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AL-KHALID TANK

ENHANCING PAKISTAN'S ARMORED CAPABILITIES

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EDITORIAL

INTRODUCTION OF PAKISTAN AS A NUCLEAR STATE

The journey of Pakistan to be a nuclear state began in the 1970s when Prime Minister Zulfikar Ali Bhutto was ruling the country. Bhutto considered nuclear capability to be of the utmost importance for Pakistan's security. Pakistan invested innumerable resources in these attempts. The first nuclear test took place in 1974, which made Indian Prime Minister Indira Gandhi highly discontent. However, the work on the nuclear program was then abruptly ceased, and only after the death of Bhutto did the work resume. Nuclear tensions between Pakistan and India increased in the early 1990s. India again tested its nuclear equipment in a variety of nuclear tests. This then made Pakistan announce its nuclear capability. On May 28, 1998, Pakistan tested its nuclear equipment for the first time. This day is called Youm-e-Takbeer in Pakistan.

The tests were held in the mountains of Baluchistan where resources are scarce. However, Pakistan didn't conduct tests on its nuclear assets unannounced. In 1996, the Ministry of Foreign Affairs released a seven-point list essentially asking for no further provocations and a formal arrangement with India to stop future attacks. The tensions stopped for a while but then resumed soon after. In response to these tests by Pakistan, the United States and the European Union, along with India, placed sanctions. These were the termination of aid, a ban on technology, and a ban on trade. However, this did not change the core of the situation. The

tests were successful, and Pakistan became a nuclear state that could cause massive deterrence, especially to India.

THE CHAGAI TESTS: A DEFINING MOMENT

On May 11 and 13, 1998, India tested its nuclear equipment. These actions by India turned out to be very disastrous for regional stability. Pakistan's leaders suffered extreme international pressure to test the equipment as well. Despite this national sentiment was inclined towards the display of sovereignty and achievement of national security, therefore Pakistan carried the first successful nuclear test on May 28, 1998, at the heights of Ras Koh Hills, Chagai followed the successful event with five more explosions ending the series on 30th of May. Referred to Chagai-I, the series of tests was not a scientific event but a strategic reply to India. It was not that the move went unnoticed.

REACTIONS

Pakistanis, after the Chagai tests, were filled with a sense of glory and national unity. People across the country celebrated, with thousands participating in processions, rallies, and gatherings nationwide. The victory was celebrated through every possible source. Prime Minister Nawaz Sharif announced the results of the nuclear tests and stated that Pakistan had made "defensive" nuclear explosions, ensuring its nation and the people

of the region that the power was never meant to be used aggressively.

The international response was in the shape of economic sanctions. The international community imposed sanctions on Pakistan, including freezing foreign aid, blocking the supply of clean water, and blocking the export of its agricultural products. Despite all this, the nuclear explosion of Pakistan was successful enough to establish Pakistan as a nuclear power, demonstrating its capability to impose significant deterrence.

STRATEGIC IMPLICATIONS AND SECURITY DYNAMICS

The May 1998 nuclear explosions marked a great divergence in South Asia's security scenario. The concept of mutually assured destruction (MAD) had now become a prime ingredient of the region's strategic structure. Both India and Pakistan, now in possession of nuclear weapons, had to maintain a precarious peace, where spillovers from any major conflict could be catastrophic. This now required the highest levels of caution and prudence in national security matters and allowed Pakistan to shift its primary focus towards long-term sustainable growth in other areas, such as missile technology, space research, and energy. The army leadership and the officers played a significant role in shaping Pakistan's nuclear policy and efficiently operationalizing its nuclear deterrence. The development of delivery systems and the maintenance of credible minimum deterrence were vital elements of Pakistan's defense.

SCIENTIFIC AND TECHNOLOGICAL ACHIEVEMENTS

Youm-e-Takbeer celebrates the genius of the Pakistan Atomic Energy Commission (PAEC) and Khan Research Laboratories (KRL). The success in the nuclear field spurred advancements in missile technology, space research, and energy. Peaceful applications of

nuclear technology, such as in medicine, agriculture, and power generation, have also benefited Pakistan. For instance, Pakistan's missile capability has improved its defense, targeting, and covert attack capabilities, while space applications have improved the efficiency of communication, meteorological systems, and scientific observation. In the medical field, nuclear technology has made an essential difference in the treatment and diagnosis of cancer.

However, the decision to go nuclear has been the subject of great debate in Pakistan and the international community. Critics have said that the first spell of economic sanctions in the wake of the tests had long-lasting impacts on the economy. The defense versus development debate is still ongoing. International concerns over nuclear proliferation have also resulted in stringent checks and balances on Pakistan's nuclear program. On this account, Pakistan has always reiterated its commitment to credible minimum deterrence, responsible nuclear asset management, and adherence to international norms.

ROLE OF YOUM-E-TAKBEER IN NATIONAL IDENTITY

Youm-e-Takbeer is much more than a day of celebration for attaining nuclear status. It is a symbol of national identity and resilience, a symbol of Pakistan's journey towards self-reliance and the sacrifices it entailed. It is now celebrated with many functions targeting

young students, where history is narrated, and the work of past scientists and engineers is underscored to dedicate the future to their inspiration.

Schools and universities make use of the day to instil the spirit of patriotism and ownership. They are reminded that national security is not the prerogative of the military but is a shared responsibility.

LOOKING AHEAD: THE FUTURE OF PAKISTAN'S NUCLEAR PROGRAM

As Pakistan looks to the future, it envisions a wider role for peaceful nuclear technology and applications. In this regard, the priority must be to augment nuclear generation capacity according to the increased demand for energy and to reduce dependence on fossil fuels. Equally important is the development of small modular reactors and the improved safety and security of nuclear installations.

In external relations, Pakistan has consistently maintained the principle of non-discriminatory disarmament and the right to access peaceful nuclear technology. Efforts must be made to address the underlying causes of tension and conflict regionally through dialogue and cooperation. In this regard, Pakistan's participation in non-proliferation and arms control efforts reflects a commitment to regional stability and responsible nuclear management.

FUTURE ASPIRATIONS IN THE NUCLEAR DOMAIN

Pakistan aspires to keep developing a strong nuclear energy program for peaceful purposes, with a focus on technology indigenization and international cooperation. Nurturing nuclear education and research will create a pool of competent professionals to contribute toward national and global development in the energy sector.

CONCLUSION

Youm-e-Takbeer is certainly a day of great importance for Pakistan, symbolizing scientific success and strategic foresight. It provides a great opportunity for introspection into the journey that led to this milestone and the future course. The spirit of Youm-e-Takbeer personifies resilience, unity, and an unflinching quest for excellence, values that have kept Pakistan moving on and on. The leadership of the armed forces, strategic planners, scientists, and engineers have played a monumental role in attaining and sustaining nuclear status for Pakistan. As Pakistan moves forward, so will the lessons and values of Youm-e-Takbeer guide the country to forge ahead with greater security and more scientific innovation.

Youm-e-Takbeer also makes everyone remember the sacrifices and contributions of all those who participated in the nuclear program. It brings a strong feeling in Pakistanis that they can do anything as far as they are united in their vision. And with that capability behind it, as Pakistan navigates its way through regional and global politics, nuclear ability becomes an anchor for peace and stability.

In fact, Youm-e-Takbeer forms part and parcel of the national identity of Pakistan, representing resilience and scientific accomplishment. It lights the way for the future, inspiring the nation to continue the journey of holding true to integrity, unity, and resilience, which has characterized the nuclear journey.

AD NCA
LT. GENERAL (R) KHALID AHMED KIDWAI
NI, HI, HI (M)

INAUGURATES RFI'S NEW OFFICE

On Tuesday, June 21, 2024, Adviser Development National Command Authority, Lt. General (R) Khalid Ahmed Kidwai NI, HI, HI (M), visited Rabita Forum International (RFI) to inaugurate their new office.

The event was attended by several notable figures, including the Executive Director of the Centre for International Strategic Studies Sindh (CISSS), Ambassador Qazi M. Khalilullah, and staff from the National Command Authority.

Upon his arrival, Lt. General Kidwai was warmly welcomed by the Chairman RFI, ED CISSS, RFI's research and media teams, and the AD NCA's staff.

Following the inauguration, Lt. General Kidwai met with all team members individually and was given a comprehensive tour of the new office facilities. A detailed presentation was then provided, showcasing the progress made by the RFI team in areas such as digital TV, magazines, and outreach activities.

Lt. General Kidwai commended the efforts of the RFI team, expressing his appreciation for their dedication and success in advancing their projects. He also conveyed his best wishes for their continued progress and future achievements.

The visit concluded with the Chairman of RFI presenting souvenirs to Lt. General Kidwai, Ambassador Qazi M. Khalilullah, and Major Imran Jameel. A luncheon was also hosted in honor of the visitors, marking the end of a successful and memorable event.

PIIA ORGANIZES A ONE-DAY CONFERENCE ON 'A WORLD IN TURMOIL'

The Pakistan Institute of International Affairs (PIIA) organized a one-day conference titled 'A World in Turmoil' on May 18, 2024. The event featured various renowned scholars, diplomats, and other dignitaries who discussed numerous aspects of global challenges. Notable panelists included Ambassador Jalil Abbas Jilani, former Ambassador of Pakistan to the United States; Dr. Ansar Pervez, Adviser on Nuclear Power to the National Command Authority; and Mushahid Hussain Syed, a Pakistani politician and Senator. The Research and Media teams of Rabita Forum International (RFI) were also present, recording the insights of the distinguished panelists and other eminent personalities on socio-political, economic, and strategic issues facing the world today, with a particular focus on Pakistan's perspective.

A SEMINAR BY CISS:

COMMEMORATING YOUM-E-TAKBIR 2024

On May 28, 2024, the Center for International Strategic Studies (CISS), under the esteemed leadership of Ambassador Ali Sarwar Naqvi, hosted a seminar to commemorate Youm-e-Takbeer 2024. The event was graced by the presence of several eminent speakers, including Lt. General Khalid Ahmed Kidwai, Advisor Development National Command Authority (AD NCA); Dr. Ansar Pervaiz, Former Chairman of Pakistan Atomic Energy Commission (PAEC); and Brig Zahir Ul Haider Kazmi, Director General of Arms Control and Disarmament Affairs, Strategic Plans Division (SPD).

In addition to the notable speakers present, the seminar also witnessed active digital participation from various esteemed institutions. These included the Strategic Vision Institute (SVI), the Center for International Strategic Studies Sindh (CISSS), the Balochistan Think Tank Network (BTTN), Rabita Forum International (RFI), and Karakoram International University Gilgit-Baltistan.

CISSS HOSTS INSIGHTFUL WEBINAR ON YOUM-E-TAKBIR

On May 29, 2024, the Center for International Strategic Studies Sindh (CISSS), led by Ambassador Qazi M. Khalilullah, hosted an insightful webinar titled "26th Anniversary of Youm-e-Takbir: Changing Dynamics of Deterrence and Strategic Stability at Global and Regional Levels."

The event garnered active participation from several prominent institutions, Balochistan Think Tank Network (BTTN), and Rabita Forum International (RFI).

Key speakers included Dr. Petr Topychkanov, Senior Researcher at the Center for International Security, Primakov National Research Institute of World Economy and International Relations, Moscow; Ambassador Qazi M. Khalilullah, Executive Director of CISSS; the Executive Director of BTTN; and Dr. Zafar Khan. They delivered comprehensive insights on the topic, contributing to a robust discussion on strategic stability and deterrence.

PNS ARRANGED A HYBRID SEMINAR ON PAKISTAN'S ACHIEVEMENTS IN NUCLEAR FIELDS

One of the greatest moment in the history of Pakistan was recorded when the slogan "Allah ho Akbar" was raised near Ras Koh Hills in Chaghi on 28th May 1998. This memorable day which made Pakistan the first Muslim and the seventh atomic power in the world is celebrated as Youm-e-Takbeer throughout the country with great zeal and fervor. Recognizing the importance of the great venture, Pakistan Nuclear Society (PNS) organized a special hybrid seminar on "Pakistan's Achievements in Nuclear Fields" on 24th May 2024 in Islamabad. Keeping in view of the mandate of PNS, that is to promote peaceful uses of nuclear technology as well as the awareness about its benefits to mankind for socioeconomic uplift of the country, eminent nuclear scientists and engineers were invited to showcase major achievements in the fields other than defense applications. The invited speakers covered the major achievements of the country in uses of nuclear technology in agriculture, industry, materials, human health, and electricity generation. More than 70 persons, including retired senior officials from various organizations and universities physically attended the hybrid seminar and more than 100 persons participated online via Zoom link.

After recitation from the Holy Quran by Prof. Zia ur Rehman from Quaid-e-Azam University, Islamabad, the welcome address was given by Mr. Waqar A. Butt, Vice President PNS. He elaborated that although the credit of conducting successful nuclear tests mostly goes to the scientists, engineers, technicians and support staff of PAEC who worked day and night to make that miracle happen, yet some other establishments played pivotal role in bringing that dream true. It includes R&D institutions, defence organizations and military personals for developing the required infrastructure and necessary technical and logistic support including safety and security at Chaghi. After that the Introductory Remarks were given by Dr. Muhammad Tahir Khaleeq, President PNS. He highlighted the importance of holding such seminars not only to recall our achievements and successes but also to motivate younger generation to work hard for greater national cause. He also thanked to all the speakers for accepting our invitation to

deliver their talks on such a short notice.

Dr. Ansar Parvez, H.I, former Chairman PAEC delved into the prospects of nuclear energy, specifically focusing on the development of nuclear power in the country. He compared the cost of building nuclear power plants in Pakistan that is much lower as compared with similar plants in developed countries. He praised the efforts all those who kept the first nuclear power plant (KANUPP) running when the vendor support was withdrawn as a result of embargoes which were imposed after the nuclear device test of India in 1974.

Mr. Muhammad Naeem, N.I, H.I, S.I, former Chairman PAEC, shed light on Pakistan's achievements in the nuclear fuel cycle, highlighting the country's advancements in this critical area. He applauded the hard work and dedication of personals who made indigenous efforts from mining of uranium to the final product through all the difficult steps for both civil as well as defence requirements.

Dr. Yusuf Zafar, T.I, former Chairman Pakistan Agriculture Research Council (PARC), emphasized the pivotal role of nuclear technology in agriculture, highlighting Pakistan's notable progress in this sector. He specifically mentioned the nuclear agriculture centres operating under PAEC had made tremendous progress in developing new varieties of various crops to deal with food security issues. He mentioned that Laser Land Levelers developed by PAEC had benefitted a

lot to the formers for enhancing their crop productivity. However, he showed concern that the contribution of nuclear agriculture technology in overall national agriculture programme is very small that must be enhanced.

Engr. Ziauddin, former Member Engineering (PAEC), provided insights into the application of nuclear technology in industries, underscoring its significance in driving innovation and progress. He emphasized on the need of enhancing national innovation index at global level and cited the need of using of nuclear technology for advance reactor design like Small Modular Reactors (SMR), Molten Salt Reactors, fusion reactors, waste management and in materials testing. He mentioned that scope of Pakistan Radiation Services (PARAS) in Lahore has increased tremendously after the installation of Electron Beam facility for irradiations of surgical good and food items. However, he emphasized upon indigenization of industrial products for self-sufficiency and sustainability of our projects.

Dr. Mustansar Jahangir, former DG PINSTECH, explored the role of nuclear technology in human health, using the facilities of research reactors, mentioning the significant contributions in this field. He gave a good account of the radio- pharmaceuticals which are prepared at PINSTECH and are supplied to more than 70 hospitals in the

country for cancer diagnostics and treatments saving a huge amount of foreign exchange.

