

24/4/2021  


## “CENTRAL MATERIAL TESTING LABORATORY”

### A DESCRIPTION

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There are various departments for engineering studies in Pulchowk Campus. These departments include different labs and workshops which help to provide engineering studies to the student. Heavy lab, physics lab, chemistry lab, computer lab, thermodynamics lab, material testing lab etc are the list of few labs that are within the premises of Pulchowk Campus. Among those labs central material testing laboratory, Ananda Niketan, Pulchowk Campus is one of the civil engineering lab.

### INTRODUCTION

Central Material Testing laboratory is one of the most important labs within this campus which not only provides lab facilities for students but also provides services in road, highways and bridge development, soil investigation and material testing. It has got about ten rooms. About five rooms are well equipped with heavy machines and remaining rooms are related with administration. This lab is related only with the civil engineering profession and performs almost all the experiments related with this field. There are about ten members who daily run this lab.

### LOCATION

Central material testing lab is situated within the premises of Pulchowk campus. Among two compounds it is inside the eastern compound of Pulchowk campus which also contains the Dean's and Campus chief's office. Walking about fifty meters from the gate of campus the road divides into two. One road leads to the white house containing Campus chiefs and Dean's office and the other way leads to the lab. The lab is accessible after walking about hundred meters from the junction.

### SERVICES

Different experiments such as sieve analysis of coarse aggregate, initial and final setting test of cement cubes, bricks and aggregate, tensile strength test of rods and many other experiments are performed here. Many companies bring cements, bricks, aggregate, rods etc to perform their test before the construction of buildings, roads and bridges. These tests are operated by means of electrical heavy machines. With this it has contributed Pulchowk campus in its

economical sector.

This lab not only provides services to the outsiders but also provides practical facilities to the students of third year studying soil mechanics. Different machine over here have contributed some student in preparing thesis for their master studies. Many overseers of road division are given occasional training so that they could perform well in road construction. Hence it would be better to say that this lab has given a much contribution in civil engineering sector of Nepal.

## **SUMMARY**

In this modern age of science and technology the world has taken a longer stride in technology. Each and every second man is in search of easier, faster, and durable technology. For the sustainable development the appropriate construction materials need to be selected. Their physical and chemical properties and strength must be known before their application. These properties of materials are tested in lab. The Central material testing lab is devoted in the test and analysis of such construction materials.

## **CONCLUSION**

This lab is indispensable for learning Civil Engineering in Pulchowk campus. Many machines which were used in different experiments are now sitting idle which need to be repaired. In this age of advanced technology the lab uses old machines. Hence the lab needs to be supplied with the advanced electronic machines which could bring efficiency and exactness in experiments.

*Give a diagram, tr.*

Submitted by :

065/BCE

113-116

## NEED OF AN OVERHEAD BRIDGE

- Writ

## LINKING TWO COMPOUNDS OF PULCHOWK CAMPUS A TALI

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Dear ladies and gentlemen,

We the group of four colleagues, are here to express our views regarding the need of an over-head bridge linking two compounds of Pulchowk Campus.

### INTRODUCTION.

Pulchowk Engineering Campus is one of the recognized and pioneer educational institutes in Nepal. Pulchowk Campus, located in the extreme Patan, is the central campus of Tribhuwan University. Having occupied a large area of its own with many buildings for different departments, the campus has got enough facilities in order to help students tackle every problem that may arise in their professional career. It is one of the most successful and reputed colleges in South Asia.

In spite of such reputation and popularity, it is not far from problems that get often created due to inefficient management and lack of future planning. One of those problems is the traffic jam on the road passing through the middle of the campus compound. The increased density of population in Pulchowk Campus can easily be felt viewing the crowd of people gathered on the road. Isn't it the most important thing that has to be thought about? Obviously yes. So building an overhead bridge linking the two compounds of Pulchowk Campus has become necessary.

