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## **AGRICULTURAL POLICY IN INDIA**

**Context, Issues and Instruments**

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# AGRICULTURAL POLICY IN INDIA

## Context, Issues and Instruments

M.V. Nadkarni\*

### I. INTRODUCTION

The absence of a formal and comprehensive statement of agricultural policy in India since Independence has been a matter of concern and has provided scope for attack. The concern exists because in the absence of such a statement, ad hoc steps in response to short term exigencies could dominate government action. It has also given rise to a bitter feeling among the farm lobby that while industry has mattered to the government (because statements of Industrial Policy do exist), agriculture has been subjected to 'benign neglect'.

It was in this context that the Ministry of Agriculture, Government of India, came up with a Draft Agricultural Policy Resolution in June/July 1990. About the same time, a Standing Advisory Committee on Agriculture (SACA) chaired by Sharad Joshi was set up in the Planning Commission, mainly to represent the views of the farming community. SACA came up with a critical statement about the neglect of agriculture and indicated what the objectives of a National Agricultural Policy ought to be. It said : 'the scope of the agricultural policy is not limited to growing more food or to the provision of infrastructure and technology to that end. The agricultural policy of a nation should spell out in the context of its agro-climatic and socio-economic situation a well reasoned plan for generation and augmentation (of surplus)... and for the deployment of that surplus so that the community as a whole can

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maintain increasing standards of living and attain such other goals as the community may appoint for itself' The reference to 'community' here can be understood best from the sentence following the above quote. 'It puts agriculture as both the starting and the focal point of attention in planning the development of the whole of the economy and not as its loose appendage'. The welfare of the farming community should then be the focal point in improving the living standards of the country's population. Such a stand for an Agricultural Policy could be accepted as unexceptionable provided that we include the class of agricultural labour too among the farming community. After all, nearly 65 per cent of our total workforce still depends on agriculture and its welfare has to receive utmost priority. SACA then proceeds to list several objectives such as meeting food and nutrition requirements of our increasing population, reduction of unemployment, establishment of parity between facilities available for education and medical care in the countryside and those in the towns, and significantly (though stated last), the initiating of a 'real Green Revolution' that would be less dependent on the rapidly depleting petroleum resources. Ultimately, it has to be ecologically as well as economically sustainable.

Notwithstanding the exceptionally fine ideas expressed by SACA, neither the statement of SACA nor the Draft Agricultural Policy Resolutions (of 1990 as well as the one reported to have been cleared by the Union Cabinet in November 1992) presented a critical discussion of the specific problems of agriculture and the policy dilemmas surrounding them. Such a critical discussion can be seen to some extent only in one official report so far, namely the report of the High Powered Committee on Agricultural Policies and Programmes headed by Bhanu Pratap Singh, submitted to the Union Government, in July 1990. It has particularly deplored the urban bias reflected in the declining terms of trade, low profitability of agriculture and unremunerative prices. These however need a critical scrutiny so that the basic problems of agriculture can be better appreciated. Besides, the policy context has since

qualitatively changed requiring structural adjustment to the severe fiscal crisis, sharp inflation and a critical balance of payments situation facing the economy. A comprehensive policy framework touching on all areas of policy is required. Agriculture has its own problems and characteristics which have to shape the policy for it, but it cannot be decided in isolation. Hence questions have been posed whether there has to be a similar liberalisation in agriculture as in industry, involving removal of trade restrictions, of compulsory procurement at less than market prices and even of ceilings on agricultural holdings, so that increased investment would flow into agriculture. In this context, a policy of - what is alleged to be - depressing output prices and subsidising inputs has invited critical attention. The question of food and fertiliser subsidies has emerged as an important issue, which has some long term significance. There have also been suggestions that agriculture can not be indifferent to trade opportunities as indicated by international prices and about the need for a certain amount of at least limited external orientation.

It is against this backdrop of the economic situation and policy ambience that this study is structured. Our object is not as much to provide an alternative statement of agricultural policy as to critically present the problems and the context in which key issues of agricultural policy arise, discuss the pros and cons of policy instruments and see whether they achieve the intended goals. The discussion would essentially be focussed on providing the basic elements of an agricultural policy.

## II. THE CONTEXT AND GOALS OF POLICY

A Policy should be clear about its goals, the context from which the goals arise, and the choice of methods or strategy to achieve the goals. The goals have to be decided by the political leadership no doubt, but it should be well within our scope to discuss the context in which the goals have to be decided and see what goals it suggests.

### Decline in Relative Income Per Worker

One of the stark realities of the India's national economy, which was exposed by V K R V Rao (1983, Chapter 4) continues to affect us even today in that while the proportion of workforce dependent on agriculture has declined only marginally, the proportion of national income originating from them has fallen sharply after Independence. Though the non-agricultural sectors have been generating more income, they are not proportionately increasing the generation of employment opportunities, so that the residual workforce is compelled to depend on agriculture whether it is viable or not. The implication of this is that the relative income per worker in agriculture vis-a-vis a worker in the non-agricultural sectors is lower and has been continuously declining. This can be seen from Table-1.

**Table 1 : Relative Income of Agricultural Workers  
(Including Both Cultivators and Labour)**

Year	Share (%) of Agriculture in			Ratio per worker income in agri- culture to non- agriculture sector at	
	GDP at 1980-81 Prices	GDP at current Prices	Work- force	1980-81 Prices	Current Prices
1960-61	45.8	43.0	69.5	0.37	0.33
1970-71	39.7	42.4	69.8	0.28	0.32
1980-81	34.7	34.7	66.5	0.27	0.27
1990-91	29.5	29.8	64.9	0.23	0.23

Source : Calculated from National Accounts Statistics, CSO, and Population Census.

Though a decline has taken place in the relative income per worker in agriculture both at constant and current prices, the decline has been greater at constant prices. If an adverse trend in the terms of



trade of agriculture had also contributed to this decline, the decline at current prices should have been much sharper than at constant prices. On the other hand, between 1960-61 and 1990-91, the ratio of relative income has declined from 0.37 to 0.23 at constant prices (by 0.14 points), and from 0.33 to 0.23 (by 0.10 points) at current prices. The contrast is interestingly sharper if we take each decade separately. Thus, between 1960-61 and 1970-71 the decline was more in constant prices than in current prices. During the seventies (1970-71 to 1980-81), the decline was sharper in terms of current prices. And during the eighties, the decline has been almost by the same magnitude.

The point we are making here based on the table is that an unfavourable trend in the terms of trade contributed to the decline in the relative incomes of agricultural workers only during the seventies, but not during the sixties and eighties. And yet the decline took place, because of a relative fall in real incomes.

### Terms of Trade of Agriculture

That the terms of trade moved in favour of agriculture during the fifties and sixties is a well proven point (see Thamarajakshi, 1968 and 1977). The reversal of the trend in relative prices during the seventies was not the result of a deliberate policy but due to shocks from the hike in oil prices, an exogenous factor. It is this rather exceptional behaviour of terms of trade during the seventies which left the impression that it is a permanent or an enduring feature of the Indian economy. Using the implicit deflators for agricultural output and material inputs (excluding human labour) from the disaggregated tables of the National Accounts Statistics, we have derived the terms of trade for two periods separately in Table-2.<sup>1</sup>

1. It may be argued that strictly speaking, terms of trade are parity prices between prices received and paid by farmers. However, even the net barter terms of trade, more elaborately calculated by Tyagi correspond closely with the terms of trade calculated here for the same period. It is thus very unlikely that trends could be different in the two methods. The terms of trade as calculated by them for all concerned goods beginning with 1970-71 and ending with 1979-80 are : 100, 97.5, 103.5, 109.6, 99.9, 84.6, 90.7, 90.8, 85.4, and 88.6 (Tyagi, 1986, as reported in Subbarao, 1992 : 214). The co-efficient of correlation between this and our series ('A' series under 1970-71 base) for corresponding years is 0.91.

**Table 2 : Terms of Trade of Agriculture (Index Numbers)**

A : With regard to all material inputs

B : With regard only to industrial inputs (Chemical fertilisers, pesticides, insecticides, electricity and diesel oil)

Year	A	B	Year	A	B
1970-71	100	100	'80-81	100 (93)	100 (86)
1971-72	99	98	'81-82	100 (93)	91 (78)
1972-73	100	123	'82-83	103 (96)	97 (82)
1973-74	101	121	'83-84	102 (95)	102 (87)
1974-75	97	78	'84-85	104 (97)	108 (92)
1975-76	92	70	'85-86	104 (97)	116 (99)
1976-77	93	76	'86-87	106 (98)	119 (102)
1977-78	95	85	'87-88	106 (98)	134 (114)
1978-79	94	86	'88-89	107 (101)	144 (123)
1979-80	96	101	'89-90	111 (103)	154 (132)
1980-81	93	86	'90-91	na	na

Note : Derived as Ratios of Implicit Deflators of Agricultural Output over the Implicit Deflators for agricultural inputs. Figures in brackets are converted to 1970-71 = 100 base.

Source : Calculated from National Accounts Statistics.

The periods are 1970-71 to 1980-81 (using the revised series) and from 1980-81 to 1989-90. For convenience of comparison, the latter series are also converted to 1970-71(=100) as the base, so that changes over both 1970-71 and 1980-81 can be seen. The table shows clearly that though the seventies showed a decline in the terms of trade of agriculture, they reversed in the eighties to the earlier pattern of increasing trend. The position at the end of the decade was even better than the one in 1970-71 from the point of view of agriculture. Two factors are likely to ensure a long term trend in the terms of trade in favour of agriculture, - a high income elasticity of demand for agricultural produce in an overall growth

context at comparatively low levels of per capita income that we still have, combined with the continuing poverty alleviation along with growth, and secondly, a strong farm lobby whether or not it is reflected in the form of active movements (Mitra, 1977). Terms of trade however can become a major problem at higher levels of development with only a marginal and constant proportion of poor population.

