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The significance of livestock in watershed program a holistic approach in Kurnool and Chittoor batch-IV projects districts

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Abstract

The guidelines of the watershed development stated that an insight into the rainfed regions reveals a grim picture of poverty, water scarcity, rapid depletion of ground water table and fragile ecosystems. Land degradation due to soil erosion by wind and water, low rainwater use efficiency, high population pressure, acute fodder shortage, poor livestock productivity, underinvestment in water use efficiency, lack of assured and remunerative marketing opportunities and poor infrastructure are important concerns of enabling policies.

Keywords: Poverty, water scarcity, livestock productivity, ground water table

Introduction

The challenge in rain-fed areas, therefore, is to improve rural livelihoods through participatory watershed development with focus on integrated farming systems for enhancing income, productivity and livelihood security in a sustainable manner. Accordingly, the watershed programme has been given utmost important to improve the livestock in Batch-IV projects of Kurnool and Chittoor in Andhra Pradesh. The research analysis on the importance of livestock in the watershed villages highlighted the various activities carried out in the livestock sector, which contributed to an increase in the animal population and provided income for poor, marginal and landless families in watershed villages.

Objective of the Research Study

1. Understanding the different livestock activities carried out under the watershed system and their effect on the socio-economic status of the watershed population
2. Understanding the various strategies and interventions developed in the production of livestock which have contributed to the holistic development of rural areas

Materials and Methods

1. Primary data collected from the DWMA, Kurnool and Chittoor for Batch-IV projects on different PSI activities and expenditure
2. Primary data collected from the beneficiaries of the watershed villages through household survey
3. Household schedule-to collect the socio-economic, demographic and other aspects of the sample households
4. PO schedule- to collect information on the present status of infrastructure and other facilities available in the area Checklist for FGDs

The entire methodology adopted for sampling is schematically followed. A multistage sampling procedure was adopted for impact assessment of Batch-IV projects covering all the watersheds in the district in the first stage of sampling. In each project all the micro-watersheds are considered so as to have a good representative nature of the works undertaken both in physical and social aspects.

After this all the villages located in each micro-watershed are considered for drawing household sample for collecting socio-economic data. FGDs (Focus Group Discussions) were organized in each village wherever the villages are less than six.

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In cases where the villages are more than six the villages are grouped and FGD was organized for a cluster of 2 to 4 villages. Five percent of households are selected for survey, subject to a minimum of 75 households per project. The data collected from households is compared against the baseline data collected for drawing inferences.

Data Analysis and Tabulation

1. The livestock related data for Batch-IV projects of Kurnool and Chittoor were tabulated and analyzed
2. Analysis of data pertaining to animal population and milk production in terms of pre-and post-implementation of watershed projects
3. Focus Group Discussions (FGDs) were conducted and analyzed about the impact of the watershed project on livestock development

Study Area

The livestock research study was conducted in Batch-IV projects in the districts of Kurnool and Chittoor. A total of 2 districts covered 19 projects. The livestock activities expenditure captured and analyzed for the batch-IV projects of 2 districts and also analyzed cattle population and milk production pre and post implementation of watershed project. The table-1 explains about the study area details of batch-IV projects of 2 districts.

Table 1: Study Area for the Livestock Research

Name of District	Kurnool	Chittoor
No. of Projects	8	11
No of MWS	32	60
Sanctioned Area (Ha.)	34,394	40,033

In Kurnool, the total number of projects comprised as 8 in 8 mandals and in these, 32 MWS villages are included in the project. The total project sanctioned extent area of the project 34,394 ha. In Chittoor, the total number of projects comprised

as 11 in 11 mandals and in these, 60 MWS villages are included in the project. The total project area sanctioned area of the project 40,033 ha.

Data Analysis and Tabulation

1. The livestock activities for Batch-IV: 19 projects and 92 MWS villages were analyzed.
2. The 2 districts livestock activities expenditure tabulated and analyzed in connection with the targets and achievement of budget released from the watershed programme as wells as NREGS under the livestock development.
3. Analysis of data pertaining to animal population and milk production in terms of pre-and post-implementation of watershed projects
4. Focus Group Discussions (FGDs) were conducted and analyzed about the impact of the watershed project on livestock development

The watershed programme focused on productivity enhancement and livelihoods priority along with conservation measures. Resource development and usage planned and promoted farming and allied activities and also promoted local livelihoods while ensuring resource conservation and regeneration. The new approach systematically integrated livestock management as a central intervention and encouraged dairying. In the rainfed areas, the animal resources became a major source of income for the people and effectively integrated with the watershed development projects, a comprehensive animal husbandry component has been contributed significantly ensured a better and sustainable livelihood for the people of the rainfed areas. Accordingly, watershed programme promoted activities such as raising fodder, pasture development, sericulture, bee keeping, back yard poultry, small ruminant, other livestock and other micro-enterprises, Veterinary services for livestock and other livestock improvement measures.

