



IAS

GS PAPER - III

VOLUME-I

AGRICULTURE | ENVIRONMENT & ECOLOGY
DISASTER MANAGEMENT



AGRICULTURE

1. Importance of Agriculture	1-22
2. Cropping Season	23-28
3. Tea Cultivation	33-35
4. Sugarcane Cultivation	36-45
5. Cotton Cultivation	46-50
6. Jute Cultivation	51-57
7. Irrigation & Drainage System	58-78
8. Agriculture Finance	79-84
a. Introduction	
b. Features of Agricultural Finance	
c. Criteria for Agricultural Credit	
d. Need for Agricultural Finance	
e. Sources of Agricultural Finances	
9. Agriculture Credit Institutions	84-95
a. Commercial Bank	
b. Regional Rural Banks	
c. National Bank for Agriculture and Rural Development (NABARD)	
d. Self Help Group(SHG) Bank Linkage Program	
e. Rural Infrastructure Development Fund	
10. Pradhan Mantri Fasal Bima Yojana	95-98
11. Agricultural Marketing	98-105
a. Importance of Agricultural Marketing	
b. Government Institutions	
c. Agricultural Marketing Infrastructure	
d. Model APMC Act 2003	
e. NAM	

12.Food Processing	106-112
a. Introduction	
b. Process	
c. Significance	
d. Govt. Initiative	
e. Board and Institutions	

LAND REFORMS IN INDIA

13.Introduction	113-115
14.Land Reforms Measures	115-126
15.Causes of Failure of Land Reforms	126-130

ENVIRONMENT & ECOLOGY

16.Ecosystem	131-142
a. Concept of Biosphere	
b. Concept of Ecosystem	
c. Types of an Ecosystem	
d. Components of Ecosystem	
e. Ecological Pyramids	
f. Food Chain and Food Webs	
17.Climate Change	143-161
a. Introduction	
b. Impact	
c. Climate Change Organizations	
d. National Initiatives on Climate change	
18.Biodiversity	162-185
a. What is biodiversity?	
b. Types of biodiversity	

	c. Biodiversity Hotspots	
	d. Biodiversity conservation	
	e. In situ and ex situ conservation	
	f. Indian Biodiversity	
	g. Acts and Policies	
	h. Geochemical Cycles	
	i. Protected Area Network	
	j. International Conventions	
19. Environmental impact assessment		186-189
a. Introduction		
b. Process of EIA		
c. Benefits of EIA in India		
d. Composition of EIA		
e. Process of EIA in India		
20. Environment and Urbanization		189-196
a. Introduction		
b. Causes of Urbanization		
c. Effects Of Urbanization		
d. Problems of Urbanization		
e. Remedies for Urbanization		
21. Agriculture and environment		196-198
a. Deforestation		
b. Desertification		
22. Water resource degradation		198-205
a. Groundwater degradation		
b. Surface water degradation		
c. Ocean resource degradation		
d. Water management		

DISASTER MANAGEMENT

23. Introduction	206
24. Natural Disasters	206-209
a. Earthquakes	
b. Cyclones	
c. Floods	
d. Drought	
25. Man-made Disasters	209
26. Managing disasters in India	209-214
27. Challenges in Disaster Management	214-218

AGRICULTURE

Importance of Agriculture for economy

(1) Impact on Employment & Poverty

→ GDP share of agriculture declined to 14%.
but share in employment still about 50%.

→ Such mismatch causes rural unemployment, low average income & poverty.

→ Lower rural income leads to large scale rural-urban migration, increase in informal sectors size & urban poverty.

(2) Impact on Industrial Growth

→ Agriculture is okay source of raw material to many industrial.

→ Agriculture is linked to industries because recently demand for industrial goods has increased

(a) Increase in rural income with employment generation programmes.

(b) Slower growth in urban demand

-
- The focus should be agriculture with industry to achieve growth rate.

Impact on food Security

- No substitution for agriculture in achieving food security.
- Since 60 food grain product growth (less than 2%) has been lower than population growth, making agricultural growth indispensable.
- Need to diversify such growth to allied sector as well
(cattle, poultry, Fisheries etc.)

AGRICULTURE

Presently, the country is in fiscal deficit is largely due to Agriculture sector due to subsidies and other factors.

→ Agriculture is an important reason sometime for Inflation.

→ So many item (eg. gases fertilizers) are important in the country and hence influence the situation of Country.

Social Situation

Rural Out

Migration

Push Factor

(when there is a helplessness because of factor opportunity)

Pull Factor

(when there is an opportunity of profit)

According

And in this kind of migration, who do not have skills good for getting employment in Urban Centre just because labours.

→ Now a day there is a feminisation of Agriculture as now females do most of Agricultural work.