### **Agrarian Structure**

One of the grave problems affecting Indian agriculture today is the continuing pressure of manpower on the limited land resources, due to inadequate generation of employment opportunities outside agriculture. This is not a price problem, but a more difficult and basic one. This is reflected in changing agrarian structure as well, apart from the national accounts statistics. The situation was bad enough in 1970-71 with small and marginal holdings below 2 hectares accounting for 69.9 per cent of all operational holdings and 20.9 per cent of area (see Table 3). By 1985-86, these shares increased to 76.3 per cent and 26.2 per cent respectively. In the process, the average size of these holdings has not declined much. However, the average size of all holdings declined from 2.3 to 1.7 hectares during the 15 years, the decline being more significant in the case of large holdings. The poignant feature of this picture is that this is not a problem which could be tackled by a mere redistribution of holdings, though the agrarian structure is no doubt unequal. Thus, even if a ceiling were to be imposed at 10 hectares (in terms of 1985-86 figures), a surplus of a little less than 14 million hectares only would be generated, which if distributed among the 56.75 million marginal holdings would increase their size from 0.38 hectares to only 0.64 hectares - not a size which could provide a decent standard of living particularly in dry or rainfed areas. If only holdings above the size of 2 hectares (i.e., other than marginal and small holdings) are assumed to generate net marketable surplus, their share in the total number of holdings declined from 30.1 per cent in 1970-71 to 23.7 per cent in 1985-86, and their share in land from 79.1 per cent to 71.0 per cent

**Table 3 : Operational Holdings in India**

Category & Size	Number of Operational Holdings (Million)			Area Operated (Million ha.)			Average Size of Holding (ha.)		
	1970-71	1980-81	1985-86	1970-71	1980-81	1985-86	1970-71	1980-81	1985-86
1. Marginal (below 1 ha)	36.20 (51.0)	50.12 (56.4)	56.15 (57.8)	14.56 (9.0)	19.74 (12.1)	22.04 (13.4)	0.40	0.39	0.39
2. Small (1 - 2 ha.)	13.43 (18.9)	16.07 (18.1)	17.92 (18.5)	19.28 (11.9)	23.17 (14.1)	25.71 (15.6)	1.44	1.44	1.43
3. Semi-Medium (2 - 4 ha.)	10.68 (15.0)	12.45 (14.0)	13.25 (13.6)	30.00 (18.5)	34.65 (21.2)	36.67 (22.3)	2.81	2.78	2.77
4. Medium (4 - 10 ha.)	7.93 (11.2)	8.07 (9.1)	7.92 (8.1)	48.24 (29.7)	48.54 (29.6)	47.14 (28.6)	6.09	6.04	5.96
5. Large (10 ha above)	2.77 (3.9)	2.17 (2.4)	1.92 (2.0)	50.06 (30.0)	37.71 (23.0)	33.00 (20.1)	18.07	17.41	17.21
6. All	71.01 (100)	88.8 (100)	97.16 (100)	162.14 (100)	163.80 (100)	164.56 (100)	2.28	1.84	1.69

Source : Agricultural Census.

during the same period. Though even marginal and small holdings sell some of their produce, most of them are net buyers of food and as such do not have net marketable surplus. The demarcation line at 2 hectares is only an average, since smaller irrigated holdings can have net surplus, while larger holdings with even 6 hectares in semi-arid tracts need not have such a net surplus. It is a matter of concern that the base of net marketable surplus which is a source of capital formation is steadily declining in size (Nadkarni, 1980).

This leads us to another interesting feature of our agrarian structure, - absence of extreme polarisation. The picture is not one of a small proportion of landlords employing a large army of landless labour. Though there is inequality in the distribution of holdings particularly if landless labour are included, it is striking that cultivators have always outnumbered agricultural labour. This was so even after the 'land reforms' in the sixties when

millions of tenants were expropriated and converted to the status of agricultural labour. The classification of agricultural workforce, defined in terms of their main activity status, is presented in table 4. The table shows, however, that though the proportion of cultivators is significantly larger than that of agricultural labour, the former is steadily declining while the latter is practically constant. Any way, the fact that agricultural labour are overwhelmingly outnumbered by cultivators, not only aggregatively but practically in every village, is a great deterrent in the effective organisation of labour when it comes to increasing their bargaining power vis-a-vis cultivators. It explains partly at least why no lobby of agricultural labour has not developed, while farm lobby is a force to reckon with.<sup>2</sup>

**Table 4 : Agricultural Workers in India  
(Defined in Terms of Main Activity)**

Census Year	Cultivators (million)	Agric. Labour (million)	Percentage to All Main Workers	
			Cultivators	Agriculture Labour
1971	78.3	47.5	125.8	43.4
1981	92.5	55.5	3784.6	22.7
1991	110.6	74.6	125.2	38.8

Source: Census of India for respective years.

### Rural Poverty

The existence of poverty among a significant portion of cultivators is real and at times harsh as well. The number of small and marginal cultivators (whose secondary activity could be agricultural labour) is large and they account for a significant

2. One reflection of this is that the Report of the National Commission on Rural Labour not only remains unpublished even after more than two years of its submission, its findings and recommendations are also hardly made known outside. Compare this with the attention which Bhanu Pratap Singh Committee Report received. A more serious reflection is that while farmers are represented on the Agricultural Costs and Prices Commission, rural labour are not.

proportion of the rural poor. Both the incidence of poverty among agricultural labour and their share in total poor households in rural areas are larger than among cultivators. In fact, the incidence of poverty among rural artisans also is higher than among cultivators. It is necessary to understand the structure of rural poverty for framing proper policies for poverty alleviation. Table-5 sheds light on this. Agricultural labour households show maximum poverty as well as unemployment.

**Table 5 : Structure of Rural Poverty (as in 1983)**

Household (hh) type	Percentage share in all rural hhs	Incidence of poverty within each hh type	Percentage share in all rural hhs below poverty line	Percentage share of each hh type in the total number of unemployed persons days
1. Self-employed in agriculture (cultivators)	40.7	24.1	32.0	16.3
2. Self-employed in non-agricultural operations	11.7	26.9	10.3	8.5
3. Agri. Labour hhs.	30.7	45.5	45.6	59.5
4. Other Labour hhs.	6.6	27.9	6.0	10.2
5. Other rural hhs	10.3	18.3	6.1	5.4
6. All rural hhs	100.0	30.6	100.0	100.0

Source: Dev et.al., 1991 : 58.

It is mainly due to poverty among marginal cultivators and agricultural labour who together form a major portion of the rural society, that the incidence of poverty in rural areas has always exceeded that in urban areas. Thus the Planning Commission's estimates of poverty in 1977-78 was 51.2 percent of the rural population, and 38.2 per cent of urban population. The significant decline reported in the overall incidence of poverty from 48.3 per cent to 37.4 per cent of the total population between 1977-78 and

1983-84 did not reduce the difference between rural and urban areas in this respect. In 1983-84, the proportion below poverty line was reported to be 40.4 per cent in rural and 28.1 per cent in urban areas. The heartening aspect of the picture is that both areas experienced a decline almost equally.

Another estimate of population below poverty line (Dev at.al. 1991: 37, 42, 48 & 50), placed it at 32.8 per cent in rural India in 1983 and 25.6 per cent in 1986-87. Accordingly, the absolute size of the poor in rural area was 153 million in 1986-87 compared to 203 million in 1970-71. The decline thus has been both in the proportion and absolute size of the poor. Moreover, the decline in poverty was not only in terms of the head-count ratios, but also in terms of Sen's Poverty Index. Not only poverty, but what is more, even rural inequality measured in terms of Lorenz Ratios of Rural Consumption Distribution declined between 1977-78 and 1986-87. An interesting aspect of the poverty situation in India is that it showed a significant increasing trend during the period 1957-58 to 1968-69, followed by an even more significant declining trend during the period 1969-70 to 1986-87 both in terms of head-count ratio and Sen's Index. The rate of decline in the subsequent period was more than the rate of increase during the first period (Ninan, 1992).

### **Factors Behind Poverty and Poverty Alleviation**

We should, however, understand the factors that have contributed to the decline in poverty and factors that aggravate it. The declining trend could even be reversed depending on which factors operate more now.

Basically, development strategies which increase employment opportunities and wage income are effective in reducing poverty levels. Agricultural development has thus a vast potential of reducing poverty by providing gainful employment and thereby food security to millions. An increase in agricultural production especially in foodgrains, has been recognised as an important

factor in contributing to reduction in poverty (Ahluwalia, 1978 and 1985). This is not so much because of increased physical availability of food as such, as because of the generation of employment and increased purchasing power and its 'trickle down' effect. On the other hand, an increase in the index of consumer prices, especially of foodgrains, has aggravated poverty. Inflation has a particularly adverse impact on the poor (Radhakrishna and Sarma, 1975). This is so even regarding poverty among cultivators. An increase (or decrease) in the consumer price index for agricultural labour was found to be a statistically significant factor in increasing (or decreasing) the incidence of poverty among farm families in Haryana. This is not surprising because the bulk of even the cultivators, as they operate small holdings, are net buyers of food (Paul, 1990). Another recent study has demonstrated through regression analysis that a one per cent increase in per capita cereal output reduces rural poverty by 0.62 per cent, while one per cent rise in the relative price of cereals lagged by one year increases rural poverty by as much as 1.06 per cent (Bhattacharya et.al., 1991 : 133). In so far as an increase in agricultural production has a dampening effect on consumer prices, both would have a reinforcing effect on reduction in poverty.

Ninan's study based both on time-series and cross-section (inter-state) data confirmed the poverty alleviating effect of agricultural growth and poverty aggravating effect of price inflation. Though they still remained the major factors, the study also brought out the poverty alleviating effect of the public distribution system and the level of infrastructure development in rural areas. On the other hand, rural population pressure on agricultural lands and inequality in rural consumption were positively related with poverty levels (Ninan, 1992).

Unfortunately, however, there are also indications of institutional conditions such that the inverse relation between the incidence of poverty and agricultural production is found to have weakened. This was shown to be the case by Gaiha's study involving two cross-sections of rural estimates by States from 1977-78 and 1983



respectively. The profitability of the (green revolution) technology in question precipitated the leasing of arable land, eviction of tenants and exorbitant hike in land rents etc. by large landlords in rural areas resulting in the lowering of income from cultivation among the impoverished. Alongside, the nature of the technology itself (eg. mechanisation of agricultural operations), together with the strengthening of monopsonistic elements in rural labour markets, tended to dampen shifts in the demand for labour as also in agricultural wage rates'. (Gaiha, 1991 : 124). To this we may add that downward rigidities have emerged in agricultural pricing due to the procurement prices being continuously increased which seem to impart a further push on market prices. As such an increase in agricultural production need not any longer result in a corresponding decline in relative prices; and the poor are denied the benefit of even this effect. On the contrary, inflationary trends have dominated the economy particularly raising the food prices and consumer prices (see Table 6). Though the rates of inflation show some decline during 1992-93, the overall situation is still alarming. The picture is made further complex because in the efforts to reduce inflation, government deficits are being curtailed,

**Table 6 : Inflation Rates (Per cent Change in the Index Numbers  
On an average basis)**

<b>Wholesale Prices</b>	'88-89	'89-90	'90-91	'91-92	'92-93#
All commodities	7.5	7.5	10.3	13.7	10.6@
Food Articles	9.9	1.3	12.0	20.2	13.7@
<b>Cost of Living Index</b>					
Industrial Workers	9.1	6.6	11.2	13.5	11.7\$
Urban non-manual	8.2	6.9	11.0	13.5	12.9*
Agric. Labourers	12.7	5.4	7.6	19.3	21.5*

Source : Reserve Bank of India.

- # provisional.
- @ upto January 16, 1993.
- \$ upto November 1992.
- \* upto August 1992.

and in such a process, the axe falls almost invariably on social and infrastructure development and on food subsidies. To the extent that they had some impact in terms of reducing poverty, a further decline in poverty may be doubtful, unless the development strategies are such that their beneficial impact on poverty reduction can more than compensate for the reduced role of direct State support to the poor. Since the prospect for such strategies are also not extremely bright, government deficits would have to be reduced in ways that do not curtail direct State support for poverty alleviation programmes and for infrastructure and social development.