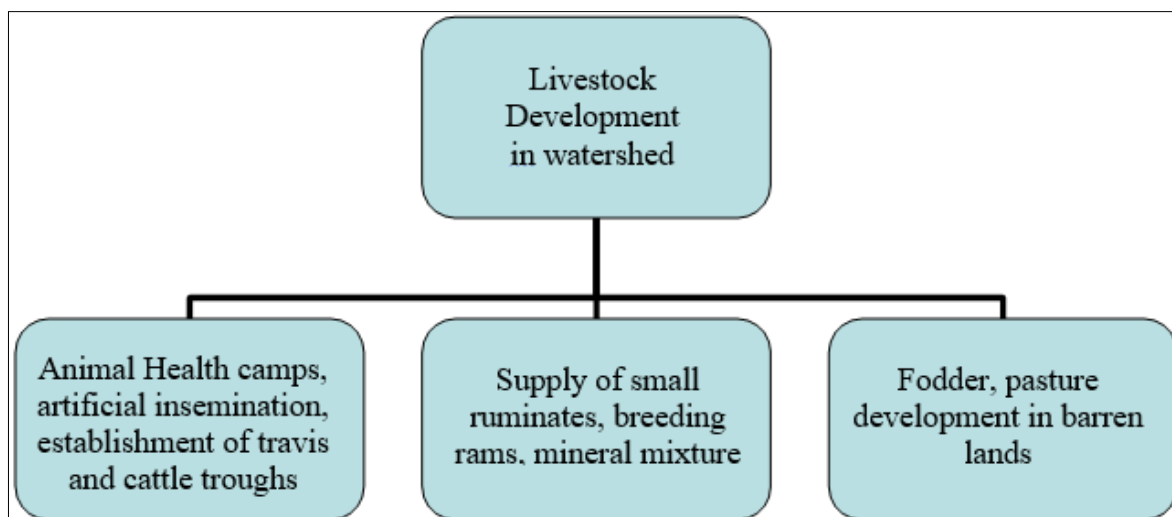


Fig 1: Holistic Development of Livestock Management in Watershed

Table 2: Details of Fodder development works carried in Batch-I to Batch IV projects of Kurnool and Chittoor districts

Sl. No.	District	IWMP					
		Sanctioned			Executed		
		Area in (Acres)	Physical (No.)	Estimated Cost (Rs. in Lakhs)	Area in (Acres)	Physical (No)	Expenditure (Rs. in Lakhs)
1	Chittoor	4978.63	3097	1407.23	1596.08	3076	28.61
2	Kurnool	1184.99	427	328.29	296.42	421	25.35
	Total	6163.62	3524	1735.52	1892.5	3497	53.96

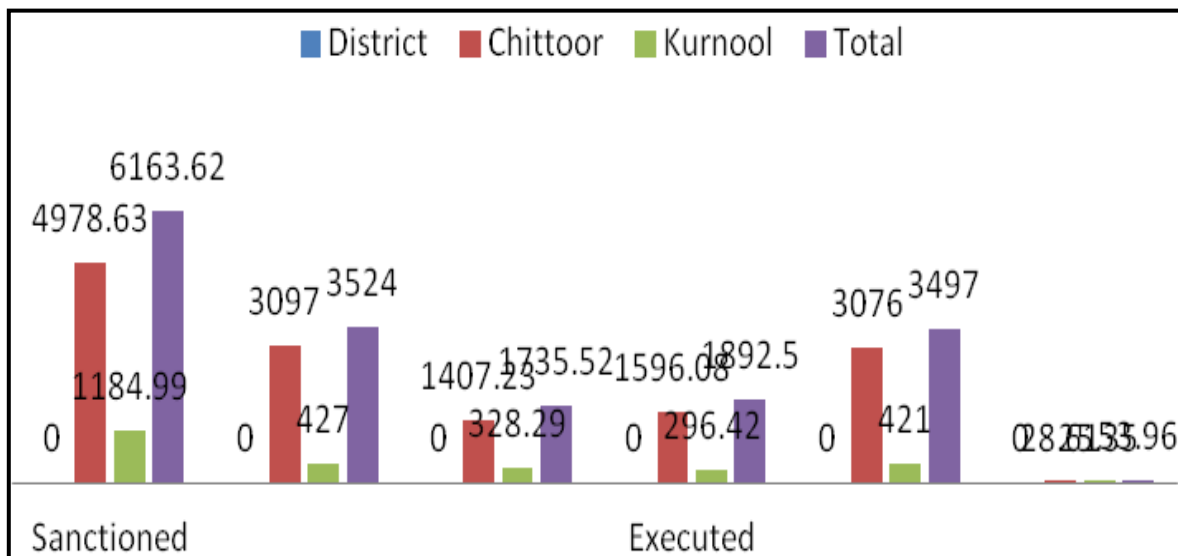


Fig 2: Fodder development works carried in Batch-I to Batch IV projects of Kurnool and Chittoor districts