Dr. Walayat Hussain, former Member Science, KRL amused the audience with a poetry specially written just after the nuclear tests in 1998. Dr. N. M. Butt, Chairperson Preston Institute of Nano Science &Technology, Dr. Shaukat Hameed Khan, former Rector GIKI and Prof. Dr. Rao Afzal, former Vice Chancellor, The Islamia University of Bahawalpur also expressed their views and gave thought provoking suggestion on that occasion.

Engr. Pervaz Butt, N.I, H.I, S.I, former Chairman PAEC, made the concluding remarks. He summarized the key takeaways from the seminar and highlighted the importance of continued advancements in nuclear technology. He specifically mentioned the contributions of PAEC's engineering setups for the world renowned European Centre for

Nuclear Research (CERN) in Switzerland. He recalled the technical expertise of those workshops who made delicate spare parts for KANUPP when the supplier backed out due to international pressure.

In the end, Dr. Mohammed Mohsin, General Secretary PNS, extended a heartfelt vote of thanks to all participants, speakers, and organizers, acknowledging their valuable contributions to the success of the seminar.The ceremony ended with a cake cutting ceremony to commemorate and celebrate the great day.

ABOUT PAKISTAN NUCLEAR SOCIETY (PNS)

PNS is a non-commercial and non-government registered professional body of highly qualified professionals; mainly scientists, engineers, medical doctors, educators, and technologists associated with nuclear and allied disciplines. PNS was established in 1991. Main objective of PNS formation was to promote peaceful uses of nuclear technology in various sectors including health, agriculture, environment, power generation, water resources managements, industries and much more. PNS registered members are more than 2700 including more than 1300 lifetime members.

PNS has more than 1200 associate member of 70 professional colleges and universities of Pakistan. PNS has organized a large number of conferences, seminars, workshops and elite lectures in the areas of nuclear power, applications of radiation technology in agriculture, water resource management, food preservation, healthcare, hi-tech industry, safety and security. PNS has a Scientific Advisory Board comprising of renowned scientists and engineers for guidance on S&T matters.

It also has an Administrative Advisory Board of experts from various walks of life to discuss issues of national interest in relevant disciplines and to seek new avenues for sustainable socio- economic development of the country. PNS has fellows, an experts pool and visiting faculty. PNS has also established Women in Nuclear (WiN-P), Youth in Nuclear (YiN) and Student chapters. The society regularly publishes a quarterly newsletter and has an informative dynamic website.

KEYNOTE ADDRESS

AD NCA

LT. GENERAL (R) KHALID AHMED KIDWAI

NI, HI, HI (M)

On May 13, 2024, the Strategic Vision Institute (SVI), under the leadership of Brigadier Dr. Naeem Salik, hosted a webinar titled **"NUCLEARIZATION OF SOUTH ASIA: CHALLENGES TO REGIONAL PEACE AND STABILITY."** This event saw active participation from several prominent institutions, including the Center for International Strategic Studies (CISS), the Center for International Strategic Studies Sindh (CISSS), the Balochistan Think Tank Network (BTTN), and Rabita Forum International (RFI).

Lt. General (R) Khalid Ahmed Kidwai, NI, HI, HI (M), Advisor Development National Command Authority (AD NCA), delivered a profound keynote address on the theme **"INDIAN NUCLEAR PROGRAM AND TESTS OF MAY 1998: CHALLENGES TO NATIONAL SECURITY OF PAKISTAN"** in the webinar. His address offered deep insights into the critical issues surrounding the nuclearization of the region and its implications for Pakistan's security. The full text of his keynote speech is published here for the benefit of our readers.

Dr. Naeem Salik, Executive Director Strategic Vision Institute, Air Commodore Khalid Banuri, our Moderator for today's Webinar, ladies and gentlemen. Assalam Alaikum.

It gives me great pleasure to participate in

today's Webinar being conducted by SVI to commemorate the 27th Yom Takbir. My compliments to Dr. Naeem Salik and team SVI on taking a lead in holding a series of four Webinars on the occasion, this being the first one.

There can be no doubt that 28th May 1998, and two days later, 30th May 1998, are amongst the most important and critical dates in Pakistan's history since 1947. These are two momentous days that placed Pakistan for an infinite time amongst the elite world powers, an exclusive club, which possesses a nuclear weapons capability; the 7th nation to be exact. The status is many, many, notches above the ordinary.

Pakistan has every reason to celebrate the day with national pride and happiness, tempered by national humility and gratitude to Allah Almighty for providing Pakistan with a deterrence capability that is considered as the ultimate guarantee of national security against external aggression. As is often stated in drawing room conversations, the acquisition of a nuclear weapons capability by Pakistan is indeed a miracle of Allah; we can never thank Him enough.

Before proceeding further, at the outset, I would like to pay my humble tribute to the great scientists and engineers of Pakistan's strategic organizations for their selfless, dedicated, outstanding professional work, which has secured Pakistan against aggression, as I said, for an infinite time. And this against the greatest of odds and challenges in an environment of strictest of international sanctions and denials.

There was never a shortage of international threats and politico diplomatic coercion on Pakistan to freeze or roll back the nuclear programme especially during the infancy days of the programme, and at other times subsequently. In this context, tributes are also owed very much to Pakistan's top political, military, and diplomatic leadership all through during those momentous decades, from the early 1970s to date, well over half a century, for providing a unified national consensus, determination, and showing spine internationally irrespective of the politics of the day, to stay the course for achieving Pakistan's strategic security objectives.

It is this unified national consensus which has been the greatest source of strength for Pakistan's nuclear programme. And I say this with conviction from my personal experience of 15 plus years at the SPD when all doors in the decision making corridors of the state would fling open with the strongest sense of patriotism and emotion to support Pakistan's strategic programme in whichever way each individual could. It was his or her way of participating, contributing and doing their bit in the high cause of national security.

When we say that Pakistan's nuclear deterrence capability is the cornerstone of Pakistan's security and is central to Pakistan's survival, you will probably agree with me that this simple common wisdom is deeply ingrained in the psyche of Pakistanis at the common man's level. It will not be wrong to say that the Pakistani street owns Pakistan's nuclear programme; it gets hugely perturbed when it smells the first sign of a potential threat. Follow the social media and you will understand what I mean when conspiracy theories have a field day. It is the Pakistani street that stands as a bulwark against such theories. A Ghauri or a Shaheen painted at the back of a goods truck on Pakistan's highways says it all.

This particular Webinar focuses on three aspects, or questions, which I shall try to reflect upon.

The first aspect is as to why India pursued its nuclear weapons programme and conducted nuclear tests initially in 1974 and then in 1998. Well the history of India's nuclear weapons programme is very well recorded in a large number of publications both internationally and within India. The subject is very well researched and there are any number of opinions on it. One of my favourites is the very objectively written book "India's Nuclear Bomb: The Impact on Global Proliferation" by George Perkovich of the Carnegie Endowment in Washington.

There appears to be a broad unanimity amongst most scholars and academics that the Indian nuclear programme has been driven mostly by a fierce national desire, pride if you may, especially amongst the Indian elite rather than the common Indian, to be counted amongst important regional and global powers. A permanent seat at the UN Security Council is seen as the ultimate prize and for that, India has always considered that a nuclear weapons capability is a pre-requisite; it may well be true because all the P-5 countries at the UN Security Council are nuclear weapons powers.

There have also been opinions expressed that India's nuclear weapons programme is driven by India's national security concerns especially viz China. There may be a grain of truth in that too but in considering this rationale we may like to recall that India's nuclear programme was put on course very early on after independence and for quite a few years thereafter, there was much bon-homie between India and China symbolized by the famous Hindi-Chini Bhai-Bhai slogans. Evidently, China was not seen as a national security threat at the time, the mid-1950s to be exact, and yet there was a blossoming Indian nuclear programme with a fairly clearly defined objective of a nuclear weapon as the ultimate goal. The real driver of the Indian nuclear programme may well be somewhere in between but one consistent reality of India's foreign policy has always been to see India in the big league with a global status. I shall leave it at that.

As to why India conducted nuclear tests at Pokhran in 1974 and then again in 1998, the one straight forward reason on both occasions of course would be that India was technically and scientifically speaking quite ready to undertake the nuclear tests and the scientist community needed to conduct hot tests of the nuclear devices. While computer simulations, cold tests, counting the massive numbers of neutrons released, and the timing of the simultaneity of firing of the explosives for compression of the nuclear core, in a cold test, are all very well, it is only by conducting a real time hot test that a nuclear device can be certified to be a fully functional capability in all respects.

However, a much greater reason than technical considerations has to be the attainment of certain vital geo-political, national security and domestic political objectives. Much of the nuclear deterrence theory relies, first of all, on the possession of a credible nuclear capability, which then requires strong messaging for the generation of desired strategic effects viz the target strategic audience including adversaries. In 1974, while India militarily was flush with its success against Pakistan in the 1971 War, domestically Mrs. Indira

Gandhi's Government was having serious political problems. Mrs. Indira Gandhi wanted to display further muscle as an iron lady and benefit politically both nationally and internationally, confident in India's strong relationship with the then USSR which would shield India from any adverse action in the UN Security Council. And so, she took the high risk gamble and I would say succeeded in getting away with it with barely a wrap on the knuckles. Naming the test as Smiling Budha and calling it a peaceful nuclear explosion was quite a naive and silly attempt at deception which no one in the world bought. A nuclear explosion is a nuclear explosion and there is nothing very peaceful about it.

While India got away with its 1974 nuclear test lightly, paradoxically Pakistan suffered far greater consequences for India's sins by the imposition of sanctions on critical Pakistani entities. This was western hypocrisy and convoluted logic standing on its head. On the flip side however, the event shook the Pakistani triad of politico-military-scientific leadership and the triad renewed the national determination to go full steam ahead in the pursuit of a national nuclear weapons capability, first visualized politically in 1972.

There was no other way to restore the altered strategic balance to Pakistan's severe disadvantage multiplied by the environment of a conventional force asymmetry in favour of India. The loss of East Pakistan in 1971 together now with Pokhran-I of 1974 therefore became the driver of the Pakistani journey in search of nuclear weapons - at the fastest speed possible. Pakistan had no choice but to live with the strategic imbalance in the intervening few years. It was the result of the earlier poor assessment of the strategic balance between India and Pakistan. The 1974 event also gave a further fillip to the competition between the Pakistan Atomic Energy Commission (PAEC) and the Dr A Q Khan Laboratory (KRL). The race was now on well and truly to deliver Pakistan a nuclear weapon. To their everlasting credit, the Pakistani strategic scientist community rose to the occasion and though somewhat unhealthy at times, the competition between PAEC and KRL worked to Pakistan's overall advantage.

In 1998, the Bharatia Janta Party (BJP) of Mr. Atal Bihari Vaipaee had promised a nuclear test and declaration of India as a nuclear weapons power in its election manifesto. When elected to power, one of the first things the BJP Government did was to surprise the world by claiming to have conducted five nuclear tests on 11th and 13th May 1998. The explanation given was of a strategic threat from China and Pakistan even though Pakistan had not declared any such capability openly till then. Additionally, India was perhaps not expecting a similar Pakistani response as many in India seriously considered a Pakistani nuclear capability as a bluff. And sure enough when Pakistan took two weeks to conduct its own six tests at Chaghi on 28th and 30th May 1998, some in the senior Indian leadership had seriously convinced themselves that Pakistan indeed had been bluffing all along and that there was no bomb in the basement.

Yom Takbir on the 28th of May 1998, followed by additional tests on the 30th of May, came not only as a great shock to India but also the international community. In its typical sly way, the west had offered a variety of incentives to Pakistan for not responding

to the Indian tests but Pakistan did not take the bait. Despite strong international pressure, Pakistan once again in 1998 - restored the disturbed strategic balance of South Asia and the rest is history.

The unresolved Kashmir dispute, the dismemberment of Pakistan in 1971 and soon thereafter the first Indian nuclear test at Pokhran in 1974 cumulatively left Pakistan's security severely exposed. When we talk of the evolution of Pakistan's nuclear programme we must remember that had it not been for the visionary leadership of the time which decided that Pakistan must develop nuclear weapons at all cost, it is not difficult to imagine what India and the world would have done to a non-nuclear Pakistan especially in the hostile international environments prevailing since 9/11. Palestine, including the abject helplessness of the Arab world today, and Iraq, Libya, Syria and Afghanistan yesterday, all non-nuclear states, provide hard lessons in this context.

Interestingly, when I went to Vienna in 1999 to attend the Annual Conference of the IAEA Governing Body, I took the opportunity to visit the Headquarters of Comprehensive Test Ban Treaty Organization (CTBTO). There I was shown the graphical charts of the ECG like recordings of the worldwide tremors generated by the nuclear tests of 11th May (India), and 28th May and 30th May (Pakistan). These were based on recordings from nearly 300 seismic detection sensors deployed by the CTBTO worldwide and which do not miss out any seismic event anywhere in the world natural or man-made howsoever weak in intensity.

My very obvious question to the people conducting me was as to why there was no display of the recording of India's 13th May event? The gents simply shrugged their shoulders with a smile and said that the CTBTO seismic sensors did not record any event on that date. This was entirely in line with the non-readings by the seismic sensors deployed by the PAEC inside Pakistan. The reply confirmed what had been suspected all along that India's claim of three nuclear tests on 13th May 1998 was false and that the claimed low yield tests as well as a thermonuclear test were a failure. So much for India's international bluff.

The next aspect for consideration in today's Webinar is about India's nuclear tests having altered the strategic balance of power in South Asia and increased the risk of conflict in the region. My opinion on this is quite clear. The nuclear capabilities demonstrated by the nuclear tests of India and Pakistan in May 1998 have clearly worked to Pakistan's advantage, in that, the much hyped advantages of India's relative asymmetry in conventional forces has been greatly offset by Pakistan's demonstrated nuclear capability.

Further, over the last 27 years since May 1998, SPD's relentless and single minded pursuit of a Full Spectrum Deterrence capability within the larger philosophy of a Credible Minimum Deterrence policy, and the development of a robust strategic triad, today stands attained Alhamd Lillah. This has curtailed India's war fighting options to near zero and has rendered India's conventional forces, despite their large size, quite irrelevant in the South Asian strategic balance of power. From this it can be safely concluded that the nuclear capabilities of India and Pakistan as these stand today, in 2024, and the large numbers of inventories

in the nuclear arsenals of India and Pakistan have receded the chances of major wars being fought in the future.

By developing Full Spectrum Deterrence capability, we have reinforced deterrence at all levels - strategic, operational and tactical. We have re-restored the disturbed strategic balance, thereby ensuring that peace will prevail and therefore my preference to call Pakistan's nuclear weapons especially the Tactical Nuclear Weapons as `weapons of peace'. Pakistan's robust nuclear inventory today acts as "The Great Equalizer" against the relative conventional asymmetry operational environment that otherwise prevails in South Asia.

Nearly 80 years of geo-political and military history post World War II reinforces the universal wisdom that nuclear powers do not fight direct wars. I do not see any reason why India and Pakistan would want to defy that logic and risk Mutually Assured Destruction (MAD) of the worst kind. The illogical logic of MAD is as relevant to South Asia as it is to Europe and across the Atlantic.

Before I end, I would like to place before you a historical politico-military perspective of the last five decades since the 1980s in support of the conclusion that I have drawn regarding the gradual rendering as irrelevant of India's strong conventional forces in the war fighting paradigm of South Asia. When we juxtapose the strategic effects of Pakistan's nuclear capability as it has developed over the years, we can discern a pattern of effects that have been generated, in each decade ever since, on India's political choices viz Pakistan as well as, resultantly, on the massive Indian military machine and its choices of offensive operations against Pakistan.