### **Production Trends**

Though the inverse relationship between agricultural production and incidence of poverty seems to have weakened, this is not a pointer to the diminished need for increasing production. In fact growth strategies have to be such that negative institutional features are checked and there is increasing capacity for employment generation and increasing real wage levels. The growth of the rural non-farm sector which could generate significant employment opportunities within rural areas is driven primarily by agricultural growth (Hazell and Haggblade, 1991 : 522-7). In spite of a diminished share in GDP originating from agriculture, agriculture has an important bearing on the general economic well-being. However, the performance of Indian agriculture, though much better than before Independence, has been modest. A substantive study by Ahluwalia (1991) shows that whichever indicator is chosen, the growth rate has been below 3 per cent per annum during the period 1950-51 to 1988-89. The GDP originating from agriculture increased at a mere 2.3 per cent per annum, while the value of output measured by the Index of production of all crops increased at 2.5 per cent per annum. The foodgrains output increased at only a slightly higher annual rate of 2.6 per cent. What is more, there was no indication of a statistically significant upward break between 1968-77 and 1978-88, nor even between the Pre-Green Revolution period (1949-65) and the Post-

Green Revolution period (1967-88). Other developing countries like Burma (4.8%), China (4.3%), Thailand (4%), Malaysia (4%), Indonesia (4%), Philippines (3.9%), Pakistan (3.6%), and Sri Lanka (3%) showed higher growth rates of GDP from agriculture. They also showed a significant break between the last two decades (except Indonesia) (Ahluwalia, 1991 : 606 & 618).

Though the rate of growth during the eighties has been more or less the same as it has been since the mid-sixties, this has occurred inspite of a marginal decline in area due to improvement in yields. What is particularly heartening is that the traditionally stagnant area - the Eastern Region - has been witnessing a rice revolution. This region recorded a growth in rice output to the extent of 4.2 per cent per annum, which is almost comparable with the wheat revolution in the north during the sixties and seventies. This growth has been mostly due to increase in yields rather than area and was in evidence more in West Bengal and Bihar and to some extent in Orissa, but not in Assam. Crop-wise, while rice, wheat and oilseeds surged forward during the eighties, there was stagnation in the production of coarse cereals, pulses, cotton, jute and sugarcane (whose growth rates were not statistically significant). There was even a significant declining rate in area under coarse cereals and cotton (Saggar and Raghavan, 1989). Taking the agricultural economy as a whole, the net value added from agriculture at constant (1980-81) prices per hectare of net sown area increased from Rs.2,861 in 1980-81 to Rs.4,024 in 1989-90, recording an increase of nearly 41 per cent.

The rate of growth in population in India since Independence has been at about 2.1 per cent per annum. Hence only a slight increase in per capita availability of foodgrains was made possible. A record production of 176.2 million tonnes during 1990-91 is expected to have raised per capita net availability of foodgrains above 500 grams per day for the first time to 509.9 grams in 1991 as per the latest (1991-92) Economic Survey of the Government of India. This is not spectacularly higher than the Pre-Green Revolution peak of 480 grams per capita per day in 1965. What is

worse, per capita net availability of pulses (included in foodgrains), the main source of proteins for the masses, has been declining significantly being only 39.7 grams per day in 1991 compared to 61.6 grams per day in 1965. The production of pulses has been practically stagnant, with fluctuations therein between the years over the four decades. Yet, taking foodgrains as a whole, one could say that we have reached self-sufficiency in them, although during droughts, imports have been occasioned to keep buffer stocks adequate and to meet contingent shortages. If the per capita net availability as in 1991 has to be maintained, a growth of production equal to the rate of growth of population (over 1990-91 as base) plus a little extra to meet wastage and to build buffer stocks, would be the minimum necessary as far as foodgrains are concerned. But if our goal is to promote per capita real income per worker in agriculture, absorb the unemployed and even export a little, higher growth rates and crop diversification would be necessary.

There are still problems, however, in achieving a better regional spread in agricultural production and its growth. Since the HYVs are by and large limited to rice and wheat, and are yet to make an impact on coarse cereals and pulses, the green revolution has still been by-passing the semi-arid rainfed tracts growing these crops. There does not appear to be any major breakthrough in developing HYVs suitable for the diverse rainfed regions. The co-efficient of variation in per capita production of cereals as between States had shown some decline in the early sixties, but has risen from 54 per cent in 1970-71 to 84 per cent in 1988-89. Fortunately, however, not only is the co-efficient of variation in per capita consumption of cereals much lower (only 12 per cent during the eighties) than in production, it has also declined, even if marginally compared to the sixties (Krishnan, 1992 : 2485). This, however, does not reduce the need for reducing disparity in agricultural development, though it is not necessary for each State to become self-sufficient in foodgrains. Movement of foodgrains across borders may reduce disparity in consumption, but not necessarily in incomes in rural areas unless lack of growth in foodgrains is offset by development in other sectors.

Canal irrigation could play an important role by spreading agricultural development to areas otherwise poor in water resources. Unfortunately inefficient management and wastage of water have come in the way of reaping the full benefits of this resource. Let alone new investment, existing structures are not used to capacity. The pricing mechanism and the distributive system are also such as to stimulate wastage of water. Probably, a shift from bureaucratic management to participatory management involving farmers could raise the productivity of this resource and help in reducing inter-regional disparities in agricultural development.

### **Investment in Agriculture**

In view of the falling rates of capital formation in agriculture during the eighties, there is now a fear over whether even the modest growth performance in agriculture would be maintained in future (Shetty, 1990; Kumar, 1992). The proportion of agricultural investment (gross capital formation) in GDP from agriculture increased in real terms from a mere 5.5 per cent in 1960-61 to 8.0 per cent in 1969-70 and further to 13.1 per cent in 1979-80.<sup>3</sup> Thereafter, it is a picture of almost continuous fall, the proportions being 10.4 per cent in 1980-81 and 7.4 per cent in 1989-90. A perplexing aspect of this behaviour is that the rate of capital formation in agriculture continued to rise during the seventies when the terms of trade of agriculture declined, but started falling even when they turned favourable. The terms of trade do not seem to exercise much influence on this. It is more likely, however, that it depends on the behaviour of government investment in agriculture, which is an exogenous factor subject to fiscal stresses and strains which became acute during the later eighties.

The proportion of public investment in total agricultural investment has declined from 38.7 per cent 1980-81 to 27.0 per cent in

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3. The figures of capital formation including the proportions mentioned in this para are based on constant (1980-81) prices.

1989-90. In absolute terms also, there has been a steady fall in public investment in agriculture from Rs.1796 crores in 1980-81 to Rs.1169 crores in 1989-90 (at 1980-81 prices). On the other hand, private investment in agriculture increased from Rs.2840 crores in 1980-81 to Rs.3165 crores in 1989-90 (at 1980-81 prices) during the decade; it is however, marked more by fluctuations than a trend. The increase in private investment was not significant enough to offset the decline in public investment. It is poignant to note that the decline in capital formation has occurred though there was no such trend in the aggregate capital formation in the economy. At the aggregate level, capital formation was 21.1 per cent of GDP in 1980-81 and 23.5 per cent of GDP in 1988-89, though this does not indicate a trend as such due to fluctuations ranging upto 26.3 per cent during the period. Due to the lower capital output ratio in agriculture, it is not expected that capital formation should be at the same rate as in the total economy. The concern is about the fall.

This fall is also reflected in the proportion of plan outlays on agriculture. The relative priority which agriculture, received in the First Plan (1951-56) has not been repeated again. The proportion of Plan expenditure (as per cent of total public sector expenditure) on agriculture, irrigation, rural development, flood control (and Special Areas Programme) which was 36.9 in the First Plan fell in the very next to 20.7 (1956-65). It was stepped up subsequently to 24.9 per cent during the Sixth Plan (1980-85), but dropped again to 22.0 per cent during the Seventh Plan (1985-90), and further to 20 per cent and 20.4 per cent during the the plan years of 1990-91 and 1991-92 respectively. This share has been raised to 22.2 per cent during the Eighth Plan (1992-97), slightly exceeding the Seventh Plan level. There is fortunately no decline in absolute terms. But proportionately, there is now less resource flow to agriculture from Plan Outlays. This may be defended on the ground that the proportion of GDP from agriculture has declined over the years. But considering the continuing dependence of the bulk of our workforce on it and relatively lower income per worker in the sector, a greater proportion of public sector outlay ought to have gone to it than it has received. Another justification for this is that

capital output ratio in agriculture is lower compared to other sectors, resulting in higher value added from a given unit of investment.

### **Credit Flows to Agriculture**

We get a somewhat similar picture about credit flow to agriculture. There has been no decline in absolute terms in the credit flow to agriculture, but as a proportion of total bank credit, credit to agriculture has somewhat declined from 15.8 per cent in June 1988 to 14.2 per cent in June 1992.<sup>4</sup> It is pertinent to recall, however, that this proportion was as low as 1.5 per cent in June 1969, which subsequently increased to 5.9 per cent in June 1975 and 13.8 per cent in June 1985. Table 7 presents statistics on direct institutional finance to agriculture and allied activities during recent years in terms of loans issued. The Report of the Agricultural Credit Review (Khusro) Committee set up by the Reserve Bank of India has observed, "even after correcting for inflation, the real terms growth in the deposits as well as loans of nearly all of the credit systems (to agriculture) has been positive and in case of commercial banks quite impressive". The committee has however observed that in spite of this quantitative expansion, the credit system has suffered from four major weaknesses : (i) weak recycling of credit, (ii) poor deposit mobilisation, (iii) ineffective lending, and (iv) poor loan recovery (RBI, 1989 pp. 11-15). The weaknesses are so serious that the credit system for agriculture is not sustainable on its own, and unless continuously propped up by the State by committing vast resources from outside the system, it will crash. The decline in productivity and efficiency of the credit system especially in agriculture, therefore, came under attack by the Narasimham Committee (RBI, 1991). The weakness of the credit system, however, cannot be judged only from the angle of overdues which are no doubt very high in relation to demand. There is also a borrowers' angle, and the tendency to grant loans only to meet a part of the cost involved, the practice of arbitrarily

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<sup>4</sup> Source : Reserve Bank of India.

**Table 7 : Direct Institutional Finance for Agriculture and Allied Activities**

Loans Issued during the year (July-June) (Rs. crores)

	'86-87	'87-88	'88-89	'89-90	'90-91	'91-92
1. Cooperatives	3701	4710	4873 <sup>P</sup>	5453 <sup>P</sup>	5392 <sup>P</sup>	..
2. State Govts.	210	478	275	292	359 <sup>P</sup>	398 <sup>P</sup>
3. Scheduled Commercial Banks (excluding RRBs)	3324	3526	3814	4282	4676	
4. Regional Rural Banks	477	483	420	647	284 <sup>R</sup>	515 <sup>P</sup>
5. Total Direct Finance (1) to (4)	7720	9198	9381	10675	10710	

P: Provisional. R: Revised

Source: Reserve Bank of India.

cutting short the maturity period of repayment of loans much below NABARD recommendations, inadequate initial grace period and such other factors have aggravated borrowers' woes (Kahlon, 1991). Thus, inspite of pumping more credit into agriculture, the quality of credit has not improved.

Credit flows to agriculture and the rural sector have also tended to be concentrated in a few regions and on well-to-do farmers and businessmen in rural areas. Regionally, the northern, southern and western states had the highest credit disbursement per hectare, the eastern and central states used less than half. In aggregate terms, eight States (Andhra Pradesh, Tamil Nadu, Karnataka, Kerala, Punjab, Haryana, Gujarat and Maharashtra) received a substantial proportion - about 70 per cent of total commercial bank credit advanced for agriculture in recent years.<sup>5</sup> Concentration of credit in advanced regions is no doubt due to the greater financing

5. On the basis of information provided by Reserve Bank of India.



opportunities available in these States but this situation of regional imbalance in credit could be corrected only when regional imbalance in agricultural development is reduced by large scale public investments in the regions which are relatively backward.

