



# UP-PCS

UPPSC Combined State/  
Upper Subordinate Service Exam

**VOLUME-I**

**AGRICULTURE, ENVIRONMENT &  
DISASTER MANAGEMENT**





EDITION - DEC 2019

Copyright © 2019 by **SIERRA INNOVATIONS PVT. LTD.**

All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, including photocopying, recording, or other electronic or mechanical methods, without the prior written permission of the publisher. Breach of this condition is liable for legal action.

The moral right of the editor has been asserted.

Printed by SIERRA INNOVATIONS PVT. LTD. In India

For any complains, suggestions or feedback feel free to contact us on [hello@toppersnotes.com](mailto:hello@toppersnotes.com)

Head office -  
Toppersnotes  
SIERRA INNOVATIONS PVT. LTD.  
52, Radha Mukut Vihar, Golyawas,  
New Sanganer Road, Mansarovar, Jaipur,  
Rajasthan-302020

MRP - 799/-

Website- [www.toppersnotes.com](http://www.toppersnotes.com)  
Email :- [hello@toppersnotes.com](mailto:hello@toppersnotes.com)

## INDEX

CONTENTS	PAGE
<b><u>AGRICULTURE</u></b>	
1. Importance of Agriculture	1
2. Food Security	23
3. Cropping Season	27
4. Tea Cultivation	37
5. Sugarcane Cultivation	40
6. Cotton Cultivation	50
7. Jute Cultivation	55
8. Irrigation & Drainage System	62
9. Agriculture Finance	83
a. Introduction	
b. Features of Agricultural Finance	
c. Criteria for Agricultural Credit	
d. Need for Agricultural Finance	
e. Sources of Agricultural Finances	
10. Agriculture Credit Institutions	88
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	
11. Agricultural Marketing	102
a. Importance of Agricultural Marketing	
b. Government Institutions	
c. Agricultural Marketing Infrastructure	
d. Model APMC Act 2003	
e. NAM	
12. Food Processing	110

<ul style="list-style-type: none"> <li>a. Introduction</li> <li>b. Process</li> <li>c. Significance</li> <li>d. Government Initiative</li> <li>e. Board and Institutions</li> </ul>	
13. Agriculture in Uttar Pradesh	117
14. Forest and National Parks	127
<b>LAND REFORMS IN INDIA</b>	<b>133</b>
<b><u>ENVIRONMENT &amp; ECOLOGY</u></b>	
<ul style="list-style-type: none"> <li>1. Ecosystem <ul style="list-style-type: none"> <li>a. Concept of Biosphere</li> <li>b. Concept of Ecosystem</li> <li>c. Types of an Ecosystem</li> <li>d. Components of Ecosystem</li> <li>e. Ecological Pyramids</li> <li>f. Food Chain and Food Webs</li> </ul> </li> </ul>	152
<ul style="list-style-type: none"> <li>2. Climate Change <ul style="list-style-type: none"> <li>a. Introduction</li> <li>b. Impact</li> <li>c. Climate Change Organizations</li> <li>d. National Initiatives on Climate change</li> </ul> </li> </ul>	164
<ul style="list-style-type: none"> <li>3. Biodiversity <ul style="list-style-type: none"> <li>a. What is biodiversity?</li> <li>b. Types of biodiversity</li> <li>c. Biodiversity Hotspots</li> <li>d. Biodiversity conservation</li> <li>e. In situ and ex situ conservation</li> <li>f. Indian Biodiversity</li> <li>g. Acts and Policies</li> <li>h. Geochemical Cycles</li> <li>i. Protected Area Network</li> <li>j. International Conventions</li> </ul> </li> </ul>	183
<ul style="list-style-type: none"> <li>4. Environmental impact assessment <ul style="list-style-type: none"> <li>a. Introduction</li> <li>b. Process of EIA</li> <li>c. Benefits of EIA in India</li> <li>d. Composition of EIA</li> <li>e. Process of EIA in India</li> </ul> </li> </ul>	207
<ul style="list-style-type: none"> <li>5. Environment and Urbanization <ul style="list-style-type: none"> <li>a. Introduction</li> </ul> </li> </ul>	210

<ul style="list-style-type: none"> <li>b. Causes of Urbanization</li> <li>c. Effects Of Urbanization</li> <li>d. Problems of Urbanization</li> <li>e. Remedies for Urbanization</li> </ul>	
<ul style="list-style-type: none"> <li>6. Agriculture and environment <ul style="list-style-type: none"> <li>a. Deforestation</li> <li>b. Desertification</li> </ul> </li> </ul>	<b>217</b>
<ul style="list-style-type: none"> <li>7. Water resource degradation <ul style="list-style-type: none"> <li>a. Groundwater degradation</li> <li>b. Surface water degradation</li> <li>c. Ocean resource degradation</li> <li>d. Water management</li> </ul> </li> </ul>	<b>219</b>
<b><u>DISASTER MANAGEMENT</u></b>	
<ul style="list-style-type: none"> <li>1. Introduction</li> </ul>	<b>228</b>
<ul style="list-style-type: none"> <li>2. Natural Disasters</li> </ul>	<b>229</b>
<ul style="list-style-type: none"> <li>3. Man-made Disasters</li> </ul>	<b>231</b>
<ul style="list-style-type: none"> <li>4. Challenges in Disaster Management</li> </ul>	<b>236</b>

**AGRICULTURE**

## 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 key 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 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 disturbily Social Situation.

