

“The Project Work On To Study About The Nuclear Power In Asia”

**A PROJECT WORK SUBMITTED FOR THE PARTIAL
FULFILMENT OF THE REQUIREMENT FOR THE GRADE-XII
SCIENCE IN PHYSICS**

By

Mr. Janak Singh Dhami (Roll.no.: -23)

Mr. Arjun Koirala (Roll. No: -06)

Miss. Aarti Sharma (Roll.no: -01)

Miss. Bhawana Shaha (Roll.no.: -12)

Miss. Basanti Joshi (Roll.no.: -11)

Miss. Archana Chaudhari (Roll.no.: -05)

**Grade-XII
(2078)**



National Academy of Science and Technology (**NAST**)

Dhangadhi, Kailali, Nepal

Date: 2078/12/....

ACKNOWLEDGEMENTS

We would like to express our special thanks of gratitude to our Lecturer of Physics **Mr. Bimal Adhikari**, who gave us the golden opportunity to do this wonderful project on the topic “**TO STUDY ABOUT THE NUCLEAR POWER IN ASIA**”, which also helped us in doing a lot of research in nuclear power in Asia and we came to know about so nuclear energy. We are really thankful to them. Secondly, We would also like to thank our friends, who helped us a lot in finalizing this project within the limited time frame.

REGARDS STUDENT'S

Mr. Janak Singh Dhami

Mr. Arjun Koirala

Miss. Aarti Sharma

Miss. Bhawana Shah

Miss. Basanti Joshi

Miss. Archana Chaudhari

Department of Physics

National Academy of Science and Technology College, Nepal

(NAST)

CERTIFICATE OF APPROVAL

The project work on “**TO STUDY ABOUT THE NUCLEAR POWER IN ASIA**” by us under the supervision Lecturer of Physics *Mr. Bimal Adhikari*, National Academy of Science and Technology College, Nepal, is hereby submitted for the partial fulfillment of requirement of Physics in Grade XII. This project work in our knowledge has not been submitted in any other schools or institutions.

REGARDS

Mr. Janak Singh Dhami

Mr. Arjun Koirala

Miss. Aarti Sharma

Miss. Archana Chaudhari

Miss. Basanti Joshi

Miss. Bhawana Shah

Department of Physics

National Academy of Science and Technology College, Kailali, Nepal

(NAST)

Head of the Department

Mr. Krishna Singh Bhandari

.....

Principal

Mr. Upendra Bom

.....

RECOMMENDATION

This is to certify that the project work entitled “**TO STUDY ABOUT THE NUCLEAR POWER IN ASIA**” has been carried out by us as a partial fulfilment of grade XII in Physics under my supervision. To the best of knowledge, this work has not been submitted to any other purpose in this institute. I, therefore recommend the project work report for appraisal.

REGARDS

Mr. Janak Singh Dhami

Mr. Arjun Koirala

Miss. Aarti Sharma

Miss. Bhawana Shah

Miss. Basanti Joshi

Miss. Archana Chaudhari

Designation of the Supervisor

*Lecturer of Physics: - **Mr. Bimal Adhikari***

Signature:-

Department of Physics

National Academy of Science and Technology College, Nepal

(NAST)

Date: 2078/12/....

DECLARATION

We are hereby declare that the project work entitled “**TO STUDY ABOUT THE NUCLEAR POWER IN ASIA**” under the supervision Lecturer of Physics **Mr. Bimal Adhikari**, National Academy of Science and Technology college, Nepal, presented here as genuine work done originally by me and has not been published or submitted elsewhere. Any literature, data or works done by others and cited in this project work has been given due acknowledgement and listed in the reference section.

GROUP STUDENT'S RECORD

Name	<i>Janak Singh Dhami</i>	<i>Aarti Sharna</i>	<i>Bhawana Shah</i>	<i>Archana Chaudhari</i>	<i>Basanti Joshi</i>	<i>Arjun Koirala</i>
Email address	<i>dhamijs123@gmail.com</i>	<i>.....@gmail.com</i>	<i>.....@gmail.com</i>	<i>.....@gmail.com</i>	<i>.....@gmail.com</i>	<i>Arjunkoirala575@gmail.com</i>
Signature	<i>.....</i>	<i>.....</i>	<i>.....</i>	<i>.....</i>	<i>.....</i>	<i>.....</i>

Date: 2078/12/....

“The Project Work On To Study About The Nuclear Power In Asia”

INTRODUCTION

Asia is the continent with the largest population in the world. It has achieved significant economic growth within the past decades. In many countries the rapid population and economic growth has brought a tremendous demand for energy and electricity on which fossil fuels and hydropower to gather will not be able to meet. In Asia there are about 135-140 operable nuclear power teachers, about 30-35 Under Construction and firm Plans to build. It could be said that Asian countries especially Japan, China and South Korea, kept nuclear new build alive during the 1990s and early 2000s.

