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About BTTN

Balochistan Think Tank Network (BTTN) was established at Quetta, on March 1, 2021. It is an autonomous, non-profit, non-partisan, and multidisciplinary Research Center with a focus not limited to Balochistan only but includes the regional and global dynamics which can influence Pakistan. Broadly, BTTN endeavors to undertake in-depth research of provincial issues with a view to developing the socio, political, and economic status of the province. Its interests also include issues of Energy, Regional Stability, Strategic Stability, Peace and Security, Arms Control and Disarmament, Non-Proliferation, Peaceful Uses of Nuclear Technology, Conflict Resolution, Regional Connectivity, and Socioeconomic development at the national level. Geopolitically, besides South Asia, BTTN's research areas also include regions of Europe and Africa.

BTTN OP-EDs

Balochistan Think Tank Network (BTTN) Faculty of Research has been writing op-eds on a regular basis on different contemporary issues that are published on various international and national platforms. The opinions expressed in this edition are the authors' individual views and do not reflect the official policy of BTTN or any governmental organization. This electronic review is compiled monthly.

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National Security in Jeopardy

Ali Abbas

December 01, 2024

The world may be headed toward another major conflict. Whether it takes the shape of a world war or remains in multiple theaters of war in different regions is a matter of debate. What is concerning is that the opposing powers in the current world order tend to fight direct wars whenever possible. However, nation-states always have a tendency to shift to asymmetric methods in venues where a direct war is not feasible. Asymmetric warfare leverages existing societal fault lines, leading to increased sectarian violence and chaos, particularly in regions like Pakistan. Asymmetric warfare intends to focus on one's own strengths while avoiding the enemy's—often resulting in confusion for the opposing party. For instance, the conflict between Iran and its allies and Israel and its allies has primarily resulted in an attrition-based war. With no real possibility of maneuvering or surprise, no side can effectively overwhelm the other. Therefore, both sides are capable of engaging in fierce combat, but neither can secure a definitive victory. Another example is Pakistan, which, thanks to its nuclear weapons, can deter an adversary from direct conflict without even resorting to conventional warfare. Nuclear weapons have granted Pakistan the ability to inflict punitive punishment on any adventurous army.

Therefore, a natural choice for an adversarial general, strategist, or policymaker would be to leverage existing fault lines. Such an adversary actively fosters societal divisions and propagates hatred and blind animosity, particularly by misusing religion. In recent weeks, sectarian tensions have risen in Pakistan, particularly in the Kurram district, where both Shias and Sunnis live. The Targeting a pilgrimage convoy, which resulted in the deaths of children, women, and the elderly, ignited tensions. Response to this incident was an equally unfortunate retaliation against the Sunni population in and around Kurram. The recent sectarian tensions in the Kurram district demonstrate how external influences can exacerbate internal divisions and ignite conflict. This particular region of the country has become a hotbed of sectarian violence, attracting both Shias and Sunnis who are uncompromising. The word in the colloquial jargon is 'Katar.' The uncompromising and highly protective nature of the people in that area acts like fuel, only exacerbating the fire.

In Syria, militants who allege themselves to be Sunnis have resumed armed clashes with Syrian government forces, which are supported by Iran and Russia. Their presence is gradually growing in and around the cities of Adlib and Aleppo. Dozens of Syrian Army soldiers and an equal number

of rebels have died in the ensuing onslaught. The main concern here is not the active fighting going on in these two instances; rather, it is the inability to contain emotions, which are often not grounded in either reality or common sense, to that particular theater. Social media allows for the dissemination of sectarian hatemongering. The Shias and Sunnis of Parachinar may be fighting one another, but the Shia and Sunni of other parts of the country ultimately get involved, at least verbally, against one another.

Similarly, the insurgency in Syria has assumed a sectarian shape. People on X and Facebook, who belong to both sects, have been uttering nothing but poison—often resulting in both groups declaring the other heretics and sentencing each other to death. Social media plays a critical role in spreading sectarian hatred, making it essential to analyze discourse on these platforms to understand the dynamics of modern warfare. The fact that those who would like to leverage this unrest can create even more hate among the people through the use of fake/pseudo and bot accounts whose sole purpose is to spit out propaganda. It is important to conduct a discourse analysis on internet platforms to understand the full scope of the enemy's war. We live in a warzone where our minds serve as the battlegrounds, a fact that very few people realize.

It should now be clear that asymmetrical war is upon us. The world itself is rapidly moving toward a possible all-out confrontation. It is therefore natural that we, too, should prepare for it. However, our war is not conventional in nature, making it highly unlikely that an army would invade us. But the threat of sectarian and ethnic conflict, if remained unchecked, will damage the country equally, if not more, than an invasion. It is possible that the current developments in Syria are a continuation of the Israeli proxy war against Iran. Destabilizing Syria could result in Hezbollah losing its strategic supply lines from Iran. Syria also functions as a forward base for the Iranian and possibly Russian presence, with the aim of containing Israel and maintaining close supervision over it. The past few months have demonstrated that no side can win a conventional war, which is why sectarian violence has resumed in Syria.

To conclude, we are no new entrants to sectarian conflicts. Pakistan has suffered two decades of active sectarian strife throughout the country, resulting in the deaths of Shias and Sunnis. We can clearly see those foreign entities fuel most sectarian conflicts. We should immediately implement our conflict resolution and de-escalation mechanisms to limit the damage and prevent it from spreading to other parts of the country. If anyone doubts this, they should examine how social media brought down decades-long-standing governments in the Arab world. It is disheartening

that the average individual lacks the maturity to effectively filter through the content available on the internet. 9 out of 10 will just accept fake news and make it part of their belief. If the fake content is inflammatory, we are all well aware of the consequences. Immediate conflict resolution mechanisms are necessary to address rising sectarian violence in Pakistan before it escalates further.

The government should at once mediate and bring about a long-term solution to the sectarian violence, especially in the Kurram area. If the fighting continues, it may spread to other parts of the country, which by then might be too late to contain. Secondly, civil society, academia, and government policy apparatus should actively inculcate acts of tolerance and compromise in the people. Sectarian violence is by and large the biggest national security threat to Pakistan and countering it should be on the government agenda. It is not an outside force we need to fear but our own relentlessness, emotionalism to the degree of madness, lack of tolerance for others' views, and a general disposition to say, "I'm right, you're wrong."

<https://stratheia.com/national-security-in-jeopardy/>

Military Applications of Bio-Inspired Robotics

Atta Ullah

December 03, 2024

The field of military robotics is undergoing fascinating advancement, where engineering, technology, and biology intersect to create advanced systems capable of performing complex tasks in complex environments.

A prominent aspect of this evolution is biomimicry—the design and production of robots and drones, some as small as flies inspired by biological entities and processes. As militaries worldwide seek to enhance operational effectiveness while minimizing risks to human life, the integration of biomimicry in military robotics presents innovative solutions that could redefine the future of warfare.

Bio-inspired robotics involve learning from and then emulating natural intelligence and characteristics of living things into physical embodiments, such as insectoids, Robirds, robo-reptiles, robot dogs, humanoids, etc. Nature's designs have been refined over millions of years of evolution, leading to highly efficient mechanisms and strategies that can inspire new technologies, with potential implications for warfare, security, and military innovation.

Nature has perfected its designs over billions of years through evolution, creating organisms and systems capable of surviving and thriving in various environmental conditions. In warfare, this natural wisdom can lead to innovative solutions that enhance equipment, strategies, and combat readiness. For example, the streamlined body of a fish and the intricate navigation techniques of migratory birds provide valuable insights that can enhance the functionality and versatility of military robots/drones.

By studying and replicating the efficiency, resilience, and adaptability of natural systems, such as living things, military forces are developing advanced robotics and strategies that enhance operational effectiveness, minimize collateral damage, and promote sustainability.

The natural world is rife with examples of camouflage that help animals evade predators and survive. Animals such as octopuses and chameleons have mastered the art of camouflage, enabling them to blend seamlessly with their environments. The cuttlefish, for example, can change its skin color and texture to blend seamlessly into its surroundings. By studying these adaptive capabilities, such as changing color and texture in response to their surroundings, military assets could significantly reduce their visibility to enemy forces.

This principle extends beyond visual concealment; researchers are also exploring ways to mimic natural sound-masking techniques employed by certain animals, creating technologies that reduce noise signatures for military vehicles and operations, thereby enhancing stealth capabilities at sea or underwater.

Nature offers insights into how organisms perceive their environments and make decisions based on sensory input. Military robots can be equipped with advanced sensory systems inspired by biological organisms, such as echolocation in bats or the compound eyes of insects. These technologies can enhance situational awareness, allowing robots to detect threats and navigate complex environments effectively.

Additionally, the study of social organisms can inform military tactics and strategies. Ants, for instance, work collaboratively to solve complex problems and efficiently divide labor. Understanding these cooperative behaviors can inspire military commanders to adopt new strategies for teamwork and resource allocation, fostering a more adaptive and responsive military culture.

Historically, animals have been used in wars as Dog Soldiers, Spy Cats, Bat Bombs, Pigeon Messengers, etc. because they morph in the environment and avoid detection for being a weapon of war. One of the main advantages of biomimicry in military robotics is improved mobility. For instance, robots designed to mimic the movement of animals such as cheetahs or insects can achieve incredible speed and agility, making them ideal for reconnaissance and rapid response situations.

Research into legged robotics inspired by animals has shown that designs mimicking the locomotion of a kangaroo or dog can produce robots capable of navigating rough terrains where wheeled alternatives fall short. The instance of animal-like-looking robots has increased with the use of four-legged dog robots in counter-terrorism exercises, and the race has already started between different countries to weaponize four-legged animals. These robots can carry weapons, and aim for targets, as well as collaborate with other robots on the battlefield for operational efficiency and coordination.

Similarly, unmanned aerial vehicles (UAVs) designed to mimic the flight patterns of birds can operate more stealthily and efficiently by emulating the swarm intelligence of bees, insects, and birds that share tasks and work in coordination for survival.

By studying avian flight dynamics and swarm intelligence, developers are creating drones that exhibit superior maneuverability and energy efficiency, allowing them to gather intelligence

without detection. The adaptability of insects, such as flies, can also inspire agile surveillance drones that navigate complex environments, making them essential tools in modern warfare.

Furthermore, the behavior of predators in nature can help develop surveillance strategies and enhance battlefield awareness. Military planners are learning from how apex predators stalk their prey, leading to improved approaches in reconnaissance, situational awareness, and targeting—much like how a bee delivers a sting.

Recently, the United States conducted military exercises that simulate drone swarms to enhance operational awareness and achieve tactical superiority, and above all as a first response in a future conflict with China. In a similar vein, China also tested the largest swarm of autonomous drones by connecting approximately 10,000 units into a single network for tactical purposes in future conflicts. In another instance, the Chinese scientists developed a battle drone that can rapidly multiply midair, out of a single unit, to achieve tactical shock and awe and work in collaboration with other drones for task sharing.

These advancements can lead to military assets that are more effective in reconnaissance, search-and-rescue missions, and even combat scenarios. Inspired by social insects like ants and bees, swarm robotics aims to deploy multiple robots that work collaboratively to achieve complex tasks.

In military contexts, this could mean coordinating several drones or ground robots to cover large areas for search and rescue missions, surveillance, or even offensive operations. Additionally, the flexibility and adaptability of these systems, modeled after the collective behavior seen in nature, presents a powerful force multiplier for engaging in dynamic battlefields. In the Ukraine-Russia war, for instance, drones have proven to be transformative in terms of situational awareness, precision strikes, and reduced casualties, above all shifting the dynamics of conflict in the favor of the weaker party: Ukraine.

While the potential benefits of biomimicry in military robotics are significant, several challenges must be considered. Ethical concerns regarding the use of bio-inspired robots in combat scenarios must be addressed, particularly regarding accountability and decision-making. It is essential to ensure that these advanced technologies do not exacerbate existing inequalities or contribute to an arms race, as the urgency of military needs may outpace the slow and iterative process of mimicking natural systems.

Therefore, efforts should be made to develop biomimetic innovations responsibly, with a focus on protecting civilians and the environment. Military planners/scientists must collaborate with

ethicists, biologists, and the communities affected by warfare to navigate the complexities of these applications.

Furthermore, as countries around the world invest in research and development, bio-inspired designs will significantly influence future military operations. By learning from nature, military robotics can improve operational capabilities while minimizing risks to human life—ultimately striving for more effective and humane approaches to modern warfare. To leverage the wisdom of nature, there should be pathways that ensure not only the survival of military forces but also for preservation of the environment.

