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Interaction

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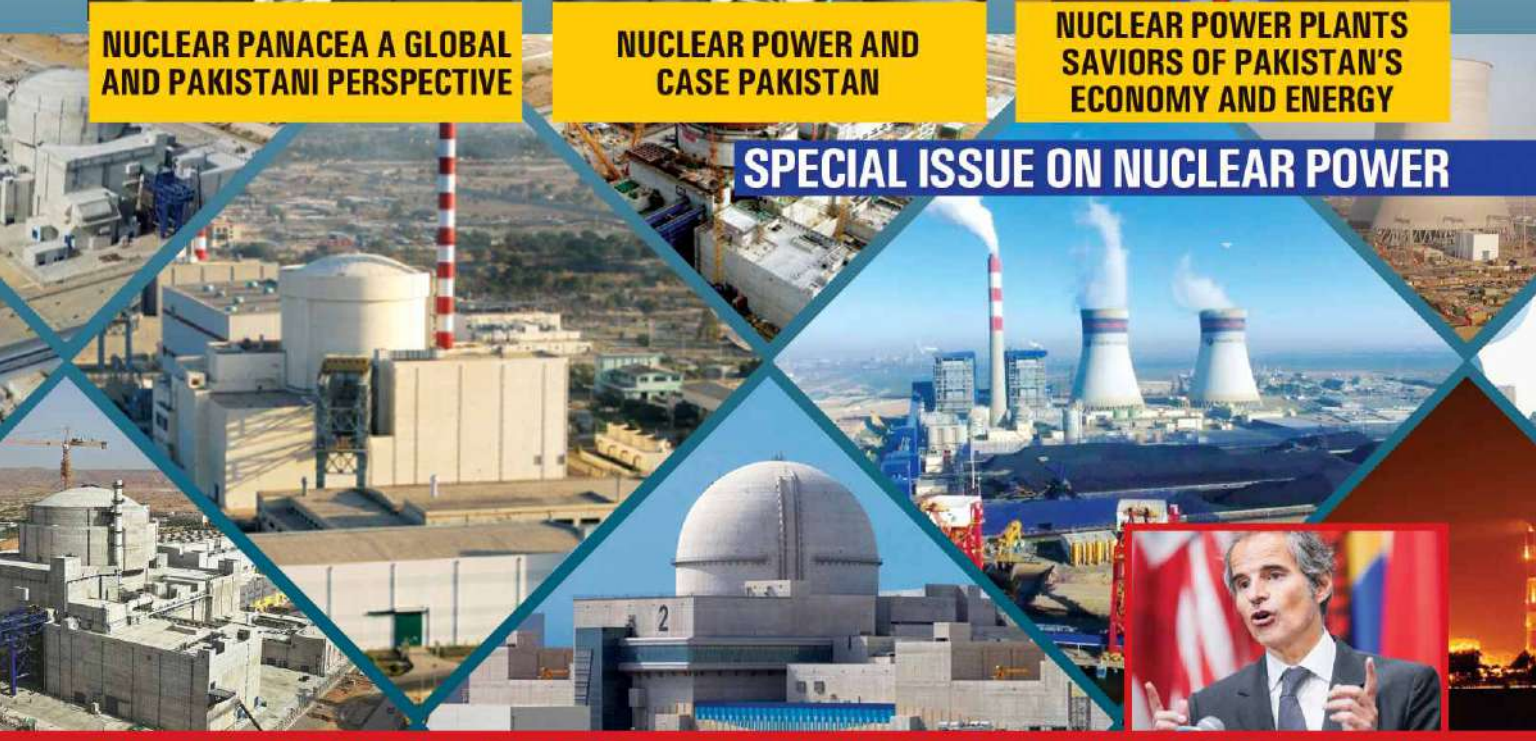
NUCLEAR PANACEA A GLOBAL AND PAKISTANI PERSPECTIVE

NUCLEAR POWER AND CASE PAKISTAN

NUCLEAR POWER PLANTS SAVIORS OF PAKISTAN'S ECONOMY AND ENERGY

SPECIAL ISSUE ON NUCLEAR POWER



IAEA CHIEF SEES PROMISING PROSPECTS FOR NUCLEAR ENERGY IN PAKISTAN

PM Shehbaz inaugurates K-3 nuclear power plant in Karachi

The Visit and address Mr. Michael Kugelman CISSS

Mian Raza Rabbani, former chairman Senate, on IMF Pressure

Ghost experts, non-existent think tanks fuel India's disinformation drive

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Contents

NUCLEAR ENERGY A VIABLE SOLUTION TO PAKISTAN'S PROBLEMS

Pakistan's problems are escalating with time and the country seems to breed serious problems with each passing moment. Political instability and security issues have always remained the biggest concerns for Pakistan but major internal issues such as lack of basic infrastructure and necessities to a major portion of the population have been kept on the back burner for far too long, as a result, these issues have now become severe and are adding to the internal security problems of the country.

Pakistan's unique geo-political position ensures that it is always closely watched by its enemies who are always on the lookout to create new problems or intensify existing ones thereby ensuring the stagnation of the country's progress. One serious problem faced by Pakistan is of energy crisis. Energy has a grave impact on Pakistan's economy; it affects everything from the education sector to the health sector. The shortage of electricity gravely affects the manufacturing capacity of the country and it in turn stints the country's exports.

The high energy costs coupled with energy shortage discourage investment as well. As a result, Pakistan's financial woes worsen because the foreign exchange inflows are reducing exponentially while the expenses are increasing. A major chunk of Pakistan's expenses is that of fuel and with decreasing revenue Pakistan remains reliant on external debt. Pakistan relies heavily on fossil fuels to generate electrical energy, and this not only burdens the economy by depleting the foreign reserves but the carbon emissions from these conventional fuel power plants have a serious impact on the climate.

This doesn't work well for Pakistan as it is one of the worst affected countries due to climate change as evident from the recent catastrophic floods as a result of heavy monsoon rains third of Pakistan is beneath the water and almost 33 million people have been affected. According to the World Bank, the total economic damage exceeds 14.9 billion dollars followed by the need for at least 16.3 billion dollars for rehabilitation and reconstruction.

Pakistan needs to take serious measures to address its energy crisis as this will address many of the country's problems at once. Bearing in mind climate change, Pakistan needs to invest in clean energy sources. While the government is working on renewable energy projects but the energy produced from these projects is not enough

to sustain the growing demands also their cost of production and maintenance is very high.

In such circumstances, nuclear energy serves as a viable alternative to conventional energy. The cost of setting up a nuclear power plant is high but it cost per unit is manageable and the energy produced is sufficient. The energy produced through nuclear power plants is clean which means that it caters to Pakistan's climate change problem as well. Currently, Pakistan's nuclear power plants are contributing 3650MW of energy to the national grid. According to the Nuclear Power Programme, 2050 Pakistan plans on constructing 32 nuclear power plants by 2050 and envisions 40,000 MW of nuclear power generation.

Further, Pakistan's two nuclear power plants K2 and K3 are state of art equipped will all the required safety measures. These power plants are generating 2200 megawatts of energy. One more such power plant is under consideration in Chashma V with an electric generation capacity of 1100/1200 MW. There are further plans to construct two or more power plants in Karachi in near future. These are third-generation power plants and Pakistan Engineers and technicians have developed expertise in the maintenance and even manufacturing of small nuclear power plants. One more important feature is that its fuel is refilled after six months or more. So it gives an advantage of uninterrupted power Supply for such a long time.

Pakistan's capabilities have been recognized by International Atomic Energy Agency (IAEA) and have been appreciated for several years for the safety and security of Nuclear Power plants. The Engineers and Scientists of the Pakistan Atomic Energy Commission (PAEC) have been awarded by IAEA. Pakistan is also a member of the Board of Governors of IAEA for two years.

Nuclear power plants are working globally in hundreds and providing relief globally. Pakistan's Nuclear Power Plants are more sophisticated in design having all possible safety features. Pakistan has also a secure source of nuclear fuel as it develops itself and China which is the supplier of these nuclear power plants also has to supply for a particular period of time as per the agreement. Considering the nature of the challenges that Pakistan is faced with, it is the need of the hour to increase nuclear power production as it is the best and most affordable source of energy available to us.

Mirza Kashif Baig
Editor

Visit of a High-Level Pakistan Delegation to Afghanistan

(22 February 2023) The delegation includes Inter-Services Intelligence Director General Lt Gen Nadeem Anjum and Pakistan's special envoy on Afghanistan Ambassador Muhammad Sadiq.

The delegation met senior leadership of the Interim Afghan government including Deputy Prime Minister Mullah Abdul Ghani Beradar Akhund, Defence Minister Mawlavi Mohammad Yaqoob Mujahid, Interior Minister Sirajuddin Haqqani and Foreign Minister Amir Khan Muttaqi.

Matters relating to the growing threat of terrorism in the region, particularly by TTP and ISKP came under discussion. The two sides agreed to collaborate to effectively address the threat of terrorism posed by various entities and organizations.

Both sides agreed to strengthen bilateral cooperation in various fields to further enhance the fraternal relations between the two countries. The visit comes against the backdrop of a recent surge in Tehreek-e-Taliban Pakistan (TTP) sponsored terrorist attacks in Pakistan. Sources say Islamabad will persuade the Afghan interim government to live up to its commitment of not allowing Afghan soil to be used by the TTP and its affiliates.

(Courtesy: Ministry Of foreign Affairs)

The visit and address Mr. Michael Kugelman CISSS

The Center for International Strategic Studies Sindh (CISSS)
Amb. Qazi M. Khalilullah
presenting Souvenir to
Mr. Michael Kugelman

On 20th February 2023, Director Wilson Center's South Asia Institute Michael Kugelman spoke at CISSS on Geopolitical Trends in South Asia.

HE focused on the impact of sharpening and rising geopolitical tensions among big powers on South Asia. In the context of the US efforts to counter China & China-India border tensions, Kugelman explained the rationale for growing defence partnership between Washington & New Delhi, inclusion of India in QUAD & Indo-Pacific Strategy.

Kugelman agreed that India was incapable of playing the role of Net Security Provider in

the region assigned to it by the US, considering that both Pakistan and China were nuclear-weapon states.

Kugelman underlined that despite some hot borders in the region including India's tensions with China, LoC had remained calm since early 2021, due to cease-fire observed by Pakistan & India. He agreed that India lacked the ability to face a two-front situation.

In response to questions about the Western silence on human rights abuses by India against its minorities and the people of occupied Kashmir, Kugelman observed that foreign policy decisions in key global capitals were made on the basis of realpolitik.

Kugelman informed that for researchers from Pakistan, Wilson Center is offering fellowships for thought leaders under its Pakistan Initiative to work on Pakistan-US relations. He expressed interest in collaborating with CISSS through joint research projects.

8th Edition of Multinational Maritime Exercise Aman-23 Concludes

(10-14 February 2023)

KARACHI: While praising Pakistan Navy for successfully hosting Exercise AMAN-23 for promoting peace and security in the region, Prime Minister Shehbaz Sharif emphasized that AMAN-23 would pave the way to make the region more peaceful and secure with combined efforts by all stakeholders. He thanked the participating regional and extra-regional navies for displaying their commitment to collaborative maritime security and joining hands for peaceful co-existence.

Of the 53 participating Navies, China, US, Italy, Japan, Indonesia, Malaysia and Sri Lanka, had deployed their frigates and helicopters. Besides five explosive ordnance teams, five teams of special operations groups and five marine teams.

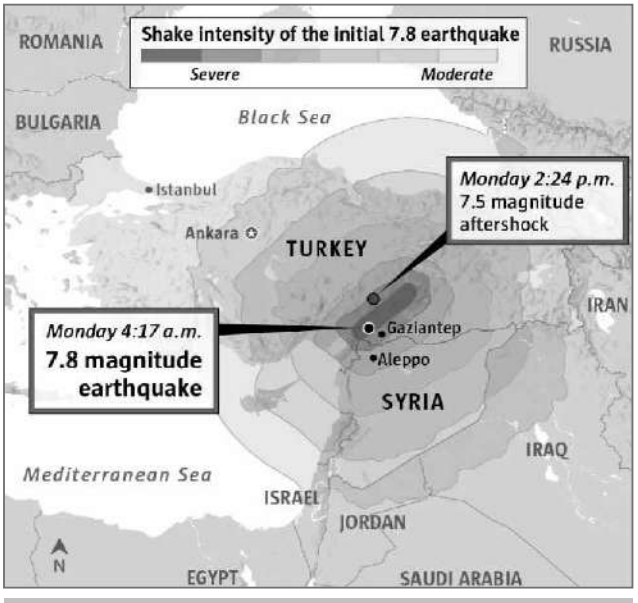
As many as 60 military observers and defence attaches from various countries also attended the mega event.

Prime Minister Shehbaz Sharif arrived by a PN helicopter on board PNS Moawin in the northern Arabian Sea to witness the naval prowess.

Prime Minister Shehbaz Sharif was joined on the PNS Moawin by the Chairman of the Joint Chiefs of Staff Committee Gen Sahir Shamshad, COAS General Asim Munir, Chief of the Air Staff Air Chief Marshal Zaheer Ahmad Baber, besides the Chief of Naval Staff Admiral Muhammad Amjad Khan Niazi and Federal Minister Rana Tanvir.

On the occasion, Naval Chief Admiral Amjad Khan Niazi assured that Pakistan Navy will continue to play a dynamic role in enhancing regional maritime security individually and in collaboration with partner navies.

7.8 Magnitude Powerful Earthquakes Shake



Turkey & Syria 'Disaster of the Century'

Death Toll in Türkiye, Syria Climbs 50,000

On 6 February 2023, a Mw 7.8 earthquake struck southern and central Turkey and northern and western Syria. The epicenter was 32 km (20 mi) west–northwest of Gaziantep. The earthquake had a maximum Mercalli intensity of XI (Extreme). It was followed by a Mw 7.7 earthquake nine hours later, centered 95 km (59 mi) to the north-northeast from the first, in Kahramanmaraş Province.

In Turkey alone, 44,218 people died as a result of the earthquakes, the country's Disaster and Emergency Management Authority (AFAD) said on Friday, 24 Feb., while the latest announced death toll in Syria was 5,914.

UN Appeals for $397 Million to Help Syrian Quake Survivors. Turkey also said it is working to open two new routes into rebel-held parts of Syria.

Turkey reports 50,576 buildings collapsed, damaged. In a report, the country's Ministry of Environment said all at-risk buildings need to be demolished urgently.

(Source: TRT World, Reuters, Al-Jazeera)

One year to Russia Ukraine War

Energy Costs, Food Prices and Economies have been Impacted in Globally

One year ago, on February 21, 2022, Russian President Vladimir Putin publicly recognised Donetsk and Luhansk as independent states. The breakaway eastern Ukrainian regions had been at the heart of a conflict between Ukraine's forces and Russia-backed separatists since 2014, when Moscow annexed Crimea.

Putin's recognition of the so-called Donetsk People's Republic (DPR) and Luhansk People's Republic (LPR) was a watershed moment in the months-long escalation preceding Russia's invasion of Ukraine.

