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Benefits of Horticulture in Watershed Management

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Watershed can be defined as a unit of area covers all the land which contributes runoff to a common point or outlet and surrounded by a ridge line. (or) A watershed is defined as any spatial area from which rain or irrigation water is collected and drained through a common point.

Classification of watershed based on area

Hydrologic unit	Size (in ha)
Watershed	50,000-2, 00000
Sub-watershed	10,000-50,000
Mili-watershed	1,000-10,000
Micro watershed	100-1000
Mini watershed	1-100

Principles of watershed management

The main principles of watershed management based on resource conservation, resource generation and resource utilization are:

- ✓ Utilizing the land based on its capability.
- ✓ Protecting fertile top soil.
- ✓ Minimizing silting up of tanks, reservoirs and lower fertile lands.
- ✓ Protecting vegetative cover throughout the year.
- ✓ In situ conservation of rain water.
- ✓ Safe diversion of gullies and construction of check dams for increasing ground water recharge
- ✓ Increasing cropping intensity through inter and sequence cropping.
- ✓ ALUs for efficient use of marginal lands.
- ✓ Water harvesting for supplemental irrigation.
- ✓ Maximizing farm income through agricultural and horticulture related activities such as dairy, poultry, sheep, and goat forming.
- ✓ Improving infrastructural facilities for storage, transport and agricultural marketing,
- ✓ Improving socio - economic status of farmers

Objectives of watershed management

- ✓ Recognition of watersheds as a unit for development and efficient use of land according their land capabilities for production.
- ✓ Flood control through small multipurpose reservoirs and other water storage structures at the head water of streams and in problem areas.
- ✓ Adequate water supply for domestic, agricultural and industrial needs.
- ✓ Abatement of organic, inorganic and soil pollution.
- ✓ Efficient use of natural resources for improving agriculture and allied occupation so as to improve socio-economic conditions of the local residents.
- ✓ Expansion of recreation facilities such as picnic and camping sites.

Causes of watershed deterioration

Different causes were responsible for water shed deterioration like faulty agriculture, unscientific mining and quarrying, faulty road alignment and construction, industrialization and forest fires, apathy (less interest) of the people and deforestation.

Results of watershed deterioration:

The possible results of watershed deterioration are less production from agriculture, forests, grass lands etc, erosion increases and decreases biomass production, rapid siltation of reservoirs, lakes and river beds, less storage of water and lowering of water table and poverty as a result of less food production.

Watershed development:

Possible range of treatment measures includes contour bunding, contour trenching, contour stone walls, bench terraces, summer ploughing, agro forestry with suitable species, vegetative barriers, check dams (Temporary and Permanent), retaining walls and farm ponds.

Components of watershed development:

The different componets of watershed are Human Resource Development (Community Development) 2) Soil and Land Management 3) Water Management 4) Crop Management 5) Afforestation 6) Pasture/ Fodder Development 7) Livestock Management 8) Rural Energy Management 9) Farm and non-farm value addition activities. All these components are interdependent and interactive.

Role of horticulture in watershed

Horticulture crops helps in watershed by giving many benefits like balanced nutrition, higher income per unit area, round the year production, value addition and processing, employment generation, fodder, fuel, wood and export potential

Tree components for sustainability

- Provide vegetative cover
- Utilize solar energy round the year – more biomass, fodder for cattle, fuel, wood.
- Employment round the year
- Environment friendly
- Judicial nutrient utilization – deeper soils
- Long run benefits
- Yield fruits and other products

Crops for watershed

Fruits: Mango, Jack, tamarind, sapota, cashew, Jamun, Guava, Ber, Anona, Amla, Carmbola, Phalsa, Bael, Kokum, Fig, papaya, Roseapple *etc,*. **Vegetables:** Tomato, Brinjal, Chillies, Cow pea, Drumstick, Curryleaf and Cucurbits **Flower crops:** Jasmine, Crossandra, Barlaria, Champaka, Nerium. **Medicinal and aromatic Plants:** Amla, Jatropa, Aloevera, Ashwagandha, Bael, Neem, Annota, Bursera, Lemon grass, Citronella, Khus grass, Palma rosa, Henna, Tylophora, Periwinkle, Sappan wood, Karonda, *Terminalia arjuna*.

Techniques for sustainable yield under watershed

The techniques using for getting sustainable yield under watershed consists use of drought tolerant varieties, in-situ grafting, root stock selection, deep planting and bigger basins, add plenty of organic matter, mulching and other soil and water conservation practices, border planting with tree *spp*. alternate row irrigation for closely spaced vegetables, drip irrigation, nursery production, kitchen garden / nutritional garden, school garden, small scale / cottage industries for value addition and processing, vermi / compost making using horticulture waste and mushroom cultivation.

Benefits derived from watershed methodology

Benefits obtained from watershed methodology includes increasing in crops yileds in dry land farming, reduction in soil erosion, covering of bareen hill slopes by vegetation, large tracts of marginal lands brought under dry land horticulture, agro-horti and agro-forestry systems development, harvesting of water resources through nala bunds, farm ponds, gully embankments, regeneration of grass lands for more fodder and grass and the farmers income increased considerably.

Conclusion

Development of watershed is not a individual component. It is a com-

bination of components hence individual people not possible to development watershed it is community based.