To sum up, Biomimicry is ushering in a new era of military robotics by providing innovative solutions that leverage the intelligence of nature and unique opportunities to harness nature's ingenuity in transforming warfare. By drawing inspiration from the natural characteristics and intelligence of living things, military innovation can lead to enhanced capabilities, improved sustainability, and more ethical practices. As the world is on the brink of this exciting frontier, it is essential to proceed thoughtfully, emphasizing technologies and strategies that serve the goals of defense and the broader pursuit of peace and environmental awareness.

<https://www.wgi.world/military-applications-of-bio-inspired-robotics/>

Russia's nuclear saber-rattling

Zafar Khan

December 07, 2024

Ever since the Russian-Ukraine war, the understrength conventional power capability of Russia against the US-led NATO bolstering Ukraine often comes up with nuclear saber-rattling. More recently, Russian President Vladimir Putin, addressing the world community on November 21, argued that Russia launched ballistic missile strikes against Dnipro City in response to the recent Ukraine ATACMS (supersonic tactical ballistic missile) and Storm Shadow (air-launched cruise missile) provided by the US and the UK against the military objects in Russia. Putin warned the US-led NATO countries that Russia may strike the military facilities of the Western countries that supported Ukraine to use their missiles directly against Russia. Russia terms this as one of its "red lines" the West is crossing, risking a large-scale military escalation to a nuclear level. Russia has already threatened to use nuclear weapons after Ukraine is largely supported by the US-led NATO members. It has stationed its tactical nuclear weapons in Belarus for deterrence and nuclear signaling purposes against the Western countries in Europe.

Why does Russia often come up with nuclear saber-rattling? What does it want to achieve? Are the US-led NATO members deterred? How much is the Russia-Ukraine war boiling for a nuclear use engulfing the entire Europe? Is the world considering nuclear risk reduction and the possible end of this war when Europe is turning into one of the world's nuclear flash points?

Scholars contend that in the nuclear war, there are no victors. This goes back to the Ronald Reagan and Mikhail Gorbachev 1985 statement on nuclear war: "A nuclear war cannot be won and must not be fought." Based on the conceptual logic of Mutual Assured Destruction (MAD), this remains valid in a nuclear environment where each side will end up destroying each other. This primarily reflects from the 1958 seminal work of Albert James Wohlstetter on the "Delicate Balance of Terror" where he argued that the presence of thermonuclear weapons between the US and the Soviet Union had produced a "presumed automatic balance" of power which in turn makes nuclear war "extremely unlikely".

From an academic point of view, the Russian threat of using nuclear weapons over the US-led NATO's military support for Ukraine could be: one, to let the Western countries become serious while getting on board for resolving the Russia-Ukraine war to the best Russian terms; two, to give deterrence signaling to the Western countries so that they stop supplying sophisticated

defensive and offensive missile capability that undermine the Russian conventional force capability in its war against Ukraine; and three, to prevent the US from making Ukraine part of NATO. Although Russia appears to be succeeding on these strategic imperatives, the Russian nuclear saber-rattling is mostly considered as mere rhetoric in Europe and in some sections of the US. However, leading scholars such as John J Mearshiermer, from a realist security paradigm, consider that the Pentagon must be taking Putin's nuclear threats seriously. A nuclear threat from the state leadership becomes credible especially when it has the capability and the political will to use nuclear weapons in the worst-case scenario.

This reminds us of "Guarding the Guardians" by Peter D Feaver that discusses the conceptual framework on the always/never dichotomy that nuclear weapons should always be used when they are absolutely needed and should never be used when they are not required. For Russia, nuclear saber-rattling may fall in such a conceptualized category of deterrence. Despite the understrength conventional force capability of Russia compared with the US-NATO allies, the credible Russia nuclear forces both at the tactical and strategic level remain one of the fundamental deterrents preventing the US-led NATO allies from crossing the red lines that may not be acceptable to the Russian security leadership.

<https://tribune.com.pk/story/2514249/russias-nuclear-saber-rattling>

Strategic Competition in Space: South Asia's Security Dilemma

Muhammad Adil Khan

December 08, 2024

Space emerged as a contested domain with the launch of Sputnik-1. This satellite was launched into space by the Soviet Union, marking the beginning of the space race between the United States and the Soviet Union. During the Cold War, the superpowers prioritized their space programs, and this period witnessed immense developments in their respective civilian and military space capabilities. From 1957 through 1990, the United States and the Soviet Union were responsible for 93 percent of all satellites launched into space, and 70 percent of those satellites were military satellites, linking their space programs to military power. In their pursuit of developing a space program, the United States conducted a successful Anti-satellite (ASAT) weapon test in 1959, followed by the Soviet Union in 1963. Soon after the end of the Cold War, many other countries showed their interest in becoming spacefaring nations. Similarly, China conducted its successful ASAT weapon test, followed by India's in 2019. Presently, only four countries have this capability.

Space has become a crucial and contested domain, with powerful countries investing heavily in developing their space-related technologies and capabilities to secure their national interests. Military satellites are crucial as they are essential for guiding a missile accurately, detecting incoming missile launches, and early warning of potential attacks. Therefore, military satellites are vulnerable to potential attacks, compromising these features and providing strategic leverage to an adversary in a potential conflict. Thus, to protect their space-based assets, countries developed space forces. Some of them such as the United States, China, and Russia have robust space forces while others such as India are developing their space force – the Indian Air and Space Force.

Due to the anarchic nature and the power imbalance with India, Pakistan has always sought to strike a balance. Pakistan will balance the asymmetry with India; however, it is unclear what strategy Pakistan might adopt. In comparison to India's space-related technologies, Pakistan is far from it. Although Pakistan has approved the National Space Program 2047, expressing its commitment to accelerating space activities. However, developing a robust space force and acquiring cutting-edge technologies demand a strong economy. While there is a potential for an arms race in space between India and Pakistan, this might have consequences for South Asian strategic stability.

India's advancement in space capabilities, especially the improvement of military capabilities in outer space, is likely to lead to the emergence of an arms race in space with Pakistan, which would worsen instability in South Asia. Most of these concerns stem from India's advancement and progress in space technology, highlighted by India's successful ASAT weapon test. Forming a space force indicates that India intends to strengthen its military position in space. Furthermore, India and Pakistan's historic and enduring rivalry makes their interactions more prone to competition in space. Any advancements made by India in space would lead Pakistan to respond by maintaining a strategic balance with it. India significantly leads Pakistan in space capabilities. Despite the economic strain, this would compel Pakistan to spend heavily in acquiring similar capabilities.

The impact of a potential arms race in space between India and Pakistan would be significant. This would worsen existing tensions, increase distrust and suspicions, and increase the chances of mistakes and misunderstandings between them. Moreover, investing in developing their respective space military technologies could hinder socio-economic development in both countries. This would also impact and go against those international agreements aimed at preventing an arms race in space, thereby affecting global safety and governance and the peaceful exploration of space. An increased utilization of the space domain for military purposes might also precipitate the risk of misunderstandings or technical errors, leading to conflicts.

It is essential to reduce the risks associated with a potential space arms race. Therefore, various strategies are required. Foremost is promoting openness and Confidence-building Measures between India and Pakistan through data sharing, embarking on joint space projects, and communication. Also, improving the already existing international agreements that are aimed at banning the formation of space-based weapon systems would help in avoiding a possible space weapons race. Furthermore, promoting the peaceful utilization of space for purposes such as disaster management, climate observation, and research may encourage cooperation, confidence, and shared gains. International treaties prohibit indulging in an arms race in space. However, skepticism surrounds the credibility of these treaties, as states are driven by the need to protect and secure themselves from potential threats. States are still developing their space-based capabilities for military reasons, such as the United States intending to put ballistic missile defense systems in space, hence weaponizing space.

The shadow of a wider arms race in space looms over South Asia, primarily between India and Pakistan, given their shared history of conflicts and rivalry. The emergence of space force presents a considerable challenge to regional stability. Driven by the significance of space

security and the harsh realities of geopolitical competition, India's space program has experienced a paradigm shift. Peaceful space exploration has remained an important aspect, but the strategic imperatives and national security concerns dominate the program's trajectory. India's national security concerns undeniably stand as the primary motivator behind the pursuit of its Space Force. Vital strategic drivers such as border security, information warfare, missile defense, and monitoring of the space domain shape India's ambitions.

While the trajectory towards a full-fledged arms race in space could be avoided, its potential consequences are profound, encompassing heightened regional tensions and the diversion of resources away from critical domestic development imperatives. In addition, the potential outcome of targeting capabilities and enhanced space surveillance, encompassing false alarms, misinterpretations, and unintentional escalation, represent significant challenges that demand attention. It also raises concerns about potential future violations of international norms and treaties against the weaponization of space, permeating global space governance and prompting its spillover effects echoing across different regions. It is crucial to address and mitigate the associated risks and ensure a more stable and secure future for space exploration and utilization.

<https://stratheia.com/the-new-space-race/>

Inferno from the Skies: The Future of Hypersonic Weapon Systems

Ali Abbas

December 10, 2024

Warfare, in the most simplistic definition, is based on the two premises of 'offense' and 'defense.' During all the battle stages, a dynamic environment is subject to friction, or what in military parlance is known as factors of chance—the probability that a plan may not go as planned. Despite the passage of time and space, our initial precepts of offense and defense remain eternally attached to warfare. In warfare's history, we witness a variety of strategies applied by city-states, empires, and great powers. Observing them closely shows that all successful powers played to their strengths. Modern hypersonic missiles like Russia's Oreshnik demonstrate speeds and precision that no defensive system can counter effectively. After all, the ultimate aim of warfare is to dominate the will of the adversary, a goal that can only be achieved through superior maneuverability, which in turn is only possible if one plays to their strengths—on air, land, and sea—whatever the domain may be.

With the modernization of warfare, kinetic gains have surpassed all other elements of evolution. Modern ballistic and hypersonic missiles, which serve as strike weapons, have reached a level of precision and speed that no defensive instruments can potentially counter. Russia demonstrated to the West and the world at large the seriousness of its strategic missiles. The battlefield use of Oreshnik IRBM by Russia in Ukraine has left military experts around the world in awe. The video footage unequivocally demonstrates the direct impacts of the Multiple Independently Targetable Re-Entry Vehicles (MIRVs) on a military installation in Dnipro, providing ample empirical evidence that modern missiles are impossible to intercept in the near future, if at all. At impact, the missile reached a speed of Mach 11, which is eleven times the speed of sound. That is roughly 3,300 meters or 3.3 kilometers per second. No modern-day interceptor is capable of defending against strike weapons possessing such kinetic energy. Data from the Kiel Report also substantiate the bleak future for Ballistic Missile Defense (BMD) systems.

According to the Ukrainian reports, the interception rates of Kinzhal and Zircon missiles are 25%, meaning that 3 out of 4 of these missiles successfully evade interception. The report also claims that a single advanced hypersonic missile—perhaps referring to the likes of Oreshnik or the Avangard glide vehicle—merits a salvo of 32 Patriot launchers all fired simultaneously. Each

launcher, moreover, has 4 interceptor missiles. This results in a total of 128 interceptors, with the sole aim of intercepting only one advanced hypersonic missile. Empirical data reveal that interception rates for advanced hypersonic missiles remain as low as 25%. The concept of missile defense appears absurd when considering its cost. Leading many to believe, the investment in BMD systems is worth it. It is becoming clearer, as warfare evolves, that superior kinetic energy aided with even greater maneuverability in the hypersonic missiles is, to a large extent, not defensible.

The use of Oreshnik bolstered Russia's offensive deterrence posture. Russia's nuclear doctrine does not outline a decapitating first-strike strategy, however. Yet the fact that Russia possesses advanced strike weapons bolsters what one may term as its offensive-defense capability—the ability to deter an adversary through the promise of a punitive response resulting in massive destruction. Moreover, Russia's vast territory and its historical success in repelling occupation forces may not give it any substantial impetus to focus on defensive deterrence; instead, it seems Russia is trying to leverage its adversaries' fears of mass destruction.

