



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Vol XVIII
No. 1

ISSN 0019-5014

CONFERENCE
NUMBER

JANUARY-
MARCH
1963

INDIAN JOURNAL OF AGRICULTURAL ECONOMICS



INDIAN SOCIETY OF
AGRICULTURAL ECONOMICS,
BOMBAY

AGRICULTURAL DEVELOPMENT AND CO-OPERATIVE FINANCE WITH REFERENCE TO IRRIGATION PROJECT*

R. N. TEWARI†

*Lecturer in Economics
Vidya-Bhavan Rural Institute, Udaipur*

It hardly needs emphasis that irrigation, particularly canal irrigation will bring about revolutionary changes in the pattern of agriculture. But such changes do not occur automatically. The availability of resources, financial or otherwise, is of paramount importance for projects like irrigation.

The question thus to be considered is, whether such resources, mainly finance, will be forthcoming without any outside help or not. If these are inadequate resources, irrigation will make them more scarce and the same will be responsible for non-utilisation of irrigation potentials. One can visualise the situation in which the cultivators' income will rise, irrespective of the bottlenecks. But considering the national urgency of optimum utilisation of resources created by heavy investments, the above problem assumes an added importance.

The purpose of this paper is to show (i) that with the introduction of irrigation from Chambal Project in the States of M.P. and Rajasthan, credit requirement of the cultivators is bound to go up; (ii) that the present economic conditions of the cultivators cannot sustain this extra burden; (iii) as already they are heavily indebted and major source of finance being the moneylender, lending on prohibitive rates; (iv) as their additional requirement is mainly for medium and long-term agricultural credit co-operative credit will have to be made available on sufficiently larger scale than hitherto. In absence of this, the development of agriculture may not be on the same lines as designed by the planners of this project.

Introducing the Universe

All the four villages out of which three are from district Kotah, Rajasthan State and the fourth is from district Bhind of Madhya Pradesh, are expected to get irrigation from Chambal in the near future. The village data giving the land utilisation details and some technical ratios between land and resources are presented in Table I. It will be seen that on an average the net sown area comes to about 73 per cent of the total village area. Except in the village 'Chimka' in Madhya Pradesh where irrigated area is highest, that is about 17 per cent of its net sown area, in all the other villages it occupies a very insignificant proportion.

* The statistical material used in this paper is a part of another study "Agro-Economic Aspect of Chambal Project." This investigation was done under the auspices of the Agro-Economic Research Centre for Central India. It was carried out in Rajasthan State from January to June, 1960 and in Madhya Pradesh State from April to June, 1961. The author was one of the Junior Research Investigators associated with this study.

† The author is grateful to Prof. H. S. Azariah, Director, Agro-Economic Research Centre for Central India, Gwalior for allowing the author to use the data, and also to Shri R. Swaroop, Research Officer (Farm Management) and to Dr. P. V. John, Research Officer of the Centre for many helpful suggestions.

TABLE I—LAND UTILISATION AND SOME TECHNICAL RATIOS BETWEEN LAND AND AGRICULTURAL RESOURCES

Villages	Total area of the village	Land Utilisation (in acres)				No. of working animals per 100 acres of cropped area	Per plough cropped land
		Net area sown	Net irrigated area	Unirrigated area	Area sown more than once		
Chimka	2,270	1,791	298	1,493	89	13	11
Patunda	4,873	2,960	2	2,958	2	16	16
Amarpura	1,804	1,442	23	1,419	22	15	18
Bamori	2,735	2,281	75	2,206	27	14	21
Total	11,682	8,474	398	8,076	140	—	—

Source: Data have been taken from the village record for the year 1958-59.

The major proportion of the area is devoted to *rabi* crops, chief of which are wheat, wheat and gram mixture and *Alsi*. In *kharif* the most important crop is jowar (also grown with pulses) except for one village where paddy is also an important crop raised. In the whole of the region covered by this investigation, more or less, agriculture is the only source of earning.

