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BANK FINANCE FOR MINOR IRRIGATION - ITS IMPACT ON FARMING PRACTICES*

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ABSTRACT

The study on the impact of bank finance for minor irrigation on farming practices revealed that bank finance for minor irrigation has been instrumental in increasing the cropping intensity of the beneficiaries. The emphasis in cropping pattern also shifted in favour of irrigation responsive and remunerative crops. The net irrigated area increased tremendously and a shift in power used for irrigation from human and animal labour to electricity was also noticed. Irrigation, coupled with proper input use has been scientifically proved to boost yield of all crops. Hence, the farmers have to be made aware of the appropriate scientific management practices for all crops if the full impact of irrigation development is to be felt. The problem of overdues was not noticed; however, diversion of loans for unproductive purposes has been observed mainly among the beneficiaries of the lower size groups. This may be rectified by providing consumption loans and loans at lower rates of interest.

KEY WORDS: Bank finance, Minor irrigation, Cropping intensity.

Commercial banks entered the field of agriculture in a big way following the nationalization of 14 major commercial banks in July 1969. They provide credit, a crucial input of progressive agriculture, to farmers at reasonable terms and conditions. One of the major fields of their activity is minor irrigation wherein medium term loans are provided for

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digging or deepening of wells and installation of pumpsets. This paper attempts to find out the impact of minor irrigation through bank finance on the cropping pattern, cropping intensity and input use of the beneficiaries.

MATERIALS AND METHODS

Data for the study were collected by microlevel investigation of 98 beneficiaries of bank finance for minor irrigation in Trichur district. The concept of minor irrigation used in this study refers to the irrigation of independent ownership holdings, using mechanical or electrical power from private sources of water like wells, ponds or tanks. The sample was selected in two stages. In the first stage five branches of Canara Bank, the lead bank of the district, were selected. In the second stage, probability proportionate to size sampling method was used to select 100 beneficiaries from among the beneficiaries of the selected branches. Data pertaining to cropping pattern and input use for the periods prior to and after acquiring irrigation facility were collected using a well structured questionnaire. Data collection was conducted during 1982.

For facilitating comparison, the farmers were classified into three groups based on the area owned. The groups were 1) owning less than 40 ares, 2) owning 40 to 100 ares and 3) owning more than 100 ares.

RESULTS AND DISCUSSION

Out of the 98 pumpsets acquired, 53 were of 3 horse power. Majority of them were operated by electricity, it being much cheaper than diesel. The average cost of a pumpset was Rs.2776.76, out of which the subsidy component came to Rs.591.06. In addition to the cost of pumpsets and accessories, a sum of Rs.928.17 was incurred for transportation, installation, energization, repair and maintenance. The average number of days worked per pumpset per year was 85, with an average of 1.3 hours per day.

The crop wise gross area irrigated per pumpset is given in Table 1. Coconut was the most irrigated crop followed by arecanut. The maximum area irrigated was in size group III, with 0.71 ha irrigated per pumpset. However, there was indication of serious wastages of energy and loanable funds. Out of the 52 farmers with 3 HP pumpsets, 34 had only less

than 1 ha of land and at 5 HP pumpset was acquired by a farmer with just 17 acres of wetland.

Surprisingly, the problem of overdues was not noticed in any size group of beneficiaries. However, economic feasibility and repayment capacity of the loan were also worked out, using the formula given below.

Economic feasibility $\Delta Y_f \geq Q + C - S$ where ΔY_f = increased gross farm income due to unit investment, Q = annual capital charge for the period of the loan, ΔC = annual increase in cultivation charges and S = income from sale of water.

Repayment capacity $R = Y-(c+l)$ and $R \geq Q'$ where R = repayment capacity, Y = family income, c = household expenditure, l = liabilities and Q'= annual capital charge for the period of the loan (3 years).

In all the size groups and for the sample as a whole, the loan passed the test of repayment capacity. Though there was economic feasibility in the overall sense, the first two size groups did not pass the test of economic feasibility. This indicates that the loan on its own did not generate enough incremental income, particularly in the lower size groups. This might be due to diversion of the loans to other purposes. A remedy for this situation may be providing consumption loan along with investment loan. Advancing loan at lower interest rates may also go a long way in helping the poor people.

Cropping pattern of the beneficiaries included paddy, coconut, arecanut and banana in addition to tree crops like mango, jack and cashew. This pattern did not undergo any change due to irrigation development, but the relative importance of each of these crops in the total cropped area changed significantly.

The cropping pattern of the beneficiaries before and after acquiring facility has shown that the area under paddy declined in all size classes following irrigation development but it continued to occupy the major portion of the cropped area in size groups II and III (Table 2). The area under coconut increased in all size classes and for the sample as a whole. For arecanut also, the same trend was noticed except in size group I. The area under

banana increased considerably from 0.9% of the total cropped area in the period prior to acquiring facility to 1.8% in the period after acquiring facility.

The cropping intensity for the sample increased from 121.78% to 134.23% following irrigation development (Table 3).

The results suggest a replacement of less remunerative crops by more remunerative crops and more intensive use of land. The results are in conformity with the findings of studies conducted by Bank of India (1978), Singh et al (1978), Radhakrishnan and Rajendran (1981), Umarasiya and Arora (1981) and Mishra et al (1982), all of which reported a shift in cropping pattern in favour of high value crops and an increase in cropping intensity.

Majority of the farmers used local varieties of paddy. The seed rate used was enormously high in both periods, being 172-197 kg/ha for the sample as a whole, as against the recommended dose of 80-100 kg/ha. The quantity of organic manure applied decreased in the post-investment period in the case of both local and high yielding varieties. The dose of chemical fertilizers to local varieties of paddy remained unchanged in the Virippu and Mundakanm crops. For the punja local crop and high yielding varieties, very heavy doses of chemical fertilizers were applied in both periods. The main reason for decline in application or organic manure was its non-availability, high cost, expensive transportation and high cost of labour. In contrast, the chemical fertilizers even though expensive are easy to handle and hence were preferred by farmers.