In particular, Europe should have much to worry about, as its relatively smaller size and higher population density make for a terrible place to be in the face of a few dozen nuclear or a few hundred conventional advanced missiles equipped with MIRVs, raining down inferno at unimaginable speeds. The only thing Europe or any other target can be sure about is that their defense mechanisms, the BMDs, may not protect them. Just in October, most of the Iranian missile strikes on Israel managed to bypass Israeli and the US defensive systems, although the ones used by Iran are substantially less advanced than the ones fielded by Russia. Russia can even have a more advanced inventory of ballistic missiles than the Oreshnik, which they have yet to decide to showcase. Worsening the odds even further. The cost of maintaining BMD systems far outweighs their credibility against superior offensive strike weapons.

In short, BMD interceptor tests by nations such as the US, which are often heavily scripted, have shown their lack of credibility in the face of strategic strike weapons. Furthermore, the empirical evidence we've received over the past two to three years supports the claim that offensive strike weapons, particularly at the strategic level where state survival is at risk, hold the future. Defensive deterrence elements, like BMDs, are falling short of the weapons they intended to counter.

These arguments aptly fit the Indo-Pak strategic equation as well. India is rapidly advancing in the realm of ballistic missiles and has been flirting with the idea of adding hypersonic glide vehicles and cruise missiles to its arsenal. Pakistan does not have a credible defense against such weapons. In fact, not a single other country possesses such weapons.

It is not Pakistan's lack of advanced BMD systems that is worrying; rather, it is the non-credibility of such a system as a whole, making it an unreliable pillar of defense to rely on. Therefore, as a sound response to these developments, Pakistan may need to acquire more advanced and sophisticated strike weapons. Pakistan's strategic stability depends on advancing its offensive deterrence with hypersonic and MIRV-capable missiles, not unreliable BMD systems.

Pakistan already possesses a MIRV-capable ballistic missile, the Ababeel. Pakistan can continue to enhance this missile through research and development efforts. Second, Pakistan may opt for advanced hypersonic glide vehicles to substantiate its offensive capabilities, giving it a better chance to defeat the Indian BMDs. The realm of strike weapons is both well-researched and cost-effective as compared to BMD systems, providing Pakistan with relatively better prospects of acquiring them and thus allowing it to bolster its deterrence posture and maintain strategic stability in the region.

<https://stratheia.com/inferno-from-the-skies-the-future-of-hypersonic-weapon-systems/>

Pakistan's Nuclear Energy Program

Muhammad Usama Khalid

December 11, 2024

The worldwide dependence on hydrocarbons has markedly exacerbated environmental degradation, leading to dire outcomes including flash flooding, glacial melt, elevated sea levels, and altered weather patterns. These difficulties highlight the pressing necessity for cleaner and more sustainable energy solutions. Nuclear energy, noted for its efficiency and minimal environmental impact, has become a favored solution for these challenges. The International Atomic Energy Agency (IAEA), the global regulatory authority governing the peaceful application of nuclear technology, aggressively promotes the utilization of nuclear energy as a feasible remedy to alleviate the detrimental impacts of climate change.

Nuclear energy is crucial for fostering sustainable economic growth and improving human well-being in the modern period. It provides a clean, dependable, and economical energy source that can satisfy increasing energy demands while diminishing greenhouse gas emissions. Transitioning to nuclear energy enables states to ensure a reliable and cost-effective energy supply, thus tackling energy security and environmental sustainability. This underscores the essential need to integrate nuclear energy as a fundamental element in global initiatives to address climate change and foster sustainable development.

Pakistan has historically been a central topic in international discussions as a result of its acquisition of nuclear weapons in 1998, primarily for security purposes. Pakistan's civil nuclear program has its roots in the mid-1950s, underscoring the country's ongoing commitment to the peaceful application of nuclear technology. The Pakistan Atomic Energy Commission (PAEC) was established in 1956 as Pakistan's first regulatory authority. Its primary responsibility is to oversee and regulate the country's civilian nuclear programs. Furthermore, Pakistan participated in the Atoms for Peace initiative of U.S. President Dwight D. Eisenhower, which served as an indication of its initial commitment to the application of nuclear technology for the purpose of development and peace.

Civilian nuclear collaboration between China and Pakistan began in the late 1970s and was formalized by an agreement in 1986. This partnership enabled the advancement of the Chashma Nuclear Power Plant (NPP) projects, greatly enhancing Pakistan's economic and technological capabilities. The establishment of supplementary nuclear reactors is an extension of the 1986 nuclear accord, which precedes China's accession to the Nuclear Suppliers Group (NSG). This

collaboration has faced criticism from Western academics and officials, who have said that China is contravening the NSG norms.

Pakistan has strategically employed civil nuclear technology to promote socioeconomic development and fit with the United Nations Sustainable Development Goals (SDGs). This comprehensive strategy has facilitated the utilization of nuclear technology in various essential sectors, such as healthcare, hydrology, energy generation, environmental management, fundamental scientific research, and agricultural advancement. These applications have enhanced the nation's developmental goals and elevated the quality of life for its residents.

A fundamental aspect of Pakistan's civil nuclear program is its dedication to sustainable development via energy security. Pakistan seeks to raise its nuclear energy capability to diminish dependence on fossil resources, thereby tackling energy deficits and environmental issues. This shift highlights the overarching goal of incorporating clean and dependable energy solutions into the national infrastructure, demonstrating Pakistan's commitment to attaining sustainable, long-term economic growth while fulfilling its international responsibilities under the SDGs.

The shift to nuclear energy presents Pakistan with a viable option to address its increasing energy requirements, as nuclear power delivers a clean, dependable, and consistent source of electricity. Data from the Finance Division indicates that Pakistan's current Nuclear Power Plants (NPPs) produce 2,530 megawatts (MW), contributing roughly 7,076 million units of energy to the national grid during the July-March period of FY2021. The projected completion of the Chashma-5 Nuclear Power Plant is estimated to contribute an extra 1,200 MW to the national grid, providing roughly 3,350 million units of power each year. This extension signifies a strategically important enhancement in Pakistan's energy infrastructure.

The dedication to international nuclear safety and security standards is demonstrated by Pakistan's 48-year history of producing electricity from nuclear reactors without any known incidents. The IAEA has verified that the country's current civil nuclear reactors comply with the safety criteria established in the Generic Reactor Safety Review (GRSR). The IAEA's evaluation of the ACP-1000 reactor underscores the incorporation of both active and passive safety systems, confirming its adherence to all specified safety standards. These strong credentials highlight Pakistan's commitment to employing nuclear technology solely for peaceful applications. This strategy enhances the nation's energy security while guaranteeing a safe and sustainable nuclear energy program in accordance with international standards.

Consequently, Pakistan's growing reliance on nuclear power as part of its broader energy strategy reflects its commitment to securing a sustainable energy future. By expanding its nuclear power capacity, the country aims to address its increasing energy demands while advancing economic development and environmental sustainability.

However, realizing the ambitious target of generating 8,800 MW of electricity from nuclear energy by 2030 will require substantial international collaboration. Such support is not only crucial for the growth of Pakistan's nuclear energy sector but also for ensuring long-term energy security and meeting the nation's sustainable development goals. As global energy landscapes evolve, Pakistan's nuclear ambitions offer a promising model for achieving both energy independence and economic prosperity.

<https://www.wqi.world/pakistan-s-nuclear-energy-program/>

CRINK—The Alliance in Making

Musavir Hameed

December 11, 2024

The growing tensions between Ukraine and Russia have once again impacted global politics and intensified by the U.S. authorization to Ukraine for using American-made long-range missiles against Russia. This comes after the backdrop of the formation of a new geopolitical bloc the CRINK—which is an informal alliance comprising China, Russia, Iran, and North Korea. Tagged by some as the “new Axis of Evil,” CRINK appears to provide Moscow with considerable support to continue its war in Ukraine. The phrase “Axis of Evil” was first introduced in the State of the Union address of President George W. Bush in 2002 to describe Iraq, Iran, and North Korea. It was later extended by the former National Security Advisor John Bolton adding Cuba, Libya, and Syria to the list, becoming the cornerstone of the U.S. foreign policy discourse during the era of President Bush. Recently, the phrase has regained importance, Nikki Haley, a former cabinet member in the Initial term of Donald Trump emphasized the need to counteract the “new Axis of Evil.”

This attention stems from the intensification of the Russia-Ukraine war, now entering its third year. Ukraine has befittingly responded, hitting Moscow’s strategic assets within its borders. According to some reports, the U.S. has given the green light to the use of long-range missiles for strikes inside Russia—a significant escalation. In return Moscow updated its nuclear doctrine, warning that any attack from a non-nuclear state backed by a nuclear state would authorize a nuclear response. Similarly, in response to the Western alliance supporting Kyiv, Russia has turned to its like-minded allies. The informal CRINK alliance replicates the coordinated joint efforts to challenge Western hegemony.

China has positioned itself as Russia’s foremost ally in this bloc. Over the years, Beijing and Moscow have cultivated a strong strategic partnership, with a vision of reshaping the global order and challenging the U.S.-governed liberal international system. Apart from Ukraine, their cooperation extends to Taiwan and other crucial geopolitical flashpoints. While China has abstained from overt military support, its economic and diplomatic support has bolstered Russia’s confidence against Western sanctions.

Russia’s increasing partnership with Iran has also brought it into the limelight. Recently, at the BRICS summit, in Russia, Moscow and Tehran finalized negotiations for a 20-year comprehensive partnership agreement. Despite the strict sanctions, the two nations have significantly enhanced their military cooperation.

Iran has given hundreds of Shahed drones to Russia, provided the basic skillset to operate the drones, and agreed to mutually develop a drone manufacturing facility within Russian territory. The following events give credence to the fact that relations are greatly improving. to a large extent and underscore their commitment to mutually support each other amid growing international isolation on the hand of US US-led western block.

North Korea, one of the key partners signed a strategic comprehensive partnership with Russia. Following a high-profile consultation between the leadership of North Korea and Russia in June 2024, both states agreed on mutual military support in case of aggression from a hostile country. As per this agreement, North Korea will deploy more than 10,000 troops to help Russia recapture the Kursk region which was already lost to Ukrainian forces. In return, the North Korean Premier eyed more sophisticated technologies from Russia. For Pakistan, this complex geopolitical landscape of taking sides raises a significant challenge. On one side, Islamabad enjoys cordial bilateral ties with Beijing, predominantly under the China-Pakistan Economic Corridor (CPEC), and on the other side, Islamabad has refined its transactional relations with Western nations, making it important to avoid putting all eggs in one basket by aligning too closely with either bloc.

Pakistan's foreign policy should be centered on upholding strategic neutrality, utilizing its pivotal strategic position to foster dialogue between competing powers. As Pakistan did in the 1970s between China and the US through Ping Pong diplomacy. To summarize, the formation of CRINK will cause a potential threat to the West's global dominance. China, Russia, Iran, and North Korea are pushed to join hands by their shared grievances against the U.S.-led sanctions and policies, all of them are committed to mitigating the Western hegemony.

Apparently, this alliance lacks the organizational structure of formal blocks like NATO, its presence demonstrates the shifting power dynamics in global politics in its favor. The world is leading towards the rise of multipolar order, with authoritarian systems having alliances to combat liberal democracies.

<https://policyeast.com/crink-the-alliance-in-making/>

Prospects of Green Growth Amidst Climate Change

Naseem Sabzal

December 12, 2024

Pakistan contributes less than 1%, or statistically 0.93%, to global carbon emissions, yet it ranks among the top ten countries most vulnerable to climate change. Despite Pakistan's lack of industrialization, as it is primarily an agrarian society contributing to 23% of GDP, the consequences of climate change extend beyond human control; they represent a collective penalty for humanity, even though a small fraction of the world's population bears the brunt. Pakistan contributes only 0.93% to global emissions yet ranks among the top ten most climate-vulnerable countries.

The COP29 conference, which took place in Baku, Azerbaijan on November 11th, pledged to boost financial support for developing countries from 100 to 300 billion dollars to address the effects of climate change. Pakistan needs much more than finance; it needs reforms, a policy framework, and an effective mechanism for a sustainable future. Green growth is a viable, eco-friendly, and low-cost alternative to protect the environment from climate change. The devastating floods of 2022 exposed Pakistan's climate vulnerabilities, though Pakistan's diplomatic efforts on international platforms gained the attention of the international community to assist in coping with climate change impacts. Despite receiving financial support, Pakistan still requires a durable climate resilience structure. Given the rapid increase in climate change, green growth presents a viable alternative for long-term solutions. Currently, Pakistan's Green Growth Index score, at just 34, is unsatisfactory, placing it in the low score category.