The very busy road often gets jammed due to the crowd of the students crossing the road. Similarly accidents leading from minor to major injuries have created a havoc of which the Campus students and

staffs are the major victims. It has been more difficult for the students to go from one compound to next. Moreover, the security of the campus has been weakened. As a result of which our campus has become the centre for illegal activities, fights and drunkards. Attacks on students and campus staffs by gangsters have increased in the recent days. Besides these, air pollution and noise pollution caused by the jammed vehicles have disturbed the clean and peaceful environment of the Campus.

### SUMMARY

Hence, in order to strengthen the campus security, to reduce the accidents and for the safety of Campus staffs and students, an overhead bridge must be built. This will also help to reduce air and noise pollution caused by the jammed vehicles. It can also be a good source of income for the college if hoarding boards are allowed to be placed at the sides of bridge. Moreover, the stock materials in campus such as bricks, rods, cement etc. that have been stored at the corners of the compound can be utilized for the construction, which will help to keep the compound clean and safe. Owing to all these reasons, an overhead bridge has become the necessity of Pulchowk Campus.

### CONCLUSION AND SUGGESTIONS

Finally, we can conclude that the need of an over-head bridge linking two compounds of Pulchowk Campus is utmost necessary. Lastly, we, the group of colleagues suggest the concerned authorities responsible towards the campus to bring forth and implement the discussed topic as soon as possible. If the overhead bridge is built, it will be very fruitful to all the students and campus staffs.

Thank you!

## Importance of Thermal Power Plant in Nepal

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In our developing country like Nepal, where the inadequate manpower to set up new hydro powers and capital to renovate the old and dilapidated ones poses hurdle to the smooth supply of electricity in spite of being the second richest country in water resource with networks of rivers and rivulets, the establishment of the power plant is probably the best alternative for the betterment of the country and her citizen. Even the initial cost is very high; thermal power plant is good in view of long-term basis.

A thermal power plant is a station in which the generator is driven by steam. Water is heated by solar energy or by other means to turn it into steam that spins a steam turbine which drives an electrical generator to produce electricity. After it passes through the turbine, the steam is condensed in a condenser and recycled and it is again heated to form steam.

Currently, hydroelectricity is the major source of electricity in Nepal. However, to our dismay, the currently running hydro powers generate less than one percent of the total capacity of generation. There are several perennial rivers like Kaligandaki, Marshyangdi, Karnali, Koshi and so on but the volume of water of these rivers totally depends on monsoon. In monsoon, they flow with uncontrolled amount of water but during the rest of the seasons, the scanty water cannot generate enough electricity to meet the requirement.

Thus Nepalese people are obliged to confront the hitch of load shedding. The plight of the general people become more unforeseen when the time of load shedding exceeds the time when there will be electricity in a day. They are mostly doomed to survive in darkness. In the age, where students are to gain quick knowledge via computers and internet, Nepalese students are forced to study in dim candlelight with harmful impact in their eyes. The industries and factories are often in the state of inability to sustain. Most of them are shut down during winter leaving its employees jobless. The projects of development involving the need of electricity are postponed or their time of completion is prolonged owing to the meager power supply.

The obstruction imposed by the scarce power is unbearable and this had really sunk nation's development into oblivion. Let alone the development, sometimes it feels as if we are being pushed back to the Dark Age.

The set up of thermal power plant would certainly uplift the quality of life the people rendering them the sufficient amount of power. The industries and factories would be rejuvenated and the halted economical development would recuperate. The undesirable downfall of the country's economy will be the thing of the past.

The development of power plants will enhance the deployment of energy systems for bulk electricity production and the conservation of fossil energy, consequently preserving the environment in particular with respect to their high potential to contribute to the reduction of the carbon dioxide emissions. They reduce the generating costs of electricity, and thus contribute to ensure durable and reliable energy services at affordable costs in the medium to long-term range. They have the potential to contribute to the quality of life, health, safety (including working conditions) and job creation; the erection of such plants at undeveloped areas in eastern regions can create new opportunities of industrial fabrication, of assembling and of operation and maintenance.

