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An Analysis on the Usage of Nuclear Weapons across the Globe and its Impact on the Power Relation

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ABSTRACT: The America bomb on the Japanese city of Hiroshima and Nagasaki was the starting of Nuclear weapon development and its use in the world followed by which today 9 countries across the globe are declared as Nuclear weapon state in which we have India also . It was during the period of Indira Gandhi in 1974 the first nuclear test was conducted at Pokhran operation Smiling Buddha which was successful and it was Prime Minister Atal Bihari Vajpayee who made India a nuclear Power state by conducting 5 nuclear test in 1998 in 5 days. Nuclear Technology advancement has brought in ample development in the Nuclear Power Plant growth , Today India has 21 Nuclear Power Plant and is planning to build the world's largest Nuclear Power Plant , India is receiving threat from Pakistan and China which has led India to strengthen its Nuclear energy . Nuclear weapons are the most dangerous which not only destroys the city and kill people but also a drastic affect on the environment .

KEYWORDS: Nuclear technology ,nuclear power plant , Nuclear weapons , operation smiling Buddha , India

I. INTRODUCTION

Nuclear weapons are very different from the conventional weapons , nuclear weapons release ample amount of explosive energy and the affect are very dangerous they produce high amount of high temperature and radiations . The episode of Hiroshima and Nagasaki shows us the most dangerous side of nuclear weapons , it killed around 129,000 people in Hiroshima and in Nagasaki it killed 226000 people ,its been 75 years and the region still remain uninhabitable , same as been the case for Chernobly nuclear power station which required years to get recovery . The first nuclear bomb explosion took place in Mexico on 16th July , 1945 , the time when United States tested it , followed by 6th August , 1945 when United States dropped the nuclear bomb in Japan , there was a three days bombing in Nagasaki killing 74000 people , another 75000 were severely injured . On 14 August , Japan surrendered and it was the end of second world war . In the upcoming years Soviet Union , US and Green Britain conducted nuclear weapons tests . In 1954 Prime Minister Jawaharlal Nehru of India petition for the proscribe of nuclear arms , the first huge lead to call for Nuclear weapons.

However , In 1960 France tested its first nuclear test , China entered the nuclear weapon field in 1964 .Later on in 1968 , US , Soviet Union and 60 other countries signed a treaty on disarmament , it prohibited nuclear states to sell their nuclear weapons to other states and no non nuclear weapon state will try to produce or develop nuclear weapons. It allowed the use of nuclear for peaceful purpose . It entered into force in 1970 , In 1974 , India conducted its nuclear test for the first time , it was a explosion of a nuclear device and not a weapon . During that period UK , USSR , USA, China and France were the nuclear weapon states . In 1986 , the South Pacific Nuclear –Weapon –Free Zone entered



into pace . America and North Korea met in 1994 to establish a framework to settle the nuclear weapons problem around the Korean Peninsula . North Korea signed a treaty on the Non-Proliferation of nuclear weapons in return US would assist North Korea in the development of safe nuclear energy . On the other hand Japan and South Korea had invested a lot in billion nuclear energy plant in North Korea .however in 2003 North Korea cancelled all the treaties .In 1996 the UN adopted the Comprehensive Test Ban Treaty and US was the first country to sign and it rejected it after 3 years . Even the 10 Southeast Asian Countries signed the Bangkok Treaty making the region Nuclear weapon free zone . Years after years treaty was signed with not much affect . Today 9 countries have nuclear weapons which are US , UK , India , Pakistan , Israel , North Korea , China , Russia and France .

II. RESEARCH METHODOLOGY

For the purpose of this exploration , I have used a amalgamation of two of the archetypical social sciences research tools application –as they are authentic and brilliant method to assemble statistics from multiple appellants in an methodical and convenient way . Question were asked to the common youth , Nuclear Power plant workers , International relation students ,survey , interviews –consisting of several interrogation which were dispersed among representative of each contender group .