Economic Bottlenecks

It seems that this tract experiences shortage of male workers. In relation to land, manpower is deficient at present so much so that large number of females of working age group (15 to 55) participate in cultivation. Cultivators of higher caste in Chimka village do not allow their womenfolk to work in the fields, although labour shortage is most acute there.¹

In regard to availability of draught animals for tilling the land, there seems to be a similar shortage. The number of draught animals per 100 acres of cropped land comes to a little above 14. Bullocks (main draught animal) are imported from Malwa region of M.P. as local breed is not suitable for draught purposes.

It has been observed that the cultivators have not taken to improved agricultural implements—wooden plough is very common. In addition to the problems stated so far, unevenness of the land and soil erosion pose a great problem. Apart from gullies and ravines, there are other types of erosion, imperceptible to an untrained eye, washing away upper fertile soil, even from land looking apparently level or only slightly sloping. In Rajasthan State, it was found that most of the fields do not have bunds and are also infested by bushes. Under such circumstances it is likely that by the advent of canal irrigation the process of soil erosion may be hastened, unless certain precautions are taken.

1. During peak agricultural seasons, labour migrates to this village in large numbers from Gwalior, Morena and such other places. This was ascertained by personal investigation.

Need for Additional Resources

The number of households in the four selected villages was 660 out of which a stratified random sample of 20 per cent cultivators was selected for the purpose of assessing their resource requirement *vis-a-vis* irrigation. Details of 'methodology' followed have been dealt with at the end of the paper.

It was found that out of our sample of 134 cultivators, about 27 per cent of the informants felt no necessity of additional resources (Table II). Another 11 per cent could not comment, as they had no such prior knowledge. About 67 per cent cultivators had the feeling that with canal irrigation they would require additional resources. Most of the cultivators who either offered no comment or felt no need for additional resources, were those who did not have any familiarity with wet method of cultivation. In case we omit such cultivators, it will be seen that a great majority of the cultivators who were familiar in one way or the other with irrigational cultivation, felt that their existing resources were inadequate for utilising the irrigation potential.

TABLE II—CULTIVATORS' OPINION ON ADDITIONAL RESOURCES AND THE NATURE OF ASSISTANCE REQUIRED

Classified attitude and nature of requirement	Village				Total
	Chimka	Patunda	Amarpura	Bamori	
1. Total Number of Informants	34	39	30	31	134
2. Cultivators conversant with wet method of cultivation	34	11	17	16	78
3. Cultivators who do not feel the necessity of additional requirement, required with irrigation	17	10	4	5	36
4. Cultivators who will require only short-term agricultural credit	17	4	3	1	25
5. Cultivators unable to list their requirements	—	15	—	—	15
6. Cultivators whose probable requirements will not be short-term only, but medium and long-term credit also ..	—	10	23	25	58

N.B. : Classification of short-term, medium-term and long-term agricultural credit is according to the list of Reserve Bank of India. Refer Rural Credit Follow-Up Survey Report 1956-57.

Out of several factors, most common factors advanced in this connection were that irrigation will require more of draught animal power, bunding of the fields and additional labour force. Further a great many of them have the feeling that crop pattern will really change. The investigation revealed that cultivators will grow crops which they will find most profitable under irrigation.

There are instances elsewhere, when some crops altogether unknown only a short time back are almost a dominant crop now; this tract is no exception to it. It was also confirmed by the cultivators who showed preference to shift to crops like paddy, groundnut, cotton and sugarcane, to mention a few. This, of course, will depend upon the financial capability of the cultivators in general and of the State in particular, to solve particular problems under altered conditions.

Nature of Assistance Required

If opinion of the cultivators who are likely to feel the impact can be taken as an indicator of the kind of assistance which they might require when the irrigation project gets in full-swing, we can discern the nature of their requirements from Table II. It will be seen that only 19 per cent of the cultivators were of the opinion that they could meet the future resource demand with credit supplied for short-term period only. While others felt that, as they are already heavily indebted, and the additional need will be 'capital intensive', they will have to be provided with loans for medium and long-term durations. This statement can be fully appreciated when we analyse the credit structure of this area in the next section.

Credit Structure of the Tract

Table III shows debt outstanding according to different agencies and the relative importance of different sources of finance. The major portion of the requirement of credit seems to be provided by moneylenders. Thus about 68 per cent of the debt was owed to moneylenders alone.

