INTRODUCTION
CHAPTER I
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Rural development in India is primarily intended to satisfy the basic needs like food, clothing, housing, drinking water, health and sanitation etc. A major problem in rural India has been large-scale poverty and unemployment. Therefore, the need of the hour is to pay attention to creating employment for the entire working population during a substantial part of the year, even, if it is low quality of employment, to begin with. The agriculture sector will continue to be a major employer of a vast majority of the people in the country.

Rural development is an approach or operational design to bring about desired positive changes in the socio-economic and cultural life of the rural people.

RURAL DEVELOPMENT: AN AGRICULTURE PERSPECTIVE

Since time immemorial, agriculture has been a major source of livelihood and employment to a vast majority of people in India. The progress of the rural areas is directly linked to the growth and technological changes of agriculture. The bulks of the poor continue to live in the rural areas seeking employment and living in the
agricultural sector. Effective rural development planning demands a micro approach to the various problems of rural areas.

It is estimated that as of 2001 AD the world population is 1000 million, requiring food grain production to the extent of 240 million tonnes per annum. The required quantum must be achieved by getting maximum yield per hectare of different crops or increasing cultivable areas.¹

Agricultural development, however, is not synonymous with rural development. While the development of agriculture is critical for self-sufficiency in food and for the economic development of India, it is equally necessary to develop the rural area also. This step is most likely to contribute to the improvement of the living conditions of the rural population which, consists of large number of landless labourers, village artisans etc.

APPROACHES TO RURAL DEVELOPMENT

Rural poverty is found to be extensive in backward regions of the country, which have unfavorable climatic conditions. Desert areas, the ravine lands, chronic drought-prone areas and hilly tracts etc. are classified as backward areas, where poverty is widely prevalent. People living in these areas have very poor gainful employment opportunities, low and fluctuating production and poor incomes. The incomes are too meager to meet the minimum requirements of life. The schemes for development of backward areas like the Drought Prone Area Programme (DPAP), the Desert
Development Programme (DDP) etc. are designed to alleviate poverty in such problem areas.

Before independence, social reformers started their own development programmes for the welfare of the rural people. These attempts were few and served only a small group of people at selected locations on a pilot basis. The approach was mostly paternalistic, aimed at wiping out tears. The impact made by these pioneer attempts could not be sustained, as all these programmes were not supported by the then British Government and had to be operated based on the individual capacity of the promoters.

After independence, the Government of India took the cine from these earlier experiences and, in 1943, the Grow More Food Campaign (GMFC) was launched with two objectives, namely,

1. to bring under plough all potentially producing land, and,
2. to increase the yield per hectare.

The experiences of the GMFC and also the report of the committee headed by V.T.Krishnamachari paved the way for the formulation and execution of the Community Development Programme (CDP). From time to time, the approach of the government of India has changed based on the earlier experiences gained by implementing different rural development programmes. Some of the most important approaches adopted in the implementation of the various programmes and their impact are dealt with hereunder.
Community Development Approach

The Community Development Programme was launched in 1952 with the objectives of securing the total development of the material and human resources of rural areas and developing local leadership and self-governing institutions. The CDP was of self-help nature, with adequate support from the governmental authorities to improve the economic, social and cultural conditions of villagers and to make them contribute to the progress of the nation. The CDP was a movement designed to promote better living for the whole of the rural community with the active participation and at the initiative of the community. The National Extension Scheme was yet another programme introduced and executed on the same lines.

This CDP created basic infrastructure facilities and improved the production base of the rural economy. Further, the CDP helped in the establishment of an institutional setup at block level for the implementation of rural development programmes. This development infrastructure greatly helped the government to launch rural development programmes in the subsequent years until today.

Package Approach

The package approach aimed at the concentration of resources and effective use and better management of resources in agriculturally prosperous areas. This strategy laid the foundation for
agricultural development in India. The programmes patterned and implemented in these directions were the Intensive Agricultural District Programme (IADP), the Intensive Agricultural Area Programme (IAAP), the Intensive Cattle Development Programme (ICDP) and the High Yielding Varieties Programme (HYVP).

This approach proved that rapid increase in agricultural production can be achieved if the resources, inputs and services are concentrated in areas having very high production potential.

Under the community development approach, scarce resources were spread thinly over the entire country and as such the results were far from the expectations. The package approach, on the other hand, concentrated all the available resources in areas of high potential for development and therefore resulted in better productivity. These programmes, however, failed to solve the problems of poverty, unemployment and inequality. In fact, this approach widened the gap between prosperous and backward areas and the rich and the poor in a given area. To reduce these inequalities, in the subsequent Five Year Plans, two new approaches were initiated namely, Target Group approach and Area approach.

