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credit for cultivation of HYVs has been extremely low. Also, in view of the complexity of the problem of extending effective institutional credit support to needy small farmers, rapid spread of the HYV Programme among them cannot be expected.

* (d) The benefit of other sources of institutional credit, specially commercial banks, seems to have gone to above-average farmers and to co-operatively well developed areas. Unless banks make determined efforts to provide credit to the needy areas and needy farmers, the demand situation in regard to such credit would not improve markedly.

SHORT-TERM CREDIT REQUIREMENTS AT THE END OF THE FOURTH PLAN, 1973-74

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The Rural Credit Survey conducted by the Reserve Bank of India in 1950-51 estimated the annual borrowings of cultivators for short, medium and long-term purposes at Rs. 750 crores. This comprised loans to the extent of 42 per cent for agriculture, 47 per cent for consumption purposes, about 5 per cent for non-farm business and 6 per cent for miscellaneous purposes.

Indian agriculture has since then undergone a revolution. The size of agricultural finance required has increased appreciably. A number of exercises has been made from time to time by various institutions with regard to the requirements of agricultural credit (Table I). Most of the earlier calculations were based on certain assumed norms such as the requirements for area under high-yielding varieties programme and other irrigated areas, etc. An answer to the problem can also be found on the basis of :

- (a) The ratio of total borrowings for all purposes, farm as well as non-farm to national income from agriculture, according to the Rural Debt and Investment Survey, 1961-62.
- (b) Total borrowings for farm expenses per acre according to the 1961-62 survey.
- (c) Expenditure on various inputs as well as other household expenses.

* This represents the personal views of the author.

TABLE I—ESTIMATES OF SHORT-TERM BORROWINGS DURING THE FOURTH PLAN

Basis	(crore Rs.)		
	Farm business	Non-farm and household expenditure	Farm and non-farm business household expenditure
(1)	(2)	(3)	(4)
1. Report of the Working Group on Co-operation	1,800	—	—
2. (a) Department of Agriculture input basis	1,800	—	—
(b) High-yielding and multiple cropping	1,567	—	—
3. Present estimate based on			
(a) Ratio of borrowings to national income	376.20	—	—
(b) Borrowings per acre	424.17	—	—
(c) The value of inputs	819.00	858	1,677

Methods (a) and (b) will represent a gross under-estimate because the level of increase in the primary inputs during 1961-62 and the one contemplated under the Fourth Five-Year Plan is much higher than the increase in income or area during the period under discussion. For this purpose, our calculations here are according to (c) above. Here also we are ignoring miscellaneous expenses like those of hired labour, marketing finance, etc., and considering only important inputs like fertilizers, pesticides and seeds (Table II). The value of these three major items adds up to Rs. 1,425 crores

TABLE II—VALUE OF IMPORTANT INPUTS FOR THE FOURTH FIVE-YEAR PLAN

Item	1969-70	1970-71	1971-72	1972-73	(crore Rs.)	
					1973-74	
(1)	(2)	(3)	(4)	(5)	(b)	50 per cent of (b)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Fertilizers	677.0	825.4	966.5	1,112.1	1,113.7	556.8
2. Pesticides	78.1	95.6	113.1	132.2	149.8	74.9
3. Seeds, high-yielding varieties	72.2	86.1	111.6	135.2	161.4	80.7
4. Total	827.3	1,007.1	1,191.2	1,379.5	1,425.2	712.6

Notes : 1. Unit prices of fertilizers :

N = Rs. 2,180 per tonne.

P = Rs. 2,412 per tonne.

K = Rs. 872 per tonne.

2. The price of N has been calculated by taking the prices of fertilizers containing only N and weighting them by the quantities of fertilizers handled by the pool.

3. The P₂ O₅ price is based on the average retail price of superphosphate.

4. The K₂ O price is based on the retail price of muriate of potash.

at the end of the Plan period. This includes the value of the total quantity of fertilizers¹ and pesticides according to the Fourth Plan targets and the value of only high-yielding varieties of seeds required to achieve the Plan targets, assuming that seeds of ordinary varieties will be available with the cultivators from their own crop to meet their full requirements.

