International Journal of Sociology and Political Science
www.sociologyjournal.in
Online ISSN: 2664-7745, Print ISSN: 2664-7737
Received: 27-08-2023, Accepted: 12-09-2023, Published: 29-09-2023
Volume 5, Issue 2, 2023, Page No. 48-52

India-U. S. nuclear cooperation: A tool for combatting carbon emission and establishing peace and prosperity

Mohammad Shahid[1], Abdul Kalam Ansari[2], Suraj Srivastava[2]
[1] Professor, Department of Political Science, University of Allahabad, Uttar Pradesh, India
[2] Research Scholar, Department of Political Science, University of Allahabad, Uttar Pradesh, India

Abstract
India and the US both are highly democratic countries since their independence. Both countries are trying to establish peace and stability in the world. Both countries have been operating their foreign policy according to highly democratic values. There have been many ups and downs in the relations between the two countries during the cold war era. The relations began to normalize when India adopted the policy of liberalisation. The two decades of the 21st century can be called a highly integrated relationship. The rebalancing strategy of the US in the Indo-Pacific Region has been on the scanner of the strategic community the world over in general and India in particular, ever since President Obama and his team in the administration have issued a series of announcements to step up and intensify the US presence in the region. These announcements have received worldwide attention because of its implications for both China and India. In his address to the Australian Parliament on November 17, 2011 Obama said, "As it has been to our past, our alliance continues to be indispensable to our future. So, here, among close friends, I'd like to address the larger purpose of my visit to this region our efforts to advance security, prosperity and human dignity across the Asia-Pacific. For the United States, this reflects a broader shift. After a decade in which we fought two wars that cost us dearly, in blood and treasure, the United States is turning attention to the vast potential of the Asia-Pacific region"…"as President, I have therefore made a deliberate and strategic decision as a Pacific nation, the United States will play a larger role in shaping this region and its future, by upholding core principles and in close partnership with allies and friends"
The US, India and most Southeast Asian countries clearly have major strategic divergences with a rising China and share a common interest in managing their mutual relationships to ensure a stable and peaceful Asia. Peaceful rise of China is acceptable to all, but ensuring its sustenance is equally desirable for all. After all, India, America and other Asian countries have developed complex economic interdependence with China and hope it would prevent armed conflict with China. When it comes to hedging China, responses from all these countries are understandably subtle and their attention appears geared towards: 'how to manage rising China without provoking any major untoward incident having regional and global ramifications'. Both Washington and New Delhi look for ways to control Beijing's aggression, simultaneously making various diplomatic cushions so as to prevent any crash landing of their ties with China. For a larger aim we need multiple sectorial cooperation. Regarding this, India -US nuclear cooperation is key to fulfill the aim of this region. It will make a huge and pragmatic path for peace, progress and this cooperation will make stability of this region.

Keywords: Diplomacy, strategy, Nuclear energy, energy efficiency, Geopolitics, peace and prosperity

Introduction

India U.S. relationship keep changing from time to time. India adopted the policy of Non-Alignment to keep itself away from the struggle for power between the two superpower of the time i.e. U.S. and Soviet Union, because it faced colonial oppression and had first hand knowledge of its adverse impact. India's Non-Alignment policy is not keep herself aloof from the rest of the world. India made cordial relationship with both the superpowers by not engaging herself in the struggle for power. India's first Prime Minister Pt. Jawaharlal Nehru was a staunch supporter of Gandhi's philosophy of ahinsa (non-violence). He was a scientific tempered man and was responsible for India's burgeoning development by establishing many institutes and research centre. Sine getting independence India favoured the policy of nonproliferation of weapons. Pt. Jawaharlal Nehru fovoured nuclear energy only for civil purposes. He was against its use for military pursoes. India's quest for nuclear capability started after the Kashmir conflict, partition and the three subsequent wars in the year 1948, 1965, and 1971.