This ranking suggests that Pakistan is not doing enough to address climate change. The adoption of an eco-friendly and resilient framework is hindered by traditional economic methods that rely on fossil fuels, industries that lack accountability, and a lack of individual maneuvers in socio-economic spheres of life. The 2022 floods highlighted Pakistan's climate vulnerability and the urgent need for sustainable resilience frameworks. The energy and industrial sectors are the main contributors to the climate risk in Pakistan, which poses a significant challenge to the successful implementation of green reforms. Hydrocarbon burning in the energy sector and industrial CO₂ emissions have the highest carbon footprint in Pakistan. Fossil fuels, accounting for 59% of the total capacity generation used in various sectors such as public, commercial, industrial, and agriculture, dominate Pakistan's energy production. Only of Pakistan's energy production originates from renewable energy sources, primarily solar and wind. While Nuclear energy contributes 20% in total. It is also considered a safe, environmentally friendly source of energy

production unlike fossil fuels nuclear energy has no potential carbon footprint. It assures the SDG's goal of clean, Safe, and affordable energy for long-term sustainable development and environmental protection.

The energy transition from non-renewable to renewable sources for clean, green, and low-cost production will help reduce CO₂ emissions. An effective policy scheme is necessary for energy production, which aims to lower the cost of renewable energy sources by subsidizing an annual budget for household usage. We urgently need industrial reforms to prevent unnecessary production within industry. Degrowth in industrial production will help hold the industrial sector accountable and lower risks amidst rising climate vulnerabilities. Only 6% of Pakistan's energy production comes from renewables, with 59% relying on fossil fuels causing high carbon emissions.

We need to improve the current methods and techniques of cultivation in the agriculture sector to protect the fertility of land and water resources, while also addressing the other prerequisites of green growth. In Pakistan, the most common method of watering crops is irrigation flooding, which wastes 60% of the water. Poor irrigation techniques are not viable in the 21st century, where water scarcity is also a major challenge. Advanced techniques in crop design and farming can enhance land productivity and conserve water resources by implementing sprinklers and drip irrigation systems, which have the potential to save up to 70% of water. However, the acceptance of these practices hinges on the awareness and recognition of agricultural reform at the micro level. We need to take a number of actions to make green growth a reality for a sustainable climate and environment by, lowering the cost of public transportation to reduce fossil fuel consumption. Planting more trees and incentivizing individual acts of plantation and town planning for flood-resilient cities during monsoons and heavy rainy seasons is a prime example of how the concept of sponge cities can be implemented in flood-affected areas to lower the risk of flood-like situations.

The most compelling aspect is ensuring that all genders receive equal socio-economic opportunities, fostering an inclusive society, and leveraging human capital to promote gender equality across all societal domains. The defined goals of SDG, climate combat actions, water management, sustainable ecosystem, and building a peaceful society with gender equality can also be achieved by reevaluating our approaches and strategies with green growth reforms. Adopting green growth strategies like drip irrigation, sponge cities, and renewable energy can build resilience and reduce emissions. It may not immediately yield positive results, but it can

achieve its intended effects on climate protection and socio-economic development through a long-term, systematic approach and policy framework.

<https://stratheia.com/prospects-of-green-growth-amidst-climate-change/>

The US Nuclear Deterrence in a Multipolar World

Sadia Zahra

December 17, 2024

As China and Russia quickly increase the numbers of both the quality and their nuclear arsenals and deterrence systems, the United States has begun to feel threatened by such an unprecedented challenge. Formerly, the Soviet Union was leading in the nuclear scenario. Today, the United States faces the daunting task of updating old nuclear capabilities. The critical question then becomes: Can the United States maintain its strategic supremacy, or will its challengers define the new nuclear dynamics? The stakes are incredibly high, and timelines are tight. With its rivals making continuous progress while modernization efforts in the United States slow down, this may alter the global balance of power. China plans to double its nuclear stockpile by 2030, focusing on hypersonic weapons and submarine-based deterrence to rival U.S. capabilities. China is leading the charge in this nuclear change. It will be doubling its stockpile by 2030 to more than 1,000 warheads, an action many think would challenge the U.S. nuclear deterrence as never seen before. It's not just about the numbers. The U.S. claims that China is rapidly advancing hypersonic weapons, meaning weapons that could evade any missile defense systems because of their speed and maneuverability.

China is also improving its submarine fleet to strengthen its sea-based nuclear deterrent. These advancements are intended to ensure that China can strike with accuracy and survivability, even in the worst-case scenario. This shift is in the global nuclear balance, as China seeks not only parity with the U.S. but also to overtake it in critical areas of deterrence, particularly in the perceived Indo-Pacific region. Russia is taking an equally belligerent way forward. First, it had "friendship without limits," the treaty with China – indicating the deepening strategic relationship of both countries. Following through in that alliance, Russia updated its nuclear triad. This year the Kremlin revealed a number of state-of-the-art devices that have been developed namely the nuclear Torpedo Poseidon, a penetrator that is undetectable and capable of striking at the heart of America's missile defense and also hypersonic glide vehicle also termed as Avangard a penetrator bomb that cannot be detected.

For instance, Poseidon is aimed at blowing up the coast with nuclear heads which is a direct threat to U.S. and allied structures. The Avangard, with its hypersonic speed, strengthens Russia's capability of a first strike and thus destabilizes concepts of nuclear security.

Taken together, these advancements not only fortify Russia's nuclear stance but also communicate a loud and clear message: Russia will not hesitate to put things at parity with the US and will employ such sophisticated systems to flex muscle, especially in areas of geo-strategic importance as encompassing Eastern Europe and Arctic territories. Russia's Poseidon nuclear torpedo and Avangard hypersonic glide vehicle challenge U.S. missile defense systems, destabilizing global security. Far more troubling for world peace is that North Korea is developing nuclear power and expanding itself. Capabilities in ICBM are on this path and getting more connected with Russia, which makes it even more complex. Sustained actions of the North Korean nuclear weapons development and their missiles. Generally, hinder the endeavors for sustaining the strategic deterrence of America. The efficiency of the traditional arms control structure in the US and Russia originated from the New START Treaty is continuing to come under pressure, particularly as the treaty agreement for the vehicle expires in 2026. In 2023, Russia suspended its membership claiming to be due to increased political tension, effectively pausing the inspections and the very compliance mechanisms that had been essential to the operation of the treaty. The future of the treaty, However, those goals are unknown now, and their attainment threatens international arms control.

In response to changing threats the world over, some scholars opine that the modernization of the nuclear forces of the United States can assist in containing the capabilities of the adversary. So, in this regard, the considered LGM 35A Sentinel and Columbia class submarines are vital for leveraging the new security threats. However, skeptics are cautious about considering these steps as developed as the ideas to solve most of the problems since they may enhance regional apprehensions and start an arms race, particularly in gentle areas like South Asia. A literature review reveals that there is consensus on the need to work on risks in emergent technologies.

It is also apparent that actions aimed to enhance missile defense in the hypersonic realm as well as cybersecurity will strengthen the key nuclear C2 systems against potential adversaries. But such developments should be done cautiously to avoid a situation where competing parties escalate their investments in these high-tech fields thus worsening global security. Another very important component of arms control is the multilateral process. Scholars have underlined the requirement to include nuclear states like China, Russia, Pakistan, and India in structures that enhance transparency do away with the-opacity. North Korea's growing ICBM capabilities and ties with Russia further complicate U.S. deterrence in Asia.

Expanding the discussion, which includes all nuclear advanced capable states may help reduce the probability of an unmanageable arms race and improve global stability. This calls for a careful balance in terms of concerns about differences in politics in terms of political priorities. Strategic implications that are of importance to all the stakeholders in the process. Given these trends, the question arises: Can the U.S. modernize its deterrence capabilities fast enough to continue keeping nuclear security? Will South Korea and Japan, for example, rest on the American security guarantee or start devising their nuclear plans to counter deepening threats? Perhaps most fundamentally, though, how long can America hold the line against these rising nuclear powers before its edge is irreversibly in danger? The answers to all these questions will shape how global nuclear competition plays out in the decades to come, influencing the trajectory of world security.

<https://stratheaia.com/the-us-nuclear-deterrence-in-a-multipolar-world/>

Child Rights Violations in Pakistan: A Call for Action

Alamgir Gul

December 18, 2024

November 20th was celebrated as the International Children Day, but the day was marked by widespread protests in Balochistan, especially the capital Quetta where the family and civil society protested the abduction of another child. In Pakistan, children are particularly susceptible to various types of violence, including sexual, psychological, and physical abuse, as well as exploitation, including child trafficking and economic exploitation. Children in Pakistan face harsh conditions as a result of poverty, illiteracy, and cultural norms that support violent cycles. Alarming allegations of child labor, human trafficking, and physical punishment underscore the pressing need for systemic change, as many children are abused in their homes, schools, and communities. Child rights are defined as “The rights that are concerned with both the protection of the individual child and the creation of the conditions in which all children can develop to their full potential”. According to a report by United Nations International Children Fund (UNICEF) 2023, there are approximately 26.2 million children out of school, and 13.7 per cent of them who are aged between 10-17 years are engaged in child labor in Pakistan. The largest concentration of children’s right violations is seen in Pakistan’s largest province, Balochistan, which became a hub of challenges and security issues. In the province, child rights violations are increasing rapidly. It is important to note that rather of taking real tangible action to address this unstable situation, the federal and provincial governments merely make empty political claims and declarations.

Child labor in the province has been steadily increasing due to the widespread presence of poverty. Children are compelled to work from a young age in order to provide for their family. It has been noted that children in Balochistan primarily labor in auto shops, coal mines, construction sites, and rubbish collection services. However, child labor harms children’s social, moral, physical, and mental development. It also touches on the grave problem of child trafficking and selling. The violations of child rights have massive repercussions on the state and society. Poverty, lack of systematic education and opportunities force the youth to indulge in criminal activities, which can give birth to many social ills. Adding more, the surge in using of drugs by children is also a main concern to deal, because it has many harmful impacts on the behavior of child and make them more prone to violence and aggression. A rapid increase in drug addiction among students of academic institutions has emerged as a serious social problem confronting the contemporary society that constitutes one of the highest proportions of young people in the world. Most are impressionable children from poor families who are indoctrinated through

networks of terrorist organizations; although many are also procured through by armed gangs, and then incited to conduct illicit and terrorism activities. Children working in coal mines, auto shops are abducted by organized beggar-rings and terrorists to use them as a shield to fulfill their interests, there are many examples of such horrifying incidents, and each new tragedy eclipses the previous one in the public's memory. Only cases that capture media attention or come under the radar of officials, NGOs, child rights activists, or concerned individuals see action, but even these are few and far between. However, effective child protection requires seamless coordination between key stakeholders, including child protection authorities, police, medico-legal officers, and the judiciary. This is severely lacking in Pakistan. Each department operates its own helpline; efforts to create a unified helpline for child protection have met with resistance. Each department responds to cases according to its individual protocols, resulting in delays and confusion.

For a child protection system to work in Pakistan, we need coordination among all stakeholders involved in child protection, including citizens, professionals working with children, child protection authorities, police, the judiciary, lawyers, and healthcare providers. We need pre-designed forms for reporting incidents of child abuse, step-by-step guidelines for handling cases, and clear protocols for monitoring, auditing, and reviewing processes to ensure compliance with best practices. Its primary goal should be to protect the child and family from further trauma, while offering a systematic, trauma-informed approach to address child abuse and child labor. Awareness campaigns should be consistent and will only succeed when a strong child protection system is functioning effectively. It needs great efforts and dire consideration to secure children's rights and provide them with such facilities and education to treat them like a national asset. Children in any country hold the key to their future. The country will have issues if they are involved in illegal operations. Concrete action, not just words, is required for a successful reaction. Multifaceted approaches, such as bolstering legal frameworks, raising awareness, and offering easily accessible support services, are necessary for an effective crisis response. Every kid is entitled to a life free from violence, including physical or corporal punishment as well as humiliating and demeaning forms of discipline. Violence against children in all its manifestations and across all institutions can be progressively eradicated via the comprehension, acceptance, and application of child rights.