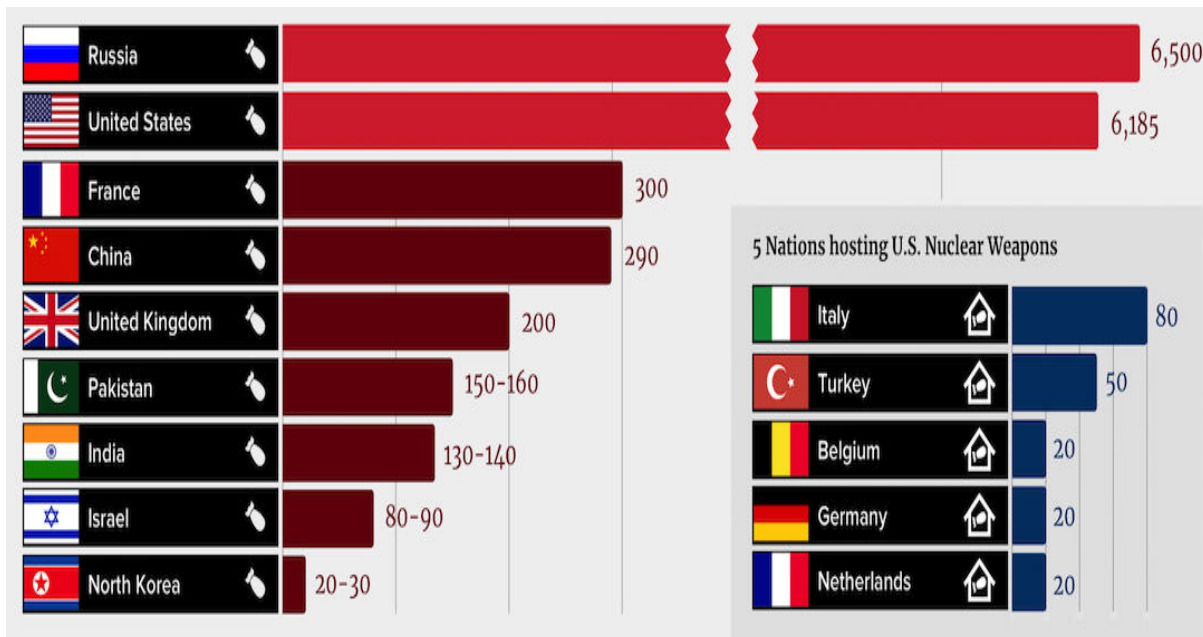
Objective of the Research Paper

The main areas of exploration in this paper incorporates

- 1.A study on the use of Nuclear weapons across the globe.
2. Nuclear weapons and its affects .
- 3.India growing Nuclear power in reference to Nuclear weapons and Nuclear power plant
- 4.India emerging as a Nuclear Power