From the north - Russian forces moved towards Kyiv from Belarus.

From the northeast - Russian forces moved west towards Kyiv from Russia.

From the east - Russian forces pushed towards Kharkiv from the Donbas region.

From the south - Russian forces moved from

Crimea towards Odesa in the west, Zaporizhzhia in the north and Mariupol in the east.

In the past year, Russia has captured key cities and strategic ports, and Ukraine has launched multiple counteroffensives to regain lost territory. Despite protracted bombardments, Russian forces were unable to gain control of Ukraine's capital, as they faced logistical challenges with ground forces unable to move fuel, munitions and material because of clogged roads. Satellite imagery showed a 40km (26-mile) Russian convoy stalled outside the capital.

Human price : According to latest UN human rights office (OHCHR) data, at least 8,000 non-combatants have been confirmed killed – with nearly 13,300 injured - since the Russian invasion on 24 February last year. The true number is likely to be substantially higher, OHCHR staff have repeated on many occasions.

(Source: Al Jazeera /BU News)

Catastrophic': Palestinian's recount fatal Israeli raid on Nablus

(Wed.22 Feb 2023) (By Al Jazeera Staff)

Young Mohammad Jawabreh (22 years old) has died as a result of his injuries sustained in confrontations in the Arroub Camp in Hebron.

Israeli forces have killed 65 Palestinians, including 13 children, this year so far, and injured hundreds of others, making the first two months of 2023 the deadliest for Palestinians compared with the same period since 2000.

- Israel has launched air raids north of Gaza City after rockets were fired from the
- No Palestinian group has claimed responsibility for the rockets fired hours earlier from the Gaza Strip, which triggered sirens in the Israeli cities of Sderot and Ashkelon.
- The Gaza-based Palestinian Islamic Jihad group condemned the Israeli military's raid in Nablus as a "major crime" that the "resistance must respond to".
- The number of Palestinians killed by Israeli forces since the start of 2023 has now risen to 61 people, including 13 children.

Saudi project clears 1,387 Houthi mines in Yemen

(February 14, 2023)

Riyadh: An ongoing Saudi program to clear landmines in Yemen saw 1,387 devices laid by the Iran-backed Houthis dismantled in the first week of February.

Overseen by the King Salman Humanitarian Aid and Relief Center, special teams destroyed hundreds of anti-personnel and anti-tank mines, unexploded ordnances, and other explosive devices. The KSrelief project, known as Masam, is one of several initiatives undertaken by Saudi Arabia on the orders of King Salman to help the Yemeni people. Masam teams clear routes for much-needed humanitarian aid aimed at supporting the country's citizens.

The demining operations took place in Marib, Aden, Jouf, Shabwa, Taiz, Hodeidah, Lahij,

Sanaa, Al-Bayda, Al-Dhale, and Saada.

A total of 386,282 mines have been cleared since the start of the project.

The Saudi project trains local demining engineers and provides them with modern equipment. It also offers support to Yemenis injured by the devices.

(Source: Arab News)

Iran unveils underground base for Fighter Jets

Iran's army on Tuesday unveiled its first underground base for fighter jets designed to withstand possible strikes by U.S. bunker-busting bombs, state media reported. The base, named Oghab 44 (Persian for eagle), can accommodate "all types of fighter jets and bombers, in addition to drones," the official news agency IRNA said, releasing images and videos from inside the base.

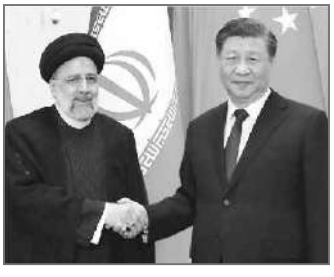
The exact location of the base was not revealed, but state media said it was "at the depth of hundreds of meters under the mountains," and capable of withstanding "bombs by strategic U.S. Bombers." In May last year, Iran's army revealed an air force base for drones under the Zagros Mountains in the western part of the country.

The latest unveiling comes the day before Iran marks Air Force Day, part of the buildup to the 44th anniversary on Saturday of the 1979 Islamic Revolution. State media on Tuesday showed Iran's armed forces chief of staff Major General Mohammad Bagheri and the army's commander-in-chief Major General Abdolrahim Mousavi at the new base.

Oghab 44 is "one of numerous tactical underground air bases for the army's air force built in different areas of the country in recent years," IRNA reported. It can prepare fighter jets to "counter possible offensives" such as those practiced by the U.S. and Israel in their recent military drill, according to state media.

China and Iran strengthen cooperation amid Western pressure

By Isabella Jewell & AP **15/02/2023**



Chinese President Xi Jinping welcomed Iran's President Ebrahim Raisi. China expressed support for Iran during a visit by its president, Ebrahim Raisi, as Tehran tries to strengthen its relations with Beijing and Moscow to offset Western sanctions over its nuclear development.

In a statement, Chinese President Xi Jinping said that "China supports Iran in safeguarding national sovereignty" and "resisting unilateralism and bullying," a comment aimed at criticising Washington's domin ation of global affairs.

Outcomes of the meeting

Surrounded by a cohort of ministers, the two leaders renewed their vows of friendship and expressed their intention to further deepen economic and trade ties between their respective

countries. Both want to continue along the path initiated last September at the Samarkand summit, where Tehran submitted its application to join the Shanghai Cooperation Organisation, to which countries such as China, Russia, Pakistan and India belong.

Xi and Raisi attended the signing of 20 cooperation agreements including trade and tourism, the Chinese government announced.

These add to a 25-year strategy agreement signed in 2021 to cooperate in developing oil, industry and other fields. China is one of the biggest buyers of Iranian oil.

Both China and Iran are also linked by their relations with Russia, although in a very different way. While Tehran supplies weapons and drones to the Russian Army, Beijing defends Ukraine's sovereignty, although it claims to understand the reasons that pushed Moscow to invade that country.

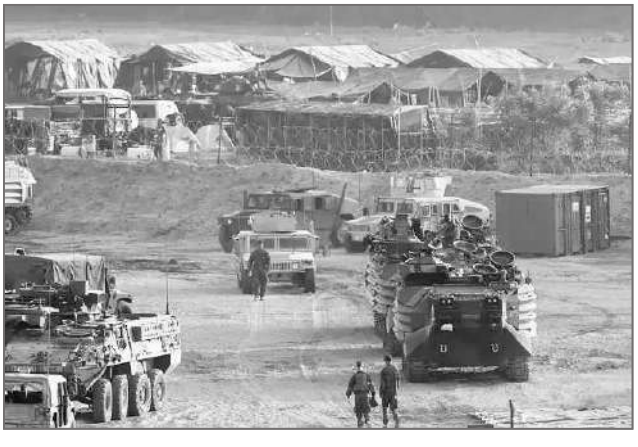
(Source: Euro News)

Philippines, US to hold biggest war games in years

(February 15, 2023)

MANILA: The Philippines and the United States will this year carry out their biggest joint military drills since 2015, Manila's army chief said, against a backdrop of growing tensions with China in the South China Sea.

The exercises underscore improved ties with the United States under President Ferdinand Marcos Jr., and come as the Philippines condemns China's "aggressive" actions in the disputed waterway, including its use of a "military-grade laser" against one of Manila's vessels earlier this month.



The annual 'Balikatan' exercises will be conducted in the second quarter and involve more than the previous year's 8,900 troops, army chief Romeo Brawner told reporters.

"All of these exercises that we are doing are in response to all types of threats that we may be facing in the future, both man-made and natural," Brawner said.

The Philippines has granted Washington greater access to its military bases as part of the latter's efforts to deter China's increasing assertiveness in the South China Sea and tension over self-ruled Taiwan.

In 2015, more than 11,000 troops from both countries participated in the joint military exercises.

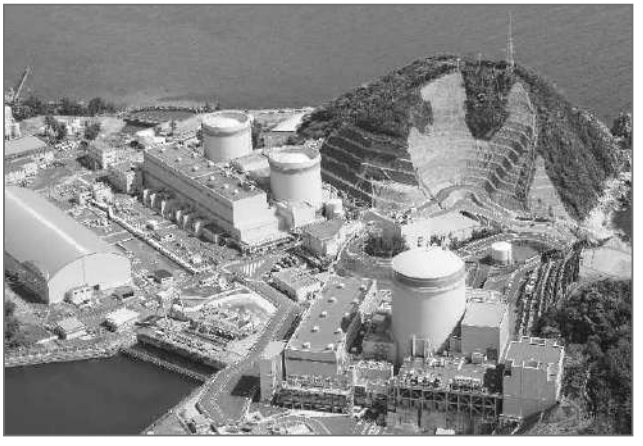
"The exercises will involve a myriad of activities, not just focused on developing the war fighting capability of both armed forces, but also of the other non-traditional roles such as humanitarian assistance and disaster response," Brawner said.

Japan adopts plan to make maximum use of Nuclear Power

(Jiji Press) **February 11, 2023**

TOKYO — The government adopted a plan to make maximum use of nuclear power, in a bid to realize a carbon-free society while ensuring stable electricity supplies.

Amid an energy crisis triggered by Russia's nvasion of Ukraine, the basic plan for green transformation marks a departure from Japan's policy of reducing its dependence on nuclear energy, decided after the 2011 meltdowns at Tokyo Electric Power Company



Holdings Inc.'s tsunami-hit Fukushima No. 1 power plant.

The basic plan calls for building next-generation nuclear reactors to replace decommissioned ones within the premises of the nuclear plants, ending a freeze on any projects to add, expand or replace reactors.

Japan will also change a rule that limits the operating life of reactors basically to 40 years but tolerates an extension to up to 60 years upon regulatory approval. Under the plan, Japan will allow power companies to operate reactors beyond the 60-year limit by excluding periods when reactors are halted for safety inspections or other reasons.

The government drafted the plan late last year and solicited public comments for a month from Dec. 23. Many of the 3,303 comments received were critical of the nuclear policy shift, according to a senior official of the industry ministry. But the government adopted the plan with almost no changes. Industry minister Yasutoshi Nishimura stressed that the approval came after "more than 100 council meetings as well as discussions in the ruling parties."

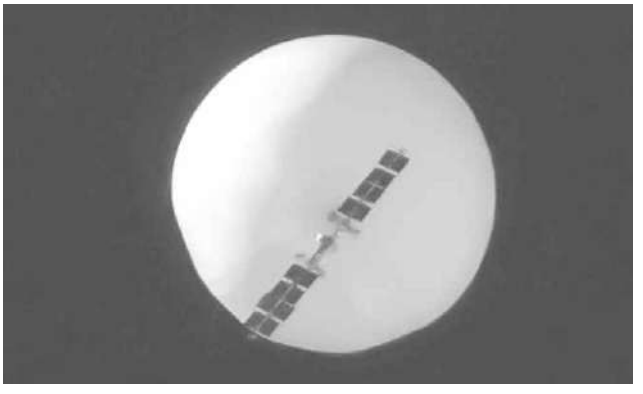
"We'll clearly explain the government's plan through various means, in order to deepen public understanding," Nishimura told a press conference.

Meanwhile, the government plans to collect fees from fossil fuel importers set in accordance with the amounts of CO_2 emissions resulting from fuel use, starting in fiscal 2028. From fiscal 2033, power companies will be required to buy emissions credits through emissions trading.

(Source: The Japan News)

Chinese balloon was 'Clearly for intelligence surveillance' USA

By Al Jazeera Staff :



Washington, DC – The United States has released new details about the alleged Chinese "spy" balloon that flew over the country last week, saying the aircraft was "clearly" used to gather intelligence.

The balloon, which was shot down by US forces over the Atlantic Ocean after traversing the continental US, was "capable of conducting signals intelligence collection operations", a US Department of State official said on Thursday on condition of anonymity.

Washington also again refuted Beijing's claim that the balloon was used for meteorological research and had deviated off its course into US airspace.

"The high altitude balloon's equipment was clearly for intelligence surveillance and inconsistent with the equipment onboard

weather balloons," the US official said in a written statement.

"It had multiple antennas to include an array likely capable of collecting and geo-locating communications. It was equipped with solar panels large enough to produce the requisite power to operate multiple active intelligence collection sensors."

China has condemned the shooting down of the balloon, which it said was an "unmanned civilian airship".

US defence officials also have defended the decision to allow the balloon to fly over the country for days before shooting it down off the coast of South Carolina.

(Source: SOURCE: AL JAZEERA)

What's Boomerang, the new kamikaze drone in Russian armoury?

One year into the Ukraine conflict, Moscow has introduced a VR-controlled Unmanned Aerial Vehicle that is expected to give it additional firepower in the skies.

This week, Russia added a new weapon to its armoury – a small Unmanned Aerial Vehicle (UAV) – days after its "special military operation" in Ukraine entered the second year.

The Russian Defence Minister released a video of what has been described as "small Boomerang copter-class small FPV drones" to be used to destroy Ukrainian positions.

Since the start of the conflict, Russia has used swarms of Iran-made and indigenously built UAVs to wreak havoc on Ukraine's energy infrastructure.

So, why is Russia showcasing the new kamikaze drone as a game-changer in the conflict ?

The small drone can be operated by two soldiers: an operator and an assistant. .

The operator controls the drone using special Virtual Reality (VR) glasses, detecting and destroying the target. On the other hand, the assistant launches the drone and tracks its flight direction on a map, guiding the operator and correcting his work, the Russian government said.

"Boomerang has a simple design of a sports drone with four propellers, four small motors, a massive battery, and a special magazine filled with high-explosive plastic explosives," it added.

Boomerang has a high-speed capacity of up to 170 kilo metres per hour, and thanks to its huge battery, it can stay in the air for at least three hours.

Since it's a small flying object, it has an easy maneuvering capacity and is extremely easy to control. Moreover, the VR orientation makes it possible to follow a route quickly.

Another technical speciality of the Boomerang does not have a satellite communication module for which "anti-drone electronic means are useless against him".

"Unlike conventional aircraft, the Boomerang does not have a satellite communication module. An anti-aircraft weapon is thus almost powerless against him.

The operator controls the drone at a minimum height, almost touching the treetops," the statement added.

Lawmakers approve Putin's nuclear treaty decision

The State Duma has passed legislation suspending Russia's participation in the New START agreemzent

Russian lawmakers approved a bill submitted by President Vladimir Putin, by which Moscow will temporarily suspend its participation in the Strategic Offensive Arms Treaty (New START) – the last existing nuclear accord between Russia and the US.

In an explanatory note attached to the bill, the lawmakers state that the agreement, which was meant to cut in half the number of nuclear weapons deployed around the world, was supposed to allow both parties to carry out inspections in order to ensure compliance. The US, however, "deliberately fails to fulfill its obligations under the treaty in this area of activity," the note states.

Because of this, and in accordance with federal law, the Russian president has made a proposal to suspend the agreement, the note reads, adding that the decision to resume Russia's participation in the treaty will also be made by the president. The document was adopted by the State Duma, the lower chamber of Russia's parliament, and must now be passed by the Federal Council before entering into force once signed by the president.

The approval comes after Putin announced in his address to the Federal Assembly that Moscow will suspend its participation in the New START Treaty, but will not withdraw completely. The president said the document is a legacy of the times when Moscow and Washington did not perceive each other as adversaries.

