

Research Article

Impact of Drought Prone Area Programme: An Evaluation Approach in Mahaboobnagar District of India

Chikkepally Srinivasa Rao*

Centre for Micro Planning National Institute of Rural Development Rajendranagar, Telangana, India

Abstract

As it is clear by now drought is a short term phenomenon but its impact is felt over long term. A mild drought followed by a good season may not leave its mark. But if it is severe, it can take a heavy toll of the human, animal and natural resources of the area coming under its direct impact. In this article the author has undertaken an evaluation study of the Drought Prone Area Programme. Usually called as DPAP programme which was initiated and implemented by the Government of India. In the watershed areas the concept of peoples participation is found to be not up to the mark, however some areas where watershed programmes were implemented, there was good peoples response equally found in these areas with PRA (Participant Rural Appraisal). The programme started in the year 1973 and until 1985 when Integrated Rural Development programme was started through out India covering almost all of the Indian Districts. This programme helped people, livestock and get potable drinking water. Daily availability of employment generating income activities such as Food for Work programme, Anthyodaya, the development of the last person in the row. TRYSEM (Training of Rural Youth for Self Employment) Sericulture, Aqua culture, Blue Revolution, White Revolution, milk and dairy production, were undertaken in a large scale and government reconstruction of disabled, miserable drought conditions through the drought proofing measures during decadal intervals.

Keywords

Drought, Watershed, Implementation, Rural Areas, Evaluation, Rural Works Programme and PRA (Participant Rural Appraisal)

1. Introduction

In Telangana state, DPAP is implemented in 7 districts including Mahabubnagar, Rangareddy, Medak, Adilabad, Khammam, Warangal and Nalgonda district. The programme covered 84 Blocks in these districts with a total of 3882 watersheds. Sanctioned under DPAP, covering an area of 19.41 lakh hectares and has the potential to be irrigated in other regions.

Overall, the evaluation suggests that the DPAP has been effective in improving livelihoods of farmers in drought-prone areas. Farmers in different villages confirmed that wa-

ter level in openwells and bore wells and ground water has been increased. Commendable efforts by the project managers, staff, as well as workers were responsible for these positive impact in these watersheds.

The Drought Prone Area Programme DPAP has been undergone various evaluations to assess its impact and effectiveness. ICRISAT undertook an evaluation study of DPAP in Medak district in Telangana. The study found that the programme had a positive impact on water level helped extend the period of water availability in wells which has helped

*Corresponding author: chikkepally94@yahoo.in (Chikkepally Srinivasa Rao), raocsrinivasac431@gmail.com (Chikkepally Srinivasa Rao)

Received: 27 March 2025; Accepted: 11 April 2025; Published: 29 May 2025



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farmers to introduce double cropping agriculture.

Improved crop yields, good soil and quality water conservation structures and effective management contributed to the programmes' success. (ICRISAT: Impact Assessment Report, Drought, Prone Area Programme)

The gain of agriculture development have been, by and large confined to irrigated areas. Nearly two thirds of the country is still rainfed which supports substantial population who are largely poor. The situation in drought prone areas is worse than the normal rainfed areas. Upgrading the productive capabilities of such areas along with ecological development is of paramount importance to narrow down the disparities between the regions and improve employment opportunities and the availability of food for the poor as well as to achieve substantial growth.

This called for state intervention through productive and preventive measures to develop dry land agriculture to ensure sustainable growth with equity. Till 1969, before launching Fourth plan, there were no policies and programmes for long term counter measures to tackle the recurring problem of drought in many parts of the country, rural works Programme (RWP) was introduced in the year 1970-71 with a short time objective of providing employment to the agricultural labourers in the drought effected areas. Recognising the need for long term strategy for tackling the problem of drought prone areas the Rural Work Programme (RWP) was reoriented into a new programme called Drought Prone Area Programme (DPAP) in 1973.

Though the main objectives of DPAP was to restore ecological balance by adopting drought proofing measures and simultaneously develop local resources for economic growth and employment in these areas. However the programme drifted from its basic path and became mainly infrastructure and irrigation development programme in DPAP areas.

The implementation of the programme was closely reviewed by the Central Sanctioning Committee in 1987. It had decided to narrow down the range of activities under the DPAP so as to sharpen the focus on the main objectives. It was considered that the main thrust of the programme should be on the activities relating to soil conservation, land shaping and development. Water resource conservation and, land shaping and development, afforestation and pasture development. In other words eco-friendly development and drought proofing became the focus.

To achieve the above stated objectives watershed development approach was found to most suited for the development of DPAP areas. In addition to area development, poverty alleviation particularly in areas predominantly inhabited by scheduled caste scheduled tribes and other economically backward classes, were given priority in selecting a micro-watershed for development.

Objectives: The main objectives of the project are:

1. To assess the processes of identification, demarcation and selection of watersheds for development, survey

and planning, project formulation and implementation of the projects

2. To examine the extent of peoples participation and partnership with officials in watershed development,
3. To examine the technological options, cost-effectiveness and other technical aspects of watershed development and
4. To assess socio-economic and environmental changes within qualitative terms and its impact on the beneficiaries of the project areas.

