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# Geography

## # Watershed Management in India.

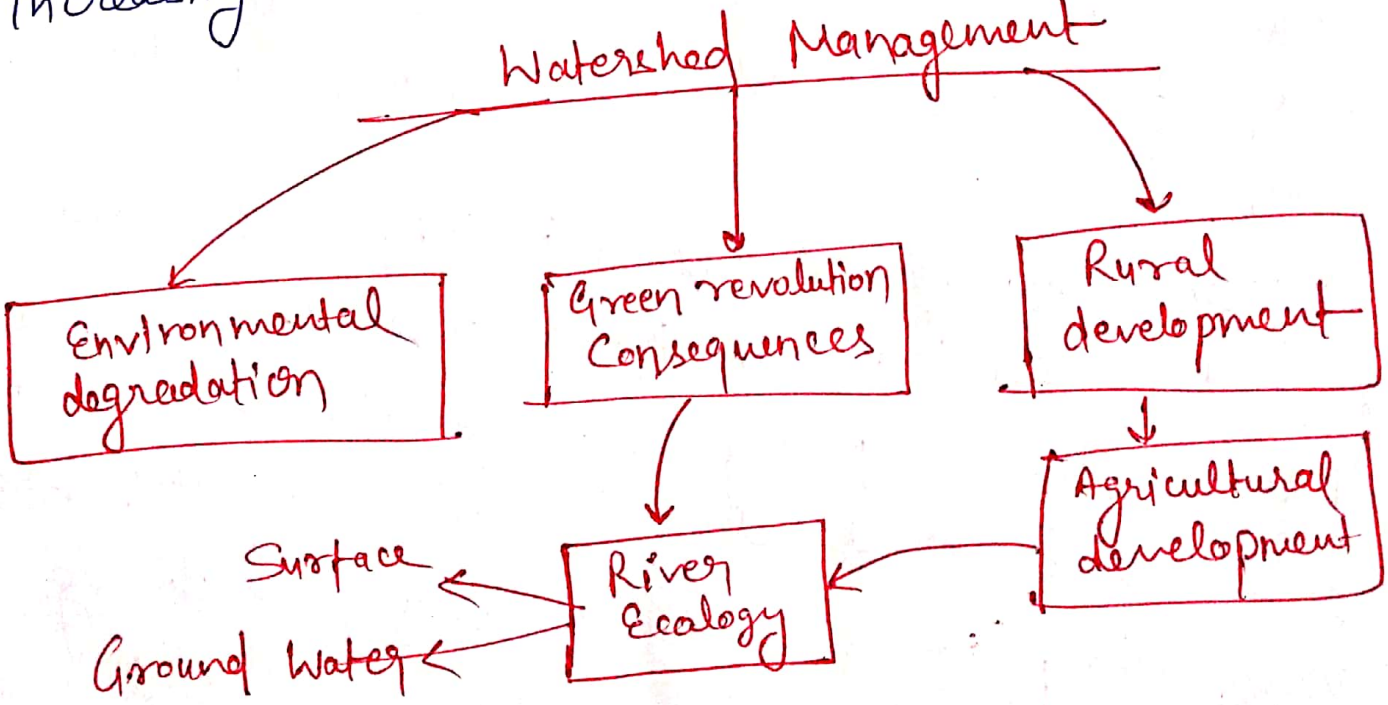
→ Protect the region against soil erosion
→ Protect to hydrological stream of the region.

⇒ Watershed is an area that contributes water to a stream or a waterbody through runoff or under ground path.
⇒ This is the region from which surface water draw into a river, a lake, wetland or other body of water is called watershed or drainage basin.
⇒ Watershed management is a technique for conservation of water and soil in the watershed.
⇒ The country is facing serious challenge because of extensive land degradation and water stress.
⇒ Nearly half of the country area is suffering from excessive runoff resulting in soil erosion and loss of precious water resources.
⇒ The Problem is more severe in rainfed areas of the country as the agricultural productivity have stabilized in assured irrigated areas, the rainfed areas of the country assume more significance

(2)

because of its potential for enhancement in productivity. by successful implementation of watershed development programme.

→ The main aim of watershed management program are harnessing, conserving, and developing degraded natural resources such as soil, vegetation cover and water, prevention of soil runoff, rainwater harvesting and recharging of groundwater table, increasing the productivity of the crops, promoting sustainable livelihood and increasing household income.




# Triple Benefits of watershed Management

1) Ecological Health
2) Economic health
3) Human Health.

**Ecological Health** → Promoting the health of all living organism and landscape with in watershed.

→ It minimizing the impact of flooding and erosion.

