

## **CHAPTER 20 MINING IN NIGERIA**

### **Objectives**

After studying this chapter, students should be able to:

- (i) mention important minerals in Africa, their mining countries and areas
- (ii) state the economic importance of each one of them.
- (iii) state their methods of mining and economic importance.
- (iv) outline the problems of mining in Africa.

Mining has played an important part in the economic development of Tropical Africa over the past 60 years. Africa is blessed with vast deposits of a large variety of minerals. This section deals with the exploitation of copper, gold and petroleum in some countries in Africa.

### **20.1 Copper Mining in Zambia and Congo**

The most important copper production area in Africa are the copper belt of northern Zambia and the Shaba province of Congo. The Zambian copper belt covers about 5,000sqkm. In Africa, Zambia is the leading producer, accounting for about 50 percent of the continent's total production and 25percent of the world's copper reserves.

Other mining areas in Africa apart from Zambia are Shaba province in Congo, Messina in South Africa and Ukkundu and Mankia in Zimbabwe.

### **Methods of Mining**

Two methods of mining are used in the Zambian copper belt. These are *open pit/cast method and deep shaft mining or underground method.*

1. **Open cast/pit method:** This method is used when the deposit is close to the surface. This method involves the use of explosives to remove the overburden rocks. A machine called a **dragline** is then used to pile the copper washed into heap. Then, a monitor is used to direct a string jet of water towards the heap and the water washes the soil through a series of sluice boxes. The copper ore sinks to the bottom of the sluice boxes and the copper concentrate formed is sent to the factory for smelting.
2. **Deep shaft or underground method:** This is more expensive and complex than open cast method. Vertical shafts (holes) are dug to the level of the ore-bearing rock (about 100m deep). From the shaft, horizontal tunnels are driven towards the copper-bearing rock. Holes are drilled in the copper-bearing rock. The holes are filled with explosive and the rocks are shattered by blasting. The broken rocks are hauled to the surface and sent to the concentrators which are close to the mines. The mineral is later sent to the smelters at Rokana, Ndola and Mufulira in Zambia and Luila in Zaire.

**The route of Export:** In Zambia, export and import are through foreign territory as a landlocked country. In Congo, copper is exported through Benguela route, Beria route, Maputo route, Voie national and the Kamina – Kalemie – Kigoma Dar es Salaam route.

The trading partners of the two countries are Italy, Germany, France and USA.

### **Economic Importance of Copper**

These include:

1. Copper is used as cables in electrical equipment because it is a very good conductor of electricity.
2. It provides employment to many people.
3. It is exported for foreign exchange earnings.
4. Copper is used as a raw material in metallurgical industries near Likasi and Kolwesi.
5. It can be used to produce good alloys e.g. copper and zinc produce brass while copper with tin produce bronze.
6. Money earned from copper is used to provide social amenities.
7. The presence of copper has led to the growth of towns like Ndola and Nchanga in Zambia.
8. The exploration of minerals has led to the production of geological maps.

### **Problems of Copper Mining**

These include:

1. Inadequate personnel in mining and exploitation of the mineral.
2. Inadequate capital to exploit the mineral.
3. Poor transport network.
4. Difficult terrain increases operational costs.
5. Fall in prices in the world market.
6. Worker's strikes have adversely affected copper mining.
7. Shortage of equipment and spare parts.
8. Copper faces competition from other materials e.g. use of aluminium to transmit electricity instead of copper.
9. Poor management
10. Environmental pollution e.g. air pollution

## **20.2 Gold Mining in South Africa**

South Africa is the richest and most developed country in Africa. South Africa is extremely rich in minerals, gold and diamond. South Africa is the largest producer of gold in Africa, followed by Ghana, Zimbabwe and Zaire.

South Africa is also rich in other minerals like platinum, manganese, nickel, tin asbestos, coal, copper, chromium and iron ore. Mining of gold began in the Witwatersrand in 1886. The oldest gold mining area is around Johannesburg. Other gold mining areas include springs, orange free state, Brakpan, Welkom, Evander etc.

Apart from South Africa, gold is mined in Dunkua, Tarkwa in Ghana; Gatoama and Gwanda in Zimbabwe.

### **Methods of mining Gold**

Underground or shaft method is also used here like that of copper. Vertical holes or shafts are dug to reach the ore bearing rocks from where holes are drilled. Explosives are used to till the holes to shatter the rocks by blasting. The broken rocks are taken to the concentrator that filters out the gold and sent to the smelters for further refining.

Apart from the one mentioned above, the crushing method could be used to obtain gold from hard rocks. Gold is found on alluvial deposits such as along river valleys, panning methods are used.

Gold usually occurs together with uranium. So, when the ore is hauled to the surface, it is treated to separate the uranium.