According to World Nuclear Energy, emerging nuclear energy countries in Southeast Asia includes: Myanmar, Indonesia, Philippines, Vietnam, Thailand, Laos, Cambodia, Malaysia and Singapore. These countries have shown interest in nuclear power as reliable energy source regardless it is expensive to construct and likely to face cost overrun.

In short the condition of nuclear power plant in the history was not so good. But the condition is becoming very god nowadays and many countries are planning to construct power plants. The future condition of Asia will be more praiseworthy if this pace of development will continue.

Asia is the main region in the world where electricity generating capacity and specifically nuclear power are growing significantly. Asia is the continent with the largest population in the world. It has achieved significant economic growth within the past decades. In many countries the rapid population and economic growth has brought a tremendous demand for energy and electricity on which fossil fuels and hydropower to gather will not be able to meet. In Asia there are about 135-140 operable nuclear power teachers, about 30-35 Under Construction and firm Plans to build an additional 50-60 many more are proposed The Greatest growth in nuclear generation is expected in china.

A number of countries in Asia are planning and building new nuclear power reactors to meet their increasing demand for clean electricity. Nearly 60% of world's people live in Asia where most countries have quite low levels of gross national Product and per capita energy consumption. In particular electricity rapidly growing economies in many Asian countries are driving forces for increased energy demand. Currently about two-thirds of the reactors under.

Construction worldwide in Asia such major countries of nuclear power in Asia are:

- 1.China
- 2.India
- 3.Japan
- 4.South Korea
- 5.Pakistan

The idea of nuclear energy begin in 1930's when physicist Entice for first showed that neutrons could split atoms Fermi ted a team in 1942 that achieved the 1st nuclear chain reaction, Under a stadium at the university of Chicago Experimental Breeder Reactor in 1951; The first nuclear power plant in the City of ohninsk in the former Soviet Union in 1954 and the first commercial nuclear power plant in Pennsylvania in 1957. Named Apsara, the reactor was housed in a 100x50x to concrete building Mumbai. India's and Asia's first nuclear reactor. Apsara reached criticality at 3:45 PM on 4 August 1956 and was inaugurated by Prime Minister Nehru on 20 January 1957 The Kashilazaki Kaniwa nuclear Power plant, Japan is the world's largest nuclear Power Plant. In the whole Asia, with a capacity of 7965 MW.

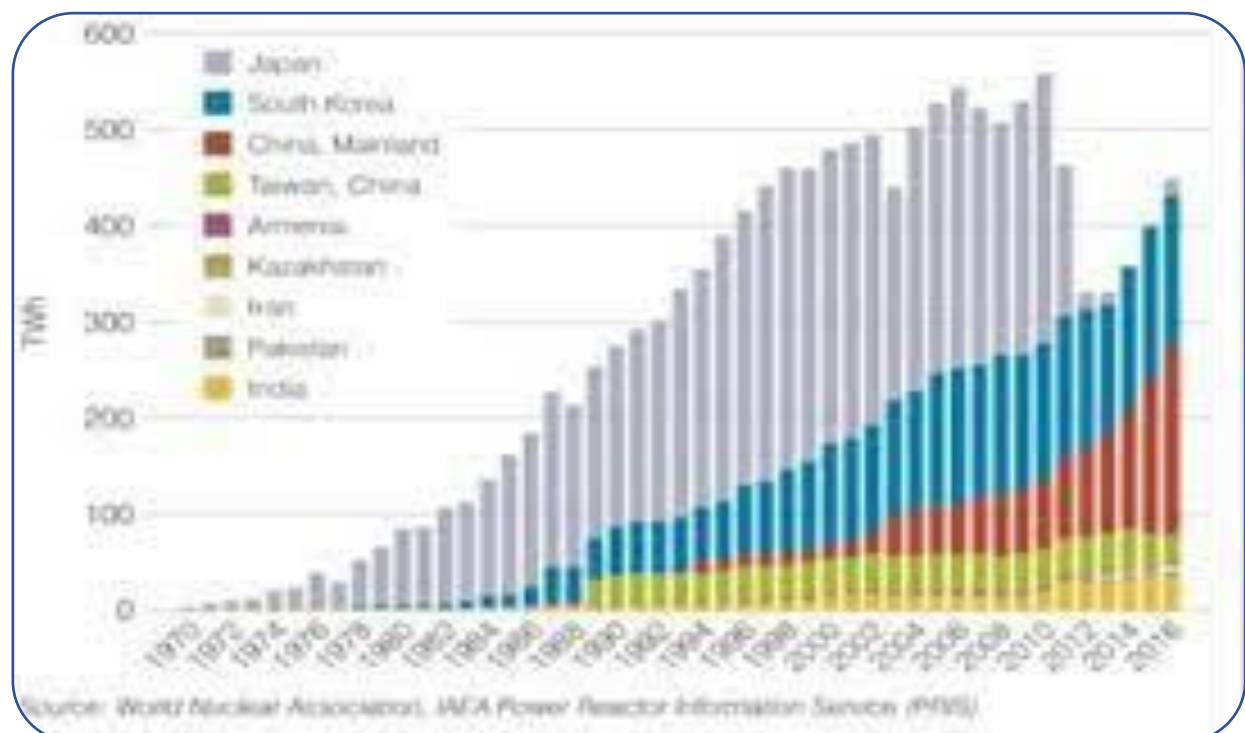
Nuclear power in Asia and involvement with the nuclear fuel

