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OF INDIAN AGRICULTURE**

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### Abstract

Indian economy is still predominantly agrarian and over 70 per cent of the workforce is still engaged in agriculture. Small and marginal farmers predominate the agricultural scenario in India. However, relative neglect of agriculture in the recent past has resulted in its dwindling share in net national product (NDP). This decline has been the result of declining productivity of agricultural inputs. Investment in agriculture (as is evident from gross capital formation (GCF) in agriculture) has also declined considerably during the 80s. Added to this is the adverse terms of trade and the growing unemployment in agriculture. Further, share of agriculture in total export earnings has also been going down. However, production and productivity requirements are going to be of a high order by 2000 A.D. In such a deteriorating situation, rationalisation of Indian agriculture becomes very important. An attempt is made in this paper to examine as to how cooperatives can arrest this trend and bring prosperity to farmers besides accelerating the pace of economic development.

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V.K.Gupta and T.M.Gajjanana\*.

Indian economy has not changed much over the past four decades. It is predominantly agrarian with about 70 per cent of the work force still engaged in agriculture and allied activities. Although food production has increased during these years, we cannot, however, call ourselves self sufficient as we still have to import foodgrains and edible oils. Further, at the present level of food production the per capita availability is only 1900 kilo calories per day against the recommended 2200 kilo calories. Keeping the population growth rate in view, our food requirements would have to grow by over 250 million tonnes by 2000 A.D. In the recent past, the performance of agriculture in India has not been very satisfactory and the emerging task is indeed of a very tall order. This paper examines alternative strategies for meeting the growing food and fibre needs and making the agricultural economy self reliant. The paper is divided into three sections. Section I reviews the Indian agricultural scenario in terms of share of agriculture in NDP, movement of terms of trade and employment situation. Section II is concerned with investment in agriculture in general and pattern, magnitude and trends in agricultural investment in particular. Section III attempts to suggest some strategies to put the Indian agriculture back on its track and

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hope is pinned on cooperatives in this endeavour to rationalise Indian agriculture.

## I

Relative neglect of agriculture and consequent decline of its share in NDP particularly in the 80s has been discussed in the recent economic literature [Shetty(1990), Patnaik(1987), Rath(1985)]. The major cause for this decline appears to be declining productivity of inputs in agriculture. Although there has been an increase in the use of inputs resulting in increased output, productivity has either declined or, at the most, remained stagnant during the last decade [Table 1].

Table 1 : Productivity of Agricultural Inputs

year	Value of output		Value of inputs		Index of productivity $\delta = 3/5$
	Rs.Crore	Index	Rs.Crore	Index	
1	2	3	4	5	
1980-81	46278	100	12212	100	100
1981-82	48872	105.6	12916	105.8	99.8
1982-83	47799	103.7	13229	108.3	95.8
1983-84	52730	113.9	13772	112.8	101.1
1984-85	52421	113.9	14507	118.8	95.4
1985-86	52240	112.9	15030	123.1	91.7
1986-87	50509	109.1	15011	122.9	88.8
1987-88	49450	106.9	15560	127.4	83.9
1988-89	58750	127.0	16650	136.3	93.2

Source : Centre for Monitoring Indian Economy (CMIE), 1989.

The movement of terms of trade against agriculture during the last one and a half decades even in the well-endowed regions in the country resulting in substitution of cash crops for food crops has been

reported by Rath(1985). Even the superior cereals, rice and wheat, suffered from this unfavourable terms of trade, the former in the 80s and the latter since mid 70s. The worst sufferers are those growing coarse grains, invariably the dryland farmers. Not only have their barter terms of trade deteriorated after the mid 70s but also the yields of coarse cereals have not registered any significant rise. This has resulted in adverse income terms of trade as well. The present price policy can play but only a limited role in arresting this deteriorating situation.

