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The amount of Rs. 2,830.41 was a combined return to land, labour, livestock and deadstock and other capital inputs owned by the farm family of which the amount of Rs. 1,019.29 was the remuneration to the family labour which formed 36 per cent of the total. This was the amount available to the farm family for its living and in addition the family got fuel and housing.

Conclusion

The study shows that the farm family under study blended crops and livestock production to the mutual benefit. The crop production supplied 76.65 per cent of fodder and 26.18 per cent of feeds needed by livestock. The livestock in its turn aided full utilisation of feeds and fodder and its care and management created additional employment for family labour, particularly for the female labour. The livestock also supplied farmyard manure for crops. Because of these complementary and supplementary relationships between crops and livestock the farm family could produce crops and milk worth Rs. 4,426.94 with the cash expenditure of Rs. 1,596.53 only.

Of 1,569.50 family labour units available with the farm family only 675.84 units — 473.75 units in crop production and 202.09 units in care and management of livestock—constituting 43.12 per cent of the total were utilised.

N. K. DESAI*

CREDIT PROBLEMS OF FARMERS IN NEWLY IRRIGATED CANAL AREAS†

The two chief problems in the field of irrigation on the eve of the Third Five-Year Plan are (i) non-utilisation of available irrigation facility in the new canal areas and (ii) conversion of submarginal farms into economic farms through provision of irrigation. Credit perhaps is the principal bottleneck in solving both the problems. The farmer in the newly irrigated area requires medium-term as well as short-term credit on a larger scale. His need for medium-term loans is basic in the sense that he cannot become an irrigated farmer without the availability of credit for (a) levelling and bunding the land, (b) constructing the irrigation channel and (c) purchasing iron plough and other implements necessary for irrigated farming. Once these basic credit needs are met and the land is prepared for irrigation, the farmer would require crop finance on a higher scale especially if and when he shifts to crops like sugarcane. The question, therefore, is to what extent credit has been an obstacle in the full utilisation of the available irrigation facilities. An attempt has been made below to indicate the position in this respect as is revealed from the available information.

Extent of Non-utilisation of Irrigation

In the First Plan, irrigation facilities were available for 80 lakh acres from the major canal projects. Only 40 lakh acres were actually irrigated. Shri V. T. Krishnamachari attributed the failure to fully utilise the available irrigation facility to the failure of villagers to dig the field channels. In some cases, according to

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† Views expressed in the note are the personal views of the author.

the Deputy Chairman of the Planning Commission, the canal systems had been badly designed and carried out. More recent data reveal that, on the whole, the utilisation of irrigation facility is satisfactory as is apparent from Table I.¹

TABLE I

(In million acres)

Year	Potential created from I and II Plan Schemes at the beginning of the year	Utilisation at the end of the year	Percentage of column (2) to column (1)	Potential at channel outlets for gross irrigation at the end of the year	Utilisation at the end of the year		Percentage of column (6) to column (4)
					Gross	Net	
	1	2	3	4	5	6	7
1956-57	5.3	3.4	64	7.3	4.1	3.4	47
1957-58	6.2	4.9	79	8.1	5.7	4.9	60
1958-59	7.2	5.9	82	9.6	6.4	5.9	61
1959-60				11.7	8.6	7.4	63
(Estimated) 1960-61 (Anticipated)	Not available			14.0	10.5	9.0	64

(Source:—Reports: 1959-60 and 1960-61—Ministry of Irrigation and Power)

The recent talk about the wide-extent of non-utilisation of irrigation facilities, therefore, only means that in the case of certain projects, the utilisation is not upto expectation though the overall position in this respect is not unsatisfactory. Appendix Table shows that the utilisation of irrigation by the end of 1957-58 was not satisfactory in Jammu and Kashmir, Mysore, Madhya Pradesh and Bombay.

One of the main reasons for the slow progress in the utilisation of irrigation is that integrated schemes were not drawn. According to the practice that continues even to-day, sanction of an irrigation project is limited to the construction part only. As the two special officers appointed by the Government of India in 1958 to examine and report on the problems relating to the creation and utilisation of the irrigation potential under the major and medium irrigation projects in the Northern and Southern Zones state: "There is usually no provision in the estimate in regard to the work of development, such as development of lands, advance of short and long-term loans for purchase of livestock, seeds, fertilizers, insecticides, land terracing, etc."² It would, therefore, be more fruitful to examine some of the specific projects.

