

Watershed Development: Platform for Agricultural Development in Rural India

Abstract

Watershed Management is the structured planning of land, water, energy and greenery integrating all the relevant scientific approaches appropriate to socio-economic background for the development of watershed. India accounts for four percent of world's water resources and sixteen percent of world's population. Upholding capacity due to deforestation and denudation, a large portion of the monsoon water disappears into the sea as run-off. A successful watershed management needs systematic survey and planning at national, regional and community level. It is imperative to ensure that every drop of water ought to be preserved and utilized properly. Watershed development will not only ensure optimum utilization of water resources but also help foster agricultural development in the country

Keywords: Multi Purpose programmes, Eco-system, Rain water harvesting, Command Area Development, Rainfed farming, Resource management, Satellite imaginary, Drip and sprinkler irrigation etc.

Introduction

Mahatma Gandhi, the father of Nation, observed "Nothing can be more important than the provision of irrigation facilities in all villages of the country, because this constitutes the basis for agricultural growth. In the absence of irrigation facilities, agriculture is nothing more than gamble."

Indian agriculture is matter to the vagaries of monsoon. It reflects in the crop pattern of India. Irrigation facility is one of the significant factors contributing to agricultural development in the country. Despite various schemes of Govt. to extend facilities for irrigation only around 40% of the net cultivable land has been irrigated so far while the remaining 60% is rain-fed. It is therefore imperative on the government to focus on watershed development particularly in the rain-fed areas.

The sources of water resources can broadly be classified into two parts i.e. surface flows and ground water flows. India accounts 4 % of the world's water resources and 16% of the world's population. It is not able to hold all water it receives. It is because of deforestation and denudation that a large portion of monsoon water disappears into the sea as run-off. Community resources such as ponds, tanks, rivers are misused and continuously neglected. Rivers are, increasingly, getting polluted as urban and industrial wastes are dumped into them. The various sources of irrigation in India include canals, wells, tanks and the river valley projects. But the fact remains that a large number of river valley projects including multi-purpose, large and medium irrigation projects have spilled over from one plan to another chiefly for want of adequate funds allocated by the State Government responsible for implementing the projects. Thus, in recent years, emphasis is being laid on the creation of minor irrigation schemes to cover both surface and ground water since it is less expensive and requires less time to construct. *Sir Charles Travillion observes, "In India, irrigation is everything, water is more important than even land because when irrigated, the productivity of soil rises almost six times."*

A worrisome aspect of the irrigation sector is the large gap between the irrigation potential created and its utilization. Therefore, a centrally sponsored Command Area Development (CAD) scheme was launched in 1974-75 to narrow down this gap. This was subsequently expanded to include water management aspects as well as to ensure efficient utilization of water with a view to optimizing farm production in irrigation command area. By November 2015, about 285 projects having a



Radha Krishna Dubey

Associate Professor,
Deptt. of Geography,
M.D.P.G. College,
Pratapgarh
Allahabad State University,
Allahabad

total command area of around 30.27 million hectares had been included under this programme.

India's water Policy has concentrated on gigantic river systems and reservoirs, dams etc. and despite huge investment on them, the productivity continues to be low. Ground water table has gone down dramatically, clearly indicating the need to increase recharges to regulator pumping. In order to provide a solution to 60 percent of rainfed land, the only alternative lies with rain water saving. A concerted drive towards rain water saving through public measures along with the individual initiative. Public measures along with the individual initiative to store rain water in their lands for use may be of proper use. Thus, Watershed development will not only ensure optimum utilization of water resources but also help foster agricultural development in the country.

Aim of the Study

There are some fruitful points to be objective of the concerned.

1. To enhance the infrastructural basis of the irrigation.
2. To make three tier planning for area.
3. To reorganise the land-use pattern for better use of resources.
4. To maintain the flow of water bodies without any constraint.
5. To increase co-ordination among Government, public and organisation.
6. To improve research and analytical data for acute evaluation.
7. To make environment for socio-economic institutional establishment that correlate public matter with awareness programmes.
8. To aware, the water users for utilization of every drop of water to sustain the resource.
9. To make afforestation for maintaining ground moisture and find key to get rid of water challenges in future and present as well.