<https://www.eurasiareview.com/18122024-child-rights-violations-in-pakistan-a-call-for-action-oped/>

US Biased Sanctions Against Pakistan

Ali Abbas

December 20, 2024

The United States has sanctioned the National Development Complex (NDC), which is responsible for Pakistan's long-range missile program. Along with the NDC, three other firms have also been sanctioned for assisting Pakistan's ballistic missile development. Earlier this year, the US also sanctioned three Chinese firms for similar reasons which can be termed as silly excuses, at best. The fact that US sanctions are biased and lack uniformity requires no explanation. It is amply clear that sanctions are not applied to enforce international norms such as non-proliferation, rather they are used against states that do not toe the American line. Pakistan has no missile that reaches the US mainland. Rather, it is India's (the US' geostrategic favorite for containing China), whose accelerating missile capability not only reaches the US homeland but also the entire Europe. The US sanctions on Pakistan's missile program highlight bias and geostrategic favoritism toward India, undermining regional stability. This is a longstanding strategic issue being ignored by the world community. The US must have a balancing strategy in South Asia. Favoring one against the other has never been a viable strategy. Pakistan can never be ignored and undermined. If the modest balance is not kept, it will have repercussions on the South Asian strategic stability. The Americans have always perceived Pakistan as a threat and have never welcomed its strategic missiles or nuclear programs. That Pakistan managed to become a nuclear power, notwithstanding its indigenous commitment and the leaderships' vision, would not have been possible if Pakistan had not leveraged its indispensable position in the Cold War and the Afghan Jihad against communism. The growing number of sanctions on Pakistan's strategic programs are not just morally outrageous but also signal, albeit subtly, towards a risky future. The Stuxnet virus which infected the Iranian centrifuges in Natanz back in 2010, severely hampered Iran's progress on its peaceful nuclear program. Common amongst the suspicions was the assumption that the virus had entered the centrifuges through a USB stick but given the tight security in and around such facilities, this idea seems far-fetched. Another more probable theory suggests that American and Israeli intelligence infiltrated Iranian supply chains related to its nuclear program. The US and Israel succeeded in infiltrating and managed to compromise Siemens equipment, notably the Step7 software intended to be used in Iranian nuclear reactors.

The Hezbollah pager explosions in September 2024 also directed attention toward Israeli infiltration of Hezbollah's supply chain, as the late head of the group Hassan Nasrallah advised its members to stop using smartphones to avoid being hacked or traced by Israeli intelligence.

However, according to experts, Israel managed to plant explosives inside the pagers before they were delivered to Hezbollah in Lebanon. This shows how acts of sabotage can seriously hamper the safety and security of both personnel and critical infrastructure. Reliance on black markets due to sanctions creates vulnerabilities to sabotage, compromising national security and strategic integrity. C-I-A, confidentiality, integrity, and availability is a famous triad used in sensitive matters to gauge the level of security of a project. Acts of sabotage aim to compromise at least one of these elements. What made the acts of sabotage possible in the two cases mentioned heretofore?

The answer, to an extent, lies in sanctions and the resultant shift to black markets for procurement. Iran has been sanctioned by the US for decades making it impossible for it to trade industrial components using normal banking channels. In addition, the unwillingness of providers to engage with sanctioned entities creates scarcity which may hinder the development of a certain sector. It is the norm for sanctioned entities, therefore, to shift to black markets which have no oversight and no mechanisms to ensure safe transactions. This undoubtedly allows sanctioned entities to continue procurement of equipment but the lack of institutional checks and balances in the black market also enables clandestine sabotage operations by the adversary. Much like how Western intelligence sabotaged Iran's nuclear program through Stuxnet, and the compromising of Hezbollah-owned pagers by Mossad operatives – both of which are serious security breaches. These concerns fit into the current discourse on Pakistan's strategic and nuclear programs as well. As entities, both state and non-state, gradually come under the US sanctions umbrella, more and more of these entities will be forced to redirect their procurement operations through the black market. If such may be the case, Pakistan's missile program may become susceptible to the risk of sabotage. Historical sabotage examples like Stuxnet and Hezbollah pagers underline the risks of black-market reliance for sanctioned entities. An entirely new domain of concern will open as a result, and the already surmounting challenges to the country's strategic capabilities will pile up. No adversary has been able to stall Pakistan's nuclear and strategic weapons' programs but if one believes they will not attempt to limit our capabilities through sabotage is naïve optimism. The custodians of our strategic weapons program might already know the challenges highlighted here. What remains to be done are proactive measures to stay safe and secure from acts of foreign subversion lest our strategic programs suffer a similar fate as that of Iran.

<https://stratheia.com/the-american-sanctions-risks-to-pakistans-strategic-assets/>

Harnessing Nuclear Energy to Meet Pakistan's Energy Needs and Climate Commitment

Pairman Bazai

December 20, 2024

Globalization, while advancing economic growth and connectivity, has left a troubling legacy of environmental degradation. Nowhere is this more evident than in South Asia, where greenhouse gas emissions, once negligible, are accelerating due to rapid urbanization and industrialization. In 2020, a temporary decline of 8.51% in CO₂ emissions occurred, largely due to pandemic-induced economic slowdowns. However, this dip failed to signify structural change. In the previous decade, fossil fuel consumption (71.52%) continued to dominate the region's energy landscape, with coal and oil at the forefront, leaving renewable energy contributions in decline. This trajectory is unsustainable, especially for a country like Pakistan, which is grappling with acute energy shortages and the need to meet its climate commitments.

Despite contributing only 0.53% to global CO₂ emissions in 2023, Pakistan is among the most vulnerable countries to climate change impacts. Its heavy reliance on fossil fuels continues to grow. Coal use, in particular, has surged, raising alarms about its environmental and economic sustainability. While the country's share of renewable energy remains dismally low, nuclear energy emerges as a powerful and underutilized solution. As the world transitions to cleaner energy, Pakistan needs to increase the capacity of nuclear energy to ensure energy security, reduce its growing dependence on fossil fuel imports, and address climate challenges. Nuclear energy offers a unique advantage in ensuring reliable and low-carbon electricity generation. Unlike solar and wind energy, which can be considered as an intermittent energy source, nuclear plants provide consistent power, operating continuously for 12-24 months without interruption. Pakistan's six operational Nuclear Power Plants (NPPs), with a total capacity of 3,530 megawatts, generated 21% of the nation's electricity in 2023, despite accounting for only 8.6% of installed capacity. This efficiency, coupled with nuclear's low operational costs, underscores its potential to reshape Pakistan's energy landscape. In December 2022, nuclear power was the cheapest source of electricity in the country, at just PKR 1.07 per kilowatt-hour—far below the costs of coal (PKR 11.5/kWh) and imported gas RLNG (PKR 20.2/kWh).

Economically, expanding nuclear energy is not just an option but a necessity. With fossil fuel imports consuming nearly a third of the country's foreign exchange reserves, Pakistan cannot afford to sustain its current energy mix. Nuclear power provides a path to reducing dependency

on costly imports while ensuring stable energy prices. Despite a poor developing country, Pakistan is trying to shift from its reliance on fossil fuel (which accounts for 86%) to nuclear providing a reliable, cost-effective, and low-carbon energy source. Currently, its nuclear energy in the national energy mix is 17.4%. Pakistan aims to increase nuclear capacity to 8,000 megawatts by 2030, which aligns with both economic growth and environmental sustainability. The major challenges to nuclear energy are safety concerns and radioactive waste which mostly face criticism. However, Pakistan has consistently demonstrated its commitment to international safety standards and has designed to withstand seismic activity, a critical consideration given the country's vulnerability to natural disasters. More importantly, the nuclear waste generated over decades is significantly smaller in volume compared to the waste produced by coal plants in a single hour. Advanced waste storage solutions and adherence to International Atomic Energy Agency (IAEA) guidelines further mitigate these challenges, positioning nuclear energy as a safe and sustainable option.

Pakistan's energy future lies in a balanced mix of nuclear and renewable energy. Along with renewable sources such as solar and wind energy sources, nuclear energy provides the foundation for a stable and sustainable power supply. These resources are ideal for meeting peak demand and addressing energy needs in remote areas, but, according to the yearly report of the National Electric Power Regulatory Authority's (NEPRA) 2022, their current contribution to Pakistan's grid (43775 MW) is minimal as representing 7% of the total mix. To maximize its potential, Pakistan should invest in hybrid systems that integrate renewables with nuclear power. Emerging technologies, such as Small Modular Reactors (SMRs), offer additional flexibility, making it possible to deploy energy solutions in off-grid or underserved regions efficiently. In a nutshell, the nuclear energy expansion of Pakistan is not only crucial for meeting its energy crisis but is also a strategic step toward sustainability and climate resilience. By promoting peaceful uses of nuclear technology, ensuring stringent safety measures, and integrating renewable sources, Pakistan can lead by example in transitioning to a low-carbon economy in the region and globally. Pakistan needs to enhance its exposure in nuclear technology to achieve targets of clean energy and embrace nuclear energy and renewables to secure a cleaner, more sustainable future for generations to come.

<https://southasiajournal.net/harnessing-nuclear-energy-to-meet-pakistans-energy-needs-and-climate-commitments/>

Nuclear Energy: A Path to Energy Security and Climate Resilience

Sher Ali

December 21, 2024

The rapidly growing energy demands, whilst reducing harmful emissions of greenhouse gases have become a key component of energy policies of many countries. Nuclear power is gaining widespread recognition as a clean reliable and economical source to combat pollution, climate change, and environmental risks. Many countries including Pakistan aim to expand their nuclear power capacity in the coming decades and reduce their dependence on fossil fuels. Pakistan, facing the deepest energy and economic crisis in the country's history, needs to revive its energy policies and prioritize nuclear energy to achieve twin targets—the growing energy needs and address climate change challenges. Pakistan's energy sector relies heavily on fossil fuels, contributing to 76.1% of the country's CO₂ emissions.

Pakistan is grappling with a serious energy shortage issue that contributes to the country's economic crisis. Due to the inefficiency of Pakistan's power sector, electricity costs have significantly risen well beyond what many citizens can afford. Energy shortages have greatly affected commercial activities in many ways, such as production, profitability and productivity, investment, and business suspension while increasing the cost of living for consumers and householders. Currently, Pakistan is largely dependent on fossil fuel imports for its energy needs which is a major burden on the country's economy as it puts significant pressure on foreign exchange reserves. In 2023, the contribution of fossil fuels was 59% of the country's electricity generation mix. In the first quarter of FY25, the oil import bill surged by 15.74% indicating that the consumption of petroleum goods is rising.

This has worsened energy insecurity and made the country vulnerable to fluctuations in the prices of oil coal and gas in the international markets. Also, due to its heavy dependence on fossil fuel energy for economic growth, 76.1% of overall CO₂ emissions are from the energy sector. Pakistan suffers severely from Climate change. The Global Climate Risk Index 2024 ranked Pakistan as the 5th most vulnerable country to climate change. In 2022, the climate-change-induced flooding caused mass displacement of people and economic damage of billions. Climate change has deeply affected the productivity of Pakistan's agriculture sector which is considered the foundation of the country's economy. The rise in temperatures, the alterations in precipitation, changes in the incidences of extreme weather events, and a decrease in water availability are negatively affecting the production of the agriculture sector. Nuclear energy offers high efficiency with low greenhouse gas emissions, achieving a capacity factor exceeding 90%.

Nuclear energy is widely recognized as a reliable source, offering a stable baseload and often achieving one of the highest capacity factors among all energy sources, frequently exceeding 90%. This means that nuclear power plants operate at nearly full capacity almost continuously, in contrast to renewable sources like solar (15–30%) and wind (30–40%). Though wind and solar energy are considered economically competitive with fossil fuels in many countries, their capacity to generate electricity depends on the weather conditions and time of day. Nuclear energy is known for low greenhouse gas emissions and offers high energy density, allowing a small amount of fuel to generate substantial electricity. It provides a reliable, cost-effective and stable energy supply, reducing dependence on fossil fuels and diversifying energy sources. Modern reactors feature advanced safety technologies, while long-term fuel availability ensures sustainability. Many countries across the globe, including Pakistan, aim to increase the capacity of nuclear energy. For instance, the United States intends to triple its nuclear power output by 2050, increasing from its current capacity of 96,952 MW. China increased the capacity of its nuclear energy by more than 400% between 2010 and 2020.

Additionally, EU ministers recently voiced the approval of nuclear energy for the first time in their mandate of the bloc for the UN climate summit, marking the increasing use of atomic power as an energy source. The call for endorsement of nuclear energy represents a gradual change in the standpoint towards nuclear energy in Europe, which took a negative stance after Japan's Fukushima nuclear disaster in 2011. Pakistan is currently operating six Nuclear Power Plants (NPPs) with a total installed capacity of 3,545 MW which contributed about 18.2% of the total electricity generation in the national grid during July-March FY-2024. Pakistan aims to increase its nuclear power generation capacity to 40,000 MW by 2050 as part of its Nuclear Energy Vision 2050 reflecting the country's commitment to expanding its energy mix and enhancing energy security through sustainable and clean energy solutions. Pakistan aims to expand nuclear power capacity to 40,000 MW by 2050 under its Nuclear Energy Vision.