### **Economic Importance of Gold**

1. The industry gives employment to a large number of people.
2. South Africa exports gold for foreign exchange earnings.
3. It has led to the establishment of new towns and the development of old ones e.g. Welkom grew from hamlet to a town.
4. Gold mining has led to the development of infrastructures such as railways.
5. Uranium is also found in the gold-bearing rocks.
6. Gold has attracted much international investment to South Africa from Britain.
7. Money earned from gold are used to provide social and basic amenities which improve the standard of living of the people.
8. It enables people to acquire different skills.

### **Problems of Mining Gold**

The gold mining industry in South Africa is facing several problems

1. Gold mining is very expensive and requires heavy capital investments.
2. The mines are very deep, hot inside and often flooded with water.
3. A disease called Phthisis (severe tuberculosis) attacks the miners as a result of the dust inhaled during mining.
4. Gold mining requires a large amount of water.
5. Poor management.
6. Fluctuations in world prices of minerals.
7. Inadequate trained personnel in mining and exploitation of minerals.
8. Environmental pollution.

### **20.3 Petroleum (Mineral Soil)**

Apart from Nigeria, which is the major oil producing country in Africa, other producing areas are Algeria, Tunisia, Egypt in North Africa:

Cameroon, Gabon, Congo and Angola in central Africa, and Mozambique in South Central Africa.

In Nigeria, some of the areas where oil wells are located are Oloibiri, Afam, Port-Harcourt, Ughelli, Sapele, Egbema etc and off-shore wells located in Cross River State.

Petroleum is transported through pipelines, railway tankers, road tankers and sea or ocean tankers. Nigeria is now the United States largest supplier. Other consumers are Italy, South America, Western Europe and France.

### **Method of Mining**

Petroleum is mined by drilling method. The underground rocks are sampled and tested for traces of oil. A well is sunk to reach the area where oil is discovered. The oil is then pumped out. The oil flows out and 'Christmas tree' (a system of valves) is erected to control the flow into tanks.

The oil is transported through pipelines to the refineries at Warri; Port Harcourt and Kaduna.

### **Economic Importance of Petroleum**

The economic importance of oil are:

1. Oil is the major source of revenue to the Nigerian government.
2. Oil has led to the development of major cities e.g. Warri and Port Harcourt.
3. The revenue earned from petroleum has been used to finance some infrastructural projects like building of schools and construction of roads.
4. The oil industry has created employment opportunities for both skilled and unskilled workers.

5. The oil refineries have helped in raising the country's level of industrialization.
6. The prices of petroleum products are low in Nigeria.
7. Some of the oil companies award scholarships to young Nigerians from time to time.
8. The industry has led to the improvement of port and waterway facilities.
9. Petroleum provides raw materials for associated industries e.g. petro-chemical factories.
10. Many Nigerians have received various levels of training useful for working in the industry.

### **Problems of Petroleum**

The problems include:

1. The prices of oil fluctuates frequently in the world market and affect the economic planning.
2. There have been many cases of oil spillage in the areas of production.
3. The oil will not last for ever (exhaustible resources)
4. Offshore oil mining is hazardous and consequently unattractive to job seeker.
5. Oil exploration is very expensive and it depends on foreign capital and expertise.
6. There is the problem of constant conflicts with the local people and the prospecting companies.
7. Poor management
8. Inadequate trained personnel in mining and exploration of minerals.