First, we can discern that during these three or four decades, India's political approach to Pakistan has undergone a sea change because of the ground reality of a nuclear Pakistan. India's politicians have had to reconcile to the futility of attempting to coerce Pakistan through direct strategies. India has therefore adopted indirect strategies like hybrid warfare and fifth generation warfare to hurt Pakistan internally and on the western borders, which, I think, is a deflective reaction to Pakistan's nuclear capability having nullified the eastern borders. That Pakistan is finding a degree of in-cohesion and imbalance in responding effectively to the indirect Indian strategies ought to be a matter of serious concern to Pakistan's politico-military leadership.

Second, because of Pakistan's robust nuclear capability, India's military doctrines have been compelled, I repeat for emphasis, India's military doctrines have been compelled, over the last four decades, to grudgingly but gradually adjust to the ground reality of a Pakistani Full Spectrum Deterrence capability visible quite clearly over the horizon in support of, and at the back of, its strong conventional forces duly integrated into Pakistan's deterrence and security -strategies.

India's conventional war fighting military doctrines, therefore, started to get real and have transited and regressed in terms of curtailment of politico-military objectives in terms of time and space, scale of war, notions of victory, war fighting doctrines and tactics, etc. Examples:

- From General K. Sundarji's gung-ho "mechanize, mobilize and hit" doctrine, based on Blitzkrieg tactics and laid out

ever- so cleverly in 1986-87 in the deserts of Rajasthan under the cover of the infamous Exercise Brasstacks with the strategic objective of cuffing Pakistan's vital north-south lines of communications.

- To General V.P. Malik's and General Padmanabhan's "limited war while remaining within Pakistan's nuclear thresholds", as in the failed Operation Parakaram of 2001-02. Note: limited war not an ambitious deep penetration inside Pakistan as conceived earlier by Gen K. Sundarji.
- To the lukewarm and reluctant partial military mobilization of the Indian military subsequent to the Mumbai attacks of 2008, which was neither here nor there.
- To the still-born "Cold Start Doctrine" which effectively got neutralized with the first test of Pakistan's Nasr missile as a tactical nuclear weapon in 2011, besides a series of smart operational responses by Pakistan in the conventional domain.
- To the pathetic specter of the late General. Bipin Rawat's fake "strategic strike" of 2016.
- And finally reduced to the humiliation of the "IAF's Balakot strategic strike" of 26 February 2019, which was anything but, and the resultant IAF losses when the PAF struck back in full force the next day through Operation Swift Retort. That, ladies and gentlemen, was a neat and surgical demonstration of Pakistan's retaliatory policy of Quid Pro Quo Plus in the conventional domain.
- And now in 2024, five years since the last Indian humiliation, we have again started to hear murmurs about a Dynamic Response Strategy (DRS) being crafted by the Indian military planners based essentially on the so-called "strategic strikes" formula at the tactical level across the LOC, or even the international borders. Dynamic Response Strategy (DRS) is clearly a reflection of the limits and constraints imposed by Pakistan's robust nuclear capability on India's strategic and operational options.

When seen against the reality of the gradual erosion and regression of India's politico military options in the real world of today's South Asia, to me it sounds quite comical and, a bit Quixotic to hear India's Prime Minister Narendra Modi and the Defence Minister Rajnath Singh threatening that India will chase infiltrators inside Pakistani territory.

Such statements at the highest political levels fall in the category of rhetorical bluster borne out, of the frustration of a large military that stands deterred because of Pakistan's robust nuclear capability. They forget the fantastic tea that was served to Abhinandan the last time the Indians came chasing terrorists inside Pakistan. That does not, however, mean that the threats should not be taken seriously by Pakistan's conventional forces.

All in all, we may perhaps like to thank Mrs. Indira Gandhi (Pokhran-I 1974), and Mr. Atal Bihari Vajpayee (Pokhran-II 1998) for compelling Pakistan to develop, and then successfully test nuclear weapons, thereby acquiring the "Great Equalizer" against India's advantages in conventional forces.

I thank you.

SHIFTING POWER DYNAMICS:

THE NEW GLOBAL SECURITY THREATS

NUSRAT MIRZA

Since the Soviet Union's defeat in Afghanistan in 1989, the United States enjoyed nearly two decades as the world's sole superpower. However, by 2009/2010, this unchallenged supremacy began to face significant opposition from emerging global powers, namely Russia and China, with India and Israel later adding to the challenge. Despite India being a strategic military ally of the U.S. and Israel being a close friend, both countries have taken actions that complicate their relationships with America.

India continues to purchase arms and oil from Russia, and despite ongoing conflicts on the Actual Line of Control and China's occupation of thousands of kilometers of Indian territory, including the disputed Arunachal Pradesh, trade between India and China has not diminished. This ongoing economic engagement indicates a complex relationship that defies simple alliances.

Additionally, Israel has recently defied American advice by refusing to refrain from attacking Rafah, signaling a bold stance of independence. This act of defiance indicates that Israel no longer fully recognizes the United States' supremacy, effectively challenging it on the global stage.

The Western powers, particularly the United States, have shown a keen interest in having Ukraine join NATO, thereby increasing pressure on Russia and threatening its security. Some Western intellectuals have even suggested that the Islamic State of Iraq and Syria (ISIS), labeled as a terrorist organization, was partially organized by Western powers to create chaos within Russia.

In response to these evolving threats, Russia, which had remained relatively passive from 1989 to 2000, began to assert itself more aggressively under the leadership of Vladimir Putin, who came to power in 2000. By 2010, Russia had started employing various strategies to strengthen its position globally.

Firstly, Russia launched an invasion of Ukraine in February 2022, preparing for a protracted conflict. Contrary to American expectations of a swift Russian exhaustion, Russia has adopted a strategy of slow, deliberate actions, despite facing a shortage of military manpower. It has been recruiting fighters from African and other countries to sustain its offensive.

The conflict's pace is varied, with periods of slow advances punctuated by deadly strikes. Following a brutal ISIS attack on civilians near Moscow in January 2024, Russia retaliated by

destroying Ukraine's underground command and control system, highlighting the stark military imbalance between the two nations, even with Western support for Ukraine.

Secondly, Russia has been showcasing its military strength and issuing nuclear threats. The rationale behind this is clear: had Ukraine joined NATO before the Russian invasion, all NATO member countries would have been compelled to wage war against Russia according to NATO's doctrine.

Thirdly, Russia is threatening to target military assets and space vehicles, aiming to disrupt the global communications networka critical component of American dominance. Moreover, Russia is allegedly targeting the High-Frequency Active Auroral Research Program (HAARP), capable of weather modification and potentially causing natural disasters like floods, tsunamis, and earthquakes.

Disrupting HAARP would hinder the U.S.'s ability to send signals to its submarines, crucial for its second-strike capability. Additionally, Russia has conducted drills with non-nuclear tactical warheads to send a message to nearby Baltic States, Poland, and other countries that any assistance to the U.S. or its allies will not go unpunished.

Fourthly, Russia is working to undermine the global importance of the dollar. Currently, 130 out of 193 countries trade with China, and 38 of these countries do not use the dollar, opting instead for their own currencies. This practice is gradually diminishing the dollar's global significance, with the potential for increased use of local currencies in trade with China, Russia, and among themselves over time.

Fifthly, while America aims to keep Europe aligned with it, Russia is striving to pull European countries away from American influence, encouraging them to either align

with Russia or adopt a neutral stance.

Sixthly, America's strategy has involved dealing separately with China and Russia to prevent a military alliance between them. However, the recent visit of Russian President Vladimir Putin to China has significantly strengthened the military alliance between the two nations, reducing the likelihood of keeping them apart.

The conflict appears to be entering its final phase, with Russia and China forming a bloc that many allies are expected to join. India, for its part, seems to be maintaining a neutral position, fostering relationships with both blocs. This neutrality has led to unmet expectations from the United States, which now appears to be placing more trust in the Philippines and aligning more closely with them.

In conclusion, the global security landscape is witnessing significant shifts, with long-standing alliances being tested and new power blocs emerging. The actions and responses of key players like the United States, Russia, China, India, and Israel will shape the future geopolitical order in this era of heightened tension and uncertainty.

The author is chief Editor of the Monthly Interaction.

AL-KHALID TANK:

It is the most heavily weaponised tank by tonnage, being able to carry 49 125 mm rounds, 1,500 12.7mm and 7,100 7.62mm rounds, and is fitted with a 1,200 hp engine. Al-Khalid II's top speed is 72 km/h, and it weighs 47 tonnes.

AL-KHALID TANK:

ENHANCING PAKISTAN'S ARMORED CAPABILITIES

SYED SAMIULLAH

The Al-Khalid Tank, literally meaning "The Eternal Tank," is a Main Battle Tank (MBT) of Pakistan, jointly developed by Pakistan's Heavy Industries Taxila (HIT) and China's Norinco, which also refers to it as the VT-1A or MBT-2000. This formidable tank is named in honor of the legendary 7th-century Muslim military commander, Khalid ibn al-Walid (R.A), whose life was marked by numerous victories. Khalid ibn al-Walid, revered as Saifullah (the Sword of Allah), symbolizes the tank's indomitable strength and strategic prowess.

HISTORICAL CONTEXT AND DEVELOPMENT

In January 1990, a joint development agreement was signed between Pakistan and China for the co-development of Al Khalid MBT. The first Chinese-built prototypes were tested in Pakistan in August 1991, leading to the establishment of a manufacturing plant in Taxila, Pakistan, by 1992. Over the next eight

years, Pakistan invested in co-developing a model suitable for its needs and creating a local manufacturing capability.

The Project Director at Heavy Industries Taxila (HIT), Brigadier Nasir Mahmood SI (M), played a crucial role in modifying the tank to accept a foreign-built engine. The tank underwent various prototype evaluations to meet the operational demands of Pakistan's environment, including high ambient temperatures and fine sand or dust in southern Pakistan's deserts.

DESIGN AND SPECIFICATIONS

The Al-Khalid tank operates with a crew of three and is armed with a 125 mm smooth-bore tank gun that features an automatic reloading system. It incorporates a sophisticated fire-control system and night-fighting equipment. The tank's current production variant uses a diesel engine and transmission supplied by Ukraine's KMDB design bureau. The Al-Khalid entered service with the Pakistan Army in 2001, with subsequent upgrades ordered to enhance its capabilities.

KEY FEATURES AND ARMAMENT

- **Main Gun:** Al-Khalid is designed with a 125 mm smoothbore gun capable of firing various types of ammunition, including APFSDS (Armor-Piercing Fin-Stabilized Discarding Sabot), HEAT-FS (High-Explosive Anti-Tank), HE-FS, and gun-launched, laser-guided anti-tank guided missiles.
- **Secondary Armament:** The tank includes a 7.62 mm coaxial machine gun, a 12.7 mm externally mounted air-defense machine gun, and 16 smoke grenade launchers (12 Smoke, 4HE).
- **Fire-Control System:** The tank features the advanced ISFCS-122B fire-control system, which integrates inputs from multiple sensors to calculate ballistic trajectories in less than one second for precise targeting. It includes automatic target tracking, dual-axis stabilization, a muzzle reference system, and electro-hydraulic power drives for elevation and azimuth control, enabling accurate fire on both stationary and moving targets. Additionally, its automatic ammunition-handling system has a 24-round ready-to-fire magazine, capable of loading and firing at a rate of eight rounds per minute.
- **Sights and Night Vision:** Dual-magnification thermal imaging sights for both the gunner and commander, integrated with the fire-control system.
- **Navigation:** Navigation is assisted by an inertial navigation system (INS) and a GPS satellite navigation system.

MOBILITY AND PROTECTION

The Al-Khalid tank is powered by a 6TD-2 liquid-cooled diesel engine designed by

Ukraine's Kharkiv Morozov Design Bureau, delivering 1,200 horsepower. This engine configuration allows the tank to achieve a top speed of 72 km/h, with a power-to-weight ratio of 26.66 hp/tonne.

The tank features Modular Composite Armor (MCA) and Explosive Reactive Armor (ERA), along with an overpressure nuclear-biological-chemical defense system, thermal smoke generator, and internal fire suppression system. The Al-Khalid's armor provides substantial protection against HEAT and APFSDS rounds.

VARIANTS AND UPGRADES

- **Al-Khalid I:** This upgraded variant has increased ammunition capacity, an

enhanced fire-control system, and an improved air conditioning system. It is equipped with the Ukrainian Varta electro-optical jammer and the IBMS "Rebar" digital communications system, developed domestically by HIT and CARE (Centre for Advanced Research in Engineering). It includes a flat-screen display mounted inside the tank that communicates with those of other vehicles, including command posts such as the HIT Sakb. It uses a data link to facilitate secure communication of battlefield information between units, including tank video footage and information from unmanned aerial vehicles (UAVs).

- **Al-Khalid II:** During the 2016 International Defense Exhibition and Seminar (IDEAS) in Karachi, Pakistani armed forces and Turkish defense industry officials shared some details about the Al-Khalid II main battle tank (MBT) program. This version is said to be a further advanced variant with a redesigned turret, upgraded modular armor package, improved ammunition, and a new power pack developing 1,500 hp.

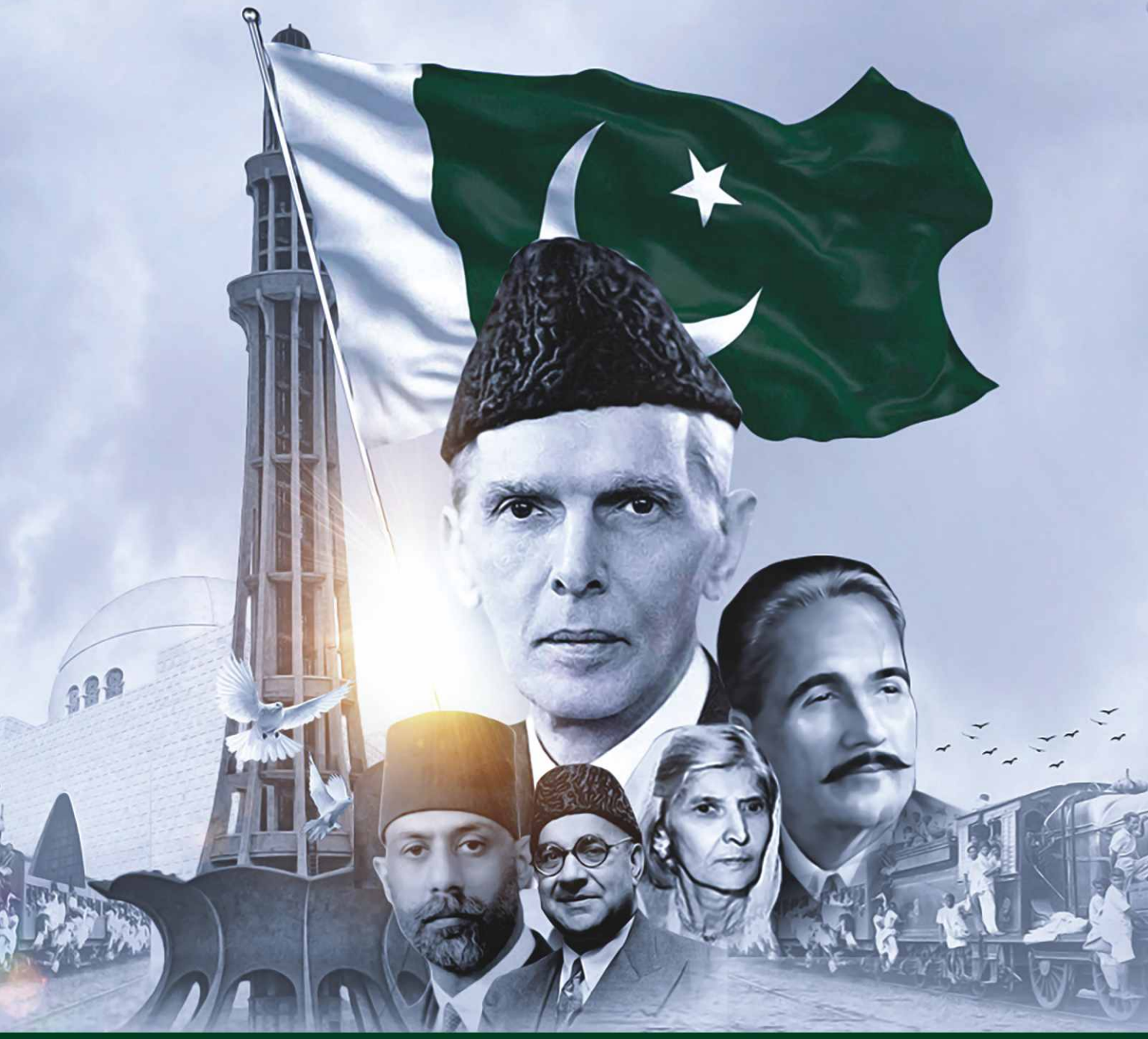
OPERATIONAL HISTORY

By 1999, HIT was ready to begin production, and the first batch of Al-Khalid tanks was inducted into the Pakistan Army's 31st Cavalry Regiment in 2001. The Al-Khalid tank was tailored to meet the operational needs of the Pakistan Army, especially considering the harsh climatic conditions of southern Pakistan. Over the years, Pakistan has made significant investments to upgrade the tank's capabilities, including an order with Ukraine in 2002 for additional engines.