The table-2 reveals the details of development of fodder development works in the two districts of Kurnool and Chittoor from Batch I to Batch IV. The total physical works had taken up under PMKSY-Watershed projects are 3524 with the estimated cost of Rs. 1735.52 (lakhs) in the extent of 6163.62 acres. The total physical works executed are 3497 with the cost of Rs. 53.96 (lakhs) in the extent of 1892.5 acres.

Among the districts, Chittoor is showing effective implementation with physical works executed 3076 with Rs. 28.61 (lakhs) in the extent of 1596.08 acres from the sanctioned works of 3097 with Rs. 1407.23 (lakhs) to the extent of 4978.63 acres followed by Kurnool where physical works executed were 421 with Rs. 25.35 (lakhs) in the extent of 296.42 acres from the sanctioned works 427 with Rs. 328.29 (lakhs) in an area of 1184.99 acres.

Convergence with NREGS –Livestock Development

The PMKSY-Watershed programme convergence with various line departments in the rural development sector which NREGS played a key role on promoting employment guarantee to the rural community and implemented various works related to watershed programme such as NRM based projects for implementation by PMKSY-Watershed project & MG-NREGS in PMKSY villages, sharing of funds & staff between both the programmes based on the type of projects executed ground water recharge, drainage line treatment, afforestation, common property resources projects and others-

flood control, roads land development & fodder development, dry land horticulture.

Table 3: Details of Expenditure incurred for Fodder Development under EGS activities in Batch-IV projects of Kurnool and Chittoor districts

S. No	District	Expenditure (Rs in Lakhs)
1	Kurnool	5.91
2	Chittoor	171.13
	Total	177.04

The table-3 contained the details of EGS activities among two districts of Kurnool and Chittoor region with sanctioned and executed works. It shows the total expenditure spent during the program was Rs. 177.04 (lakhs). Among these, Rs. 171.13 (lakhs), a major has spent in Chittoor followed by Rs. 5.91 (lakhs) in Kurnool district.

Primary and secondary data analysis

The primary data has been collected from the beneficiaries of watershed project area and secondary data collected from the watershed office. The data analyzed and tabulated before and after the watershed project implementation on availability of the fodder in quintals in Table-4. The details of dairy cattle from pre to post IWMP-Watershed Project in Kurnool and Chittoor districts are furnished in Table-4 and Fig-3.

Table 4: Milch Cattle Population in Batch-IV Projects of Kurnool and Chittoor districts

Name of the District	No. of Projects	Before the project (cows)	After the project (cows)	% of Change	Before the project (Buffaloes)	After the project (Buffaloes)	% of Change
Kurnool	8	2595	3200	23	4135	5096	23
Chittoor	11	20691	27372	32	257	478	46
Total	19	23286	30572	32	4392	5574	32

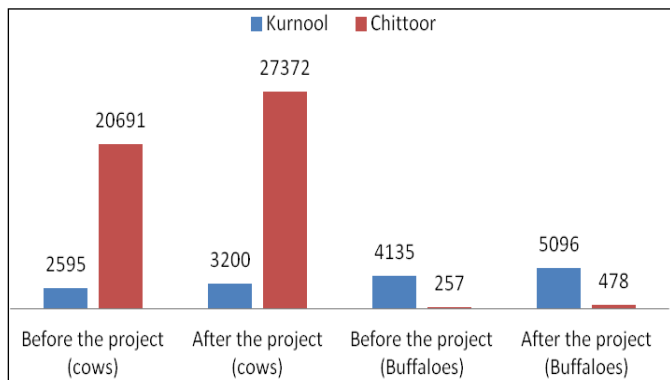


Fig 3: Milch Cattle Population in Batch-IV Projects of Kurnool and Chittoor districts

In this, it showed the number of milch cattle from pre-project status to post project with the end result. In 2 districts the population of cows and buffaloes has been increased at end of the project, cows increased 23% in Kurnool and 32% in Chittoor and similarly buffaloes increased 23% in Kurnool and 46% increased in Chittoor district. The cattle population has been increased due to the intervention of watershed activities to enhance the livestock development activities such as animal health camps, supply of breeding rams, fertility camps, small ruminant health camps, feed supply to pregnant milch animals during last 100 days of pregnancy, feed supply to AI born true to type calves, supply of breeding bucks, establishment of travices and also cattle troughs, cultivation of green fodder. As a result of these activities milk production has been increased gradually. The table-5 indicates regarding the status of milk production pre and post project of watershed in batch-IV projects of 2 districts.