Target Group Approach

Programmes like the Small Farmers Development Agency (SFDA), the Marginal Farmers and Agricultural Labourers Development Agency (MFALDA) programmes were formulated and executed in the early seventies under the target group
approach. In this approach, target groups were identified, problems were understood and economic and technical plans were prepared and executed. This reduced the disparities between different groups in rural areas.

An evaluation study conducted by the Planning Commission said that improper selection of project areas and target groups affected the progress of the programmes. However, it would be fair to record that these programmes assisted the target groups to share the benefits of agricultural development hitherto enjoyed by the rich and large farmers alone.

Area Approach

Area specific programmes were initiated and launched in the early seventies with the aim of correcting regional imbalances by executing rural works and generating employment in drought prone, backward, desert, hill and tribal areas. The main thrust of these area development programmes revolved round restoration of ecological balance, reducing the severity of natural conditions and stabilizing the income of the people. This approach greatly relieved the people belonging to the weaker sections living in these areas from the sufferings they had been facing for generations.

Minimum Needs Approach

The minimum needs approach was adopted to raise the level of social consumption of the weaker sections living in the rural areas because the special area/group programme shed an impact on the
income of the target population but lacked in services and facilities for the use of the community. Therefore, under the minimum needs approach, civic amenities, elementary education, nutrition, drinking water, hospitals, roads, electricity and house sites for landless labourers were provided for the consumption of rural people. Under this approach, villages were provided with basic amenities in addition to social amenities created under the CDP.

Integrated Approach

An analysis of the results achieved by the earlier approaches reveals that the programmes implemented so far were piecemeal in nature without any sectoral coordination and hence failed to deliver the goods. Unemployment and underemployment are chronic problems in rural areas. They remain untackled effectively in spite of a series of schemes in this direction during the planning era. The cumulative effect of this situation over several years is large-scale poverty in rural India in the midst of surplus manpower and other resources. So, an integrated approach, considering the experiences gained by implementing all earlier rural development programmes, was initiated, supplementing the minimum needs programme with programmes of employment and income generation.

The major programme executed under this approach is the Integrated Rural Development Programme (IRDP). Initially, the IRDP adopted the cluster approach for selecting villages for execution of various components of the programme, the antyodaya
approach for identifying the beneficiaries of the programmes in the selected villages and the package approach to assist the beneficiaries. Under this programme, scarce resources were concentrated and used in areas of poverty and among the poorest of the poor. The IRDP was able to alleviate poverty among the poorest of the poor by providing employment and self-employment and by creating productive assets. This approach has paved the way for self-sustaining development in rural areas by channeling the benefits to the rural poor.

Employment Oriented Approach

The employment-oriented approach is adopted in the execution of the Natural Rural Employment Programme and the Training of Rural Youth for Self-Employment (TRYSEM). In 1999, all rural development programmes were revised and restructured with the aim of providing employment or self-employment to target groups.

Alleviation of poverty continues to be a major concern even after the implementation of several rural development programmes since independence. Self-employment is one of the ways of reducing the level of poverty. Hence the Swamjayanthi Gram Swarozgar Yojana (SGSY) was introduced in 1999, a self-employment programme replacing the erstwhile self-employment or wage employment programmes -IRDP, TRYSEM, Development of Women and Children in Rural Areas, and Million Wells Schemes —which are no
longer under implementation. The SGSY covers all aspects of self-employment viz., organisation of the poor into Self-Help Groups, capacity building, planning of activity clusters, infrastructure build up, technology intervention, credit and marketing.

The Jawahar Rozgar Yojana was restructured as the Jawahar Gram Samriddhi Yojana (JGSY), It aims at improving the quality of life of the rural poor by providing them additional employment and creating demand driven village infrastructure, including durable assets. The Employment Assurance Scheme (EAS) is yet another programme providing gainful wage employment during lean seasons to adults in rural areas.

Watershed Approach

From the beginning, the area development programmes were implemented by adopting administrative divisions as units of planning. Water is a scarce commodity in these areas and it is the resource determining the activities of the target area. Therefore, to tackle the problem of these areas, it was decided by the Government of India to implement these programmes on a watershed basis, which adopts the regional approach by concentrating resources and efforts in the watershed area. Since 1996, the Drought Prone Area Programme (DPAP), the Desert Development Programme (DDP), the Hill Area Development Programme (HADP), the Tribal Area Development Programme (TAPP) have been executed by adopting the watershed approach.
One of the salient features of this approach is people’s participation. The local inhabitants of the watershed area should be involved at all stages of the programme i.e., planning, implementing, monitoring and maintenance of the assets created out of programme funds after the conclusion of the programme. Though this programme helped farmers, it could not ensure the fullest participation of the landless and the poor people of the watershed area.