### **Prices, Procurement and Profits**

Supply response studies have generally shown that agricultural output is much more responsive to availability of the right technology and inputs like irrigation and fertiliser, than merely to price. Both short run and long run price elasticities of supply have been shown to be less than unity (see for example a recent study by Gulati and Sharma, March 1990, for rice and wheat, which is in line with earlier studies). Price policy, however has to play a supportive role though not as a prime instrument. If the price regime is discouraging, technology adoption can be slow. In India, price incentives are offered both by continuously increasing procurement prices in line with changes in costs and terms of trade, and by increasing input subsidies.

Indian agriculture is marked by extensive and significantly large subsidies on fertiliser, credit, irrigation, and electricity. While fertiliser prices were held fairly stable upto 1990-91, subsidies on fertilisers increased from a mere Rs.375 crores in 1981-82 to Rs.5205 crores in 1991-92, though it was cut to the level of Rs.4,000 crores in the 1992-93 budget, allowing some decontrol and rise in fertiliser prices. Subsidies on irrigation, electricity and credit are not so open in the budget accounts, but are estimated to be quite substantial (Gulati and Sharma, 1991 : 228-230).

It has however been alleged that though there are substantial subsidies on inputs supplied to agriculture, the prices of agricultural produce are also deliberately suppressed. The compulsory procurement system, the purpose of which is to meet the needs of the public distribution system and to build buffer stocks, is particularly blamed for this, as being responsible for denying market prices to farmers. We have to recall, however, that there is

only a partial procurement<sup>6</sup> and when a part of the demand is met at less than market prices, there is an upward pressure on the free market prices. Procurement also introduces a downward rigidity to market prices and whenever procurement prices are increased, they exert an upward pressure on free market prices. Dantwala argued long ago that the weighted average of procurement and free prices under a system of partial procurement would be more than the prices that would have prevailed in the absence of the system (Dantwala, 1967).<sup>7</sup> Ironically, it is precisely the only two crops which figure prominently in procurement - wheat and rice, which have shown more spectacular growth. This would show that the price regime in the context of procurement has not been such as to discourage technology adoption. Nevertheless, there is a strong feeling among farmers that despite subsidies, farmers are denied the proper prices due to them.

In the absence of a visible free market equilibrium price that would have prevailed in the absence of State intervention, recent research has tended to take international prices as a reference or a standard to assess whether domestic prices are subsidised or depressed. The crops are said to be subsidised ('taxed') if they receive higher (lower) domestic prices for their products than international prices. Direct transfers to agriculture and indirect transfers such as input subsidies are also taken into account. Thus a Producer Subsidy Equivalent is estimated as follows:

$$PSE = \frac{Q(P_d - P_w * X) + D + I}{Q * P_d + D}$$

6. Only rice and wheat figure prominently in procurement of foodgrains. Thus in 1990-91, of the 24.15 million tonnes of foodgrains procured (which formed 13.7 per cent of their total output during the year), rice accounted for 12.92 million tonnes and wheat 11.06 million tonnes. As proportions of the respective output of the two crops, their procurement was only 17.3 per cent for rice and 20.3 per cent for wheat in 1990-91. Procurement operations have, however, increased : it accounted for only 6.3 per cent of the output of foodgrains in 1965-66, which is less than half of the current proportion.

7. There is a long list of scholars to support this both theoretically and empirically (eg. Krishnaji, 1973; Mitra, 1977; Venkataraman, 1979 : 223-26; Subbarao, 1979).

Where Q is the quantity of production of a given commodity; Pd is the relevant domestic price; Pw is the international price in world currency units; X is exchange rate; D is direct transfers to producers; and I is indirect transfers (input subsidies). A merit of this formula is that it does not stop at merely a comparison of domestic with the world prices, but also takes into account direct transfers and subsidies on tradeable (eg. fertilisers) and nontradeable (eg. irrigation) inputs. A few studies for India are already available which have made use of this concept (Gulati and Sharma, 1991 and 1992; Sharma, 1992).

In a cross country comparison using this formula for the period 1982-87, it was found that Indian agriculture was 'net taxed' only to the extent of 2.33 per cent, while at the extreme there was the case of Columbia with a net 'tax' of 54.5 per cent. Even Pakistan net 'taxed' its agriculture to the extent of 21.8 per cent. On other side, developed countries net subsidised or protected its agriculture. At the extreme, there was Japan with a net subsidy of 72.5 per cent. European community (except Spain and Portugal) net subsidised to the extent of 37 per cent, USA 26.2 per cent, and Canada 33.5 per cent. (Gulati and Sharma, 1992 : A-108).

PSE, however, differs from crop to crop, and also depending upon whether a commodity in question is assumed to be an exportable or an importable. Under the exportable hypothesis, the crop in question competes at a foreign port; since transport has to be borne by the exporter and still compete at the world price, the reference price is world price minus transport costs, insurance etc. Under the importable hypothesis, the crop in question has to compete with imports at prices with transport and insurance costs added to world prices. Thus, a PSE for a crop can show a positive value (that is, subsidy) under exportable hypothesis and a negative value (that is, tax) under importable hypothesis, because a competitive export price would always be lower than competitive import cost. Or at least, the extent of subsidy would be shown to be higher and extent of tax lower under the exportable hypothesis than under importable hypothesis. The question of which hypothesis is

relevant would depend upon whether we are considering exports of our commodities, or imports are proposed. Now that there is some discussion about further stimulating exports from agriculture, it may be said that having passed through the import stage and reached self-sufficiency at least in food grains, the exportable hypothesis would be more relevant. Significantly, Indian agriculture is now a net exporter and not an importer. Net exports of agriculture (after deducting the value of imports) increased from Rs.763 crores in 1980-81 to Rs.5190 crores in 1990-91, though as a percentage of total exports the agricultural exports have declined (Singh et.al., 1992). Yet, the importable hypothesis is used more than the exportable, because in the case of wheat we have tended to import rather than export even if marginally. This may have to do with the perception that it would be more agreeable to show that Indian agriculture is net taxed rather than net subsidised.

Thus, on the basis of importable hypothesis, P K Sharma (1992) shows that the average value of PSE for rice for the period 1980-81 to 1991-92 in India turned out to be in -6.49 per cent taking wholesale prices for domestic prices, and -43.62 per cent taking procurement prices for domestic prices. The respective values for wheat turned out to be -16.48 and -31.07 per cent. Thus, both show a position of being net 'taxed' (Sharma, 1992 : 345). Interestingly, the magnitude of 'taxation' has significantly increased in 1990-91 and 1991-92, not so much because actually more revenues are squeezed out of the farmers by the government, but because the drastic fall in the exchange value of the rupee has inflated international prices in terms of rupees. This also dramatically exposes the weakness of the PSE as an index of taxation. It is vulnerable to fluctuations not only to world prices which are volatile enough but also to exchange values. The developing countries are particularly prone to depreciation of their exchange rate. No wonder, most of the developing countries show 'net tax' status for agriculture. The exchange rate is no indicator of the purchasing power parity. For example, what about comparative wage levels? If world prices are good enough as reference points,

why not world levels of wages? Do not Indian farmers get their labour at a much cheaper rate than anywhere else? If PSEs are mechanically interpreted and political significance is given to 'net tax' status, it would be misleading. They do not necessarily mean that the domestic prices have to be increased to the extent that the 'net tax' is wiped out. That would be the surest way to wipe out any export advantage for Indian agriculture, particularly since PSEs are calculated often under 'importable hypothesis'. Even if a net tax status is found under exportable hypothesis, it is more indicative of an export opportunity rather than of any need to jack up domestic prices. An equilibrium price in one market for a commodity need not be at equilibrium for the same commodity in another market, when the two markets are very different. There are also doubts whether world prices are after all the result of a competitive equilibrium.

In spite of the limitations of PSE pointed out above, the concept has some economic significance if interpreted cautiously. It would indicate that, more resources need to flow into the production and promotion of commodities which show a net tax status, while a net subsidy status would indicate commitment of excess resources to the commodity which could as well be diverted to commodities showing net tax status. This would also apply to regions. Thus if certain regions or states show a net tax status, more resources should flow into them. If on the other hand they show net subsidy status, they could do with forgoing some resources for diversion elsewhere. If Indian agriculture as a whole shows net tax status, as it does in fact, it would indicate that more resources should flow into it. However, the concepts of PSE and comparative advantage are static and do not indicate long term technological possibilities. Besides, certain goods may be considered politically so important that self-sufficiency is sought in them even at the cost of some protection. Nevertheless, the political gain has to be weighed against economic costs, - a judgement more in the realm of politics than economics.

The studies by Gulati and Sharma (Sept 1990, and 1991) are, however, useful at least in indicating trade opportunities in the

short run. Under the exportable hypothesis, wheat, rice, groundnut and sugarcane come out with a net subsidy status, but not cotton. Cotton was found to have a comparative advantage needing promotion. On the other hand oilseeds and sugarcane are heavily 'net subsidised' both under exportable and importable hypotheses. A policy of import substitution is followed in the case of oilseeds, but it has to be examined if their additional production is by replacing crops which have a better comparative advantage, or if instead it would be more worthwhile to import additional needs of edible oil which is much cheaper in the world market than here. Coming to sugarcane, apart from its purely economic costs, it consumes a lot of water at nominal charge and is not environmentally sustainable at its current rate of use of resources. Obviously, it is one of the crops where there is a great need for improving resource use efficiency and reducing subsidies. As between states, surplus states are found to have been more subsidised. More resources need to go to the eastern region and semi-arid tracts in the south.<sup>8</sup>

The net 'tax' status of a sector or a crop is no indicator of lack of its profitability which needs separate assessment. A crucial question is whether problems of Indian agriculture have to do with profitability. We have to realise that a system as in India can have a bulk of its product produced profitably by a smaller proportion of farmers, and yet a major proportion of farmers may not make a decent living as they do not have viable holdings and as such not much to sell. A low income per capita by itself does not indicate low profitability of the sector. Nevertheless, prices and yield rates have to ensure enough gross income that would cover not only paid-out costs but also imputed interest on own capital, and imputed cost of family labour, and generate profits. The cost of

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8. A recent study of regional spread in subsidies on agricultural inputs, identifies and classifies states according to the level of subsidy and rate of growth. There are States like Uttar Pradesh and Punjab which have received a major portion of subsidy and also show high growth, where subsidies could be significantly reduced without much adverse effect. On the other hand, there are also States which have received low subsidies and also low growth like Orissa and Assam, where additional State support may be needed to stimulate growth (Reddy and Deshpande, 1992).

family labour is now imputed on the basis of minimum or actual wages whichever are higher. The comprehensive concept of costs, C, includes not only these but also imputed rent on own land, which really is not a cost but a part of the surplus. Following S R Sen Committee's recommendations in 1980, a distinction is now made between Cost C<sub>1</sub> which excludes imputed rent on own land but includes other costs, and cost C<sub>2</sub> which includes rental value of owned land.

In terms of full or comprehensive cost of production (C), both rice and wheat were not profitable to grow in the major producing states till the middle of the sixties though paid-out costs were covered (Tyagi, 1990 : 74). However the picture improved thereafter and both procurement and farm harvest prices improved substantially, especially in comparison with the prices of other crops. There was no problem in covering paid-out costs and imputed cost of family labour. Even in terms of the comprehensive Cost C, the implicit (farm harvest prices) prices have covered these costs. Procurement prices have covered even these comprehensive costs in the case of wheat, but could not always do so in the case of rice and jowar due to fall in yields in bad years. Generally they have exceeded costs (Nadkarni, 1987 : 189-197; Gulati and Sharma, March 1990 : A36-37).