Thermal power plant technologies are important candidates for providing a major share of the clean and renewable energy needed in the future, because thermal power stations are among the most cost-effective renewable power technologies; they promise to become competitive with fossil-fuel plants within the next decade and thermal power stations are already today of well-proven and demonstrated technology; since 1985 nine solar thermal power plants in California have generated more than 8 billion kWh of solar-based electricity, demonstrating the soundness of the concept.

Building of such plant in our country is quite difficult but not impossible. The difficulty is mainly due to the need of large share of capital costs for plant installations imposing financial constraints and unfavourable financial and political environment for initiatives for the development of thermal power plant projects.

The Nepalese government and the private sector should join hands to construct a thermal power plant in suitable place. If necessary, foreign aids or loans must be encouraged and foreign technicians and experts are to be invited to build the thermal power plant.

The Nepalese citizens also will certainly contribute by themselves if the government makes initial steps for this. What they require is the light in the darkness and the progress of the nation; they would leave no stone unturned from their side when it is for the betterment of the country and the people.

I would now like to conclude sensitizing everyone to the urgent need of establishment of at least one thermal power plant in the country that will ascertain relief to the people and buttress the country's progress.

**Give Sub-titles .**  
**Make it sounding Like**  
**a talk .**

**A Seminar Paper**  
On  
*Scopes of Computer Engineering In Nepal*

**1. ABSTRACT:-**

In this paper attention is focused on the scopes of computer and ~~computer~~ computer engineers in our country, Nepal. Discussions are focused on history of computer in Nepal, computer engineers and their scopes. There is not a long history of computers in Nepal. Study of computer issues was started mainly from few years ago and various efforts have been made for the proper use of computers in the Nepal. There are lots of students every year, who passed their degree in computers engineers in Nepal, but the job is not secured for them. significant results are not derived in the field of computer in Nepal. Computers are not properly using in Nepal to achieves success in industrial fields.

**2. BACKGROUND:-**

Nepal is developing country. Few years ago, in Nepal, there are not any computers goods and company but now various industries related to computer field with highly mentioned Software Company established. The various industries are hired some types of calculator and compute for its census calculation. About one thousand students passed their degree in computer engineering from prestigious college in Nepal, but job is not secured for all students in Nepal.

**3. INTRODUCTION:-**

Computer engineering is the most important engineering in the context of Nepal & worldwide. Now a days, For the development of country, various companies associated to computer programs are established in Nepal. The electronic calculator is used in 2018 B.S in Nepal, after that in 2028 B.S national computer center(NCC), was established for national data processing and computer training. In 2038 B.S second generation mainframe computer was used for census. Now a

days, probably each and every institutions, business organizations, communication centers, ticket counters etc are using computers.

#### 4. COMPUTER AND COMPUTER ENGINEERS:-

Computer is defined as "an electronic device designed to accept data, perform the prescribed mathematical and logical operations at high speed and supply the results of these operations. The persons who skills and knowledge about computer with have practically based education, passed the degree from recognized university, who can solve the problems about computers and make operating systems are basically known as computer engineers.

#### 5. SCOPES OF COMPUTERS ENGINEERS:-

Every year thousand of student passed the engineers in computer from any prestigious college. Due to various issues of country, development of our country is going slowly and computer engineers cannot get good job, as they desire. No good jobs are allocated to the engineers after their completion of study. So many computer engineers go out of the country for searching good jobs per their capacity. Skilled manpower is produced in good quantity but there are problems of scare of good computers to use in and to get involved in new things and further show their skills in new age with new technology.

#### 6. SOLVING PROBLEMS:-

Computer engineers are used in various fields, like as in telecommunication, multimedia, programmers and also in software and computer architecture. Systems software engineers are responsible for ensuring security across the systems they are configuring.

#### 7. SUMMARY:-

Computer engineering are the parts of Nation to develop the country in right way. Due to the different issues i.e. politics, strikes in Nepal, computer engineers cannot achieve a good job as their capacity. Computer methods are used in

various fields to develop our country, so computer engineers are required to develop our country.

