Pakistan's nuclear deterrence; either full-spectrum or minimum credible would likely serve the purpose of enhancing its security and preserving its sovereignty. Last but not the least, Pakistan's nuclear capability which has ensured strategic deterrence since the beginning and till now can also further hold the burden of maintaining strategic stability in South Asia.

https://strafasia.com/pakistans-nuclear-capability-holding-the-burden-of-maintaining-strategic-stability/

Twenty-Three Years of Nuclearization in South Asia: Evaluating Non-Proliferation Trends From Past to Present

Sher bano[*]

May 28, 2021, marks the 23rd anniversary of the nuclearization of South Asia. It was on this day in the year 1998 when Pakistan conducted six nuclear tests in the Chaghi district of the Southwestern Baluchistan province. This was purely in response to the Indian nuclear tests on the 11th of May. Since India and Pakistan entered the nuclear club, global concerns have aggravated due to the threat of vertical nuclear proliferation in the region. If we go back to history, in 1968, the Non-Proliferation Treaty (NPT) was introduced as a cornerstone to restrain the proliferation. However, due to the US' fluctuating non-proliferation policy towards India and Pakistan, the NPT has lost efficacy, especially in the South Asia context. Pakistan, however over the years has proposed various regional or bilateral non-proliferation agreements but the prospects of all such arrangements have been limited due to severe Indian opposition.

The NPT was formed four decades ago to curtail the spread of nuclear weapons and to enhance civil nuclear cooperation and the main objective was comprehensive global disarmament. This treaty has been regarded by many as a success vis-à-vis nuclear non-proliferation. However, since the overt and inevitable nuclearization of South Asia in May 1998 it arguably has lost efficacy. The NPT has become eroded due to the differential behavior of the US towards Pakistan and India. There have been double standards and discrimination in non-proliferation policies and NPT implementation. On one side to curb the nuclear efforts of some states like North Korea and Iran that are NPT signatories, the US has adopted preemptive doctrine while on the other side it turned a blind eye towards the acquisition of nuclear weapons by states like Israel and India that are non-signatories of NPT. It has described India and Israel as responsible nuclear states that have advanced nuclear technology.

Indian hostility towards Pakistan has been the key factor that has impacted the latter's acuity of non-proliferation, disarmament, and arms control agreements. Pakistan has time and again shown its willingness to sign all the international non-proliferation agreements if India decides to do so. Pakistan was also willing to sign NPT with joint/bilateral agreement to full scope inceptions and safeguards. This offer was given by Gen. Muhammad Zia ul Haq to India three times, in the years from 1984 to 1987 but India rejected it. Moreover historically Pakistan has always been a supporter of (CTBT) 'The Comprehensive Nuclear Test Ban Treaty) objectives but because of the growing capabilities of India such as SLBMs, CMs, and ICBMs Pakistan could not sign the treaty. While India's reason for not signing the treaty was that CTBT doesn't allow it to

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carry out any kind of explosions and it curtails the development of nuclear weapons. Similarly, Pakistan also could not sign (FMCT) the 'Fissile Material Cut-off Treaty' because relative to the nuclear stockpile of India it would have been in a disadvantageous position. Islamabad has proposed FMCT to also include the current fissile material stockpile which is a position shared by various countries previously.

Pakistan always stood firm with its objective of non-proliferation and arms control in the region. In the past, Pakistan has been proposing various initiatives for arms control in South Asia such as it proposed the establishment of (NWFZ) 'Nuclear Weapon Free Zone' in 1974 and repeatedly proposed it in the years 1996-1987-1990 and 2003 but all such efforts were in vain. In 1979 it offered the acceptance of IAEA safeguards bilaterally. Pakistan also offered the mutual inspection of nuclear facilities of each other in 1979. In 1981, offered India a no-war pact but India refused to sign. In 1989 Pakistan offered a ban on all kinds of nuclear tests by signing a bilateral treaty. In 1994 Pakistan also proposed the idea of 'South Asian Zero Missile Zone'. Later on, it proposed a nuclear restraint regime and induction of SLBM and ABM systems. However, in order to fulfill its ambition of becoming a global power, India did not accept any of the proposals by Pakistan. Although the situation of non-proliferation and arms control measures seems quite bleak both India and Pakistan have signed few confidence-building measures in the past two decades. Even now, Pakistan has kept its options open and believes in a non-discriminatory international approach as far as the prospects of nuclear non-proliferation and disarmament in South Asia are concerned.