The position during the first half of the eighties (the latest three years for which data are available) is shown in table-8, in terms of the rates of profit calculated both over cost C<sub>1</sub> and cost C<sub>2</sub>. They are shown for principal crops and also principal States producing them. They seem reasonably good rates of profit, and do not indicate a crisis of profitability as such. Both paid out and imputed costs and overheads are more than covered. The profitability is much higher when calculated in terms of cost C<sub>1</sub> which is a more realistic position of the surplus, since rental value of own land is not included as a cost in this concept. But barring a few cases, even the rate of profit over cost C<sub>2</sub> could be considered as fairly satisfactory. The rates of profit here are calculated in terms of farm harvest prices implicit in the cost of cultivation data, and cover the value of main product and also by-products.

Though procurement prices have generally covered full costs and also act as guarantee prices below which market prices do not fall, there is always a sense of deprivation so long as they are lower than market prices. If procurement prices were to be support prices only, there is no need for compulsion in procurement. But it appears that there is compulsion, and traders are reported to be not allowed to bid in the mandis in the procurement season in the case of wheat till the Food Corporation of India achieves its procurement targets.<sup>9</sup> In other words, though procurement of wheat is in principle at 'market prices', in practice it is not. There have also been attempts to keep market prices a little depressed in surplus states by imposing restrictions on the movement of food-grains by private trade so that procurement is made easy, which are relaxed after the procurement season is over. Inter-State movement of paddy is more regulated and is subject to permits issued. At times no permits are given for such a movement and private trade across State borders is totally prohibited as done by Andhra Pradesh. In spite of this, a lot of movement takes place, obviously through smuggling and bribery. Though on the whole it is difficult to blame unremunerativeness of market prices as being responsible for a low level of per capita relative income in agriculture, a fall in its capital formation, and its modest growth performance, there are nevertheless quite some irritants in the procurement system. The transaction costs caused by such irritants may jack up prices, but are not included in Costs C<sub>1</sub> or C<sub>2</sub> as accounted in the cost of cultivation studies. To that extent, the real profitability may be lower than what is indicated in table-8 in the case of paddy and wheat.

The procurement system has been a source of harassment both in the case of rice and wheat, particularly the former. Procurement is in the form of a levy on rice mills in Karnataka and not directly on the farmers, but the mill owners shift the levy burden on to the farmers. They can do so because rice mills are not mere processing

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9. This is the impression the author has gained from discussions with a number of agricultural economists of India and delegates from the Northern part of India during the 52nd Annual Conference of the Indian Society of Agricultural Economics at Coimbatore, December 1992.



**Table 8 : Rates of Profit in Selected Crops and States**

Crop	State	Period Covered	Average Rate of Profit (%) Over	
			Cost C <sub>1</sub>	Cost C <sub>2</sub>
Paddy	Andhra Pradesh	81/82 - 83/84	51.6	7.7
	Assam	84/85 - 86/87	44.8	11.0
	Bihar	81/82 - 83/84	110.2	24.4
	Orissa	83/84 - 86/87	71.4	24.0
	Punjab	85/86 - 87/88	63.0	20.1
	Tamil Nadu	79/80 - 81/82	53.7	17.3
	Uttar Pradesh	81/82 - 83/84	43.0	8.2
	West Bengal	82/83 - 84/85	68.4	20.1
Wheat	Haryana	85/86 - 87/88	65.0	27.0
	Madhya Pradesh	84/85 - 86/87	74.2	21.7
	Punjab	85/86 - 87/88	59.3	19.2
	Uttar Pradesh	83/84 - 86/87	59.8	22.8
Jowar	Karnataka	81/82 - 83/84	70.1	27.9
	Maharashtra	82/83 - 86/87	46.2	18.2
Gram	Madhya Pradesh	85/86 - 87/88	106.8	36.7
	Uttar Pradesh	84/85 - 86/87	90.0	32.5
Sugarcane	Maharashtra	83/84 - 87/88	79.3	39.5
	Uttar Pradesh	84/85 - 86/87	160.6	77.9
Groundnut	Andhra Pradesh	81/82 - 83/84	39.7	- 1.4
	Gujarat	82/83 - 86/87	47.4	19.4
Cotton	Gujarat	81/82 - 83/84	40.4	14.2
	Maharashtra	81/82 - 83/84	29.1	7.2

Source : Computed from *Cost of Cultivation of Principal Crops in India*, Directorate of Economics and Statics, Ministry of Agriculture, Government of India, New Delhi, 1991.

units; they also trade in rice. In Andhra Pradesh, the levy on rice mills was as high as 50 per cent. In other states, rice is procured in various other forms too. For example when it is brought to market yards, one-third of the sale is procured from traders. There is also a direct levy on large holdings in a few States. Often, procurement

gives an opportunity to traders and farmers to pass on inferior and broken rice under levy at a price higher than what it would have secured in the open market. The harassment arises where the difference between market price and procurement price is significant. The States are not bound by the price announced by the Central Government and often offer bonus and other incentives which reduce the difference between levy price and market price.

It would be interesting to illustrate how procurement of rice works in a system where levy price is significantly different from market price by taking the case of Karnataka. More than the open economic burden, the system has built-in guarantees for harassment - directly of millers and traders and indirectly of farmers.<sup>10</sup> Mills and traders are allowed permits for movement of rice only after the required procurement takes place from them. In Karnataka, one third of the rice milled has to be surrendered to the government at the levy price. All the stocks on different dates with the mills and traders have to be entered into their books of accounts every day. Since it is difficult in practice to enforce the requirement of one-third surrender, district-wise and mill-wise targets of procurement are fixed and tried to be enforced. Mills and traders can be prosecuted under provisions of the Essential Commodities Act for any contravention, apart from simultaneously facing civil proceedings and penalties. The system is used as a rent seeking device by corrupt officials. In practice, much less than one-third of the rice milled is procured.

It is not surprising if the millers and traders shift the burden of all this cost to the farmers and consumers. All these costs and the cost of administering the compulsory procurement system, must be contributing significantly to increase the spread between the consumer price and the price received by the farmers. Even if the public distribution system is taken as necessary for poverty

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10. In writing about this aspect of procurement, we have relied on the unpublished notes of Jos Mooij who did probing field work in Karnataka and Kerala for nearly two years ending mid-1992. The author is grateful to the scholar for sharing with us this knowledge (Mooij, 1991).

alleviation, it is hardly necessary to continue such a vexatious system of procurement. To feed the PDS, it would be more humane for all concerned if the government makes purchases in the open market at places and in seasons with the lowest prices. The procurement system as practiced has unsustainably high transaction costs, which is not healthy for the future growth of agriculture and of rice in particular.

### **Goals of Policy**

In formulating goals of agricultural policy and prioritising them, we have to keep in mind that it has to be primarily a policy for the welfare of people, particularly people in agriculture, and not one for production and growth per se. However, growth can be an objective of policy in so far as it creates income and employment opportunities and increases the welfare of people, particularly of those at the bottom. On the basis of our foregoing discussion of the context in which policy issues arise, we can indicate the following goals as relevant for agricultural policy.

- i) to increase the relative income per worker in agriculture and remove rural poverty;
- ii) to step up the rate of growth in agriculture and in net export earnings in ways that create income and employment opportunities for the mass of people in agriculture, and subject to environmental soundness;
- iii) to maintain self-sufficiency in food, and to provide food security both to the rural and urban poor;
- iv) to reduce urban-rural differences in the quality of life and in infrastructure and social development;
- v) to make agricultural growth economically and ecologically sustainable;
- vi) to make agrarian structure more egalitarian;
- vii) to provide greater price and income stability in agriculture;

- viii) to reduce regional disparities in agricultural development by encouraging resource-poor and backward areas to catch up with the more developed regions.

We have not mentioned above incentive prices, subsidies, land reforms, liberalisation, globalisation, stepping up capital formation and such other measures which are more in the nature of instruments rather than the basic objectives of policy. We turn now to a discussion of policy instruments and their suitability to tackle issues and goals of policy.

### III. ISSUES AND INSTRUMENTS

#### Land Reforms

The measures of liberalisation of the industrial economy introduced by the Government of India particularly since July 1991 have sometimes stimulated demands for similarly freeing agriculture from all regulatory mechanisms. Such mechanisms are said to be in the form of ceilings on agricultural holdings and restrictions on the purchase of agricultural land by persons with non-agricultural incomes and by companies. If the only goal of agricultural policy were to stimulate higher rates of growth in agriculture and for that reason greater flows of investment into agriculture by whosoever is best able to do so, policy making would have been relatively easy. Unfortunately for the advocates of such liberalisation, this is not so. Any strategy of growth which involves deprivation has to be ruled out. There is also no evidence to claim that a form of ownership and management of farm other than by a family enterprise is more efficient, cost effective or growth achieving. As such the entry of the corporate sector into agriculture has to be ruled out both on the grounds of production and social welfare. The same principle applies to gentleman farmers of the non-agricultural sector who divert their black money to acquire farm lands. In the context which, as we have described above, reflected a continuous decline in the relative income per worker, we cannot afford to sharpen further the

dualism of gentleman farming operating with hired labour on the one hand and residual or marginalised farming and proletarianisation on the other.

Let alone the question of removing ceilings and restrictions on the entry of non-agricultural persons into agriculture, it is on the contrary desirable to honestly enforce them. This should apply to urban real estate too. Unlike financial assets, land is a fixed and real resource, the distribution of which can not be allowed to be too skewed. There is no need to lower the land ceilings further; nor would it be politically feasible. But the existing legislation on ceilings has to be effectively enforced and the surplus redistributed among the landless and marginal farmers so that the agrarian structure is made more egalitarian. There are still large holders in States like Bihar and Andhra Pradesh who possess holdings several times larger than the imposed ceilings. Even if this fact is well known in the village or the tehsil, the land records would show that such holdings are split into several ownership holdings. Social and political workers should be encouraged to launch public interest litigation against the continuation and formation of large holdings above ceilings. Loopholes in the existing legislation should be plugged for this purpose.

Similarly, it is necessary to plug loopholes that enable businessmen, industrialists, film stars and other elite from the non-agricultural sector to buy farm lands to cultivate them as orchards, stud farms, etc. The size of such estates is often several times the ceiling limit, as ceilings are not applicable to orchards, plantations etc. This is hardly the way to attract investment into agriculture, and hardly serves the interests of people in agriculture. Normal residence within or near the village where the land is owned, should be a condition for ownership of land for households whose income is above a certain limit. There is of course another side of the coin. While farm families should be encouraged to diversify their sources of earnings by even entering non-farm sectors, persons who may originally have been farmers but have migrated and settled in urban areas and have started earning incomes above

a certain limit (say a lakh of rupees per year), should be made to give up their farm holdings either by gift or sale in favour of persons who continue to depend on agriculture. Insistence on residence as a condition for ownership of land, as suggested above, can be invoked to implement this. These suggestions may not totally solve the land problem or land hunger as such, but would certainly make the agrarian structure more egalitarian and give relief to beneficiaries who receive the lands released thereby. Imposition of ceilings need not lower overall productivity, since the evidence on the relationship between holding size and productivity shows that at best the green revolution has turned a negative relation into a neutral one, but not into a positive one. In any case, social justice and welfare, which are as primary goals as the growth itself, should get their due in terms of policy priorities.