2. Methodology

For in depth study in each district some watersheds were purposively selected. However while selecting the watersheds, parameters used are: 1. Total number of watersheds in a district; 2. Spatial coverage; 3. Number of activities as stipulated under DPAP; and 4. Status of the watershed in terms of project implementation i.e., the new watersheds where the activities have just started and old watershed where some of the activities have already been implemented. In Mahabubnagar district out of twelve two watersheds namely Salkalapur and Rayapuram were selected for the concurrent evaluation.

In order to assess the impact of watershed on the user beneficiaries of the project a sample of 60 beneficiaries each from the selected villages both the watershed were selected through stratified random sample techniques.

The evaluation study covered three dimensions namely process evaluation, technical evaluation and impact evaluation.

3. Periodicity of Evaluation

The watershed development is a long-term process as the output of the project takes time to become visible. Keeping this in view, initially a four year process of the evaluation is designed as under:

- 1) In the first year (1994-1995) starting from April, 15 watersheds in all the eight DPAP districts will be studied;
- 2) In the second year five watershed projects in different districts will be retained for continuous monitoring for next three years of the project;
- 3) From the second year onwards ten new watersheds will be selected annually for evaluation; and In the five watershed projects which are retaining for continuous monitoring, in addition to this 60 sample beneficiaries selected in the first year, nearly one third (20 beneficiaries) will be added for study in the subsequent years so that at the end of fourth year there will be 60 sample beneficiaries continuously observed over the few years and so will be the control sample for cooperative sample.

4. Findings

Process Evaluation

- a) The Agricultural Officers and village Agricultural Workers played significant role in making people aware about various activities under watershed development schemes. Their role was satisfactory as far as activities are concerned, however the coordination with other departments at the field level and motivating people to take responsibilities were not encouraging.
- b) There were hardly any beneficiary committees for watershed promotion and even if they exist, they are ineffective.
- c) Though as per the norms, the leader of the watershed Committee should operate the bank account for various activities of the watershed, actually the Agriculture Officer operated the account along with two or three villagers and determine the activities to be taken up.
- d) The allocation of funds under various sectors was not in accordance with the Watershed Guidelines. Soil and moisture conservation and on-farm development activities which are covered under agriculture sector has been less than the stipulated 30% while investment on water harvesting and minor irrigation exceeded 30% as against 20%, for which only 15% of the allocation provided.
- e) In terms of financial targets, minor irrigation and forestry sectors got a share of 52% of the total investment. In the forestry sector, to achieve 57% of the physical target area, nearly 27% of the target amount was invested. In other sectors, the financial expenditures were found to be within the targeted investment. Sericulture could not get any progress though it was proposed to cover an area of 115 hectares.
- f) The expenditure for the approved items like conducting PRAs, maintenance of Sanghas, non-recurring expenditure etc. were almost double the proposed target expenditure.

Technical evaluation

- a) No specific arrangement was made for the maintenance of the assets created under watershed. People are the user beneficiaries response on this aspects is very poor.
- b) The live barriers, vegetative barriers and green cover programmes seem to have high failure rates, due to non-involvement of people.
- c) No provision was made to control soil erosion in the catchment of checkdams, percolation tanks and water harvesting structures and therefore high rate of silting and sedimentation, would decrease the storage capacity and life of the structures.
- d) Soil and moisture conservation works in the agricultural lands are not in tune with the agronomic practices in the bunded lands.
- e) The survival rate of plants vary from 20% to 30%. Besides poor response from the farmers, the other major

reasons is the inappropriate choice of the species which have low survival rate.

Impact Evaluation

The ultimate test of the success of a programme and/or a project is not only to achieve the stipulated objectives or goals but also its desired impact on the target people and/or the area. The watershed development has two aspects. The first is focussed on physical and qualitative changes in terms of ecological change due to extension of land under green cover and bio-mass production, soil and moisture conservation resulting in increased productivity, water harvesting leading to improvement in the availability of water for both drinking and irrigation purposes, etc. The second, emphasise improvement in the economic condition of the user beneficiaries by way of increased production, diversification of production structure such as horticulture, social forestry, animal husbandry, sericulture, etc., which have high potential and could be maintained within the ecological limits of the area.

Physical and Qualitative Change

- a) About 78% works were taken up to develop farmers fields under watershed approach.
- b) About 50% of the soil conservation activities seems to have been undertaken out of the proposed target of coverage.
- c) Though the plant distribution is very wide, the care to be taken by the people is limited causing poor survival rates.
- d) Horticulture activities were limited in the watershed regions. The horticulture officials seem to be concerned with raising of nursery and distribution of saplings but there is no motivational techniques used for attitudinal change in the people.
- e) There has not been any specific land use plan for the watersheds. In case of the cropping pattern nearly 50% change was observed.
- f) With the development of water harvesting structures, the user beneficiaries opined that the availability of irrigation water has improved in Salkalapur region, while no change indicated in Rayapuram region. However no empirical evidence of improvement in ground water in Salkalapur region was available.

