

Lesson - 20

Oceanic Resources

71 % of the Earth's surface is covered with water and the rest 29% is the landmass. The oceans which are extended on the earth's surface are categorised with reference to location of continents, into three major and one secondary oceans. Pacific Ocean, Atlantic Ocean and Indian Ocean are the major ones. The fourth Ocean is Arctic Ocean, which is smaller in area and depth in comparison with other oceans. Pacific Ocean is the largest and deepest of all the oceans of the world.

Human beings are affected by the oceans directly or indirectly. A great mass of water of oceans provide many challenges and resources to human beings. There are many types of minerals and energy resources present in the oceans.

Importance of Oceans

The oceans provide us various types of resources. The oceans also influence our climate and are the cheapest source of transportation. Marine minerals, food and transportation are the direct advantages of oceans, whereas the effect of the oceans on the climate is its indirect advantage. The resources available on land are almost exhausted. The oceans are the only storehouses of resources for the future. The proximity of the oceans is favourable to human health. The seas provides the facility of recreation, scene visualisation, sports, swimming and navigation. The human civilization is greatly affected by oceans. Oceans are the only source of rainfall on the continents. Therefore, the oceans are of immense importance for the man.

Utility of the oceans

With the rapid growth of population, it is certain that it will create a crisis of food and lack of natural resources. Oceans are capable of saving mankind from this horrible crisis.

Oceanic resources

The resources of the oceans are divided into following categories-

1. Oceans and Mineral Resources
2. Oceans and Food Resources
3. Oceans and Energy Resources
4. Oceans and Drinking Water Resources
5. Oceans and Transportation, Trade
6. Oceans and Strategic Importance

1.Oceans and Mineral resources

There are many types of mineral resources available in the ocean water and it's bottom, but their extraction is very limited. According to an estimate , in one cubic km of ocean water , 50 tonnes of Silver, 25 tonnes of Gold, 11 to 35 tonnes of copper, manganese, zinc and lead 42 tonnes of Potassium Sulphate, 185 lakh tonnes of Magnesium chloride and many minerals and chemicals are present. Following are the major mineral resources:-

Mineral oil

This is the most important resource, which is available in the oceans. 40% of the world's mineral oil reserves are found in ocean basin. Many countries are extracting mineral oil from the oceans. Mineral oil is also being extracted in India, at the

depth of 2000 kms at Mumbai High, which is 150 km away from the Indian coastline.

Phosphate

The non- detrital sediments which contain minerals are called Phosphorite. It is found in form of nodules in the oceans.

Manganese

The Nickel and copper obtained from its nodules are of the same amount as obtained from terrestrial sources. It is found in maximum quantity in Pacific Ocean.

Salt

It is an important mineral obtained from the sea. Since the oceanic water is salty, the amount of salts dissolved in it is 3.5 percent. 78% of total salts, is sodium chloride, which is made edible after vaporization. The salt worth of 200 million dollar is manufactured yearly.

Other Minerals

Sand, Gravels, Gold ,Platinum, Tin, Magnetite, Iron, Tungsten and Thorium are some other important mineral resources.

2. Oceans and food resources

About 10% of the total food products of the world is obtained from oceans. Fish is the best protein diet which is an Oceanic resource. Fishing is one of the major occupations of the world. Fishing is a major source of livelihood in the world. Besides fishes there are many types of algae, plants, planktons, molsk and marine organisms obtained from the oceans. With the increase in pollution , the existence of Coral reserves are in danger. Its natural colour is changing because of chemical pollution.

3. Oceans and Energy Resources

The oceans absorbes three fourth of the solar radiation received by the earth. Winds and ocean currents move by this energy, and it increases the temperature of the ocean water. The energy from the oceans include Tidal energy , Hydrothermal energy and Geothermal energy. By receiving tidal energy from tides electricity can be produced. This type of electricity can be produced in Gulf of Khambat and Kachcha in India. Many countries are receiving energy from sea waves. Geothermal energy can be received from volcanic eruption.