1. However, it is important to note that though the proportion of potential created by March 1958 which was utilised works out to 80 per cent, the potential created by March 1958 formed only 48 per cent of the full potential to be created.

2. *Bhagirath*, March, 1960, p. 346.

Tungabhadra Project

The development of irrigation in *Bellary district* has progressed to a great extent within five years as can be seen from Table II.

TABLE II

(In acres)

Year	Irrigation potential created (cumulative)	Area actually irrigated	Percentage of column 2 to column 1
1953-54	5,000	—	—
1954-55	17,000	1,500	9
1955-56	27,245	11,209	41
1956-57	45,000	25,000	56
1957-58	55,000	41,000	75

According to the Report on the Tungabhadra Project, 1945-58 the main reasons for the failure to fully utilise the available irrigation are (i) lack of man-power as some localities are sparsely populated, (ii) lack of adequate bullock power and (iii) lack of finances.

It is held that the efficiency of a pair of bullocks is optimum when it is employed over about 20 acres of dry land or 10 acres of wet land, or 5 acres of wet land and 10 acres of dry land, as the case may be. According to the Census taken in 1944, the figure worked out to one pair of bullocks for 25 acres of land. There is, therefore, greater need for increasing bullock power in the area.

The average holding in the talukas of Bellary, Sirguppa and Hospet is large in extent. There are instances of ordinary ryots owning 40 to 50 acres per family with no resources to cultivate the land.

Water in the lower portion of the canal running in *Kurnool district* of Andhra Pradesh was made available in 1954-55 ; but till 1957-58 only 27 per cent of the irrigable area had actually been brought under irrigation as shown in Table III.

TABLE III

(In acres)

Year	Irrigation potential created (cumulative)	Area actually irrigated	Percentage of column 2 to column 1
1954-55	30,000	3,576	12
1955-56	75,000	16,229	22
1956-57	1,16,500	20,632	18
1957-58	1,48,725	39,909	27

As in the case of Bellary district canal zone, so also in Kurnool district canal zone, the bullock power is not adequate. To quote the Report, "the yoke efficiency is not commensurate with the stupendous task of developing the entire *ayacut* in the shortest possible time."

Lands under joint *pattas*, temple *inams* and belonging to absentee landlords are not developed quickly.

The available manure of the *ayacut* even under dry cultivation was inadequate with the result that cattle manure was applied to a few acres of land near about the village sites.

Some of the *ayacutdars* are reluctant to get their lands reconditioned by bull-doing as the top soil will be disturbed rendering the land unfit for cultivation. More manure also would be required. Thus the cultivators are taking advantage of levelling and tractor ploughing rather slowly. By 1957-58, 12,305 acres were bull-doed and 4,377 acres ploughed by tractor.

In the *Raichur district*, nearly 72 per cent of the commanded area has been brought under irrigation.

TABLE IV

(In acres)

Year	Irrigation potential created (cumulative)	Area actually irrigated	Percentage of column 2 to column 1
	1	2	3
1954-55	5,000	2,524	51
1955-56	16,316	10,290	63
1956-57	30,000	19,879	66
1957-58	40,000	28,659	72

(Source: Report, *Op. cit.*, p. 121).

In some cases, large areas of heavy irrigation remained undeveloped due to shortage of man-power. Number of families from Bijapur and North Kanara districts have been encouraged to settle in the *ayacut* area.

As a good proportion of holdings are large, conversion into irrigated land has been slow. In Sindhnur taluka, for instance, nearly five-sixth of the holders own more than 8 acres each, nearly half the holders own more than 16 acres each, and nearly quarter own more than 24 acres each.

Ghataprabha Left Bank Canal

In 1953-55, the Bureau of Economics and Statistics, Bombay, conducted a sample survey of the area commanded by the Ghataprabha Left Bank Canal (monsoon irrigation is provided for areas in Belgaum and Bijapur districts) with a view to prepare ground work for the measurement of differences made by availability of irrigation. Data were collected from 20 families in each of the 20

selected villages. Certain results of the survey which can be said to have a bearing on the subject under discussion may be indicated.

Hundred families of farmers owned 118 working bullocks. If this is noted in relation to the average size of cultivated holding which was 15 acres, it is clear that the minimum number of bullocks required for agricultural operations was not available.

About 84 per cent of the ploughs were wooden ploughs. Irrigated farming would require iron ploughs in larger number. None of the families possessed sugarcane crushers.