Lack of alternative employment opportunities in agriculture coupled with adverse terms of trade forced the work force to move out of the agriculture sector. However, the inability of the non-agriculture sector to absorb much more than the natural growth of its work force led to an increased number of workers seeking employment after the mid 70s. Vaidyanathan (1986) observed significant correlation between changes in unemployment and agricultural unemployment. Absence of off-setting wage rate in agriculture resulted in the movement of work force to non-agricultural sector which grew at a comparatively high rate of 3.5 per cent per annum. Share of agriculture and allied activities in total labour force declined from 73 per cent in 1961 to 68 per cent in 1983 and employment in this sector grew at 2.3 per cent per annum between 1961 and 1971 while it experienced a declining growth of 1.1 per cent during 1972-83 [see Ithamarajakshi (1989)].

Thus, increased unemployment mainly due to agricultural unemployment can be considered as one of the strong enough factors

responsible for the declining share of agriculture in NDP.

## II

### Investment in Agriculture

Gross capital formation (GCF) in agriculture grew at over 6 per cent between 1960-61 and 1970-71. Even the disaggregated look at the growth rates indicates that the rate of growth has been over 5 per cent upto 1980-81 [Table 2]. However, the 80s experienced a sharp decline in the growth rate. Between 1980-81 and 1987-88, the

Table 2 : Compound Growth Rates (%) in Gross Capital Formation in Agriculture

Period	Compound growth rates	
	Original	3 year moving average
1960-61 to 1987-88	3.5	3.8
1960-61 to 1970-71	5.2	6.3
1960-61 to 1980-81	5.3	5.9
1970-71 to 1980-81	5.4	5.4
1980-81 to 1987-88	-1.5	-2.6

Source : Shetty, 1990.

capital formation registered a negative growth of over 2.6 per cent. Further, the share of GCF in agriculture in gross domestic capital formation (GDCF) showed a consistent decline during the period 1970-87. It declined from around 17 per cent to 10 per cent during this period. Both public and private capital formation in agriculture declined both in absolute and relative terms during the 80s. The fall has been quite high in case of public sector investment [Table 3].

Table 3 : Gross Capital Formation in Agriculture in relation to Gross Domestic Capital Formation (at 1980-81 prices)

Year	GDCF			GCF in Agriculture			Share of Agri. in GDCF		
	Total	Public	Private	Total	Public	Private	Total	Public	Private
1960-61	11775	4805	6970	1668	589	1079	14.17	12.26	15.48
1970-71	16550	6984	9566	2758	789	1969	16.66	11.3	20.58
1980-81	28357	14000	14357	4670	1835	2835	16.47	13.11	19.75
1981-82	35001	15903	19098	4556	1799	2757	13.02	11.31	14.44
1982-83	33688	16761	16927	4569	1732	2837	13.56	10.33	16.76
1983-84	34267	16730	17537	4117	1733	2384	12.01	10.36	13.59
1984-85	35919	16537	17382	4357	1691	2666	12.13	9.12	15.34
1985-86	40453	19114	21339	3996	1508	2458	9.88	8.05	11.52
1986-87	39514	20417	19097	4108	1484	2624	10.4	7.27	13.74

Source : National Accounts Statistics, 1989

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Table 4 : Gross Capital Formation in Agriculture in relation to GDP in Agriculture  
Rs. crores.

Year	GDP			GCF			Share (%) of GCF in GDP	
	Total	Private	Public	Total	Private	Public	Total	Private
1960-61	28841	152	28689	1668	589	1079	5.78	3.76
1970-71	35930	615	35315	2758	789	1969	7.68	5.58
1980-81	42466	922	41544	4670	1835	2835	11.00	6.82
1981-82	45145	930	44215	4556	1799	2757	10.09	6.24
1982-83	44570	976	43594	4569	1732	2837	10.25	6.51
1983-84	49688	1019	48669	4117	1733	2384	8.29	4.90
1984-85	4966	1043	48625	4357	1691	2666	8.77	5.48
1985-86	49761	1062	48699	3996	1538	2458	8.03	5.05
1986-87	48720	1084	47636	4108	1484	2624	8.43	5.51

Source : Shetty, op.cit.