But India's desire to boost nuclear science and technology can be traced from the year 1944. Homi Jahangir Bhabha also known as father of the Indian nuclear science under whose direction the Tata Institute of Fundamental Research (TIFR) was created on 19th December 1945. Bhabha and other Indian scientists persuaded Jawaharlal Nehru that nuclear energy was an area where India can take an edge comparatively. For this end Indian government set up Indian Atomic Energy Commission (IAEC) on 15th April 1948, by passing the Atomic Energy Act. On 3rd January 1954 the IAEC decided to set up the Atomic Energy Establishment (AEET) (Indian Loss Alamos), Trombay. On 3rd August 1954, the Department of Atomic Energy (DAE) was created. In 1955, Code named APSARA (Celestial Nymph) the one megawatt nuclear research reactor
was constructed without foreign help (the enriched uranium fuel elements were purchased from Britain). A second research reactor (CIRUS) was provided by Canada and went critical in 1960.

During the initial years of India's independence the relationship between India and US were friendly. In the year 1956, United States decided to help India in its peaceful nuclear energy programme and finalised a deal to sell 21tonnes of heavy water to India. In the year 1958, United States trained Indian scientists in reprocessing, handling plutonium. More than 1,000 Indian scientists have participated in U.S. nuclear energy research projects from 1955-1974. When in 1962 India China war started U.S. offered its support to help India by providing required arms and ammunition. The relationship at this time between the two countries enhanced very much. In the year 1963, two 210 Mega Watt boiling water reactors were ordered for the Tarapur Atomic Power Station from General Electric. Moreover, at the same year, United States and Canada made an agreement with India not to use plutonium that produced from research Reactors for nuclear weapons and military purposes.

Bitterness between the relationship of India and U.S. started with the launch of the Nuclear Nonproliferation Treaty (NPT). India denied to sign the treaty saying discriminatory in nature. In 1971 when India Pakistan war started India signed a treaty of Friendship and Cooperation with Soviet Union which US did not like, and India's Non-Alignment policy was criticised as biased for leaning towards Soviet Union. In 1974 India tested its first nuclear device at the Pokhran region of Rajasthan state and called it as a "peaceful nuclear explosion" or PNE also known as "Smiling Buddha". This act made US furious and in reaction the U.S. Congress amended the US Atomic Energy Act of 1954, which prohibited United States to suspend nuclear fuel shipments to India. Nuclear Supplier Group was creatd in the same year and policies were made not to sell nuclear fuel to countries which is not the signatory of Nuclear Nonproliferation Treaty. Sanctions were imposed on India and pressurised a lot to terminate its nuclear program. India resisted and came out from this adverse situation successfully. In the year 1998 India conducted its second nuclear test successfully at Pakhran which worsened the relationship and U.S. imposed sanctions required under U.S. law. India was asked to sign Comprehensive Test Ban Treaty (CTBT), but India refused to sign it saying that it is an extension of discriminatory NPT system.

After the terrorist attack of 9/11 US lifted the ban imposed on India after its 1998 nuclear test, possibly acknowledge India to fight against terrorism. India condemned the terrorist attack and assures to fight against terrorism since India is also suffering from this and know its pain. US sees India as a reliable country which can fight against terrorism and can contain China's growth in the region. In 2004 "Next Step for Strategic Partnership" was signed between Washington and New Delhi. In the year 2005 Indo-US Nuclear deal was signed which boosted the relationship between the two countries. The Indo-US Nuclear deal granted waiver to India to trade enriched uranium with Nuclear Supplier Group though a non signatory of NPT. This deal ended India's nuclear isolation.