Even if there are certain advantages which the large holdings have over small ones, it is the business of the State to see that such advantages accrue to the latter also, by ensuring proper and timely flow of credit, extension and input supplies. Tiny paddy cultivators in Kerala have been able to overcome the disadvantages of being small by group farming, without losing the identity and ownership of their individual holdings (Kumar, 1990). This is an example worth emulating elsewhere. The Group - rather than the individual holders - would be in a better position to effect land improvements, collectively purchase inputs on better terms and even for organising a proper technology transfer.

Another way of making the agrarian structure more egalitarian, keeping in our mind at the same time the need for incentives for investment, is through tenancy reform. It can serve as one of the useful measures necessary for poverty alleviation (Parthasarathy, 1991). The earlier tenancy reforms in some States have led to expropriation of tenants or pushed tenancy underground, particularly where it is prohibited by law. In such situations, the lot of the tenant is bound to be far more insecure. In cases where security of tenant is not already provided, it would be worthwhile to legally take cognisance of tenancy and protect the interests of both

parties. Though generally it is the large holder who leases out to the small and the landless, cases of reverse tenancy are also not rare (Nadkarni, 1976; Jodha, 1981). Thus the law has to be such that it protects the weaker party, whether it is lessor or lessee. This means that the law cannot be only 'pro-tenant' but even handed between the lessor and lessee protecting the interests of both. Wherever permanent security of tenancy is not already granted by law, it could recognise broadly two types of tenancy agreements - one, involving annual lease where the lessor invests in the fixed assets and the lessee invests in current inputs and labour; second, involving long term lease where the tenant himself can also invest in fixed assets. At the end of the period of the lease entered into an agreement and recognised by law, both the parties should be able to review, modify or terminate the agreement. This would bring in the necessary flexibility so as to encourage legally valid lease markets, which can be a significant redistributive measure and can also stimulate more investments by ending uncertainties inherent in oral tenancies.

### **Making the Small Viable**

Indian agriculture is becoming more and more dominated by marginal and small holdings, with both their number and area under them increasing over the years. As observed above, they constitute the majority of holdings. The solution to this problem is not confined to agriculture. Only the creation of adequate non-farm employment opportunities can reduce pressure on agriculture. However, there is scope within agricultural policy too. If it is addressed to the welfare of people in agriculture, it should give priority to solving the problems of these holdings.

It is thus important to see that the small and marginal land holders earn enough to lead a decent standard of living. Their economic viability should be understood thus in terms of providing a decent living standard, rather than narrowly in terms of meeting the costs incurred. Giving them irrigation facility is an important strategy, as it increases the productivity of small holdings. Fortunately,

small holdings already have a higher proportion of area under irrigation, and as such, not all of them are non-viable. The Bhanu Pratap Singh Committee has given considerable attention to the problem of making small and marginal holdings viable and has suggested several measures (India, 1990). These measures are mostly in the nature of raising the productivity of such holdings directly. Unfortunately both research and extension, particularly the latter, have a tendency to bypass the small and nonviable. This bias has to be corrected immediately. Incentives could be given to extension workers in their career to reward them for the effective attention they give to the small and non-viable.

We would also like to emphasise indirect ways of promoting the viability of the small and marginal holdings. One of them, as discussed earlier, is by recognising rather than banning tenancy so that the landless and marginal farmers can lease in additional area and have viable holdings. Impediments in granting credit to small tenants on their leased in area have to be removed. If a marginal holder can not lease in additional land and finds her holding, an impediment in taking up wage employment or another calling elsewhere, tenancy law should enable her to lease out her holding without a risk of losing ownership and the rental return on the land.

Another indirect way of helping the small is by improving and regenerating common property resources (CPRs) such as grazing lands, tanks, village wood lots etc., and giving proper access to the rural poor in managing and using them. The CPRs enable even the landless to maintain some animals, which otherwise only the landed families can afford. In the name of poverty alleviation, there is a tendency to allow and regularise the encroachment of commons which is more often done by the rich rather than the poor. Such 'gifts' of CPRs have significant opportunity costs which are borne by the poor. It should be a policy to see that every village has a certain minimum size of common lands and that they are productively maintained and sustainably used. The necessary institutions have to be encouraged at the village level for this



purpose involving particularly the rural poor who should be entrusted with collectively managing the common lands.

### **Food Security, Public Distribution and Procurement**

The first step in providing food security for all is to achieve and maintain self-sufficiency in foodgrains. We can not ensure entitlements to food without making food available at the same time, and this can not be done by imports in a country like ours. Even a marginal deficiency in a country with a huge population can inflate shortages and pressures on the price front. Since world markets are not stable, importing foodgrains can at times be costly. When a country like India enters world markets as a major importer of foodgrains, prices will not remain steady and will tend to go up. Besides, the political significance of having a comfortable position on the food front can never be undermined. We should better be marginal exporters and be able to meet the requirements of needy countries, rather than be importers of foodgrains. We have achieved overall self-sufficiency in foodgrains, having reached a per capita net availability of nearly 510 grams per day or 186 kilograms per year in 1991 (the highest so far). The growth rate in foodgrain production has to be such as to at least maintain this position over time, to build buffer stocks to meet shortages in bad years and if possible have some surplus for export. A growth rate of 3 per cent per annum from the level of 1991 in foodgrain production should suffice for this purpose. If a higher growth rate can be achieved, we should ensure the exportability of surplus both in terms of costs and quality. Exports of foodgrains should also be subject to a minimum net domestic availability of 180 kilograms per capita per year and maintenance of a proper level of buffer stocks.

The composition of foodgrains is also equally important. Though coarse cereals are consumed more by the poor and in semi-arid tracts, they have a lower income elasticity of demand than for rice and wheat. Unless coarse cereals are used as feed stuff for animal

husbandry,<sup>11</sup> they do not have as bright prospects as for rice and wheat. They still have some scope for growth in so far as there is significant poverty, and even if a lower estimate of a quarter of population is taken as being poor, it is not an insignificant proportion. There is however a stronger need to significantly step up the rate of growth of pulses. They are a cheaper source of protein than milk, meat and eggs and play an important role in maintaining the nutritional quality of the diet of the vast masses. It would be necessary to raise the per capita availability of pulses from the present level of only 40 grams per day (or less than 15 kgs per year) to at least 60 grams per day (or 22 kgs per year) - a level which prevailed before the Green Revolution. This could also make pulses relatively cheaper than now so that they come within the reach of the poor. Achieving a technology breakthrough in this field should therefore get priority.

It is not necessary to labour the point that it is not enough to produce food to provide food security, thanks to Amartya Sen's brilliant exposition of the problem. Even as recently as 1992 there were starvation deaths of tribals in Kalahandi, Malkangiri and Koraput districts in Orissa, and in Palamau and Giridih districts in Bihar. Ironically, Kalahandi and Koraput districts are supposed to be surplus in food. (Indian Express 19.11.1992). It is essential to organise extensive employment programmes in far flung areas and all the year round so that wherever and whenever there is need for work, people can get it. A well organised employment or works programme is a more effective poverty alleviation measure than other measures like food subsidy, or input subsidy (Parikh and Srinivasan, 1990). It is only when relief programmes are both extensive and offered during the whole year, that they can be expected to make an impact on unemployment and wage levels and provide food security. There is no meaning in declaring

11. Our animal husbandry is still based on grass and crop residues, though poultry is making more use of coarse cereals. The ecological, economic and distributional implications of shifting from grass and crop residues to coarse cereals as the main source of fodder need to be carefully studied before any policy is adopted to encourage such use.

minimum wages, unless employment is guaranteed at these wage levels. The minimum wages have to be revised from time to time to keep pace with the cost of living of agricultural labour. Organisation of rural labour has to be encouraged so that they do not accept private employment at less than the minimum wages, and the minimum wages themselves have to be guaranteed by employment guarantee schemes. The employment programmes have also to be monitored properly, involving people's participation, so that there is openness in the management of funds and pilferage is avoided.

It may not be viable to offer employment to very small groups, nor always at places very close to the regular residence of beneficiaries. Wherever large groups are employed and at places away from normal residence, proper facilities have to be created for drinking water, first aid, sanitation, temporary accommodation, care of the young when mothers are at work, and provisions and fuel for cooking. It would be necessary also to provide free primary education for the school going kids in such camps. Universalisation of primary education would be meaningless unless such a facility is available for the children of migrant workers.

It is also necessary to ensure that such an employment programme results in regeneration of the village commons and village ecology so that the poor can not only earn some wages with which they buy food, but also can depend upon the natural resource base in years of scarcity. An improvement in village ecology can make the resource base including land and water less sensitive to vagaries of rainfall. The role of trees in farms and homesteads as insurance and a savings bank to fall back upon in years of scarcity is also now recognised.

The stress should not be on relief works alone. It is also necessary to prevent deprivation of the poor, particularly of the tribals who are most often at the receiving end of the negative externalities of the growth process. Tribals may not prefer to offer themselves for wage labour in employment programmes. Their access to minor

produce of forests has to be improved while improving forest cover. Forests should be regenerated more from the point of meeting the needs of tribals and local people for minor forest produce, rather than primarily for timber.

Public distribution system has been a regular feature in India either with informal (or statutory) rationing, under which part (or full) requirements of foodgrains and a few other necessities like sugar, coal and kerosene are supplied to ration card holders at less than market price (or with no open market allowed as under statutory rationing). Informal rationing has been a more dominant feature than statutory rationing, the latter being adopted in situations of acute shortages only. The justification for PDS is that, left to open market forces, prices of basic necessities will make them out of reach for a common man in situations of shortages, and food security is threatened. When, however, self-sufficiency is attained, there is no justification for a general PDS covering the entire population. To the extent poverty has continued, there is a need to cover only the targeted population identified as poor.

Though our PDS is not limited to only the targeted poor and has tried to cover the entire population, its reach has been rather limited. As a proportion of net availability, foodgrains under PDS formed only 14 per cent in 1988 and as low as 11 per cent in 1991. Its role, however, has increased over time, since only 4 million tonnes (that is, 5 per cent of net availability) of foodgrains were supplied through PDS in 1961, compared to 18 million tonnes in 1988.

For a long time, PDS also had a strong urban bias, with more than 80 per cent of the foodgrains distributed being in urban areas. This situation has been corrected now as revealed by the latest NSS data. There is still some disparity, as PDS does not cover farmers having land beyond some minimum size. Thus in 1986-87, quantity of rice supplied under PDS as per cent of total quantity of rice purchased was 16.8 in rural areas and 19.1 in urban areas. The respective figures for wheat were 12.6 and 19.3. In some states like

Gujarat and Kerla, however, PDs has a strong rural bias reflecting the fact that these percentages are significantly higher in rural than in urban areas (Sarvekshana, April 1990).

What causes concern is that the reach of PDS even among the poor, particularly the rural poor, is limited. Thus in 1986-87 the lowest fractile group (0 - 10) got only 16.9 per cent of total rice purchased and only 9.4 per cent of total wheat purchased from PDS. It was only in respect of kerosene that the poor seemed to get a higher quantity from PDS than the general population. PDS does not seem to be making a significant impact in providing nutritionally adequate diet to the poor. If the available quantity of procured grain had been distributed only among the poor, the impact would have been more significant.