#### 8. CONCLUSION:-

Computer engineers often works as part of a team in engineers field that develop the nation by using skills and knowledge that they learned. A core team may comprise engineering marketing, manufacturing and design people, who work together to release a product, so necessity of good job allocation must be there so that country progress can be done in mean time. Due to development of computer with new operating system will bring about a substantive change in the whole nation and physical status of computer engineers. And government also should give a chance to engineers to show their skills within the country rather than in other countries.

#### 9. SUGGESTIONS:-

Nepal plan to develop the software company for improving the standard of Nepalese computer engineers. The suggestions are:

- a. There is a need of clear policy, how to deal with computer and computer engineers according to their skills.
- b. We have to think about the mobilization of the privative sector money effectively. Utilization of computer and various programs can be developed attracting the private sectors investment.

#### References:-

- a. from google web
- b. news/articles
- c. various issues about the scopes of c.e

use proper  
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use graphical method and  
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- Q. Suppose you have been invited to talk in a gathering organized by Thermal power plant in Nepal in a gathering organized by Computer Engineering Association in Nepal. Record the talk in the gathering.

### Introduction

Electrical power is one of the most important infrastructure of national economy and there has been a steady growth of generation capacity in Nepal. However, the growth in demand of power has exceeded the generation capacity addition as a result of which country is facing both energy and peak shortage. All coal, nuclear power, solar, thermal electric as well as micro natural gas power plants are thermal. In thermal power stations mechanical power is produced by a heat engine that transforms thermal energy, often from combustion of a fuel or energy extracted from other sources into rotational energy.

Some advantages of thermal power plants are as:

1. The fuel used is quite cheap.
2. Less initial cost as compared to other generating plants.
3. It can be installed at any place irrespective of the availability of coal. The coal can be transported to the site of the plant by transportation mechanism.
4. It requires less space as compared to hydro power plant.
5. Cost of generation is less than that of diesel power.

In context of Nepal there are only hydroelectric power plants in different places but these are insufficient. Nepal is the second richest country in water resources, hydroelectric power plant is considered as the best power plant. Since Nepal is a developing country sudden establishment of power plant is not possible. So we need some other alternatives which includes nuclear power plant, geothermal, solar power plants. But in context of Nepal, nuclear, geothermal power plants are not suitable. So solar thermal power plant is best suited choice for Nepal.

## Description

Solar thermal power plants uses solar energy for generating electric power. Solar thermal power plants are considered one of the easier to establish and easier power plant. It can be constructed using local resources and few equipment and most important point is that it does not require long transmission line. The solar power plant uses freely available sunlight so it helps in extracting the electricity without emitting the toxic and harmful gases which is one of the green technology. The maintenance cost for the solar thermal power plant is low as it can be established locally without bigger manpower and complex engineering. Besides that it can be used for easier, healthier, efficient and reliable power generation.

Although solar thermal power plants have several advantages there are some drawbacks too. Huge amount of energy cannot be generated by using solar thermal power and it is best suited only for remote areas. The solar power plants can only be used during the day time where there is enough sunlight. In the absence of the sunlight or during the cloudy days it is of no use. So we may require large energy storage battery which may increase the cost drastically.

### Conclusion :

Solar thermal power plant is a very simple and cheaper power plant in the production of electricity. Cost of solar energy is wasted, this plant can solve the current electric problem of the country. The solar power plants use the available sunlight so it helps in the production of the electricity without emitting the toxic and harmful gases compared to diesel and coal plants. It is also environmentally safe than nuclear power plant and hydro-powers where there may arise scarcity and environmental risks. Solar plant can be established anywhere so in the case of Nepal small solar plants can help to give electricity facility in the remote areas where there is difficult supply electric power through transmission line from hydro-powers.

Hence such smaller power plants can reduce the power crisis in Nepal and can reduce our dependence for power system from India.