Despite budgetary constraints, HIT has continued to produce and upgrade the Al-Khalid tank, with the latest Al Khalid-I variant inducted into service in July 2020. As of 2024, Pakistan operates over 300 Al-Khalid and 110+ Al-Khalid I tanks, underscoring the tank's critical role in the nation's defense strategy.

In summary, the Al-Khalid tank is a testament to Pakistan's advancements in indigenous defense capabilities and its strategic partnerships. From its inception and development to its operational deployment, the Al-Khalid has evolved to meet the modern battlefield's demands.

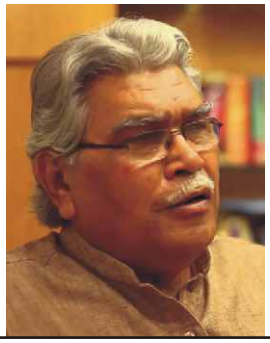
The author is a Research Officer at Rabita Forum International (RFI) and Associate Editor of the Monthly Interaction.



PAKISTAN CORNER

Welcome to "Pakistan Corner," a dedicated section in our magazine where we explore the rich tapestry of Pakistan's history, culture, and legacy before and after its independence. This series aims to illuminate the diverse heritages, local languages, various cultures, and unsung heroes of the nation, offering our readers an in-depth look into the different facets that shape today's Pakistan.

WORLD'S TRIBUTE TO THE FATHER OF THE NATION

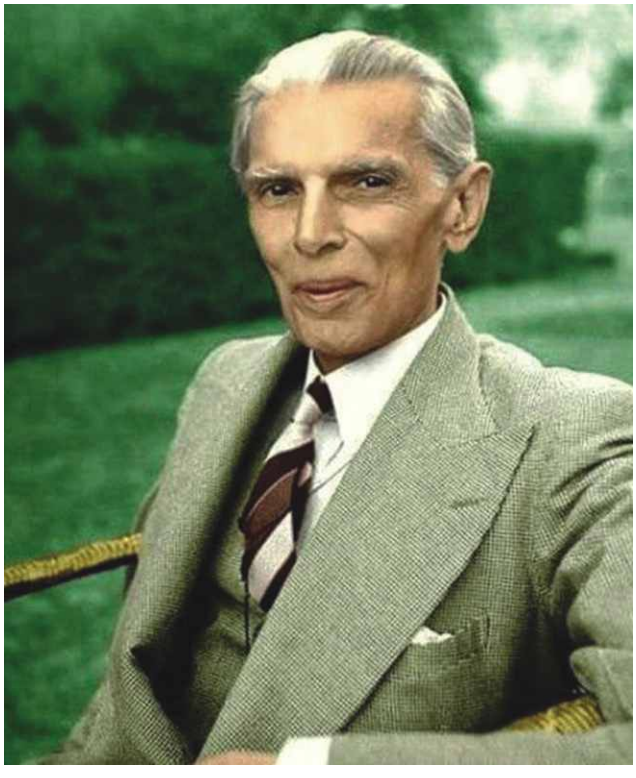


KHAWAJA RAZI HAIDER

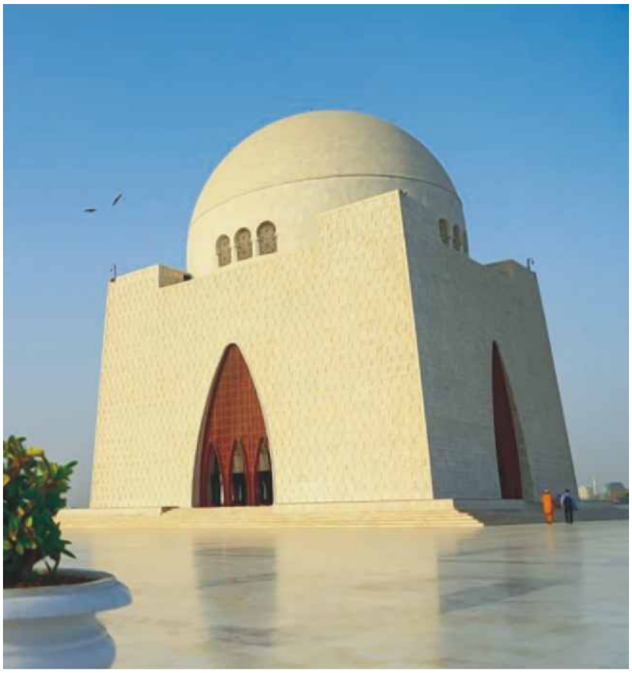
Quaid-e-Azam Muhammad Ali Jinnah dedicated almost 44 of his 72 years to the advancement, prosperity, political dominance, and freedom of the Muslims in India. Throughout his journey, he faced staunch opposition from both allies and adversaries. Yet, his extraordinary leadership and unyielding political character established him as the undisputed great leader (Quaid e Azam) of Indian Muslims by 1937. Recognizing his remarkable qualities, Allama Iqbal, the poet of the East, wrote to Jinnah in June 1937, acknowledging that in the turbulent times looming over northwestern India and potentially the entire nation, Jinnah alone could provide the necessary leadership and guidance.

At this critical juncture in history, when the survival and security of Indian Muslims seemed bleak, Jinnah's wisdom, foresight, unwavering determination, political acumen, and unparalleled leadership united the Muslims like a solid fortress. Within seven years, his advocacy for the creation of Pakistan culminated in its establishment on August 14, 1947, realizing a centuries-old dream of an independent Muslim state in the subcontinent. This monumental achievement was the direct result of Jinnah's visionary leadership.

The year 1948 was the final year of Quaid-e-Azam's life. Despite leading a highly active political career, his last decade, marked by



increasing age and declining health, was especially tumultuous. Post-independence, the nascent state of Pakistan faced numerous challenges that Jinnah could not overlook or delegate. He devoted himself to formulating and implementing domestic and foreign policies, touring the country to address public issues, stabilizing the national economy, enhancing the educational system, defending the borders, and guiding the Constituent Assembly, government officials, and armed forces on their duties and the nation's



expectations.

Jinnah's relentless efforts to address these issues were crucial for the survival of the newly-formed nation. Professor Sharif al Mujahid noted that an honest analysis of the circumstances reveals that Pakistan survived the immediate post-independence crises largely due to Jinnah's leadership. The immense trust and profound admiration that the people of Pakistan had for him were instrumental in inspiring the nation to overcome the adversities they faced. He channeled the patriotic fervor ignited by independence towards constructive endeavors.

Quaid-e-Azam's unparalleled leadership and political insight were recognized not only by Indian Muslims but also by leaders worldwide. British Prime Minister Clement Attlee, in his condolence message upon Jinnah's death, described him as one of the world's great leaders, whose deep commitment to his cause led to the creation of Pakistan.

Sir Stafford Cripps, a renowned British Parliament member, noted Jinnah's integrity and honesty, which made conversations with him challenging due to his unwavering belief in his cause. Jinnah's refined and courteous nature, combined with his readiness to stay up all night to argue his stance, were hallmarks of his character.

Sir Pethick-Lawrence, the Secretary of State for India, believed that Jinnah's name would always be remembered in history as a leader who formed a great nation. U.S. President Harry Truman remarked that Muhammad Ali Jinnah was not only the realization of Pakistan's dream but also the architect of a state and the father of one of the world's largest nations. His commitment, diligence, and unparalleled leadership would continue to guide the people of Pakistan.

U.S. Secretary of State George Marshall highlighted Jinnah's traits of integrity, honesty, sincerity, and indomitable determination, which were respected by both his political friends and foes. Jinnah's organizational and political skills kept him prominently among the great statesmen of not only Asia but the world. The Chief Minister of Bombay, P.G. Kher, described Jinnah as a historic figure whose decision-making power, self-confidence, and unparalleled political acumen made him an enviable leader.

In 1917, Secretary of State for India Edwin

میں نے بہت دنیا دیکھی۔ اللہ تعالیٰ نے عزت بھی بے حساب دی اب میری زندگی کی ایک ہی تمنا ہے کہ مسلمانوں کو باوقار اور سربلند دیکھوں۔ میری خواہش ہے کہ جب مروں تو میرا دل گواہی دے کہ جناح نے اللہ کے دین اسلام سے خیانت اور پیغمبر اسلام حضور نبی اکرم ﷺ کی اُمت سے غداری نہیں کی۔
(30 جولائی 1948ء)

Sir Stafford Cripps
A Renowned British Parliament Member

Sir Pethick-Lawrence
The Secretary of State for India

Ian Stephens
Editor of The Statesman

Professor Rushbrook Williams
A Member of The Editorial Staff of The Times, London

George Marshall
U.S. Secretary of State

Edwin S. Amuel Montagu
Secretary of State for India in 1917

Samuel Montagu expressed regret that Jinnah, a very ingenious man, had no role in the governance of his own country, India. In 1946-47, Sir Olaf Caroe, Governor of the North-West Frontier Province, observed that Muhammad Ali Jinnah was more than a politician, earning respect from everyone who knew him. His complete personality was admirable.

Ian Stephens, editor of The Statesman, in his book, described Quaid-e-Azam as a nation builder, stating that future historians would place Muhammad Ali Jinnah on par with Bismarck and Cavour. Professor Rushbrook Williams, a member of the editorial staff of The Times, London, reflected upon Jinnah's passing, calling him a great leader who brought about a revolution in the history of the Muslims of the subcontinent.

Upon Quaid-e-Azam's death, Sir Pethick-Lawrence remarked that while Gandhi was killed by an assassin, Jinnah sacrificed his life out of deep attachment and dedication to Pakistan. The London Times wrote that Jinnah was more than a leader; he was the head of a nation, even more so than the founder of the Islamic state he had established.

Quaid-e-Azam was undoubtedly the architect of modern India's history, a historical figure whose parallel is hard to find in contemporary times. According to Sarojini Naidu, Jinnah was the most prominent and attractive personality of the modern era. Quaid-e-Azam Muhammad Ali Jinnah's character remains an essential subject for social scientists, crucial for understanding modern India's history and ensuring Pakistan's progress and prosperity in line with his vision.

The author is the former director of Quaid-e-Azam Academy Karachi.

CHASHMA CENTER OF NUCLEAR TRAINING (CHASCENT)

INTERACTION TEAM

This series is dedicated to showcasing the remarkable achievements and vital contributions of the Pakistan Atomic Energy Commission (PAEC) and its affiliated institutions. It aims to provide readers with insights into Pakistan's nuclear advancements, including nuclear science, energy production, healthcare breakthroughs, agricultural innovations, and environmental conservation, all driven by PAEC's pioneering efforts. The series draws extensively from the insightful book "Johari Nishtar e Tehqeeq," the first-ever Urdu book on the topic, authored by the Chief Editor of the monthly Interaction, Nusrat Mirza. It offers a unique perspective on untold stories, significant milestones, and the unwavering commitment of PAEC and its dedicated scientists and researchers.

CHASCENT was established in 1996 with a vision to provide specialized training in nuclear technology. Over the past decades, CHASCENT has become a cornerstone in the development of skilled human resources for Pakistan's nuclear power sector, particularly for the Chashma Nuclear Power Plant-1 (CHASNUPP-1) and other facilities managed by the Pakistan Atomic Energy Commission (PAEC).

TRAINING AND DEVELOPMENT AT CHASCENT

Since its inception, CHASCENT has made remarkable contributions to the training of engineers, scientists, and technicians in

nuclear power plant technology. To date, more than 120 engineers and scientists, along with 429 technicians, have graduated from CHASCENT. These professionals are now integral to the operation and maintenance of nuclear power plants across Pakistan, ensuring the safe and efficient generation of nuclear energy.

The comprehensive training programs at CHASCENT are designed to equip individuals with the technical knowledge and practical skills necessary for the nuclear power industry.

Continued on page 37

ISRAEL - IRAN CONFLICT

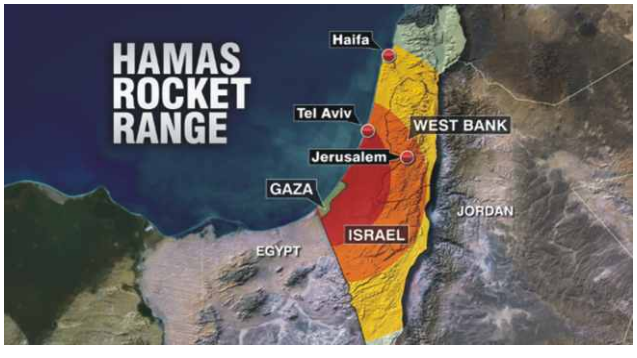
MIRZA KASHIF BAIG

INTRODUCTION

The conflict between Iran and Israel is one of the most critical issues in Middle Eastern geopolitics, affecting regional stability as well as international relations. The strike that Hamas executed on October 07, 2023, marked a radical growth point, pointing towards its constant tension and catastrophic ramifications. This article delves into the antecedents of this attack, the unfolding events, and the broader implications at both regional and global levels, ultimately advocating for a resolution and accountability for the actions that have perpetuated this conflict. This is a very complex and multi-dimensional issue, as the conflict between Iran and Israel lies in the ideological, political, and/or religious differences between both nations. The events of October 07, 2023, have now thrust these tensions into the forefront, and hence, there is a need for further understanding and analysis of the causes and impacts of this ongoing dispute. Understanding this situation would require knowledge about the historical development and the key events that happened, which continue to have an impact on the conflict.