Philippines says China ship used laser against coast guard

(AP) February 14, 2023

MANILA, Philippines (AP) — The Philippines accused a Chinese coast guard ship of hitting a Philippine coast guard vessel with a military-grade laser and temporarily blinding some of its crew in the disputed South China Sea, calling it a "blatant" violation of Manila's sovereign rights.

The Chinese ship also maneuvered dangerously close, about 137 meters (449 feet), to block the Philippine patrol vessel BRP Malapascua from approaching Second Thomas Shoal, a submerged reef that has been occupied by Philippine forces, on Feb. 6, the Philippine coast guard said in a statement.

The Philippines has filed nearly 200 diplomatic protests against China's aggressive actions in the disputed waters in 2022 alone.

In Beijing, Chinese Foreign Ministry spokesperson Wang Wenbin said a Philippine coast guard vessel trespassed into Chinese waters without permission on Feb. 6. Chinese

coast guard vessels responded "professionally and with restraint at the site in accordance with China's law and international law," he said, without elaborating and mentioning the use of laser.

(Source: Associated Press)

UAE strikes balance between Oil and Environment

Sheikh Saif tells World Government Summit 2023 in Dubai

(February 14, 2023) **Sajila Saseendran Sr. Reporter**

Dubai: The UAE has demonstrated itself as an example of striking a balance between oil and environment, as climate action and environmental protection have been at the core of the country's foundation, Lieutenant General Sheikh Saif bin Zayed Al Nahyan, Deputy Prime Minister and Minister of the Interior, said at the valedictory speech of the World Government Summit in Dubai.

In a thought-provoking speech attended by a packed audience

India, set to be most populous, doesn't know its number of people

February 15, 2023

(15 Feb 2023) In two months, India is projected to become the worlds most populous country with more than 1.4 billion people. But for at least a year, and possibly longer, the country will not know how many people it has because it has not been able to count them.

India's once-in-a-decade census, due in 2021 and delayed due to the pandemic, has now got bogged down by technical and logistical hurdles, and there are no signs the mammoth exercise is likely to begin soon.

Experts say the delay in updating data such as employment, housing, literacy levels, migration patterns and infant mortality, which are captured by the census, affects social and economic planning and policymaking in the huge Asian economy.

Calling census data "indispensable", Rachna Sharma, a fellow at the National Institute of Public Finance and Policy, said studies like the consumption expenditure survey and the periodic labour force survey are estimations based on information from the census.

A senior official at the Ministry of Statistics and Programme Implementation said census data from 2011, when the count was last conducted, was being used for projections and estimates required to assess government spending.

The United Nations has projected India's population could touch 1,425,775,850 on April 14, overtaking China's.

The 2011 census put India's population at 1.21 billion, meaning the country has added 210 million, or almost the number of people in Brazil, to its population in 12 years.

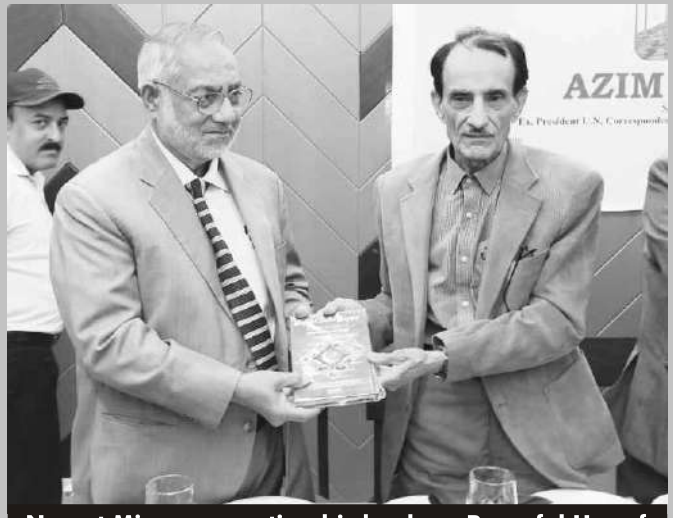
The group photo of Editors with Secretary information Sindh at Council of Pakistan Newspapers Editors (CPNE)

RABITA FORUM INTERNATIONAL

An Evening with

Azim M. Mian (USA)

SeniorJournalist
Ex. President
U.N. Correspondents Association
(U.N. Head Quarters) New York



Nusrat Mirza presenting his book on Peaceful Use of Nuclear Energy to Mr. Anwar Haider Federal Ombudsman in Sindh on 23 February 2023

Nusrat Mirza Chairman Rabita Forum International hosted Dinner in honour of Azim M. Mian Ex-President UNO journalist Association New York on Thursday 23 February 2023 at Local Restaurant Defence-Karachi

Group Photo

Journalist of Karachi Attended the Dinner

Presenting book to Mr. Azim M. Mian

PM SHEHBAZ INAUGURATES K-3 NUCLEAR POWER PLANT IN KARACHI

K-3 is a step forward in cooperation with Pakistan's trusted friend China, says PM

(Thursday 2nd Feb. 2023) Prime Minister congratulated the scientists and workers of Pakistan and China which led to the completion of the project. He said the staff of the Pakistan Atomic Energy Commission who contributed to the project would be invited to the Prime Minister's Office for public recognition.

Director General International Atomic Energy Agency (IAEA) Rafael Mariano Grossi in a video message emphasized the importance of using safe use of nuclear energy as Pakistan faced challenges of climate change.

Chairman, Pakistan Atomic Energy Commission Raja Ali Raza Anwar said National Electric Power Regulatory Authority had declared KANUP as a high power-producing facility with its 27.15 percent production.

Built with an investment of $2.7bn, the K-3 nuclear unit is expected to ease Pakistan's ongoing energy crisis. The unit will supply electricity to the country's national grid. K2 and K3 power plants have been installed with the help of China. The total capacity of both the power plants is 2200 megawatts. Power generation by both the plants is cheaper and trustworthy as compared to other sources of electricity generation. In Pakistan, the share of nuclear energy is 8.1 percent.

Nuclear power plants can produce electricity for eight months without any halt. The per unit electricity production from K2 and K3 costs Rs. 14.

The fuel consumption in both the power plants to produce a unit of electricity costs Rs1.2. After paying the debt taken for installing the power plants, the per unit electricity production will be down to less than Rs10.

Mian Raza Rabbani
Former
Chairman Senate,
On IMF Pressure

The dragging of the feet by the IMF on signing the Agreement and reluctance of friendly countries, except China, to help sans the IMF, Parliament needs to be taken into Confidence.

It appears Pakistan is being softened up to play a role which is against its national and strategic Interests.

The people have a right to know if, our nuclear assets are under pressure or is our strategic relationship with China under threat or our we being called up to play role in the region which will facilitate the military presence of a Imperialist power? These and other questions require a policy statement by the Prime Minister on the floor of a joint Sitting.

The question of the TTP and increase in terrorism has also found no discussion or briefing from the government.

It seems be it the PTI or present governments want Azadi from Parliament and the Constitution, 1973.

IAEA CHIEF SEES PROMISING PROSPECTS FOR NUCLEAR ENERGY IN PAKISTAN

Head of the International Atomic Energy Agency (IAEA) Rafael Grossi has a positive outlook for nuclear energy in Pakistan. Speaking at a seminar hosted by the Center for International Strategic Studies (CISS), Islamabad, on Thursday, the IAEA director general noted the political will in Pakistan and the country's technical capacity and nuclear safety record as the reasons for his optimism about the prospects for the expansion of nuclear energy.

"There is strong political support for new nuclear power plants in Pakistan," said Mr Grossi. He observed that Pakistan has a world-class and impeccable nuclear safety record. Moreover, he said, the country has technical and engineering capacity for new nuclear power plants, including small modular reactors (SMRs), which indicated a promising future for nuclear energy and achieving Sustainable Development Goals (SDGs).

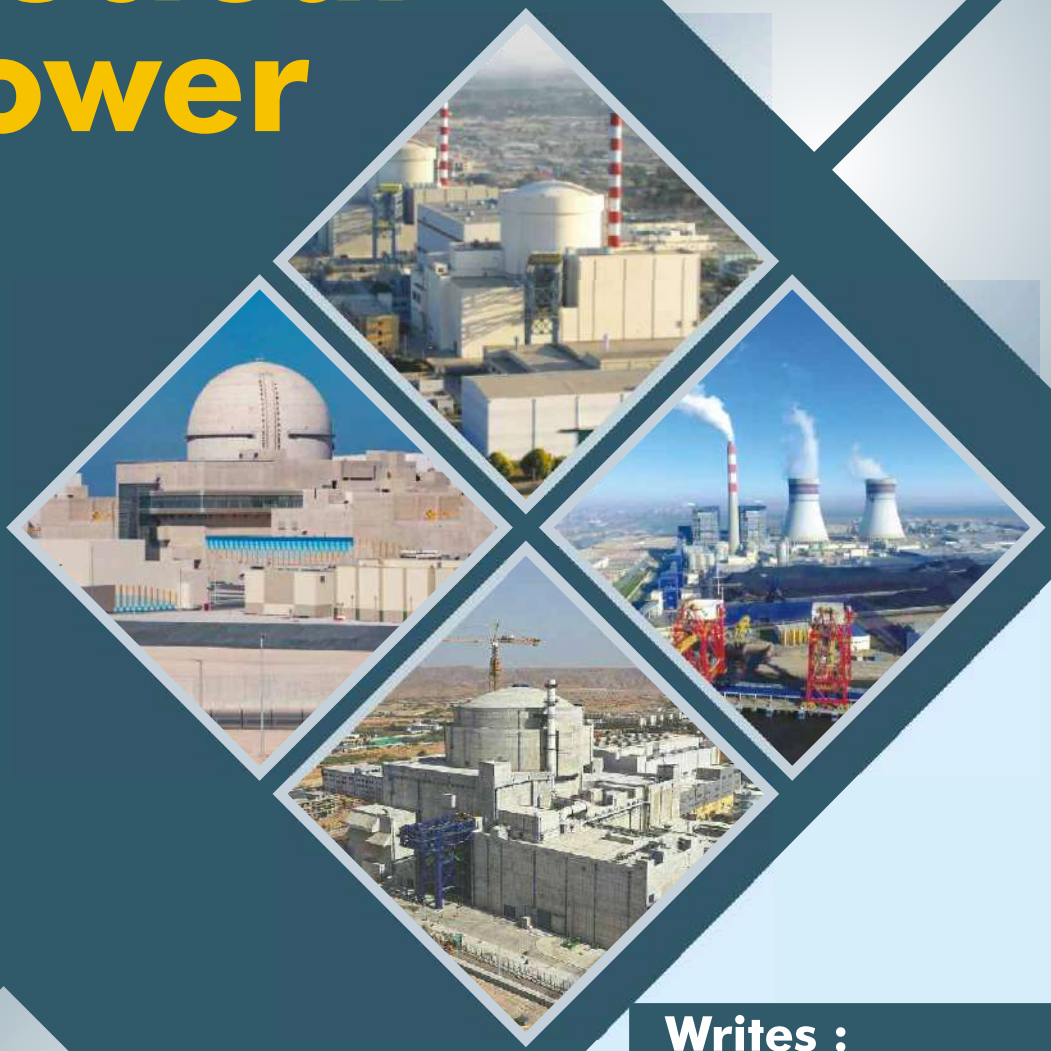
Speaking on the occasion, Minister for Planning and Development Ahsan Iqbal said Pakistan has a mutually beneficial relationship with the IAEA that included all areas of nuclear technology. He said that despite ranking as low as 158th among carbon-emitting countries, Pakistan is among the countries severely affected by the climate change. Pakistan has achieved great milestones in nuclear science and technology for the socio-economic uplift of the country in areas such as cancer diagnosis and treatment, development of disease-free and high-yield crop varieties and food preservation.

He said the nuclear power provides clean and cheap energy and currently contributes to eight per cent of the country's energy mix with six operational nuclear power plants. Pakistan has an impeccable nuclear safety and security record and plans to develop more power plants. "To energy deficient and economically strained countries like ours, nuclear power is sustainable, clean, and a green source of energy in the overall energy mix, which also includes wind and solar power. It is the best solution to the challenge of climate change as well," he said.

CISS Executive Director Ali Sarwar Naqvi, who has served as Pakistan's permanent representative at the IAEA for five years, said in his welcome speech that Pakistan and the IAEA will continue to jointly contribute to a safer and cleaner world through their longstanding partnership. Climate change is one of the biggest threats to humanity due to its direct relation to water, food, and human security.

SPECIAL ISSUE ON

Nuclear Power



Writes :

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- **Dr. Ansar Parvez**
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- **Syed Samiullah**
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- **Mommen Khan**
- **Sher Ali Kakar**
- **Sikandar Azam Khan**
- **Mirza Kashif Baig** (Editorial)

NUCLEAR PANACEA

A Global and Pakistan Perspective

LT. GEN
KHALID AHMED KIDWAI
NI, HI(M)

We are living through interesting times. I think we are also living through historic times. We are fortunate to be witnessing history unfold before our eyes in our lifetime as we watch three super powers, the USA, Russia and China competing, containing and where possible confronting to establish their respective footprints for global supremacy. The chessboard is fascinating. The USA has been an undisputed super power since the end of World War II particularly since the demise of the USSR. However, it has faced challenges to its world domination in the past and continues to face serious challenges to its status today. The second super power of our times the USSR collapsed in the early 1990s and passed on the mantle to the successor state of Russia. For two decades Russia too has struggled to regain its super power status politically, economically, militarily and technologically.

However, both Russia and the US have demonstrated vulnerabilities and the limits of power experienced through strategic debacles in Afghanistan with serious consequences for their respective geo-political clout and global

influence. Additionally, Russia directly and the US indirectly are now embroiled in Ukraine in what essentially is yet another struggle for global power. The world anxiously awaits the conclusion of this conflict because its eventual outcome will redefine the future global strategic equation in more than one way. From the specific perspective of examining a nuclear panacea in a global perspective, two issues are relevant and close to taking center stage in the Ukrainian conflict: one, energy as a strategic tool of war, and two, the possible use of nuclear weapons especially tactical nuclear weapons.

Also, as a corollary of these issues, one could perhaps debate the hypothetical possibilities of what might have been if Ukraine had not given up its nuclear arsenal. In the geopolitical milieu of today's global order, or disorder, it is the third super power of our era China which is emerging, perhaps has emerged, as the brand new super power posing multiple challenges to the US in the political, economic, military and technological spheres and now making soft inroads even in areas of traditional US influence. With Russia

and China aligning against US supremacy, reiterating their positions as recently as in September 2022 at the meeting of the Shanghai Cooperation Organization (SCO), the US finds itself confronted by strong challengers.

The identifiable responses in the US geopolitical and economic strategies to retain its pre-eminent dominant position by the sheer force of its military-industrial power and alliances, stand out in considerable contrast to the strategies of China, seemingly more confident and exercising strategic patience in order to assert its global position of eminence through the tools of its economic power, its soft global reach and growing military, nuclear and technological prowess. Where do South Asia and Pakistan figure out in this emerging global future? What are the emerging challenges for Pakistan especially in the context of its national security interests measured whether in economic terms including the contribution of nuclear energy for peaceful purposes or in military terms including its strategic deterrence capability as a nuclear weapons power.