### Investment in Relation to Gross Domestic Product (GDP)

GCF in agriculture formed about 6 per cent of GDP during 1960-61 and increased to around 8 per cent in 1970-71 and thereafter to 11 per cent during 1980-81. Later on, however, there was a significant decline in its share. This declining trend was due to declining investment both in public and private sectors. Private investment as proportion of GDP rose from a mere 4 per cent during 1960-61 to 6.82 per cent during 1980-81. Thereafter there has been a persistent decline in private agricultural investment in relation to GDP originating in agriculture [Table 4]. Even in the household sector (excluding corporate and cooperatives) the picture of private capital formation is no different. The same is the case with the fixed capital formation in agriculture [Shetty(1990)]. Thus, from whatever angle we look at or whatever yardstick we may adopt, the situation appears to be one of distinct setback to investment, both public and private, in agriculture during the 80s as compared to previous decades.

As observed earlier, the factors responsible for the declining investment in agriculture have to be analysed both in terms of public and private investments which have shown sluggishness during the last decade.

**Public investment:** Public sector investment as measured by the government expenditure on agriculture and irrigation has no doubt increased over the years. Although the total expenditure by the government as a proportion of GDP has increased from 3 per cent during 1970-71 to 12 per cent during 1987-88, the proportion of total



Table 5 : Expenditure on Agriculture and Irrigation by Central and State governments

(Rs. crores)

Year	Revenue account	Capital account	Total expenditure	Total expenditure as % of GDP	Revenue account as % of GDP	Total agri. expenditure as % of total expenditure
1970-71	232(43.8)*	297(56.2)	529	3.10	1.38	7.70
1975-76	727(41.9)	1009(68.1)	1736	6.50	2.73	11.20
1980-81	1648(44.9)	2019(55.1)	3667	8.60	3.88	12.10
1981-82	1930(34.5)	2013(65.5)	5591	11.70	4.04	16.40
1982-83	2169(51.2)	2063(48.8)	4232	8.40	4.29	10.70
1983-84	2628(52.7)	2359(47.3)	4987	8.10	4.29	11.00
1984-85	2964(48.3)	3179(51.1)	6143	9.40	4.55	11.50
1985-86	5397(61.9)	3320(38.1)	8717	12.50	7.72	13.90
1986-87	6685(70.3)	2831(29.7)	9516	12.80	8.98	12.60
1987-88	6957(70.0)	2977(30.0)	9934	12.20	8.54	12.40
1988-89	8179(71.2)	3307(28.6)	11486			12.50

\* Figures in the parentheses are percentages to total expenditure.

Source : Shetty, 1990

expenditure on agriculture and irrigation to total expenditure has steadily decreased during the 80s. What is more disturbing is the fact that the revenue account which does not create assets has increased from 44 per cent to over 70 per cent during the last one and a half decades [Table 5]. This is suggestive of the fact that the expenditure intended for capital formation has been wiped out by wages, salaries, and maintenance expenditures. This is particularly so in case of irrigation expenditures.

**Private investment:** This can be analysed in terms of field surveys on levels of living, farm productivity, motivation for saving and investment, investible funds and the role of institutional credit. However, while the data on the former is difficult to obtain, the information on the latter, i.e. institutional credit, is available.

