SER No	CONTENT
	LESSON PLAN **NATURAL RESOURCES CONSERVATION & MANAGEMENT** Period - One Type - Lecture Code - E 1 Term - I (SD/SW) **Training Aids** 1. Computer, Projector, Charts, Pointer, Black Board & Chalk **Time Plan** 2. (a) Introduction - 05 Mins (b) Type of Natural Resources - 15 Mins (c) Conservation and Management of Resources - 15 Mins (d) Conclusion - 05 Mins **INTRODUCTION** 3. A **natural resource** is any useful product which is produced by nature and is essential for our survival. Natural resources can be classified in different ways as per their nature or availability or type. A few examples of natural resources are air, water, wood, oil, solar energy, wind energy, fossil fuels, minerals and coal. Refined oil is not a natural resource since humans create it. **AIM** 4. To acquaint the cadets about Natural resources, their conservation and Management. **PREVIEW** 5. The lecture will be conducted in following parts:- (a) Part I - Type of Natural Resources. (b) Part II - Conservation and management of Natural Resources.
(a)	**PART I : TYPES OF NATURAL RESOURCES** 6. Natural resources can be classified by various methods, which include source of origin, stage of development and by their renewability. These classifications are described below. 7. Natural resources are basically classified as either renewable or non-renewable:- (a) **Renewable Resources**. These are resources which can be replenished naturally. Some of these resources, like sunlight, air, wind, water etc, are continuously available and their quantity is not noticeably affected by human consumption. (b) **Non-Renewable Resources.** These are resources which are formed extremely slowly and those which do not naturally form in the environment. Minerals and Fossil Fuels are the most

common resources included in this category.

8. Resources can be further classified on the basis of origin as under :-

(a) **Biotic**. Biotic resources are obtained from the biosphere (living and organic material), such as forests and animals and the materials that can be obtained from them. Fossil fuels such as coal and petroleum are also included in this category because they are formed from decayed organic matter.

(b) **Abiotic**. Abiotic resources are those that come from non-living, non-organic material. Examples of abiotic resources include land, fresh water, air and heavy metals including ores such as gold, iron, copper, silver, etc.

9. Considering their stage of development, natural resources may be referred to in the following ways:

(a) **Potential Resources.** Potential resources are those that exist in a region and may be used in the future. For example, petroleum may exist in many parts of India, having sedimentary rocks but until the time it is actually drilled out and put into use, it remains a potential resource.

(b) **Actual Resources**. Actual resources are those that have been surveyed, their quantity and quality determined and are being used in present times. The development of an actual resource, such as wood processing depends upon the technology available and the cost involved.

(c) **Reserve Resources**. The part of an actual resource which can be developed profitably in the future is called a reserve resource.

(d) **Stock Resources**. Stock resources are those that have been surveyed but cannot be used by organisms due to lack of technology. For example, hydrogen.

(b)

PART II : CONSERVATION AND MANAGEMENT OF NATURAL RESOURCES

Need for Management and Conservation of Natural Resources

10. Most of natural resources on earth, especially the non renewable resources, have a finite limit. Excessive use of these may deprive the future generations their use. It is therefore extremely essential that we not only conserve natural resources but also plan their proper management so that the longevity of these resources increases. Some of the major effects of unrestricted use of natural resources are as under :-

(a) **Ozone Depletion**. This is a process by which the total volume of ozone in the Earth‘s atmosphere decreases. The major reason for this ozone layer depletion is the production of man-made refrigerants (CFCs, Freon, Halons). Since the ozone layer prevents most harmful UVB wavelengths (280–315 nm) of ultraviolet light (UV light) from passing through the Earth's atmosphere, depletion of the ozone layer has serious damaging effects.

(b) **Soil Erosion.** Erosion is the process by which soil and rock are removed from the Earth's surface by natural processes such as, wind or water flow and then transported and deposited at

other locations. While erosion is a natural process, human activities such as deforestation and expansion of built up areas have dramatically increased the rate at of soil erosion. Excessive soil erosion causes problems such as desertification, decreases in agricultural productivity due to land degradation, sedimentation of waterways and ecological collapse due to loss of the nutrient rich upper soil layers.

(c) **Acid Rain.** It is a rain or any other form of precipitation that is unusually acidic, meaning that, it possesses added levels of hydrogen. Acid rain is caused by emissions of harmful chemicals such as sulfur dioxide and nitrogen oxide, which react with the water molecules in the atmosphere to produce acids. Chemicals in the acid rain cause paint to peel, corrosion of steel structures such as bridges and erosion of stone statues, besides causing total destruction to crop.

(d) **Global Warming**. Global warming is a phenomenon associated with the increase of earth‘s temperature. One of the major causes of global warming has been excessive production of Greenhouse gases. A greenhouse gas is a gas that absorbs and emits radiation within the thermal infrared range. The primary greenhouse gases in the Earth's atmosphere are water vapour, carbon dioxide, methane, nitrous oxide and ozone. Green house gases have a great affect on the earth‘s temperature.

Methods of Management and Conservation of Natural Resources

11. Following methods contribute immensely towards efficient conservation of resources :-

(a) **Recycling.** This is a method by which some of the resources can be conserved by recycling them or reusing them by adopting certain methods as under:-

(i) Recycling of paper will reduce the burden on trees.

(ii) Recycling of water including sewage will reduce the burden on sub soil / fresh water for irrigation.

(iii) Recycling of metal / plastic waste will conserve metal resources.

(b) **Water Harvesting**. This method can be used for storing rainwater for use at a later date. In villages, storing of rain water in ponds will increase the level of sub soil water.

(c) **Aforestation.** Planting more trees and avoid cutting of trees. This will prevent soil erosion as also increase good gases in the environment.

(d) **Proper Waste Management.** This will prevent pollution of soil and water sources like river, ponds and sea. This not only involves segregation of waste into biodegradable / non biodegradable and its subsequent treatment, but also treatment of industrial / sewage effluents before discharge into the river / sea.

(e) **Greater Use of Renewable Sources**. Using renewable sources of energy like solar and wind power will help in conserving electricity.

(f) **Avoid Wastage.** Excessive use / uncontrolled use leads to wastage. Wastage can be prevented by proper education, monitoring and controlled usage.

(g) **Increasing Energy Efficiency**. Use of energy efficient vehicles or equipment like CFLs will reduce consumption. Also use of alternate sources of energy like solar or wind energy will reduce consumption of electricity.

(h) **Monitoring and Control.** There is a strong need to put into place strong and stringent control and monitoring organizations so that uncontrolled wastage can be prevented.

ROLE OF NCC IN CONSERVATION OF NATURAL RESOURCES

12. Every cadet can fulfill his obligation towards environment individually or collectively by following means :-

(a) Avoiding cutting of trees and by Planting more trees.

(b) Not polluting water sources like river, ponds, sea.

(c) Avoiding use of plastic.

(d) Avoiding noise pollution.

(e) Recycling natural resources to ensure their efficient sustainable use.

(f) Using renewable sources of energy like solar and wind power.

(g) Saving energy in small matters like switching off fans, lights and other electric gadgets when not needed.

CONCLUSION

13. Natural resources are Mother Nature's gift to mankind. These need to be used with discretion. Large scale industrialization, urbanization and massive increase in population are leading to depletion of these meager resources. Natural resources are to be conserved and managed judiciously.