Table 5: Milk Production (Kilo litr/Yr) in Batch-IV Projects of Kurnool and Chittoor districts

S. No	Name of District	Pre project	Post project	Results
1	Kurnool	3,255.1	5,540.4	The milk production is increased by 70.2%
2	Chittoor	18,504.4	30,886.3	The milk production is increased by 66%

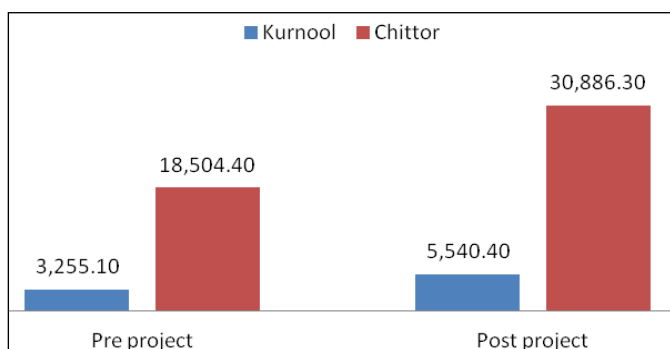


Fig 4: Milk Production (Kilo litr/Yr) in Batch-IV Projects of Kurnool and Chittoor districts

The table-5 and Fig-4 explain the details of milk production from the four districts of Kurnool and Chittoor region from Batch IV. In this, it showed the number of milk production (Thousand liters per annum) from pre-project to post project period. Among these, Kurnool had an increase in milk production as 70% from 3,255.1 (kilolitre/year) in pre-project to 5,540.4 (kilolitre/year) post project and 66% in Chittoor of

milk production has been increased from 18,504.4 to 30,886.3 at end of the project due to the intervention of watershed activities.

Productive support improvements also one of the interventions enhanced the livestock development in the watershed programme. Therefore, many activities have been carried under the PSI which helped the increase of animal population and reduced mortality among the animals and increased dairy production.

Results and Discussion

The livestock sector plays a significant role in India's socio-economic growth. Not only does it provide nutritious healthy food for millions of people, it also creates substantial employment in both the rural and urban sectors. The sector also has the ability to create self-employment. Employment is one of the main indicators for watershed growth and its effect on alleviation of rural poverty. Total employment has risen among the beneficiary households. The trend of employment changes towards horticultural crops and other commercial crops, along with non-farm activities that have increased significantly.

The overall increase in income and consumption rates reflects the ability of watershed growth to enhance additional properties, such as livestock, in watershed projects villages in the Rayalaseema districts. Improvements in fodder and common land have tremendous potential for employment for the rural population within their own villages.

In general, the effect of watershed programs on animal husbandry indicates that livestock holding potential in watershed areas has improved due to watershed development programs, although some improvements have been made. The composition of the animals has undergone a change; firstly, the local variety of cows, buffaloes have been replaced by cross-breed cows, buffaloes; and secondly, the number of milch animals has increased, and small ruminants, such as sheep and goats, have also increased since the introduction of the watershed.

The dairy operation is gaining importance in the watershed areas due to the availability of feed and other related facilities, such as the availability of artificial insemination services, etc. It is also noted that the number of farmers engaged in dairy farming has increased thus milk production. The number of farmers engaged in dairy farming has increased accordingly milk production has also increased. As far as feeding practices are concerned, the major change recorded is that usage of mineral mixture along with green fodder has increased. The watershed programme provided mineral mixture to the livestock which helped animal's nutrition and resulted more milk production.

As concerned with the livestock watershed also established travices, water trough facilities etc., all these directly or indirectly helped the animal development in the watershed villages. There is a close linkage between the various aspects and livestock sector especially green fodder availability, feed availability, animal health etc. The livestock sector makes a significant contribution to the income in watershed villages with well developed dairy sector.

The success of the dairy sector depends on several aspects The Impact of the watershed village indicates that due to implementation of watershed program the availability of feeds and fodder increases and, in this case, particularly green fodder that stimulated the growth of dairy sector. At the same time the different interventions in the livestock management

in the watershed villages clearly indicated the watershed program is beneficial to landless poor, small and marginal farmers in the selected watershed villages.



Fig 5: Livestock Activities in the watershed area

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