The watershed basically comprised of drainage line and arable and non-arable lands and all these are required to be developed in an integrated and holistic manner. In order to ensure optimum use of natural resources and sustainable production, the watershed approach lays stress on the adoption of: the watershed area as an organic geo-hydrological unit for planning and implementation through the people. A micro watershed of about 500 ha. is taken and saturated with soil and water conservation works to promote a suitable and sustainable production system in a four year period. For this purpose, a fund of Rs.20 lakhs per watershed is provided for land treatment works.

**HISTORY OF WATERSHED DEVELOPMENT**

Several efforts have been taken by Central and State Governments besides international funding agencies to tackle the problems of soil degradation and declining underground water table. Different approaches have been adopted for reclaiming these
problem areas. One among them is the watershed approach. In 1956, watershed based development activities were initiated by the Central Soil and Water Conservation Research and Training Institute, Dehra Dun. Five watersheds spread over five states were taken up as Operation Research Projects. The scheme of soil conservation work in the catchments of River Valley Projects (RVP) was launched in 1962-63 with the major objectives of controlling siltation and preserving the life of reservoirs. The second mega project the Drought Prone Area Programme (DPAP) was launched in 1972-73 with the objective of drought proofing of drought prone areas.

NGOs sought funds from international funding agencies such as the CRIDA, the World Bank, the DANIDA, the EEC, the KFW and the Swiss Development Corporation for starting a number of watershed development projects. The area development programmes implemented by the Ministry of Rural Development had almost identical objectives but their approaches were different. In the light of encouraging results of watershed projects in the conservation of soil and water resources, the Government of India appointed a Technical Committee under the Chairmanship of C.H. Hanumantha Rao. The Committee recommended that all the area development programmes under the Ministry of Rural Development should be implemented on a watershed basis with the active participation of the people and their groups as per the new
guidelines. Since 1995-96, all these programmes are executed based on the watershed approach.

The drawbacks of the earlier approaches led to the emergence of the watershed concept as one of the most scientific tools for resource conservation and development during the 1980s. In fact, the watershed intervention concept was started in the country about half a century ago (during the 1940s) but the emphasis then was on protecting the downstream water resource, infrastructure from the effects of upstream over-exploitation of land and vegetation. However, the focus has gradually shifted to sustainable increase in productivity of land, water and vegetation within the drainage divide. This includes land improvements through conservation and land use planning based on its capabilities apart from livestock and human considerations within the ambience of the identified dryland eco-system.

In India, the genesis of the watershed approach dates back to 1956 when the Central Soil Conservation Research Demonstration and Training Centre set up 42 small watersheds at eight locations. Large-scale watershed development in the country was, however, started in 1961-62 with the initiation of the River Valley Projects (RVP) with the major objective of preserving the life of the reservoirs. Later, in 1993, the Central Soil and Water Conservation Research and Training Institute (CSWCRTI) added 47 operational research projects on watershed to the already existing ones to be
jointly executed by State departments and the Ministry of Agriculture.

Watershed: Meaning

A watershed is a hydrological unit bounded by natural ridges. It allows the run-off due to rainfall to drain in a well-defined drainage pattern of the streams within the watershed boundary. A watershed is claimed to be the most scientific unit for efficient management of land and water resources as it is basically an agro-climatic unit with relatively more homogeneity of land and other resources as compared to a revenue division.

Watershed management has been defined as rational utilisation of land and water resources for optimum and sustained production with minimum hazards to natural resources. It is related to soil and water conservation denoting proper land use, protecting land from all forms of degradation, building and maintaining soil fertility, conserving water for agricultural use, proper management of water for drainage, flood protection, sediment reduction and increasing the productivity of land.

Importance of Watershed Development

Rainfall is the main source of surface water and its conservation is essential for successful crop production on dry lands. As water moves down the slope, from the ridge to the valley, its management also starts at the ridge and extends to the valley. Watershed approach in land development is essential from the
effective resource utilization angle also. It will enable farmers to conserve the water and land resources in their own field. The importance of watershed development has been realised only by adopting the strategies of soil and water conservation measures.

Much of the increase in food production in the recent past is estimated to be mainly due to irrigated areas. Out of 142.2 m.ha. net cultivated area, 48.8 m.ha. area is under irrigation, contributing 56 percent of the country's food grain production; the remaining 44 percent food grains come from 92.5 m.ha. rainfed areas. Therefore, it is inevitable to note that the additional food has to come mainly from the dry lands so as to cope with the needs of the rapidly growing population in future. It is vital to undertake research in watershed development to augment the country's food production.