During the cold war period the US and China's relations were much friendly. But after the cold war China's rapid economic growth made US uneasy because it is harmful for US interest in the region. In order to curb China's influence in Asia the United States came closer to India. India is a reliable partner of US in Asia because both the countries are democratic and have common interests to contain China's influence wich is authoritarian in nature. The Indo-US nuclear deal would be a milestone for this purpose. The Indo-US nuclear deal would bring peace and prosperity in Asia. Tough India is not rich in uranium it has immense resource of thorium, which can also be used to produce nuclear energy. If US builds nuclear reactors in India and exchange its technology to India, this can be a game changer step to contain China's growing influence. The export of nuclear energy to other Asian countries would bring prosperity because it is cheaper than the conventional energy sources i.e. coal and fossil fuels.

Objectives of the Study –

- To fulfill the aim of non proliferation in this region
- To maintain stability in this region
- The use of Nuclear energy will fulfill the aim of SDG

Emerging future energy issues –

- The depletion of oil and others Fossil fuels
- Energy is the life blood for Economy and it will always in high demand for both developing and developed countries.
- Energy insecurity combined with other global issues such as Geopolitical tensions and humanitarian crisis.

Why we need Nuclear energy instead of other conventional Energy

Nuclear energy offers certain advantages over conventional energy sources like coal, oil, and natural gas. It produces large amounts of power with relatively low greenhouse gas emissions, helping combat climate change. Additionally, nuclear power plants can generate consistent energy regardless of weather conditions, unlike renewables. However, concerns include nuclear waste disposal, potential accidents, and high initial costs. The decision to use nuclear energy depends on a country’s energy needs, safety measures, and environmental considerations. The advantages of nuclear energy which will increase peace and prosperity in the Asian continent were enumerated as following :

1. **Nuclear energy protects air quality:** Air pollution is increasing day by day due to use of carbon based fuel for energy which creates immense threat to human welfare. According to World Health Organization estimates that about 7 million people die prematurely each year due to increasing air pollution. This adverse effect of air pollution can be mitigated by using nuclear energy which virtually emits no air pollution during its operation.

2. **Nuclear energy’s land footprint is small :** Nuclear reactors requires less land in comparison to other renewable resources particularly solar power and wind energy.

3. **Nuclear energy produces minimal waste :** Nuclear fuel is extremely dense. It’s about 1million times greater than that of other traditional energy sources and because of this, the amount of used nuclear fuel is not as big as one might think. That waste can also be reprocessed and recycled.

4. **Nuclear energy:** Asian countries is now shifting towards clean energy resources and specifically nuclear power are growing significantly. In Asia there are about 140 operable nuclear power reactors, about 30-35 under construction and firm plans to build an additional 40-50. Many more are proposed.

5. **Medical Diagnosis and Treatment:** Many hazardous diseases like tumor, blood disorder, kidney disease, cancer, heart disease, lung problems can be diagnosed by using nuclear imaging tool.

The world is ready to combat carbon emission with the help of nuclear energy production. World's nuclear power countries are started to produce nuclear energy not to show their power they are using their Nuclear power in a constructive way for humanity and welfare programmes.