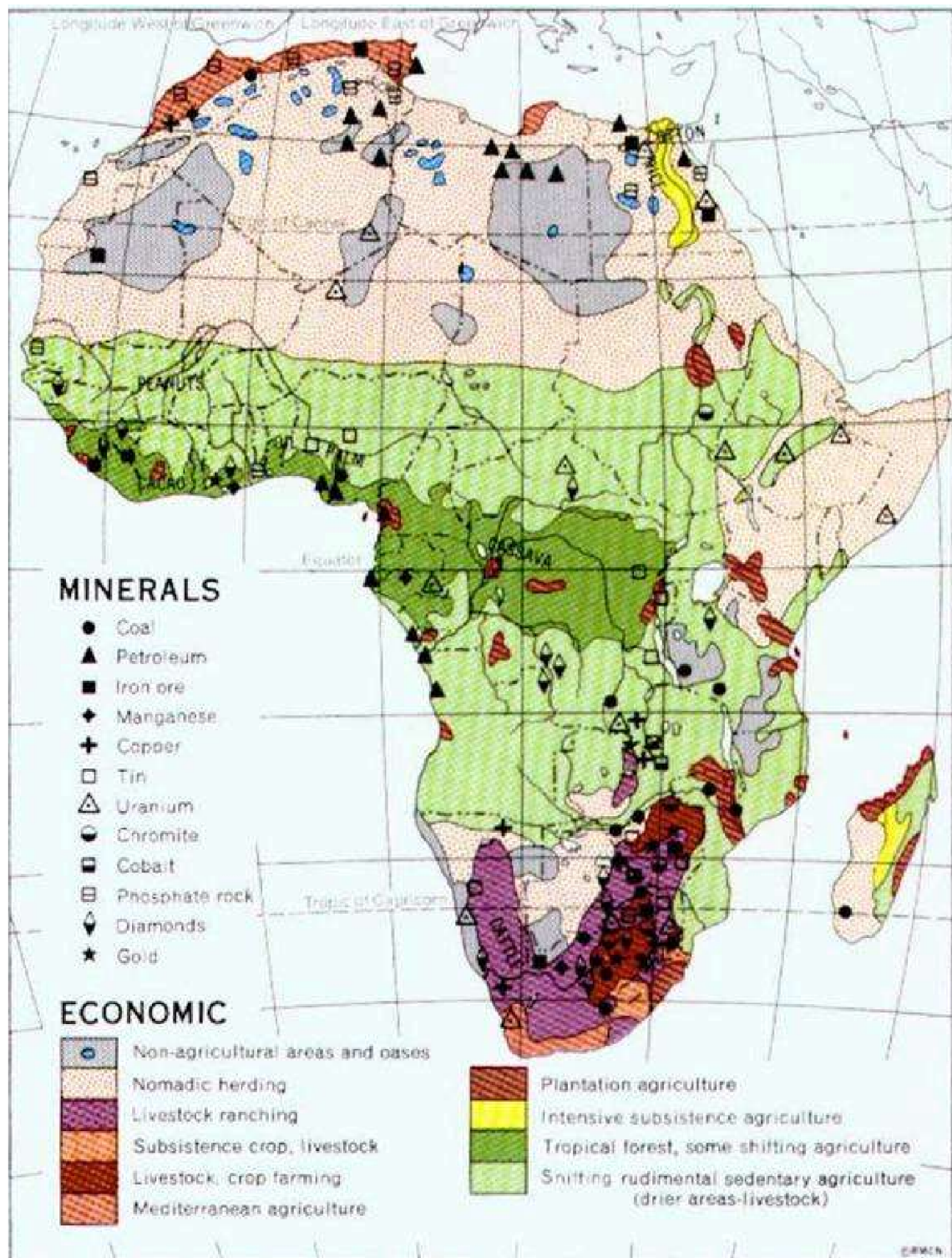


Fig. 20.1: Important minerals in Africa



## **Summary**

- Mining has played an important part in the economic development of Tropical Africa. Some important minerals in Africa include copper, gold and petroleum.
- The methods of mining used are open cast method, shaft method and drilling method.
- The economic importance of these minerals are creation of employment opportunities, foreign exchange earnings, development of infrastructural facilities, establishment of new towns, growth of towns, raw materials for industries and production of geological maps.
- The mining problems include inadequate personnel in mining, inadequate capital for exploitation, poor management, environmental pollution and fluctuations in world prices.

## **Revision Questions**

### **Objectives**

1. Which of the following is most likely to be a major problem confronting the mining industry?  
A. Availability of labour    B. Inadequate transportation facilities  
C. Depth of the mines    D. Insufficient spare parts
2. All the following are problems of mining in Africa except  
A. use of obsolete technology    B. inadequate foreign capital  
C. shortage of power    D. inadequate unskilled labour
3. All the following are associated with the mining except  
A. pollution    B. erosion    C. dumps    D. exfoliation
4. The most important method of mining tin in Nigeria is the  
A. shaft    B. open cast    C. drilling    D. adit
5. Which of the following is not likely to be an occupation in the area?  
A. farming    B. lumbering    C. fishing    D. mining

6. Which of the following town is most important for the mining of gold in Africa?  
A. Jos B. Johannesburg C. Kumasi D. Lubumbashi
7. The largest producer of Gold in Africa is  
A. Nigeria B. Zaire C. South Africa D. Algeria
8. Copper is produced in one of the following countries  
A. Angola B. Zambia C. Gambia D. Tunisia
9. One of the following is not a problem of mining petroleum.  
A. Poor management B. environmental pollution C. growth of towns  
D. poor transport network
10. All these are benefits of mining except  
A. environmental pollution B. acquisition of skills C. employment  
D. revenue generation

### **Essay**

- 1a. (i) Name two areas of copper mining in Zambia.  
(ii) Describe one method of copper mining in Zambia.
- b. Highlight four contributions of copper mining to the economic development of Zambia.
- c. What three problems face the mining of copper in Zambia? (SSCE 2004)
- 2a. Describe the major method of gold mining in South Africa.
- b. Highlight any four benefits of gold mining the country.
- c. Identify three problems which result from gold mining activities. (WASSCE 2001)
- 3a. Draw a map of Africa. On the map, locate and name: (i) an important area for the production of crude oil in Nigeria, Algeria and Libya.  
(ii) one important town in each area.

- b. Describe any three ways in which crude oil is of economic importance to any of the countries in 3(a)(i) above. (SSCE 2003)
- 4a. Define mining.
- b. List any three major mining areas of Gold in Africa.
- c. Account for the economic importance of Gold mining to those areas mentioned in (b) above.
- 5a. Outline four ways in which minerals are of economic importance to African countries.
- b. Explain four problems facing the mining industry in Africa.