

Modules
Definition of agriculture
Characteristics of Agricultural systems with respect to commercial and small scale farming including subsistence.
(a) scale of operation;
(b) inputs: agro-chemicals, labour, machinery and equipment, energy, financing
(c) productivity of systems: yield per unit input, for example, tonnes per hectare
(d) mariculture; genetic engineering
(e) aquaculture
(i) Food Security (production of food and non-food materials)
(ii) Production of materials for agroprocessing industries
(iii) Economic: (a) livelihood (income generating activities)
(b) foreign exchange earnings;
(c) contribution to Gross Domestic Product
(i) Technological: (a) increased productivity, (b) increased varieties, (c) improved resistance to pest infestation
(ii) Environmental: (a) health risks, (b) threats to sustainable livelihood of communities, (c) land take (need for vast amounts of lands for agriculture), (d) pollution from inappropriate use of agro-chemicals (pesticides; fertilisers); antibiotics and hormones in aquaculture and mariculture; eutrophication, (e) habitat destruction; loss of biodiversity; (f) soil degradation: erosion; acidification; salinisation; waterlogging, soil compaction, monoculture leading to reduction in soil fertility; (g) waste production: waste disposal and management; solid and liquid wastes; (h) water degradation: sedimentation; changes in water discharge to coastal zone surface and ground water pollution; (i) land degradation: inappropriate use of land types; hillside farming, slash and burn agriculture; (j) reduced water availability for irrigation, mariculture and aquaculture; (k) Climate change due to methane production
(i) Ecological integrity. (ii) Economic viability. (iii) Social equity. (iv) Adaptability
(i) Natural disasters: flood, hurricane, volcano. (ii) Climate change: temperature rise, sea level rise. Change in precipitation patterns. (iii) External shocks: global markets, price fluctuations. (iv) Certification to meet international standards. (v) Importation of cheap agricultural products
(i) Contour farming. (ii) Terracing. (iii) Crop rotation. (iv) Conservation Tillage. (v) Agro-forestry. (vi) Pest control (biological and genetic) and Integrated pest management. (vii) Organic farming. (viii) Hydroponics. (ix) Post-harvest management: waste utilisation and waste minimisation. (x) Genetic engineering. (xi) Plant and animal breeding
(i) Definition of pollution and pollutant. (ii) Local examples of pollutants and incidences of pollution.
(iii) Nature of pollutants: persistence, mobility, synergistic effects, toxicity. (iv) Movement through the env't

Environmental receptors (micro-organisms, plants, animals, humans).
Environmental pathways (biotic and abiotic), feeding relationships, bioaccumulation and biomagnification.
(i) Resource extraction, transportation, processing and use, (ii) Population growth: behavioural pattern, lifestyle and consumption pattern, (iii) Institutional Framework, (iv) Lack of environmental ethics.
A. Atmospheric Pollution
B. Water Pollution

Chapter
1.1
1.2
1.3
1.4
1.5
1.6 to 1.11
1.12
1.13 & 1.14
1.15 to 1.22
3.1
3.2

3.2
3.2
3.3 to 3.6
3.7 to 3.14
3.15 to 3.2