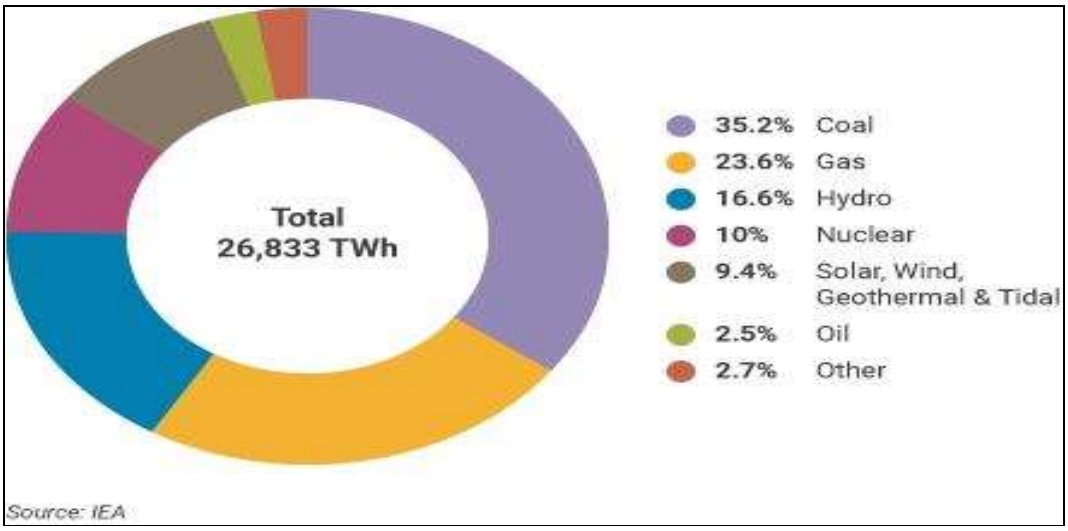

Fig1: World electricity production by source 2020 (source: International Energy Agency)

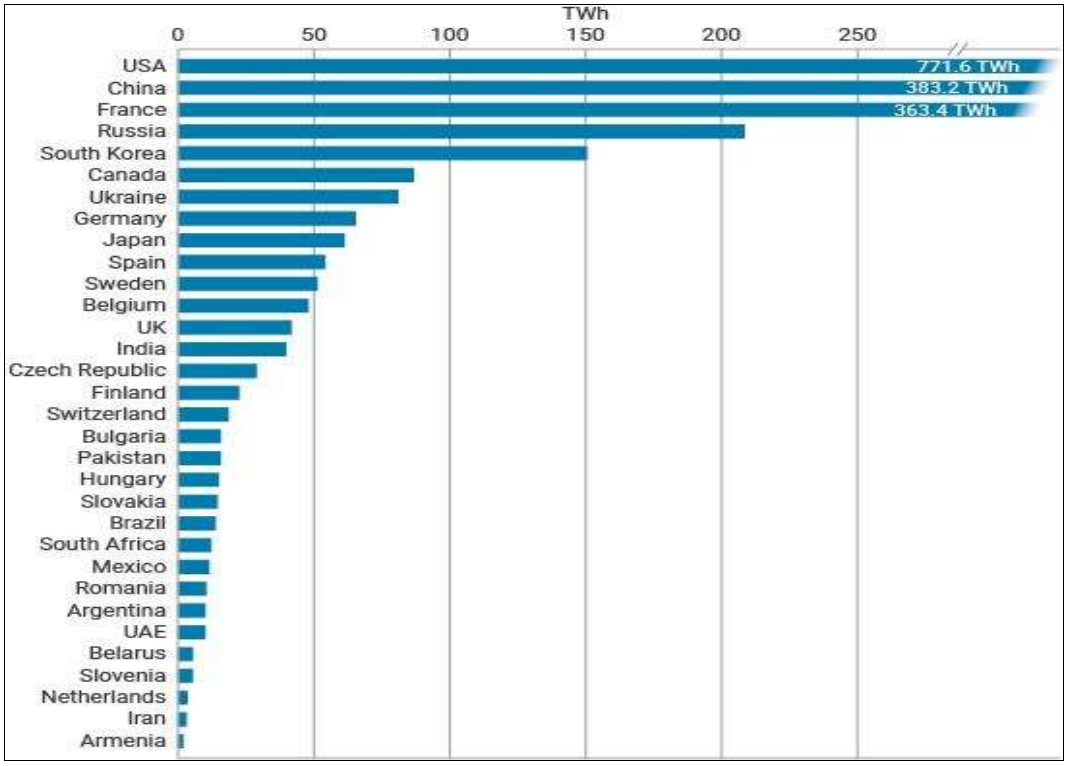

Fig 2: Nuclear generation by country 2021 (source: IAEA PRIS)

Civil nuclear power can now boast more than 18,000 reactor years of experience, and nuclear power plants are operational in 32 countries worldwide. In fact, through regional transmission grids, many more countries depend in part on nuclear-generated power; Italy and Denmark, for example, get almost 10% of their electricity from imported nuclear power.