TABLE III—DEBT OUTSTANDING—AGENCY-WISE

Name of Village	Money-lender	Co-operatives	State Government	Other Sources	Total debt	Debt as per cent of Total
Chimka	27,114 (41.7)	26,657 (40.9)	400 (0.6)	10,920 (16.8)	65,091 (100)	33.6
Patunda	22,485 (71.2)	3,180 (10.1)	817 (2.8)	5,111 (16.0)	31,593 (100)	16.3
Bamori	38,239 (92.8)	553 (1.4)	— —	2,400 (5.8)	41,192 (100)	21.4
Amarpura	43,077 (77.8)	10,225 (18.2)	200 (0.6)	1,870 (3.4)	55,372 (100)	28.7
Grand Total	130,915 (67.7)	40,615 (21.0)	1,417 (0.8)	20,301 (10.5)	193,248 (100)	100.00

Figures in brackets are percentages of the total debt of individual villages.

In comparison to moneylenders, the co-operatives' share in the credit structure can be considered insignificant as it accounts for only 21 per cent. Out of this some 14 per cent of the debt outstanding was accounted by one village alone.

It should be mentioned here that all the four villages were having the services of agricultural credit societies (Chimka was covered by a Co-operative Bank). Quite a sizable portion of the debt, particularly those not owed to co-operatives or to the State, was carrying rate of interest, varying from 18 to 24 per cent per annum.

It was noted that people were indebted heavily. This can be inferred from the existence of powerful moneylenders who have accumulated hundreds of acres of land, forfeited in lieu of debt, in almost all these villages. This trend is particularly discernible in the villages of Bamori, Amarpura and Patunda. This situation holds true for the whole of the region particularly in Rajasthan State. 'Chimka' village is an exception to it, probably because of the operational hold of the Co-operative Bank.

Debt in Relation to Economic Resources

A further elucidation of the saturation limit of the borrowing capacity of the cultivators can be had from the perusal of Table IV. Debt per acre of cultivated holding was found directly related to the size of cultivation. It was at much higher level on holdings below 15 acres. It declined with the increase in the size of cultivation.

TABLE IV—DEBT ACCORDING TO THE SIZE OF LAND CULTIVATED, TOTAL DEBT OUTSTANDING AND DEBT OUTSTANDING PER ACRE

Size level of land cultivated	Village					(In Rupees)
	Chimka	Patunda	Amarpura	Bamori	Total	
Nil	3,025	8,917	14,198	14,801	40,941	
0 — 5	7,205 (99)	3,553 (25)	7,155 (298)	1,220 (61)	19,133 (74)	
5 —15	36,270 (55)	9,593 (10)	16,465 (661)	3,054 (28)	65,382 (32)	
15 —25	14,941 (42)	4,480 (4)	8,779 (22)	7,084 (17)	35,284 (15)	
25 —50	2,500 (17)	1,900 (2)	7,775 (28)	12,253 (19)	24,428 (12)	
50 and above	1,150 (21)	3,150 (2)	1,000 (18)	2,780 (7)	8,080 (3)	
All sizes	65,091 (51)	31,593 (6)	55,372 (55)	41,192 (26)	193,248 (21)	

Figures in brackets relate to debt per acre.

Overall debt situation which emerges out of this analysis is that this region was already carrying a heavy debt load, proof of which can be had, in case we attempt a comparison between debt per acre of this zone with some other region, wherein commercialisation of the agriculture and intensification of irrigation exist. Table V is presented to make this comparison possible.

TABLE V—PERCENTAGE OF AREA IRRIGATED AND DEBT OUTSTANDING PER ACRE OF CULTIVATED HOLDING*

Districts/Villages	Net area Irrigated as per cent of net sown area	Debt Outstanding per cultivated acre in Rs.
PART I		
West Godavari.. .. .	77.2	104
Ferozepur	66.1	42
Coimbatore	27.2	69
PART II		
Chimka	16.7	51
Patunda	0.07	6
Amarpura	1.6	55
Bamori	3.3	26

* Data under Part I are from Rural Credit Follow-Up Survey 1956-57, Reserve Bank of India, 1960.

