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(GEOGRAPHY DEPARTMENT)**

B.A. PART - 2 (ECONOMIC AND RESOURCE GEOGRAPHY : PAPER - 4)

TOPIC : IMPORTANCE OF SOIL RESOURCES

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Soil is our life support system. Soils provide anchorage for roots, hold water and nutrients. Soils are home to myriad micro-organisms that fix nitrogen and decompose organic matter, and armies of microscopic animals as well as earthworms and termites. We build on soil as well as with it and in it.

Soil plays a vital role in the Earth's ecosystem. Without soil human life would be very difficult. Soil provides plants with foothold for their roots and holds the necessary nutrients for plants to grow; it filters the rainwater and regulates the discharge of excess rainwater, preventing flooding; it is capable of storing large amounts of organic carbon; it buffers against pollutants, thus protecting groundwater quality; it provides Man with some essential construction and manufacturing materials, we build our houses with bricks made from clay, we drink coffee from a cup that is essentially backed soil (clay); it also presents a record of past environmental conditions.

Soil functions are general capabilities of soils that are important for various agricultural, environmental, nature protection, landscape architecture and urban applications. Six key soil functions are:

1. Food and other biomass production
2. Environmental Interaction: storage, filtering, and transformation
3. Biological habitat and gene pool
4. Source of raw materials
5. Physical and cultural heritage
6. Platform for man-made structures: buildings, highways

#IMPORTANCE OF SOIL

1. Soil is the backbone of our food security. Without healthy soils, farmers wouldn't be able to provide us with feed, fiber, food, and fuel.
2. Just like how a foundation for a home is critical, healthy soils act as a foundation for plants by supporting plant roots and keeping plants upright for growth.
3. Soils act as a pantry for plants, storing and cycling essential nutrients and minerals that plants need to grow.

4. Soils store water for plants. In fact, according to the USDA, “every 1% increase in organic matter results in as much as 25,000 gallons of available soil water per acre.” That’s a lot of water!
5. Soils maintain adequate aeration for plants, providing oxygen for microbes, insects and plant roots.
6. Soils are habitats for beneficial soil microbes; these organisms are nature’s hidden helpers. They form synergistic relationships with plants to protect them from stress and provide them with nutrients, among other tasks. According to the [USDA](#), “one teaspoon of healthy soil contains, 100 million-to-1 billion individual bacteria alone.”
7. Soils are homes for many other organisms like insects that lay and hatch eggs in the soil.
8. Soils filter surface water of dust, chemicals and other contaminants. This is why underground water is some of the cleanest sources of water.
9. Healthy soils help protect the planet from climate change. According to Columbia University’s Earth Institute, “soils remove about 25 percent of the world’s fossil fuel emissions each year.”
10. Healthy soils provide farmers with better crop yields and protect plants from stress.

11. When it comes to human health, almost all of the antibiotics we take to help fight infection were obtained by soil microbes.

12. Healthy soils protect the land from erosion.

13. Soil is a nonrenewable natural resource. According to the Food and Agriculture Organization (FAO), it can take hundreds to thousands of years to form a centimeter of soil. But, that single centimeter of soil can be lost in a single year due to erosion.

14. 11% of the total U.S. employment works in the agricultural and food sectors - that's 2.16 million full- and part-time people working on our soils each day.

15. Soil is made up of 45% minerals, 25% water, 5% organic matter and 25% air.

16. Soil acts as a holding facility for solid waste.

17. Soils help regulate the Earth's temperature.

18. Healthy soils mitigate the impacts of extreme weather events.

19. Archeologists have determined that many sophisticated civilizations such as the Mayans and the Harappan, fell because they mismanaged their soils.

20. According to the World Future Council, "soils help control weeds, plant pests, and disease."

21. Soil is the foundation of our buildings, roads, houses, and schools. In fact, soil affects how buildings are made.

22. Soil holds Earth's history, containing artifacts - from dinosaurs to ancient human civilizations - from our Earth's past. There's a lot of history stored in soils!

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