Hence as India has been reluctant towards all the non-proliferation efforts by Pakistan; fears of war and escalation in South Asia exist. The vertical proliferation in South Asia could have been tackled in a better way if India would have acted responsibly towards the global efforts for non-proliferation. Looking at the current Indian military modernization and nuclear expansion it seems that it would remain less concerned about proliferation even in the coming years. The only way to curb this proliferation is by mainstreaming both India and Pakistan and universalizing the global non-proliferation regime by including both states. The purpose could only be served by adopting an unbiased and non-discriminatory approach.

https://www.eurasiareview.com/24052021-twenty-three-years-of-nuclearization-in-south-asia-evaluating-non-proliferation-trends-from-past-to-present-oped/

Seizure of Radioactive Uranium in Indian and Depleting Nuclear Safety and Security

Ahyousa Khan[*]

Very recently, in the first week of May 2021, the Indian police have seized 7.1 Kilograms of illegally possessed Radioactive Uranium by two men in the state of Maharashtra. The material was sent to Bhabha Atomic Research Center to get confirmation on seized material and after confirmation from the center, the case was registered. The seized radioactive material was natural uranium, not even a "yellowcake" but it was worth $ 2.9 billion in international markets. But the point of concern is the availability of Uranium to people who might have stolen it or came in illegal possession of it, which later on could be sold in the black market. The safety and security of nuclear material and facilities are the responsibility of a state. But, under the guidelines of international best practices and safeguards states ensure that their nuclear materials and facilities are protected and secure. This incident has raised questions about the safety and security measures adopted by India for the protection of its nuclear materials and facilities. Moreover, it highlights the fact there may be an existence of an active nuclear black market.

This is not the only incident that happened regarding the theft and stealing of radioactive material in India. If one goes down the history, 147 mishaps and security-related concerns were reported in Indian nuclear energy plants and reactors between the period of 1995 to 1998 only; and this has been revealed in one of the reports of the Indian Parliament. All these incidents were not minor, 28 out of them were of serious concern. In 2003, Indian authorities seized 225 grams of milled uranium that members of a terrorist faction got from a mining employee. Again in 2008, a criminal gang was captured by Indian authorities, trying to smuggle low-grade uranium that can be used for a primitive radiation-dispersal device. Later on, in 2009 an employee from an Indian nuclear reactor deliberately poisoned his colleagues with a radioactive isotope by taking advantage of gaps in a nuclear reactor. Then in 2013, again leftist guerillas obtained uranium ore from a state-run milling complex. These all above-mentioned incidents were reported in the report published by the Centre for Public Integrity, titled "India's nuclear materials are vulnerable to theft, US officials and experts says". In 2016, again an incident was reported in the media regarding the theft of nuclear material. Late in 2019, one of the biggest Indian nuclear power plants equipped with two Russian heavy water reactors came under a cyber-attack. These all incidents reflect that Indian nuclear safety, security, and regulatory bodies are unable to maintain stringent mechanisms in place. Even today, the nature

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of theft of nuclear material hasn't changed in India and the recent incident is one candid example.

These incidents are not the only ones, but the ones that have been highlighted and reported in the media. Other than the lack of internal security mechanisms for the safety of nuclear material and facilities Indian private contractors are involved in illicit procurement of goods and materials for use in unsafeguarded nuclear facilities. As India is the only country that has been given the waiver by the NSG to conduct nuclear trade with other states, it was ought to put its civilian nuclear facilities under IAEA nuclear safeguards. However, India failed to do so and materials produced from these facilities could be used by it to build more weapons. In this regard, the Federation of American Scientists has predicted that India's ongoing missile proliferation will need it to build more nuclear warheads for its missile program. According to reports, it is these unprotected civilian nuclear facilities that are involved in procuring goods and materials from other countries more often.

This scenario presents us with several takeaways; one is that India should report its recent incident to IAEA's incident and tracking database (ITDB) after a detailed investigation. Secondly, these incidents should be of great concern to the international community; even though these are of the same nature, they are occurring quite frequently in India. Thirdly, despite these incidents which reflect the presence of the nuclear black market in India, ironically, the international community is granting Indian access to all kinds of nuclear materials and goods based on its so-called credentials. This raises the question of the norms of non-proliferation and reiterates the fact that non-proliferation is an issue of realpolitik rather than rules-based norms and ethics. The leadership of the present government in India is also threatening, which has depicted time and again that to hold a pretense and animosity could go to any extent. Such a scenario reflects that there will be little transparency in these issues and India will not only supply its uranium in the black market but also use its waiver to build more and more warheads without any check and balance.