Nuclear energy enables Pakistan to meet its energy needs while tackling climate change challenges promoting a climate change resilient environment for the country's agriculture sector. Thus, nuclear energy offers a sustainable solution for the country's future. Facing the dual challenge of climate change and rising energy demands, Pakistan needs to incorporate nuclear power into its energy plan to achieve both sustainability and energy security. Also, the peaceful application of nuclear power is incredibly useful in promoting a climate-resilient environment, pest management, and sustainable agricultural practices.

But, increasing nuclear power in Pakistan is not without significant challenges. Pakistan is excluded from trade in nuclear plants or materials which hinders the development of its civil nuclear energy program. The US-India nuclear deal and the NSG waiver which has provided India with the opportunity for nuclear trade despite being an outlaw to the NPT is an evident example of the discriminatory behavior of the international community. Climate-change-induced challenges threaten Pakistan's agriculture sector, exacerbating economic vulnerabilities. Finally, through international cooperation and promoting public awareness about peaceful uses of nuclear technology, Pakistan can improve its energy security economic growth and address environmental challenges.

<https://stratheaia.com/nuclear-energy-a-path-to-energy-security-and-climate-resilience/>

Resumption of Missiles Race – An Evolving Challenge to Global Arms Control Regime

Usama Khalid

December 23, 2024

The missile race across tactical, operational, and strategic defensive levels emerged as a defining feature of the Cold War era. Despite the establishment of numerous arms control treaties, this phenomenon has not only persisted but has also intensified in today's complex security environment. While arms race is not a new phenomenon for the international community, its most severe consequences were starkly evident during the Cold War, particularly in the 1960s and early 1970s, when the United States and the Soviet Union engaged in a massive strategic arms buildup, amassing thousands of warheads and delivery systems.

Although various treaties and agreements were introduced to mitigate these dangers, many have since become outdated and ineffective in the face of rapidly evolving geopolitical dynamics. This essay critically examines how the aggressive missile development postures adopted by certain states threaten to undermine the global arms control regime. In order to mitigate this threat, some policy recommendations are also suggested in the later part of this essay.

On Thursday 21st of November, Russia in response to the Ukrainian strikes on Russian territory using the US and British missiles, launched a new intermediate-range missile in a strike on Ukraine. Russian President Vladimir Putin has claimed that such missiles cannot be intercepted by the American air defense system deployed in the region. However, earlier this month on November 5, 2024, the United States launched a test of Minutemen III.

A joint team of Air Force Global Strike Command (AFGSC) airmen and Navy aircrew launched an unarmed Minuteman III intercontinental ballistic missile (ICBM) equipped with multiple targetable reentry vehicles (MIRVs) from aboard the Airborne Launch Control System (ALCS) from Vandenberg Space Force Base, California. According to the official statement the test was testament to the effective readiness of the US robust strategic force command.

The implications of these particular testing might not be as overtly visible as it would be perceived, but the timing of the tests is quite threatening for the global arms control regime in the wake of weakening of the existing regimes.

The strategic signaling in the midst of the ongoing Russia-Ukraine War may be interpreted differently than during the peace time. Similarly, the launch of intermediate-range nuclear capable

missiles during the ongoing military engagement would be quite hazardous as it could initiate a nuclear war in no time with a mere miscalculated decision.

Though, Russian President Vladimir Putin has stated that Russia has no desire to engage in an arms race, but he has also issued a warning to the United States and its NATO allies, emphasizing that if any state—whether possessing nuclear weapons or not—threatens Russia's sovereignty and receives support from a Nuclear Weapon State (NWS), Russia will not hesitate to employ nuclear weapons in response under such conditions. Such statements reveal the unambiguity in policy related issues during hostile circumstances. Therefore, strategic restraint is the fundamental element which needs to be exercised by rational actors such as states' politico-military leadership.

Similarly, for some time missiles developments and testing have also been taking place in South Asia. Last week, India reportedly conducted a test of nuclear capable submarine-launched ballistic missile (SLBM) K-4 from the recently commissioned nuclear-powered submarine INS Aright. The K-4 missile has a range of 3500 km.

Likewise, few months ago, in September 2024, Defence Research & Development Organisation (DRDO) and the Indian Navy conducted the flight test of the Vertical Launch Short Range Surface-to-Air Missile (VL-SRSAM) from the Integrated Test Range (ITR) in Chandipur, off the coast of Odisha. Additionally, the news is circulating that the Indian Navy will be expected to conduct another test, this time of Anti-Ship Ballistic Missile (ASBM) in the coming days. However, such Indian aggressive developments coerced Pakistan to go for an active arms tussle with India in response.

Therefore, on November 04, 2024, Pakistan Navy carried out a successful flight test of the indigenously developed SMASH – a Ship-Launched Ballistic Missile (SLBM). This ballistic missile has a stated range of 350 KM with the capability of engaging land and sea targets with high precision. It is equipped with a state-of-the-art navigation system and maneuverability features. On the other hand, neighboring India has been the provocateur of instigating strategic arms buildup in South Asia.

These developments are quite threatening for the region's strategic stability regime in the presence of an overt conventional asymmetry between India and Pakistan – both of whom had been engaged in military duels in the past several times. In a hostile region such as South Asia, the existence of two nuclear rivals makes it the most vulnerable for accidental nuclear escalation. The absence of mutual dialogues in the current scenario further complicates the scenario for the

establishment of a sustainable nuclear restraint regime. The previously agreed Confidence Building Measures (CBMs) on the pre-notification of missile flight testing has proved to be inconsequential when the debate comes towards arms control.

Iran – North Korea Case

The other two states, Iran and North Korea, though situated geographically in two completely different regions, still their offensively defensive actions have critically been observed by the world leaders and institutions, simultaneously.

In 2024, North Korea was actively involved in the development and testing of a series of ballistic missiles including short-range as well as strategically long-range ICBMs in the East Asian Sea. Such tests are a provocateur for neighboring states such as South Korea and Japan. While, on the other side, Iran was in the global headlines due to the prevailing precarious security situation in the Middle East.

On November 9, 2024, video circulated on some of the social media accounts likely affiliated with the people associated with the Iranian journalists claimed that Iran had covertly conducted the test of ICBM amid the crisis in the region where US involvement is also imminent and dangerously threatening for regional stability because US has been actively supporting anti-Iran actors for the last forty odd years.

Though the Iranian government had neither confirmed the news nor denied it. However, if such development took place, then it would be quite destabilizing for the region mired in sectarianist tussles for some time with the global attention is much focused on the Israel-Iran retaliatory crisis for provoking each other with strategic weapons firing in the past few months during the ongoing Israel-Hamas war in Gaza.

Recommendations

Addressing the missile arms race in these regions necessitates a comprehensive approach that combines diplomatic, economic, and security measures. The following outlines practical solutions tailored to each pair of countries involved:

India-Pakistan

– India and Pakistan encounter significant obstacles in implementing conventional arms control for various reasons. India is hesitant to agree to measures that would undermine its strategic position due to its military strength and territorial disputes with China. Moreover, entrenched hostility stemming from historical conflicts and security concerns hinders collaboration on arms

control initiatives between the two nations. Moreover, demonstrating compliance with any such agreement would be challenging due to the intricacies of modern military capabilities and the potential for clandestine operations. Implementing comprehensive Confidence-Building Measures (CBMs) is essential to address these challenges. Prospective future arms control agreements may be facilitated by confidence-building measures (CBMs) that mitigate misconceptions and enhance trust through improved transparency and communication between the two nations. – Enhancing bilateral relations and guaranteeing regional security depend on discussions between the political and military authorities of both nations concerning a pragmatic arms control agreement, especially pertaining to missile systems. In this setting, Confidence-Building Measures (CBMs) serve as a crucial institutionalized tool. An operational organization may be established to provide coordinated and consistent communication with the relevant officials of both countries. – Notwithstanding enduring security and geopolitical challenges, the significance of international organizations in mediating between India and Pakistan is undeniable. These groups can be highly beneficial in adversarial circumstances where neither party is inclined to communicate. – Subsequent to the Russian invasion of Ukraine, Russia showed increased opposition to international arms control agreements. With the change in US leadership, there is hope that peace will supersede international order. Renewing, renegotiating, and expanding the New START agreement to encompass advanced missile technologies and verification protocols may mitigate the escalating arms race between these two long-standing Cold War adversaries. – Establishing bilateral talks in contemporary society is challenging. Consequently, Multilateral Dialogues are essential to involve other significant nuclear-armed states, including the United Kingdom, France, and China, in discussions aimed at establishing a more comprehensive arms control framework.

Iran-North Korea

– Sanctions have proven ineffective in deterring Iran and North Korea from advancing their missile programs, which they assert are responses to security threats. A more efficacious strategy would involve offering economic and political incentives, such as sanctions alleviation, market access, or security assurances, in return for verifiable actions to limit their missile development.

– Regional security frameworks focused on the Middle East and East Asia are essential for addressing missile proliferation. These strategies, which foster dialogue, collaboration, and reciprocal comprehension, might mitigate conflict risks, enhance stability, and tackle the fundamental causes of missile arms races.

Conclusion

Consequently, the difficulties posed by the advancing missile arms race require urgent and collaborative international efforts. The enhancement and evaluation of essential delivery vehicles is warranted to evaluate technical progress; nonetheless, it often produces inflammatory signals that may intensify security apprehensions and heighten tensions.

To counter these dangers, the international community must adopt a comprehensive strategy aligned with the existing situation, ensuring that missile developments and testing are not regarded as hostile actions. A properly constructed treaty, such as the Nuclear Nonproliferation Treaty (NPT), could be essential for diminishing the spread and testing of offensive missile systems. Inaction at this juncture may have repercussions that are more destabilizing than those experienced during the Cold War arms competition.

The contemporary multipolar international system, characterized by complex economic and political interrelations, poses a challenge and necessitates vigilance about missile proliferation, unlike the previous bipolar world order. Resolving this issue is essential to sustain stability in an increasingly interconnected world and to uphold global security.

<https://www.wgi.world/resumption-of-missiles-race-an-evolving-challenge-to-global-arms-control-regime/>

India's Nuclear Loose Ends

Atta Ullah

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India's nuclear program embeds various loose ends related to safety and security, missile tests, and incidents of misfire. There are concerns regarding the theft of radiological materials, export control, and the existence of a black nuclear market for sensitive technologies and materials. These loose ends not only challenge India's claims of being a responsible and normalized nuclear power but also present serious threats of radiological terrorism and nuclear proliferation. The recurring incidents of nuclear theft and smuggling of radiological materials in India suggest the existence of a nuclear black market there. Over the years, several instances of theft and illegal trade of radioactive substances have been reported. This trend continued unabated with the theft of the highly radioactive substance Californium from the Bhabha Atomic Research Center (BARC) in 2024. There were around 18 incidents of nuclear material theft and loss in India, totaling approximately 200 kg of uranium, from 1994 to 2021. In 2021 alone, three incidents of nuclear theft were reported. Two instances are particularly noteworthy: one involved an Indian politician and sitting member of the Parliament, who was connected to the illegal trade of uranium in 1998), and another involved a terror outfit that was caught possessing radioactive material in 2003. These incidents, besides cases indicating potential collusion between government officials and terrorist groups, also underscore the seriousness of the challenges faced and the extent of incompetence and negligence within the system.

Similarly, in 1996, some 130 instances of safety-related concerns about nuclear facilities and 147 instances of mishaps in atomic energy plants were reported in a mere three years, from 1995 to 1998. More than half a dozen major incidents were also reported at different nuclear facilities in India from 1998 onwards. In two years, from 2010 to 2011, India's premier intelligence agency (CBI) reported some 25 intrusions and security breach incidents, at BARC, in 2012. This same facility had encountered a fire accident in 2010, killing two people, for 'unknown triggers'. In a particular instance, a disgruntled employee at India's Kaiga Atomic Power Station in Karnataka State had reportedly contaminated a drinking water supply with heavy water from the plant which led to the poisoning of 45 employees at the facility. In another incident, personnel of the Central Industrial Security Force (CISF), assigned to guard the facility, opened fire and killed several employees working within the facility. Similarly, BRAC scientists have previously been selling 'black diamonds' for commercial purposes and could use sensitive technology out of greed for financial gain.