There are two givens of Pakistan's strategic environments: one, that Pakistan enjoys a relatively advantageous position because of its geo-strategic location as a potential trade and security corridor and two, Pakistan is a responsible nuclear weapons power with the need, desire and capability to further its objectives in the field of civil nuclear energy for peaceful purposes. While debating the possibilities of a nuclear panacea in a global perspective is all very well, I would like to stick my neck out and say with confidence that for Pakistan, whether in economic terms or in security terms, nuclear panacea is a God sent and has worked well to ameliorate many of Pakistan's concerns in both these areas.

In military terms Pakistan's nuclear capability has proven beyond doubt to be a security panacea, an asset, as it has clear

satisfactorily addressed Pakistan's long standing dilemma of conventional forces asymmetry viz its adversary in the east. Because of a robust nuclear weapons capability articulated through the policy of Full Spectrum Deterrence, Pakistan is secure from possible aggression by its larger neighbour. I have said this on a number of occasions and would like to repeat for emphasis that Pakistan's nuclear capability, as the great equalizer, has proved to be an instrument of peace enforcement in South Asia. In economic terms, Pakistan's civil nuclear energy programme as a nuclear panacea, is in a potentially take off stage provided the various governments of the day display the necessary vision, understanding and support to Pakistan's Nuclear Energy Vision-2050 which stands duly approved by Pakistan's National Command Authority since 2011. The Nuclear Energy Vision-2050 envisages the provision of 42000 MWs of clean, safe and relatively cheap energy to Pakistan's economic growth needs through the sequential installation of a series of nuclear power plants across the country in all four provinces.

A salient feature of Nuclear Energy Vision-2050 is that very early on after the installation of the first few pairs of nuclear power plants, for example, Chashma 1 & 2, Chashma 3 & 4, KANUPP 2 & 3, the programme starts to earn for itself and over time, becomes self-financing so as not to place any financial burden what-

whatsoever on limited government resources. Pakistan's seven nuclear power plants including four at Chashma and three at Karachi are a pioneering segment of the Nuclear Energy Vision-2050 and have gone a long way in proving the capability of safe, clean and efficient operations.

The global politics of embargoes and restrictions inhibited Pakistan's ventures into this area for many years to KANUPP-1 only until China became Pakistan's reliable partner in the development of nuclear power. A 325 MW Pressurized Water Reactor (PWR) Chashma-1 was set up at Chashma in collaboration with China. Chashma-2, Chashma-3, Chashma-4, KANUPP-2 and KANUPP-3 followed making it a total of 3600 MW. K-2 and K-3 are modern Generation III plants. There is strong economic logic for Pakistan to stay the course and continue to build more nuclear power plants as per Nuclear Energy Vision-2050.

The saying "it is difficult to make predictions, especially about the future" has really been true for nuclear power which has seen many ups and downs for the 70 odd years that it has been around. Only a few decades ago, when people worried that fossil fuels would last only for another 100-150 years, the nuclear energy option presented itself as the new practically limitless, safe, environment-friendly and economical base-load option-a nuclear panacea. There was a nuclear rush and before one knew, a few hundred nuclear power plants were operating in the developed t were

countries while India and Pakistan also ventured into the nuclear game. There was opposition to nuclear energy by some civil society groups, mostly in the developed countries that were really going big on nuclear energy but the nuclear experts professed a very strong "it is quite safe" belief, and paid only rudimentary attention to the opposition.

Things were going great until the Three Miles Island accident in 1979 in the USA. A major blow was dealt to the development of nuclear energy taking the wind out of its potential growth. For example, after the Three Miles Island accident, no new nuclear power plant was ordered in the US for almost 30 years despite the fact that there were no casualties, and that there were no significant radiation leaks outside the plant. The Hollywood movie The China Syndrome however cashed in and did great business while Jack Lemmon and Jane Fonda scared the wits out of the audience.

The Chernobyl accident of 1986 was again a bad advertisement for the nuclear energy industry and had even more consequences as the radiations did indeed spread outside the plant creating considerable worldwide panic particularly in Europe and the UK. Both these accidents are engraved in our collective memories as negative iconic moments in nuclear energy history. Interestingly, at a personal level, I witnessed the unfolding real life dramas of both the accidents upfront. In 1979 at the time of the Three Miles Island accident I was doing a military training course in the US and my wife and I remained glued to the television as the minute by minute details of the accident appeared dramatically on the television. In 1986 at the time of the Chernobyl accident we happened to be visiting the UK. Here again, the ball by ball coverage on the television of the radiation clouds and the possibility of the fallout moving towards the UK was followed by intense apprehension.

The accidents gave those who opposed

nuclear energy a plausible narrative which they could use to make their point about the spread and long-term effect of radioactivity released in a nuclear accident. A UN report issued in 2011, which stated that there were 28 immediate deaths, and a maximum of 15 deaths from thyroid cancer could be attributed to the accident, did not gain much publicity. However, the burning issue of climate change and the threat of rise in global temperature came to the rescue of nuclear energy. The nuclear industry had started to make some recovery when the Fukushima accident happened in 2011. This time an external event, a Tsunami, swept away the pumps of the emergency core cooling system causing a core meltdown in three reactors. There was an economic burden but no deaths resulting from the accident.

However, public apprehensions about nuclear safety grew and nuclear renaissance as a panacea became a casualty. Nuclear energy might have survived all of that in the wake of climate change threat had it not been for the fact that while the capital cost of nuclear energy kept climbing, the solar cells which are also environment friendly began getting cheaper by the day. The foregoing, however, is not the complete story. Nuclear energy also has some additional psychological strings attached to it. People in general cannot disassociate civil nuclear energy from the radiation fallout of Hiroshima and Nagasaki. It is because of the fear of radiation that nuclear security is as important an issue as nuclear safety. Equal attention must therefore be paid to nuclear security because there is this threat of radioactive releases in case of a terrorist activity from within or from outside a nuclear power plant. In this context it is now internationally well recognized that Pakistan has taken stringent measures to put in place a professionally strong state of the art nuclear security regime.

The foregoing public apprehensions about bringing down the share of nuclear energy particularly in those developed countries where it all started. The global share of nuclear energy in electricity production, which had fast mounted to 17%, came down to 10%. Currently, not many start-ups are planned that could turn things around. The current war in Ukraine and the resultant gas crisis have combined to create yet another opportunity for nuclear energy. European countries are showing a tendency to return to nuclear energy so as to avoid the scary brown outs winters without heating. However, nuclear power plants have long construction times and the turnaround cannot be swift.

How far this potential nuclear renaissance will go and translate into a possible nuclear panacea will depend upon how the professionals and experts in the nuclear industry as well as politicians and public interest leaders will handle the situation. The nuclear industry nevertheless must take proactive and effective measures to get its rightful place in the global energy scenario. In my opinion Pakistan is not only ready technically for proceeding on the path of energy through the nuclear route but it is also a dire economic need for Pakistan's sustained growth especially in a charged political environment wherein energy from hydel sources - the cheapest - has become an issue of divisive and uninformed debate among the provinces.

NUCLEAR POWER AND CASE PAKISTAN

DR. ANSAR PARVEZ
FORMER CHAIRMAN
PAKISTAN ATOMIC ENERGY
COMMISSION (PAEC)

Pakistan signed the contract for its first nuclear power plant KANUPP in 1965. Since then, during the last nearly six decades, Pakistan's civil nuclear power program, led by Pakistan Atomic Energy Commission (PAEC), has been progressing with highs and lows along the path. During this time, it has faced difficult situations because of the embargoes and obstacles, but the program has kept forging on with Chinese assistance. Looking back, we can divide the progress of nuclear power program in Pakistan into the following different phases.

Phase-I (KANUPP: The Old and Gold of Nuclear Power in Pakistan)

The first Phase of nuclear power program started with the 137 MW Karachi Nuclear Power Plant (KANUPP) built with the Canadian assistance. The plant entered commercial operation in 1972. At that time, nuclear energy had just begun to take off around the globe, and in fact, Pakistan rubbed shoulders with the developed countries when it became only the 15th country in the world to have an operating nuclear power plant.

The goals and ambitions were high at that time, and there were plans to capitalize on this capability by building larger size plants. In fact, PAEC was planning to build 600-900 MW Light Water Reactors with the assistance of European vendors. Specialized long-term training programs for these types of power plants were also arranged in Spain and Belgium. However, because of the nuclear test carried out by our neighbors in May 1974, the geo-political factors intervened to restrict Pakistan's access to the global nuclear power market. Pakistan had faced all kinds of embargoes and restrictions, as it chose not give up its right of self-defense.

Pakistan's limited domestic industrial infrastructure made the establishment of a fully indigenous capability in this domain infeasible. The growth of nuclear power program could not take place. However, Pakistan Atomic Energy Commission did keep KANUPP operational despite the unilateral withdrawal of all vendor support for it, resulting in cutting off its fuel, heavy water, spare parts, and all kinds of technical support.

In hindsight, it turned out to be a blessing in disguise as various indigenous programs were launched to ensure that KANUPP could be kept functional while meeting all safety standards. These measures included production of indigenous fuel and heavy water, development of manufacturing facilities to produce the required spare parts, and establishment of analytical groups to carry out the required simulations and analyses. In the end, PAEC succeeded in setting an example of operating a nuclear power plant with no vendor support. What really made it a success story is that except for one occasion, no government subsidies were taken during the entire life of

KANUPP.

To make its ends meet, KANUPP supplied its electricity to K-electric at the average cost of production of K-Electric electricity. Thus, KANUPP's electricity to the utility was on a no-loss no-gain basis to them, and it not only met the electricity demands of the citizens of Karachi, but it also helped K-Electric in balancing the load demand and supply, because KANUPP was close to the Site area where most industrial set ups were located.

The fact that KANUPP operated safely without any vendor support, and was still able to meet all its expenditure from its own earnings established the viability and economics of nuclear power in the country. KANUPP, which has now been shut down after operating for 50 years, which included 20 years beyond design life, was truly the pioneer of nuclear power in the country because of the access to technology it provided, and the manpower that was trained for the operation and maintenance of nuclear power plants.

While KANUPP operated successfully with indigenous effort, the international embargoes did stall the growth of Pakistan's nuclear power program for almost two decades, as PAEC's repeated efforts to acquire the next nuclear power plant drew no response from the vendor countries.

Phase-II (Commencement of Pak-China Cooperation in the Area of Nuclear Power)

Because of international embargoes, the growth of nuclear power program of Pakistan had come to a halt. However, life and times never stop. By the eighties, China had established its nuclear industry and had started building its own indigenous nuclear power plant (Qinshan-I). The second phase of Pakistan nuclear power program started with the willingness of China to be our partner in the development of nuclear power. Pakistan signed a contract for the construction of a 325 MWe plant C-1 at Chashma, Mianwali district, using Qinshan-I as the reference plant.

The successful completion of the C-1 project (China's first nuclear power plant export), and the safe indigenous operation and maintenance of the plant by PAEC led to the signing of the C-2 contract. By the time, work on C-2 started, nuclear energy was included in the Mid-term Energy Security plan of the Government of Pakistan, and a target of 8800 MW by 2030 was assigned to nuclear. This encouraged the signing of another two nuclear power plants, the 340 MW C-3 and C-4. All Chashma plants were completed within cost, according to schedule, and are now operating safely, yielding high capacity factors. Having four similar nuclear power plants operating safely and productively at the same site is something that any country can be proud of.

Major component (around 70%) of the cost of all the Chinese plants is financed by Chinese non-commercial loans. The loan repayment starts after the construction of the plant is complete, and the loan has to be paid back in 12 years. PAEC has been paying back the loans from the revenues generated by the completed plants.

Phase-III (Extending the Pak-China Cooperation to Large and State-of-the-Art Nuclear Power Plants)

While C-3/C-4 were still under

construction, China had developed their 1100 MW advanced Generation-III nuclear power plant, and offered it to Pakistan. Pakistan gladly took advantage of the opportunity. The contract for 2X1100 MW plants (K-2, and K-3) was signed, and the groundbreaking of these plants took place in 2013. Consequently, there was a time when four nuclear power plants were under construction in Pakistan.

Until K-2/K-3, the financing model provided that the local cost component be met by the PSDP program. It was provided for all the four Chashma plants, but this model could not sustain itself for K-2/K-3 as the PSDP was not able to meet its commitment in entirety, and PAEC had to chip in by taking commercial loans to meet its financial commitments with the Chinese supplier. PAEC plans to pay these loans back from the revenues of K-2/K-3.

Performance of Nuclear Power Plants in Pakistan

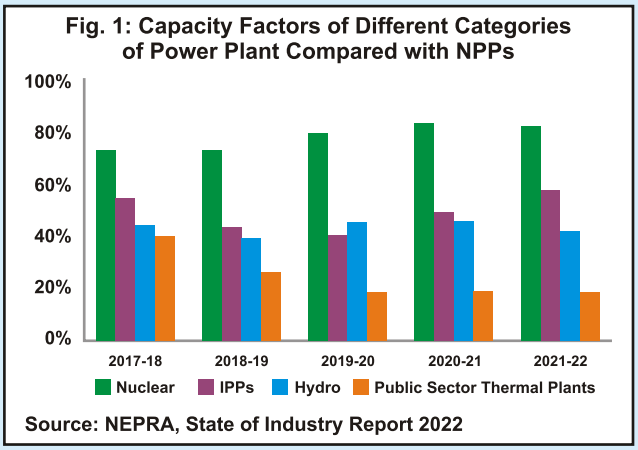
With the completion of the K-2/K-3 plants, Pakistan now has six operating nuclear power plants, four at Chashma, and two near Karachi making a total installed capacity of 3620 Mwe. It is appropriate at this stage to give an overview of the performance of these six plants, make a comparison of their performance with the other electricity generation mechanisms in the country, and the potential impact of the nuclear energy generation on the reliability of the energy system and the economy of the country. PAEC's nuclear power plants are operating exceedingly well, whether one considers their lifetime performance or their performance in any particular period of time. Lifetime production data and the data for the last five-year of the six nuclear power plants of PAEC are given in Table-I below.

Table-I: Performance of PAEC Nuclear Power Plants

	C-1	C-2	C-3	C-4	K-2	K-3
						
Capacity (Gross)	325 MW	325 MW	340 MW	340 MW	1145 MW	1145 MW
Ground breaking	26-12-1992	09-04-2005	05-08-2010	01-04-2011	26-11-2013	26-11-2013
Commercial Operation	15-09-2000	18-05-2011	06-12-2016	19-09-2017	21-05-2021	18-04-2022
Life Time Capacity Factor	77%	86%	87%	84%	80%	90%
Current Capacity Factor	94% (Cycle-16)	99% (Cycle-9)	95% (Cycle-5)	93% (Cycle-4)	86% (Cycle-2)	90% (Cycle-1)
Longest Continuous Record	280 Days	425 Days	382 Days	373 Days	103 Days	100 Days

* Data as of 31-01-2023

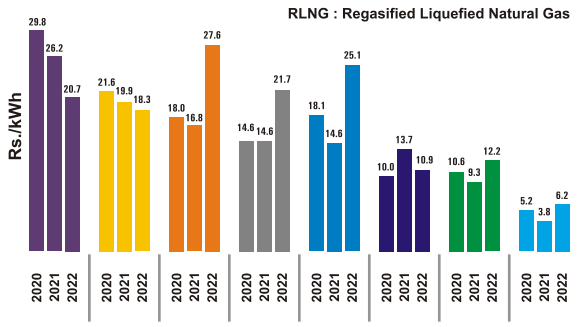
A comparison of the performance of nuclear power plants with other electricity generating mechanisms of the country of the country is made in Fig. 1.