⇒ It serves to filter sediments and contaminants so that they do not reach our streams, lakes and groundwater.

**Economic Health**

→ Clean water allows municipalities, business, agriculture producers and industries to operate more cost effectively, saving money for tax payer and consumer.

→ Healthy rivers, lakes, wetlands and natural spaces are foundations for recreation and tourism.

**Human Health**

→ Clean surface and groundwater are essential to support ~~are~~ high quality of ~~our~~ life and soil aspect of our communities.

⇒ Clean rivers, lakes and streams provide ~~many~~ healthy recreational opportunities including swimming, boating and fishing.

But there are certain Barriers for Watershed Mgmt.

# Barriers for Water

1. local political and tenure right boundaries rarely coinside with natural watershed boundries, the local political institution that derive development seldom recognised watershed as a workable unit. for planning and action purposes.

2. Since main effects of water and land use practices of one political unit often are felt by people outside that unit or by future generations who cannot vote how, there has been little insentive to consider the concept of watershed management.

3. A common question from upstream land user is that why should be carry out water shed managment activity when main benefits occurs downstream.

4. Lack of awareness or understanding of water -shed management concept and practices.

5. There has been lack of interaction of technical experts in this field.

1> Haryali
2> Neeru-Meeru
3> Arwary Pani Sansad (Alwar, Rajasthan).
(* Rajendra Singh – water man of India)
↳ Concept of Johad

The central and state Govt initiative for Watershed Management–

1> Haryali – It is a watershed management projet which aims at enabling rural population to conserve water for drinking, irrigation, fisheries and afforestation.

2: Neeru-Meeru – In Andhra Pradesh
Promote water harvesting structure

3: Arwary Pani Sansand– Water harvesting structure

→ Tamilnadu has made water harvesting structure in the Houses compulsory.

→ Union Government has signed a loan agreement with world Bank for Neeranchal which is a national watershed project in rainfed areas. It is implemented by Union Ministry on Rural development over a six year period. (2016–2021) to achieve the objective of Pradhan Mantri Krishi Sinchai Yojana.

It support PMKSY in Hydrology and water management, agricultural production system, capacity building, monitoring and evolution.

It seeks to ensure —

- Har Khet Ko Pani
- Per drop More Crop

# Pradhan Mantri Krishi Sinchai Yojana

objectives →

1. Water Conservation → Micro irrigation
   - → Traditional water storage Mechanism
   - → Rainwater Harvesting
   - → Efficient Utilization of water in farms.
2. Agriculture development
3. Providing irrigated water to all farms,

This scheme was launched in 2015-16 with the objective to enhance physical access of water to farms, expend cultivable area, assured irrigation, improve water use efficiency in agriculture and introduced sustainable conservation practices.

This scheme has subsumed three earlier scheme as follows —

1. Accelerated Irrigation Benefit Programe of Ministry of Water Resources
2. Integrated watershed Management Programe
3. farm water management Component of National Mission on sustainable agriculture.

## Components of the Scheme

1) Accelerated Irrigation Benefit Program (AIBP)
2) Har Khet ko Pani
3) Per drop more crop

→ Har Khet ko Pani
→ through Canal, tank & other sources of irrigation
→ Development of traditional water conservation practices.

→ Per drop More Crop
→ Promoting Micro Irrigation System
→ Promoting Use of fertilizer along with micro irrigation

≠ Components
Central state will be 75-25%. sharing of revenues
In case of North Eastern Region and Hilly station
it is 90:10.
PMKYS have following component-

1. AIBP → It focuses on faster completion of ongoing major, minor and medium irrigation projects, including national projects.

2. Har Khet Ko Pani

It focuses on creation of new water sources through minor irrigation that includes both surface and ground water. It also encompasses the repair restoration, renovation of water bodies, strengthening carrying capacity of traditional water sources, Construction of rain water harvesting structure under Jal Sanchay sub-component.

Other things includes are —

→ Command area development with creation of distributio network from source to farm.

→ Ground water development.

→ At least 10% of the command area to be covered under micro irrigation.

→ Diversion of water from water abandant to water scare areas.

→ Creating and rejuvenating traditional water Storage system like — Jal Mandir – Gujarat, Khatri & Kuhl → Himachal Pradesh. Zabo → Nagaland Eri & Oorani's → Tamil Nadu.

Dongs – Assam
Katas and Bandhas – Odisha. etc.

## Micro irrigation (or) Per Drop More Crop

This component promotes efficient water conveinence and precision water application devices, drips, sprinkles, Pivots, rainguns in the farm.
It also focuses on construction of micro irrigation and storage system.