As Agriculture is now not a beneficial Sector, so because of monsoon failure, etc. Farmer's Suicides Situation happens. So disturbingly Social Situation.

Bullock Capital → People who became rich after Green Revolution because of Agriculture.

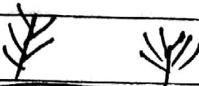
→ Paddy Cultivation and Cattle Rearing are two reason for releasing of methane gas. (CH_4). So Agriculture is contributing to Global and hence Change.

⇒ Despoiling of food claim: Those animals note for human get killed by hence and state beneficial made population increase by them.

⇒

Eutrophication

α α α α



When Fertilizers are released in water bodies plants grow fast but Algae also, grow fast and blocks sunlight to reach to plants and photosynthesis process stops. The plants stop releasing oxygen. And Biological oxygen demand (BOD) increases in the water body. And aquatic Animal start dying. And whole process is Eutrophication and these facilities reach through soil in the water bodies.

Soil Salinisation - - - -

⇒ So faultly Agriculture is responsible for so many problems with ecological System.
But it is also a sector which is worse affected by climate change.

Importance of Agriculture

Around 49% of the population is directly involved in Agriculture. Agriculture contributes about 17% to national GDP. Most of the economic indices in the country reflect the importance of the Agriculture. Many of the social problems that we witness in the country at present like migration and its associated conflicts, Farmer suicides, low sex ratio of the Urban Centres etc. are due to nonprofitability of the agriculture.

Agricultural Contribution to global

Warming where rice cultivation and cattle rearing release methane Gas (a green house gas). Many of the ecological problems like Eutrophication Soil Salinization exceeding ground water tables etc. can be attributed to faulty agricultural

Agriculture is one centre is worst affected by Change in Rainfall & temperature patterns.

Agriculture is a means of important and development of Country is not possible until and unless agriculture is given the importance it deserves.

Feature of Indian Agriculture

⇒ Most of the farmers do mixed Agriculture in India.

Mixed Agriculture	Mixed Cropping	Multiple Cropping
Crop + non Crop option	Nov - April Wheat , grain	Rice [Redacted] in July - Nov. Season
Sugar cane + cattles	Some Season two or more than Crops then mixed Cropping	Wheat in Nov - April
Here again process is complementary green leaves for animals and Animal dung as farm manure.	Crops are chosen in such a manner that they are Complementary to each other	Farmer Cropping different Crops
Maize + Poultry		Indifferent Season
⇒ Mustard + Apiculture	Eg: Wheat Subs nitrogen from soil and grow via denitrification	Cultivation of two or more Crops on the same field in different seasons.

=> Indian Agriculture is Rain fed

We have very less efficiency (approx 38%) in agriculture of water. Water is wastage at every points.

If there is a canal for irrigation than it is open on tops and hence evaporative losses.

And when we irrigate our lands with canals we use flood irrigation which is again wastage idea.

Because of excessive use of ground water in irrigation the water tables are going down by 0.3 m./year.

Ground water could be used in scarcity. (When other sources fail)

Only Tamilnadu, Andhra Pradesh, Punjab, Haryana, than 50% of Irrigated lands

Crops are chosen in such a manner that they are completely nurtured by kind of Climate these wrong choice of crops generally need ground water in geration.

=> India Agriculture is Non-Mechanized

Machines are not used largely in Indian farmers

{ only 38% Farmers who own 20 acres have tractors
only 18% Farmers who own 5-20 acres has tractors }

This is because 67% Farmers are marginal farmers as they hold small farms.

except for ploughing every other work is done by women's and lack of machines can be used by women is also a reason.

Lends machines to farmers but it is not in the poor parts of the country.

1. Most of the farmers in India practice Mixed Agriculture i.e., a crop and a non crop option.
Eg. maize + poultry, Mustard + Apiculture, Sugarcane + Catties etc.

Mixed Cropping refers to cultivation of two or more than two crops on the same field in the same season. Multiple Cropping on the other hand is about cultivation of two or more than two crops on the same field in

different Seasons.

Q. Indian Agriculture is Rain Fed where more than 60% of the area does not have Irrigation. Support some other Areas of concern in Irrigation

I Efficiency of irrigation is very low at 38%. The used for irrigation (Flood irrigation) is obsolete and waste ful.

II The ground water irrigation systems although offer better efficiency on excessive use of ground water based its declining in the Country. In India e.g. water table is receding at a rate of 0.3 m/year.

III The more efficient irrigation systems drip & sprinkler irrigation are confined to only some high value crops.

Q. Indian Agriculture is non Mechanized. less than 5% of the farmers cultivating crops other than Rice & wheat use machines for harvesting and threshing operations. Tractor penetration in India is 38% that is for farmers who own more than 20 Acres of land. Some other issues are

I Small Size of farm holdings which makes the use of machines very difficult. More than 67%.