According to sources reporting on nuclear issues, most of the theft of these materials originates from enrichment facilities in India such as BARC and the Department of Atomic Energy (DAE). It has a poor record of enacting barriers, by limiting access to fissile material and international safeguards on nuclear facilities, to prevent nuclear proliferation and nuclear terrorism. India's Home Ministry had reported that the CISF responsible for guarding Indian nuclear warheads and protecting weapon systems at various sites remains understaffed, ill-equipped, and inadequately trained to perform its duties. Based on its flaws in nuclear safety and security, India is ranked at 23 out of 25 countries, only above Iran and North Korea, which possess weapon-grade uranium. These incidents severely question insider role, inadequate safety and security measures, and failure to fulfill international obligations under the UN Security Council Resolution 1540 (2004), and the IAEA Protocols: most importantly, the Convention on the Physical Protection of Nuclear Material (CPPNM). At the risk of oversimplification, it is necessary to mention that BARC and DAE are strategic organizations that oversee India's nuclear weapons program and negligence at their end may cause severe challenges.

Likewise, India's missile program operates under a veil of secrecy, which also obscures its flaws and loose ends associated with it. For example, in March 2022, India's nuclear-capable BrahMos missile was 'misfired' and traveled some 124 km into Pakistani territory. Again, in March 2023, India's three surface-to-air missiles were misfired during a military exercise due to a 'technical glitch'. These incidents of missile misfire into the territory of another nuclear-armed country and test failures in a peacetime military exercise, close to the same country: Pakistan, set a dangerous precedent in an already risk-prone region.

In the first incident, India provided a minimal explanation, attributing it to a "technical error." The second case was reported as a malfunction and "accidental launch". An officer dismissed for the March 2022 misfire, stated that he was "not trained for operational problems" and "had acted in complete obedience to the SOP" (Standing Operating Procedures)". Another official connected to BrahMos misfire suggested that "localizing the liability to the Squadron level was to camouflage the policy failure at the HG level". From an outsider's perspective, these incidents "expose(d) many loopholes and technical lapses in India's handling of its strategic weapons", yet this negligence has largely escaped international scrutiny.

These intentional "misfires" have been aimed at 'tempting the fates' and urging the adversary into untoward crisis escalation. This raises concerns about individuals having the authority to launch a missile. The situation also prompts questions about the "strict civilian command and control" over India's nuclear arsenal. India's negligence and incompetence set a risky precedent for two

nuclear-armed arch-rivals. Given the geopolitical and security environment in which these countries operate, the potential for loss of restraint could lead to severe misjudgment and catastrophic consequences.

Similarly, an American expert notes that “Indian export controls are poorly implemented and the possibility of onward proliferation-where imported items are re-exported- remains a serious concern”. The challenge of acquiring sensitive technology and materials poses significant proliferation concerns, particularly when these technologies are re-exported and potentially fall into the wrong hands. This concern is exacerbated when state entities illegally transfer imported technologies, as it can lead to serious threats to peace and security in the region and beyond, including the risk of radiological terrorism.

In sum, despite India’s significant proliferation record, poor safety and security regulations exist, along with a thriving black market in the illicit trade of sensitive technology and radioactive materials. Nonetheless, the West has turned a blind eye to its poor record. The non-proliferation regimes, backed by western countries for their vested interests, further facilitate India’s loose ends and complicate global efforts to prevent proliferation and ensure the physical protection of radiological material. Additionally, the engagement of western countries with India through non-proliferation regimes not only facilitates these activities but also strains the already weak export control regulations, potentially leading to a systemic breakdown of export control institutions in the country.

<https://strafasia.com/indias-nuclear-loose-ends/>

The Sahel's Fury: A Call for Degage to France

Shehzadi Irum

December 28, 2024

For centuries, Western powers have regarded Africa as a subordinate in the global order. Disguised as efforts to promote development, they ruthlessly exploited the continent's vast resources to sustain their own prosperity, thereby reinforcing a cycle of inequality and dependency.

But it does not end there. The so-called partnerships have consistently prioritized Western interests, raised an essential question, when has Africa ever genuinely reaped the benefits from these partnerships? The harsh reality is – it has never happened. Under the pretext of providing security, these partnerships have often portrayed themselves as safeguarding Africa's stability. However, this so-called protection has predominantly upheld Western dominance, rather than genuinely empowering African nations.

After enduring years of France's so-called protection, Senegal is taking charge of its future, signaling a broader shift in the Sahel region. Senegal's move to break ties with France is rooted in the historical brutality of the 1944 Thiaroye Massacre, where African soldiers who had fought for France during World War II, were sent back to the capital Dakar. Soon after arriving in Dakar, they protested against pay delays and poor living conditions. French forces opened fire on the protesters, killing at least 35, with the true toll likely much higher. This atrocity, long denied or minimized by France, underscores the ruthlessness with which the colonial power exploited and betrayed its African soldiers.

Senegal President Bassirou Diomaye Faye said on the 80 anniversaries of the Thiaroye massacre, that France's President Emmanuel Macron had admitted that his country's troops were responsible for a "massacre" of Senegalese soldiers in 1944. While he hailed the acknowledgment, he argued that allowing French bases in the country contradicted national sovereignty. This defiance is not isolated, countries like Mali, Niger, Burkina Faso, and Chad – all belonging to a Sahel region, have already taken a firm stance against the continued French military presence. Collectively, these nations raised their voices and told French troops to pack up their bags and go home. But what has encouraged these Sahelian countries to declare, once and for all, that enough is enough?

The history of the African continent, perhaps more than any other, is marked by upheavals and transformative events that have profoundly impacted its indigenous populations and their development paths. France retained deep and post-colonial relations, exemplified by the CFA

franc, a currency pegged to the euro and tied to French oversight, still used by seven of nine Francophone West African states. These nations also paid an annual tax to France, despite receiving no tangible benefits in exchange, which further sparked strong anger against France and created an environment where military coups were seen as acts of liberation from neocolonial dominance.

Since 2020, Africa has witnessed a series of coups, beginning with Mali, followed by Burkina Faso and Niger, leading to the formation of the Alliance of Sahel States a bloc determined to uproot France's longstanding influence in the region.

Despite gaining independence from French colonial rule in 1960, France exerted significant influence in West Africa. Over time, anti-colonial sentiments have grown, fueled by the fact that these Sahel countries were compelled to adopt Western ideals and democratic practices. In response, the military, often seen as a most powerful institution, took matters into their own hands, overthrowing civilian governments that were aligned too closely with France and the West. Presidents were placed under house arrest and imprisonment, actions that were widely celebrated by the public. In retaliation for these military coups, France and the regional political bloc, the Economic Community of West African States (ECOWAS) imposed heavy sanctions on coup-hit countries. However, these actions intensified anti-western sentiments, further galvanizing the populace against foreign intervention.

Chad, the last stronghold of French influence, has also grown frustrated with the ongoing French presence. The country has explicitly called France to get out and has abruptly announced its decision to expel French military forces, signaling a major shift in its relationship with France. Chad stated that it would terminate its defense cooperation agreement, asserting that as a sovereign nation, it no longer tolerates the presence of France. A move that could potentially bring Chad closer to Mali, Niger, and Burkina Faso, serving as a precursor to the expansion of the Alliance of Sahel States.

The decision to expel French forces from Sahelian countries is not just a political act; it is a rejection of a history built on violence and exploitation. This move signals that African nations are no longer willing to tolerate foreign intervention that undermines their sovereignty. It is high time for Africa to take control of its future and break free from the shackles of colonial powers that have been interfering in its internal affairs for far too long.

Due to France's unjust policies and history of brutality and oppression against African people, the term *Degage* (a French word meaning 'get lost' or 'go away') has become a common slogan on

African soil. Once viewed as the paternal force behind many African nations, France must now confront the reality that its imperial influence is waning. This is not merely a potential setback, it marks the symbolic end of an empire, compelling France to reconsider its role in the world. Ultimately, the rejection sends a clear message that Africa will no longer tolerate foreign interference, and it could inspire other nations to follow suit, further diminishing France's position on the global stage.

<https://www.wgi.world/the-sahels-fury-a-call-for-degage-to-france/>

US biased South Asia policy

Sher Ali

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FOR several decades, the United States has used sanctions as a countermeasure to stop nuclear proliferation. However, these are often discriminatory undermining the principles of non-proliferation regimes and efforts for global peace and security. The latest sanctions imposed by the US on the National Development Complex (NDC) and three commercial entities and baselessly questioning Pakistan's strategic capabilities reflect 'double standards' and once again raise concerns about the US-biased policy towards the region.

Pakistan, a responsible nuclear power, developed its nuclear capabilities to deter Indian aggression and maintain strategic balance in the region. Its ballistic missile program is designed specifically for deterrence, ensuring full spectrum defence and providing second-strike capability. This allows Pakistan to respond effectively to Indian threats at tactical, operational and strategic levels.

The security imperative arises from Pakistan's history, including wars, territorial disputes and India's greater military capabilities, creating a security dilemma. The situation was further aggravated when India conducted nuclear tests in 1974 and 1998, intensifying Pakistan's security concerns. Consequently, Pakistan's nuclear doctrine is driven by security needs, with its strategic capabilities aimed at preventing potential military aggression and maintaining peace in the region. In contrast, India's nuclear ambitions are largely motivated by a desire for prestige and to assert its great power status, rather than solely for defensive purposes.

For over two decades, the US has ignored India's military capabilities and history of aggression, despite its strategic partnership with India. India has been building up its conventional and nuclear forces, particularly long-range missiles, complicating global security. The US continues to impose sanctions on Pakistan while facilitating India's missile development. India's Intercontinental Ballistic Missiles (ICBMs), capable of targeting cities like Washington and Paris with nuclear warheads, pose significant security concerns.

The US has turned a blind eye to these developments, undermining non-proliferation regimes and highlighting double standards. Additionally, the US supported India's Nuclear Supplier Group membership and waived sanctions for its nuclear production, while failing to sanction India for purchasing the S-400 or addressing its nuclear safety record. These actions reflect a shift in US

policy towards containment of China, with India as a key player, although India's reliability as a strategic partner remains uncertain.

Such policies intensify tensions between the rival states and create an environment of mistrust and uncertainty. When certain states tend to receive preferential support and exemptions in their military capabilities, it destabilizes the security environment by weakening arms control arrangements and confidence building, and eventually leads to an arms race and action-reaction syndrome.

Given that, it is essential to address these double standards and work for an unbiased, secure, and effective international framework to deal with nuclear and strategic issues. For this to happen, first, the US should adhere to the same standards and commitments to non-proliferation and effective and dispassionate arms-control arrangements for the broader interests of global peace and security.

To conclude, the US allegations against Pakistan's missile program are unfounded and devoid of rationality. An unbiased approach is fundamental for promoting vital security interests in the region and beyond. The US should support a meaningful conflict resolution in South Asia. Finally, the US should realize that ignoring India's military capabilities and its continued support and exemptions for geopolitical goals would only result in destabilizing the region and damaging the efforts for non-proliferation and global peace.

<https://pakobserver.net/us-biased-south-asia-policy/>

A growing force in a multipolar world

Summra Hamid

December 29, 2024

Global geopolitics is undergoing significant transformation. The once-dominant unipolar world order, centered on the US hegemony, is being replaced by a fragmented and multipolar system. This shift is driven by the expansion of coalitions like the BRICS, the rise of multi-alignment strategies by emerging powers, and the intensifying US-China rivalry. Each dynamic reflects a deepening complexity in international relations and heralds a potential restructuring of the global order. The implications of this transformation are profound. Rising powers like China and India are leveraging the opportunities of this changing landscape to enhance their influence and strengthen their economies, while the USA faces a relative decline in its global dominance. Understanding these shifts is crucial to evaluate the future of global order.

The BRICS bloc— originally Brazil, Russia, India, China, and South Africa— has become a powerful platform for reshaping the global economic order. Its recent expansion, adding major energy exporters like Saudi Arabia and Iran, accentuates its intent to rival Western-led institutions like the G7. Trump's recent tweet on threatening to impose a 100 percent tariff on BRICS, further strengthens the argument of viewing BRICS as an emerging threat to economic hegemony of the USA. Collectively, BRICS countries now control more than 40 percent of the global population and nearly 30 percent of global GDP. It is worth noting that these countries were colonies of the West and contributed a big chunk to the global economy in the past. China has become the world's second-largest economy with a GDP of over \$14 trillion, driven by rapid industrialization and export growth, making it a global manufacturing powerhouse. Before colonization, China's GDP was significantly lower, but it has grown exponentially since then.