Even as between the States, Tyagi has shown that PDS did not gravitate to States with lower per capita income, lower per capita production of foodgrains, or higher proportion of the poor. The correlations were rather low and showed no expected patterns. The only State where PDS made some impact was Kerala, where average annual per capita distribution was 61.9 kgs during the quinquennium ending 1988, the next State in this respect - West Bengal - being way behind with only 32.7 kgs during the period. The other States like Bihar, Madhya Pradesh and Uttar Pradesh with higher proportions of poverty had much lower level of distribution compared to the all-India average of 21.7 kgs in this period (Tyagi, 1990 : 88-91). A stronger political commitment to help the poor with food security seems to have been a major factor behind the size and impact of PDS.

PDS, however, has played a stabilising role by reducing the impact of shortages during bad years. Whenever there was a significant decline in foodgrains production, PDS was stepped up though not adequately enough to compensate fully for the decline in production. The additional release from buffer stocks in agriculturally bad years took place through PDS. The buffer stocks were partly fed by internal procurement and partly by imports, but mainly by the

former. However internal procurement often tended to decline in bad years, and when buffer stocks were run down imports had to be resorted to (see Table-9). During the decade 1981-90, while average imports per annum were 1.4 million tonnes, average procurement per year was 17.5 million tonnes.

**Table 9 : Decline in Net Production of Foodgrains  
Vis-a-Vis Procurement and PDS  
(Change Over Preceding Year in Lakh tonnes)**

	1972	1973	1975	1977	1978	1983	1985	1987	1988
Change in net production	-29	-71	-42	-86	-94	-33	-59	-61	-27
Change in procurement	-12	+7	+40	-29	-26	+2	+14	-40	-16
Change in PDS	+27	+9	+5	+25	+33	+14	+25	+14	-1

Source : Computed from Economic Survey 1991-92, Government of India, p. S-25.

Though procurement of foodgrains, particularly of rice, is done at lower than market prices, there is a considerable subsidy involved mainly due to costs incurred on transport, storage, distribution and the management of the whole operation. This subsidy increased from Rs.835 crores in 1983-84 to Rs.2,850 crores in 1991-92, but was reduced to Rs.2,500 crores in the budget estimates for 1992-93, made possible by an increase in issue prices. As a proportion of total government expenditure, however, food subsidy amounted to only 2.3 per cent in 1983-84, 2.5 per cent in 1991-92 and 2.1 per cent in 1992-93 (estimates). Even as a proportion of revenue expenditure alone, the expenditure on this account was marginal, having actually declined from 3.8 per cent in 1983-84 to 3.4 per cent in 1991-92 and further to 2.8 per cent in 1992-93 (estimates). The relative burden of this subsidy, therefore, is not very high, and can be justified if it is incurred for only the targeted poor population, rather than on the general population.

It would be desirable to restrict the coverage of PDS only to the poor - both rural and urban, but to increase the quantity of rations for them. To limit the interest of the non-poor in acquiring ration cards targeted to the poor, it may be useful to restrict rations only to those varieties which are generally consumed by the poor, namely, inferior varieties of rice and wheat, coarse cereals, and pulses. The 'inferiority' here is to be understood only from the point of view of income-elasticity of demand, and not nutrition. To minimise the problem of identifying the poor, it would be helpful to restrict the operation of PDS only to those households whose members seek employment at minimum wages or thereabouts as unskilled and semi-skilled manual labour on a casual basis whether under works programmes or other schemes even in the semi-official and private sector wherever such labour is employed both in rural and urban areas. Because, it is only the poor who are employed in manual work or who offer themselves for wage labour under relief employment programmes. Restricting PDS only to the self-selected or -targeted poor families can also help in tackling a larger coverage in drought years due to a rise in the proportion of the poor in such years. It is not feasible to issue more ration cards in drought years and curtail them during normal years, but it is feasible to extend relief works programmes. Only the principle of self-selection can meet this problem. The problem of rise in poverty levels during drought years has to be more met from transfers of purchasing power to them through stepped up relief works programmes rather than from PDS alone.

As for the price front during drought years, it has to be tackled through buffer stock operations by matching releases with short-fall in production. With the reduced coverage of PDS, the need for preventing any sharp rise in food prices would become all the more important. The buffer stock releases during years of short-fall, as Tyagi argued, need not be through PDS but at the wholesale trade level. If prices can be kept in check through more releases at the wholesale level then retail distribution would not be necessary' (Tyagi: 1990 : 188).

Transfer of purchasing power in the form of foodstamps for the poor is sometimes proposed as an alternative to direct retail distribution under PDS. Under this system those issued with food stamps go to designated shops to exchange for foodgrains or get a discount in the price of foodgrains equal to foodstamps, and the shops in turn would get reimbursement from the government. The administrative costs and the problem of identifying the poor under such a scheme would be no less than under PDS. The possibility of non-poor getting foodstamps and of the poor simply selling them in exchange for a drink in a country liquor shop and depriving their families of food access and such other problems are likely to be more in a foodstamps scheme than in PDS. The practice of pledging ration cards to raise loans is there in PDS too, but such an abuse could be more in a foodstamp scheme. The issue of rations of a cardholder knowingly to a person of another household should be punishable by penalty and cancellation of licence to the ration shop, so that the practices like pledging ration cards and pilferage of rations can be curtailed. Moreover, the ration cards may be issued to the wife rather than to the husband or the 'head' of the household, so that the abuse of the ration card is minimised. Incidentally, this could be instrumental in achieving a better treatment of women within the household. The task of identifying the poor, targeting PDS only to the poor and making it more effective is no doubt difficult, but has to be done within a medium term period of about 3 to 5 years.

### **Producer Price Policy and Input Subsidies**

A system of compulsory procurement at less than market prices from the farmers has accompanied PDS almost as its inseparable part. This gives the impression that the consumer is subsidised at the expense of the farmer. It is argued above that this is not so in terms of nominal costs and that the weighted average of price received by the farmer is actually more under partial procurement than in its absence. However, farmers and the trade system bear a considerable cost in terms of harassment and bribery. Such costs will be even more when there are restrictions on inter-state



movement of foodgrains. There is no reason why a producer should receive a lower price and why a consumer should pay a lower price in a surplus State than those in a deficit State. In spite of all these restrictions, a food subsidy is involved and has been increasing over the years, and there are also even heavier input subsidies to compensate farmers for being deprived of higher output prices. And yet, the sense of being deprived of market prices is strong and procurement is proving to be more and more difficult. Traders and mills have started stocking at the farmers' premises to avoid procurement and natural channels of trade are getting distorted, with no one benefiting except perhaps the corrupt officials. The procurement of wheat is reported to have declined from 11 million tonnes in 1990 to 6.4 million tonnes in 1992 though there has been no corresponding decline in wheat output (Statement of the Union Minister of State for Food and Civil Supplies, Deccan Herald, 2.1.1993). It would be far more purposeful to make the system transparent so that we can plan more rationally.

This can be done by procuring the needed quantities of foodgrains for PDS at free market prices, and removing restrictions on movement of foodgrains at the same time. Such purchases can be made at places and seasons where the prices are the lowest, subject to economy in transport. This can be done through traders and not necessarily directly. This can remove the harassment inherent in a system of compulsory levy at less than market prices and can stimulate higher production. To the extent coarse cereals are purchased - and they should be purchased more - they would receive a support which was not much in evidence so far. Though it may seem that the presence of the government as a buyer pushes up prices, it has to be recalled that the government has already been withdrawing the procured quantities from the market with the rest of marketed surplus being sold at prices higher than what they would have been in the absence of compulsory procurement. Instead of a rise, we can expect a marginal fall in the market prices for the same reason, and also because transaction costs of trade movement are reduced. Such a fall in market prices will be in the

form of a cut in the spread between retail and farm harvest prices, and is not therefore likely to reduce the latter. Thus both farmers and consumers can gain. The government purchase as a source of demand pressure on prices is not likely to be very significant if PDS is confined to unskilled manual labour employed in relief works and other programmes, as proposed above, and need cause no undue pressure on the market. If procurement is at market prices, there would no more be any need to declare procurement prices from time to time which will however, be replaced by the need to declare minimum support prices.

*In the case of procurement price, only a certain targeted quantity of foodgrains needed for PDS are purchased at the price. The purpose of the minimum support price being the prevention of a fall in the price below the support level, all the quantities offered for sale at such a price have to be purchased. Though in practice procurement prices also served as the support prices in the case of foodgrains subject to procurement, there ought to be a distinction in principle between the two and the support price has to be lower than the procurement price. The support price has a counterpart in ceiling price above which the prices would not be allowed to rise, by offering releases of the commodity concerned in quantities such that the price stabilizes below or at the ceiling level. Viewed in this way, consumer price policy is a counterpart of the producer price policy. The Bhanu Pratap Singh Committee (India, 1990) recommended these 'intervention prices' as it called them, at such levels that they balance the terms of trade between the farm sector and the rest, the recommended base year for parity being 1970-71. The Committee felt that this way the complexities of computing the cost of cultivation as a basis for price fixation could be avoided, and yet stabilisation within a certain band could be ensured. It should be noted that the Committee did not advocate a mechanical adherence to trend line, but allowed variation within a band of 15 per cent on either side of the parity price. We would consider this as an acceptable and sound approach, but with a few qualifications to which we will now turn.*

First, a band of 15 per cent on either side may appear fairly wide; yet it is practicable for policy. But the authorities should be on special alert when prices start moving by more than 10 per cent on either side, so that appropriate actions can be taken the moment deviations go beyond the 15 per cent. Contemplating action after the prices have moved beyond the 15 per cent range may not succeed in getting prices under control.

The base year for parity price recommended by the committee, viz, 1970-71, is now a little too dated and it was also a year when the terms of trade were far more favourable for agriculture than in the past. The terms of trade had shown a significantly rising trend till 1974-75, and even in 1970-71 they were quite high. As we may recall, this was followed by a period of declining terms of trade till 1980-81, after which they have started rising again. Allowing for some correction to the earlier decline, a more recent year of 1985-86 or so could be more reasonable as a base year for parity than 1970-71. However, 1985-86 can not be accepted as the basis for all time to come. To allow for changes in technology and cost of cultivation per unit of output, the base year may have to be revised from time to time, say at least once in 10 years. Thus monitoring the cost of cultivation and technological advances can not be totally obviated even under this approach, though year to year changes in support may not be directly based on computation of costs each year.

We have also to realise that the support and ceiling prices cannot be set totally out of alignment from the long term trend in terms of trade. What the intervention prices would do is to smoothen short run fluctuations outside a band. If intervention prices became out of alignment from long term market forces, the government would be bogged down with too much stock or no stocks at all. Thus if the support prices are set at too high a level the government would be going on accumulating stocks beyond what is necessary to even out fluctuations in production around trend. An ever growing subsidy on farm prices is involved in such a situation, a situation akin to what we find today in most of the developed countries.

Such a policy of pricing agricultural commodities too high beyond what the markets can bear would be suicidal for a developing country with a massive population below the poverty line. The stocks can neither be exported nor consumed at home as the prices would be too high. The financial implication for the government also would be too burdensome. The parity prices have therefore to be reviewed from time to time, to keep them in alignment with long term market forces.