- The first commercial nuclear power stations started operation in the 1950s.
- Nuclear energy now provides about 10% of the world's electricity from about 440 power reactors.
- Nuclear is the world's second largest source of low-carbon power (26% of the total in 2020).

- Over 50 countries utilize nuclear energy in about 220 research reactors. In addition to research, these reactors are used for the production of medical and industrial isotopes, as well as for training.

They enhance their production day by day to reduce dependency on carbon emission fuel. Currently in the 21st century the world's biggest problem is changing adverse climate. Which is Hazardous for humanity and their survival on earth. The world's leaders are agreed on facing climatic problems. But the tackling of problems and responsibilities are different.

The table of COP 21 & 27 is targeting the aim of zero emission. Where COP21 was a pivotal moment in global climate negotiations as it resulted in the adoption of the Paris Agreement. This historic agreement brought together nearly all nations are commit to limiting global warming to well below 2 degrees Celsius above pre-industrial levels, with efforts to limit it to 1.5 degrees Celsius. The COP21 marked a significant shift towards a more cooperative and comprehensive approach to addressing climate change, with countries pledging individual contributions (Nationally Determined Contributions or NDCs) to reducing greenhouse gas emissions. The agreement also emphasized the importance of climate finance and support for developing nations in their efforts to mitigate and adapt to the impacts of climate change. Whereas COP27 is a rare opportunity for parties and observers to come together and grapple with a challenge that is impacting all of humanity. While the COP takes place in the context of a global 'polycrisis,' climate action and cooperation can provide effective ways forward on food, energy, nature, and security, and a vital nexus of international dialogue and cooperation on these issues.