Certainly there is no need to provide 100 per cent credit for all these and other items. A recent survey (Table III) indicates that the cultivators even in the high-yielding areas were financing from their own resources practically 100 per cent of their requirements for hired human and bullock labour

TABLE III—SOURCES OF FINANCE FOR DIFFERENT INPUTS ON SELECTED FARMS GROWING HIGH-YIELDING VARIETIES, TIKAMGARH DISTRICT, MADHYA PRADESH : 1967-68

(percentage)

Input items	Source of finance			
	Owned funds	Co-operatives	Local borrowings	Total
(1)	(2)	(3)	(4)	(5)
1. Hired human labour	100.00	—	—	100.00
2. Hired bullock labour	100.00	—	—	100.00
3. Seed	59.45	41.02	8.53	100.00
4. Fertilizers	4.86	94.18	0.96	100.00
5. Pesticides	—	100.00	—	100.00
6. Land revenue	94.16	—	5.84	100.00
7. Irrigation	97.76	—	2.24	100.00
8. Manure and rent	100.00	—	—	100.00

Source : A Study of High Yielding Varieties Programme, Rabi 1967-68 (Wheat) in Tikamgarh District, Madhya Pradesh, Ad hoc Study No. 14, Agro-Economic Research Centre, Jabalpur, 1968.

as well as sufficient proportion of other inputs. Similarly, the following three surveys indicate that nearly 50 per cent of the cultivators² were borrowing from all sources:

- (a) The National Sample Survey (1954-55). Only 30 per cent of the cultivator households borrowed during the year from all sources, the total number of indebted cultivating households during the year being 46 per cent;
- (b) Rural Credit Follow-up Survey, Reserve Bank of India (1959-60 and 1958-59). The proportion of borrowing families belonging to

1. Against the 1970-71 target of 2,400, 1,000 and 700 thousand tonnes of N, P and K actual consumption during the year is only 1,426, 461 and 276 thousand tonnes respectively. There is under the circumstances a strong possibility of a huge shortfall in the achievements of Plan targets.

2. It might not be correct to relate the number of borrowing cultivators to the amount borrowed. The pattern of lending so far has been to benefit primarily the bigger cultivators, who should not actually be financed under the new scheme of credit. We will not then be far wrong to assume that the actual credit needs for major inputs are about 50 per cent of their total value.

different economic strata, *i.e.*, large, medium and small cultivators was, in each case, about 50 per cent;

- (c) Rural Debt and Investment Survey, Reserve Bank of India (1961-62). Fifty-two per cent of the cultivating families borrowed during the year.

We also observe that 35 per cent of the cultivated area in the country is in holding size above 15 acres where each of the holding has on an average more than 7.4 acres of irrigated area (Table IV). Possibly cultivators of holdings in size-groups above 20 acres³ will not stand in need of short-term credit.⁴ The financial position of the cultivators particularly those who have

TABLE IV—DISTRIBUTION OF THE CULTIVATED AND IRRIGATED AREA BY SIZE-CLASS OF OPERATIONAL HOLDINGS

Size-class of operational holding (acres)	Estima- ted number of operational holdings (thou- sand)	Estima- ted area operated (thou- sand acres)	Percent- age of operational holdings reporting irrigation facilities to all holdings	Average area with irrigation facilities per reporting holding (acres)	Number of operational holdings with irrigation facilities (thousand)	Area with irrigation facilities (thousand acres)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Upto 0.49	5,338	1,257	29.62	0.32	1,581	506
0.50— 0.99	4,157	3,024	47.61	0.56	1,979	1,108
1.00— 2.49	10,402	17,530	48.90	1.22	5,087	6,206
2.50— 4.99	10,879	39,456	48.64	2.24	5,292	11,854
5.00— 7.49	5,794	35,358	48.60	3.50	2,816	9,856
7.50— 9.99	3,424	29,461	47.37	4.47	1,622	7,250
10.00—12.49	2,329	25,912	48.18	5.49	1,122	6,160
12.50—14.99	1,397	19,100	45.60	6.32	637	4,026
15.00—19.99	1,789	30,601	43.93	7.40	786	5,816
20.00—24.99	1,059	23,403	45.32	8.63	480	4,142
25.00—29.99	659	17,974	47.19	8.96	311	2,787
30.00—49.99	1,132	42,201	42.76	11.80	484	5,711
50.00 and above	523	39,602	37.67	19.49	197	3,840
All sizes	48,882	324,969	45.81	3.09	22,393	69,194

Source : The National Sample Survey : Sixteenth Round : July 1960—June 1961, Number 113—Tables with Notes on Agricultural Holdings in Rural India, Cabinet Secretariat, Government of India, 1967.

