

EVALUATION STUDY SERIES NO. 22

**DUGWELL IRRIGATION IN
PALGHAT DISTRICT-KERALA**

**AN EX-POST
EVALUATION STUDY**



**NATIONAL BANK FOR
AGRICULTURE AND RURAL DEVELOPMENT
ECONOMIC ANALYSIS AND PUBLICATIONS DEPARTMENT
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The National Bank for Agriculture and Rural Development (NABARD) was established on July 12, 1982. The Agricultural Refinance & Development Corporation (ARDC) ceased to exist from that day and its functions were taken over by the NABARD. The subject-scheme was sanctioned by the erstwhile ARDC. For the sake of convenience, the report refers to ARDC although it does not exist any more.

FOREWORD

This is the twenty-second in the series of evaluation reports brought out by the National Bank, and the first one in respect of the state of Kerala. The subject-matter of the evaluation was a minor irrigation scheme sanctioned to the Kerala Cooperative Central Land Mortgage Bank for implementation in Palghat district of the state. In Kerala, Palghat district has the highest percentage of irrigated area at 36% as compared to 12% for the state as a whole.

The results of scheme have been found to be quite favourable, with financial rate of return on new wells with pumpsets and renovation of wells with pumpsets ranging between 35% and 40%. No instance of infructuous well had been reported during this study. The study shows that the subject-scheme enabled an additional production of 35,930 tonnes of sugarcane in the scheme area, which provided the much needed raw material for the local cooperative sugar factory. This forward linkage also benefited the borrowers in the form of better prices for sugarcane. Another finding that merits attention is that fixing the due dates for repayment of loan instalments to coincide with the peak marketing season of the major crop grown in the area could enable the banks to have a better recovery performance. The repayment performance of the sample beneficiaries was found to be quite satisfactory, with recovery forming 84% of the demand. The repayment period prescribed by the bank was consistent with the repayment capacity of the scheme beneficiaries.

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BASIC DATA SHEET

I)	Reference year of study	:	July 1980 - June 1981.			
II)	Total number of scheme beneficiaries	:	643			
			New* well	New well with pumpset	Renova- tion of old well with pumpset	Renova- tion of old well without pumpset
III)	Number of units financed	:	208	310	182	69
IV)	Size of sample	:	20	30	20	12
V)	Average cost of investment (Rs. per unit) in historical prices	:	6,345	10,595	6,875	3,125
VI)	Average loan disbursed (Rs.):		6,018	8,628	5,489	2,825
VII)	Average size of holding (acres)	:	-	8.30	9.25	8.20
VIII)	Average benefited area (acres)	:	-	3.18	2.08	1.18
IX)	Intensity of cropping (%)					
	(a) With project condition	:	-	257	265	260
	(b) Without project conditions	:	-	124	129	124
X)	Net income (Rs.)					
	(a) Per unit	:	-	8,665	5,360	3,598
	(b) Per acre	:	-	2,725	2,577	3,050

		New* well	New well with pumpset	Renova- tion of old well with pumpset	Renova- tion of old well without pumpset
XI)	Incremental income per unit (Rs.)	: -	7,444	4,310	3,000
XII)	Financial rate of return (%) :	-	35	40	Above 50
XIII)	Total scheme impact				
	(a) Addition to irrigated area (acres)	: 1,652			
	(b) Gross value of addi- tional agricultural production (Rs. lakhs)	: 71.74			
	(c) Contribution to GDP (Rs. lakhs)	: 40.73			
	(d) Non-recurring addi- tional employment (lakh man-days)	: 6.34			
	(e) Recurring additional employment (lakh man-days)	:			
	1. Hired	: 1.47			
	2. Family	: 0.45			

* At the time of field survey, the borrowers of loans for new wells had also installed pumpsets, the financing of which was from other sources. As such no separate estimates for benefit from new wells were attempted in the study.

SUMMARY AND CONCLUSIONS

1. The minor irrigation scheme taken up for evaluation was sanctioned to Kerala Co-operative Central Land Mortgage Bank (KCCLMB) in 1969 for the construction of 500 new wells, renovation of 700 old wells and installation of 550 pumpsets in Chittor and Palghat taluks of Palghat district, Kerala. The total credit assistance approved under the scheme was Rs. 75.35 lakhs with refinance assistance at Rs. 67.81 lakhs. The scheme was sanctioned for implementation over a period of three years commencing from 1969-70. It was rephased on three occasions and the last rephasing was effected in December 1972, with physical achievements, as of 30 June 1972, at 518 new wells, renovation of 251 old wells and installation of 492 pumpsets. The corresponding financial achievements at the time of final rephasing of the scheme stood in terms of credit assistance at Rs. 50.89 lakhs and of refinance at Rs. 45.98 lakhs. The scheme was thus closed with an achievement of about 68% of the financial target.
2. The PLMB had disbursed 769 loans to 643 farmers, thus indicating that some of the scheme beneficiaries had availed of loans for more than one item of investment. Under the scheme, 310 cases were financed for new wells with pumpsets, 182 for renovation of old wells with pumpsets, 69 for renovation of old wells without pumpsets and 208 for new wells without pumpsets. The beneficiaries financed under this scheme were mostly medium and large farmers.
3. The evaluation study was taken up in January 1982 and the field data were collected with reference to agricultural year 1980-81. The sample drawn for the study comprised 82 borrowers, of whom 30 were financed for new wells with pumpsets, 20 for new wells without pumpsets, another 20 for renovation old well with pumpsets and 12 for renovation of old wells alone. The sample beneficiaries were selected from those financed in 6 villages (out of 31 villages covered under the scheme), which accounted for 94% of loans disbursed under the scheme.