III. LITERATURE REVIEW

The affect of the nuclear weapons depend upon the design fusion or fission , whether the indication is taking place in the air , water or surface ,underground or underwater , at what altitude , the weather patterns, climate conditions , environment and also the target area whether it is military , urban or rural .When there is an explosion 85 % of the energy produces air blast and shock , 15% is thermal radiation that is heat and residual that is emitted for a period of time they can even take the form of fallouts . India , in 1974 when Indira Gandhi was the Prime Minister of India , the first nuclear test was conducted the Pokhran-I it was a safe test and a peaceful explosion. In 1995 Prime Minister PV Narasimha Rao approved a nuclear test however it couldn't be successful as the CIA detected suspicious movements in Pokhran . Finally it was Prime Minister Atal Bihari Vajpayee who finally led India to become a nuclear state , in 1998 , he conducted five nuclear test in Pokhran led by the Department of Atomic energy (DAE) chief R Chidambaram and DRDO led by APJ Abdul Kalam . On 11 May , India tested three devices : the thermonuclear Shakti I , Shakti II fission and Shakti III a sub-Kiloton device and On 13 May , two more sub-Kiloton was indicated Shakti IV and Shakti V .It was estimated that the three destructive nuclear weapons were more dangerous than the American Bomb dropped at Hiroshima . In response to this Pakistan conducted six nuclear test of its own followed by this North Korea who in 1998 test- fired a medium range missile in Japanese Mainland . Japan is the only country that has been hit by both nuclear weapons and anti-nuclear missile . In 2002 Iran , Iraq and North Korea were declared as countries having nuclear weapons. In 2003 North Korea tested a nuclear weapons whose explosion power was almost equal to American Bomb at Hiroshima . North Korea declared its as the eight state with Nuclear weapons and it had missiles which could hit Japan , South Korea , Chinese , US and Russian Territories .However till today only United states has the missile that can target any place on this earth . Nuclear weapons results in the death of a whole city or state , there are extremely dangerous , with the power of mass destruction ,at present nuclear threat from North Korea is main danger , they are manufacturing just missiles that can over almost each and every country on this planet . Nuclear weapons also results in serious health hazard and body disorder which can affect the coming generations . Environmental hazard which can make the place unsuitable for living , in fact nuclear weapons also can affect the agriculture sector , terrorist use these nuclear weapons in the agriculture area also and with the advancement in technology the use is highly catastrophic .



IV. FINDINGS

In 2003, India officially adopted the Nuclear doctrine: Nuclear weapons will be kept as a credible minimum deterrent, NFU policy would be followed, India would not launch nuclear weapon attack against any non-nuclear state, the retaliator 2nd strike to a first nuclear attack would be massive, presently 2003 doctrine is being followed, in order to strengthen its 2nd strike ability India adopted ballistic missile programme which consist of two interception missile one Prithvi Air Defence Missile for high altitude interceptions and second Advanced Air Defence Missile for lower altitude interception, this has the ability to intercept incoming missile launched 5000 km launch. India developed and tested ICDM, Agni-V strike range if above 5000 Km, India also launched SSBN, INS Arihant.

The Nuclear Policy of India is shaped by Geo Political Factors, NSG Membership, availability of raw material and public opinion. India has trade relation with both Pakistan and China, India has strained relationship with both China and Pakistan, Pakistan has always taken advantage of India's NFU, India's nuclear policy is of deterrence to deal with threat from Pakistan and China. India has strengthen its ability due to repeated misadventure of Pakistan and threats from China.

NSG membership where in 2008 India got a waiver from NSG, India took a written pledge never to conduct a nuclear weapon test physically, USA backed India and pointed India had followed NPT guidelines strictly. India is allowed to do nuclear trade with nation due to the waiver and the nuclear policy is directly linked to its prospects of becoming a NSG member. Availability of raw materials: Uranium is the chief raw material used in nuclear weapons, India's domestic reserves are small so it imports uranium from France, USA, UK, Russia, South Korea and many other, these imports are necessary for India to increase its nuclear power, due to policy of nuclear weapons only for defence agreement were signed with these countries. Public opinion is also a factor where different lobbies have different opinions on the policy, these differential views are used by fringe elements. India's creditability was raised when it avoided nuclear escalation during the Kargil war of 1999. India is seen as a nuclear powerful state but that doesn't affect its civil nuclear programme. The Nuclear policy of India is dynamic in Nature. India Nuclear power plant is also emerging, India has a indigenous nuclear power programme, and the government is committed to use this nuclear power capacity as part of the infrastructure development programme. India being outside the Non-Proliferation treaty for 34 years which excluded nuclear trade with other countries till 2009.