It will be seen that the village Chimka reporting highest percentage of irrigated area, which was about 17 per cent of its net sown area had, on an average, a debt load of Rs. 51 per acre whereas the lowest irrigated district (mentioned under Part I of the table shown above), that is Coimbatore, with 27 per cent of the irrigated area recorded Rs. 69 only as debt per acre.² This comparison is in itself a conclusion that the villages under the 'Chambal Command Area,' are already heavily indebted. Such a level of indebtedness may work as "disincentive" for economic progress.

If such is also the state of affairs in the whole of this area, where irrigation is going to be introduced, it must be emphasized here that the co-operative finance will have to step in, or the Government should be prepared to advance loans liberally to cultivators so as to enable them to pay for the purchase of capital goods. Obviously, loans for larger durations have special role to play in such conditions.

The necessity to borrow arises due to the small surplus available out of which savings can be made or due to its complete absence. It is an established fact that farmers pay quite a high rate of interest. Moreover, the financing agencies like landlords, moneylenders, etc., do not normally plough-back the income so earned into agricultural development. All this causes a net drain of resources from agriculture. This can be only improved through institutionalisation of rural credit, more so through the development of credit co-operatives. In an economy where capital formation is chronically low, State participation thus becomes indispensable.

It is easy to visualise the amount of economic benefit that will accrue to the country and to the agriculturists of the region with the introduction of irrigation. But these can only be realised if the agricultural aspect, particularly those relating to finance, is given due attention. Special care will have to be taken of the following: (1) Operational hold of moneylenders needs to be checked, as their activities may work as 'dis-incentives', once the peasant goes deep in debt, mortgaging land and other resources and assets. (2) For optimum utilisation of irri-

2. The data though part of a different study do not invalidate our contention as (i) districts under Part I of Table V have more than 30 per cent of their area under cash crops; (ii) it is a well established fact, of which the Reserve Bank of India study on rural credit, referred above, bears with us that with increase in irrigation and commercialisation of the agriculture, debt level increases as also the repayment capacity. This strengthens our postulate.

gational facilities, provision of additional fund for cultivators is a "must", more so for longer durations. (3) The co-operative movement has a special role to play in areas which are distressingly indebted. As its role is not confined to developing agriculture alone, the rehabilitation aspect has special significance in an under-developed economy.

Co-operative credit can make its contribution in the economic development of the country by increasing the output and financially strengthening the farmers' position. It is not an isolated measure. It should receive support from the other sectors of the economy, if the credit is to have its full impact in increasing the output per head of the Indian population, which we need so urgently.

Basis of Village Selection

As mentioned earlier the data form part of another study, although its objectives were to some extent similar to the present paper. The villages were, therefore, selected on certain basis best suited to that study. As regards the choice between the different methods of sampling the solution was given by the manner in which the objectives of the continuous village survey were defined. As the purpose was not to measure the quantitative magnitudes of the change in the "Chambal Project Area", but only to bring out the direction and nature of economic changes, selection of villages by random sample was hardly necessary. In this context, the best way was to select few villages purposively, which were to be irrigated, each of them being a case study of the impact of a particular economic variable on the village economy. Care was taken that there should not be considerable diversity in general features.

Evaluation of Additional Credit Requirements

There are many methods of which use could be made for measuring the resource requirement of irrigated and unirrigated area. One way is to have the various input factors per acre streamlined for the two different sets of cultivating zones. This naturally requires a very comprehensive study which is generally covered by "Farm Management Studies." Another way is to let the cultivators of varying sizes, fathom out their probable requirements. As data on cultivation cost, under different conditions, that is irrigated and non-irrigated, for this region are not available in the required form, for obvious reasons, therefore, the method last mentioned³ had to be used for assessing the financial requirement of this project area.

This method may be objected to on the ground that it reflects a subjective judgment of the cultivators. It should be emphasized here that we have reason to believe that the cultivators can judge their needs and necessities better than any other party, when it comes to technicalities of agriculture, provided they are aware of various conditions. Secondly, what is attempted is not to quantify the magnitude, but the direction, in which assistance will be required. Finally, this part of the analysis is proposed to be used as an auxiliary to the statistical information.

3. More or less, a similar technique was also used by Dr. S. C. Gupta of the Agricultural Economics Research Section, Delhi School of Economics, University of Delhi, in his study captioned as "An Economic Survey of Shamaspur Village".