1. Now is the ~~time~~ talk.
2. Show that you have been using some AVR's.

## INTRODUCTION

Most of us don't think much about where our electricity comes from, only that it's available and plentiful. Electricity generated by burning fossil fuels such as coal, oil and natural gas, emits carbon dioxide, nitrogen oxides and sulfur oxides gases scientists believe contribute to climate change. Solar thermal (heat) energy is a carbon-free, renewable alternative to the power we generate with fossil fuels like coal and gas. This isn't a thing of the future, either. Between 1984 and 1991, the United States built nine such plants in California's Mojave Desert, and today they continue to provide a combined capacity of 354 megawatts annually, power used in 500,000 Californian homes.

Wondering where the technology's been since then? In the 1990s when prices of natural gas dropped, so did interest in solar thermal power. Today, though, the technology is poised for a comeback. It's estimated by the U.S. National Renewable Energy Laboratories that solar thermal power could provide hundreds of gigawatts of electricity, equal to more than 10 percent of demand in the United States. There are two main ways of generating energy from the sun. Photovoltaic (PV) and concentrating solar thermal (CST), also known as concentrating solar power (CSP) technologies.

PV converts sunlight directly into electricity. These solar cells are usually found powering devices such as watches, sunglasses and backpacks, as well as providing power in remote areas. Solar thermal technology is large-scale by comparison. One big difference from PV is that solar thermal power plants generate electricity indirectly. Heat from the sun's rays is collected and used to heat a fluid. The steam produced from the heated fluid powers a generator that produces electricity. It's similar to the way fossil fuel-burning power plants work except the steam is produced by the collected heat rather than from the combustion of fossil fuels. There are two types of solar thermal systems: passive and active. A passive system requires no equipment, like when heat builds up inside your car when it's left parked in the sun. An active system requires some way to absorb and collect solar radiation and then store it.

Solar thermal power plants are active systems, and while there are a few types, there are a few basic similarities: Mirrors reflect and concentrate sunlight, and receivers collect that solar energy and convert it into heat energy. A generator can then be used to produce electricity from this heat energy.

The most common type of solar thermal power plants, including those plants in California's Mojave Desert, use a parabolic trough design to collect the sun's radiation. These collectors are known as linear concentrator systems, and the largest are able to generate 80 megawatts of electricity. They are shaped like a half-pipe you'd see used for snowboarding or skateboarding, and have linear, parabolic-shaped reflectors covered with more than 900,000 mirrors that are north-south aligned and able to pivot to follow the sun as it moves east to west during the day. Because of its shape, this type of plant can reach operating temperatures of about 750 degrees F (400 degrees C), concentrating the sun's rays at 30 to 100 times their normal intensity onto heat-transfer-fluid or water/steam filled pipes. The hot fluid is used to produce steam, and the steam then spins a turbine that powers a generator to make electricity.

While parabolic trough designs can run at full power as solar energy plants, they're more often used as a solar and fossil fuel hybrid, adding fossil fuel capability as backup.

Solar power tower systems are another type of solar thermal system. Power towers rely on thousands of heliostats, which are large, flat sun-tracking mirrors, to focus and concentrate the sun's radiation onto a single tower-mounted receiver. Like parabolic troughs, heat-transfer fluid or water/steam is heated in the receiver (power towers, though, are able to concentrate the sun's energy as much as 1,500 times), eventually converted to steam and used to produce electricity with a turbine and generator.

Power tower designs are still in development but could one day be realized as grid-connected power plants producing about 200 megawatts of electricity per tower.

A third system is the solar dish/engine. Compared to the parabolic trough and power towers, dish systems are small producers (about 3 to 25 kilowatts). There are two main components: the solar concentrator (the dish) and the power conversion unit (the engine/generator). The dish is pointed at and tracks the sun and collects solar energy; it's able to concentrate that energy by about 2,000 times. A thermal receiver, a series of tubes filled with a cooling fluid (such as hydrogen or helium), sits between the dish and the engine. It absorbs the concentrated solar energy from the dish, converts it to heat and sends that heat to the engine where it becomes electricity.