Impact on Economic condition of the user Beneficiaries

About 90% of the villages under Salkalapur and Rayapuram watersheds expressed that they were benefitted from the watershed development. Some of the benefits are as under:

- a) Before the adoption of the watershed approach i.e., before 1990, about 42 to 48% of the beneficiaries were reported to have got employment under DPAP schemes. After watershed approach the employment status was 75% in Salkalapur and 90% in Rayapuram.
- b) Among the activities of watershed development, maximum employment was generated through land development works.
- c) The average daily wages received by the labourers was

Rs.7 in Rayapuram and Rs. 20 in Salkalapur per day.

- d) The animal husbandry activities in the watershed generated maximum additional income for the sample beneficiaries, which was estimated at Rs. 2340 per family.
- e) The growth in area coverage, yield and net income under unirrigated condition was above 6.9 %, 17.1% and 57.8% respectively, in Salkalapur, and the corresponding figures for Rayapuram were 2.77%, 58.83 and 45.75% respectively.
- f) Under irrigated condition the growth in area coverage, yield and income was to the tune of 3.43, 1.12 and 1.2 times in Rayapuram region, and the corresponding growth was 4.35, 2.80 and 8.69 times in Salkalapur watershed.

5. Recommendations

- a) Field level coordination among various departments like agriculture, animal husbandry, forestry, sericulture, horticulture, etc., needs to be strengthened to make the programme more effective.
- b) The involvement of the user beneficiaries has to be ensured for developing and maintaining various structures created in the watershed.
- c) There should be proper land use planning to ensure ecological development of the area and optimum utilisation of the local resources for sustainable development.
- d) Popular use of local species of trees and grasses should be promoted under social forestry and agronomical measures for soil and moisture conservation, instead of introducing exotic development
- e) As water is a scarce resource more attention should be given to proper augmentation of all water harvesting, soil and moisture conservation. In addition, there should be judicious use of water for irrigation and drinking water purposes.
- f) There should be legislation for restricting indiscriminate use of ground water for certain heavy water required crops like Paddy. Dry land cropping practices should be adopted in this region.
- g) It is suggested to promote extension education on watershed approach to the local people vigorously to ensure their participation in watershed programmes.
- h) Sanghas on watershed programmes have to be activated and continuous rapport has to be maintained by the various sectoral departments to take the watershed programmes as people's movement.
- i) Regular Participatory Rural Appraisal (PRA) exercises should be conducted in watersheds to make the people decide for themselves, so that their commitment for the programme implementation would be greater.
- j) Though people's awareness about the benefits of watershed development is considerable, the lack of proper knowledge about the means and measures to practice them for maximising the benefits and the responsibilities to maintain and sustain the facilities created, needs to be promoted by field level functionaries.
- k) Droughts may rear in the future as they have occurred in the past. Moreover, there is evidence that droughts have been causing successively large variations in employment and Rural incomes [1].
- l) Droughts continued to occur in the first two-third decades of 20th century's they did not mass starvation. This may be attributed to modified strategy. Theodore Morrison [2] and of Mc Alpin, [3], however, attributed to it to improvement in transportation through the railway network which facilitated transport of food grains surplus to drought stricken areas as also to commercialisation of agriculture in response to rise in prices in Agricultural commodities with corresponding reduction of the burden of land revenue. The successes of these watershed Development plans would depend on the involvement of the local communities and mobilisation of social energy. This in turn requires creation of Social Awareness of Links between meteorological drought and hydrological drought. Development based on watershed Management plans could be best defence against drought. [4].
- m) Watershed micro -Development plans have to be prepared and implemented essentially on a decentralised basis. Micro plans for Integrated Development for optimum Utilisation of resources, water, land, livestock and have been attempted but they have been as ad-hoc collection of different sectoral schemes, many of which were left incomplete or implemented in a routine manner without analysis of information or motivation of the people. [5]
- n) A holistic approach to disaster mitigation may contain the following parameters [6].
 - o) I Vulnerability Analyses
 - p) II. Risk Mapping
 - q) III. Strategy Planning
 - r) IV. Resource Survey
 - s) V. Finance Management
- t) A manual for drought Management should be prepared. [7].
- u) Ground water Resource and Utilisation estimates indicate that ground water Utilisation exceeds the Annual recharge in 5 taluks of Chitradurga during a Drought year whereas in these taluks Utilisation of less than 85% during normal rainfall year.
- v) Therefore there is an urgent need to conserve and manage this precious resource through Integrated watershed Programme, adoption of improved techniques of irrigation and through stopping of free electricity power to irrigation wells in the district [8].
- w) There is a need to undertake different Studies which highlight the different adoption patterns of the farmers to drought and other consequent crisis situations arising

because of drought. Based on the different adaption Practices the planners have to chalkout different long term and short term Strategies to combat the different crisis situations of the farmers [9]. The following approaches to the development of drought area Development are.

- x) Employment Strategies Strengthening cooperatives, land Development, afforestation, maintenance of tanks and wells, social Education crop insurance, Dry land Horticulture extending irrigation facilities [10].

Author Contributions

Chikkepally Srinivasa Rao is the sole author. The author read and approved the final manuscript.

Conflicts of Interest

The author declares no conflicts of interest.

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