Cost-wise also, nuclear is an economical option. This can be seen from Fig. 2, which shows the cost of electricity based on the amount billed in a particular year, and the units exported for the last three years. These figures are drawn based on the data provided in NEPRA annual reports. Nuclear power plants are generating electricity at capacity factors in the range of 80%. If other power plants of the country could operate at the same capacity factor and cost, there could possibly be no energy crisis in Pakistan.

In general, the tariff of operating NPPs in Pakistan ranges from Rs. 6.61/kWh to Rs. 17.08/kWh. After repayment of loans in 12

Fig. 2: Average Generation Cost of Different Resources



Source: NEPRA, State of Industry Report 2022

years' time using plants' own revenues, the higher prices would also decrease to around Rs. 8 per kWh. This may be compared with the minimum tariff of thermal plants of RLNG (Rs. 21.86/kWh),

Thar coal (Rs.22.00/kWh) and imported coal (Rs. 27.63/kWh). Further, while Thar coal is indigenous, Pakistan imports a large part of its energy requirement. This not only makes our energy supplies vulnerable to international fuel price fluctuation, but also eats-up our foreign exchange earnings. The Prime Minister has recently stated that the energy import bill of Pakistan is in the neighborhood of USD 29 billion.

Nuclear does help save foreign exchange. During the year 2022, nuclear electricity generation saved USD 3,035 million in fuel cost if we assume it substituted oil imports, USD 2,027 million if it substituted RLNG, and USD 1,560, if it substituted imported coal. The nuclear fuel cost (USD 112 million) is adjusted in these numbers. The loan repayment installments of these nuclear power plants do not exceed USD 1000 million. Thus nuclear is far ahead even without counting the capacity factor charges of the conventional thermal power plants. A lot of difference could have been made to the national economy, if another 2000-4000 MW of nuclear existed at this time.

Besides being economical, nuclear power r plants are able to perform undeterred by water level in the dams or status of gas supply or fluctuations in oil and gas prices. While the total capacity of nuclear is 8% of the country's total installed capacity, there were days when nuclear provided nearly one third of the country total electricity generation. This speaks volumes of the performance of nuclear as compared to its competitors. Nuclear power is also a clean source of energy, as it does not emit harmful pollutants and greenhouse gases (GHGs) responsible for climate change. By end 2022, cumulative avoidance of CO_2 by operating nuclear power plants is more than 80 million tonnes.

PAEC also maintains an enviable safety record. Radiation monitoring of the land and waters surrounding our nuclear plants, as well as edibles from these area is part of the normal routine. There are well-documented emergency plans drawn up in collaboration with national and provincial bodies to deal with any eventuality for all these power plants. Pakistan also continues to abide by international norms and standards in this arena. All our civil nuclear power plants are under IAEA safeguards. Pakistan is a signatory to many international conventions including those on safety and physical protection.

Phase-IV (Financial Self-Reliance in the Promotion of Nuclear Power: Vision 2050)

The availability of large size nuclear power plants and the safe and economic operation of the already built plants led to NCA Vision-2050, jointly developed by SPD and PAEC. Vision 2050 extended the Mid-term Energy Security Plan of 8,800 MW to 42,000 MW of nuclear by 2050. In fact, with the completion of K-2/K-3, PAEC has now entered the fourth phase of its civil nuclear energy program. Up until K-2/K-3, nuclear power projects were

funded by PSDP and Chinese loans. With the revenues generated by Chashma plants and the K-2/K-3 plants, PAEC can now build large size nuclear power plants on a self-finance basis by substituting the PSDP support with its own resources. Chinese loans would still be required. However, Vision-2050 does not require any financial support from the PSDP program.

This financial independence was the cornerstone of Vision-2050, where after K-2/K-3, all nuclear power plants were to be self-financed by PAEC with the assistance of Chinese loans, which were to be paid back from the plant revenues. All these data and performance show a lot of promise for nuclear in Pakistan. However, no nuclear power plant groundbreaking has taken place since 2013, and Pakistan is yet to enter the fourth phase of construction of nuclear power plants. In fact, nuclear is not included in the Indicative Generation Capacity Expansion IGCEP 2022-31 because of certain assumptions used in capital cost calculations, which disfavor nuclear.

In the IGCEP, there is great reliance on wind and solar, which is good. However, there are issues with these renewables as well, and it is too early to draw conclusions. The cost of solar cells has recently doubled. Electricity storage is still expensive. The operators of wind plants already built in Pakistan are worried because their power is not being evacuated because the system cannot handle their power fluctuations. Regardless of all of this, there is always the requirement of base-load electricity provider if the country has to make any industrial growth.

Thar coal provides an indigenous base-load option but it is located in the South. Coal transportation would be expensive and cumbersome. Hydro is feasible only in the North, and it is also seasonal. Nuclear can provide reliable, economical, and safe base-load electricity in central part of the country and elsewhere. Here one must also keep in mind that emphasis should be laid on diversity, and not all eggs should be put in the same basket.

There are, therefore, many reasons why nuclear power plants must continually be added as safe, clean, reliable, and economical base-load electricity providers. There should be at least one or two nuclear powers plants under construction at any point in time. This would only ensure reliable supply to meet the increasing energy demand, but would also ensure that PAEC remains abreast with latest technology in the area of nuclear power plants and is not left behind. This can easily happen, as has been the case with the developed countries, which discontinued their nuclear power program, and are facing difficulties these days in reviving their nuclear power program.

While PAEC has been able to overcome the continuing inequitable and discriminatory policies in the international arena with the help of China, it would be unfortunate if nuclear power program were stalled because of internal financial and planning issues.

NUCLEAR POWER PLANTS SAVIOURS OF PAKISTAN'S ECONOMY AND ENERGY

Energy production through nuclear power plants is safer, cheaper, effective and supports self-reliance

DR. ZAFAR KHAN
EXECUTIVE DIRECTOR
BTTN (QUETTA)

Ever since the Russia-Ukraine war, global warming and the gradual depletion of non-renewable sources of energy such as oil, gas and coal are compelling nation-states including most of the European states to reconsider their energy policies. Many of them are opting for energy production through nuclear power plants, which is not only safer, cheaper and effective, but also supports self-reliance.

Given this backdrop, it is imperative that Pakistan too turns its focus on producing energy through its nuclear power plants (NPPs) such as Karachi Nuclear Power Plants (having the capacity of 1100MW each), the Chasma-1 (325MW), the Chasma-2 (325MW), the Chasma-3 (350MW), and the Chasma-4 (350MW) under the International Atomic Energy Agency (IAEA) safeguards. Since their inception, all of these NPPs have not only been producing safer, reliable, and cheaper electricity but more importantly, they have been timely and effectively contributing to the country's fragile economy by saving billions of US dollars compared to other sources for energy production.

According to reliable and credible sources, Pakistan through its six NPPs has saved $3.035 billion with reference to oil, $2.207 billion with reference to RLNG, and $1.586 billion with reference to imported coal during the fiscal year 2022. The same amount of electricity produced by NPPs when generated by other sources of energy production costs some $3billion extra in fuel charges alone, not including the amount of expenses on other related ingredients, further affecting the broader parameters of Pakistan's economy.

Energy plays a significant role in running the economic engine of a country. The more energy Pakistan produces and effectively uses, the more it protects its economy from fragility and the more it has the chances to prosper. Thus, with national awareness and consistent functioning of Pakistan's NPPs, the country can surely save more money and energy. Recently, it has been reported that nuclear energy became Pakistan's top source of power generation for the first time, generating 27.15% (i.e. 2,284.8GWh) at Rs1.073/unit. Carbon-based energy production is not only getting extremely expensive for many external and internal factors, but they are also not

environmentally friendly and play a huge part in exacerbating the consequences of global warming.

Scientists argue that global warming is already occurring and it has surprisingly increased the earth's temperature by 2 degrees Fahrenheit in total since 1880. Many scientists believe that the earth's temperature will continue to increase to 2.7 degrees Fahrenheit by 2050 with far reaching consequences such as the loss of sea ice, melting glaciers and ice-sheets, the rise of sea level and intense heat waves. Pakistan's contribution to global warming may increase if we continue to prioritise other sources of power production while downgrading nuclear energy. The current snagging of the forthcoming Chasma-5 nuclear power plant is not a viable decision by the Finance Ministry. The ministry needs to reconsider the cost and the benefits closely before carefully before undertaking concrete decisions on energy production.

That being said, as the world moves away from carbon-based sources and towards nuclear energy, it is imperative for Pakistan to be proactive by undertaking stringent measures in order to successfully complete the Chasma-5 nuclear power plant including that of K-4 and K-5 in Karachi and M-1 and M-2 in Muzaffargarh. Arguably, these NPPs not only increase the country's electricity production, but will also help save billions of US dollars that Pakistan is currently spending for running other a need for both educating the government on

such feasible, reliable and cheaper options, and also increasing awareness amongst the common masses.

Notably, during earthquakes in Japan in 1995, 2004, 2005, 2007, 2009, and 2011, as well as a devastating earthquake in Taiwan in 1999, nuclear power plants automatically shut down and ensured safety. To keep up with emerging challenges, the IAEA continually assesses Pakistan's national nuclear security regime in accordance with the country's international obligations. Despite strict adherence to international standards, Pakistan is concerned over the discriminatory decisions by the Nuclear Supplier Group (NSG) to grant a waiver to India despite the country not being a signatory to the Nuclear Non-proliferation Treaty (NPT). However, a strong indigenous culture of nuclear security has been cultivated over time, reinforcing and sustaining the robustness of Pakistan's nuclear security regime. Being a member of IAEA's 35-member Board of Governorseven though it remains outside the NPTPakistan is closely working with the IAEA and receiving technical cooperation from the agency.

Conclusion

Nuclear energy is a viable option for Pakistan to pursue more vociferously. Increasing nuclear energy capacity and its use can save Pakistan billions in foreign exchange reserves and reduce electricity load shedding. Furthermore, by reducing its reliance on imported fuels, Pakistan can improve its balance of payments and contribute to its overall economic stability. Investing in domestically generated nuclear power has the potential to save on import costs, which can conserve the country's foreign exchange reserves and promote economic growth in the long term.

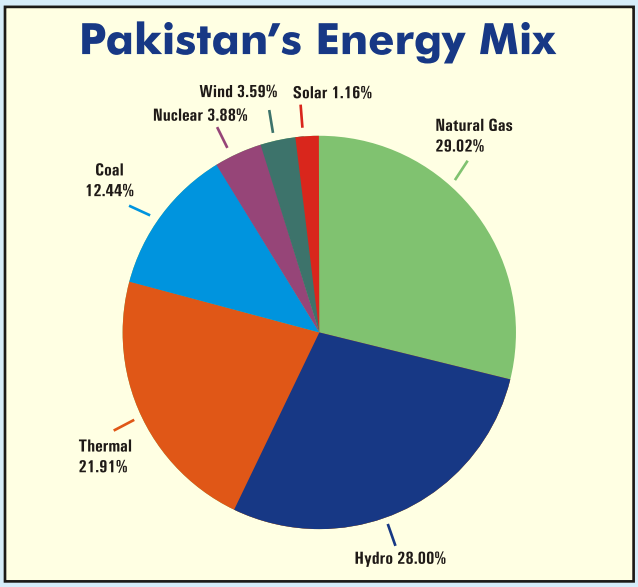
Energy crisis:

A MAJOR CONTRIBUTOR TOO MANY OTHER CALAMITIES

SYED SAMIULLAH
RABITA FORUM INTERNATIONAL (RFI)

Affordable and clean energy is a prerequisite for human development in today's world. No one can even think of advancement and a prosperous future in agriculture, business, communications, education, healthcare, and transportation without having reliable and abundant resources of energy. United Nations Department of Economics and Social Affairs (DESA) in 2015, adopted 17 Sustainable Development Goals (SDGs) with the aim to transform our world by improving human lives and protecting the environment, in which Goal 7 is about ensuring access to clean and affordable energy.

According to the DESA, the lack of access to clean and reliable energy hinders both economic and human development. The rise in energy costs, instability, removal of subsidies, limited availability of clean fuel, and budgetary burden on households have resulted in an increase in energy poverty in developing nations like Pakistan. Beside the fact that Pakistan has been blessed with abundant renewable energy resources, the country has still not been able to cope with the increasing energy demands effectively. Bad governance, circular debt, political instability, reliance on imported fossil fuels, and absurd energy policies are the major issues that need serious attention to be resolved.



Dinghong, Xu. et al. (2023), in their study "Analyzing the factors contribute to achieving sustainable development goals in Pakistan: A novel policy framework" identifies that in Pakistan, the energy crisis has been a major drag on the economy and a serious impediment to growth, with an estimated cost of 10% of the GDP over the past 5 years. Thousands of industries have shut down operations, affecting industrial production and the livelihoods of thousands of families. One other study, conducted by Hussain, S. et.al. (2023), shows that the indigenous fossil fuel reserves (oil and gas) of Pakistan are limited and are quickly decreasing.

Continued on page 35

PAKISTAN RAMPS UP NUCLEAR POWER GENERATION BY A MASSIVE 48% JANUARY 2023

AHSAN GARDEZI

Power generation in the country went down by 3.2 percent on a month-on-month (MoM) basis to 8,515 gigawatts per hour (GWh) in January 2023, while nuclear generation was up 48 percent year-on-year (YoY). Meanwhile, during January 2023, fuel costs for power generation increased by 59 percent MoM to an average of Rs. 11.2/KWh, compared to an average cost of Rs. 7.04/KWh in December 2022.

According to data by Arif Habib Limited (AHL), power generation was down 7.3 percent YoY to 77,085 GWh during the first seven months of the financial year 2022-23, compared to 83,193 GWh in the same period last year. Major contributors during January 2023 were coal (share: 28.7 percent), nuclear (share: 22 percent), RLNG (share: 15.1 percent), gas (share: 13.5 percent), hydel (share: 9.4 percent), Residual Fuel Oil (RFO) (share: 5.4 percent), wind (share: 3.4 percent), Bagasse (share: 1.2 percent), and solar (share: 0.8 percent). Coal power generation accounted for almost 29 percent of electricity output in January 2023, indicating a 16.2 percent drop from 2,917 GWh in January 2022 to 2,444 GWh in January 2023. Conversely, on an MoM basis, coal generation is up 60.7 percent. For the period 7MFY23, it is down 21.8 percent YoY.

