

## **FOSSIL FUELS**

A fuel is a substance consumed to provide energy through combustion or chemical reaction or nuclear reaction.

Fossils are geologically altered remains of a once-living organism and / or its behaviour.

Fossil fuels are fuels that were formed as a result of a gradual decomposition/ decay of the remains of plants and animals that lived millions of years ago.

Or these are natural substances formed from anaerobic decay of dead plants and animals that lived millions of years ago and are used as a source of fuel.

### **Types of Fossil Fuels**

There are mainly three types of fossil fuels, namely:

- 1) Coal; it is a solid at room temperature.
- 2) Crude oil; thick dark brown or black liquid.
- 3) Natural gas; colourless gas.

These fossil fuels differ in the way they were formed. However, they have many physical and chemical properties in common. All are (1) natural resources (2) sources of energy and (3) non-renewable.

Uganda has large deposits of fossil fuels especially crude oil and natural gas. Coal is not found in Uganda.

### **How Was Each of These Fuels Formed?**

#### **(1) Coal**

Coal was formed by the action of heat and pressure on the remains of mainly terrestrial /land plants over millions of years. Coal is formed by slow decomposition of dead plant materials. This process is called carbonisation. Plants contain a high amount of carbon; this is why coal also contain high amounts of carbon.

#### **(2) Crude oil and natural gas**

Crude oil and natural gas were formed by the action of heat and pressure on the remains of sea plants and animals over millions of years.

Fossil fuels contain carbon because they are formed from the remains of plants and animals which are made up of carbon. These fuels are known as fossil fuels because they were formed from fossils which were formed millions of years ago which were decomposed under high pressure and temperature.

### **Which of The Fossil Fuels Does Not Pollute Our Environment?**

Natural gas. This is mainly methane and is transported as CNG or LNG. The advantage of using natural gas is that it is less polluting than crude oil and so is described as clean fuel.

Unlike natural gas, coal consists of the elements Sulphur, nitrogen, hydrogen and oxygen. These elements are very reactive. This is why coal is highly combustible and also a heavy pollutant.

### **How Are Fossil Fuels Extracted?**

There are two main methods for extracting fossil fuels from the ground. These are (1) mining (2) drilling. Fossil fuels are obtained from the earth by mining and drilling.

**Mining** is the extraction of solid fossil fuels from the earth. For example, coal is extracted by digging underground or scrapping from the surface.

**Drilling** is a cutting process in which a drill bit is used to cut or enlarge a circular hole in a solid material. Crude oil and natural gas can easily be forced to flow to the surface using drilling method.

### **Why Are Fossil Fuels Used as Sources of Energy?**

- ✓ This is because of their ability to release a lot of energy when burned.
- ✓ Fossil fuels are cheap and easy to use.

### **In What Ways Are Fossil Fuels Used as Energy Sources?**

- Generation of electricity.
- In transportation as fuel for automobiles and jets.
- For cooking in gas stoves.
- Heating homes and buildings.
- Heating water.

### **Other Uses of Fossil Fuels**

By-products of crude oil are used to produce various chemicals like;

- Plastics.
- Paint.
- Lubricants for vehicles and machines.
- Tar for tarmacking roads.
- Soap and dyes.
- Medicines like aspirin.
- Fertilizers and pesticides.

### **Why Are Fossil Fuels Described as Non-Renewable?**

This is because they cannot be regenerated or produced any natural process. The formation of fossil fuels happened millions of year ago and such process may not happen again in the near future. In other words, fossil fuels are described as non-renewable natural resources because they cannot easily be replaced. Fossil fuels take a long time to be formed or renewed.

There is need for sustainable use of these fuels. Sustainability means using a resource to meet our own current needs without compromising the ability of future generations to meet their own needs.

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