The farmers in size group I did not apply any chemical fertilizers to coconut and arecanut palms. The farmers in size groups II and III did apply fertilizers, but at very low rates as compared to recommendations. Still, there was a slight increase in the application of fertilizers in the post-investment period for both arecanut and coconut. Organic manure was also applied to the palms, but at rates much lower than the recommended rates.

Contrary to the case of coconut and arecanut, the farmers in groups II and III were found to apply higher dose of

Table 1. Cropwise area irrigated per pumpset (hectares)

Classes	Coconut	Arecanut	Banana	Paddy	Others	Total
I	0.22	0.09	0.00	0.01	0.50	0.32
II	0.26	0.15	0.01	0.10	0.00	0.52
III	0.39	0.19	0.02	0.10	0.01	0.71
Overall	0.27	0.14	0.01	0.09	insignificant	0.43

Table 2. Cropping pattern - period prior to and after acquiring facility (Area in hectares)

S. No.	Crops	Prior to acquiring facility				After acquiring facility			
		Class I N = 30	Class II N = 40	ClassIII N = 28	Overall N = 98	Class I N = 30	Class II N = 40	ClassIII N = 28	Overall N = 98
1.	Paddy	0.12 (29.27)	0.39 (45.33)	1.03 (55.68)	0.49 (48.04)	0.02 (5.00)	0.34 (34.70)	1.05 (46.76)	0.44 (39.29)
2.	Coconut	0.15 (36.58)	0.23 (25.56)	0.42 (22.70)	0.26 (25.49)	0.20 (50.00)	0.31 (31.63)	0.57 (27.02)	0.35 (31.25)
3.	Arecanut	0.08 (19.51)	0.16 (17.79)	0.25 (13.51)	0.16 (15.69)	0.07 (17.50)	0.17 (17.35)	0.29 (13.74)	0.17 (15.18)
4.	Banana	insigni-ficant	0.01 (1.11)	0.01 (0.54)	0.01 (0.98)	0.01 (2.50)	0.03 (3.06)	0.03 (1.42)	0.02 (1.79)
5.	Mango	0.03 (7.32)	0.04 (4.44)	0.06 (3.24)	0.04 (3.92)	0.03 (7.50)	0.04 (4.08)	0.07 (3.32)	0.05 (4.46)
6.	Jack	0.02 (4.88)	0.03 (3.33)	0.05 (2.71)	0.03 (2.94)	0.03 (7.50)	0.03 (3.60)	0.05 (2.37)	0.04 (3.57)
7.	Others	0.01 (2.44)	0.04 (4.44)	0.03 (1.62)	0.03 (2.94)	0.04 (10.00)	0.05 (5.12)	0.05 (2.37)	0.05 (4.46)
	Total	0.41 (100)	0.90 (100)	1.85 (100)	1.02 (100)	0.04 (100)	0.98 (100)	2.11 (100)	1.12 (100)

Figures in parentheses are percentages to total.

Table 3. Cropping intensity - period prior to and after taking loan

Classes	Net cropped Area (ha)		Gross cropped area (ha)		Cropping intensity	
	prior to taking loan	after taking loan	prior to taking loan	after taking loan	prior to taking loan	after taking loan
I	10.49	9.06	12.39	11.90	118.11	131.35
II	31.09	31.13	36.13	38.71	116.21	124.35
III	39.52	40.15	51.79	59.02	131.01	147.00
Overall	27.49	27.27	33.74	36.79	121.78	134.23

fertilizers than the recommendation for banana. The rate of fertilizer application was 252.0, 163.8, and 243.5 kg N:P:K per ha as compared to the recommendation of 190, 115 and 300 kg N:P:K per ha. Organic manure was applied at lower rates of 4.7 kg per plant as compared to the recommendation of 10 kg per plant. Not only the dose, but their application was also unscientific. Nitrogen was the most favoured nutrient and was given in heavy doses as compared to P and K. The split application was not at all according to recommendation. For banana, nitrogen was applied even after flowering; for coconut and arecanut, split application was not at all practised. Intercultural operations and application of fertilizers were restricted to once in a year in the post investment period, as against twice in the pre-investment period. Most of the farmers were not aware of the correct dose and methods of application of manures and fertilizers

As expected, there was an increase in irrigated area in the period after acquiring facility, as compared to the period prior to acquiring facility. The percentage of irrigated area to total cropped area increased from 47.5 per cent to 82.9 per cent in the post-investment period. Associated with the increase was a shift in the power used for irrigation from animal and human labour to electric power through banks' assistance.

REFERENCES

Bank of India 1978. **Evaluation of District credit plan. Study of Ujjain District (M.P.).** p.66.

MISHRA, R.S., GUPTA,S.K. and KALWAY,A.K. 1982. Impact of agricultural finance on farm income and employment pattern in Jabalpur district of M.P. **Agricultural Banker, 5** (1) 17-19.

RADHAKRISHNAN, V. and RAJENDRAN,D.V. 1981. **Small farmers' development agency, Trichur - An evaluation.** pp-22-30.

SINGH,R.I., SINGH,J.P. and PRASAD, V. 1978. Flow of bank credit- its impact on cropping pattern, farm income and employment (a case study). **Indian J. Agric Econ., 33** (4): 151.

UMARASIYA, P.N. and ARORA, U.P. 1981. Impact of pumpset loan on the farm economy **Financing Agrl., 13** (2): 14-17.