

FROM UNSUSTAINABLE TO SUSTAINABLE DEVELOPMENT

- Sustainable development is defined as "meeting the needs of the present without compromising the ability of the future generation to meet their own needs."
- This definition was given by G.H.BRUNDT LAND, who is the president of W.H.O.
- Today sustainable development has become a buzz word and hundreds of programmes have been initiated in the name of sustainable development.
- Our natural resources are just dwelling due to over exploitation, if it continues, very soon we are facing a "doom's day" – as suggested by meadows et al.
- This issue of sustainable development emerged on an international level in 1992, in the UN conference on Environment and Development (UNCED). This is popularly known as Earth Summit, held at Rio de Janeiro, Brazil.
- This declaration aim at a new and equitable global partnership through the creation of new levels of cooperation among states.

MEASURE FOR SUSTAINABLE DEVELOPMENT**-Using appropriate technology:-**

- It is one which is locally adaptable, eco-friendly and resource efficient and culturally suitable.
- This concept of Nature – often taken as model is called "design with Nature".
- The technology should use less of resources and should produce minimum waste.

-Reduce, Reuse, Recycle:-

- The 3-R approach advocating minimization of resource use, using them again, recycling the materials goes a long way in achieving the goals of sustainability.
- It reduces pressure on our resources as well as reduces waste generation and pollution.

-Promoting Environmental Education & Awareness:-

- Making environmental education the centre of all learning process will, greatly help in changing the thinking and attitude of people towards our earth and the environment.

-Resource Utilization as per carrying capacity:-

- In order to attain sustainability it is very important that consumption should not exceed regeneration and changes should not allow to occur beyond the tolerance capacity of the system.

WATER CONSERVATION

- Water being one of the most precious and indispensable resource needs to be conserved.
- The strategies that can be adopted for conservation of water are:
 - a) Decreasing run –off losses.
 - b) Reducing evaporation losses.
 - c) Reducing irrigation losses.

- d) Re use of water.
- e) Preventing wastage of water.

-Decreasing run –off losses: water loss through run –off can be reduced by using counter cultivation, terrace farming, chemical treatment etc.

- contour cultivation:- cultivation on small furrows and ridges across the slopes trap rain water

and allow more time for infiltration.

-conditioners like gypsum or HPAN (Hydrolysed polyacryl nitrile) when applied to sodic soils

improve soil permeability.

-Terracing constructed on deep soils have large water storage capacity.

-Chemical wetting agents (surfactants) increase the water intake rates when added to normal irrigated water.

-Reducing evaporation loss:

- Asphalt placed below the soil surface increase water availability. A co-polymer of starch and

acrylnitrile called “super slurpre” absorbs more water and very affective in sandy soils.

- Reducing irrigation loss: -Irrigation in early or late hours reduces evaporation loss.

- Sprinkling or drip irrigation methods conserve 30-40% of water.

- Growing hybrid crops with less water requirements and tolerance to saline water helps in conserving water.

-Use of lined (or) covered canals are the methods to be adopted to reduce irrigation loss.

- Preventing wastage of water: - closing taps when not in use.

- Repairing any leakage from pipes.

- Using small capacity flush in toilets.

- Consumers has to pay a proportionately higher bill with higher use of water. This helps in economic use of water by the consumers.

RAIN WATER HARVESTING

-Rain water harvesting is a technique of increasing the recharge of ground water by capturing and storing water. This is done by constructing special water harvesting structures like dug wells, percolation pits, lagoons, check dams etc.