Concept of Watershed Development

A comprehensive development plan with a multi disciplinary integrated approach adopting the watershed approach is very much needed for achieving soil and water conservation and management. It involves management of land, water, energy and greenery, integrating all the relevant scientific approaches appropriate to socio-economic background for the development of a watershed. The comprehensive development of a watershed aims at productive use of all its natural resources and protecting them for future use. It helps in the integrated development of different parts of the
watershed in accordance with their nature, problems and potentialities.

In order to obtain maximum benefits from technological developments, it is imperative that the natural resources, soil and water, be properly protected and judiciously utilised to improve their productivity constantly (Tejwani, 1976). When a watershed is properly managed for water, it is also properly managed simultaneously for soil and vegetation (Bali, 1978). Watersheds being, natural hydrological entities, respond effectively to various engineering, biological and cultural treatments designed to maximise production (Kathuria, 1978).

Watershed Development in India

Watershed development programmes in different States in India have been taken up since 1996 under different schemes such as the DPAP, the IWDP, the DDP and the NWDPRA. The basic objectives of all these programmes have focused on developing and reclaiming the land and water resources so as to ensure sustained production.

Considering the massive investment in watershed development since 1995-96 and its likely spread to a number of villages the Government of India thought it prudent to involve NGOs in the implementation of watershed projects along with the Government. In the new set of guidelines introduced in 1996, people’s participation was emphasised through User Groups at
village/watershed level. The Government of the different States and the DRDAs in the districts have utilised the services of NGOs for better implementation of watershed projects along with Government departments from 1995-96.

As the watershed development projects often failed to achieve their physical and financial targets on account of improper administrative arrangements or inadequate management skills of the project staff, it was observed that the development was not sustainable in terms of operation and maintenance of assets created because of inadequate participation of villagers. During 2001 the guidelines issued in 1996 were reviewed in the light of the experience gained in the implementation of watershed projects.

Approach to Watershed Development

Watershed development programmes have been executed to conserve ecology and environment and their impact should be ecologically and environmentally sustainable to provide maximum yield per hectare.

The watershed project is only indicative of location, physical target and financial outlay of the project. An integrated action plan has to be prepared by the Watershed Development Team (WDT) in consultation with the watershed community. It is an important to note that technical requirement and the feasibility of biophysical measures are to be carefully worked out for long-term sustainable interventions for the entire area of the watershed.
The action plan should specify
pre-set deliverable output,
elaborate roadmap with definite milestones,
definite time frame for each activity,
technological interventions,
specific success criteria, and,
clear exit protocol.

After it is approved by the District Rural Development Agency (DRDA), it will be the responsibility of the Project Implementation Agency (PIA) to get the same implemented through the Watershed Committees with the active involvement of the Watershed Development Team members.

The Government of India, in its revised Guidelines for Watershed - 2001, suggested that, besides the long term benefits of the programme, the watershed development plan should identify short term benefits with verifiable parameters that are likely to accrue from the watershed project. While approving the detailed action plan, the DRDA may ensure that the twin track approach has been followed in the preparation of the development plan.

There are a number of approaches, which may be followed in the implementation of the watershed development project as per the local conditions and requirements. They are as follows:

long term approach,
exploitative or extractive approach,
economic and consumeristic approach,
regenerative and restorative approach,
conservation approach,
flora and fauna centered approach,
sustainability approach,
carrying capacity and developmental approach,
economic and commercial approach,
environmental and ecological approach,
socio-cultural approach, and,
political and administrative approach.

At present watershed management seems to consist of only a certain number of soil and water conservation practices and introducing a few cropping systems and animal husbandry practices. In a few instances a few social issues are talked about. People seem to be happy with whatever little improvement they see and the little share of the enhanced income they receive while the major share of the total income goes out of their hand.

Ultimately, a watershed should be considered as a socio-economic and practical unit of people and their land resources from which they derive all the needs for their existence and development. Watershed management is a human activity by which man takes control of all the natural resources in such a way that, while developing their full potential, they are reserved, enriched and sustained. Along with the natural resource development all the necessary infrastructural facilities should be developed and made
available within the easy reach of every one. The human resources are managed and adjusted in such a way that there is justice in the things distributed for their existence and development. Therefore, the ideal approach is to have a comprehensive and integrated approach in which both the environment and the human beings are rendered sustainable.

AREA DEVELOPMENT PROGRAMMES

The area development programmes were implemented adopting revenue boundaries such as block/revenue village boundaries. These programmes failed to yield the expected results due to many reasons. One among them was that they were not implemented adopting natural regions like the watershed. Hence, all area development programmes should be executed on a watershed basis. The watershed has now become a recognised unit for planning, development and management for all social, political and economic development activities, apart from natural resource management.