3. This assumption was also made in the Report of the Working Group for Formulation of Fourth Five-Year Plan Proposals on Co-operation [Ministry of Food, Agriculture, Community Development and Co-operation (Department of Co-operation), Government of India, New Delhi, July, 1968] for the area under the HYV Programme.

4. This further supports the assumption made under footnote 2.

already adopted the high-yielding varieties has considerably improved. The Punjab farmer, for example, is today producing about 5 million tonnes of wheat worth Rs. 300 crores at the floor price. Rural per capita income in the Punjab today is higher than that of his urban counterpart.

Credit needs for the major inputs may thus be calculated at about 50 per cent of the total value which will work out to roughly Rs. 713 crores.

It might not be possible to make an exact calculation about the credit requirements for miscellaneous purposes and specific crops like horticulture and cashewnut as well as animal husbandry. Seed has also to be invariably purchased for cash crops like cotton and jute, etc., for which no provision has been made so far. A rough calculation for the purpose can be made by inflating the actual figure for farm credits during 1961-62 for purposes other than inputs by the actual increase in prices since then and the contemplated increase in the agricultural production during the period 1961-62 to 1973-74. This works out to Rs. 274 crores. The total short-term credit requirements of the cultivators for farm business would then be Rs. 987 crores (Table V).

Since the intention of short-term credit is to meet the requirements of the cultivators only for one crop and the loan is assumed to be recovered at the end of the crop, the loan can and should be rotated in the double cropped areas. A major portion of the various inputs like fertilizers, etc., will be used in the areas where possibly double cropping is being practised. This is because the high-yielding and multiple cropping programmes are to be concentrated only in these very areas. This would actually mean that while the estimated double cropped area in the gross cultivated area would be only 17 per cent, credit that will be advanced to the first crop and can be rotated for the second crop will be much higher than 17 per cent of the total.⁵ Really speaking an allowance should be made for the whole of the smaller crop of *rabi* which accounts for about 25 per cent of the gross cropped area. In this calculation, we have, however, taken account of only the double cropped area.

As observed already, real borrowings of the cultivators in the past have been more for non-farm and household expenditure and it would be necessary to have an idea of their needs in this respect as well. The total borrowings of the cultivating households during 1961-62 for household expenditure and non-farm business were Rs. 482 crores. Allowing for increased population as well as the cost of living during the intervening period, the requirements of the cultivators on this account for 1973-74 are likely to go up to Rs. 1,085 crores (Table V).

The financial condition of an average cultivator in the country has improved considerably during the past few years and is likely to improve further during the coming Plan period. With increasing productivity, his unit cost will also be reduced further leading to increase in net income. If

5. The target of N consumption — 3.2 million tonnes — would mean about 20 kg. per hectare for the irrigated areas and 5 kg. per hectare for the unirrigated areas. Recommended doses of NPK for the high-yielding varieties of paddy, wheat and maize are 60, 50 and 40 lbs. per acre respectively.

TABLE V—ESTIMATES OF SHORT-TERM CREDIT REQUIREMENTS FOR FARM AND NON-FARM BUSINESS

Short-term credit requirements	Amount
<i>Farm</i>	
1. Value of three major inputs in 1973-74 (crore Rs.)	1,423
2. Credit needs valued at 50 per cent of the input value (crore Rs.)	713
3. Farm credit during 1961-62 for purposes other than inputs* (crore Rs.)	100
4. Estimated credit needs for miscellaneous purposes during 1973-74** (crore Rs.)	274
5. Total credit needs for agriculture in 1973-74 (crore Rs.)	987
6. Double cropped area during 1973-74 (per cent)	17
7. Double counting in the calculated credit under column 5 at 17 per cent (crore Rs.)	168
8. Net credit needs for farm business during 1973-74 (crore Rs.)	819
<i>Non-farm</i>	
9. Total borrowings of cultivators for household expenditure in 1961-62 (crore Rs.)	482
10. Estimated figure of the above item in 1973-74† (crore Rs.)	1,085
11. Increase in agricultural production during 1962-74 (per cent)	51.9
12. Increase in per capita agricultural production (per cent)	21.0
13. Improvement in the self-financing capacity at 21 per cent (crore Rs.)	227
14. Estimated borrowings in 1973-74 (1085-227) for the agricultural population (crore Rs.)	858
15. Total needs for agriculture and household expenses (crore Rs.)	1,677

