

Socio-economic Impact of Watershed Management Project - A Case Study of Naranka Village

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INTRODUCTION

The Gujarat State is preeminently the state of dryland agriculture. The technology developed for dryland agriculture has proved beneficial but, has not made much impact on agricultural production, even at present level of improved technologies. The production in rainfed areas can be doubled. Hence, it is imperative to massive approach for the transfer of dryland production technology in the form of integrated watershed development programme, which would include proper land use planning adoption of soil and water conservation measures, improved crop production technology and supplementary occupations. For this, an Operational Research Project on watershed management was launched by the ICAR in Naranka village of Paddhari taluka (Rajkot) for the tenure of 7 years (1984-1990) with a view to improve yield, maintain the economic balance through utilisation and conservation of natural resources, create additional employment and identify major constraints in transfer of technology and improving them with appropriate changes in all its aspects.

The Project period (1984-90) is over, hence, it was worthwhile to ascertain the socio economic impact of the project activities on the farming community of Naranka village. The exercise done on this line will provide a guideline to future development programmes.

METHODOLOGY

Naranka village is very near to Dry Farming Research Station, Rajkot (Gujarat) hence, it was thought worthwhile to select Naranka village. In bench mark survey, detail socio-economic information was collected by interviewing all the heads of family (66 agriculturists and 33 non-agriculturists) in prescribed proforma before implementation of project in 1983. (Patel *et. al.* 1983). Other information was obtained from the revenue records.

When project period is over in 1990, the similar information was collected in 1991 from all the farm families (107 agriculturists and 57 non-agriculturists) of the same village (Sadria *et. al.*, 1992). Both the sets of results were compared and differences in terms of impact/increase in some of the selected parameters were worked out. Thus, pre and post evaluation methods were used.

In study area, three years' consecutive droughts were experienced (1985-87) as soon as the Operational Research Project on Watershed Management started in Naranka village. The annual rainfall was recorded 167,204 and 129 mm in 1985, 1986 and 1987, respectively. The rainfall during 1988, 1989 and 1990 was 960,615 and 425 mm respectively and were good, normal and fair years.

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RESULTS AND DISCUSSION

The results of both the sets were compared in Table 1, which is a self-explanatory. However, the important parameters were discussed as below :

Number of adopter farmers were increased by 63.84, 54.27 and 32.70 per cent in adoption of groundnut varieties, plant protection measures and spacing

respectively over bench mark survey of 1983. The farmers of project village became aware of the benefits of inter cropping system. They started to adopt the new practices of soil and water conservation measures. The fertiliser use was increased four and eight time in 1991 as compared to 1983 in case of nitrogen and phosphatic fertilisers respectively.

Table 1. Socio-economic impact of Watershed Management Project

Sr.No.	Parameters	Year of Survey		
		Bench mark 1983	Final 1991	Impact\ increase in per cent
		N ₁ = 66	N ₂ =107	
1	2	3	4	5
1	Adoption of Agricultural Technology			
	A Groundnut (No)			
	a Improved varieties	14	91	63.84
	b Spacing	00	35	32.70
	c Plant Projection	16	84	54.27
	d Inter cropping	00	11	10.28
	e Fertilisers use kg/ha			
	N ₂ kg/ha	4.87	42.70	776
	P ₂ O ₅ kg/ha	5.67	26.68	370
	K ₂ O kg/ha	1.86	02.69	44
	B Change in Cropping Pattern (ha)			
	a Wheat	83	117	41
	b Sesamum	09	82	811
	c Castor	00	09	xx
	d Fruit crops	00	03	xx
	e Afforestation	00	120	xx
2	Irrigation resources			
	a Area under irrigation (ha)	31	112	261
	b No. of well	72	110	53
	c Water lifting device (No)	10	15	50
	d Recharging of water (ha.mt)			
	Winter	31.1	112	260
	Summer	4.6	45	878

1	2	3	4	5
3	Agricultural income (Rs. in lacs)	22.83	46.81	105
4	Improved implements (No)			
	a Multipurpose tool bar	51	86	68
	b Iron plough	40	72	80
	c Sprayer	21	66	214
	d Duster	06	10	67
	e Pneumeti cart	31	63	103
	f Bund former	00	15	xx
5	Social Impact			
	a Agriculturist (No)	66	107	62
	b Non agriculturist (No)	33	57	73
	c Population (No)	792	1078	36
	d Literacy (per cent)	39	57	18
	e No of shop	01	08	700
6	Infrastructure facility (No)			
	a cooperative society	00	1	xx
			(milk producers society)	
	b Village electrification	00	Electrified and street lights were installed.	
	c Road facility	2	2	
		kutchha	Pucca	
	d Drinking water	00	1 Tubewell	
			1 water tank	
			erection of water supply pipe lines.	
	e Temple	Old & broken	Renovated	
	f Leadership	Traditional	Dynamic	
7	Agricultural Training (No)	00	107	xx

xx = Infinitive N_1 = No. of farmers in 1983, N_2 = no. of farmers in 1991

The farmers changed their cropping pattern. The areas under wheat, sesamum, castor, fruit crops and afforestation were increased drastically. Area under irrigation brought upto 112 ha. in 1991 from 31 ha. in 1983. Number of wells (53 per cent) and water lifting devices (50 per cent) were increased as compared to bench mark. Agricultural in-

come of Naranka village was increased two folds due to more recharging of water in winter and summer seasons. Number of improved implements and equipments were increased many folds.

Infrastructural facilities such as milk producers' co-operative society, village electrification and street lights, transport service, roads and drinking water facilities

were created in project village. Leadership became dynamic from traditional due to implementation of watershed management project in Naranka village. None of the farmers had took the agricultural training before 1985. All the farmers were trained at Dry Farming Research Station, Targhadia during project period. People of Naranka village renovated the temple because their income was increased. Impact of other parameters is depicted in table itself.

CONSTRAINTS

The following important constraints were observed in adoption of dryland agricultural technology (Sadaria *et. al.* 1992).

1. Illegal grazing of stray cattle in afforestation and inter crops adopted by the farmers.
2. Tikka and rust were most serious diseases of groundnut.
3. Lack of early and drought resistant varieties of groundnut.
4. Unavailability of improved varieties of fodder sorghum.
5. Most of th farmers of project village followed the wider spacing due to set row system prevailed in the area.
6. Lack of awareness of long run benefits of soil and water conservation measures.

7. Shortage of labourers particularly for spraying and dusting of insecticides and fungicides.
8. Unavailability of agricultural inputs at the door steps.
9. Lack of timely supply of diesel oil and electricity.
10. Lack of proper credit facilities with easy terms and simple procedures.

IMPLICATION

Due to implementation of Watershed Management Project in Naranka village, the extent of adoption of agricultural technology increased many folds. Irrigation facilities were developed by many times and areas under irrigated crops were increased three times. The farmers had purchased more improved implements and equipments. The agricultural income was raised twice. Implementation of watershed management project brought the change of Naranka village in all the socio-economic aspects. Most of the farmers became aware of dryland agricultural technology.

Such watershed management projects should be started in each taluka. The constraints mentioned as above should be considered during the implementation of project.

REFERENCES

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