Drought Prone Area Programme (DPAP)

The DPAP is one of the area development programmes launched by the Government in 1973-74 to tackle the special problems faced by those fragile areas, which are constantly affected by severe drought conditions. These areas are characterized by large human and cattle populations which are continuously exerting heavy pressure on the already fragile natural resource base for food,
fodder and fuel. This continuous biotic pressure leads to fast and continuous depletion of vegetative cover, less and less rainfall, increasing soil erosion and fast receding groundwater levels due to continuous exploitation without any effort to recharge the underground aquifers.

Though the programme had some positive impact in terms of creating durable public assets in the areas covered by it, the overall impact in effectively containing the adverse effects of drought was found to be not very encouraging. In addition, many of the programme states started demanding inclusion of additional areas under the programme.

Objectives

The basic objectives of the DPAP are as follows

1. to reduce the severity of drought,
2. to provide employment opportunity to the watershed community through income generation,
3. to maintain ecological balance,
4. to control soil erosion,
5. to improve the greens cover and prevent forest degradation, and,
6. to increase the ground water recharging.

Strategy

The common Guidelines for Watershed Development provide for a uniform strategy in the implementation of all the area
development programmes, viz. the DPAP, the DDP, the WDP and the EAS. The main features of this strategy are

© Area development programmes to be implemented exclusively on watershed basis.

© Programme activities to be confined to the identified watershed of about 500 hectares and to be executed on a project basis spanning over a period of four to five years,

© Watershed Project to cover a village, as far as possible.

© Elaborate institutional mechanism at various levels clearly defined for effective participation of the local people and the Panchayat Raj Institutions (PRI) in all stages of project management.

© DRDA to be the nodal Government Agency at the district level to act as a facilitator and provider of finances and technical assistance to the people's organisations executing the watershed projects.

Funding Pattern

Until March 1999, the programme allocation was being shared on a 50:50 basis between the Central and the State Governments. However, with effect from April 1, 1999 the allocation is shared on a 75:25 basis between the Centre and the State Government in respect of new projects sanctioned during 1999-2000. The cost norms adopted under the DPAP for various ecosystems depending on the severity of the problem are as given below:
<table>
<thead>
<tr>
<th>S. No.</th>
<th>Ecosystem Type</th>
<th>Per Ha. Average Cost (Rs.)</th>
<th>Watershed Project Cost (Rs. in lakh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Semi-Arid Region</td>
<td>4,000</td>
<td>20.00</td>
</tr>
<tr>
<td>2</td>
<td>Dry Sub'Humid Region</td>
<td>3,000</td>
<td>15.00</td>
</tr>
<tr>
<td>3</td>
<td>Dry Sub-Humid (Hill) Region</td>
<td>4,000</td>
<td>20.00</td>
</tr>
</tbody>
</table>

Desert Development Programme

Over the years, the increase in human and livestock population in desert areas has placed the natural resources of the region under great stress. The major problems are continuous depletion of vegetative cover, increase in soil erosion and fall in groundwater table. All these factors account for diminishing productivity of land and loss of natural resources. The problems become worse but for the introduction of some specific highly focused area development programmes in these areas. On the recommendation of the National Commission on Agriculture in its Interim Report (1974) and Final Report (1976), the Desert Development Programme (DDP) was introduced in 1977'78. It was started both in the hot desert areas of Rajasthan, Gujarat and Haryana and in the cold areas of Jammu and Kashmir and Himachal Pradesh.

Objectives

The DDP has been envisaged as an essentially land based activity and conceived as a long term measure for restoration of
ecological balance by conserving, developing and harnessing land, water, livestock and human resources. The main objectives of the DDP are

1. Combating drought and desertification,
2. Encouraging restoration of ecological balance,
3. Mitigating the adverse effects of drought and adverse effects-climatic conditions on crops and livestock and enhancing the productivity of land, water and human resources,
4. Promoting economic development of village community, and,
5. Improving socio-economic conditions of the resource poor and disadvantaged sections of the village community, viz., the asset-less and women.

Strategy

Growing population and poverty compounded the problem by increasing the pressure on fragile ecosystems. On the basis of lessons learnt, the major elements of the new strategy are

- Area development under the programme will be on watershed basis only and a watershed project of about 500 hectares will be the field unit for implementation and it will be developed in four to five years.
- However, in some sandy areas where it is not physically feasible to demarcate a watershed, the programme is to
be implemented by adopting either a cluster of villages or an Index catchment as the unit of planning.

- There will be direct participation of the local people in planning and development of watersheds and maintenance of assets after the project is completed.
- The Zilla Parishads, Panchayat Samitis and Gram Panchayats have the right to monitor and review the programme at district, block and village levels. Similarly, in the new system of programme implementation a Panchayat Raj Institution/ Voluntary Agency can be selected as a Project Implementation Agency by the DRDA/Zilla Parishad. The voluntary agencies can play an effective role particularly in motivating people, community organisation and training.