BACKGROUND OF THE IRAN-ISRAEL DISPUTE

Based on ideological, political, and religious differences, the Islamic Republic of Iran and the state of Israel have been at odds since the mid-20th century. An important turning point happened after the 1979 Iranian Revolution, whereby an Islamic Republic replaced a previously Western-oriented monarchy. Since then, Iran has been extremely hostile to Israel's existence and supports various Palestinian groups. Over time, this hostility took the form of proxy wars, direct confrontations, and a series of geopolitical maneuvers, which, at times, plunged the region into escalations of violence. When the Islamic Republic of Iran came into being, another dimension of conflict emerged, with Iran beginning to support various militant groups hostile to Israel, such as Hezbollah in Lebanon and Hamas in Gaza. This comes in the form of financial, military, and weapons aid, and it has escalated the



animosity between the two nations. The 1980s Iran-Iraq War significantly contributed to the enduring conflict, particularly when Israel unofficially provided some support to Iraq. In recent decades, a series of proxy wars have erupted, with Iran and Israel seemingly aligning themselves with opposing factions in the region. An excellent example of this conflict is the Syrian Civil War, in which Iran supports the Assad regime while Israel, from the skies, attacks its targets within Syria. The proxy wars further intensified the conflict between Iran and Israel and involved other regional and global powers, making the path to peace more difficult.

ISRAELI ATROCITIES THAT LED TO THE HAMAS ATTACK

The Israeli-Palestinian conflict, which stems from the differences between the Iranian government and Israel, is deeply rooted in numerous events that the Palestinians perceive as atrocities perpetrated by their own people and their allies. The military operations in Gaza, the expansion activities in the West Bank, and the restrictions imposed on the Palestinians' movement and economic potential are some of the most prominent examples. Events like the 2014 Gaza conflict and the ongoing bloqueo have resulted in significant civilian casualties and heightened humanitarian crises, creating a conducive environment for retaliation and further conflict. The most notable of these events in current years was the 2014 Gaza War, or Operation Defensive Edge. The fighting would result in more than 2,000 Palestinians, an overwhelming majority of whom were citizens, as well as widespread destruction across Gaza. The war was characterized by heavy bombardments, the destruction of houses and infrastructure, and a devastating humanitarian crisis. There was an

international outcry against the high toll on civilians and the disproportionate use of force by Israel in the war.

Another major source of friction has been the expansion of Israeli settlements in the West Bank. These settlements, which are located in Palestinian territory, are illegal under international law and have caused the uprooting of Palestinian communities, as well as contributing to the fragmentation of the West Bank. The Israeli government's active policy of settlement expansion has been the primary obstacle, inciting and irking the Palestinian people. The blockade of Gaza, which Israel initiated in 2007, has restricted the movement of people and goods and led to a catastrophic humanitarian situation on the ground. It has caused great economic damage and widespread poverty, with unemployment increasing across Gaza. Furthermore, it has resulted in a significant shortage of basic services such as health and education for the population. These factors have further fueled extremism and violence, thereby intensifying the cyclical nature of the conflict.

THE HAMAS ATTACK OF OCTOBER 07, 2023

On October 07, 2023, Hamas arranged a large-scale military operation against Israel, involving missile salvoes, ground incursions, and suicide bombing. The assault's

dimensions and pinpoint accuracy took a heavy toll on lives and property. Such an attack serves as a stark reminder of the underlying unresolved issues and the fragility of the region. Israel immediately responded boldly, intending to engage in severe military activity against Hamas posts in Gaza, thereby intensifying the conflict.

Around 3 in the morning, Hamas launched the attack, catching the Israeli forces off guard. Hamas succeeded in shooting hundreds of rockets into the cities of Israel, thus leading to great chaos and destruction. Meanwhile, the militant groups deployed special teams across the border, targeting both military and civilian bases. Suicide bombers struck crucial targets, and these bombings intensified the chaos and destruction. The immediate response to the attack. The Israeli Defense Forces initiated a series of airstrikes on Gaza, targeting Hamas infrastructure, military sites, and residential areas suspected of housing militants. The military strikes have caused massive civilian casualties and widespread destruction, while also fueling the ongoing humanitarian crisis in Gaza.

The conflict had a quick and focused international response, as most of the countries had already condemned the attack and called for restraint. Countries that supported Israel's self-defense rights and those that condemned the disproportionate use of force continued to divide the strategies. The parties involved initiated some attempts at diplomatic ceasefires, but their criminal mistrust and divergent interests made it difficult to reach a durable solution.

The tension between Iran and Israel escalated following the Hamas attack.

The conflict, along with Iran and Israel and their alliances, has been witnessing a series of big escalations, which have included direct engagements, cyberattacks, and an increase in rhetoric from both sides seeking dominance and leverage in the ongoing struggle.

Another major escalation happened around the time of the Hamas attack, when Israel accused Iran of supplying advanced weaponry to the Palestinian militants. Israeli airstrikes against suspected Iranian weapons depots in Syria and Lebanon followed, resulting in severe casualties and the destruction of infrastructure. Iran was bound to promise severe punishment for these attacks, which upped the stakes in the region. Soon afterwards, at this very striking point, cyber activity from both Iran and Israel reached its peak.

Cyberwarfare played a very dominating game right after the Hamas attack. Both Iran and Israel have intensified their cyber operations against critical infrastructure. Iranian hackers ostensibly attempted to breach Israeli power grids and water supply systems, contributing to the spike in cyber activity. On the other hand, Iran's oil infrastructure suffered severe disruptions caused by Israeli cyberattacks, leading to immense economic losses.

The diplomatic relations between the two states have grown even worse, characterized by an escalation of belligerent rhetoric. The

Supreme Leader of Iran has made statements advocating for the obliteration of the Israeli state, and Israeli leaders have threatened pre-emptive strikes against Iranian nuclear establishments if the Iranian nuclear program continues to advance. These threats have consistently fueled tensions, prompting the international community to express concern and call for restraint.

In the wake of these escalations, the middle powers in the region, including Saudi Arabia and Turkey, have tried to broker peace, but to no avail. The conflict has overstretched their diplomatic resources and derailed some of their foreign policy goals. International efforts through the United Nations and middle powers have met substantial resistance, which underscores the complex or intractable nature of the Iran-Israel conflict.

SIGNIFICANT DEVELOPMENTS POST-HAMAS ATTACK

The conflict escalated at an unprecedented rate after the Hamas attack. Israeli bombardments exceeded all bounds, with explosive impacts not only on militant targets but also on highly populated civilian locations, leading to the deaths of numerous civilians. International reactions were varied and ranged from condemnation of violence and support for Israel to calls over the disproportionately large use of force; however, diplomatic negotiating over a possible cessation of hostilities never escaped from gridlock, which was mainly due to deep-seated mistrust and divergent interests of the middle and great powers.

The disproportionate use of force claimed a significant number of civilian lives, especially in the Gaza Strip. Humanitarian agencies reported that hospitals were overcrowded and essential supplies, particularly blood, had run out. These attacks have only increased civilian populations' suffering, while the destruction of infrastructure, power plants, and water facilities, among other things, is also characteristic of a war-torn country. The international community has promptly called for humanitarian aid, particularly access to the affected areas, but this has proven challenging due to the ongoing conflict.

Diplomatically, the conflict's rapidity of action exacerbated the situation: the United Nations Security Council held emergency sessions to address the crisis, but the veto power of permanent members with vested interests in the region blocked resolutions. The first mediators to attempt a ceasefire were regional powers Egypt and Qatar. Both Hamas and Israel, however, laid down preconditions that neither side was inclined to accept. Geopolitically, several nations took sides once the outbreak of violence occurred. The United States reiterated its support for Israel in terms of its right to self-defense, while also urging caution in the reduction of civilian casualties. Divided across Europe, some states called for an immediate ceasefire, while others embraced the Israeli stance. Iran, obviously, dismissed the Israeli response and reiterated its support for Palestinian resistance.

IRANIAN PRESIDENT DIES

The political fray overemphasized the inexplicable death of the President of Iran. Despite the official declaration of natural causes, speculation about possible foul play

emerged, taking into account Azerbaijan's close allegiance to Israel and the strained relations between Azerbaijan and Iran. The death coincided with the high level of tension between Iran and Israel, thus fueling speculation about Israeli involvement in the events. This incident further strained Iran-Israel relations, with Iran vowing to investigate and respond appropriately.

The Iranian President, a very strong advocate against Israel and for Palestinian groups, was a prominent regional political figure whose death at this critical moment raises questions about possible foul play. While doing so, it was immediately suspected to have helped Israel in this regard. The Iranian government announced an inquiry into the president's death, and top officials hinted at the involvement of foreign parties in the incident. Since then, allegations and counter-allegations from various sources have further strained Iran's relations with Israel and Azerbaijan. The death further exacerbated the political situation in Iran, as rival political factions within the government vied for leadership and dominance. The international community was looking nervously at these developments, and it was aware that escalation in any other quarter would have a spillover effect in the form of instability in the region. Such an escalation period, the analysts noted, could include retaliatory action by Iran and increased tension in the region.

GLOBAL AND REGIONAL IMPACT

The Iran-Israel conflict's intensity has global and regional repercussions. From a regional geopolitical perspective, it has sharpened the polarity of regional alliances, with countries like Saudi Arabia and the UAE now trying to walk a fine line between economic interests and security considera-

tions. Economically, the conflict has turned the oil market upside down, thereby aggravating global economic uncertainty. Humanly and in terms of humanitarian impact, the cost of the violence on civilian populations, especially in Gaza, has been huge, with thousands displaced and a considerable chunk of infrastructure demolished.

Geopolitically, it has changed the balance of power across the Middle East. It leaves Saudi Arabia and the UAE, two states in the Middle East that have taken steps to normalize their relationship with Israel in recent times, stuck between their economic interests, including their investments and trade with Israel, and the backlash that might come from their societies and other Muslim-majority nations that support the Palestinian cause. This delicate balance has led to careful diplomatic overtures and public statements focusing on support for the rights of the Palestinians while at the same time not affecting the close relationship with Israel.

From an economic point of view, the war indeed had its reflections in the world's oil markets. The Middle East is one of the most important areas for oil production, and as a result, any form of violence in the region may potentially lead to a price fluctuation. The rising violence and the potential for a broader regional skirmish have justified heightened concerns about supply security and increased volatility in world markets. This instability will

have serious consequences for the global economy, ultimately impacting energy prices and inflation.

Basically, the fighting has tremendously impacted unarmored civilian populations, with Gaza being the worst hit. Sustained aggression and the long and attritive blockade have left the civilian population in a state of human suffering, rendering tens of thousands homeless and severely restricting the supply of food, water, and medical help. International humanitarian organizations have begun to issue urgent appeals to address the emergency, but the ongoing conflict is preventing any help from intervening.

CALL FOR SOLUTIONS AND ACCOUNTABILITY

The crisis needs a long-lasting solution, as it has the potential for catastrophic humanitarian consequences. The international community must push for a solution that orders a stop to the violence and initiates the process towards a real and comprehensive peace. These efforts must also be accompanied by the restoration of accountability for war crimes and human rights violations. The current Israeli Prime Minister must take responsibility for the policies that sparked the escalation. A just solution should not only include the cessation of immediate hostilities, but also provide a roadmap for achieving lasting peace and justice for the affected people.

Peace in the Middle East is always a shaky affair, but it is one that is necessary for the region's stability and the well-being of its people. International actors with considerable power, such as the United Nations, the European Union, the United States of America, and Russia, need to be catalytic and not passive in leading dialogue and negotiations. The discussions should take care of the root causes of the conflict, such as the occupation of Palestinian territories and the blockade of Gaza, and, more broadly, reflect the context of Iran-Israel geopolitics.

Any solution must incorporate accountability. We should also hold the Israeli Prime Minister accountable for war crimes and human rights violations, as his policies and actions have further inflamed the conflict. We should use international legal mechanisms, such as the International Criminal Court, to investigate and prosecute those involved in the heinous crimes on both sides. This will serve the cause of justice and create a precedent that will help eliminate such behaviors in the future.

In addition, we must mobilize concerted efforts to support the reconstruction and development of the affected areas, particularly Gaza. This entails providing humanitarian aid, building infrastructure, and fostering economic growth to enhance the population's standard of living. Long-term peace and stability in the region would depend on the resolution of these constraints, as well as the assurance that all parties involved can coexist in a just and equitable manner.

CONCLUSION

The Iran-Israel conflict, as manifested in the recent Hamas attack, is a much-vexed and

deep-seated conflict with horrible consequences. The immediate goal should be to stop the war and address the humanitarian crisis. The final target must be a just and lasting peace. This is possible not only with diplomatic initiatives but, more importantly, with a commitment to accountability and justice.

The world at large must take a proactive role in ensuring dialogue and justice for those who have suffered as a result of violent conflict. We can only envision a peaceful and stable future for the region through these comprehensive approaches.

The world simply cannot afford the protracted war between Iran and Israel. The violence and instability have global implications that stretch far beyond the Middle East, touching on issues of economic stability, human security, and humanitarian conditions. It is the responsibility of the international community to act decisively by identifying the roots of the conflict, holding the perpetrators accountable, and supporting just and lasting efforts related to peace. For all affected by such a protracted conflict, this is the only guarantee for a stable and prosperous future.

The author is Editor of the Monthly Interaction.

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THE CHASHMA CENTER OF NUCLEAR TRAINING (CHASCENT)

The curriculum covers various aspects of nuclear power technology, including reactor physics, thermodynamics, radiological safety, and plant operation. The training also emphasizes hands-on experience, allowing trainees to apply theoretical knowledge in real-world scenarios.

STRATEGIC LOCATION AND FACILITIES

CHASCENT is strategically located adjacent to the Chashma Nuclear Power Plant (CHASNUPP) at Chashma, approximately 32 kilometers from Mianwali. This proximity to an operational nuclear power plant provides trainees with unparalleled access to live plant operations and firsthand exposure to the working environment of a nuclear facility. The center is equipped with state-of-the-art laboratories, simulators, and training facilities that replicate the conditions and challenges of an actual nuclear power plant.