India leads in information technology and software services, contributing 8 percent to its GDP and attracting significant foreign investment. Before colonization, India's economy (Now India and Pakistan) was primarily agrarian, and contributed almost 25 percent in global GDP. Brazil, rich in oil, minerals, and agricultural products, is one of the largest producers of soybeans, coffee, and beef. Russia, a major exporter of oil and natural gas, significantly influences global energy markets. South Africa, a leading producer of platinum, gold, and other minerals, has a mining sector that contributes substantially to the global supply of these resources.

Moreover, most of the BRICS countries were once colonies of Western powers: Brazil by Portugal, India by Britain, South Africa by the Dutch and British. Russia faced periods of foreign influence, and China experienced significant intervention but was never fully colonized. These

histories have shaped their current economic and political landscapes. The shared history of colonization among the BRICS countries provides them with a unique platform for cooperation, enabling them to fulfill the needs required to emerge as significant players in global power dynamics. By leveraging this common experience, these countries will develop stronger economic, political, and strategic alliances. Especially the historical bond between Russia, China and India matched with the geographical proximity, not only fosters solidarity but also strengthens their position in the global power structure, making them formidable contenders in shaping future geopolitics. The way forward lies in fostering inclusive dialogue, strengthening multilateral institutions, and embracing global interconnectedness. Only through collaboration can the world build a future that is balanced, equitable, and sustainable.

However, a big question to BRICS credibility lies with India. India's participation in BRICS, seems to contradict its involvement in the QUAD, a strategic forum with the USA, Japan, and Australia aimed at countering China's influence in the Asia-Pacific, which is mainly because of its expanding economy. This dual alignment depicts India as trying to play both sides to maximize its benefits, which undermines its credibility with both groups. This balancing act enables India to access Chinese trade opportunities while leveraging the US military technology and strategic support to counterbalance China's influence in the Asia-Pacific. Given this, China's Belt and Road Initiative (BRI), for instance, aligns with BRICS's goals of infrastructure development, providing China access to main markets, such as Europe and resources in Asia, Africa, and Latin America. Meanwhile, India leverages BRICS as a platform to challenge Western trade policies, secure investments for infrastructure, and assert its leadership in the Global South. China, too, benefits from multi-alignment. The trade volume between China and Africa reached a record \$282 billion in 2023. Although, such strategies as China's economic partnerships and investments weaken the US ability to isolate or pressure rising powers, further diffusing global power. For decades, the USA maintained its hegemony through control of global financial systems, military alliances like NATO, and soft power institutions such as the IMF and World Bank. Today, these pillars face mounting challenges from counterbalancing institutions and alliances like BRICS, signaling a shift in global power dynamics. Economically, the decline of the dollar's dominance in international trade poses a significant threat to the US influence. The dollar's role as the global reserve currency has long provided America with unparalleled financial leverage, allowing it to impose sanctions, control global trade flows, and maintain a robust domestic economy. De-dollarization efforts by BRICS, coupled with emerging alternative currencies like the yuan, could undermine this advantage, forcing the USA to compete on less favorable terms. For example, in 2023, one-

fifth of oil trades were conducted using the Chinese Yuan and Indian Rupee, becoming the top used non-dollar currencies. Countries that once relied heavily on US security guarantees, such as Saudi Arabia and Turkey, are now exploring partnerships with China and Russia.

The world is entering a multipolar era, driven by BRICS, multi-alignment strategies, and the decline of US dominance. Rising powers like India and China are leveraging this transition to assert global influence and address inequities, challenging traditional US leadership. Platforms like BRICS enable these nations to redefine global governance. However, this shift risks fragmenting international systems, complicating efforts to address shared challenges like climate change and inequality. The way forward lies in fostering inclusive dialogue, strengthening multilateral institutions, and embracing global interconnectedness. Only through collaboration can the world build a future that is balanced, equitable, and sustainable.

<https://www.pakistantoday.com.pk/2024/12/29/a-growing-force-in-a-multipolar-world/>

India's Shifting Global Narrative

Sadia Zahra

December 30, 2024

India has always aspired to a seat at the global table. It has tried to assert its importance as a rising global power by projecting its gigantic market, geopolitically significant location, cultural soft power, etc. to build credibility and space in global forums and bilateral partnerships. But that well-rehearsed image is increasingly out of step with troubling events. Accusations of extraterritorial assassinations, predatory foreign policy jockeying, and ongoing human rights abuses cloud its international image. These problems have called into question India's democratic ideals and its capacity to lead the Global South. India's image as a rising global power is tarnished by accusations of extraterritorial assassinations and human rights violations.

Consequently, Modi's administration in the consolidation of domestic and foreign policy priorities had deteriorated relations with some of its crucial partners and compromised its reliability. It is, thus, fed to the apprehensions about its dictatorial inclinations and the diminishing democratic fabric, therefore, requires a reconfiguration of the international affiliations of India. If this trajectory persists unabated, India's dream of leading the world might soon become a reality only in the negative sense because it might find itself in a lonely puddle as more and more countries join a new order that is already taking shape in reconfiguring the world.

Recent accusations of India's being involved in plots to assassinate individuals abroad, including the assassination of Hardeep Singh Nijjar in Canada and an alleged attempt on the life of Gurpatwant Singh Pannun a Khalistani separatist in the United States have for the first time touched unprecedented diplomatic tensions. It is an international norm-breaking activity and undermines the mutual trust essential for strong bilateral as well as multilateral relationships. In taking steps, in the course of engaging in covert operations resembling authoritarian rule, India endangers democracy and invites a stronger global public spotlight. It does not take more than a moment before repercussions materialize including the expulsions from Canada and India, while Washington has put on notice such practice.

Even as India deepens its focus on its strategic interests through domestic and foreign policy, it leaves behind old friends, endangering the prospect of attaining leadership stature in the Global South. The decline in trust in India's democratic standing and upsurge of apprehension of the signs of authoritarianism are already generating reconsideration of the country's foreign relations. This trend becomes problematic when one takes into account that India's awakening economic

and geo-political ambitions rely on its ability to preserve and strengthen its relationships with willing partners and effectively compete with the authoritarian giant next door – China. The Modi administration's consolidation of power has strained relationships with crucial partners, raising concerns about its democratic integrity. What was once the beacon of democratic progress and pluralism is now shrouded in growing fears of internal repression and aggressive external posturing. This shift goes against the very narrative that has propelled India's global rise. If New Delhi continues down this path, it risks undermining the values it once championed, eroding its soft power, and alienating crucial allies. The consequences could be severe, leaving India increasingly isolated in a rapidly shifting world order, unable to effectively assert its influence or fulfill its ambitions on the global stage.

These trends are not being created in a vacuum. Indian foreign policy decisions, as it has refused to condemn Russia's invasion of Ukraine and increasingly aligned itself to the authoritarian regimes, the relationship with Western allies, India now risks losing such privileged position it once seemed to enjoy against China's increasing might. Ideological fissures between the U.S. and Europe have exposed fault lines in what was supposed to be a robust strategic partnership. Erosion of trust in India's commitment to democratic principles is starting to dilute its influence in international forgeries and weakening claims to leadership in the liberal world order. In terms of trade, such political and diplomatic changes pay tribute. The disagreements escalated to Canada have given people reasons to believe that they will cut down on the amount of business they engage in with Indians. Second, the examples of the Indian tycoon, Gautam Adani, may indicate that the intentions of the U.S. are not limited to the Indian businesspersons who promoted fraud, but any person in India who is involved in business. Indian as well as global companies may be reluctant to invest their capital and time into projects thereby threatening India's plans for development. Thus, pinning such risks undermines New Delhi's drive to portray itself as a desirable economic partner in a fast-growing international marketplace. India's refusal to condemn Russia's invasion of Ukraine highlights ideological fissures with Western allies, diminishing its influence in international forums.

The decisive domestic and international policies of the Modi government are reshaping India's image, though not necessarily in the direction its strategists intended. Instead of being celebrated as a democratic powerhouse in the Global South, India is now being compared to regimes that prioritize authoritarianism over accountability. The international community is watching keenly to

see if India can turn the tide by taking substantial steps to mend its broken human rights record, respect the norms of international society, and regain the trust of its strategic partners.

If New Delhi fails to realign itself, it threatens to isolate itself in a world where alliances and partnerships matter more than ever. Its ambitions as a world leader, in both economic and political terms, depend on its ability and willingness to live up to the democratic values that it claims to stand for. The clock is now ticking—just before it becomes too late.

<https://stratheia.com/indias-shifting-global-narrative/>

Chapo vs Mondlane: Mozambique on the Brink of Chaos

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Mozambique is teetering on the brink of chaos. The country is already reeling from a brutal Jihadist insurgency, and now it's facing the violent fallout of contentious elections. Widespread protests have swept across southern African countries – fueled by the movement calling for a complete departure from the status quo and a move towards a fundamentally new and transformative approach. The population is seething with frustration over the government's brutal crackdown, and they are clamoring for an end to the ruling party's half-century stranglehold on power. However, this crisis goes beyond politics – which represents a generational struggle for the future. Here is the crucial question: what's sparking the unrest, and how might it shape the country's future trajectory?

Mozambique has experienced simmering unrest since the October 9 presidential elections, won by Daniel Chapo, the candidate from the ruling FRELIMO party – a political entity that has governed the country since gaining independence from Portugal. However, the opposition PODEMOS party, led by Venancio Mondlane, cast doubt on the poll's credibility alleging that Chapo's victory was secured through widespread irregularities. Citizens supporting runner-up Venancio Mondlane – a well-liked figure among youth – have also rejected the poll's results, labeling them unfair and rigged. The disputed election has sparked widespread protests, with deadly clashes between security forces and demonstrators.

In response to the violent protests, police in the capital Maputo, and other cities have responded with lethal force which resulted in casualties. Opponents claim that police have used tear gas, dogs, rubber bullets, and in some cases live ammunition to quell the protests. The unrest resulted in security forces shooting over 300 people, killing more than 100, including innocent children and bystanders, and arbitrarily arresting or detaining thousands. The situation took a darker turn when unknown assaulters brutally assassinated two of Mondlane's close associates. One of them was a lawyer and advisor, Elvino Dias, who was preparing to mount a legal challenge to the election results, and a party representative, Paulo Guambe, while traveling together in a car in Maputo.

Meanwhile, protesters have escalated their demonstrations, they have set fire to police stations and ruling party offices, in addition to targeting government officials. Despite the violent turn of events, both Chapo and Mondlane seem unwilling to compromise, with Mondlane stating that he is willing to engage in talks with the government, but only if his victory in the presidential election

is recognized and the government implements reforms such as anti-corruption measures and affordable healthcare. The protests are likely to persist until these demands are met.

The underlying causes of the unrest can be traced to the deep-seated issues of corruption, civil war, authoritarianism, and socio-economic stagnation that have plagued Mozambique for decades. The country's history of corruption, including the notorious billion dollar "Tuna Bond Scandal" has nearly crippled the economy and increased poverty on a massive scale. Furthermore, the government's inability to effectively address the insurgency linked to Ansar al-Sunna and Islamic States in Cabo Delgado, and its reliance on foreign military troops, has further eroded trust in the government. The recent elections, marred by allegations of electoral fraud, have poured fuel on fire, particularly among youth disillusioned with the lack of democratic freedom and the government's tight grip on power. Many view the government as a puppet regime of Portugal and other major powers, further exacerbating the sense of disillusionment and frustration. After understanding the entire context, it becomes clear that despite gaining independence from Portugal, there has been no significant betterment in the lives of Mozambique's people. For centuries, the same party has dominated the power structure, which is a clear indication that the country is still under foreign domination. Such powers continue to install governments of their choosing, which has rightfully made the people frustrated. This frustration is a warning sign of a potential crisis, which can further exacerbate the electoral dilemma.

The future of the country appears bleak, especially if the FRELIMO party is given another chance. This could take the country back into the depths of destruction, potentially giving rise to a civil war, so horrific that the horrors of 1977 would seem insignificant. While it may seem like a tense political moment right now, it could be the precursor to a far more devastating conflict that could not only drown the nation in rivers of blood but also rewrite Mozambique's history in the most tragic way.

<https://www.wgi.world/chapo-vs-mondlane-mozambique-on-the-brink-of-chaos/>