

CONVENTIONAL SOURCES OF ENERGY

Those source which has been used by man for long time and still being tapped & used abundantly. Ex-Coal, petroleum, Natural gas and hydel power.

COAL:

It is combustibile solid rock of organic and mineral matter. It is formed due to accumulation of organic matter buried millions of years ago. Types of Coal:



(1) Anthracite Coal - hardest, shiny, jet black, best variety. 90% Carbon and burns without smoke. It has high heating value so it is preferred for Domestic use.

(2) Bituminous Coal - hard, black, compact, 50% to 80% carbon, Coking Coal is high grade bituminous coal because when heated in coke oven it fuse into coke.

(3) Lignite Coal - brown, lower grade coal, 40% Carbon.

(4) Peat - It is first stage of wood into coal. Least Carbon content.

Distribution:-

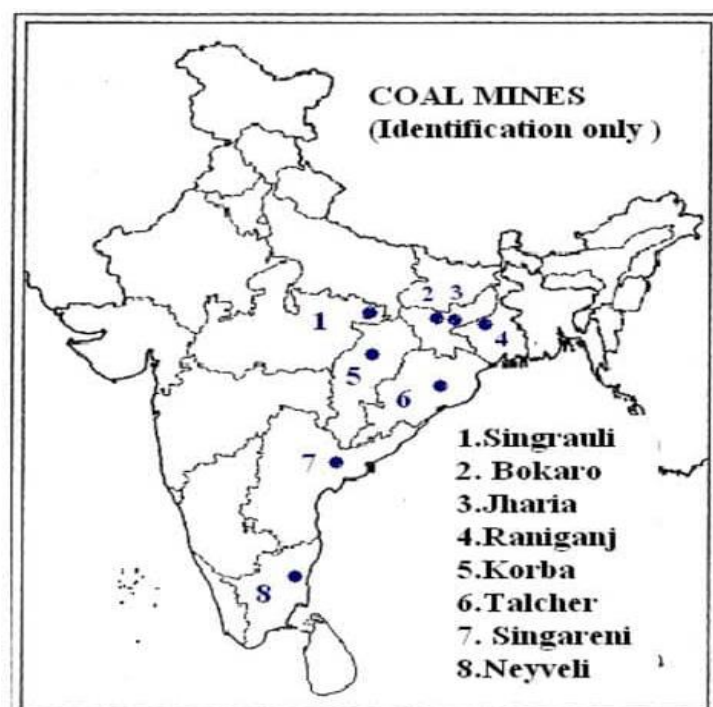
India is IIIrd largest producer of coal.

Old Coalfield - Raniganj, WB & largest coal.

Coalfield - Jharia, Jharkhand. India has large deposit of Bituminous Coal.

Anthracite - J & K; Bituminous - Gondwana Coal Mines

Lignite - T. Nadu, Rajasthan; Peat - Nilgiri Hills.



1) Gondwana Coalfields - 98% of Total reserves of India. It is free from moisture, contain sulphur and phosphorus. Found near river valleys of Damodar, Mahanadi, and Godawari. Important states and coalfields are:

Jharkhand - Jharia, Karnpura, Ramgarh.

M.P. - Singrauli, Narsinghpur, Chhindwara

Maharashtra - Kamptee, Wardha

W. Bengal - Raniganj, Bardhaman, Bankura.

2) Teritary Coalfields - It has high moisture, more sulphur & less calorific value. Important States - Assam, Arunachal pradesh, Nagaland, Neyveli Lignite is largest lignite deposit field in South India.

Advantages:

- i) Important source of power for machine, trains.
- ii) Used in making Iron & Steel.
- iii) Used in thermal power plant.

Disadvantages:

- i) Causes pollution.
- ii) Calorific value of coal is low.
- iii) Coal reserves are scattered.

PETROLEUM:

It is made from two word. Petra means rock and oleum means oil so it means rock oil. It is called Liquid Gold because



even the smallest part of it is not wasted or remain unused. Petrol, Diesel, Kerosene, LPG, Lubricant and paraffin wax are some product obtained from refining petroleum.

Advantages:

- i) It is used as fuel so help in transportation on land, on sea and in air.
- ii) It is raw material for production of rubber, PVC, gasoline, paints, varnishes.
- iii) It is used in thermal power plants.

Disadvantages:

- i) It is now renewable, fast depleting.
- ii) cause pollution, global warming.
- iii) It is costly.
- iv) Highly inflammable causes fire.

Oil Refineries - First private sector Refinery - Reliance Petroleum Ltd Jamnagar, Gujarat.

Refinery are located near the oil field or coast to reduced cost of transportation and risk of fire.

Distribution:-

- i) Mumbai High - because of the height of syncline rock structure.



ii) Oilfields of East - Digboi (biggest), Moran, Bappapung.

iii) Oil field of West - Kalol, koyali, kosamba, Sanaud, Kathana, Ankleshwar.

