

AP Environmental Science Exam Prep Session: Land and Water Use

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AP Environmental Science Topic Outline

IV. Land and Water Use (10–15%)

A. Agriculture

1. Feeding a growing population
(Human nutritional requirements; types of agriculture; Green Revolution; genetic engineering and crop production; deforestation; irrigation; sustainable agriculture)
2. Controlling pests
(Types of pesticides; costs and benefits of pesticide use; integrated pest management; relevant laws)

B. Forestry

(Tree plantations; old growth forests; forest fires; forest management; national forests)

C. Rangelands

(Overgrazing; deforestation; desertification; rangeland management; federal rangelands)

D. Other Land Use

1. Urban land development
(Planned development; suburban sprawl; urbanization)
2. Transportation infrastructure
(Federal highway system; canals and channels; roadless areas; ecosystem impacts)
3. Public and federal lands
(Management; wilderness areas; national parks; wildlife refuges; forests; wetlands)
4. Land conservation options
(Preservation; remediation; mitigation; restoration)
5. Sustainable land-use strategies

E. Mining

(Mineral formation; extraction; global reserves; relevant laws and treaties)

F. Fishing

(Fishing techniques; overfishing; aquaculture; relevant laws and treaties)

G. Global Economics

(Globalization; World Bank; Tragedy of the Commons; relevant laws and treaties)

Important Terms

Major Insecticide Groups: *chlorinated hydrocarbons*—ex. DDT; *organophosphates*—ex. malathion; *carbamates*—ex. aldicarb

Pesticide Pros: saves lives from insect transmitted disease, increases food supply, and increases profits for farmers.

Pesticide Cons: genetic resistance, ecosystem imbalance, pesticide treadmill, persistence, bioaccumulation, and biological magnification.

Natural Pest Control: better agricultural practices, genetically resistant plants, natural enemies, and biopesticides, sex attractants.

Genetically Modified Organisms (GMOs): new organisms created by altering the genetic material (DNA) of existing organisms;

usually in an attempt to remove undesirable or create desirable characteristics in the new organism.

Ore: a rock that contains a large enough concentration of a mineral making it profitable to mine.

Mineral Reserve: identified deposits currently profitable to extract.

Surface mining: cheaper, can remove more minerals, less hazardous to workers.

Composition of Water on Earth: 97.5% seawater, 2.5% freshwater.

Aquaculture: farming aquatic species, commonly salmon, shrimp, tilapia, oysters.

Multiple Use Public Lands: National Forest & National Resource lands.

Moderately Restricted Use Public Lands: National Wildlife Refuges

Restricted Use Public Lands: National Parks & National Wilderness Preservation System

Surface Mining Control & Reclamation Act: requires coal strip mines to reclaim the land.

National Environmental Policy Act (NEPA): Environmental Impact Statements must be done before any project affecting federal lands

can be started.

Federal Insecticide, Fungicide, and Rodenticide Act: regulates the effectiveness of pesticides.

Food Quality Protection Act: set pesticide limits in food, & all active and inactive ingredients must be screened for estrogenic/endocrine effects.