Till the end of 1957, the Belgaum District Bank was not issuing medium-term loans which means that the cultivators getting irrigation facility from the Ghataprabha Canal were dependent on the Government finance.

Financial Assistance to Farmers

Loans have been given on a large scale for the development of land in Bellary district as shown in Table V.

TABLE V

(Rs. in thousands)

Source	1956-57	1957-58	1958-59	Total
Co-operatives	616	401	275	1,292
Revenue Department	10	25	15	50
N. E. S. Blocks (Land reclamation)	50	153	50	253
Total	676	579	340	1,595

(Source: Tungabhadra Project Report, 1945-58, p. 105)

It may be noted that in 1958 all the societies in the district were asked not to advance fresh loans to the ryots because heavy amounts were outstanding. As on June 30, 1960, about Rs. 7 lakhs were outstanding as medium-term loans. Of these, about Rs. 5.38 lakhs were overdue.

In Andhra Pradesh zone of Tungabhadra Canal, a cultivator is given a loan of Rs. 500 for purchasing a pair a bullocks. By 1957-58, only about 4,000 cultivators in Kurnool district had been given loans for the purchase of bullocks aggregating to Rs. 20 lakhs. Table VI indicates the extent of financial assistance rendered to the farmers by the co-operatives and Government.

TABLE VI

(Rs. in thousands)

Loan	1955-56	1956-57	1957-58	Total
Co-operatives (For purchase of bullocks)	500	493	300	1,293
Agricultural Department (For purchase of seed, manure, etc.) ..	110	79	59	248
Revenue Department (For reclamation of land)	600	307	295	1,202
Total	1,210	879	654	2,743

(Source: Report, *Op. cit.*, p. 113)

In Raichur district, taccavi loans are given at a flat rate of Rs. 300 per acre of land localised for sugarcane, Rs. 200 for paddy and Rs. 100 for light irrigation. Table VII shows the loans advanced by co-operatives and Government.

TABLE VII

(Rs. in thousands)

Loan	1955-56	1956-57	1957-58
Co-operatives (Short-term)	—	—	497
Long-term development loans	931	588	701

(Source: Report, *Op. cit.*, p. 124.)

The Raichur District Bank was not advancing medium-term loans till 1960.

It is interesting to note that the Tungabhadra Report states that "the officers in charge of development have felt that loans to be given to the ryots should not be short-term loans. The short-term loans only drive the ryots to further indebtedness with the local moneylenders rather than improving their condition. In the Project area, loan should be on a medium-term basis instead of on short-term basis since the ryot is not likely to get increased returns in the initial years of development. Collection of revenue loan or agricultural loan, when the ryot does not get constant return hits him hard and retards his future development. Loans advanced under any system should be allowed to be collected only after 3 years of advancement of loan by which time, the ryot is able to establish himself on the land."

From the above, it is evident that a closer examination of the problem through a field enquiry will be worthwhile.

H. B. SHIVAMAQGI

APPENDIX TABLE

ACTUAL BENEFITS OF IMPORTANT PLAN PROJECTS (MARCH 1958)

(In thousand acres)

State	Utilisation against current year's potential created				Percentage utilisation by March 1958 against potential created by March 1958
	Number of projects on which potential created by March 1958	Ultimate benefit of the Projects	Potential created by March 1958	Utilisation by March 1958	
	1	2	3	4	5
1. Andhra	8	561	291	178	61
2. Assam	—	—	—	—	—
3. Bihar	11	349	245	195	80
4. Bombay	27	1,022	229	132	58
5. Jammu and Kashmir ..	1	10	10	3	33
6. Kerala	6	377	333	323	97
7. Madhya Pradesh ..	9	61	31	18	58
8. Madras	8	478	440	444	100
9. Mysore	18	1,100	244	128	53
10. Orissa	1	380	154	123	81
11. Punjab	4	4,027	1,529	1,524	99
12. Rajasthan	12	770	291	227	78
13. Uttar Pradesh ..	24	1,778	1,381	1,029	75
14. West Bengal	4	1,584	802	495	62
Total	133	12,497	5,980	4,819	80

(Source: Bhagirath, March, 1960, p. 345.)

Note : The figures include potential and utilisation of major and medium irrigation projects only and not tube-well schemes and minor schemes under the head "other schemes," in the major irrigation sector of the First Plan.