Country	PRO	PRUC	PRP	RRO
Bangladesh	-	2	-	1
China	51	18	37	16
India	23	7	14	6
Indonesia	-	-	-	3
Japan	33	2	1	3
Kazakhstan	-	-	-	4
South korea	24	4	-	2
Nepal	-	-	-	-
North korea	-	-	-	1
Pakistan	5	1	1	2
Malysia	-	-	-	1
Vietnam	-	-	-	1
TOTAL	136	34	53	41

Historically, it could be said that Asian countries especially Japan, China and South Korea, kept nuclear new build alive during the 1990s and early 2000s. The main component (element) in nuclear plant is uranium. It is the main fuel for nuclear reactors and it can be found in many places around the world.

Present Situation:

with accordance with Asian countries the situation of nuclear Power plant is quite good and is increasing rapidly.



PROBLEMS ON NUCLEAR POWER

Nuclear power is not only the blessing for human land but it creates many problems too. Nuclear power renewable energy, given its dependence on aimed, finite resources. There may be many risks and accidents that can occur and cause Casualties. The devastating nuclear accidents such as those at Chernobyl (Russia) in 1986 and Fukushima Daiichi (Japan) in 2011. Those are some deadly - disaster that consequences are seen till now also Relying on large-scale power plants is risk to shortage national's power. Nuclear power has long-term implication to human health and ecological impacts.

Unsolved toxic waste (i.e. deep geological depository site). Global warming is possible to increase uncertainly and risks of Power Plant safety control (i.e. hotter summers) Nuclear reactors produce a small amount of waste that contains 3% of waste from total nuclear reaction. The wastes generated at the back-end of the nuclear fuel cycle have great variety in their physical (solid, liquid, gas), chemical (volatile, organic, non-organic, etc.) and radiological (heat-generation, half-life) characteristics.

To ensure that these diverse wastes can be safely handled, stored and disposed of in a way that minimizes risks to human health and the environment for the long time periods they will remain radioactive a process of immobilization into a stable, passively safe waste form is required. Any given waste form material should be: a solid material to help with transport and storage; stable under the required temperature range (i.e. will not melt or transform due to radioactive decay heat); stable under the required radiation field (i.e. will not be detrimentally affected by α , β or γ radiation); and durable, to ensure that under conditions of long-term storage and disposal the waste form is not easily dissolved and the immobilized radionuclides within the waste form are not released to the environment.

SOLUTIONS:

Inherent Safety technology may be the main cause for disaster. If new and modern technology can be used it may reduce the chance of explosions. Nuclear wastes can easily be managed than other wastes. Improve the design and make Flexible to serve different Capacity.

Long term high level radioactive waste can be recused as fuel. The fundamental principles of nuclear waste management are: to ensure the generation of nuclear waste is kept to a minimum; to protect human health and the environment; and to protect future generations (and perhaps, considering the timescales involved, civilizations) while also ensuring they are not burdened with managing nuclear waste generated in our lifetime.

- Nuclear power is the only large-scale energy-producing technology that takes full responsibility for all its waste and fully costs this into the product.
- The amount of waste generated by nuclear power is very small relative to other thermal electricity generation technologies.
- Used nuclear fuel may be treated as a resource or simply as waste.
- Nuclear waste is neither particularly hazardous nor hard to manage relative to other toxic industrial waste.
- Safe methods for the final disposal of high-level radioactive waste are technically proven; the international consensus is that geological disposal is the best option.

CONCLUSION

Currently, there is no nuclear power station that operating commercial electricity in Southeast Asian countries. However, pro-nuclear comes up with many reasons aiming to materialize the nuclear power which ranging from growing of domestic power demand to boost economic activities, reducing the electricity cost – in the case of the Philippines, to producing no Green House Gases emission, in particularly CO₂. According to World Nuclear Energy, emerging nuclear energy countries in Southeast Asia includes: Myanmar, Indonesia, Philippines, Vietnam, Thailand, Laos, Cambodia, Malaysia and Singapore. These countries have shown interest in nuclear power as reliable energy source regardless it is expensive to construct and likely to face cost overrun and delay as to ensure and required higher safety. The condition and ancient history of nuclear Power of Asia is found to be more interesting. Nuclear power plant advantageous and Pollution free Source of energy. Hence, all others Asian countries as well as other countries should adapt this.

REFERENCES

- <https://www.world-nuclear.org/>
- <https://www.aseanenergy.org/>