Watershed Development

Watershed acts as a multi-purpose programme, which increases soil moisture condition, improves and recharges the ground water, creates economic water ways, enlarges command area, controls soil erosion, floods and concomitant recurring losses and also helps eco-system by extending greenery and plantation. Thus watershed development is the main strategy in rain-fed farming. Rain water conservation, improved crop production technologies and income generating options are integrated into the watershed programmes. In these programmes, supply of water in augmented and demand for water is to be managed through participation of people. Water is public good and a social resource and not private property. The privatization of water supply distribution is fraught with danger and could lead to water wars in local communities. Increasing supply of rain water harvesting and recharges of the aquifer should become mandatory. Demand management through improved irrigation practices including sprinkler and drip irrigation should receive utmost attention.

In order to have sustainable development of vast rain-fed areas, a National Watershed

Development Project for Rain-fed Areas (NWDPA) was implemented during 8th plan (1992-97). In the 9th plan (1997-2002), NWDPA has been restructured to include community oriented and participatory approach. The 10th plan (2002-07) puts emphasis on watershed management, rain water harvesting and ground water recharge, which can help augment water availability in Rain-fed area. Thus, the National Rain-fed Area Authority will be setup to provide a vehicle for developing concerted action plan for rain-fed area and NWDP. The 11th plan (2007-2012) also giving much importance to watershed development which will accelerate agricultural development.

Watershed Management involves management of land, water, energy, and greenery integrating all the relevant scientific views appropriate to socio-economic background for the development of watershed. The main theme behind the watershed management is to minimize the waste of rain water. It flows into the oceans at the cost of socio-economic and ecological conditions of the nations. Watershed management is not simply anti-erosion and anti-off approach but also a comprehensive integrated approach of land water resource management. The approach is preventive, progressive, corrective as well as curative. It extracts maximum benefit from advanced technology. It is imperative that the natural resources and water be properly protected. It should be judiciously utilized to improve their productivity constantly. Watershed being national hydrological entities, they respond effectively to various engineering, biological and cultural treatment designed to maximize production.

Constraints

An essential prerequisite for watershed management in factual assessment of land, soil and ecological regime of the areas, for which rapid preparation of maps on land use, physiography, land gradient, hydrology, watershed nomenclature, geology, soils, ground water potential by applying remote sensing techniques using aerial photographs, satellite imagery etc. are required. A successful watershed management needs systematic survey and planning at national, regional and community levels. Watershed management suffers from major constraints which are as follows:

1. Lack of finance.
2. Insufficient manpower, especially at the professional level.
3. Poor co-ordination among government, organisation.
4. Low mobility and insufficiently equipped field staff.
5. Lack of data and research for continuous improvement.
6. Socio-economic institutional problems and policy constraints.

Suggestion

Realizing the importance of watershed development in rain-fed areas as the only alternative follow-up measures may be taken to ensure adequate supply of water and effective management of the demand for water in rain fed areas. Within the Micro watershed the assets created under the programme

primarily come under two categories: i.e. creation of water bodies and land development. The creation and renovation of water bodies included Check Dam, Gully plugging, farm pond and irrigation channel etc. In all villages surveyed the watershed programme succeeded in bringing water to villagers.

First, more crops per drop of water should not remain just a slogan.

Secondly, watershed management should be linked to different technology missions so that the concurrent availability of water and other inputs needed to optimize the irrigation water as well as rain water can be ensured.

Thirdly, low cost greenhouses can be promoted in areas where evaporation exceeds precipitation in a year. Therefore, water users are required to participate in conserving and allocating water resources optimally. Hence, participation of farmers in irrigation water management is encouraged.

Fourthly, dry land farming should be encouraged. In water scarce areas, land use system should emphasize on the cultivation of the high-value, low water requiring crops like pulses and oil seeds. As a result, the farmers should work together in harvesting rain water and sharing the water equitably for growing pulses and oil seeds.

Fifthly, the conjunctive use of rain, river and ground water should become the principal method for the effective use of available water resources.

Finally, the water users should be aware of collecting and storing the rain water effectively. The Government should make all out effect to take necessary steps whereby the water users would be able to collect, store, harvest and use the water resources.

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