

Introduction

- 1) Irrigation can be defined as the science of artificial application of water to the land (crop) as per crop requirement for total base period for full pledged nourishment of crops.
- 2) India is a tropical country having vast variation of climate, rainfall, topography and vegetation.
- * 3) Total geographical area of our country is about 328 Mha ($1 \text{ ha} = 10^4 \text{ sq.m}$) $328 \times 10^6 \times 10^4 \text{ m}^2$
- 4) Total cultivable area of our country is about 190 Mha
- 5) In India the minimum rainfall is in Rajasthan having depth about 25cm in a year. But maximum depth of rainfall in India is about 250cm in Cherrapunji (Meghalaya) - North eastern part.
- 6) To grow rice the minimum depth of water required is about 90cm which is not available in Rajasthan and some parts of country therefore it is very essential to supply water through canals from a reservoir to meet the demand.
- 7) In India the maximum intensity of irrigation is in Punjab & Haryana (More than 90%)
- ** 8) Important irrigation projects of India
 - i) Bakhra nangal project

It is a concrete gravity dam. It has been constructed across river Sutlej in Himachal Pradesh. The height of the dam is 226m

Number 1 of the world during 1962 before that Hoover dam in America in 1931 across (220m) Colorado. In India most dangerous river is

New no 1 is Grandian, Switz

It is a multipurpose project. Capacity of water stored (gross capacity of reservoir

Govind sagar is about 9870 MCM (Million Cubic metre) $9870 \times 10^6 m^3$

ii) Nagarjun Sagar project (Andhra)

In area nalgonda one Buddhist monk Nagarjun (to honour him).

It is made up of rockfill dam having height about ^{124m} ~~62m~~. Its capacity very large about 4 MCM. 11000 MCM. It has been built across the river Krishna. It is Andhra Pradesh. Multipurpose project

iii) HiraKud:-

Hira-diamond, kud-storage.

It is made up of earthen dam (longest of India) It is in Orissa. It has built across the river Mahanadi. Its height about 62m. Its storage capacity is about 80 8100 MCM. Multi purpose project

iv) Mettur dam:-

It is made up of concrete gravity dam and it is multipurpose. Its height is about 65m. It has built across the river Cauvery. Its capacity is about 2400 MCM. It is a multipurpose. It is in Tamil Nadu

v) Iddukki Project:-

It is made up of concrete Arch dam. It is across the river Periyar river. It is in Kerala. Its height is about 174m. It is a multipurpose project. Capacity 2100 MCM

VII) Rihand Project:-

In Uttar Pradesh across the river Rihand. It is made up of concrete and rockfill dam across the river Rihand. Its capacity is about 9000 MCM. Its height is about 70m.

VIII) 9) Necessity of irrigation:-

- i) To take care of inadequate rainfall
- ii) To take care of uneven distribution of rainfall
- iii) To eliminate mixed cropping
- iv) To get optimum growth of crops.