NATURAL GAS:

Natural gas occurs in association with mineral oil. Therefore, an oilfield fields natural gas almost invariably. It is mainly composed of methane (95 %) with small amounts of propane and ethane. The gas used for running vehicles is known as Compressed Natural Gas (CNG).



Liquefied Petroleum Gas (LPG): The main component of LPG is butane. It is odourless, but the LPG in our domestic gas cylinders gives a foul smell due to ethyl mercaptan, a foul-smelling gas.

Compressed Natural Gas (CNG): It is being used as an alternative to petrol and diesel for transport of vehicles.

Distribution: Over three-fourths of India's natural gas comes from Mumbai High, Assam, Tamil Nadu, Rajasthan and Tripura.

ADVANTAGES:

- 1) Natural gas is an eco-friendly fuel.
- 2) It is easier to preserve than other fuels.
- 3) It can be piped into houses for heating and cooking purposes and running a variety of appliances.
- 4) It is a cleaner, cheaper fuel than diesel or gasoline.
- 5) It is used for producing hydrogen, ammonia for fertilizers and some paints and plastics.

Disadvantages:

- 1) Leaks of natural gas are difficult to detect and are very dangerous. Such leaks may cause explosions or fire.
- 2) Natural gas though found in abundance is non-renewable and hence likely to be exhausted.
- 3) The infrastructure for natural gas production and distribution is fairly expensive.

HYDEL POWER:

Electricity generated from water is called hydel power or **hydroelectricity**.

Hydroelectricity is produced from the energy that is released when water falls from a high level with great force. The water flowing in a river is collected by constructing a big dam where the water is stored. Then it is allowed to fall from a height. The blades of the turbine located at the bottom of the dam move with the force of falling water, which in turn rotates the generator and produces electricity.



Advantages:

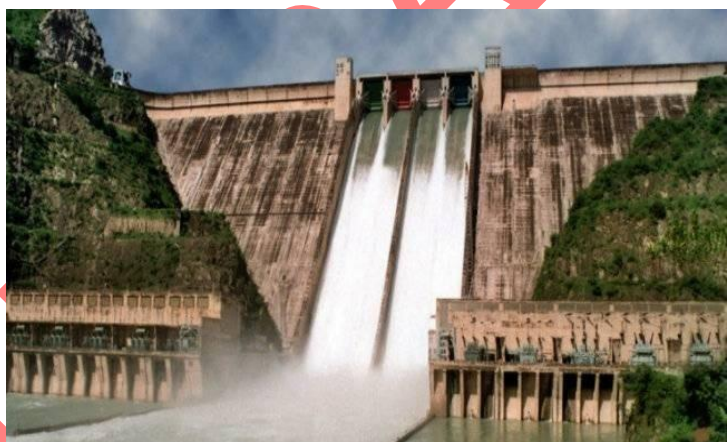
- 1) Hydel power is a clean, non-polluting source of energy.
- 2) It does not produce any Greenhouse Gases and prevents us from the harmful effects of Global Warming.
- 3) It is a renewable sources of energy which can be used again and again.
- 4) The dams built to produce hydroelectricity help to save and restore water.
- 5) It is economical.

Disadvantages:

- 1) The cost of building dams for producing hydroelectricity is quite high. Building a large dam alters the natural water-table level.
- 2) Building a large dam can cause serious geological damage. It disturbs their life physically, mentally and psychologically.

Bhakra Nangal Dam:

The Bhakra Nangal Project is a joint venture of Punjab, Haryana and Rajasthan Governments. The two dams, one at Bhakra and another at Nangal, together is referred to as Bhakra-Nangal Project.



The Bhakra-Nangal project comprises the following:

- i) Two dams at Bhakra and Nangal
- ii) Nangal hydel plant
- iii) Power houses
- iv) Bhakra canal system

1. The **Bhakra Dam** is built across the Sutlej River.

2. The **Nangal Dam** has been constructed at Nangal on the river Sutlej in Punjab.

3. **Power Houses** four power houses at Ganguwal, Kotla, left bank power house.

4. **Bhakra Canal System** provides irrigation facility to 10 million acres of land in Punjab, Haryana and Rajasthan.

The aim of these projects are:

- i) to provide water for irrigation, to
- ii) generate hydro-electricity, and

iii) to prevent flooding from Sutlej-Beas's rivers.

HIRAKUD DAM:

Hirakud Dam is built across the Mahanadi River.

The dam helps control floods in the Mahanadi delta and irrigates 75,000 square kilometres of land.

The project provides kharif and rabi irrigation in districts of San Sambalpur Bargarh, Bolangir, and Subarnpur.



SIR TARUN RUPA