CONTRIBUTION TO PAKISTAN'S NUCLEAR ENERGY SECTOR

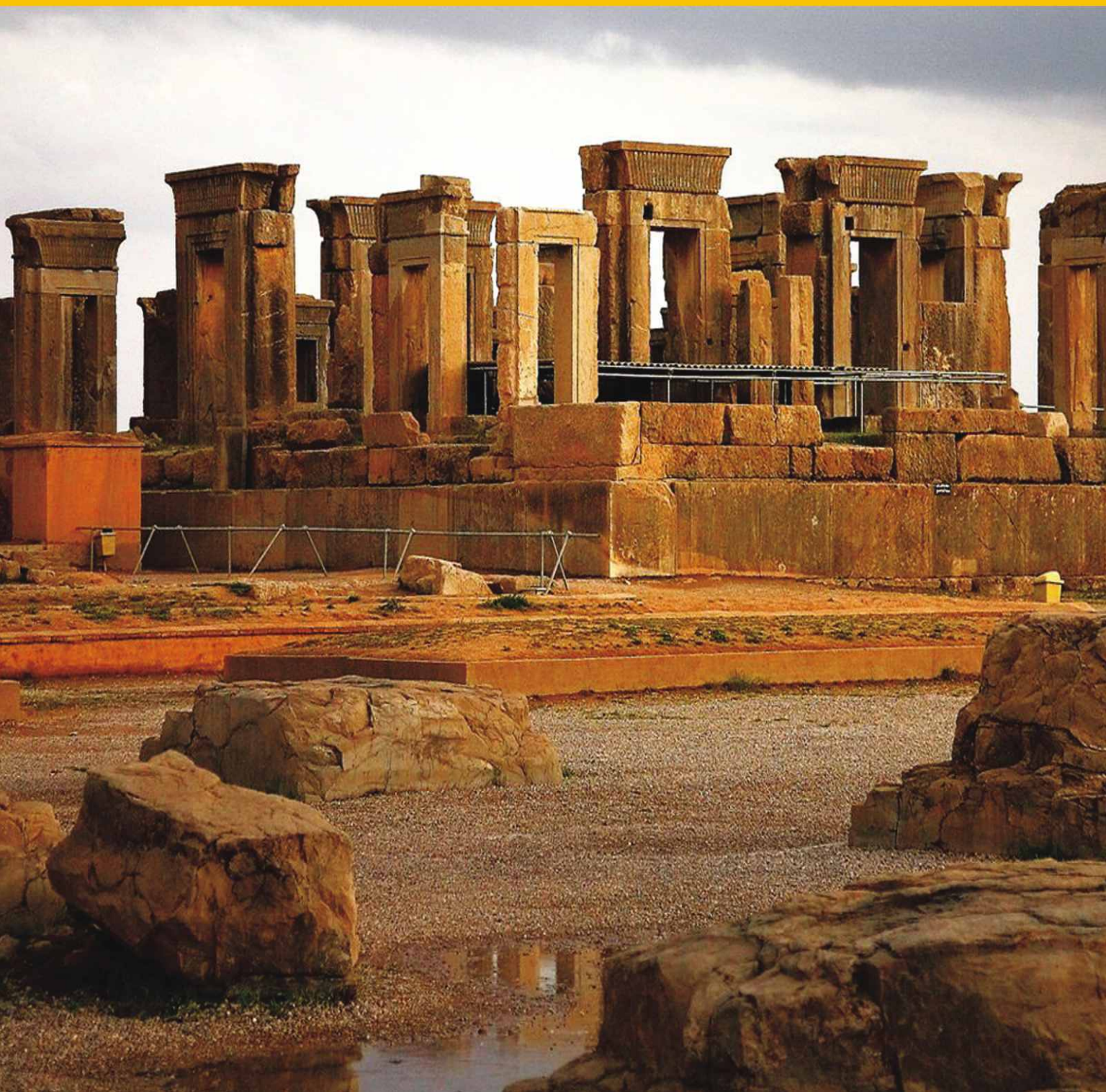
CHASCENT's role extends beyond training; it is a vital component in Pakistan's broader nuclear energy strategy. Nuclear energy plays a critical role in meeting Pakistan's growing energy demands and reducing reliance on fossil fuels. The expertise developed at CHASCENT supports the sustainable and safe expansion of nuclear power, contributing to the country's energy security and environmental goals.

FUTURE PROSPECTS AND EXPANSION

Looking forward, CHASCENT aims to expand its training programs and facilities to accommodate the increasing demand for skilled nuclear professionals. With plans to incorporate advanced training modules and cutting-edge technology, CHASCENT is poised to remain at the forefront of nuclear education and training in Pakistan.

The center is also exploring collaborations with international nuclear training institutes to enhance its curriculum and provide trainees with global perspectives on nuclear technology and safety practices. Such initiatives will further elevate the quality of training and ensure that CHASCENT's graduates are equipped with the latest knowledge and skills in the field.

PERSIAN CIVILIZATION



THE MAJESTIC PERSIAN CIVILIZATION:

FROM CYRUS THE GREAT TO THE SASSANIAN EMPIRE

INTERACTION TEAM

The Persian civilization, known for its magnificence and influence, is one of the most prominent and enduring civilizations in history. Emerging in what is modern-day Iran, this civilization has a rich tapestry of cultural, political, and social achievements that have shaped the course of history.

ORIGINS AND RISE

The roots of Persian civilization can be traced back to around 550 BCE when Cyrus the Great founded the Achaemenid Empire. This empire, which lasted until 330 BCE, is often considered the first Persian Empire and marked the beginning of a long and illustrious period of Persian dominance. Cyrus the Great is celebrated for his establishment of a vast and diverse empire that stretched from the Indus Valley in the east to Thrace and Macedon on the northeastern border of Greece, making it one of the largest empires in history.

Cyrus's policies of tolerance and respect for the cultures and religions of the lands he

conquered set the tone for Persian rule. His famous decree, known as the Cyrus Cylinder, is considered one of the first declarations of human rights, emphasizing the importance of justice and the protection of the oppressed.

CHARACTERISTICS AND ACHIEVEMENTS

The Persian civilization is characterized by its sophisticated administration, monumental architecture, and advancements in art and science. The Achaemenid Empire, under the leadership of subsequent rulers like Darius the Great (522-486 BCE) and Xerxes (486-465 BCE), developed an efficient bureaucratic system with satraps (governors) overseeing various provinces. This system ensured stability and efficient governance across the vast empire.

Persian architecture is another hallmark of the civilization, with magnificent structures such as the royal palaces at Persepolis and

Susa. These architectural marvels showcased the empire's wealth and artistic prowess, with intricate carvings, grand columns, and expansive courtyards.

The Persians also made significant contributions to infrastructure, building an extensive network of roads, including the Royal Road, which facilitated communication and trade across the empire. The introduction of qanats (underground irrigation canals) revolutionized agriculture in arid regions, ensuring a stable food supply.

CULTURAL DIVERSITY AND RELIGION

The Persian Empire was a melting pot of cultures, languages, and religions. The rulers of the empire adopted a policy of tolerance, allowing the various peoples within their realm to practice their own religions and customs. This inclusivity fostered a rich cultural diversity that was reflected in the art, literature, and daily life of the empire.

Zoroastrianism, the ancient pre-Islamic religion of Persia, played a significant role in shaping Persian culture and values. Founded by the Zoroaster (Zardosht in Persian), Zoroastrianism emphasized the duality of good and evil and the importance of individual choice. It also influenced other major religions, including Judaism, Christianity, and Islam.

PROMINENCE AND INFLUENCE

The Persian civilization reached its zenith under the rule of Darius the Great, who expanded the empire and strengthened its administrative structure. The Persian influence extended beyond its borders, affecting the cultures and civilizations of Greece, India, and beyond. The Greco-Persian Wars, although marked by conflict, also led to cultural exchanges that enriched both civilizations.

Persian literature and art flourished during this period, with works such as the epic poems of Ferdowsi and the intricate miniatures and carpets that remain celebrated worldwide.

DOWNFALL AND LEGACY

The decline of the Persian Empire began with the invasion of Alexander the Great in 330 BCE.

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EBRAHIM RAISI (1960-2024): A NAME TO REMEMBER

DR. SYEDA BUSHRA BATOOL

Waving Iranian flags and portraits of late President Ebrahim Raisi all around, the streets of Iran's holy city of Mashhad were flooded during the funeral prayers of Iran's out-going president Ebrahim Raisi, who suffered a tragic helicopter crash in the country's mountainous northwestern city of Tabriz on Sunday, 19 May, 2024. Five days of national mourning was

declared in the country following his death. The death of 63-year-old president comes after the historic attack of Tehran with sizable missile and drones on Israel's territory in early April, launched as retaliation to Israel's airstrike on the Iranian consulate in Damascus, killing several Islamic Revolutionary Guards including Corps commanders.

The Supreme leader Ayatollah Ali Khamenei, who has ultimate authority in Iran, has assigned vice president Mohammad Mokhber, as caretaker president until next presidential elections which are scheduled to be held on June 28, as announced by state media.

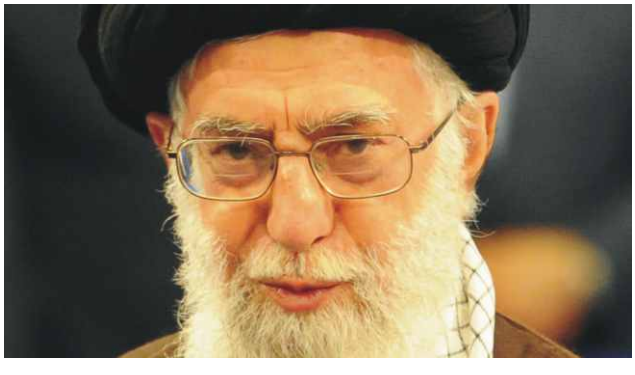
Known as a jurist and religious figure, the late Iranian President Ebrahim Raisi was born on 14 December, 1960, in Mashhad, Iran. He was raised as a cleric which is often reflected in his staunch political resistance towards Israel and the west. Following the 1979 revolution, he began his career as a prosecutor in 1981. Rising swiftly in his position, Raisi became Deputy Prosecutor General of Tehran at the young age of 25. He was also a part of a 4-member committee that issued death sentence for regime opponents imprisoned in 1988. This made him particularly unpopular among its opposition and controversial particularly in the west and many Human Rights groups, leading the United States to impose sanctions on him.

After the death of Iran's first Supreme Leader Ayatollah Ruhollah Khomeini in 1989 and during Ali Khamenei's tenure as Khomeini's successor, Raisi rapidly climbed the ranks in state offices. He served as Tehran's prosecutor general from 1989 to 1994. For next ten years until 2004, he was appointed as the head of the State Inspectorate Organization, which followed his appointment as the first deputy chief of the judiciary and then as Iran's Attorney General in 2014. Ex-president Raisi was also privileged to hold position of chairman of the Astan Quds Razavi, the head of the Imam Reza (A.S) Shrine and Foundation, the most sacred holy shrine and biggest religious endowment in

Mashhad, which he acquired on 07 March 2016. This further strengthened his position and status among Iran's establishment.

Raisi, during 2017 presidential elections, ran as a candidate but could not succeed against the then incumbent President Hassan Rouhani. One of the strengths of Rouhani at that time was his participation in the Iran's negotiation on nuclear deal in 2015, known as Joint Comprehensive Plan of Action (JCPOA) with world powers, which in a way also restricted Iran's nuclear programme in return of sanction relief. Raisi was critical of the 2015 nuclear deal and it was one of the reasons he was considered a hardliner more than Rouhani who was seen as a political moderate within Iran's political system. Following the dismissal of Ayatollah Amoli Larijani from the judiciary chief position, Raisi assumed the vacant position of judiciary chief in March 2019. During the 18 June 2021 presidential elections, Raisi won by a large margin, securing 62% of the votes, thus becoming Iran's 8th president.

By that time, the JCPOA had already been irrelevant with the then US President Donald Trump unilaterally withdrawing from the agreement while re-imposing sanctions on Iran, consequently severely affecting its economy. Angered by the US's stance towards the JCPOA and the inability of other signatories to save the pact, Raisi announced that Iran was stepping up its nuclear



programme, but that it was not interested in a bomb.

The time of Raisi as president of Iran was surrounded by controversies and mass protests also. There are many reasons to that. Protests over alleged Human Rights persecutions, deepening economic crisis and unprecedented armed exchanges with arch-enemy Israel, all remained a challenge to his presidency. It is also a matter of fact that he was reined to presidency at such a time when the economy was battered by US sanctions which contributed to deteriorating standard of living to which critics described it as the prioritisation of defence over domestic issues. Additional to the escalating regional tensions within the Middle East, stalled talks on the revival of a nuclear deal with world powers and the anti-government protests that swept across Iran in 2022 after the death of Mahsa Amini, were other challenges in front of him during his tenure as president.

Raisi had been vocal for the cause of Palestine and Iran's support towards Palestinian people, a centerpiece of its foreign policy since the 1979 Islamic revolution. Iran has been outspoken in its condemnation of Israel's brutal attacks on Palestinian civilians, as have its regional allies in the so-called "axis of resistance" to Israel and its Western allies. Notwithstanding,

His death triggered both domestic and international reactions with several of Iran's international partners sending condolences

and effusive praise. Russian President Vladimir Putin, Chinese leader Xi Jinping and North Korea's Kim Jong Un, all released statements praising Raisi's legacy and hailing him as a "friend." Prime Minister Shehbaz Sharif also attended Raisi's funeral and praised the late president for his services to Iran and promoting the country's ties with Pakistan. Prime Minister Sharif also offered his condolence on behalf of the people and government of Pakistan to Supreme Leader Khamenei.

Due to continuing established foreign policy and navigating new confrontations domestically and internationally, Raisi proved a controversial president. However, his strong relationships on all levels of the Iranian establishment also made him a strong contender for a second term as president and as a successor of the Supreme Leader Ayatollah Khamenei, the highest authority in Iran and Raisi's 85-year-old mentor. The legacy of Raisi would be continued in Iran, at least in the coming time, and he will be remembered in the memories of the people of Iran and elsewhere in the world, especially from the friendly countries of Iran including Pakistan.

The author is a Research Officer at Rabita Forum International (RFI).

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THE MAJESTIC PERSIAN CIVILIZATION:

After defeating Darius III, Alexander's conquest led to the fall of the Achaemenid Empire. However, the Persian culture and administrative systems were so deeply ingrained that they continued to influence subsequent empires, including the Seleucid, Parthian, and Sassanian Empires.

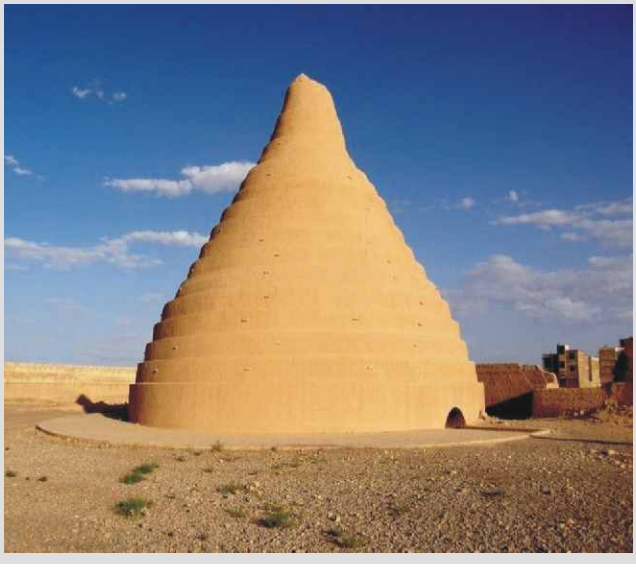
The Sassanian Empire (224-651 CE) is often considered the last great Persian Empire before the advent of Islam. It continued many Achaemenid traditions and made further contributions to art, architecture, and science.

The fall of the Sassanian Empire to the Islamic Caliphate marked the end of ancient Persian rule, but the Persian culture and traditions continued to thrive under Islamic rule, blending with Islamic culture to create a rich and enduring legacy.

CONCLUSION

The Persian civilization, with its origins in the ancient Achaemenid Empire, has left an indelible mark on history. From its impressive administrative system and architectural achievements to its cultural diversity and religious tolerance, the legacy of Persia continues to be felt today. Persian poetry and literature, particularly the works of poets like Rumi and Hafez, continue to be celebrated for their depth and beauty.

Despite its eventual decline, the contributions of the Persian civilization to art, science, and governance have endured, influencing countless generations and shaping the modern world.



PAKISTAN'S WATER SECURITY AND THE MELTING GLACIERS OF THE HINDU KUSH HIMALAYAS

WAJEEHA NAJAM

The Hindu Kush Himalayan (HKH) region is renowned for its towering peaks, pristine landscapes, and vital role in sustaining life across South Asia. Pakistan, in particular, heavily relies on the glacial meltwater originating from this majestic range for its water supply, agriculture, hydropower generation, and myriad other socio-economic activities. However, the accelerating pace of climate change has cast a shadow over the region's glaciers, leading to profound consequences for Pakistan's water security.

The glaciers of the Hindu Kush Himalayas serve as natural reservoirs, storing vast quantities of freshwater in the form of ice. These glaciers exhibit seasonal fluctuations in response to temperature variations, with snow accumulation during winter months and melting during warmer seasons. However, anthropogenic-induced climate change has disrupted this delicate balance, resulting in accelerated melting rates and altered hydrological patterns.

