MODULE 4

SOCIAL ISSUES & ENVIRONMENT

4.7 WATER CONSERVATION

4.7.1 RAIN WATER HARVESTING

4.7.2 WATER SHED MANAGEMENT

4.8 WASTELAND RECLAMATION

4.9 CONSUMERISM AND WASTE PRODUCTS

4.7 WATER CONSERVATION

Water is conserved by two main methods.

They are:

1. Rain water harvesting
2. Watershed management

4.7.1 RAIN WATER HARVESTING

Rain water harvesting is a technique of capturing and storing of rain water for further utilization.

Need (or) uses of Rain water harvesting :

1. To meet the increasing demands of water.
2. To raise the water table by recharging the ground H_2o
3. Reduce ground water contamination from the intrusion of self H_2o
4. Reduce surface runoff loss
5. Increase hydrostatic pressure to stop land subsidence.
6. Increase the quality of water.

Rain H_2O harvesting methods :

1. Collection in Ponds
2. Collection in vessels
3. Rain H_2O harvesting in tanks
4. Rain H_2O harvesting in open places
5. Percolation pond
6. Percolation pit (Absorption pit)
7. Percolation well.

The most common method of Rain H_2O harvesting is roof tap rainwater harvesting.

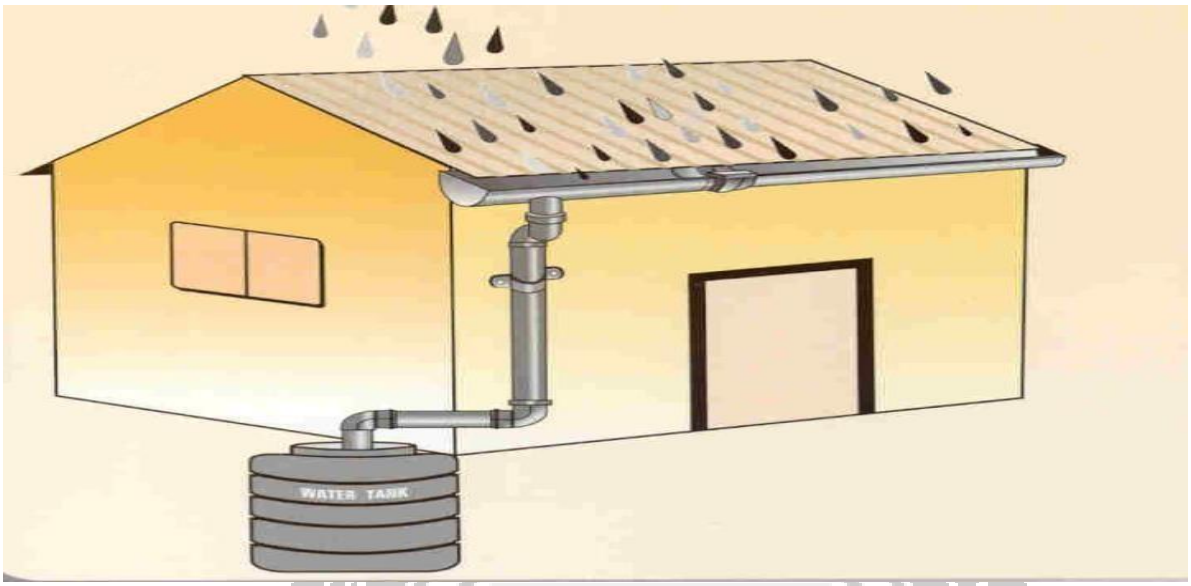
Roof top Rain H_2O harvesting method:

1. It is a method of collecting rain H20 from roof of the building storing it in the ground, for our future purpose.
2. It is the low cost & effective technique for urban houses & buildings.
3. The rain H_2O from the top of the roofs are conveying it through PVC (or) aluminum pipe, into the surface tank (or) recharge pits.
4. A smoother, cleaner, & more impervious roofing material gives better quality & quantity H_2)
5. The storage H2 is used for several purpose.
6. It can be used to recharge underground aquifers by diverting the H2O to dug well (or) bore wells.
7. The pit base is filled with stones & sand which act as a sand filter.

Advantages

1. Rise in the water level.
2. Reduction in the use of current for pumping H_2O
3. Increasing the availability of water from well
4. Minimizing the soil erosion & flood hazards
5. Upgrading the social & environmental status
6. Future generation is assured of water.

Rain water harvesting methods diagram



4.7.2 WATER SHED MANAGEMENT

The management of rainfall and resultant runoff is called watershed management. It also includes conservation, regeneration and proper use of water.