Objectives of Rain water harvesting:

_To reduce run off loss

_To avoid flooding of roads

-To meet the increasing demands of water

-To raise the water table by recharging ground water

Modern techniques of Rain water harvesting:

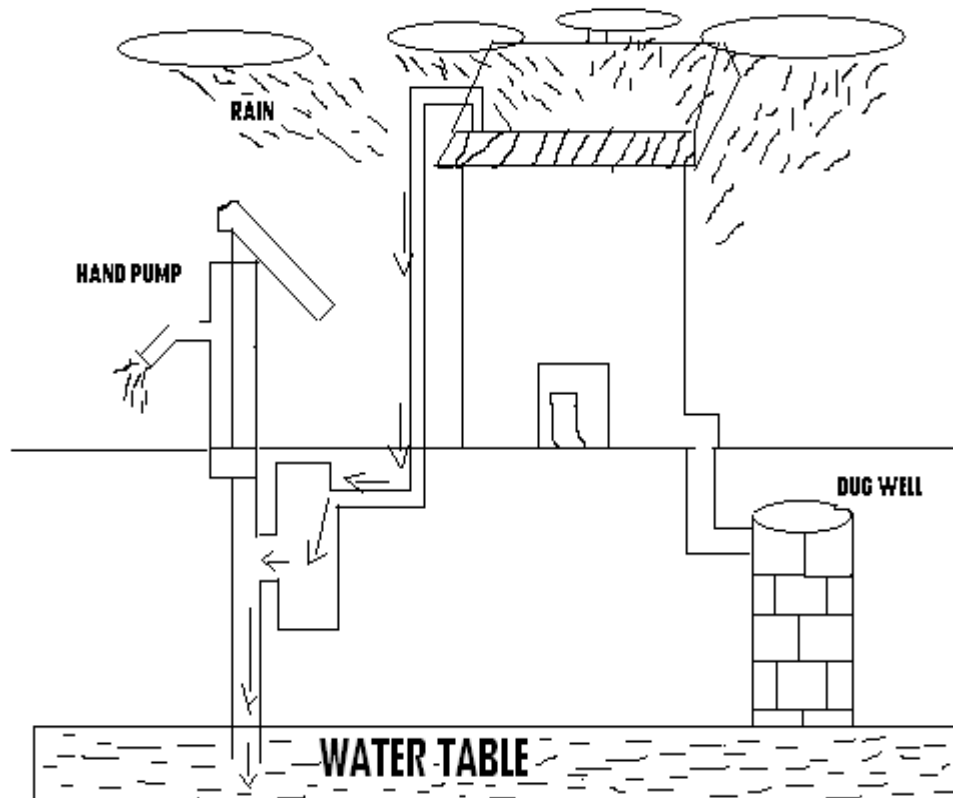
-In arid and semi arid areas artificial ground water recharging is done by constructing shallow percolation tank.

-Rajendra singh of Rajasthan popularly known as water man of has been doing a commendable job for harvesting rain water by building check dams in Rajasthan and he was honored with the prestigious Magasaysay award for his work.

-Ground water flows can be intercepted by building ground water dams to store water in under -ground.

-In roof top rainwater harvesting ,which is a low cost and effective technique for urban houses. The rain water from the top of the roofs is diverted to some surface tank or pit through a delivery system which can be later used for several purposes.

-Also it can be used to recharge underground aquifers by diverting the stored water to some abandoned dug-well or by using a hand pump.



ROOF TOP RAIN WATER HARVESTING.

POPULATION EXPLOSION

The enormous increase in population due to low death rate and high birth rate.

Causes: Modern medical facilities, life expectancy, illiteracy,

Effects: Poverty, Environmental degradation, Over –exploitation of natural resources, Treat, Communal war

Remedy:- Through birth control programmes.

Family welfare programme:

Objectives:

Slowing down the population explosion
Over exploitation of natural resources
Family planning programme

ENVIRONMENT AND HUMAN HEALTH

1. Physical Hazards – Radioactive and UV radiations, Global warming, Chlorofluro carbons, Noise etc.
2. Chemical Hazards – Combustion of Fossil fuels, industrial effluence, pesticides, heavy metals,
3. Biological Hazards- Bacteria, Viruses, Parasites

HIV /AIDS

AIDS is the abbreviated form for Acquired Immuno Deficiency Syndrome caused by a virus called HIV.