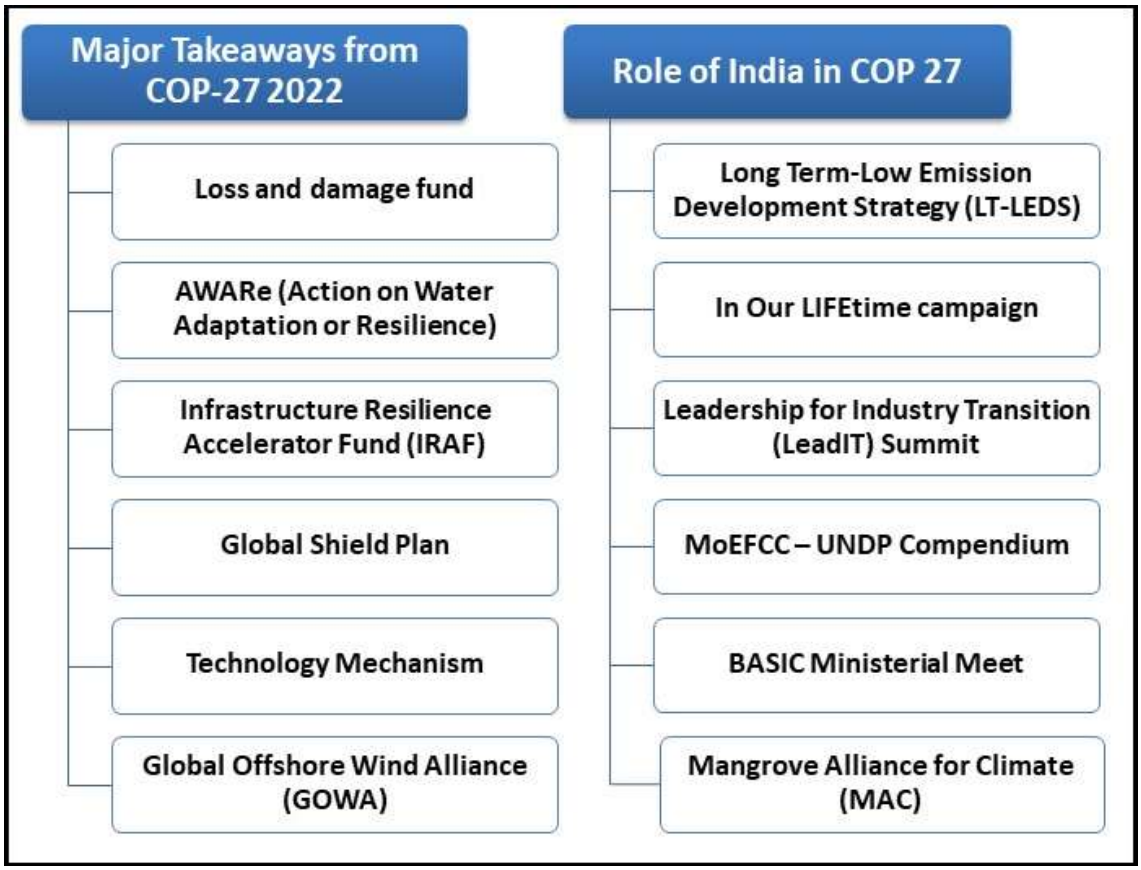

Fig 3: Source IAS Parliament, A Shankar IAS Academy initiative

Challenges

Limited Domestic Resources: India has limited domestic resources of uranium, which is the fuel for nuclear reactors. This has forced the country to import a significant portion of its uranium requirements, making the country's nuclear energy program vulnerable to global market conditions and political tensions.

Public Opposition: The construction of nuclear power plants often faces opposition from local communities due to concerns over the safety of the reactors and the potential impact on the environment.

Technical Challenges: The development of nuclear power plants involves complex technical challenges including the design and construction of reactors, the management of nuclear waste, and the maintenance of nuclear safety standards.

International Sanctions: India is not a member of the NPT and has faced international sanctions in the past for its nuclear weapons program. This has limited its access to advanced nuclear technology and fuel supplies from other countries.

Regulatory Barriers: The regulatory framework for the development of nuclear power in India is complex and has been criticised for being slow and bureaucratic, leading to delay in the implementation of projects.

Way forward- The changing climate is an adverse situation for living beings. It's a problem for survival for all. So the

tackling of the problem, we need everyone's cooperation at their best level. So that advanced countries should come forward and provide their sophisticated technology to the nations which are lacking. The developing countries should try their best to reduce carbon emissions despite compromising their development. This can be achieved through nuclear energy and renewable energy resources.

References

1. https://nap.nationalacademies.org
2. https://www.energy.Gov/ne/articles/3-reasons-why-nuclear-clean-and-sustainable
3. https://world-nuclear.org/information-library-current-and-future-generation/world-energy-needs-and-nuclear-power
4. https://www.energy.Gov/ne/articles/5-incredible-ways-nuclear-power-our-lives
5. https://world-nuclear.org/information-library/energy-and-the-science-of-nuclear-power
6. https://world-nuclear.org/information-library/country-profiles/others/asia's-nuclear-energy-growth.aspx
7. https://my.clevelandclinic.org/departments/imaging/depts/nuclear-medicine
8. https://www.drishtiias. com/daily-news-analysis/indo-us-nuclear-deal
9. Dr. Amulya, K. Tripathy. "Indian Nuclear Policy : A Legacy And Modi", World Focus, India's Foreign Policy, Series-2,2017:54-55
10. Dr.Nandy, Debasish. "Revisiting Post-Cold Era : New Delhi-Washington Partnership in Donald Trump's Regime, World Focus, India's Foreign Policy,2017:98-102
11. https://world-nuclear.org/information-library/current-and-future-generation/nuclear-power-in-the-world-today.aspx
12. Josukutty, C.A. India-U.S. Relations & Asian Rebalancing.The New Century, 2015.
13. https://www.chathamhouse.org/2022/08/what-cop27
14. https://www.iasparliament.com/current-affairs/conference-of-parties-cop-27-part-1