Hence, to sum up, the recent incident of theft of highly radioactive Uranium is no doubt evidence of Indian non-adherence to the international practices of nuclear safety and security. Unfortunately, this has been deliberately ignored by the proponents of nuclear non-proliferation time and again. This highlights the discriminatory approach of the global politics of non-proliferation. Thus, international silence on these matters is criminal for the international security and norms and ethics of non-proliferation. Last but not the least, if the international community, as usual, ignores this serious issue, the desire for nuclear non-proliferation and disarmament would serve more as a "fool's paradise".

http://southasiajournal.net/seizure-of-radioactive-uranium-in-indian-and-depleting-nuclear-safety-and-security/

Who Would Account For India for Its Uranium Black Market

Khawaja Dawood Tariq[*]

Nuclear weapons, while being categorized as "Weapons of Mass Destruction" (WMD), are widely regarded as one of the biggest existential threats to humanity. That is why the international nuclear non-proliferation regime requires stringent security protocols to be in place. With all the rigorous security and safety measures it should be highly concerning that fifteen pounds of radioactive uranium was up for sale in India.

The Indian authorities have very recently apprehended two men after seizing over fifteen pounds of highly radioactive uranium in Mumbai. Ordinarily, such a security lapse would be a top story in international media. Not only just that, but the custodians of the nuclear non-proliferation regime would also have initiated a multilateral investigation of such an incident.

Political commentators and experts would have rushed to declare such a state; rogue and dangerous. Opportunistic politicians would use such an incident to defuse internal squabbles and distract the public from domestic problems. But in this case, unfortunately, there seems to be total silence. Ironically, not just the western powers have remained quiet about this incident; we find no condemnation, not even a statement of concern from IAEA.

While we will get into the fact that the custodians of the nuclear non-proliferation regime are quiet about this incident, the more pertinent question would be about the state of security and safety protocols of the Indian nuclear program.

This incident in isolation might not be a cause of immediate and major concern for the international community, but it does raise important questions regarding India's nuclear credentials. What are they doing with uranium in India? It is not the first time that law enforcement authorities apprehended radioactive material in India.

In 2016, Maharashtra police seized eight kilograms of uranium in Mumbai. One has to wonder what message such incidents communicate, especially for a state that wants to become part of the Nuclear Supplier Group (NSG). Even without being a member of the NSG; thanks to the waiver it already enjoys, it has multiple bilateral nuclear cooperation agreements. These incidents raise very serious concerns regarding the safety and security of nuclear-related materials. The theft or loss of nuclear material is a nightmare scenario for the international security establishment and the international non-proliferation regime. A dirty bomb does not require a sophisticated nuclear plant or multiple expensive scientific experiments to perfect.

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It does not need a seasoned expert nor does it require stable radioactive material. A dirty bomb uses radioactive material to magnify the impact and carnage of conventional munitions. If this is the standard of security of nuclear material in India; the questions would be asked of the export control regime of the Indian Nuclear program. And it should be the international community who must ask these questions. One wonders, what's up with the international community?

The news of this incident for some reason hasn't raised the level of concern. The biggest proponent of nuclear non-proliferation; the US is a major partner of the Indian nuclear program. The U.S-India nuclear agreement provides New Delhi with unofficial yet virtual status as a member of the international nuclear regime. Its civilian nuclear installations are under the remit of IAEA security and inspection mechanisms.

It would certainly be a part of the Nuclear Supplier Group if not for China's opposition to India's inclusion in the group. Before India can be considered for coveted membership of the nuclear club, its regulatory structure must be addressed. There exist federal laws and regulations that firmly deal with nuclear theft and misuse but the rules, regulations, and laws are poorly implemented at state and local levels. This is as much down to incompetence as it is to lack proper training and infrastructure. Indian policymakers consider nuclear energy an important component in the development of the Indian economy.

It plans to build more nuclear plants and for that, it requires more uranium. The suppliers need to ensure strict due diligence before conducting transactions of nuclear material. The duplicity and hypocrisy of the international nuclear non-proliferation regime cannot be more visible. Pakistan has made significant strides in improving the security and safety of its nuclear program. Yet it still causes the segment of the international strategic community to question Pakistan's commitment to non-proliferation.