Effects

1. Death
2. Loss of labor
3. Inability to work
4. Lack of energy .

CLIMATE CHANGE

-Climate is the average weather of an area. It is general weather conditions, seasonal variations and extremes of weather in a region. Such conditions which average over a long period- at least 30 yrs is called climate.

-The Inter-governmental panel on climate change (IPCC) published the best available evidence about past climate change, the green house effect and recent changes in global temperature.

- The fourth Assessment Report (AR4) of United Nations Intergovernmental Panel on climate change (IPCC) 2007 has been prepared by more than 2,500 scientific experts reveals that :-

- Un-equality in water (i.e.) excess in some areas and draught in some areas.

-Glaciers in Himalayas will melt and this leads to increase in size of the glacial lakes.

-Semi-arid regions of the world will face drier years.

-Africa will experience water stress.

-Sea level and human activities will leads to loss of coastal wetlands.

-Fresh water availability will decrease by 2050.

-Human health will be affected.

-There will be Increase in deaths, spread of contagious diseases etc.

REMOTE SENSING & GIS

-Employing geographic information systems (GIS) and remote sensing (RS) techniques is a very important issue these days as they aid planners and decision makers to make effective and correct decisions and designs.

-They allow the engineer to continuously monitor any change any intended plans to secure their success or rectification to meet the requirements.

-It supplies the needed geo database to build informative and rich GIS. The role of GIS is in storing, managing a great deal of data about the images and all the related attributes to allow their manipulation, analysis and finally presentation according to choice. .

-The remote sensing data are using for the following

- Deforestation (rainforest, mangrove colonies)
- Species inventory
- Watershed protection (riparian strips)
- Coastal protection (mangrove forests)
- Forest health and vigor.

-The use of remote sensing technology in geological resource management are

- Surficial deposit/ bedrock mapping
- Litho logical mapping
- Structural mapping
- Sand and gravel exploration
- Mineral exploration
- Hydrocarbon exploration
- Environmental geology
- Baseline infrastructure
- Sedimentation mapping and monitoring
- Event mapping and monitoring
- Geo-hazard mapping
- Planetary mapping

-New technique which integrates satellite remote sensing and Geographical Information System (GIS) can be used to continually monitor air quality at micro-scale level.

Images from Land sat data are used to determine two air pollutant parameters, i.e. Carbon Monoxide (CO) and Particulate Matters

-The high resolution data of TM, SPOT, and IRS permit more accurate of water quality mapping

Developed regression models to represents best relationships between salinity, turbidity, total suspended solids and chlorophyll concentrations and the corresponding mean radiance values from LANDSAT

-The CIR sensors are used for pollution control related to agriculture, forestry, mining, and land development activities.

The most widely used water balance technique for operational use is crop specific drought index.

ENVIRONMENTAL ETHICS

-Environmental ethics can provide us the guidelines for putting our beliefs into action and help us decide what to do when faced with crucial situations. Some important ethical guide lives known as earth ethics (or) Environmental Ethics are as follows:

- you should love and honour the earth since it has blessed you with life.

- You should keep each day sacred to earth and celebrate the changing of its seasons.
- You should not hold yourself above other living things
- You should be grateful to the plants and animals which nourish you by giving you food.
- You should limit your off-springs because too many people will overburden the earth.
- You should not waste your resources
- You should not steal from future generations their right to live in clean and safe planet by polluting it.
- You should consume the materials in moderate amounts. So that all may share the earth is precious treasure of resources.

VALUE EDUCATION

Objectives

1. To improve the integral growth of human being
2. To create attitudes and improvement towards sustainable lifestyle.
3. To increase awareness about our national history our cultural heritage, constitutional rights,
national integration, community development and environment.
4. To create and develop awareness about the values and their significance and role
5. To know about various living and non- living organisms and their interaction with environment.

Types of values:

1. Universal values
2. Cultural values
3. Individual values
4. Global values
5. Spiritual values