In the short term, the melting glaciers contribute to increased water runoff, leading to surges in river discharge and augmented water availability during certain periods. This phenomenon often termed the 'peak water' effect, can temporarily benefit downstream communities, particularly in the form of enhanced irrigation for agriculture and heightened hydropower generation. Such surges may create an illusion of abundance,

masking the underlying threat of dwindling water resources in the long run.

While the immediate influx of glacial meltwater may seem advantageous, the long-term implications are far-reaching and concerning. As glaciers continue to recede at an unprecedented pace, the supply of melt water is expected to diminish, jeopardizing Pakistan's water security. The gradual reduction in glacier mass will eventually lead to decreased river flows, exacerbating water stress in a country where water scarcity is already a pressing issue.

Furthermore, the altered hydrological regime resulting from glacier melt poses challenges for water resource management and infrastructure development. Existing water allocation agreements, such as the Indus Waters Treaty, may face renegotiation as the availability of freshwater resources becomes increasingly uncertain. Moreover, the reliance on glacial meltwater for agricultural irrigation, which accounts for a significant portion of Pakistan's economy, presents a vulnerability that demands proactive adaptation strategies.

The ramifications of dwindling water resources extend beyond the realms of

hydrology, permeating into various socio-economic spheres. Agriculture, the backbone of Pakistan's economy, heavily depends on irrigation water derived from rivers originating in the Hindu Kush Himalayas. A decline in water availability can lead to decreased agricultural productivity, food insecurity, and economic downturns, exacerbating poverty and socio-economic disparities.

Furthermore, the energy sector, predominantly reliant on hydropower generation, faces uncertainty due to fluctuating river flows influenced by glacier melt. Reduced water availability for hydropower generation can disrupt energy supply, hindering industrial productivity and impeding economic growth.

Moreover, the impacts on ecosystems and biodiversity, exacerbated by altered hydrological patterns, can further exacerbate socio-economic vulnerabilities, particularly among marginalized communities dependent on natural resources for their livelihoods. Addressing the challenges posed by the melting glaciers of the Hindu Kush Himalayas necessitates a multi-faceted approach encompassing adaptation, mitigation, and international cooperation.

Adaptation measures include: Investing in water-efficient agricultural practices and crop diversification to mitigate the impacts of water scarcity on food security. Implementing water conservation and management strategies to optimize water use efficiency across sectors. Diversifying energy sources to reduce reliance on hydropower and promote renewable energy alternatives. Strengthening infrastructure resilience to withstand extreme weather events and water-related hazards. Promoting community-based adaptation initiatives to enhance local resilience and foster sustainable development. Reducing greenhouse gas emissions through policy interventions, renewable energy deployment, and sustainable land use practices to mitigate further climate change impacts on glaciers.

Enhancing scientific research and monitoring to better understand glacial dynamics, hydrological processes, and water resource management. Fostering international cooperation and regional partnerships to address transboundary water issues and promote collaborative adaptation strategies. Investing in climate-resilient infrastructure and technology to mitigate the impacts of glacier melt on water availability and socio-economic systems.

The melting glaciers of the Hindu Kush Himalayas pose a formidable challenge to Pakistan's water security, with implications transcending geographical boundaries and impacting diverse sectors of society. While the short-term surges in glacial meltwater may provide temporary relief, the long-term projection demands urgent action to adapt to changing hydrological dynamics and mitigate the underlying drivers of climate change.

Through concerted efforts in adaptation, mitigation, and international cooperation, Pakistan can navigate the challenges posed by the melting glaciers, safeguarding water security and fostering sustainable development in the face of a changing climate.

The author is a Research Officer at Rabita Forum International (RFI).

FATAH-II:

PAKISTAN'S RESPONSE TO INDIA'S AI-DRIVEN DEFENSE AND DYNAMIC RESISTANCE STRATEGY

NIMRAH JAVED

ZOHAIB ALTAF

In response to the technological advancements in missile defense systems, Pakistan has made significant strides in developing precision-guided weaponry to maintain a strategic balance in South Asia. The recent missile tests conducted by Pakistan underscore its effort to maintain strategic balance in South Asia. This article examines Pakistan's Fatah-II missile system, India's missile defense projects, and the potential role of AI in shaping future defense strategies.

On May 11, 2024, the Pakistan Army conducted a successful training launch of the Fatah-II Guided Rocket System, boasting a range of 400 kilometers. The primary objective of this launch was to refine launch drills and procedures. The Fatah-II, equipped with a state-of-the-art navigation system and unique trajectory and maneuverable features, is capable of engaging targets with high precision, effectively countering any missile defense system.

This precision-guided rocket system is set to be inducted into Pakistan's Artillery Divisions, significantly enhancing the reach and lethality of the country's conventional arsenal. The Fatah-II's induction represents a strategic upgrade for Pakistan, enabling stand-off precision engagement of deep targets. This advancement not only boosts the offensive capabilities of the Pakistani military but also serves as a counterbalance to India's missile defense systems, adding a new dimension to the regional security dynamics.

India has been progressively enhancing its missile defense capabilities, with significant investments in both indigenous and foreign systems. A key development is the acquisition of the S-400 Triumf surface-to-air missile systems from Russia. Despite delays due to the Ukraine conflict, India is set to receive the remaining two regiments of these long-range missile systems by next year, completing the USD 5.5 billion deal. In addition to the S-400, India is advancing its indigenous missile defense projects.

The Defence Research and Development Organisation (DRDO) recently conducted successful tests of the Very Short-Range Air Defence System (VSHORADS), capable of targeting hostile aircraft, drones, and helicopters within a 6-kilometer range. Furthermore, Project Kusha, or the Long-Range Surface-to-Air Missile (LR-SAM), is designed to counter stealth fighters, aircraft, drones, cruise missiles, and precision-guided

munitions, with interception capabilities comparable to the S-400 system.

India's missile defense strategy is poised for a transformative upgrade with the potential integration of AI. Drawing inspiration from Israel's multilayered air defense systems, which utilize AI algorithms for real-time missile tracking and interception, India is likely to adopt similar technologies. AI can enhance decision-making speed and accuracy, optimizing target allocation and improving overall system efficacy. India's collaboration with Israel opens avenues for incorporating AI into its missile defense systems. This integration would provide India with a capability to manage and neutralize aerial threats.

Furthermore, India is developing a Dynamic Response Strategy (DRS), which represents a shift from the traditional "All or Nothing" military approach. The DRS involves a spectrum of response options below the Nuclear Threshold. Central to this strategy is the development of missile defense systems, which will be a crucial component due to their potential to deny responsive air strikes from Pakistan.

The importance of precision-guided missiles in this context cannot be overstated, as they are essential for maintaining a credible deterrent. The challenges faced by Russia's integrated air defense system against modern precision-strike weapons in the Ukraine war highlight the need for advanced and agile defense systems to effectively counter contemporary threats. In this evolving strategic environment, the Fatah-II missile system holds significant importance for Pakistan. Its precision-guided capabilities and maneuverability make it a formidable tool against advanced missile defense systems and can be an effective tool against the Indian

limited war strategies such as DRS.

As India enhances its missile defense with AI integration, the Fatah-II provides Pakistan with a credible countermeasure, maintaining a strategic balance in the region. The Fatah-II's ability to engage deep targets with high precision also aligns with Pakistan's broader strategic objectives, enabling it to deter and, if necessary, respond to threats from India's advanced missile defense infrastructure. This dynamic interplay between offensive and defensive capabilities highlights the intricate balance of power in South Asia.

India's ongoing efforts to develop a robust missile defense system, with the potential integration of AI, and its adoption of a dynamic resistance strategy signify a major shift in its defense posture. As India enhances its ability to intercept and neutralize various aerial threats, the precision capabilities of Pakistan's Fatah-II missile system become increasingly significant. The Fatah-II not only strengthens Pakistan's offensive capabilities but also ensures a credible deterrent against India's advancing missile defenses. This evolving dynamic underscores the importance of continuous innovation and strategic foresight in maintaining stability and security in the region.

This article is authored by:

Zohaib Altaf, a Research officer at the Center for International Strategic Studies, AJK. & Nimrah Javed, a Researcher at the Center for International Strategic Studies, AJK.

SEEKING STABILITY:

PAKISTAN'S DIPLOMATIC EFFORTS IN AFGHANISTAN

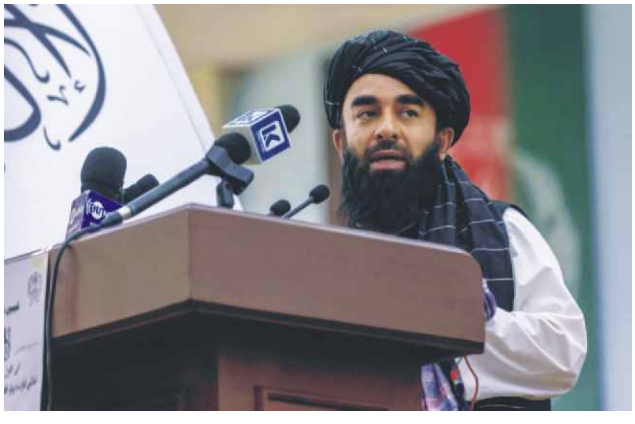
SANAULLAH

A delegation headed by Pakistan's premier intelligence agency, Lieutenant General Faiz Hameed, arrived in Kabul on the morning of September 4, 2021. Lindsy Hilsum, a Channel 4 journalist, asked the general in the lobby of the Serena Hotel, "Will you be meeting senior people in the Taliban?" The Inter-Services Intelligence chief said, "No, I'm not clear", and looked towards the Pakistan ambassador to Kabul, Mansoor Ahmad Khan, who was standing by his side, to respond to the question.

But before Khan said anything, the journalist posed another question: "What do you hope is going to happen now in Afghanistan?".

"I have just landed," Hameed said and once again looked towards Khan, who remarked, "We are working for peace and stability in Afghanistan."

At this, Hameed smiled and said, "Don't worry, everything will be okay." He took a sip of tea to wrap up the informal news talk. Later, Afghan news channel TOLO News confirmed that the purpose of the surprise visit was to resolve differences aroused between Mullah Brader and Haqqani Networks for power sharing.



After the Taliban takeover in August 2021, Pakistani power circles exhibited mixed reactions to their triumph. They were hopeful that now there would be an end to cross-border violations by terrorist groups in both border provinces, Khyber Pakhtunkhwa and Balochistan. The policymakers were also dreaming of vibrant cooperation from the new regime against Tahreek-e-Taliban Pakistan (TTP) hideouts, mostly dwelling in Pakistani border areas. However, things did not go as Pakistan had thought. TTP's terrorist activities surged by 93% compared to the last eight years. Over 100 terror attacks since the fall of Kabul were mainly planned to hit security installations and forces in Pakistani tribal areas. These lethal attacks killed dozens of officers and hundreds of soldiers. The local population residing in those parts is terribly facing insecurity and anxiety in the growing war situation.

Since the inception of the Taliban's reclaim of power, Pakistan has made several attempts to mount diplomatic pressure on the Mulla Haibatullah-led government to bring the TTP to the table for fruitful talks. The regime expressed no gravity on demands for the eradication of TTP at large due to their vested interests. Instead, the Taliban insisted on

ettling TTP in tribal areas.

The Kandahari Taliban group in the Afghan government, Interior Minister Sirajuddin Haqqani, son of Jalaluddin Haqqani, and Defense Minister Mullah Muhammad Yaqub, son of Mullah Omar, have repeatedly reiterated that the TTP is their valuable asset that played a vital role in their resistance in Afghanistan. These intents of support to TTP overtly embarked on Pak-TTP peace talks, mediated by the Taliban government, where Kabul put no diplomatic apparatus of strain on TTP against its unjust demand for military withdrawal from the Federally Administrative Tribal Area (FATA) and restoration of its previous status for their exclusive control. These demands are also captivating for the Taliban, as FATA has played a key role as a strategic backyard for Taliban sects since the Soviet invasion of 1979. Although Pakistan agreed to reduce military installations and the provisional settlement of TTP, the reversal of the 25th Amendment in Pakistan's constitution was turned down. Resultantly, so-called peace talks could not go far but could ceasefire for a short time. Beyond everything, a Pakistani wonders: What are the prevalent reasons behind this Taliban mindset to keep Pakistan at arm's length?

The academics find it in the dramatic geostrategic changes. The present Taliban organization is quite different from the organization that was in power in the 1990s. The former Taliban regime evolved during the eight-year-long civil war, followed by the Soviet withdrawal, which had unequivocal financial and combat support from international jihadist organizations and Pakistan. The government ruled under the vivacious leadership of Mullah Muhammad Omar was not regionally well-matched in power dynamics but endowed Pakistan with strategic and security assurances along its western borders.

The Mullah Haibatullah-led Taliban regime is ahead of Mullah Omar's political approach. This generation was largely cultivated in the twenty-year-long combat resistance against a foreign power. This time, it came with greater success in Afghanistan. It scrapped the Ghani government, maneuvered local resistance, and seized a larger part of the power to rule, de facto recognition, diplomatic contacts with the neighbors, and the complete withdrawal of the United States-led forces.

They have the top attribute of smugness of a conclusive victory over the United States, with the distinctions of insufficient possessions, meager resources, and poor communication. These attributes shaped its behavior of self-proclamation as the sole authoritative entity in disarray in Afghanistan, whose worth is undeniable in pursuing peace on this Asian side at large. Thus, this identity does not entail endorsement of Pakistan or the Middle East as compared to their past regime.

The second Islamic Emirate is skillfully capitalizing on its instrumental role in de-Americanizing the region, which is supposed to be a keystone for confidence-building measures with China, Russia, and Iran. In this

context, the Taliban regime gained huge success in January 2024. China took a step forward to engage the regime in regional and multilateral trade and security dynamics. A trade deal is struck between the heads of mining, telecommunications, and infrastructure building with the backing of the Belt and Road initiative.

China is also interested in the Taliban playing a role in the East Turkistan Islamic Movement's (ETIM) whereabouts in Afghanistan. This terrorist organization is mainly involved in insurgencies in the Xinjiang province of China. Russia also seeks security measures in its backyard, the central Asian states, at the crucial time when it is confronting the Ukraine issue. Russia embarks on a security assurance with the Taliban for not hosting any rebellious force against it. In short, the Second Emirate's de jure recognition is predominantly conditional on its assurance of not hosting any terrorist group.

However, it is not so easy for the Taliban government to go straight for normalization. It is clear that the defeat of the United States is chiefly due to its institutional and geostrategic incompetence. A key reason was the overwhelming pouring of billions of dollars into defense functions and the malicious overlooking of the socio-democratic state system. It was apparent that in the absence of a truly representative-based parliament, an efficient executive, and a constitutionally protected judiciary, the Afghan government would be destined to collapse. Another factor in making the Taliban victorious was the failure to expand the security stakes of neighboring countries associated with the survival of the Afghan government in the long run. By closing the Doha Agreement without the clauses of effective assurance, the United States wasted Indian investment, left an

insurgency threat for China, Russia, and Iran, and created insecurity for Pakistan. The absence of engagements by regional powers followed an opportunity for de facto recognition for the winner of the lumberjack match played in the field of Afghanistan, where the Taliban, of course, earned prominence.

They took advantage of the flaws and seized Kabul, and now the same subjects have become challenges for them to a greater extent of intensity. Subsequently, the regime change brought no change in the socio-economic conditions on the ground, and we are presently facing enormous food security and national security issues. Persistence in these ruthless issues could weaken the Taliban's grip and create space for local warlords and other terrorist organizations, including the Islamic State of Khorasan wing.