Pakistan's record in nuclear security and control measures has been lauded in the report published by Nuclear Threat Initiative (NTI) in 2020. But the segment of the non-proliferation regime continues to find problems with Pakistan's nuclear program. Well, it doesn't matter to them that the rules and regulations regarding the security and safety of Islamabad's nuclear program have ensured no such incident occurs in Pakistan. But the opposition and hostility against Pakistan's nuclear program are not just about the security of nuclear material or proliferation of nuclear technology. Because if this was the case then the Indian track record leaves plenty to be concerned about.

These incidents are not just a concern for regional security and strategic stability but it endangers complex geopolitical compulsions. The current batch of Indian leadership envisions India as a global power.

As the saying goes, “With power comes responsibility”, it is incumbent on Indian policymakers to ensure foolproof security of nuclear material. Moreover, the nuclear non-proliferation regime must act without prejudice and hold India to higher standards of security and control measures.

https://www.globalvillagespace.com/who-would-account-for-india-for-its-uranium-black-market/

Palestinian Suffering

Zafar Iqbal Yousafzai[*]

The ceasefire between Hamas and Israel brokered by Egypt, although violated within a few hours, holds so far. Indeed, the situation is returning to 'normal'. However, the conflict has cost both parties dear. More than 217 Palestinians, including 63 children and 38 women, have been martyred and 1400 wounded. The Israeli side lost 12 people, including two children.

Earlier, on May 7, the UN's human rights office (OHCHR) spokesperson, Rupert Colville called Israeli forces' eviction illegal and warned it could lead to full-scale war. Besides, "We call on Israel to immediately call off all forced evictions," he added. For a long time, a land dispute case before the court was filed by illegal Israeli settlers against Palestinians. Colville further added, "Israel cannot impose its own set of laws in occupied territory, including East Jerusalem." Earlier this year, an Israeli court gave its verdict in favor of Israeli settlers that they had purchased the land when the area was under British control, before the Second World War, and then lost all property. Ironically, Israeli law gives them the right to prove pre-1948 property deeds yet does not extend the same right to Palestinians.

The question is: who will help settle the Palestine issue and stop Israeli brutality and unlawful acts? The United Nations is nothing but a tool in the hands of five powerful states. Whenever there is any resolution in favor of Palestinians in the UN Security Council, it is vetoed by the US. Washington is providing Israel with around $3 billion annually besides its strategic, political, technical, and technological support. The Israeli air defence system, 'Iron Dom' is made with US financial assistance. US President Joe Biden merely called on Israel and Hamas to stop the violence. As if Hamas initiated the violence. Washington calls itself a champion of human rights and democracy, however, when it comes to conflicts in Kashmir and Palestine, it turns a blind eye to ground realities. Recently, a group of artists, writers, and human rights activists led by Arundhati Roy and Nayantara Sahagal strongly condemned the illegal snatching of land by Israel in Palestine and termed Hamas rocket attacks as the legitimate right to self-defence. A balanced approach is needed in the Palestine-Israel conflict to pave the way for resolution or, at the very least, ease the suffering of the Palestinian people.

Pakistan was active in highlighting the Palestinian issue on an international level and stressed ending the Israeli brutalities in Gaza and West Bank. Pakistani Foreign Minister Shah Mahmood Qureshi visited Turkey and then New York to mobilize the international community to push for an end to Israeli aggression against the Palestinians. Mr. Qureshi strongly raised a voice at the United Nations General Assembly (UNGA) for the rights of the Palestinians. Pakistan's efforts

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yielded the desired results when Israel announced a ceasefire the night following the UN General Assembly meeting in New York. Elsewhere, Iran openly supported Hamas and their struggle against Israeli atrocities. Tehran threw its support behind Hamas and Palestinian Islamic Jihad. Earlier, Iranian Foreign Minister Javad Zarif talked on the phone with Hamas political chief Ismail Haniyah as well as Palestinian Islamic Jihad's Ziyad Al Nakhalah. Zarif "reiterated Iran's all-out support for the legitimate rights of the Palestinian people and the Palestinian cause".

From time to time, the Palestinian-Israeli conflict resurfaces and takes a number of precious lives on both sides. It's the responsibility of the great powers to help settle this issue rather than taking sides. In addition, the Middle East faces competing threats to its stability. At the very least, the Muslim world must raise its voice in support of Palestinians. This would discourage future Israeli aggression and help push the UNSC, the EU, and the international community to work for a permanent resolution of the Palestinian conflict.

https://dailytimes.com.pk/761421/palestinian-suffering/

Pakistan's Peaceful Application of Nuclear Technology

Amber Afreen Abid[*]

The odyssey of Pakistan's nuclear technology started with the acquaintance of the "Atoms for Peace" program in 1953. Pakistan became one of the early beneficiaries of the program and sent many scientists and experts for training purposes, to get familiar with the aspects of nuclear technology and its use in the peaceful realm. Withering the challenges, Pakistan's peaceful nuclear program is a great success story, encompassing decades of dedication, commitment, and integrated efforts of Pakistan's polity.

