

Exercise walk-through

5.17

Sustainable Forestry

AP Environmental Science

Harvesting resources

Take renewables no faster than they regrow – the **sustainable yield**

- **clearcutting** erodes; selective cutting sustains
- mining: acid drainage + tailings; reclaim afterward



Clearcutting: short yield, long erosion

Exam tips

- Explain the **tragedy of the commons** – shared, unowned resources get overused – and how rules/ownership prevent it.
- Weigh the trade-offs of the green revolution, irrigation (salinisation, aquifer depletion), and mining/urbanisation.
- Compute an **ecological footprint** in “number of Earths” (footprint $\div$ biocapacity per person); it is measured **per person**.
- List the harms of **deforestation** (erosion, flooding, lost habitat, more CO₂).
- Define **sustainability** (meeting needs without harming future generations) and give sustainable methods (IPM, crop rotation, quotas).

Unit 5 – key takeaways

1

Commons

gain to one, cost to all; regulation or ownership

2

Food & water

Green Revolution trade-offs; drip beats flood

3

Pests & harvest

IPM over spraying; sustainable yield

4

Cities

impervious runoff, heat island; footprint vs biocapacity

Exercises 2.1-2.3

2.1 Name one sustainable forestry practice. [1]

2.2 Why is replanting important? [1]

2.3 How does selective cutting protect soil? [1]

Exercises 2.1-2.3

2.1 Name one sustainable forestry practice. [1]

2.1

- Any one: selective cutting, replanting, rotation (sustainable yield)
-

2.2 Why is replanting important? [1]

2.2

- It replaces harvested trees so the forest regrows and stays productive
-

2.3 How does selective cutting protect soil? [1]

2.3

- It leaves most trees (and roots) in place to hold the soil

Exercise 3.1

3.1 Sustainable forestry harvests trees

[1]

☐

A faster than they regrow

B no faster than they regrow

C only by clearcutting

D never

Exercise 3.1

3.1 Sustainable forestry harvests trees

[1]

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A faster than they regrow

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3.1 B

- no faster than they regrow

Exercise 3.2 (a)

3.2 A company switches from clearcutting to selective cutting and replanting.

(a) Explain two environmental benefits.

[2]

Exercise 3.2 (a)

3.2 A company switches from clearcutting to selective cutting and replanting.

(a) Explain two environmental benefits.

[2]

(a)

- Any two: less erosion, maintained habitat, kept carbon storage, protected water cycle

Exercise 3.2 (b)

3.2 A company switches from clearcutting to selective cutting and replanting.

(b) State one disadvantage compared with clearcutting.

[1]

Exercise 3.2 (b)

3.2 A company switches from clearcutting to selective cutting and replanting.

(b) State one disadvantage compared with clearcutting.

[1]

(b)

- It is slower and more expensive, yielding less timber at once

Exercise 3.3

3.3 Explain how sustainable forestry maintains a forest's carbon storage.

[2]

Exercise 3.3

3.3 Explain how sustainable forestry maintains a forest's carbon storage. [2]

3.3

- By keeping most trees standing and replanting harvested ones, the forest continues to absorb and store CO₂, rather than releasing it as a clearcut would