

## **Role of Watershed Management In Rural Development**

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### **Abstract**

India occupies approximately 2.4% of the total geographical area of the world, while it supports over 15% of the world population. Unprecedented population pressure and demand of society on scarce land, water and biological resources and the increasing degradation of these resources is affecting the stability and resilience of our ecosystems and the environment as a whole. Therefore, the productive agriculture lands in the country are in constant process of varying degrees of degradation and are fast turning into wastelands. It is precisely to restore this ecological imbalance by developing the degraded non-forest wastelands. To harness the full potential of the available land resources and prevent its further degradation, wasteland development is of great significance.

### **Introduction**

Rural Development in India is one of the most important factors for the growth of the Indian economy. India is primarily an agriculture-based country. Agriculture contributes nearly one-fifth of the gross domestic product in India. In order to increase the growth of agriculture, the Government has planned several programs pertaining to Rural Development in India. The Ministry of Rural Development in India is the apex body for formulating policies, regulations and acts pertaining to the development of the rural sector. Agriculture, handicrafts, fisheries, poultry, and dairy are the primary contributors to the rural business and economy. Rural development in India has witnessed several changes over the years in its emphasis, approaches, strategies and programmes. It has assumed a new dimension and perspectives as a consequence. Rural development can be richer and more meaningful only through the participation of clientele of development. Just as implementation is the touchstone for planning, people's participation is the centre-piece in rural development. People's participation is one of the foremost pre-requisites of development process both from procedural and philosophical perspectives. For the development planners and administrators it is important to solicit the participation of different groups of rural people, to make the plans participatory.

### **Watershed**

- i) Watershed is an area above a given drainage point on a stream that contributes water to the flow at that point.
- ii) Watershed is a natural unit draining runoff water to common point of outlet.
- iii) The watershed is geohydrological unit or a piece of land that drains at common point. Catchments basin or drainage basin are synonymous of watershed.

### **Objective:**

1. Identify watershed boundaries;
2. Identify water bodies showing visible signs of point or nonpoint source pollution (erosion, siltation, etc.);
3. Identify water bodies and aquifers or recharge zones

### **Importance of watershed?**

It doesn't matter how far you live from a stream, river, or lake, you live in a watershed. Everyone resides in a watershed. A watershed is an area of land from which all water drains, running downhill, to a shared destination - a river, pond, stream, lake, or estuary. A watershed is a catchment basin that is bound by topographic features, such as ridge tops.

A watershed has three primary functions. First, it captures water from the atmosphere. Ideally, all moisture received from the atmosphere, whether in liquid or solid form, has the maximum opportunity to enter the ground where it falls. The water infiltrates the soil and percolates downward. Several factors affect the infiltration rate, including soil type, topography, climate, and vegetative cover. Percolation is also aided by the activity of burrowing animals, insects, and earthworms.

Second, a watershed stores rainwater once it filters through the soil. Once the watershed's soils are saturated, water will either percolate deeper, or runoff the surface. This can result in freshwater aquifers and springs. The type and amount of vegetation, and the plant community structure, can greatly affect the storage capacity in any one watershed. The root mass associated with

healthy vegetative cover keeps soil more permeable and allows the moisture to percolate deep into the soil for storage. Vegetation in the riparian zone affects both the quantity and quality of water moving through the soil.

Finally, water moves through the soil to seeps and springs, and is ultimately released into streams, rivers, and the ocean. Slow release rates are preferable to rapid release rates, which result in short and severe peaks in stream flow. Storm events which generate large amounts of run-off can lead to flooding, soil erosion and siltation of streams.

A watershed should be managed as a single unit. Each small piece of the landscape has an important role in the overall health of the watershed. Paying attention primarily to the riparian zone, an area critical to a watershed's release function, will not make up for lack of attention to the watershed's uplands. They play an equally important role in the watershed, the capture and storage of moisture. It is seamless management of the entire watershed, and an understanding of the hydrologic process, that ensures watershed health.

### **Network**

It is critical to develop relationships with agencies, additional scientific experts, and other active watershed groups to identify what information already exists or is being collected, to get assistance in determining what information gaps exist and might be addressed, and to find out about the successes and lessons learned in other watersheds. Ask specific questions, such as:

- What discharges are located on the stream and what are their permit limits?
- How many households in this watershed use septic tanks five years or older and which area of the watershed has the most concentrated use?
- How many cattle are being grazed in this watershed? Based on the average manure production of a cow, what are the nitrogen and phosphorus impacts to the stream?

Information such as this can be used to make a list of pollution sources and to roughly calculate the pollution loads coming from each source. Determining actual pollutant load is a very complex task, best accomplished by an technical expert

### **Watershed Management**

Watershed is defined as a geo hydrological unit draining to a common point by a system of drains. All lands on earth are part of one watershed or other. Watershed is thus the land and water area, which contributes runoff to a common point.

A watershed is an area of land and water bounded by a drainage divide within which the surface runoff collects and flows out of the watershed through a single outlet into a larger river ( or ) lake.

### **Types of Watershed**

Watersheds are classified depending upon the size, drainage, shape and land use pattern.

- Macro watershed (> 50,000 Hect)
- Sub-watershed (10,000 to 50,000 Hect)
- Milli-watershed (1000 to 10000 Hect)
- Micro watershed (100 to 1000 Hect)
- Mini watershed (1-100 Hect)

### **Watershed Development Programme in India**

Conservation of water and checking soil erosion is central to the attainment of economic as well as financial sustainability of dry land and agriculture. Integrated watershed development programmes are the major policy instrument for achieving this goal. The importance of watershed development as a strategy of agricultural and overall rural development in rain fed areas has been recognized in India for the past several decades. It dates back to the establishment of four dry farming research stations at Rohtak, Sholapur, Hyderabad and Bellary in early 30's.

Watershed Development Programmes which has been increasingly emphasized for dryland plain region in India, is a manifestation of the shifting priorities in agricultural sector which till recently had concentrated mainly on crops and regions with assured irrigation. Some of the points of development to be kept in mind are:

- Growth of yield among irrigated crops and regions attained during the initial phase of the green revolution has come to some kind of a halt. Hence the future growth of agricultural production will have to increasingly come from dry land region at least till another flux of large-scale investment in irrigation takes place.

Frequent failure of rainfall especially since 1980's has resulted into highly fluctuating productivity in dry land region making it difficult to sustain the population on farming system alone.

The immediate solution of tapping groundwater has also reached alarming levels of depletion in many parts of the dry land region.

With increasing human and livestock population with the uncertain crop yield has reduced availability of the common property resources (CPRs) and the biomass.

Importance has been given to dry farming in India, esp. since the mid 1980 in order to combat the limited natural sources of water and to protect the land from degradation, conserve rainwater and improve the general economic condition of dry land farmers.

#### Conclusion:

To be successful, efforts to rejuvenate the rural countryside must rest on genuine local preferences. Underlying these preferences some understands of what rural individuals, considered simply as citizens of a country, are thought to deserve. Since the 1940s many countries have made the political determination that all citizens, regardless of place, were entitled to electricity, decent roads, schools, and adequate water/wastewater facilities. To cater the is problem of water r storage i n rural areas, the technique of water shed management is best suited. By implementing this method the ground water table is increased thus providing sufficient water to the farmers during summer season and reducing the call of tankers on which chores of rupees were spent by the government.

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