Nuclear energy is being used by many states around the world for overcoming energy challenges. It provides a cheaper, reliable, and cleaner source of energy, and is utilized by many states around the world. Pakistan has realized the true potential of the appliance of peaceful aspects of nuclear energy in numerous domains, including health, medicine, agriculture, the environment, and electricity generation. Pakistan has a long experience of utilizing the potential of nuclear energy for peaceful purposes and is complementing the energy mix of the country. The energy mix of the country comprises natural gas, coal, hydropower, and nuclear power, respectively. Nuclear energy provides a clean and reliable option, thus Pakistan is increasing its reliance on such cleaner alternatives.

In 1956, the legal framework for the development of nuclear technology got the track with the initiation of the Atomic Energy Research council, which later came to be known as the Pakistan Atomic Energy Commission (PAEC). The first and foremost development in the nuclear arena of Pakistan was the formation of a pool-type research reactor, with the help of the US in 1963, at Pakistan Institute of Science and Technology (PINSTECH), which was under IAEA Safeguards as well. Pakistan also established Pakistan Nuclear Regulatory Authority (PNRA) back in 2001 to further adhere to the international practices of nuclear safety and security. It also provides a regulatory and firm structure to Pakistan's nuclear program. It has taken the guidelines from IAEA and is responsible for ensuring the safety and security of Pakistan's nuclear infrastructure.

Pakistan's marvel in the peaceful application of nuclear technology is recognized at the international level as well, as its nuclear power plants and research reactors are all under IAEA Safeguards. Pakistan has a record of cooperation with IAEA of over fifty years, and consistently shares information with IAEA regarding the crucial activities of the specified plants, and is time and again inspected by IAEA in order to ensure the security and safety of nuclear and radioactive material and to make sure they are well disposed of.

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In the peaceful nuclear domain, a formal agreement was signed between Pakistan and Canada to set up Karachi Nuclear Power Plant (KANUPP) in 1962, which started commercial operation in 1972, and is under IAEA. It has a generation capacity of 137MW. In 1986, an agreement was signed with the People's Republic of China for the construction of Nuclear Power Plants, which ultimately led to the construction of Unit-I of Chashma Nuclear Power Generating Station (CNPGS) Chashma-I in 1993, which became operational in 1993. It was followed by the further four operational units, Chashma- II, Chashma-III, and Chashma-IV respectively. All four plants are under IAEA Safeguards.

On May 21, 2021, Prime Minister Imran Khan formally inaugurated the commercial operation of linked Unit 2 of Karachi Nuclear Power Plant (KANUPP-II) also known as K-2. The plant was linked to the national grid of the country very recently in March 2021. This would be utilized for commercial purposes and will generate electricity of 1,100 MWe. The project has also undergone various safety and security tests before being finally added to the national grid. KANUPP-II has been under IAEA Safeguards since 2017.

In addition to this, the third Unit of Karachi Nuclear Power Plant (KANUPP-III) with a generation capacity of 1100 MWe is also in the final stage. It is expected to be added to the national grid by 2022. Pakistan also intends to construct the fifth Unit of the Chashma Nuclear plant and has planned two more nuclear plants at Muzaffargarh. Pakistan aims to generate 8800 MWe by 2030, which will account for 20% of the total energy mix. Moreover, under the vision 2050, Pakistan has a plan to build 32 Nuclear power plants, which will produce approx. 40,000 MWe. This will ultimately comprise one-fourth of the energy mix of the country.

In an effort to quench the economic woes and energy crisis, Pakistan must continue working on the peaceful application of nuclear technology. The clean history of the utilization of nuclear energy is an indication of Pakistan's commitment towards the utilization of nuclear power for peaceful purposes. Pakistan has proved itself to be a responsible nuclear state and has an impeccable record of maintaining the safety and security of its nuclear infrastructure. Pakistan is a distinguished member of the IAEA and has served on the board of governors twenty-one times and chaired it twice, which shows the recognition of credentials of Pakistan as a responsible nuclear state. Pakistan gives utmost importance to the security of its nuclear infrastructure, and not a single affair of theft of nuclear material has ever taken place.

https://thefrontierpost.com/pakistans-peaceful-application-of-nuclear-technology/