4. The study revealed that in the first year of scheme implementation the progress was not satisfactory. The two important factors which contributed to initial slow progress of the scheme were, (a) the inability of the farmers to produce documents to establish their ownership right over the lands held by them as a large number of them in the scheme area were tenants and (b) the non-availability of electricity in some of the villages in the scheme area.
5. Considering the average actual cost incurred by the scheme beneficiaries, the unit costs approved under the scheme for different items for investment were generally inadequate. The average amount of loans disbursed to sample borrowers for different categories of investment was even less than the approved unit costs. The main reason for sanction of lower average amount of loan was the restrictive policy followed by the PLMB in the valuation of land by considering the market value of unirrigated land rather than its presumptive value after development.
6. There was considerable delay in the sanction and disbursement of loans. The average time-lag between the date of application and the date of sanction was a little over 3 months in the case of sample beneficiaries. The average time-lag between sanction and disbursement of the loan was about 2 months. The average time lag between date of application and date of disbursement was a little over 4 months. The delay in sanction of the loan cases was generally on account of the time taken in obtaining the revenue records and encumbrance certificates.
7. It was envisaged under the scheme that the dugwells to be financed will be constructed upto a depth of 35 ft. In the case of renovation of pre-existing wells, they were to be deepened upto the same depth. It was anticipated that each well would irrigate, on an average, 4 acres of sugarcane. The study, however, revealed that in the case of new wells, only 8 of the 50 sample beneficiaries had dug their wells to the required depth; in the other cases, the depth varied from 25 ft.

to less than 35 ft. The depth of 35 ft. was reached in 9 out of 32 sample cases for renovation of wells whereas in the remaining cases it ranged from 25 ft. to 30 ft. Non-adherence to the prescribed depth had adversely affected the discharge from wells and had resulted in a reduced command of wells at a little over 3 acres as against the anticipated 4 acres.

8. On an average, the sample beneficiaries gave 25 waterings to sugarcane, as against the recommended 36. In the case of paddy, the sample beneficiaries gave 6 irrigations during the Kharif season and 12 during the Rabi season. The annual average cost of lifting an acre-inch of water worked out to Rs. 3.80 during the reference year.
9. The important crops cultivated under irrigated conditions were sugarcane and paddy. The per-acre costs of cultivation were estimated at Rs.2,130 for sugarcane and at Rs. 857 for paddy. The average yield of sugarcane realised by the sample beneficiaries at about 30 tonnes per acre was very close to that assumed by the scheme appraisal. The yield of paddy averaged about 10 quintals per acre.
10. The investments in minor irrigation works financed under the scheme resulted in improvements in crop pattern, cropping intensity productivity, income and onfarm employment. The total area benefited by scheme investments came to 2,390 acres. Since a portion of the area irrigated by renovated wells was already receiving irrigation during pre-project period, the incremental area brought under irrigation was estimated to be about 1,652 acres. The annual output of the main irrigated crops, as a result of the scheme investments, is estimated at 35,930 tonnes of sugarcane and 476 tonnes of paddy. As a result of switchover from rainfed to irrigated cultivation, the annual loss in the production of rainfed cotton and groundnut was of the order of 130 tonnes and 75 tonnes respectively. The gross value of incremental output due to the project works out at Rs. 71.74 lakhs in 1980-81 prices. The implementation of scheme also ensured the supply of much

needed cane to the sugar factory located in the scheme area, which had earlier been operating at much below its capacity for want of adequate cane supply. The scheme resulted in a net contribution to GDP of Rs. 40.73 lakhs.

11. The construction of new wells, renovation of old wells and installation of pumpsets under the scheme are estimated to have generated non-recurring employment of the order of 6.34 lakh man-days. In addition, the scheme investments had created additional recurring employment of 1.92 lakh mandays per annum, of which the share of hired agricultural labour was estimated at 1.47 lakh mandays.
12. The sample beneficiaries had cultivated sugarcane in 68% to 95% of the benefited area because they realised better income from sugarcane as compared to the other important crop, viz., paddy. Incremental income of Rs. 7,444, Rs. 4,310 and Rs. 3,000 per unit was realised by the beneficiaries of investments in new well with pumpset, renovation of well with pumpset and renovation of well without pumpset respectively.
13. The financial rates of return on investments under the scheme were estimated at 35%, 40% and above 50% for new wells and pumpsets, renovation of wells and pumpsets, and renovation of wells without pumpsets respectively.
14. The loan repayment period under the scheme was uniformly fixed at 12 years, including an initial grace period of one year, for all categories of investment. Repayment performance of the sample beneficiaries was not satisfactory during the initial years, but later on it improved significantly. During the first 4 years, the overdues ranged between 27% and 41% of the demand but had come down in the subsequent years. During the reference year, the overdues formed only 16% of the demand for the sample beneficiaries. Higher level of overdues during the initial years was mainly due to the delay in switching over to high value crops by the scheme beneficiaries.

15. The study underlines the need for so fixing the due dates for repayment of loan instalments as to coincide with the peak marketing season of sugarcane, the important commercial crop grown in the area. The sample beneficiaries whose due dates fell during peak marketing season of sugarcane were found to have been more punctual in repayment relative to the performance of others whose due dates fell outside the sugarcane marketing season.

**THE SCHEME AND ITS
IMPLEMENTATION**