## **SOLAR THERMAL HEAT**

Solar thermal systems are a promising renewable energy solution -- the sun is an abundant resource. Except when it's nighttime. Or when the sun is blocked by cloud cover. Thermal energy storage (TES) systems are high-pressure liquid storage tanks used along with a solar thermal system to allow plants to bank several hours of potential electricity. Off-peak storage is a critical component to the effectiveness of solar thermal power plants.

Three primary TES technologies have been tested since the 1980s when the first solar thermal power plants were constructed: a two-tank direct system, a two-tank indirect system and a single-tank thermocline system.

In a two-tank direct system, solar thermal energy is stored right in the same heat-transfer fluid that collected it. The fluid is divided into two tanks, one tank storing it at a low temperature and the other at a high temperature. Fluid stored in the low temperature tank runs through the power plant's solar collector where it's reheated and sent to the high temperature tank. Fluid stored at a high temperature is sent through a heat exchanger that produces steam, which is then used to produce electricity in the generator. And once it's been through the heat exchanger, the fluid then returns to the low temperature tank.

A two-tank indirect system functions basically the same as the direct system except it works with different types of heat-transfer fluids, usually those that are expensive or not intended for use as storage fluid. To overcome this, indirect systems pass low temperature fluids through an additional heat exchanger.

Unlike the two-tank systems, the single-tank thermocline system stores thermal energy as a solid, usually silica sand. Inside the single tank, parts of the solid are kept at low to high temperatures, in a temperature gradient, depending on the flow of fluid. For storage purposes, hot heat-transfer fluid flows into the top of the tank and cools as it travels

downward, exiting as a low temperature liquid. To generate steam and produce electricity, the process is reversed.

Solar thermal systems that use mineral oil or molten salt as the heat-transfer medium are prime for TES, but unfortunately without further research, systems that run on water/steam aren't able to store thermal energy. Other advancements in heat-transfer fluids include research into alternative fluids, using phase-change materials and novel thermal storage concepts all in an effort to reduce storage costs and improve performance and efficiency.

## **THERMAL POWER IN NEPAL**

The government's plan to generate power through thermal plants would be impossible due to cost and technology-related factors, Nepal Electricity Authority (NEA) is also not in favour of thermal plants to address the existing power crunch in the country. As diesel plant is a costlier technology, the power to be generated from it will be very expensive the modality of thermal plant proposed by the government is yet to be clear. Whatever may be its modality, thermal plant is not a long-term solution to the problem in terms of cost and technology. The problem cannot be solved just because a minister issues directives. We have growing demand for power, but we have not been able to generate it to meet the demand. Importing electricity from India by maintaining the Dhalkebar-Mujaffapur transmission line and the Koshi tower is the best option for addressing the existing power shortage those projects would be cheaper and more reliable as compared to the installation of thermal plants. It will be almost impossible for us to generate power by using thermal plant within five/six months, and it is also a very risky project.

*Summary 1*

## **CONCLUSION**

Thermal energy and power systems are efficient, low cost systems that meet the environmental requirements of all countries. The attractive economics, reliability and operating flexibility of these systems suggest their consideration for all power generation applications. With a gas turbine only an efficiency of about 35 % can be achieved, whereas with a modern gas and steam plant peak efficiencies of up to 60 % are possible. It is however interesting to see, that with a gas and steam combined plant not only the highest efficiency can be achieved but also the plant specific investment costs are low.

Another advantage is the relatively short construction time, which can be organised on a step by step basis as needed or required for a plant refitting and extension. To summarise a gas and steam combined plant is today the most economical solution as it is from an ecological point of view, since it provides also various possibilities to reduce the harmful emissions and at the same time an increase in plant capacity and efficiency.