The Taliban government has an immense need to involve China and Russia in closer ties with characteristics of security and strategic gears in the existing pattern of China-led peace and cooperation in the region. In the second part of the Doha Agreement signed on February 29, 2020, the Taliban explicitly embarks on making sure any of its members, other individuals, or groups use the soil of Afghanistan to threaten the security of the United States and its allies.

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DECIPHERING PAKISTAN'S NUCLEAR PROGRAM

TAYYABA KHURSHID

Pakistan's journey towards its nuclear program started in the 1950s with the acquisition of scientific knowledge and technology for peaceful uses in health and agriculture, alongside aspirations to construct power plants to meet the energy requirements of its growing economy. Under the auspices of the International Atomic Energy Agency (IAEA), the Pakistan Atomic Energy Commission obtained a small five-megawatt reactor from the US for the Pakistan Institute of Nuclear Science and Technology (PINSTECH). A second plant, with a capacity of 120 megawatts, provided by Canada, was also placed under IAEA inspection safeguards.

During these years, India's aspirations to shift its civilian nuclear program towards weapon development became evident, leaving Pakistani policymakers with no option but to develop nuclear weapons to deter an enemy that had always sought to undo Pakistan and posed an immediate threat to national security. The statement of Zulfiqar Ali Bhutto in 1965, "If India makes an atomic bomb, then we will also do so, even if we have to eat grass... An atom bomb can only be answered by an atom bomb," is a testament to the necessity of acquiring nuclear weapon technology at that time. Pakistan was facing a historical rival, having fought three major wars and experiencing India's reluctance to resolve the issue of Kashmir.

Although the idea of developing nuclear weapons was initially not accepted, with the belief that conventional defense capabilities would be sufficient for deterrence, the 1971 episode compelled Pakistan to devise its own means of security and survival beyond conventional forces. The attainment of nuclear weapons by India left Pakistan with no option but to initiate its Nuclear Weapons Program. India resumed its testing of nuclear weapons after its first test in 1974. The Indian "Smiling Buddha" test brought more difficulties for Pakistan as the US non-proliferation agenda began to focus more on Pakistan, and export control regimes tightened their export of nuclear material. Despite the hurdles imposed by the US, Pakistani scientists and policymakers were determined to develop a bomb. Dr. Abdul Qadeer Khan proposed building a plant for the indigenous manufacture of centrifuges to enrich uranium. Heading the Engineering Research Laboratories, he and his team of talented scientists and engineers overcame the technological challenges imposed by the Nuclear Suppliers Group. The KRL was built in

record time, and by 1981, the capability to produce weapon-grade material was achieved.

PAEC teams of theoretical physicists and engineers developed designs for explosive devices, tunnels, and monitoring equipment for tests. After several cold tests and despite various hurdles and domestic challenges, Pakistan's pursuit of its nuclear program remained steadfast. It not only made technological progress but also overcame obstacles, resisted discriminatory pressures, completed the Kahuta Plant, and achieved explosion technology. The Atomic Energy Commission scientists successfully mastered the design of a nuclear device. By the 1980s, Pakistan publicly acknowledged possessing this capability, and strategic imperatives following the Soviet intervention in Afghanistan led to a temporary easing of nuclear sanctions by the US. By the 1990s, Pakistan had accumulated enough enriched uranium for ten or more explosive devices.

The 11 May tests by India in 1998 were followed by Pakistani tests on 28 May, changing the strategic dynamics of South Asia forever. On 28 May, a young physicist, Muhammad Arshad was given the opportunity to press the button, and five devices of different designs, sizes, and yields were tested. A sixth miniaturized device of advanced design was tested at Kharan on 30 May, and various centers across the world confirmed the emergence of the seventh nuclear power.

This year marks the 26th anniversary of Pakistan's nuclear weapon testing on 28 May, when Pakistan became the 7th nuclear weapon power in the world and the 1st nuclear weapon state in the Muslim world. Acquiring nuclear weapons became a strategic necessity for Pakistan as its historical rival had also acquired nuclear technology,

increasing Pakistan's security dilemma. The rationale behind Pakistan's nuclear weapon testing was to establish a credible deterrent against any potential aggression, thereby ensuring territorial integrity and sovereignty. Therefore, 28 May is celebrated as a day of pride for all Pakistanis, as the tireless efforts and dedication of our leadership, scientists, engineers, and technicians have made Pakistan a nuclear power.

Pakistan's nuclear weapon program was purely defensive because, on the conventional front, Pakistan could not match India's much larger military power. The conventional asymmetry and India's acquisition of nuclear weapons served as the fundamental driving force behind Pakistan's weapon testing program. India's nuclearization of South Asia brought strategic instability to the region, and Pakistan's response aimed at preserving peace and stability. Since acquiring nuclear weapons, Pakistan has behaved as a responsible nuclear weapon state, establishing a robust command and control system. From the inception of the program, Pakistan's nuclear weapons aimed to prevent war and adhered to the principle of credible minimum deterrence. Since the nuclearization of South Asia, the notion of mutually assured destruction has helped the two states avoid war, even during various crises. Although Indian leaders have often shown irresponsible

behavior by threatening to use nuclear weapons, for Pakistan, nuclear weapons are a means of preventing war, not fighting it, and can be invoked only as a last resort. Pakistan aims to maintain credible minimum deterrence and not engage in an arms race. India's aggressive cold start doctrine for a surprise attack compelled Pakistan in 2011 to move towards a strategy of full spectrum deterrence, leading to the development of tactical nuclear weapons and the short-range Nasr missile. Pakistan's nuclear program serves as an important pillar of its national security.

As 26 years have passed and Pakistan has successfully preserved deterrence, the country is focusing more on its original objective of utilizing nuclear technology for peaceful purposes. Pakistan collaborates with the IAEA, and IAEA DG Rafael Grossi has acknowledged Pakistan's efforts in civilian use by stating that Pakistan has a world-class and impeccable nuclear safety record. In a nutshell, Pakistan's nuclear program has matured into a robust program ensuring the safety, security, and survival of Pakistan, benefiting the country in the health, energy, and agriculture sectors. Therefore, it is essential for Pakistan to focus on the peaceful use of nuclear technology and maximize its benefits to resolve its socio-economic challenges along with investing in research and development to advance in emerging technologies like AI, space, and cyberspace to compete with its neighbor and overcome the challenges these technologies can impose on Strategic Stability.

The author of this article is an Associate Research officer at Center for International Strategic Studies, AJK.

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SEEKING STABILITY:

This assurance from the Taliban must be extended to its neighboring countries as well. Pakistan is the most affected country by the two-decade-long war against terrorism and is still paying the cost in the socio-economic and security realms.

The policymakers of Pakistan have consistently attempted to remove concerns, but their compromising tactics against the TTP indicate uncertainty and instability on Afghan borders, which are building mistrust and disinterest on both sides. Now it is time to channel regional pressure on the Haibatullah's administration to tie their attempts at goodwill in the region with the tangible actions taken against the obliteration of TTP on their soil after the withdrawal of the United States.

After all, the responsibility of peace and security principally lays on the part of the Taliban to keep the same line of not hosting their soil against any of its bordering states. The assertion should be to bring the Taliban regime under the umbrella of collective security assurance on a regional canvas, and for this purpose, there is a much-needed requisition to glorify their pragmatic actions against TTP as the test case for their claim of adaptability to security concerns.

From the perspective of increasing security and power collaboration between Russia and China, the case of the Taliban necessitates mutual assured political will for the instrumental role of non-interference, behavioral change about Pakistan, and sociopolitical reforms in its structure for continuity of cooperation.

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REFORMING NON-RENEWABLE ENERGY IN PAKISTAN

SAKINA LONGOVE

Pakistan is facing energy scarcity and renewable energy is the only source that can reduce this issue. The energy demand is increasing because of overpopulation, technological advancement, and an increase in economic activities.

According to the World Bank, the country's energy consumption is predicted to rise by about 70 percent by 2030, but production is only forecast to expand by 45 percent. This mismatch may result in additional power outages and shortages in supplies, which would be averse to social welfare and economic development. The country uses costly energy by importing fossil fuels but still faces energy shortages. Currently, the country is facing a shortfall of 8500MW. In urban cities, load-shedding is about 10 hours each day; in rural areas, it's about 10-12 hours.

This is not only affecting the production of industries but also almost all sectors of the country that are completely dependent on energy, e.g., education, health, transportation, finance, commercial and

services, agriculture, and tourism sectors. To sustain the development of the country there is a need to address the energy crisis in Pakistan by using renewable energy sources which are less costly compared to non-renewable energy sources. These sources are biomass, hydro, wind, solar, and nuclear. Currently, biogas is providing 10 percent of renewable energy to the world countries which is the second largest after hydropower of 16 percent. The focus of this piece is on the use of biogas to overcome these energy shortages in Pakistan.

As the population increases the demand for energy and resources also increases. The annual population growth rate of Pakistan is 1.96 percent which is likely to increase to two percent. According to the statistics, if the population growth of any country is percent, it will double every 35 years. This is an alarming situation since the country is facing difficulty in

fulfilling the needs of the current population.

Another reason for the energy demand is technological advancement. Everything is digitalized in this modern age. Every device and gadget requires power. This is dependent on electricity. Increases in economic activities, urbanization, old equipment and transmission lines, lack of diversification of energy mix, lack of investment in sustainable energy sources, and decrease in natural resources such as water (a source of hydropower) add insult to injury, worsening the energy crisis.

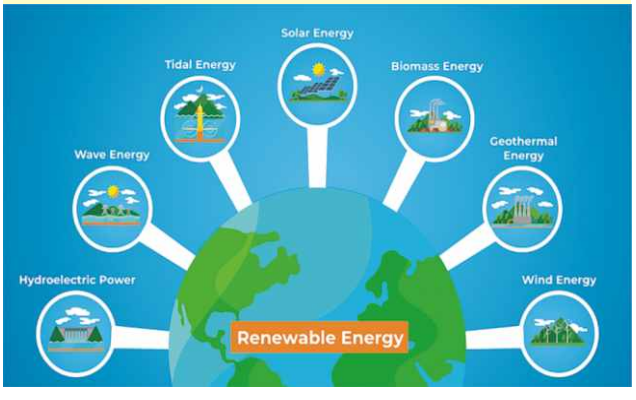
The implication of the energy crisis affects the manufacturing process in industries, which directly increases the costs of production and impacts the GDP, and the job sector. It impacts the health sector as for the operational equipment electricity is needed. The education sector can be affected because after COVID-19 many schools and universities conducted online classes. Also modern labs and libraries are non-functional without proper electricity.

The agriculture sector also gets affected because electricity is needed for proper irrigation through machinery. Energy is a major factor in attracting Foreign Direct Investments in Pakistan. Because of energy shortages foreign investors hesitate to invest in countries that face energy shortfalls. Technological advancement can slow down because of such shortfalls. Energy shortfall leads to social unrest because people often go on strikes owing to load-shedding.

Analyzing the above factors, there is a severe need for renewable energy sources such as biogas energy. For sustainable energy bioenergy is the cheapest source in Pakistan. Biogas is produced when anaerobic organisms convert the wastes of humans, plants, and cattle into methane gas in the absence of oxygen, which can be used for electricity generation, cooking, and heating, and if compressed can also be used in vehicles instead of Compressed Natural Gas (CNG). The cattle in Pakistan produce 92.53 million tons of dung per year which is a burden on the environment.

By using it Pakistan can produce almost 4.63 billion m3 of gas from which 70 percent can be stored. The country has the potential to generate almost 20 percent of its energy from biogas which is not only clean but also reliable. But it is only producing 0.9 percent energy from biogas. The lack of infrastructure and technical assistance, and the costs of biogas plants in low-income countries are higher which became a limitation to a country like Pakistan to install huge biogas plants for electricity generation.

Utilizing waste for energy can generate electricity, provide fuel for heating, create jobs, reduce global warming, and contribute to effective

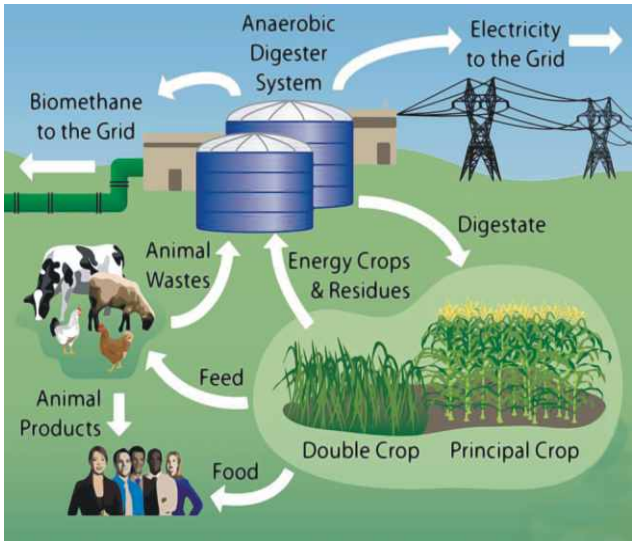


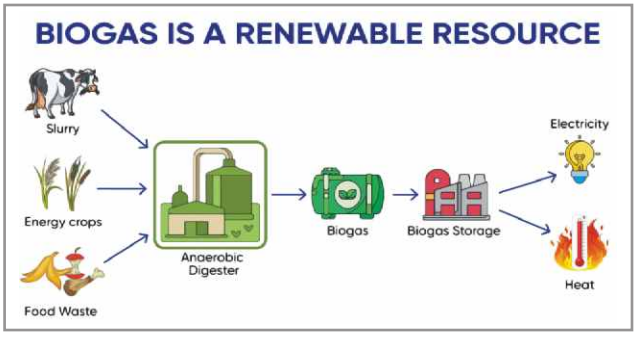
waste management. Most of the rural areas are deprived of gas and electricity. It will also fulfill rural areas' energy needs, decreasing the energy dependence on fossil fuels since they can produce their own fuel and electricity.

By utilizing cattle and human-created solid wastes we cannot only fulfill our energy needs but also keep the environment clean. It will also fulfill UN Sustainable Development Goal number 7, which focuses on clean and cheap energy sources. Moreover, it can ensure the energy security of Pakistan, unlike other dependent renewable energy sources such as wind, hydro, and solar, except nuclear, which is not dependent but reliable.

These sources are reliant on weather conditions which often change. But biogas is dependent on waste, which is always available. Initially, the cost will be higher, but it will decrease the energy shortfall of the country and bring sustainability and reliability to the energy sector of Pakistan.

Many countries such as the USA, China, and European Countries are producing almost 90 percent of global biogas. The organic waste of the USA is almost 70 million





tons annually and it uses this waste as a natural gas source that is biogas. Almost 2200 biogas plants are operational in the USA, and it can install 13000 more plants. Which will create 335,000 construction-based temporary jobs and nearly 23000 permanent jobs.

Among these operational plants, 40 percent of their biogas is used to generate electricity. On the other hand, China's biogas energy capacity has reached almost 5.6 terawatt per hour. European countries produce much of their electricity from solid biomass and municipal wastes.

Utilizing waste for energy can generate electricity, provide fuel for heating, create jobs, reduce global warming, and contribute to effective waste management. Most of the rural areas are deprived of gas and electricity. It will also fulfill rural areas' energy needs, decreasing the energy dependence on fossil fuels since they can produce their own fuel and electricity.

The remaining waste from the biogas procedure can be used for fertilizers as they are full of nutrients which are beneficial for plants. Biogas has diverse benefits, providing an adjustable and sustainable power option, specifically for countries like Pakistan which produces more waste than the USA.

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