Nuclear Warhead Reductions Continue Despite Global Tensions

Number of nuclear warheads by country in January 2020



Source: SIPRI



In 2018 Nuclear power plant produced 1583 TWh of electricity .In India nuclear power is the fifth largest source of electricity . Currently India has 22 nuclear power reactors and which are operating in 7 states with a capacity to produce 6780 MW .There are 18 reactors which are Pressurized Heavy Water Reactors(PHWRs) and 4 light water reactors . The Nuclear Power Corporation of India Limited (NPCIL) which is located in Mumbai is a government owned corporation and administered by the Department of Atomic Energy and is responsible for the generation of electricity through Nuclear power

India has operational , planned and under construction nuclear power plant lets have a look at them

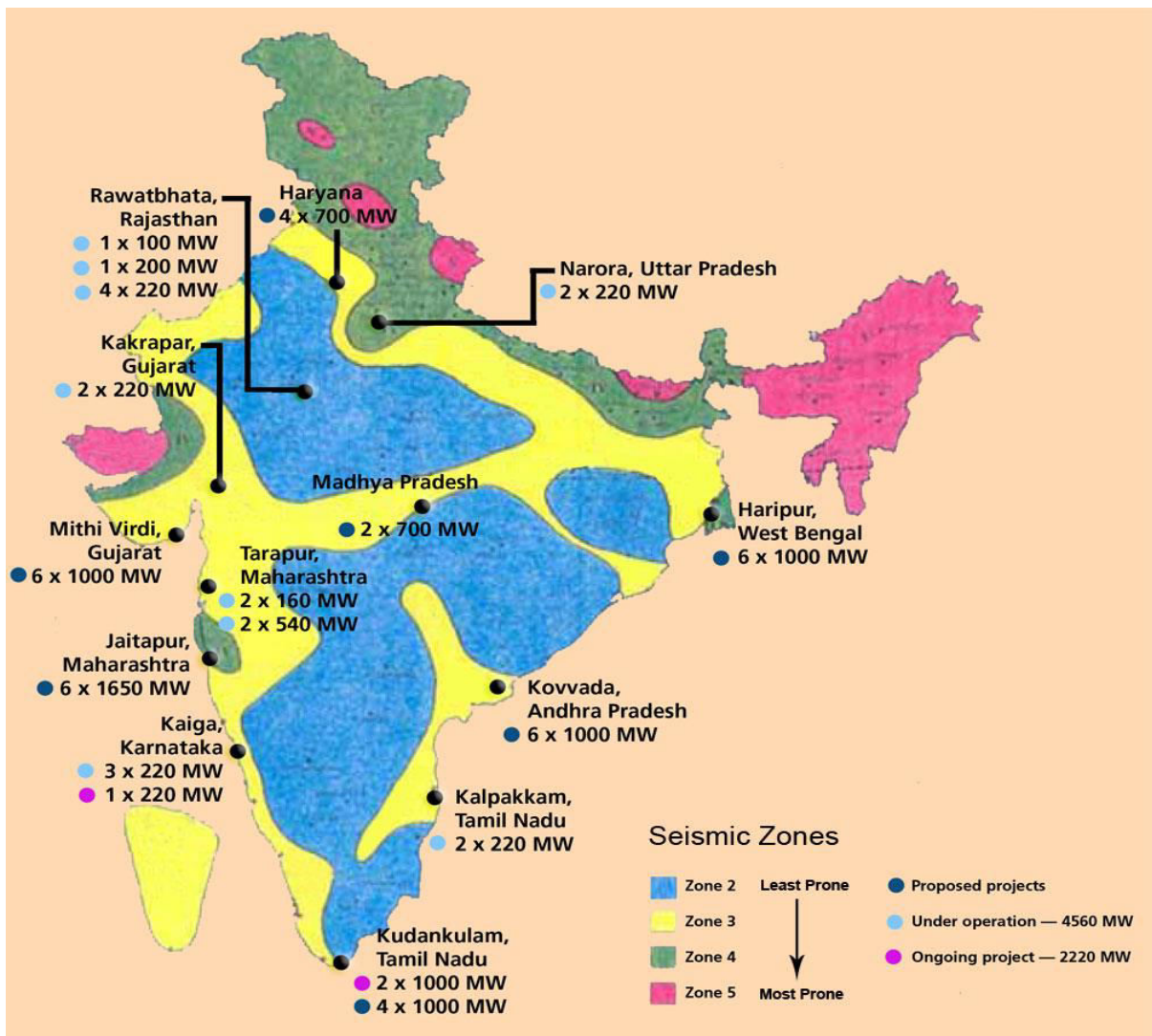


There are 7 which are operational

Nuclear power plant	Location	Capacity
Kaiga	Karnataka	800
Kakrapar	Gujarat	1140
Kudankulam	Tamil Nadu	2000
Madras (Kalpakkam)	Tamil Nadu	440
Narora	Uttar Pradesh	440
Rajasthan	Rajasthan	1180
Tarapur	Maharashtra	1400

Under construction Nuclear power plant are

Nuclear Power plant	Location	Capacity
Madras (Kalpakkam)	Tamil Nadu	500
Rajasthan Unit 7 & 8	Rajasthan	1400
Kudankulam Unit 3 & 4	Tamil Nadu	2000
Kakrapar Unit 4	Gujarat	700
Gorakhpur	Haryana	1400





Nuclear Power Plant 2021

Nuclear Power Plant	Location	Capacity
Kaiga	Karnataka	1400
Jaitapur	Maharashtra	9900
Kavali	Andhra Pradesh	6000
Kovvada	Andhra Pradesh	6600
Gorakhpur	Haryana	2800
Kudankulam Unit 5 & 6	Tamil Nadu	2000
Madras	Tamil Nadu	1200
Tarapur	Maharashtra	300
Chutka	Madhya Pradesh	1400
Mahi Banswara	Rajasthan	2800

Way Forward

It is estimated that by 2031 India will set 21 new nuclear reactors . India is closer to building world’s biggest nuclear plant , France is helping to set up 6 new nuclear reactors in Maharashtra and moving towards to build world’s largest power in India which will hold a capacity of 10,000 MW , providing 7 