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EJERCICIO 4

PARTE A

18 de octubre de 2024

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Erosion in nature is a benevolent process without which the world would have long since perished. The same process, accelerated by human mismanagement, has become one of the most vicious and destructive forces man has ever unleashed. What is usually commonly referred to as "geological erosion" or "denudation" is a universal phenomenon that, for thousands of years, has chiselled the earth into its present shape. Denudation is an early and important process in soil formation, whereby the original rock material is continuously broken down and sorted out by wind and water until it becomes suitable for plant colonisation. Plants, almost bring denudation to a standstill through the binding effects of their roots, the protection they provide from rain and wind and the fertility they give the soil. Everybody has probably compared the rugged and irregular shape of bare mountain peaks, where denudation is still active, with the smooth and harmonious curves of slopes that have long been protected by a mantle of vegetation. Nevertheless, slight denudation always takes place. When superficial layer of plant-covered soil becomes exhausted, it is removed by rain or wind and deposited mainly in rivers and the sea, and the slow weathering of underlying rock forms a corresponding thin layer of new soil.

Human activities easily disturb the balance between denudation and soil formation. Cultivation, deforestation or the destruction of natural vegetation by grazing or other means, unless carried out according to certain invariable conditions set by each region, can accelerate denudation to such extent that soil, which would normally be washed or blown away in a century disappears within a year or even a day. But no amount of human ingenuity can accelerate the process of soil renewal from lifeless rock on a scale anywhere near as much as the acceleration of denudation. This human-accelerated denudation is known as soil erosion. It is an almost inevitable consequence when the natural fertility of the soil falls below a certain level.

Erosion is the modern symptom of the mismatch between human society and its environment. It is a warning that nature is rebelling against the sudden intrusion of an exotic civilization into its ordered realms. Man is allowed to dominate nature under exactly the same conditions as trees and plants, namely on the condition that he improves the soil and leaves it in a better state than he found it for the benefit of future generations. 6Agriculture in Europe, notwithstanding its weaknesses, was and perhaps still is a practice which by and large increases soil fertility. When adopted and adapted elsewhere, it has almost invariably led to a catastrophic decline in fertility. The illusion that fertility can always be restored by applying some of the vast quantities of artificial fertilizers available today has been shattered by the realization that fertility is not only a matter of plant-food supply (for even depleted soils usually contain abundant reserves of plant food) but is also closely linked to the stability of the soil. An exhausted soil is an unstable soil; nature has no more use for it and physically removes it. The process is the

same as denudation, but whereas under normal conditions a fraction of an inch of soil may become depleted and removed in a century, under human control the entire depth of soil may become depleted and eroded in a few years.

Climatic differences between the Old and New Worlds undoubtedly had a strong influence on the onset and spread of erosion, but climate is never (or only very seldom) the cause of erosion. The most active erosion regions are the semi-arid continental grasslands and the tropics, but erosion has only become a serious factor in their existence in recent decades; previously these regions had maintained a perfect balance between denudation and soil formation for millennia.

1. **In the context of the text, how is the term "benevolent" used to describe erosion in nature?**

   A) It highlights that erosion is a process that can be controlled and reversed by humans.
   B) It implies that erosion is a nurturing process essential for ecosystem balance.
   C) It indicates that erosion benefits human activities and agricultural practices.
   D) It suggests that erosion is a process that causes minimal change to the environment.

2. **According to the text, what dual nature does erosion embody when comparing its natural process to human-induced effects?**

   A) Erosion is a natural phenomenon that remains unaffected by human endeavours.
   B) Erosion is both beneficial in shaping the landscape and destructive when exacerbated by human actions.
   C) Erosion is solely a destructive force, regardless of its natural occurrence.
   D) Erosion primarily serves to create fertile soil, which is often depleted by human interference.

3. **What is denudation?**

   A) The accumulation of soil
   B) The artificial fertilization of land
   C) The breakdown and sorting of rock material by natural forces
   D) The process of planting new trees

4. **How does vegetation affect denudation?**

   A) It accelerates the process.
   B) It completely halts it.
   C) It has no effect on it.
   D) It slows it down.

5. **What is meant in the text by "human-accelerated denudation"?**

   A) Erosion caused solely by natural disasters
   B) Erosion that has been sped up by man
   C) Natural erosion occurring faster than usual
   D) The process of creating new soil

6. According to the text, how does human agriculture impact soil fertility in Europe?

A) It has no effect on soil fertility.
B) It increases soil fertility on the whole.
C) It leads to immediate soil depletion.
D) It profoundly lessens soil fertility.

7. What is a critical factor affecting soil fertility beyond plant food supply?

A) The amount of rainfall
B) The depth of the soil
C) The stability of the soil
D) Weather conditions

8. Which regions are mentioned as having the most active erosion?

A) Coastal areas
B) Mountainous regions
C) Tropical regions and semi-arid grasslands
D) Urban areas

9. What can happen to exhausted soil, according to the text?

A) It becomes more fertile.
B) It gets replenished automatically.
C) It remains unchanged.
D) Nature gets rid of it.

10. How does the author describe the relationship between human society and the environment?

A) An unevenness
B) Completely controlled by humans
C) In harmony
D) Perfectly balanced

11. What is the primary consequence of human activities like cultivation and deforestation on the natural balance between soil formation and denudation?

A) They accelerate denudation far beyond natural rates.
B) They increase soil fertility and stability.
C) They promote rapid soil renewal processes.
D) They reduce the chances of soil erosion.

12. Why is it impossible for human ingenuity to reverse the effects of accelerated denudation through soil renewal?

A) Human intervention can stop denudation, but not soil erosion.
B) Lifeless rock naturally regenerates soil faster than denudation depletes it.
C) Soil renewal processes are not influenced by human actions.
D) The rate of natural soil formation from rock is significantly slower than the rate of soil erosion.

13. What is the consequence of the disproportion between society and nature as described in the text?

A) Attrition
B) Enhanced agricultural output
C) Increased biodiversity
D) Soil enrichment

14. What does the author suggest about artificial fertilizers?

A) Their effectiveness is constrained by other factors.
B) They are harmful and should not be used.
C) They are utterly effective in restoring soil fertility.
D) They can lead to immediate soil improvement.

15. What does erosion warn against?

A) Natural mishaps
B) Overpopulation
C) The destruction of animal habitats
D) The interference of civilization into natural environments

16. Which process is necessary for the formation of suitable soil for plants?

A) Artificial irrigation
B) Plant growth
C) Urban development
D) Weathering of rocks

17. What are the main forces mentioned that contribute to denudation?

A) Human technology
B) Wind and water
C) Earthquake activity
D) Soil microorganisms

18. In the context of the text, what role do human activities play in soil erosion?

A) They restore balance.
B) They have no effect.
C) They contribute to significant erosion.
D) They enhance soil quality.

19. What is the author's stance on the relationship between soil exhaustion and human intervention?

A) Human intervention is beneficial.
B) Soil exhaustion is a natural process.
C) Human intervention often leads to soil exhaustion.
D) Soil exhaustion is unrelated to human activities.

20. Which of the following statements best explains the relationship between climate and erosion in the Old and New Worlds?

A) Climatic differences directly caused the onset of erosion in the most affected regions.
B) Climate plays a minor role, as the most serious erosion has occurred only in recent decades, despite long-standing stability in soil formation.
C) Climate in the tropics and semi-arid grasslands has always caused significant erosion throughout history.
D) Erosion has occurred in the most active regions primarily due to permanent climatic shifts in recent decades.