# Agriculture of India

Agriculture includes raising of the crop from the land, animal husbandry, agro forestry, apiculture, pisciculture etc. India is preeminently agricultural country. Till 1971, about 80% population of India live in rural area and depend directly or indirectly on Indian agriculture. It contributed about 45% GDP at that time. The Relative importance of agriculture has reduced considerably since then due to rapid development of other occupation such as mining, manufacturing, transport trade and services. Today agriculture and allied sector contribute nearly 17.5% of GDP, while about 55% of population is dependent on the agriculture for their livelihood.

## Salient feature of Indian Agriculture

1. Subsitent Agriculture - where farmer owns small piece of land and grows crops only for self consumption.
2. Pressure of population on agriculture
3. Lack of mechanisation
4. Monsoon dependent Agriculture

5. Indian Agriculture dominent more with food crop than cash crop.

6. Labour intensive in nature

7. Importance of animal for operation such as ploughing, irrigation, threshing and transporting.

## Some of Problems of Indian Agriculture

1) Lack of Productivity
2) Excess use of fertilizer & water.
3) Declining level of groundwater & groundwater contamination
4) The case of farmer suicide are rising.
5) Lack of minimum support prices to all crops.
6. The Problem of subsidies vs Public investment.
7. fragmentation of agricultural land
8. faulty methods of Agriculture

## # factors behind farmer suicide

Recent farmer ~~resistation~~ agitation and suicide highlight the disparities in inclusive development.

According to National Crime Record Bureau (NCRB) farmer suicide saw a spike of 47.4 % in 2015 from 2014. and more than 72 % farmers who commits suicide have less than 2 Hectares

of land. Some of the factors are —

1) Widespread drought and rising indebtedness.
2) Bankruptcy, farming related issues, family problems, illness, drug abuse or alcoholism.
3) Rather than money lenders, the banks and microfinance institutions are the main culprit as money lenders were flexible than banks. While microfinance institution puts pressure on farmers.
4) Problems in maintaining farm livestock, owing to increasing cost, getting credit at good term and condition, lack of proper irrigation facility and bad monsoon., absence of mechanisation, inefficient transport facility etc.
5) Moreover farm population per Hectare has increased where as per capita income has declined into non agricultural land., APMC (Divergen of agricultural) & local traders exploiting farmers, High input cost and worsten quality of soil due to excessive use of fertilizer, political incentiv given to farmer's family after suicide.

# Green Revolution

→ 1966
→ M.S. Swaminathan — father of Indian Agriculture
→ HYV seeds.

Green Revolution in India was a period when agriculture in India increased its yield due to improved agronomic technology. Green revolution allowed developing country like India to over come poor agricultural productivity. It started in India in early 1960's and let to increase in food grain production, specially in Punjab, Haryana & Uttar Pradesh during the early phase. The main development was high yielding varieties of wheat.

Introduction of HYV seeds and increased use of chemical fertilizers and irrigation lead to increase in production needed to make country self-sufficient in food grains, thus improving agriculture in India. The methods adopted including the use of HYV seeds with modern farming methods.

⇒ Gains of Green Revolution

→ Agricultural production of wheat & Rice saw many fold increase
→ Country became self sustain in food production
→ This self-dependency helped India to develop

its independent foreign policy.

→ Socio- Economic condition of farmer of UP, Punjab & Haryana increased.

→ Deffusion of rice and wheat cultivation in non-traditional areas.

→ System of capitalistic farming started

→ Mechanised form of agriculture started in India.

→ Development of ancillary industries. such as building electricity and tractor repair shops, road infrastructure etc.

## Losses from Green Revolution

→ The new crop varieties demanded more inputs such as fertilizer, irrigation etc. Thus marginalised farmer were not benefited.

→ The spatial development of agriculture was unevenly distributed as only farmers of Punjab & Haryana got benefited.

→ Excessive use of fertilizer and water reduce the fertility of the soil in northern belt.

→ Interpersonal disparity within farmers have increased.

→ Environmental degradation such as Eutrophication, destruction of corals etc.
→ Deterioration of NPK balance.

# Reasons for G.R only in Punjab-Haryana Belt

1) Punjab-Haryana belt gets winter rainfall & as wheat is a rabi-crop. it requires winter rainfall.
2) The soil of these region is extremly fertile and suitable for wheat crops.
3) farmer's of this region have Enterprising nature, also they were open to the idea of new technology.
4) Most of the agricultural research institute were concentrated in Delhi. so research scientist needed nearby location for introduction of this technology.