*Q. Suppose you have been invited to talk on the importance of thermal power plant in Nepal in a gathering organized by computer engineering association in Nepal. Record the talk in the gathering.*

## Title?

Before talking on the importance of thermal power plant in Nepal let us briefly explain what a thermal power plant is. A thermal power plant is simply a source of producing electricity. In a thermal power plant, the chemical energy stored in fossil fuels such as coal, fuel oil, natural gas is converted successively into thermal energy and then to mechanical energy and finally to electrical energy by an electric generator. This power plant is built based on the Rankine cycle.

According to the different kinds of fuel sources used, the design of thermal power plant varies.

- Nuclear power plants use a nuclear reactor's heat to operate a steam turbine generator.
- Fossil fuelled power plants may also use a steam turbine generator or in the case of natural-gas fired plants may use a combustion turbine. A coal-fired power station produces electricity by burning coal but has the side-effect of producing a large amount of carbon dioxide, which is released from burning coal and contributes to global warming.
- Geothermal power plants use steam extracted from hot underground rocks.
- Renewable energy plants may be fuelled by waste from sugar cane, municipal solid waste, landfill methane, or other forms of biomass.
- In integrated steel mills, blast furnace exhaust gas is a low-cost, although low-energy-density, fuel.
- Waste heat from industrial processes is occasionally concentrated enough to use for power generation, usually in a steam boiler and turbine.
- Solar thermal electric plants use sunlight to boil water, which turns the generator.

The electricity that is connected to our house comes from a nearby power station or power plant. And a big power plant generating high megawatts of energy can be used to power the whole city which consists of a thousand and thousands of homes. More than half of the

electric power supply is managed by the thermal power plants in several parts of the world.

Electricity is one of the fundamental parts of development of a country. In our context, we are using hydroelectricity power plant to generate electricity. Being one of the richest countries in water, it is also considered as best option in our case. But due to the lack of technical skills, manpower and required amount of capital we are still being unable to generate electricity as required. To this stage also the problem of load shedding is common in our country. Further, so many places of our country are still deprived of electricity. Also, since these power stations are solely run by the flowing waters the non uniformity in the amount of flowing water directly affects the efficiency or power of the electricity generation. In order to make electric energy distribution uniform throughout the year we can opt for alternative energy sources besides hydro power. The alternative energy can only be the thermal power plant in context of Nepal. And among several thermal power plants the most suited thermal plant to Nepal is the solar thermal power plant than the thermal power plant powered by the fossil fuels and nuclear power.

The Solar thermal power plants, the alternative type of solar power plants is one the most suitable technology for Nepal .These plants beside helping on the electricity production, it also leads to the to the conservation of fossil fuels (which are non renewable resources and also we don't have it in excess amount), consequently preserving the environment in particular with respect to their high potential to contribute to the reduction of the CO<sub>2</sub> emissions. Solar thermal power stations are among the most cost-effective renewable power technologies. We can also say that solar thermal power plants are eco friendly.

The construction of solar thermal power plants does not require the huge and complex manpower. As compared to the hydro power station, the cost of constructing these plants is very much low. It can be constructed at the very low cost with the help of simple technology with the local technicians and the local engineers.

But yes, the main disadvantage of the solar power plants is they can only be used during the day time when there is enough sunlight. In the absence of the sunlight or during the cloudy days it is of no use.

Concentrating solar thermal is considered as one of the main options for renewable bulk electricity production. The basic concept of a solar based thermal power plant is sound and implementation of it is completely feasible.

Finally, Solar Thermal power plants are considered as one of the green technology on the recent days for reducing the emission of the toxic gases to the atmosphere than compared to other varieties of power plant carbon dioxide in the huge quantity by burning of the fossil fuel. Therefore, it can be used by the developing countries and developed countries to maintain the healthier atmosphere. Besides that it can be used for easier, healthier, efficient and reliable power generation. So, in Nepal lots of such smaller project can reduce the electrical power scarcity in Nepal and reduce the energy dependency among the neighboring countries. Thus the implementation of solar power system seems relevant in our context.

Give subtitles and rewrite.