**Institutional credit for agriculture:** There has been a significant growth in institutional credit to agriculture. But, as pointed out earlier, the private investment in agriculture has been sluggish. Growth in term loans has been spectacular (20.41%) as compared to short term loans during 1974-75 to 1984-85 [Table 6]. But the growth of investment has not kept pace with this increase. This dichotomy can be explained in terms of several factors. First, the entire term loan might not have been converted into capital. Second, increased number of households over the years due to rise in population might have necessitated increased consumption. Third, concentration of agricultural growth in a few pockets of the country. In certain areas,

extreme land concentration, high incidence of tenancy and sharecropping and acute agrarian conflicts (for example eastern India)

Table 6 : Compound Growth Rates (%) in Credit Supply  
(1974-75 to 1984-85)

Agencies	SI Loan	Term Loan	Total Direct Advances
FACS	11.84	26.43	13.15
SCBs	19.63	21.75	21.9
LDBs	-	9.45	9.45
RRBs	-	-	25.62
Total	14.17	20.41	16.28

Source : Desai, D.K., 1988

acted as the major stumbling block to productive investment in agriculture by landlords. However, private investment depends to a great extent on spread of irrigation which in turn depends on public investment [Patnaik(1987)]. Fourth, There are instances of agricultural households having preferences for non-agricultural operation which, in fact, has increased the proportion of labour households to total agricultural households. Further, the wage rate differential between non-agricultural and agricultural operations [for example, in 1977-78, the differential was upto 60 per cent across the states] was also responsible for preferring non-agricultural operations. Finally, as can be seen from Table 7 the share of cooperatives in agricultural credit disbursement has decreased and there has been a sharper decline in case of term loans which are supposed to contribute directly to capital formation. The share of cooperatives, which was as high as 69 per cent in 1974-75, decreased to as low as 30 per cent in 1984-85 in case of term loans.

Table 7: Changing Shares (%) in Credit Supply

agencies	1974-75		1980-81		1984-85	
	ST Loan	Term Loan	ST Loan	Term Loan	ST Loan	Term Loan
coops*	83.69	69.27	68.69	43.59	64.15	29.68
CB+RRB	16.31	30.73	31.31	54.41	35.85	70.32
total	100	100	100	100	100	100

Source : Desai, D.K., 1988

\*ACRC Report(1989) puts the figures for cooperatives as 79 per cent for ST and 80 per cent for term Loans during 1974-75, and 57 and 41 respectively for ST and term Loans during 1984-85. However, our figures (based on CMIE, 1989) for 1980-81 and 1984-85 respectively for ST and Term Loans are 74.70% and 44.58% (1980-81), and 67.67% and 36.43% (1984-85).

### Agricultural Exports

The share of agricultural based products in total export earnings has declined from around 42 per cent during 1965-66 to 15 per cent during 1989-90 [Table 8]. This type of decline could be due to the declining share of agriculture in total value addition. Further, value added in agriculture grew at a meagre 2 per cent while its counterparts, manufacturing and service sectors grew at 8 per

Table 8 : Share(%) of Agricultural Exports in Total Export Earnings

Year	Value of Exports (Rs)		Share of Agri. (%)
	Agri.	Total	
1965-66	335.0	806.0	41.6
1970-71	487.0	1535.0	31.7
1975-76	1494.0	4036.0	37.0
1980-81	2057.0	6711.0	30.6
1981-82	2221.0	7806.0	28.5
1982-83	2443.0	8803.4	27.7
1983-84	2621.0	9770.7	26.8
1984-85	2996.5	11743.7	25.5
1985-86	2385.9	10894.6	21.9
1986-87	2789.3	12452.4	22.4
1987-88	2723.2	15741.2	17.3
1988-89	3062.4	20280.9	15.1

Source : Economic Survey, 1988-89 and 1989-90.

cent and 6 per cent respectively [Chakravarthy et al. (1990)].

Incremental capital-output ratio being low (4.8 %) as compared to mining and manufacturing (10.10 %) [see Thamarajakshi (1989)], rate of saving may be pushed up by increasing the same in agriculture. Further, foreign exchange, which otherwise is necessary for industrial development, is not required in large amount for agricultural

development. This calls for increasing the competitiveness of agriculture in relation to industries. The spirit of competitiveness and profitability can be infused into agriculture by revolutionising it through competitive wages which at present are far below the industrial wages [see Table 9] and by way of making agriculture more of a business activity. This can be brought about through agro-processing which apart from enlarging the employment opportunities could also improve the position of agriculture in value addition and hence the share in export earnings. Organisation of agro-processing on cooperative lines appears to be the right choice in this direction.