Nuclear-based power generation increased by 48.3 percent YoY to 1,876 GWh in January 2023 from 1,265 GWh last year. A month-wise breakdown of the data reveals that nuclear-based power output declined by 18 percent in January 2023 (1,876 GWh) from 2,285 GWh in December 2022. RLNG-based power generation increased by 105.4 percent YoY to 1,286 GWh in January 2023 from 626 GWh last year. On an MoM basis, RLNG-based power output increased by 11.4 percent in January from 1,154 GWh in December.

RFO-based power generation plummeted by 62.6 percent YoY to 463 GWh in January, down from 1,238 GWh last year, while monthly wind power generation shows an increase of

35.8 percent from 212 GWh observed last month. As of January, solar-based generation is up 55 percent YoY from 47 GWh last year to 72 GWh today. During 7MFY23, it surged by 33.1 percent YoY to 526 GWh from 395 GWh in 7MFY22.

Fuel costs

During January 2023, fuel costs for power generation decreased by 8.3 percent YoY to Rs. 11.2/KWh, compared to an average cost of Rs. 12.22/KWh last year. For 7MFY23, fuel costs are up 22 percent YoY with an average cost of Rs. 9.36/KWh, compared to Rs. 7.68/KWh in 7MFY22. The cost of RFO-based power increased by 12.3 percent MoM to Rs. 28.98 per unit, making it the priciest fuel among all metrics.

Nuclear Energy

A KEY CONTRIBUTOR IN SAVING PAKISTAN'S FOREIGN EXCHANGE RESERVES

MOMMEN KHAN

Nuclear energy is considered a reliable source of energy because of its ability to generate a consistent and stable supply of electricity. Nuclear power plants can operate continuously for many years without interruption, providing a dependable source of baseload power.

This means that nuclear energy can play an important role in ensuring a stable and secure supply of electricity, even during periods of high demand or when other sources of power are unavailable. In addition, it is an efficient, reliable, and cost-effective way to generate electricity because nuclear power plants produce no air pollution, and the waste they produce is minimal compared to other sources of energy which has the potential to reduce global warming. Around the globe, nuclear energy is 10% of the energy mix and it is rising to almost 20% in the advanced economies which portrays the rising importance of the peaceful uses of nuclear technology.

Pakistan as a responsible nuclear state has been utilizing nuclear technology for the well-being of its citizens for more than five decades. Pakistan`s current economic crisis combined with increased dependence on imported fuel has resulted in eight-year low foreign exchange reserves.

Pakistan needs to utilize all viable options to save foreign exchange reserves. In this context, nuclear energy, which is significantly contributing to saving foreign exchange reserves, needs to be utilized for economic stability. In recent years, the growing population growth coupled with, urbanization, and rising standards of living energy demand has increased in Pakistan.

In addition, due to the catastrophic floods as a result of heavy monsoon rains third of Pakistan is beneath the water and almost 33 million people have been affected. According to the World Bank, the total economic damage exceeds 14.9 billion dollars followed by the need for at least 16.3 billion dollars for rehabilitation and reconstruction.

Although Pakistan is having 0.4 percent of the total share of carbon emissions, it is ranked as the eighth most vulnerable country to climate change, thus raising the need for a clean and economical energy source. In recent years, the domestically generated nuclear power contribution has increased in the national grid. Also, Pakistan has planned to prioritize this sector according to its 2030 agenda.

Continued on page 36

MAXIMIZING PAKISTAN'S FOREIGN EXCHANGE SAVINGS THROUGH NUCLEAR ENERGY

SHER ALI KAKAR

The demand for a clean, reliable, and cost-effective source of energy has grown as the world is experiencing looming climate change effects coupled with energy supply issues emanating from the ongoing Russia-Ukraine war. Nuclear energy, which has been a source of power for many countries for several decades, has received increased attention in recent years due to its reliability and cost-effectiveness. Pakistan has been utilizing nuclear technology for energy generation for five decades, providing clean and cost-effective energy to the nation. Pakistan`s current economic crisis, which has resulted in an eight-year low in foreign exchange reserves amid fear of default, demands the best alternatives to save foreign exchange reserves. In this respect, nuclear energy, which is already a key contributor to saving foreign exchange reserves of the country, needs to be prioritized.

Nuclear energy is a clean energy source, which means that it does not produce any harmful emissions like carbon dioxide or greenhouse gases. It has a lower carbon footprint compared to traditional fossil fuels like coal and natural gas. In addition to this, it is a reliable energy source because nuclear power plants are designed to run continuously for years, providing a steady and constant supply of electricity.

Besides, nuclear energy is an efficient source of energy as it produces a large amount of electricity consuming a small

amount of fuel. Compared to wind and solar energy, nuclear energy is more cost-effective in terms of the amount of energy produced per dollar invested. While wind and solar energy are becoming increasingly affordable, they are still more expensive than nuclear energy and require large investments in infrastructure.

Besides, the levelized cost of electricity (LCOE) for nuclear energy has decreased over the past few decades, making it a more viable energy option. Pakistan has been utilizing nuclear technology for the benefit of its citizens. Peaceful uses of nuclear technology have been an important aspect of Pakistan`s nuclear program. The Pakistan Atomic Energy Commission (PAEC) has currently established six Nuclear Power Plants (NPPs) in the country and uses the nuclear energy generated from these plants for the well-being of people. Nuclear power plants (NPPs) have been generating energy for the country at low-cost and their contribution to the national grid has increased over the years.

Continued on page 37

NUCLEAR ENERGY IN PAKISTAN

Coping with Energy crisis and climate change

SIKANDAR AZAM KHAN

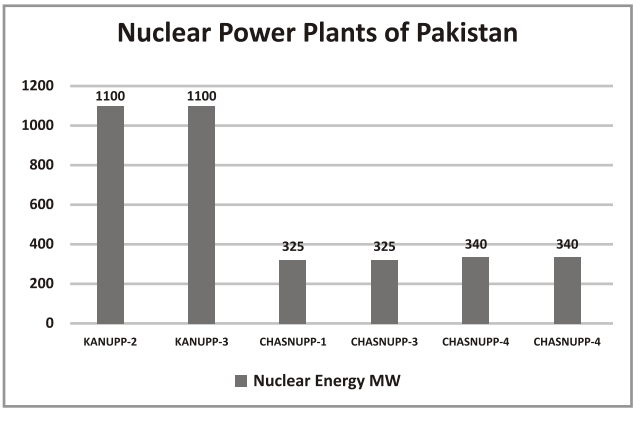
Energy production and balanced supply/demand ratio is the most crucial requirement for a country's development. However, impending climate change effects as well as rising energy demands brought on by the growing population necessitates a clean, reliable, and cost-effective energy source. The lack of energy is worsening the nation's already critical economic situation. Due to this, the country has suffered billions in economic damages as a result of the most recent national grid failure.

The possibility of nuclear energy becoming the second-most reliable source of energy in the world, being more dependable, environmentally friendly, and emitting fewer hazardous gases to the environment (CO2), is imminent for states that are constantly in flux due to the rise in petroleum and gas prices. These states are neglecting nuclear energy in their efforts to meet their energy needs.

The situation for Pakistan, will become more complicated if there is blatant negligence in taking quick action to deal with the effects of climate change. A switch to more powerful and dependable nuclear energy is urgently needed in place of the current traditional energy producing methods.

In hindsight, the greatest threat to the conventional forms of energy production is climate change. The need for affordable, dependable alternative choices that may address these climate change concerns continues to pose a serious danger to national security. Pakistan is not an exceptional case in this regard; as an agrarian country with a GDP of 21% and 43.7% employed by agriculture, it is particularly vulnerable to environmental issues brought on by a changing climate.

It is obvious that climate change is becoming more dangerous. the most obvious signs of which include increasing temperatures, changing weather patterns, a rapid rise in sea level, and unseasonal rainfall in the driest parts of the world. Pakistan has experienced a number of grave events caused by climate change over the past 20 years, including severe droughts, the devastating

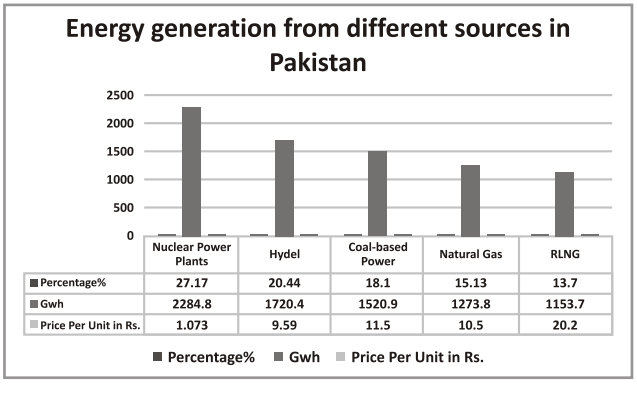


floods of 2010 and 2018, and the recent devastation brought on by the monsoon rains, which killed more than 1400 people and forced 33 million to flee their homes. The Intergovernmental Panel on Climate Change (IPCC) predicts that in the near future, the frequency of climate-related disasters will rise. For Pakistan, the impact this will have on the environment directly pertains to Pakistan's overall national security.

What options does Pakistan have to lessen the impending risks posed by climate change and maintain its environmental conditions through the use of clean energy? Will the conventional techniques be adequate to meet the nation's energy needs? Utilizing nuclear energy right away will provide the answer to these questions. Pakistan's use of nuclear energy for peaceful purposes is one of the most reliable and tested ventures in the world.

Six Nuclear Power Plants (NPPs) that produce electricity for the general public's use are currently operating successfully in the nation. The graph below displays the total amount of energy produced by Pakistan's nuclear power stations (electricity): In December 2022 alone, the electricity produced by Pakistan's nuclear power reactors made up 27% of the nation's total energy requirement.

The overall cost of the energy produced was equal to one-half of a US penny. Similarly, nuclear power plants generated 2284.8 GWh in the final month of the previous year, making



them one of the top energy producers, followed by hydroelectric, coal-based electricity, natural gas, and re-gassified liquified natural gas (RLNG).

Pakistan is still unable to meet its population's energy needs because the country is completely dependent on the production of hydroelectric and fossil fuel energy since independence. These energy producing methods are more susceptible to climate change disasters and do have certain advantages and disadvantages. In hindsight, nuclear power plants that produce energy are safe and secure when safety standards and regulations are taken into account.

Furthermore, nuclear energy has been shown to be the safest way to generate electricity, according to the US Department of Energy. Because it guarantees the highest air quality for the environment and society, nuclear energy is referred to as the zero-emission source of clean energy.

The US avoided more than 471 metric tons of carbon emissions in 2022 alone by relying on nuclear energy. This suggests that nuclear energy is the most dependable and trustworthy source of power from which states may benefit, and Pakistan is no exception. In the meantime, Pakistan's total score in terms of the security and safety of its nuclear installations has increased by +25 points, making it the country with the second-largest improvement since the Nuclear Threat Initiative (NTI) Index was introduced in 2012.

Pakistan has generally helped the country with its energy generation needs, which accounts in part for this. Due to this, the country's nuclear power reactors have significantly reduced the amount of fuel that must be imported, saving an estimated $6785.7 million compared to coal, RFO, and RLNG. Nuclear energy production is better suited to Pakistan's needs due to its greatest

results in environmentally friendly, clean, and affordable energy generation. Since natural disasters are wreaking havoc on the planet and costing precious lives as well as natural habitats, Pakistan is not an exception.

A sustainable and practical choice must be relied upon to supply the nation's energy needs. Pakistan's remarkable track record in operating nuclear power plants to provide clean, ecologically friendly energy deserves praise. In order to mitigate the effects of climate change while still meeting the energy needs of its population, the nation must place more emphasis on nuclear energy production.

Continued from page 29

Energy Crisis:

While the discovery of new oil and gas sources, the exploitation of local coal deposits, and the harnessing of renewable energy are all moving at a glacial pace. Repercussions of the lethargic process could be observed in the country. Though in 2006 the Pakistani government for the first time announced its "Renewable Energy Policy" with the goal of increasing the penetration of renewable energy in the entire energy mix by establishing specific objectives. But unfortunately, those targets hadn't been achieved due to the lack of an effective planning paradigm. Currently, most renewable energy sources are untapped to their full potential, and only 24% of them are accounted for in the total energy mix.

What Pakistan needs today is a comprehensive policy and effective planning, which can take into account the optimal distribution of renewable energy resources, as well as better governance. Long-term energy security, cost reduction, and climate change mitigation may all be aided by this strategy. In addition, Pakistan needs to leverage the potential of its numerous renewable energy resources, such as solar, wind, hydro, and biomass, as appealing alternative sources of energy to make up a significant portion of its overall energy supply.

Otherwise, not only goal 7 but all other linking sustainable goals for instance health and well-being (goal 3), Industry, Innovation and Infrastructure (Goal 9), Sustainable cities and communities (Goal 11), climate action (goal 13) and Life below water (Goal 14) will be challenging to achieve. Addressing the energy problem on both operational and strategic levels is also a must because of its close link with the state's security. Till the day, many policy documents have been introduced such as a petroleum exploration policy, natural gas allocation, y conservation policy, power policy, the recently proposed alternative and renewable energy policy, and the national electric vehicle policy, but a single integrated energy policy document is still an inevitable requirement and management policy, a national energy conservation policy, power policy, the recently proposed alternative and renewable energy policy, and the national electric vehicle policy, but a single integrated energy policy document is still an inevitable requirement.

The five UN targets for accomplishing Goal 7 by 2030 must be considered in the national context when developing new policies. Three of the five aims are "outcome targets": access to modern energy, raising the national percentage of energy from renewable sources, and maximizing energy efficiency. The final two aims are however "means of attaining targets": extending access to sustainable power research, technology, and investments, and expanding and upgrading energy services.

With the aforementioned parameters, Pakistan would not only be able to improve international collaboration in order to create more open options for technological advancement in renewable energy and more investment in clean energy infrastructure, but her poor economy would also get the chance to thrive.

Continued from page 31

A key contributor in saving Pakistan's foreign exchange reserves

According to the Pakistan Economic Survey in FY 2020-21, the gross capacity of nuclear energy plants was 2530 MW which provided 7076 million units to the national grid but within one year this capacity has shown a tremendous change in terms of both the capacity and units supplied to the national grid. In addition, the latter provided 12885 million units to the national grid and with a capacity of 3530 MW, it is evident from this change that investment in nuclear energy will give outcomes that can contribute to the sustainable growth of the sector.

Moreover, being a developing economy we should be prepared for any major economic disruption which can hamper our growth and development. During COVID-19 when there was a major disruption in global trade and oil imports were affected, nuclear energy played a vital role by providing uninterrupted energy. K-2 has made a milestone by operating for 100 days continuously since its official operation date. This means that investing more in energy generation from nuclear energy will allow the country to be prepared for any major economic downfall in the future by ensuring energy security.