core household with electricity which will take 15 years to complete this project .EDF will not construct the nuclear power plant , it will be done India , it will only provide Nuclear reactors and also providing low carbon operators . We also need to ensure the safety and security of the using of nuclear power plant and foster on provisions for waste management and disposal along with maintain non-proliferation arrangements .

V. CONCLUSION

Nuclear technology had brought in new advancement with development of nuclear weapons and nuclear power plant in India .India is going to build the largest nuclear power plant in the word however Nuclear technology has its own issues which includes the safety and waste management , we are example of Chernobyl , Fukushima , Land acquisition is also a serious issue in the state of Tamil Nadu and Andhra Pradesh , Moreover India not being a member of NSG and NPG , we require massive manpower and infrastructure , India also needs to boost its nuclear energy power along that we have nuclear threat coming from China and Pakistan constantly and India is working to strengthen its nuclear energy .

REFERENCES

- 1.Aniruddh Mohan , The future of Nuclear Energy in India .
- 2.Nuclear power in India , World Nuclear Association
3. India Nuclear Weapons Program , India outside Nuclear Non Proliferation Treaty , NTI.
- 4.Indian Nuclear Program , Atomic Heritage Foundation.
5. Xiaoping Yang , 2016 China’s perceptions of India as a nuclear weapons power .
6. Nuclear Weapons History-ICAN .
- 7.Hans M. Kristensen & Matt Korda , 2020, July , Indian Nuclear Forces , 2020 , Taylor& Francis .
- 8.Toby Dalton and George Perkovich 2016 , May , India’s Nuclear Options and Escalation Dominance , Carnegie Endowment for International Peace .
- 9.Indian Nuclear Program, Atomic Heritage Foundation .
- 10.Levesques A , Bowen D , Gill J , 2021 , May Nuclear Deterrence and Stability in South Asia : Perceptions and realities , IISS



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