Table 9: Agricultural Wages in relation to Industrial Wages, 1985-86  
(Rs./day/man)

States	Agri-cultural wages	Industrial wages All industries	Food industries
A.P.	11.09	20.63	14.50
Assam	14.03	16.60	11.77
Bihar	10.60	46.68	23.51
Gujarat	14.13	29.83	17.40
Haryana	20.73	26.16	12.97
H.P.	17.41	26.15	15.33
J&K	-	19.18	13.43
Karnataka	9.55	33.65	34.39
Kerala	19.83	28.33	37.93
M.P.	9.75	34.88	11.60
Maharashtra	11.36	47.33	32.89
Orissa	8.32	36.31	11.36
Punjab	19.97	25.05	17.08
Rajasthan	14.80	33.94	16.44
T.N	9.22	29.22	12.94
Tripura	12.69	14.34	8.15
U.P.	11.72	29.67	17.19
W.Bengal	12.68	40.33	21.02
All India	-	33.39	16.77

Source: 1. Labour Bureau Handbok, 1989  
2. Annual Survey of Industries, 1989  
3. Agricultural Wages in India, 1988.

### **Protection to Agriculture**

Government of India has been giving protection to agriculture in the form of subsidies on food, fertiliser, credit and other agricultural inputs and collecting a negligible amount of tax from agricultural incomes. Despite the mounting food and fertiliser subsidies, the escalating per unit costs of production of foodgrains have exerted pressures on Commission for Agricultural Costs and Prices (CACP) to increase the support prices year after year. However, this positive price policy can play only a limited role in enhancing the food production as there exists perverse responsiveness to prices by coarse grains which predominate the dryland agricultural scenario [see for example, Shetty(1987) and Bapna(1987)].

### **III**

#### **Rationalisation Through Cooperatives**

From the preceding discussion it may be inferred that agriculture in India suffers from many deficiencies such as lack of value addition processes, its dwindling share in NDP, and the declining productivity of inputs. All these are the results of the relative neglect of agriculture in general and lack of development of a viable organisational mechanism at the grass root level which can undertake business planning and exercise coordination. Development at the grass root (village) level holds the key for the economic development of a

country like ours which depends to a great extent on the development of agriculture on which rely over 70 per cent of the population. Establishing the backward and forward linkages and effective by-product utilisation would help accelerate the pace of agricultural production and productivity and in this context, presence of an effective institution to cater to the needs of the small/marginal farmers assumed crucial significance. In backward linkages, supply of inputs like improved seeds, chemical fertilisers, agricultural machinery, custom services for tractors and bullocks, and credit support become essential. In case of livestock enterprises, loans for purchase of pedigree animals, supply of balanced feed and veterinary care are important. Since agricultural output is perishable, in order to reduce costs and also to increase the value added it becomes all the more important to undertake processing and storage of agricultural produce which in effect form the forward linkages with the consumer markets. On the marketing front, the produce is not only to be processed but also to be graded and transported to the market centre. Processing, grading and packaging functions enhance the value of the produce and ensure efficient functioning of the market. A vertically integrated system thus ensures considerable value addition through an increase in agricultural production (productivity), efficient marketing including processing and fuller utilisation of the by-products. It provides opportunities thus to a producer to maximise his returns on land and labour [Gaikwad and Gupta (1987). See also Gupta and Gaikwad (1986)].