In addition, According to Pakistan Atomic Energy Commission (PAEC), the average cost of nuclear energy generation in 2020-21 was 9.25 per unit which makes it second in the list of cheaper sources of energy generation in terms of per unit cost of production. In addition, Pakistan has saved 1583.8 million dollars against coal, $3033.6 million against refined furnace oil, and $2168.7 million against RLNG, which shows the cost-effectiveness of nuclear energy that by utilizing this technology we not only tackle climate change but also save our foreign exchange reserves which will result in a decrease in the intensity of this crisis that Pakistan is currently facing. Pakistan must maintain its efforts to work for the peaceful application of nuclear technology to alleviate the country's economic woes and energy crisis. The fact that nuclear energy has a clean history demonstrates Pakistan's dedication to using nuclear energy for peaceful purposes. Pakistan has demonstrated that it is a responsible nuclear state, with an unblemished record of preserving the safety and as well as security of its nuclear infrastructure. Pakistan is indeed a

distinctive member of the IAEA, having been on the board of governors twenty-one times and chaired it twice, Pakistan's credentials are of a responsible nuclear state.

Pakistan prioritizes the security of its nuclear infrastructure. Therefore, Pakistan should continue investing in its nuclear energy generation to get clean, cost-effective, and reliable energy which not only will allow it to cope with the catastrophic effects of climate change, but also contribute to resolving the deepening issue of depleting foreign exchange reserves and stagnating economic growth.

Mommen Khan is working as Assistant Research Fellow at Balochistan Think Tank Network (BTTN), Quetta.

Continued from page 32

Maximizing Pakistan's foreign exchange savings through Nuclear energy

According to Pakistan Economic Survey 2021-2022, from July to March of the 2021 fiscal year, the total capacity of nuclear power plants was 2,530 MW, producing 7,076 million units of electricity. The following year, from July to March of the 2022 fiscal year, there was a 39% increase in capacity to 3,530 MW, resulting in the generation of 12,885 million units of electricity for the national grid. This caused the contribution of nuclear energy to electricity generation to rise from 6.68% during the same period in the previous year to 8.8%.

During the Covid-19 pandemic, the nuclear power plants managed to perform efficiently by consistently providing a steady supply of power at optimal capacity levels. In 2022, energy generated from NPPs Saved $3.035 billion compared to oil, $2.207 billion compared to RLNG, and $1.586 billion compared to imported coal. If the electricity currently produced by nuclear power plants in Pakistan was instead produced by oil-fired or RLNG (Re-gasified Liquified Natural Gas) plants, it would result in much higher fuel costs. The cost of producing the same amount of electricity through oil-fired plants would be around $3 billion in fuel charges alone, and through RLNG, it would cost around $2 billion.

Nuclear energy is certainly a viable option for Pakistan. It has several benefits, including being a relatively low-cost and reliable source of electricity as well as a cleaner alternative to fossil fuels. The contribution of nuclear energy is helping to save a significant amount of money and prevent increased load shedding.

In addition, by reducing its dependence on imported fuel, Pakistan can improve its balance of payments, which is an important factor in its overall economic stability. Thus, by investing in domestically generated nuclear power, Pakistan can potentially save on import costs, which can help save its foreign exchange reserves and lead to economic growth.

SURVIVAL OF THE RICHEST

The country's poorest province is also afflicted by income inequality

SAKINA

According to the Oxfam 2023 report, "Survival of the Richest", inequality is increasing in the world. The poor are getting poorer, and the rich richer. According to the report, on account of such an increase, millions are facing hunger. The World Bank states that by 2030 it will not be able to achieve the goal of reducing extreme poverty across the world. According to Oxfam, the wealth of rich people is increasing by 6 times and they own 2/3rd of the world's new wealth. Almost similar or even worse is the case with the area-wise largest province of Pakistan, Balochistan. It is estimated that more than 60 percent of its population, some 7.4 million people, live below the poverty line. Remember, this is the recorded estimate. Balochistan is struggling with corruption, poverty, unemployment, illiteracy, food insecurity, inflation, and political turmoil.

Fluctuating tax policies, corruption, and inequality have led to poverty in the province, and its impacts on poor people, but there is a way forward to overcome the effects of these crises. Balochistan is believed to have vast natural resources of gold, copper, natural gas, chromite, and valuable stones. But the resources have not had a trickle-down effect. There is a clear financial gap between the elite and the poor. The elite of this province live lavish lives whereas the poor in the province are getting poorer by the day. Similarly, inequality is increasing because the poor and rich almost pay equal taxes on goods and services. In Pakistan, the percentage of direct

taxes is 37.2 percent (taxation on income sources, corporation tax, property tax and capital gains), and the percentage of indirect taxes is 62.8 percent (taxation on consumption like sales tax, services tax, and customs tax) which has increased in the past years.

Those who earn 100,000 per month have to pay a 2.5% tax on their income. However, those who earn less or do not even earn money, have to pay indirect taxes via sales tax on the basic commodities for livelihood. This is increasing the inequality gap. Balochistan is the least developed region not just in Pakistan but in South Asia. It is among the lowest ranked for health, education, and other social indicators, for various geographical and historical reasons. The literacy rate in the province is less than 43 percent, and the unemployment rate is fur percent. Similarly, corruption has broken the backbone of the province's economy. Inflation has increased by 42.9 percent in the country. Out of its 35 districts, nine districts of the province face severe food insecurity. Not only the above

factors, but the lack of leadership and continuous political instability, are also among the factors that contribute to the regressive situation of Balochistan. Recent floods have further worsened the situation for the lower class in the province.

The tales of corruption did not stop even in the recent floods. According to Information Minister Mariyam Aurangzeb, Pakistan received approximately $8 billion of aid from foreign donors to assist the flood-affected areas, but only $35 million was utilized for the flood affected. Even the donation money and relief packages fell prey to corruption. Instead of giving the tents and other basic commodities to the flood affected, the items were sold in the market. The people were left on their own with no help from government officials or NGOs. The poor people of the region affected by floods are becoming poorer because of high inflation via indirect taxes like the General Sales Tax (GST) on goods and services by the government.

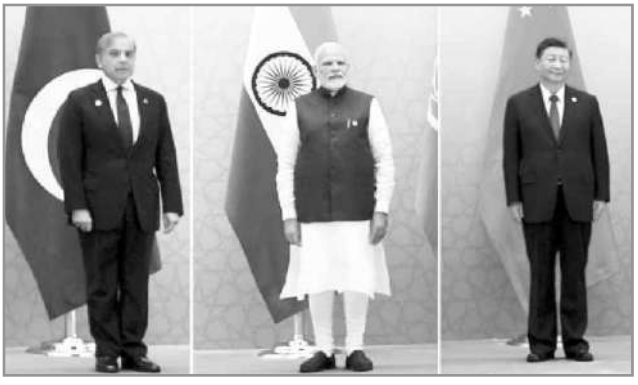
The province has enough natural resources. But this province's people have never benefited from their natural assets. The elite class of this province, due to their financial stability and power status, have access to the benefits of these resources more frequently, leaving the poor class behind. Many MPAs are multi-millionaires in the most backward province. Recently the brother of a senator was caught in the corruption case of Reko Diq. Moreover, several big smugglers have benefited from illegal border trade. They should be registered and taxed according to their wealth. Besides, the state's taxation policies are not effective and properly implemented. The inconsistency in economic policies and flawed taxation policies like narrow tax base which means inefficient and non-neutral taxation, tax evasion, political involvement, and trust deficit tax collecting institutions suffer from, lead to high inflation and increase inequality and poverty. According to the report, the policies of countries are made in such a way that fulfills the greed of the elite class because they influence the state's decisions.

Many landlords live in Pakistan but taxation on land and property is very low, only percent of the tax they pay is from the profit they generate from the land. The land tax upon such landlords should also be increased. To overcome such a crisis, the countries, specifically Pakistan, should tax the rich to decrease the inequality gap; by taxing the rich and subsidizing and poor can uplift the poor class as already suggested by the IMF officials to Pakistan. Taxing the wealthy is among the most effective weapons to tackle inequality and several crises. The solution to the current economic upheaval is to tax businesses and the wealthy more heavily. By immediately decreasing the quantity and capital of the super-wealthy, taxes promote extra-equitable societies and can help stop the rise of strong, unchecked, and semi-aristocratic powers. Additionally, it lessens harmful societal inequality. It has the potential to control inflation and high prices and prevent welfare cuts from being implemented. In October 2022, Great Britain taxed the rich, bringing a turning point to its economic crisis.

In addition, accountability departments should keep a check on politicians, bureaucrats, businesses and landlords to avoid tax evasion on their part. Also, the resources in Balochistan should be utilized for 75 percent of the people who live below the poverty line and to bring them above the poverty line, not only for the few elites.

CHINA AND RUSSIA HAVE TO PROTECT PAKISTAN'S INTEREST IF IT PARTICIPATE THE SCO SUMMIT IN INDIA

INTERACTION DESK



The world is in the process of change and the times are especially critical now. There is hardly any doubt that the world is in the duration of a huge transformation. At the heart of Eurasia, the SCO indicates the emergence of a parallel regional order that has the potential to transform many global norms in the future. Pakistan has to consider strategize its vision of engagement with SCO countries and maximize its interests in this influential Eurasian platform.

Many arch-rivals in the past and today as well have given a chance to peace by engaging in economic diplomacy. If someone ponders it is a reality that even India and China do not block their bilateral channels of communication when it comes to economy. Nonetheless, interaction of Pakistan and India at the platform of SCO is fruitful for both.

It was well thought in Pakistan that SCO could be a good plate form that will provide a good chance for bilateral talks and negotiation or developing neighborly relation with India and peace shall prevail in subcontinent but it was India which hinders all the windows of good relation on 5th August 2019 when it abolished the status of Kashmir and merged in to India. All Pakistani efforts to convince India reverse back the status of disputed land of Kashmir.

Now as the SCO summit has been fixed in Goa India, on February 14, India Today published a speech by the late prime minister of Pakistan, Benazir Bhutto, in which she appreciated how trade not conflict is vital to the region's growth. At this point of time, it is just possible that Pakistan needs to craft its narratives very smartly and strategize its vision of engagement at SCO for maximizing its interests.

If Pakistan accepts this invitation, giving to Foreign Minister of Pakistan Bilwal Bhutto Zardari. it would be the first time in 12 years that a Pakistani delegation will land India. It has been said that if Pakistan, attend this Summit which will offer Pakistan opportunities. Otherwise, India will continue to portray Pakistan negatively, this invitation is an opportunity for Islamabad to at least control the optics and to test the waters for larger gains.

The SCO has arranged a good setting for Pakistan as has been said: the agenda is naturally dictated by China and Russia, and any unilateral attempts by India to paint Pakistan with the letter terrorism may become pointless. One can understand that global priorities have long been shifted to other global issues like great power competition between the United States and China, the international financial crunch, the environment and sustainable development, and far-right politics.

Continued on page 42

THEY HAVE SURROUNDED YOU FROM ALL AROUND

BABAR CHEEMA

They have surrounded you from all around. You are padded up, heavily bandaged. You are limping across the field after a bloody and murderous assault on your life. Bowling is fearsome and body line, more directed at your head to decapitate you. The umpires are hateful, biased, and hold deep grudge against you. They want you out at all costs. They almost got you. They didn't succeed in the first attempt. They are going to go after you again.

You are a human being after all. All humans have limits to their endurance. But you have already proved that you are not an ordinary mortal. You have defied logic many times before as well. They are baying for your blood. Vultures are circling overhead, waiting for you to fall. Undeniably, they have cornered you. There is something very wrong, terribly wrong going on. There is a feeling of unease, an eerie silence, which is both strange and frightening.

You are going to be tested severely and to the limit and even beyond. Trials and tribulations are not going to end anytime soon. They are all ganged up now. Full might of the state and its obscenely brutal means are in full display to destroy you both literally and figuratively.

Never before, in the history of Pakistan, one single individual has been singled out for such vicious onslaught and relentless character assassination for such a long time. State sponsored attempt at your life has been made in broad daylight. Justice is being denied to you. A viscous wave of persecution has started all over again. It is all, against one. There is no one left. No one, as you so presciently said on the penultimate April night.

Everyone in the position of authority, without exception, is after you. The video from the grand mosque of Mecca has removed all

the shrouds from all the faces. Proof is there if ever one was needed. It is a well-orchestrated, devilish plot to destroy you. Every effort is being made to thwart the will of the people. Elections at national, provincial, and local levels are being resisted tooth and nail.

The nation is watching you and everyone else with bated breath. People are registering every move that is being made. There is a fire burning in the belly intensely which refuses to die. It wants an expression. It will certainly find an expression. Be assured, that people are with you. They're never going to leave you alone. They just want you to hold on to the flame of hope, holding it aloft firmly in your both hands. It is going to be a revolution

through the ballot. In this war of attrition, the enemy would like to wear you down and demoralized you and demonize you. People of Pakistan are going to vote for you in their multitudes, whenever the elections happen.

It is not in the nature of Pakistanis to come and confront bullets. You must know that. A leader should know his strengths and weaknesses comprehensively. We know that you will keep standing. We know that you will never surrender. We know that you will go down fighting if it comes to that. The nation will follow suit. They've already forgiven all your mistakes.

If you go down fighting, you will be immortalized and will remain a radiant symbol of liberty and courage. Generations will get inspiration and will march ahead with a shining example. It's a great moment in history, a truly defining moment. The people of Pakistan are ready to wage a peaceful struggle for their birth right to redefined their country, the way they want it. They want to truly own their own country.

They want to rid it of the mafias and corrupt interest groups, who all have all sucked it white. They know that you are their best and probably last hope. They don't want to lose you. Well played so far. Keep going. May God be with you? It has, indeed, been a privilege to live in an era which belongs to you.

Continued from page 40

China and Russia have to protest Pakistan's

For now, these issues are outweighing the concern about terrorism in the global arena. Pakistan should keep its sensitiveness in check. Pakistan's National Security Policy (NSP) envisions peace internally and with its neighbors through economic relations and regional integration. One aspect of attending the SCO summit that it will fall in line with Pakistan's NSP, and perhaps in the larger picture of events, become a step toward loosening the gridlock that plagues the South Asian Association of Regional Cooperation (SAARC), which has not held a summit since 2014 due to India arrogance and its will of undermining Pakistan or trying to keep supremacy over Pakistan which is very sensitive on this point.

It is also a fact that the SCO is led by two Eurasian heavyweights, Russia and China, both crucial to the foreign policy of Pakistan. Therefore, Pakistani decision makers may have to put hawkishness to one side and plan a strong diplomatic case to present at the SCO, without the expectation of a thaw from the other side. Pakistan's current coalition government is facing off against the Pakistan Tehreek-e-Insaf under former Prime Minister Imran Khan, who has previously been seen at SCO summits in proximity with the Russian and Chinese presidents. If Pakistan's presence this year does not match the glitzy optics of previous summits, the coalition government could face much negative impact at home.

Whether or not Pakistan accepts this invitation will offer some indication as to the direction chosen by the new establishment. It is also imperative to understand that the country is run by a coalition government, meaning it speaks with different voices on multiple subjects.

Perhaps in this case, Prime Minister Shahbaz Sharif and the Pakistan Muslim League-Nawaz may want to take a backseat, and the Pakistan People's Party led by Foreign Minister Bhutto would want to take the lead on bold diplomatic gestures, and possibly grab the attention of the establishment. Anyhow, it is difficult to decide for any government but if China and Russia assures Pakistan that Pakistan's point of view and interest shall be protected, it is worth participation in the summit.