* Total farm credit was Rs. 140 crores. Total value of fertilizers and pesticides was Rs. 75 crores. Adding another Rs. 5 crores for improved seed, the total value of the three inputs was Rs. 80 crores. Allowing half of this as credit needs, the balance of credit need for miscellaneous uses on the farm works out to Rs. 100 crores.

** 80 per cent due to price increase and another 52 per cent due to capital intensiveness.

† Includes 80 per cent due to price increase and another 25 per cent for agricultural population increase from 317 to 396 million.

so, it can be assumed that his capacity to meet his household requirements from his own resources will also improve. While total agricultural production during the period 1961-62 to 1973-74 is estimated to go up by about 52 per cent, per capita production of agriculture will increase by 21 per cent only. Assuming that the capacity of the cultivators for self-borrowings improves by the same ratio as the increase in per capita production of agriculture, net credit needs of the cultivators for non-agricultural purposes would work out to Rs. 858 crores.

The total consumption expenditure of the cultivators during the year 1961-62 can be estimated at Rs. 8,228 crores on the basis of the data supplied by the 17th Round of the NSS.⁶ The total borrowings of the cultivator households during that year represented 7.56 per cent of the total household

6. The NSS survey gives rural and urban expenditure. It has been assumed that the cultivator household expenditure is equal to the rural one and that 70 per cent of the total population is depending on agriculture.

expenditure. Non-farm business borrowings were 5.86 per cent of the total consumption expenditure. Corresponding figures for the Fourth Plan are 9.53 and 4.88 per cent respectively indicating thereby that the cultivator would be borrowing proportionately less for non-farm business, although his total borrowings will go up (Table VI).

TABLE VI—CULTIVATOR HOUSEHOLD BORROWINGS AS PERCENTAGE OF TOTAL CONSUMPTION EXPENDITURE : 1961-62 AND 1973-74

Items	Amount
1961-62	
1. Per capita consumption expenditure of the agricultural household for 30 days* (Rs.)	21.63
2. Agricultural population** (million)	317
3. Total cultivators' consumption expenditure† (crore Rs.)	8,228
4. Borrowings for farm and household consumption expenditure (crore Rs.)	622
5. Borrowings for farm and household consumption expenditure as percentage of total cultivators' expenditure (per cent)	7.56
6. Borrowings for household expenditure (crore Rs.)	482
7. Household borrowings as percentage of total cultivators' consumption expenditure (per cent)	5.86
1973-74	
8. Per capita cultivator expenditure for 30 days†† (Rs.)	36.4
9. Agriculture population@ (million)	396
10. Total cultivators, consumption expenditure for the year (crore Rs.)	17,500
11. Total borrowings for cultivating households (crore Rs.)	1,677
12. Total borrowings as percentage of cultivators' consumption expenditure (per cent)	9.53
13. Borrowings for household consumption expenditure (crore Rs.)	858
14. Borrowings for household expenditure as percentage of total cultivators' consumption expenditure (per cent)	4.38

* It has been assumed that the expenditure pattern of a cultivator and a non-cultivator rural family is the same.

** Calculated at 70 per cent of the total population for 1961-62.

† The result has been checked by comparing cultivator expenditure with income from agriculture which works out to Rs. 8,228 crores, and total income from agriculture and borrowings for farm and non-farm consumption are (8010+622), i.e., Rs. 8,632 crores. This discrepancy is possibly due to the cultivator expenditure being a little less than the rural household or some quantitative lacuna in the NSS data.

†† Per capita income from agriculture during 1973-74 will be Rs. 40 per month. Assuming that 20 per cent of the additional per capita income between 1961-62 and 1973-74 is saved, per capita expenditure in 1973-74 will be Rs. 36.4.

@ Estimated allowing 4 per cent annual increase in the urban population and keeping the ratio between rural and agricultural population same as during 1961-62.