Funding Pattern

The DDP is a Centrally sponsored programme and funds are directly released to the DRDA/Zilla Parishad. The Central share under each type of project area, based on the ecosystem type, is as hereunder:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type of Ecosystem</th>
<th>Central Share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hot Arid (Non-sandy) Areas</td>
<td>75</td>
</tr>
<tr>
<td>2</td>
<td>Hot Arid (Sandy) Areas</td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Cold Arid Areas</td>
<td>100</td>
</tr>
</tbody>
</table>
The above-mentioned Central share was applicable up to March 31, 1999. With effect from April 1, 1999, the programme would be funded on the basis of 75:25 in all the cases for the watershed projects being sanctioned on or after April 1, 1999.

Integrated Wastelands Development Programme (IWDP)

The Integrated Wastelands Development Programme is a scheme wherein wastelands are being developed with the active participation of the stakeholders, i.e., User Groups, Self Help Groups and Panchayat Raj Institutions throughout the country. Here the projects are sanctioned in favour of the DRDA/Zilla Parishad for a period of five years. The projects are implemented through the Project Implementing Agencies which can be a line department or a reputed NGO having sufficient experience in the field of watershed development. The scheme has been under implementation since 1989-90 and came to the Department of Land Resources along with the National Wastelands Development Board (NWDB) in July 1992. From April 1, 1995, it is being implemented on watershed basis under the common guidelines for watershed development.

The IWDP is a 100 percent Central sector scheme. The cost norm is Rs.4000 per hectare. The basic objective of this scheme is to take up integrated wasteland development plans. The stakeholders prepare these plans after taking into consideration land capability, site conditions and local needs. The scheme also helps in generation
of employment in rural areas besides enhancing people’s participation in the wastelands development programmes at all stages. This leads to equitable sharing of benefits and sustainable development. The important coverage of this programme includes focus on village common lands, institutionalised community participation, emphasis on sustainable rural livelihood support systems, Capacity building as a vital component, committee systems at the state and district level and decentralised planning and decision making etc.

The major activities taken up under the scheme are soil and moisture conservation measures like terracing, bunding, trenching, establishing vegetative barriers, planting and sowing of multi-purpose trees, shrubs, grasses, legumes and pasture land development, encouraging natural regeneration, promotion of agro-forestry and horticulture, wood substitution and fuel-wood conservation measures, measures needed to disseminate technology, training, extension and creation of greater degree of awareness among the participants, encouraging focus on village common lands and planning and implementation of multi-cropping patterns.

**FUNDING FOR WATERSHED PROJECTS**

I. International Funding Agencies

Watershed development programmes are being funded by international/national funding agencies as well as Government bodies.
1. World Bank Assisted Watershed Development Projects

The World Bank assisted in a big way, during the mid-eighties, four mega-watersheds located in Andhra Pradesh, Karnataka, Maharashtra and Madhya Pradesh States through the International Development Association, the objective being the development of arable and non-arable lands. These World Bank financed projects have already expired and these are now being managed jointly by the respective State governments and the Government on India.

A. Himalayan Watershed Management Project

The Himalayan Watershed Management Project was implemented by the Government of Uttar Pradesh and assisted and monitored by the Government of India. This period of duration was about 1983-1992 and the total allotted funds US$28.3 million. The main objectives of the programme were to minimize deterioration of the Himalayan eco-system caused by the depletion of forest cover, overgrazing and bad land use. The major components were under tree plantation for fuel and fodder, soil conservation, livestock development, improvement of agricultural extension, horticulture development and irrigation development.

B. Integrated Watershed Development Project (Hills)

The Integrated Watershed Development Project (Hills) was executed from 1991-92 in the states of Haryana, Himachal Pradesh, Jammu and Kashmir and Punjab. The main objectives of the project
were to slow down and reverse degradation of natural environment through use of appropriate soil and moisture conservation technology and to improve the production potential of the areas. The duration of the project was seven years. Under this project, an area of 1.50 lakh hectares have been treated at an estimated cost of Rs. 187.41 crores.9

C. Integrated Watershed Development Project (Plains)

The Integrated Watershed Development Project (Plains) was taken up in the states of Gujarat, Orissa and Rajasthan at a total cost of Rs. 183.43 crores to cover an area of 2.60 lakh hectares in a period of seven years from February 1991. The main objectives of this project were to slow down and reverse ecological degradation in a variety of agro-ecological zones by promoting sustainable and replicable production systems.10

2. Agricultural Development Projects

The Agricultural Development Projects (ADPs), with the assistance of the World Bank, are to be implemented in the states of Bihar, Rajasthan, Tamil Nadu and Assam to enhance the long term sustainability in agricultural development and to create necessary infrastructure in rural areas. Six ADP proposals in respect of Andhra Pradesh, Haryana, Karnataka, Madhya Pradesh, Maharashtra and Uttar Pradesh are at various stages of preparation and finalisation.
3. DANIDA Aided Projects