**Role of cooperatives:** With their vast network at the grass root level cooperatives have become the only alternative to transfer the modern technology to rural areas particularly to small and marginal farmers at least cost. Supply of critical inputs and credit support, pooling, processing and marketing of agricultural produce are some of the required functions in order to increase production and productivity. Processing of agricultural produce on cooperative lines with raw material supply from the members (as in the case of milk, rice, groundnut and sugar) leads to vertical integration which would enable the members to receive remunerative prices for their produce through exercises of market efficiencies. Further, it is also possible to have ~~stable prices for~~ the produce both for the producer and the consumer. For example, Central Arecanut Marketing and Processing Cooperative Ltd. (CAMPCO), an apex cooperative institution for arecanut, could stabilise the arecanut prices to a great extent in different markets of Karnataka [Gajanana et al. (1987)]. Furthermore, AMUL, which is organised on cooperative lines, is now regarded as the pillar of success of white revolution in India. Similarly, sugar cooperatives integrated with paper mills [see Gupta and Ahuja (1990)], cooperative rice mills, oil seed processing cooperatives have met with success both in getting remunerative and stable prices to their members at the individual level and also in adding substantially to the value of the produce at the national level. Integration of different types of activities such as credit, processing and marketing on cooperative lines facilitates some important functions. For example, the arrangement of linking of credit with marketing enables the borrower

of credit cooperative to repay the loan after marketing his produce. The loan amount will be deducted from the sales proceeds of the member as is currently done in sugar cooperatives. This, in a way, helps recover the loan more conveniently besides helping the borrower by way of providing the transfer facility from marketing cooperative to credit cooperative. Integration, if brought about through cooperative of various types (eg., credit, processing and marketing) leads to not only maximisation of income through value addition by unified control but would also lead to optimising farmer-member's welfare through minimisation of costs especially in the distribution of inputs and services which is made possible through operation of non-profit centres and economies of scale.

Such production and productivity enhancement, processing and marketing functions can be integrated only on cooperative basis and a cycle of prosperity can emerge out of the system with the large scale investment in agriculture by farmer-members as a result of productivity enhancement efforts of the cooperatives, enlarged employment opportunities, increased production and hence marketable surplus, value addition in agriculture through processing of the produce and higher price realisation owing to the collective bargaining power of the cooperatives. Further, the re-investment of the additional funds thus generated will again result in another prosperous cycle at the grass root level which can flow to the national level.

It is the improper implementation of the cooperative principles which has caused sufficient damage already. Not only has the share of

cooperatives come down in disbursement of loans [Table 7] but also over 60 per cent of the cooperatives are experiencing losses [ACRC Report(1989)] and are dying their natural deaths. Further, only a few cooperatives have full time secretaries let alone the professional managers. In addition, hardly 27 per cent of the members are getting the credit facilities from the cooperatives. Unless this situation is given proper attention, the damage that is going to be caused may become irreparable. Rejuvenation of the existing cooperatives and setting up of multifunctional marketing oriented cooperatives with major thrust on integration holds the key for rationalisation of Indian agriculture. It is interesting to note that upto date there are no Management grievence cells either in the Registrar's office or the situations at the state level to facilitate business planning and implementation. Nor are there adequate professional training facilities for the staff at that level. It is recommended that district cells may be created to undertake business planning and to exercise coordination between cooperatives and the government departments. The proposal of ACRC (1989)] to set up National Cooperative Bank of India (NCBI) is a welcome sign. (he said bank is likely to strengthen the activities of the cooperatives particularly at the base level.

Any major revolution or changes in Indian agriculture can come about in dryland areas which contribute substantially (over 42%) to the nation's food basket. keeping this in view, we can think of setting up cooperatives for the supply of inputs and credit and also

transfer of cost effective technology (which is being developed in research stations and of late, also on watersheds) to increase the production of coarse cereals, pulses and oilseeds. A cooperative to market these products can motivate the farmers to change from the subsistence cultivation to the production of the marketable surplus. Livestock enterprises form part and parcel of the dryland agriculture and under such a situation, organisation of cooperative dairies on the lines of AMUL in these areas would go a long way in making dryland farming a profitable venture which would ensure large scale value addition thereby bring about prosperity to the country besides maintaining biological diversity.

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