4. Oceans and Drinking Water resources

The ocean water is not potable but it may be used in future for domestic works and industries. It is important to convert this saline water into potable. About 500 plants have already been set up for this purpose in the world. These types of plants have already been set up in large numbers in Gulf countries.

5. Ocean and Transportation, Trade

In ancient times, the oceans were considered as barriers between two landmasses, but today they provide easy and cheap transportation facilities. They are highways provided by the nature. As the surface of the oceans are flat, lesser thrust force is required. The oceans offer such routes for transportation which can be used independently as they are not under the governance of any country. There are several major international sea routes in the world. North Atlantic sea route is one of the major International sea routes. This waterway connects North America to Western European countries. About one fourth of the total international trade (in reference to total wieght carried) is done through this sea route. As this sea route connects two major industrial countries, it is considered highly significant. Suez route is important international water route which connects Japan with Tokyo. This sea route is long enough through Asha Foreland.

6. Oceans and Strategic Importance

Oceans were considered as barriers in communication between continents but with the development of navigation, their commercial and strategic importance have increased. There are many reasons for this.

Many countries want to be dominant in the extraction of minerals from the oceans. In the present era, the importance of navy has increased significantly due to the growth in economic activities and competitions. India is constantly making efforts to keep the Indian Ocean, independent of naval competitions at international forums. The naval activities have been expanded extensively due to the growing international tensions. By making Pakistan a pawn, many big countries, especially like America, China ,Russia, are constantly making efforts to increase their dominance in the Indian Ocean. The increasing

unwanted dominance of the foreign and far-off countries, on Indian ocean, may be dangerous and challenging for our country and it may also create unrest in this region. Our country should be cautious about these kinds of mala fides.

Important points

1. Oceans greatly affect the climate and weather of the earth. Oceans play an important part in all types of circulation.
2. Oceans are the store houses of resources. Both types of biotic and abiotic resources are found here.
3. Oceans play an important role in energy transportation and trade. Mineral Oil is also extracted from here.
4. Due to industrial development, the oceans are currently being wracked by different types of pollution. This is leading to loss of biological resources.
5. Corals, which are found in the oceans are changing their colour due to chemical pollution and their growth is also affected.

Exercise

Multiple choice questions

1. Which is the largest ocean of the world?
(A) Pacific Ocean
(B) Indian Ocean
(C) Arctic Ocean
(D) Atlantic ocean
2. Which ocean is mostly called sea?
(A) Indian Ocean
(B) Pacific Ocean
(C) Arctic Ocean
(D) Atlantic ocean
3. What is the total percent of oil reserves present in Ocean basins?
(A) 20%
(B) 30%
(C) 40%
(D) 50%
4. What is the name given to the energy obtained from tides?
(A) Geothermal energy

- (B) Tidal energy
- (C) Wind energy
- (D) Solar energy

5. At what place in the India the mineral oil is extracted in India?
(A) Gulf of Kutch
(B) Gulf of Khambhat
(C) Bombay High
(D) Coast of Kerala

Very short type questions

6. Which is the most important mineral obtained from oceans?
7. Which mineral is in the form of nodules obtained from oceans?
8. Write the names of two types of energy obtained from the oceans.
9. What is the source of geothermal energy?
10. Write the names of the food products obtained from oceans?

Short type questions

11. Describe the direct and indirect advantages of oceans.
12. What is the importance of oceans?
13. What are the different needs which will be fulfilled by oceans?
14. Write the names of marine resources.
15. Mention the major mineral resources obtained from the oceans.

Essay type questions

16. Describe the importance of oceans and explain their utility.
17. What are the different categories of oceanic resources? Describe them in detail.
18. "Oceans are an important link for the existence of Earth" Critically examine the statement.

Answer key

1. (A). 2. (C). 3. (C). 4. (B). 5. (C)