The Government of Denmark launched an Integrated Watershed Development Project in the State of Karnataka in 1990-91 to cover an area of 41,032 hectares at an estimated cost of Rs. 8.83 crores over five and a half years. Keeping in view the successful implementation of this project, DANIDA agreed to a phase-II project, which was appraised in February 1995. The second project, i.e., the Comprehensive Watershed Development Project, Tirunelveli, Tamil Nadu State, to cover an area of 18,000 hectares with an outlay of Rs. 8.04 crores over three and a half years has been in operation since 1990-91. The second phase of this project has been negotiated and the project has become operational from 1995 to cover an area of 62,000 hectares at an estimated cost of Rs. 41.70 crores. Another DANIDA assisted Comprehensive Watershed Development Project is in operation from 1992-93 in Koraput District of Orissa State to cover an area of 43,000 hectares at a cost of Rs. 13.25 crores. The fourth project, i.e., the Comprehensive Watershed Development Project, Ramanathapuram, Tamil Nadu State, has also become operational from 1994 to cover an area of 11,000 hectares at a cost of Rs. 13.03 crores.

4. European Economic Community-Assisted Projects

The European Economic Community (EEC)-assisted Integrated Watershed Management Project, known as the Doon
Valley Integrated Watershed Management Project, has been in operation in Uttar Pradesh since April 1993 with an area of 1,72,155 hectares at a cost of Rs.808.5 million over seven years. The major components are social forestry, livestock, horticulture, minor irrigation, agriculture, soil conservation, energy conservation, community participation, management and administration. The South Bhagirathi (Phase II) Integrated Watershed Management Project, started in 1989 for a period of seven years, has an outlay of Rs. 141.75 million to cover an area of 48,915 hectares and it has been completed. The Bhimtal Integrated Watershed Management Project, Uttar Pradesh, under implementation from 1991 over a period of seven years, has an area of 21,582 hectares to cover at a cost of Rs. 115million. The major components are forestry, agriculture, soil conservation, horticulture, minor irrigation, animal husbandry, pilot and administrative activities.

5. Swiss Development Corporation-Assisted Projects

There are three projects under implementation in the watershed management sector assisted by the Swiss Development Corporation. The Indo-Swiss participative watershed development project aims at developing five watersheds in five districts of Karnataka State (three agro climatic zones of Karnataka State) under the name of the Participatory Integrated Watershed Development Project (PIDOW). This Project is to be taken up in the districts of Bidar, Gulbarga, Bijapur, Raichur and Chikmanaglur of
Karnataka State covering a project area of 30,000 hectares (74,968 hectares of geographical area). The project aims at developing the watershed with the active participation of farmers through Sanghas as Self-Help Groups with the active collaboration of NGOs in each of the districts. The estimated cost of the project is Rs. 20.73 crores for 1995-1998. Another project, namely, the People’s Action for Watershed Development Initiatives (PAWDI) was in operation in Rajasthan State since June 1996 for a period of three years. The project was taken up to cover an area of 15,000 ha. at a cost of Rs.15.3 crores. Emphasis was laid on facilitating community participation in organisation, planning and execution of different activities.\textsuperscript{11}

6. German KEW-Assisted Project

An integrated project is being implemented in Karnataka State since 1996 with active participation of six NGOs to last up to 2002 at a project cost of Rs.55.07 crores for treating an area of 53,633 ha.

7. International Crop Research Institute for Semi-Arid Tropics (ICRISAT)

The ICRISAT situated at Hyderabad, India has been engaged in conducting research in dry land agriculture through the Farming Systems Research (FSR) approach in the Semi-Arid Tropics since 1972. The technological innovations have been developed by the ICRISAT keeping the watershed as a unit of development. In doing
so, the Institute has focused invariably on the integrated development of mini-watersheds and micro-watersheds.

8. Overseas Economic Cooperation Fund, Japan

The Tamil Nadu Afforestation Programme has been implemented by the Government of Tamil Nadu since 1997. The scheme envisages ecological restoration of forests with the fullest participation of people through Joint Forest Management. The project is implemented with the assistance of the Overseas Economic Cooperation Fund, Japan. The aim was to launch a massive tree plantation programme in the State of Tamil Nadu to bring about balanced ecological upgradation and to meet, to the extent possible, the requirements of the local people with respect to wood and non-wood forest products.

The project is scheduled for five years with an annual target of 200 villages, each village covering approximately 300 hectares of degraded forests. The total target for this project covers 1000 villages and a total area of 4,87,226 hectares during the period from 1997 to 2002.