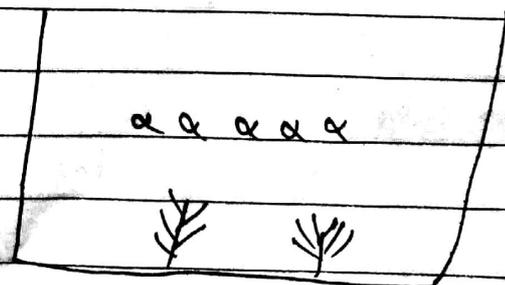
Bullock Capital → People who became rich after Green Revolution because of Agriculture.

7 Paddy Cultivation and Cattle Reasing are two reason for releasing of methane Gas. ( $CH_4$ ). So Agricultural is contributing to Global and Hence change.

⇒ Desperobling of food chain: These animals more for human get killed by Hence and ~~are~~ beneficial made population increase by them.

⇒

Eutrophication



When Fertilizers are released in waterbodies plants grow fast but Algae also, grow fast and blocks sunlight to reach to plants and photosynthesis process stops. The plants stop release oxygen. And Biological oxygen demand (BOD) increase 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 faulty 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 Agriculture. Agriculture contributes about 17% to national GDP. Most of the economic indices in the country repeat 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.

<u>Mixed Agriculture</u>	<u>Mixed Cropping</u>	<u>Multiple Cropping</u>
Crop + non Crop option	Nov - April	<sup>Rice</sup> <del>RA</del> in July - Nov. Season
Sugan cane + Cattles	Wheat, grain	Wheat in Nov - April
Here again process is complementary green leaves for animals and Animal dung as farm manure.	Some Season two or more than Crops then mixed Cropping	Farmer Cropping different Crops
Maize + Poultry	Crops are chosen in such a manner that they are Complementary to each other	Indisferent Season
⇒ Mixed + Apiculture	eg. Wheat Subs nitrogen farm soil and Grass vides nitrogen	Cultivation of two or than 2 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 top and hence evaporative losses.

# And when we irrigates 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 0.3m. / year.

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

# Only Tamilnadu, Andhrapradesh 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.

# lands 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 + Cattle 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.

2. 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 ~~at~~ though although offer better efficiency on excessive use of ground water based to 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.

3. Indian Agriculture is non Mechanized. Less than 5% of the farmers cultivating crops other than Rice & wheat use, machines for harvesting and thrashing 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%.

of the farmers/ in the Country are marginal farmers farm size less than hectares.

II Non availability of Machines which can be used in smaller fields.

III Although Feminization of Agriculture is reality machines are not designed for women use

IV Lesser success of the Custom Hiring Centres.

=> Indian Agriculture marked by backward and forward linkage.

Backward

Forward

Seeds  
 Fertilizers  
 Pesticides  
 Irrigation  
 Machinery  
 credit

Market  
 Storage  
 Transportation  
 Value Addition

(area)	(DAP)	(MOP)
Nitrogen, Potashy, Phosphoric		
3 most		

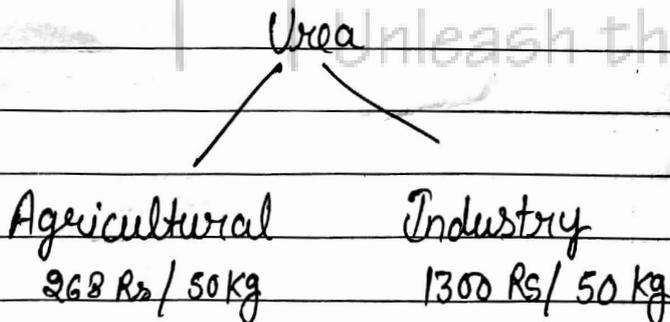
## Fertilizers

# Most of the farmers do not have access of fertilizers and if they have access than they do not know how to use it and as area is easily available fertilizers farmers use area very much and others fertilizer less and it makes so much losses. The correct ratio of use of three nutrients is

$$\begin{array}{ccc}
 4 : 2 : 1 \\
 \text{(Urea)} & \text{DAP} & \text{MOP}
 \end{array}$$

But actually what farmers do to have is  $8.2 : 3.2 : 1$  (which is wrong use)

# govt. offers subsidy on urea



and using the Govt. has lot of urea is diverted which is for farmer to Industries, and those is also smuggling to the neighbouring countries.

# Direct benefits, are <sup>needed in these case</sup> ↑ case but are can not be

done easily because for that land records are needed.

⇒ So fertilizers is a backward linkage which is not available best in Indian Agriculture.

### Seeds

Most of the farmers do not purchase seeds from markets. They save previous grains to seed and using again and again these can reduce more low productivity.

Most of the seeds germinate only once farmer can not use it again.

### Issues in crops

### Pesticides

hazardous use of pesticides is not known big farmers in India.