SAD HISTORICAL TALE

AYESHA SHAMEEMUL ISLAM

Your article has prompted me to write to you. My husband's eldest brother, Nasee was married to Bhutto's only natural sister, Manna or Munawwar. Through her I saw Zulfi from close quarters. My late father, G. A. Madani, as Commissioner Karachi in 1963, showed us the Estate Jewels frisked away by Sir Shahnawaz Bhutto from the Junagadh Treasury, when Sir Shahnawaz was the Madar ul Mahaam of Junagadh State, pre-partition. Begum Junagadh had filed a case for recovery of these jewels and other things.

I saw those jewels in the Commissioner Office, Karachi, at the time when my father had called her to view the jewels recovered from Bhutto House. (By that time Sir Shahnawaz had died in the Palace Hotel-having been thrown out by his young Bahoo, Nusrat Bhutto). At this point I was married to Munawwar Islam Bhutto's brother-in-law, and I was jittery about the flack I would receive from her! A year later, in 1964, my late father, G.A. Madani, ICS, CSP, SPK, SQA had been posted to Peshawar as Commissioner (by request to get away from the awful Commissionerate of Karachi).

I was visiting him when an invitation came from the next-door neighbour, Air Chief Asghar Khan. I was asked to accompany my father as Mother was happy baby-sitting my first born). Zulfi was the Chief Guest (in a bad mood because of the dry liquorless party) I saw him siding up to my father who was talking to Asghar Khan with me right behind them. I am witness to the 'kameengi' and vindictiveness of ZAB. He looked into my father's eyes and said, "Madani, I will not forgive you or your children and their children, for what you did to my family. (Ref. Junagadh Jewels!).

I tugged at my father's sleeves, fearing Bhutto's physical presence; and Asghar Khan's mouth fell open. My father excused himself from the host and walked out on Bhutto! Soon Bhutto's vengeance with all Urdu speakers became known and talked about. He said that had he been in Pakistan he would never have allowed his father to ask a Mohajir to marry his daughter.

His vengeance further took the shape of breaking up established Business Houses (cartels according to Feroze Qaiser Bhai---my childhood role model). He stooped to nationalising the business house, Spencer & Co Pak Ltd, where my in laws, the Islams, were majority share-holders. ZAB's own brother-in-law, Naseem ul Islam, (father of Tariq Islam, husband of Munawwar Bhutto) was a smaller share-holder, than my husband.

Comes separation of East and West Pakistan, thanks to Zulfi, who threatened to break my cousin, Ahmad Raza Qasuri's legs, if he goes to attend the first session of Parliament in Dacca. All our businesses / properties in what is now Bangladesh became evacuee property. We were broken financially. We knew Zulfi. We survived him by the strength of our faith. We live to see the games being played by Tariq Islam with us and by the rangroot, Bilawal Bachha. Signing off with amazing memories surfing in my mind.

US STRATEGIC BOMBERS TAKE PART IN AIR EXERCISE WITH SOUTH KOREA

The United States and South Korea held a joint air exercise involving US strategic bombers on Sunday, a day after North Korea fired a Hwasong-15 intercontinental ballistic missile (ICBM) in a "sudden launching drill". South Korea's Joint Chiefs of Staff said the exercise, where South Korea's F-35A, F-15K and US F-16 fighters escorted American B-1B bombers, demonstrated the allies' "overwhelming" defence capabilities and readiness posture. "(The exercise) strengthened the combined operation capability and affirmed the United States' ironclad commitment to the defence of the Korean Peninsula and the implementation of extended deterrence," the South's military said in a statement. Japan's Fuji News Network said Japan and the United States were also likely to conduct a joint air drill as early as Sunday afternoon.

The US-South Korea exercise comes a day after North Korea launched a long-range ballistic missile into the sea off Japan's west coast, following a warning of a strong response to upcoming military drills by South Korea and the United States. South Korea's military said it detected the missile at 5:22pm (0822 GMT). "The important bit here is that the exercise was ordered day-of, without warning to the crew involved," said Ankit Panda, a missile expert at the Washington based Carnegie Endowment for International Peace. Analysts say North Korea is likely to conduct more weapons tests, including a possible new solid-fuel missile which could help the North deploy its missiles faster in the event of a war. North Korea's ballistic missile and nuclear weapons programmes are banned under UN Security Council resolutions, but Pyongyang says its weapons development is necessary to counter "hostile policies" by Washington and its allies.

Japan, US military drill

Japan's Ground Self-Defence Force and the US Marine Corps allowed media outlets to view their joint drill designed to defend and recapture remote Japanese islands, the Asahi Shimbun reported. The "Iron Fist" drill was held at the GSDF Hijiudai training site in Oita Prefecture, the first one staged west of Hawaii, according to the Ground Staff Office. The Iron Fist drills, which date back to fiscal 2005, had previously all been held in the United States.

In the scenario for the Feb 18 drill, an enemy force takes control of a remote island. After an aerial and naval attack against the enemy, GSDF amphibious vehicles land on the island to secure a position to repel the invaders. US Marines then descend from Osprey tilt-rotor aircraft for a cleanup operation. Media representatives could watch two Ospreys flying at the Hijiudai site with a low-pitched sound. Marines disembarked from the rear hatch of the aircraft and made their way to a zone supposedly occupied by enemy forces. GSDF training involving the Osprey and parachute drops scheduled for that day were canceled due to bad weather.

FIRE 'INVOLVING URANIUM' BREAKS OUT AT TENNESSEE NATIONAL SECURITY COMPLEX WHERE AMERICA'S FIRST ATOM BOMB WAS DEVELOPED, FORCING EVACUATION OF 200 STAFFERS

EMMA JAMES

The Oak Ridge complex was home to the Manhattan Project for research and development during World War II
An NNSA spokesperson confirmed that the fire started at 9.15 am at the federal facility
Authorities confirmed that the material involved in the fire was a metal compound of uranium.

A fire 'involving uranium' broke out at a National Security Complex in Tennessee with all staff being evacuated from the site. The National Nuclear Security Administration said that an emergency response responded to the blaze on Wednesday morning at the Y-12 National Security Complex in Oak Ridge.

All of their 200 employees were accounted for, with other buildings next to the site being evacuated as a precaution. An NNSA spokesperson confirmed that the fire started at 9.15am at the federal facility, and the blaze was limited to the site itself.

They added: 'Emergency Services responded to the event. The site activated the Y-12 Emergency Response Organization and we've been in close contact with local and state officials. 'There are no reports of injury or contamination.' But they confirmed that they would assess employees, if needed, following the incident.

Building 9212 is listed on the Department of Energy website as a uranium processing building, constructed in 1945. It serves 'as one of the primary chemical processing and enriched uranium production facilities at Y-12. The Oak Ridge complex was home to the Manhattan Project for research and development during World War II, which produced the first nuclear weapons.

It was led by the United States with the support of the United Kingdom and Canada. Authorities confirmed that the material involved in the fire was a metal compound of uranium. Congressional representatives were notified of the emergency as part of that response and were reportedly 'comfortable' with the response. Around 1pm, officials announced that the rest of the complex had returned to business as usual but did not confirm if the fire was out.

INVEST IN DEFENCE MODERNISATION

ASHOK K MEHTA

The only surprise in the defence budget was no surprise: static, in real terms, a negative budget for modernization- the litmus test of capability enhancement for maintaining deterrence in order to meet the two-and-a-half threat challenge plus government articulated missions of retaking PoK and Aksai Chin. Much of the capital is consumed by committed liabilities payment for equipment already ordered and in the pipeline. Overconfidence in a strong government and leader, the chimera of G20 grandeur, and 'it is not an era of war' but 'Amrit Kaal has ruled out conflict with China and Pakistan.

Northern Army Commander, Lt Gen Dwivedi earlier and former Army Chief, Gen Naravane, only last month, revived illusions of 'we are in a position of strength' in Ladakh. In the last nine years, the ruling government has invested more in lip servicing and symbolism than in closing the capability gap with China as defence budgets have hovered between 1.5 and 1.6 percent of GDP. Former Defence Minister Arun Jaitley would admit: "we have no money, we can't put cess on defence". So the government has renamed anonymous islands after PVC winners, built giant statues, installed tall flags, and embellished Jai Jawan Jai Kisan Jai Vigyan with Jai Anusandhan.

In the current fiscal defence has dropped to 1.4 percent of GDP and for the first time in decades, dipped below 2 percent of GDP if the pension bill is included. The capital acquisition increased from Rs 12,000 crore to Rs 1.6 lakh crore just an 8 percent increase well below inflation and the falling rupee. As there is no National Defence Strategy and a Policy, Plans, and Budgeting System to evaluate inter se capabilities, allocation is erratic and prioritized by CDS. IAF chief Air Chief Marshal VR Chaudhuri has thrice publicly mentioned the dangers of combat squadron strength dwindling to 28/30 squadrons against the authorized 45 squadrons. PM Modi acquired 38 Rafales against 126 MRCA urgently sought by IAF. Its requirement of 114 MRCA has been languishing for years: Acceptance of Necessity (AoN) is still not fructified i.e. forget it.

Similarly, the Navy, whose missions have multiplied from the Gulf of Aden to the Indo-Pacific is woefully deficient in submarines, and the indigenous aircraft carrier Vikrant is minus aircraft and other subsystems. At this pace of modernization, the third aircraft carrier is a mirage. Manpower-intensive Army needs a new tank, a light tank, and a new gun. The increased capital segment of the revenue budget is to make up for deficiencies in ammunition and equipment to fight a 30-day war not 10 days of intense conflict. Neither the hand-picked service chiefs bar Chaudhuri, nor the deeply-selected CDS Gen Anil Chouhan, has pointed to shortfalls in the modernization budget. They are unlikely to do so in the prevailing environment when discretion has become a better part of valour.

Continued on page 48

GHOST EXPERTS, NON-EXISTENT THINK TANKS FUEL INDIA'S DISINFORMATION DRIVE

ZAKI ABBAS

In spite of two major exposes against the wire service in 2019 and 2020, Asian News International a major Indian 'news' agency continues to peddle disinformation using "non-existent" sources and ghost "experts" to target regional rivals, particularly Pakistan and China. This was revealed by the EU DisinfoLab in its latest investigation report 'Bad Sources (BS)' into anti-Pakistan and China influence operations as part of its follow-up on two previous investigations. In its earlier reports, the DisInfoLab had said ANI "regularly quoted the defunct 'EP Today' and 'EU Chronicles', two fake media outlets supposedly specialising in EU affairs that were, in fact, created to push anti-Pakistan/China narratives in India".

This time again, ANI which acts as a purveyor of news to millions of Indians is the kingpin of this disinformation network. Interestingly, typographical errors and "fake personae" are the trademark of this operation rather these are the telltale signs that the wire service peddles fake news. "A think tank IFFRAS that we had previously linked to the Srivastava group and that was legally dissolved in 2014, is now quoted about twice a week by ANI," according to the DisInfoLab. "The think tank's website falsely mentions real Canadian university professors as participants in a conference that they never attended, even concocting false quotes by these academics," it said. ANI amplifies these narratives which are then published across Indian media. "Besides ANI and those outlets republishing its content, barely any other established media covered the reports produced by these 'Bad Sources' (BS) the name we gave to this investigation," the report added.

Rotten apples

In spite of its dubious nature, ANI continued to use the 'think tank' IFFRAS as its source of information. The investigation report described this think tank as one "that does not exist and does not want to be found". The think tank, previously chaired by a former Canadian MP, was registered in Canada in 2012, and officially dissolved in 2014, it added. For ANI, it is still active. In Jan 2020, it claimed to have hosted a press conference at the University of Montreal in which four professors of the same university participated. However, two of the professors who could be approached confirmed to EU DisInfoLab that they did not attend the said conference.

ANI's backbone

Besides fake credentials, another thing these think tanks have in common is their reliance on ANI for the dissemination of their content. In fact, their activities make the "backbone" of ANI 'news'. In 2021, another think tank quoted by ANI is the Center of Political and Foreign Affairs (CPFA) this does exist. "Alongside the legitimate reports … we encountered content that we could not attribute to real individuals," the report said. "One such report is 'Deception Games: Pakistan's Eyewash Action against Terror Groups', authored by 'Ronald Duchemin' …

and covered by ANI the following day," it said, adding that "further evidence of Duchemin's existence and expertise on Pakistan" could not be found.

"Another CPFA persona, named Mario de Gasperi, produced several reports on pro-Indian narratives…but we did fail to find any evidence of his existence," the report added. In July 2021, ANI published a piece of news entitled 'European Parliament to withdraw Pakistan's GSP+ status over abuse of blasphemy laws'. "The source of this 'news'… nevertheless, does not exist." In a comment on the role of ANI, it said the wire service "does not seem to be concerned" by using fabricated sources. In other words, journalists working at ANI must know these sources are fabricated and if they don't, they are failing as journalists," it added.

Continued from page 46

Invest in defence modernisation

Young officers have proven the backbone as an ADC of President Murmu gently ticked off Modi when he tried to step ahead of her during the Republic Day parade. Two instances need recall. Former Army Chief, Gen Shankar Roy Choudhury warned the government that Army will not be responsible for any operational mishap due to inadequate funding and former CNS Adm Vijay Shekhawat declared at a press briefing that naval shipyards not receiving ship orders will have a negative effect on naval capabilities. The next day Defence Minister Mulayam Singh Yadav invited Shekhawat to breakfast. It is inconceivable that the highly nationalistic government that has excelled in capex infrastructure hikes and doubled railway budget has kept the sword arm insufficiently sharpened.

The government took huge operational risks by keeping the Army alone deficient of 300,000 soldiers: no recruitment was done for the last three years due to Covid. While the annual demobilization of 65,000 soldiers continued, no salaries had to be paid for the void in recruitment. Only now will 46,000 Agniveers be recruited on a low salary and no pension. It's OROP whose cost equaled modernization allocation but has reduced to Rs 1.3 lakh crore that is hurting. OROP arrears worth Rs 23000 crores are due by 31 March. Modi must rue his 2014 BJP election manifesto in signing up for OROP. This is indeed an era of war. As Russia's invasion of Ukraine enters its second year, India has to review its relations with Russia which has China, a no-limit strategic partnership.

India is still dependent on Russian military hardware, technology, and spares. Serge Chemezov, CEO of Russia military industrial Rostek was in India last month for payment of dues on account of Russian oil and S400 AD systems. The Americans are making determined efforts including the use of sanctions and diplomatic pressure to wean India away from Russian equipment. All European countries are increasing defence budgets to meet twin Russia-China challenges. The UK, France, and even Germany have reached 2 percent of GDP spending levels. Japan has erased the one percent GDP embargo and will spend USD332bn over the next five years. In Asia Pacific, SK, and the Philippines are increasing defence capabilities by 8 and 5 percent respectively. Despite active LAC and LoC and a sensitive internal environment, the Modi-Shah government is happy to let China march ahead with a defence budget thrice India's size. There is an urgent need for recapitalization of defence to deter China.