10. Advantages of irrigation

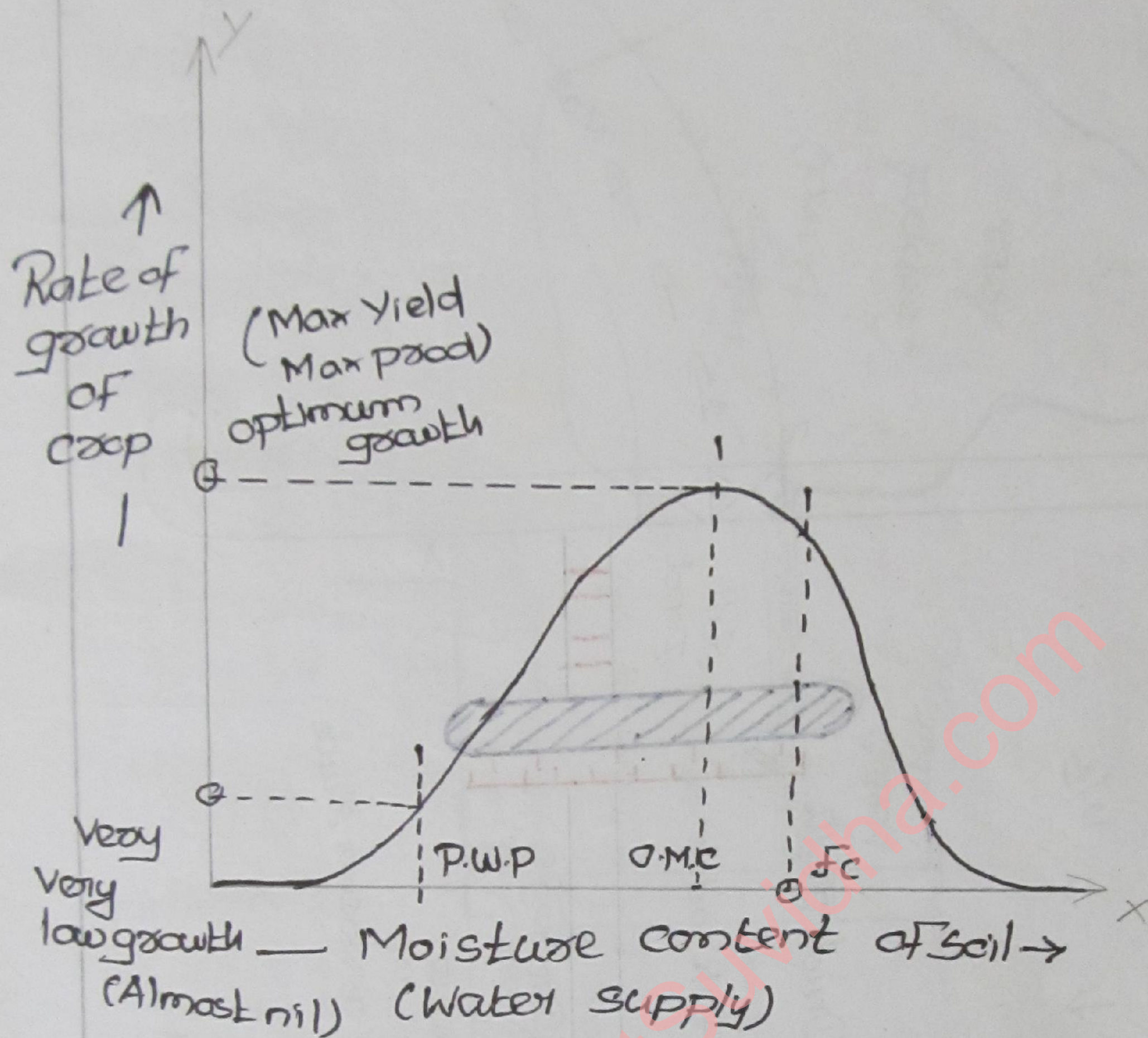
- i) Increased production of food grain
- ii) To develop hydropower project
- iii) To control drought or famine
- iv) To grow forest/trees along the bank of Canal.
- v) To develop navigation.
- vi) To control/minimize foreign exchange for food import

IX) Disadvantages of irrigations:-

- i) Water logging takes place due to over irrigation
- ii) Breeding of mosquitoes takes place in Damp area.
- iii) Unhealth climate takes place
- iv) Pollution of ground water takes place

Water Requirement of crops &

Soil - Water - Plant relations



- P.W.P - Permanent Wilting point (No growth of crop)
- O.M.C - Optimum moisture content (Max growth of crop)
- F.C - Field capacity (Little less growth)

Atmospheric pressure acting on human body 1.03 kgf/cm^2

Max pressure human chest can withstand 3.5 kgf/cm^2

Water distribution System (layout)

- ① Diversion System (No storage)