Watershed

It is an area of land that catches rain, drains water, sediments & materials to a common receiving body (or) outlet. It is a land through which water flows.

The water shed contains flowing waters, still waters and upland waters.

Factors affecting watershed:

1. Uncontrolled, unplanned & unscientific land use activities may degraded the watersheds.
2. Overgrazing, deforestation, mining construction activities affect water sheds.
3. Drought climates also affects.

Need of water shed management

1. In order to minimize the effect of flood, drought, landslides
2. To raise the ground H_2O level

3. To prevent the soil erosion from surface runoff
4. To generate the employment opportunities.
5. To enhance the developmental projects like domestic H_2O supply, irrigation & hydro power generation.

Water shed management techniques

In water shed management, various civil structure were constructed in the catchment area to improve ground storage.

1. Trenches (pits) : Trenches were dug at equal intervals to improve ground H2O storage
2. Earthen dam (or) stone embankment"

   To check the run off H2O, earthen dam must be constructed in the catchment area.
3. Farm pond: A farm pond can be built to improve H2) storage capacity of the catchment area.
4. Underground barriers (dykes) underground barriers should be built along the null abs to raise the H2O table.

Watershed management

Watershed needs the following management activities for natural balance and human welfare.

1. Conservation of water
2. Afforestation and agroforestry helps to prevent soil erosion
3. Minimizing the destructive effects of mining & quarrying in water shed areas, to prevent the landslide& soil erosion.
4. Public participation helps to maintain a H2O harvesting structure.
5. Livestock population should be reduced in the watershed area.

4.8 WASTELAND RECLAMATION

The land which is not in use is called waste land. The waste land is unproductive, unfit for cultivation, grazing and other economic uses.

About 20% of the geographical area in India is waste land.

Causes for wasteland formation

1. Soil erosion
2. Deforestation
3. Overgrazing
4. Water logging
5. Salinity
6. Mining
7. Quarrying
8. Over exploitation of natural resources
9. Construction of dams
10. Power projects
11. Loss of soil fertility
12. Sewage & industrial effluents.

Need for wasteland reclamation

1. To improve the physical structure and quality of the soil.
2. To prevent soil erosion, flooding and landslides.
3. To improve the availability of good quality of water for agricultural purposes and industrial operations.
4. To maintain the ecological balance in the area.
5. To improve the local climate of the area
6. To prevent further spreading of wastelands
7. To provide a source of income to the rural poor people.

8. To supply fuel, fodder and timber for local use.

Methods of wasteland reclamation

1. **Drainage** "Excess water is removed by artificial drainage. This process is used for water logged soil reclamation.
2. **Leaching** : Leaching is the process of removal of salt from the self affected
3. **Irrigation systems**: Drop irrigation helps to maintain better availability in the land. Drainage system to prevent water logging.
4. Application of Gypsum to remove the sodium from soil
5. Application of bio fertilizers.
6. Afforestation programs.
7. Social forestry Programs, involve strip plantation on road, canal sides, degraded forest land.

4.9 CONSUMERISM AND WASTE PRODUCTS

Consumerism refers to the purchasing & consumption of resources by the people. Consumerism is related to both increase in population as well as increase in our demand due to change in life style. In the modern society our needs have increased and so consumerism of resources has also increased.

Traditional rights of sellers.

1. The right to introduce any product
2. The right to charge any price
3. The right to spend any amount to promote their products.
4. The right to use incentives to promote their products.

Traditional buyer rights

1. The right to buy or not to buy
2. The right to expect a product to be safe
3. The right to expect the product to perform as claimed.

Important information's to be known by buyers

1. Ingredients of a product
2. Manufacturing & expiry date.

Waste products of consumerism

Consumerism brings in a variety of waste products.

The following sources bring in waste products.

1. Industries
2. Agriculture
3. Domestic activities
4. Commerce (trade)
5. Transport
6. Institutions
7. Atomic & thermal power plants
8. Hotels
9. Automobiles.

The waste products may be solid, liquid (or) gas. It may be degradable & non bio degradable.

The following waste products are produced as a result of consumerism

1) Packing material
2) Food waste
3) Plastic bags, toys
4) Used papers

5) Card board

6) Hotel, Kitchen waste

7) Sewage

8) Smoke, Ash

9) Nuclear waste

10) Construction wastes.

Harmful effects

1) Environmental pollution

2) Exploitation of resources

3) Global warming

4) Acid rain

5) Corrosion

6) Diseases

7) Reduced crop yield.