IL NATIONAL FUNDING AGENCIES

1. National Watershed Development Programme for Rainfed Areas (NWDPRA)

The National Watershed Development Project for Rainfed Areas was launched in 1990-91 and covers 25 States and two Union
Territories. The NWDPRA was a pioneer programme launched by the Department of Agriculture and Co-operation as a major programme in rainfed areas. The objectives of the NWDPRA were to take the watershed as a basis to conserve and upgrade both crop lands and waste lands as a vital natural resource, stabilise and increase crop yields from rainfed farming, and develop and disseminate technologies for proper soil and moisture conservation methods.

2. Ministry of Rural Development

The Ministry of Rural Development funds watershed development schemes under the DPAP, the DDP and the IWDP. Attempts were made in the past to dovetail different schemes/programmes in order to achieve greater impact at the implementation level. However, it was found that co-ordination and convergence of different programmes to a single area raised several administrative problems. Therefore, it was decided that the following programmes, namely, the DDP, the DPAP, the IWDP, the I-JRY and the Employment Assurance Scheme would take up watershed development on mutually exclusive basis at the village level. Thus, the watershed development would be covered under either the DPAP or the DDP or the IWDP or the I-JRY (50%) or the EAS (50%) for its source of funding for taking up all the activities envisaged in these programmes. The implementation of the projects would be governed by these guidelines which would be
common for all watershed development projects under all the five programmes of the Ministry of Rural Development. Adding the State Government’s contributions under these centrally sponsored schemes, it was expected that from 1995-96, substantial funds would be available for watershed projects.

3. Ministry of the Environment and Forests

The Ministry of Environment and Forests has been implementing two major schemes, namely,

(i) Integrated Afforestation and Eco-Development Scheme, and

(ii) Fuel Wood Cum-Fodder Development Scheme, in 196 selected districts in the country. These programmes are to be developed on a watershed basis. During the Eighth Plan an outlay of Rs.275 crores was provided for this purpose.

4. Union Ministry of Planning and Programme Implementation

Special area development programmes of the Ministry of Planning and the Programme Implementation have focused attention on watershed development under the Hill Areas Development Programme and the Western Ghats Development Programme. During the Seventh and Eighth Five Year Plans emphasis was laid on improvement of land and water resources.
5. Indian Council of Agricultural Research (ICAR)

The Indian Council of Agricultural Research has been engaged since long in carrying out systematic research on soil and water conservation through the Central Soil and Water Conservation Research and Training Institute, Dehradun, and a chain of other regional centres.

6. Central Arid Zone Research Institute

The Central Arid Zone Research Institute, Jodhpur, and the Central Research Institute for Dry Land Agriculture, Hyderabad (both under the ICAR), enormously contributed to the planning and development of watersheds through the application of technological innovations suited to arid and semi-arid regions.

7. Council For Advancement of People’s Action and Rural Technology (CAPART)

Watershed programmes are implemented by CAP ART through assistance to Voluntary Organisations (VOs). These VOs are categorised on the basis of experience as either Track A or Track B and imparted comprehensive basic training through Support Voluntary Organisations (SVOs) identified by CAP ART. The actual implementation follows the training and capacity building.
NGOs and Watershed Development

Several NGOs have successfully established unique examples of integrated watershed development by mobilizing local people and other resources. Those worth mentioning among them are

* Hind Swaraj Trust, Ralegaon Siddhi, Maharashtra State
* Development Support Centre, Ahmedabad, Gujarat State.
* Deccan Development Society, Hyderabad, Andhra Pradesh State.
* MYRADA implemented watershed projects in Karnataka, Andhra Pradesh and Tamil Nadu States.
* Agakhan Rural Support Programme, Gujarat State.
* PRADAN operated comprehensive watershed projects in Bihar and West Bengal States.
* DANIDA implemented watershed project in selected districts of Tamil Nadu State.
* RUSA, Manipur State.
* People Science Institute, Dehradun, Uttar Pradesh State, has also been involved in initiating watershed development programmes in the country.

Conclusion

Watershed Development Programme (WDP) is fast becoming a proven approach for the use and conservation of natural resources with equity, efficiency and sustainability. A number of WDPs are being implemented by the Government and NGOs. This particular
research study focuses on the institutional arrangements in both the Government and the NGO watersheds that lead to consensus among stakeholders for equitable sharing of benefits. The study has made an attempt to compare and explore the effects of the watershed development programme implementation vis-a-vis the administrative structure of the Government Agency and the NGO. Earlier studies have concentrated on the assessment of water table and incremental changes in income and yield in watersheds in Government and NGO sectors. But no study has hitherto been made of Government Agencies and NGOs with regard to their administrative structure and its impact on watershed development.
References