An alternative to the policy of declaring intervention prices is to conduct predetermined quantum of buffer stock operations and in such a way that deviations in availability from trend line are evened out within a band. In one case, the prices are declared and quantities are sold or purchased such that the prices prevail within the declared band. In the other case, prices are not declared as such but pre-determined quantities are released or purchased so that prices are stabilised. Though both achieve the same effect of price stabilisation within a band, in the latter case no prices are announced, but it is hoped that they would respond to quantities released or sold and get stabilised. Though it is simpler, a disadvantage of this is that the farmers would not know what price they are guaranteed.

It is also necessary to note that price stabilisation and support prices may remove uncertainty on the price front for the farmers, but they do not stabilise their incomes. Income stabilisation can not be achieved through price instruments alone, but by measures like crop insurance and drought proofing. The problem of moral hazard and paucity of funds have come in the way of a proper spread of crop and livestock insurance in India, though very necessary. V M Dandekar had advocated a feasible scheme of crop insurance in Indian conditions (Dandekar, 1976 and 1985) and a few schemes have been in operation on a limited scale in a few cash crops mainly to provide input insurance so as to safeguard the credit extended. Clearly there is a need to extend the coverage of such a scheme to cover more crops and regions, both because the scheme can be viable only if it has a sufficiently wide coverage,

and also because there is a real need for it in Indian agriculture to provide effective insurance. The magnitude of moral hazard can be now much less thanks to satellite imageries being available. The essence of Dandekar's scheme was that it is not based on each individual, but on regions, and the failure of crops and the incidence of animal mortality in a region due to epidemics can be more dependably assessed than in the case of individuals.

Let us now turn to producer price policy for physical inputs. If the needs of PDS are procured at open market prices, and if the open market prices are also stabilised through support operations and price fall is prevented, as is proposed above, then there can be no justification for continuing massive subsidies on inputs. As already noted, there are such subsidies on irrigation, electricity, fertilisers and credit. The subsidy on fertiliser alone amounted to 6.2 per cent of the revenue expenditure and 4.6 per cent of the total (inclusive of capital) expenditure in 1991-92, though these proportions have declined somewhat in the 1992-93 budget estimate to 4.5 and 3.4 per cent respectively.

Quite apart from the fiscal burden, input subsidies breed wastage and mis-allocation of scarce resources. This goes against the goal of achieving agricultural development on economically viable and environmentally sustainable basis. If the inputs prices reflect their proper costs, their use would be rationed accordingly. Though the use of fertilisers in the country is still on the lower side on the whole, there are also many cases of its use beyond economic levels resulting in a decline in fertiliser productivity. The inadequate use of fertiliser in other cases is due to non-availability of proper technology and has little to do with pricing. Being based on costly imported raw material, chemical fertilisers require development of cheaper yet equally productive substitutes. Subsidies are needed more in encouraging such technological breakthroughs rather than in supporting costly inputs. There is a lot of scope for recycling organic waste to improve the humus content of the soils. Recent advances in wormiculture exploiting the role of earthworm seem to be promising as a cheap and effective method of improving the

soils. This is not to say that the consumption of fertilisers should be curbed, but only to correct the present policy of relying so much on fertiliser pricing.

Gunwant Desai has stressed that non-price factors like crop varieties, irrigation, research and extension are more important than price factors in promoting fertiliser use (Desai, 1986). On the contrary, as Sunitha Raju has observed, there is a tendency to substitute fertiliser subsidies for rural institutions which really raise agricultural productivity including the productivity of fertilisers, - institutions like extension services, supply and distribution net works, and timely and adequate credit facilities (Raju, 1992 : 79). If there has to be a subsidy to support the farmers and promote a more productive use of fertilisers, it should better be given to developing these institutions and infrastructure. The role of infrastructure and availability of proper technology in fertiliser use can be discerned from a finding that while fertiliser use declines by 4.3 per cent in response to a 10 per cent increase in its real (relative) price, it actually increases by 14.4 per cent following a 10 per cent increase in area under irrigation (Subramaniyan and Nirmala, 1991 : 15).

More than helping the farmers, the fertiliser subsidies have given incentive to producing units to produce fertilisers at higher cost so as to qualify for more subsidies under the retention price scheme (Raju, 1992 : 81-82). The increasing subsidies are also a reflection of the increased strain borne by the regulated distribution system. The average distance travelled by each bag is reported to have increased from 850 kms to 1100 kms between mid-70s and now (Gulati and Kalra, 1992). If these inefficiencies are reduced and there is greater incentive to produce fertiliser at lower costs, fertiliser prices need not increase to the same extent as the removal of subsidies.

There are, however, practical difficulties in suddenly and completely abolishing input subsidies. It would be desirable to do so gradually so that adjustment to change is smooth and easy.

The difficulties appear to be particularly great in the case of irrigation, electricity and credit, but less so in the case of fertilisers. But even in the case of irrigation and electricity, it would be desirable to cover at least operating costs, and increase the productivity per unit of the scarce resource.

The G V K Rao Committee on Fertiliser Consumer Prices (FAI, 1988) realised the need to reduce the fiscal burden due to fertiliser subsidies but at the same time feared that any sharp increase in fertiliser prices would affect their consumption. It recommended an increase of 5 to 7 per cent in fertiliser prices provided that a 30 per cent increase in the consumption of fertilisers has taken place over the preceding three years. It set a goal of achieving a 10 per cent growth in the consumption of fertilisers per annum to achieve increased growth in agricultural production. In contrast, the average (compound) rate of growth in fertiliser consumption during the eighties has been about 8 per cent per annum.

A subsequent committee on fertiliser pricing headed by Prataprao Bhosale (CMIE, 1992) was constituted against the background of a sharp increase of 40 per cent in the selling price of urea in July 1991, but later reduced to 30 per cent in August 1991 in view of the strong emotions the July announcement has engendered. On the price front, it recommended the decontrol of prices and movement in the case of phosphatic and potassic fertilisers, but recommended a reduction in the price of urea by 10 per cent. It also advised concessional rail freight to fertilisers both for raw material and finished products. These recommendations were accepted and implemented by the government along with a substantial increase in procurement prices. The favourable treatment to urea was on account of its widespread use both in dry and wet crops by all categories of farmers. However, this is likely to distort the optimal mix of fertilisers, where higher use of potassic and phosphatic fertilisers was advisable for maintaining soil fertility and increased production. Instead, a gradual reduction in subsidies of all fertilisers would have been preferable to complete decontrol of some. Even if there is no subsidy on the whole, the policy of

ensuring fertilisers at uniform prices all over the country by evening out transport costs should also continue so that farmers located away from fertiliser factories are not put to disadvantage. The Bhosale Committee also made a number of other suggestions to reduce the cost of production and transport, to develop supplementary fertilisers to increase productive use of fertilisers, and also to promote greater use of organic manure so that the burdensome dependence on costly chemical fertilisers is reduced. If steps are taken to reduce the cost of supplying inputs to farmers and to increase their productivity, costs per unit of output are bound to decline and abolition of input subsidies would not be a burden. But as long as such subsidies continue, there would also be no incentive for such a cost reduction.

### Rural Credit and Investment

Three main policy issues have arisen following the recommendations of the Khusro and Narasimham Committees (RBI 1989 and 1991)<sup>12</sup> : (i) raising the interest rates on agricultural credit to bring them in line with cost of credit or market rates, (ii) phasing out or at least restricting priority lending or directed lending, and (iii) restructuring rural credit institutions for better efficiency and viability.

Though we have argued above that a subsidy on inputs could induce wastage and raise real costs, the supply of credit has to be viewed on a different footing. Merely, because the rate of interest on institutional credit is lower than market rates, it does not mean that more credit needs to be given without reference to credit needs and viability of the project financed. It is necessary that the banking system is viable, but it is doubtful if the low rates of interest on agricultural credit above have caused the problems of efficiency and profitability in the banking sector. What has created the problem is a combination of several factors including the

12. For a review and critical comments on the recommendations of the two Committees especially from the point of view of agricultural and rural credit, see Gadgil, 1992; Krishnaswamy 1992; Mujumdar 1992; Narayana 1992.



culture of writing off loans for extra-economic considerations, the high administrative costs due to high salaries to the bank staff, and the inadequate credit appraisal and follow-up. Rural credit system has to play an important role as a tool of rural development, and we have to also keep in mind the fact that this is a sector where per capita incomes are lower and where there is need for a greater flow of investment. To increase the rate of interest in agriculture in line with the so-called market rates as seen in the urban setting would give a wrong signal. The cost of credit should in fact be lowered through proper supervision and recovery of credit and the lending rates have to be such as to cover the costs of credit supply.

Though on an overall basis the cost of credit supply has to be covered by the lending rates, there can be a certain amount of discrimination in favour of the small and the poor. There can also be a certain amount of discrimination in the form of lower rates on crop loans and higher than cost-of-supply rate on loans for buying tractors, combined harvesters and such other machinery which displaces labour. There has to be some discrimination in favour of crops and projects which are labour intensive, and against crops and projects which are labour-saving. It is not possible to solve the problem of poverty and underemployment through employment schemes in the public sector alone. There have to be economic incentives including credit incentives to create more employment opportunities. Social policy has to provide incentives for investments and projects that employ more labour.

In view of the need to gradually phase out subsidies on inputs such as fertilisers, irrigation and electricity, it is all the more necessary that the system of priority lending should continue. Commercial banks should try their best to meet the target of directing a significant proportion of their aggregate credit to agriculture as a priority sector, and the Reserve Bank should ensure that the banking system achieves this, subject to proper supervision and recovery of credit. There is no meaning in terming agriculture as a priority sector unless the rates of interest are also

a little lower than those applicable to the nonpriority sectors. The working of the system can be reviewed again after say 10 years to determine whether profitability and per capita income in agriculture have improved relatively enough to phase out the priority treatment.

Both Khursro and Narasimham Committees have given some attention to restructuring the rural credit institutions to make them more viable and efficient. While Khusro Committee suggests the creation of a National Co-operative Bank as a national apex for all co-operatives, the Narasimham Committee has suggested setting up rural banking subsidiaries by the public sector commercial banks. The issue of whether the Regional Rural Banks (RRBs) should merge into their sponsor banks, or should continue their separate identity is secondary and should depend on the health and working of the concerned RRBs. The main suggestion however is that there has to be a separate institutional frame to deal with rural credit. This we believe is a sound suggestion. There is a basic distinction between urban and rural banking in that the former is largely demand following, while the latter is supply leading.<sup>13</sup> The rural bankers have to play a dynamic role as that of a development agent and should have more social commitment and skills than the urban bankers.

Some institutional innovations on the borrowers' side are also desirable particularly in the case of rural poor. A few voluntary agencies like Myrada (Mysore Resettlement and Development Agency) have already taken initiative in encouraging alternative management systems for saving and credit on the basis of group co-operation, participation and collective action (see for example, Fernandez, 1992). Such systems have a great promise in reducing costs of credit supply, and ensuring better credit supervision and recovery of loans. The Myrada case of small group relies principally on own resources and involves a higher rate of interest

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13. Bandyopadhyay (1986) makes this distinction between traditional role of banks in 'demand following' and their new role after the sixties in 'supply leading'.

on loans than what is given by the official institutional credit agencies. What Myrada recognised was that in the case of the poor the question was not so much of adequacy of funds, but they required small but regular and urgent loans for consumption which the official or institutional agencies were not capable of giving. Even in the case of production credit, the banks' schedule of recovery did not conform to actual trends in returns. Myrada found that if a project had to be successful, effective management of changing situations was essential, which the banks were incapable of. To meet these problems, Myrada had - only to keenly observe and help the initiative which the people themselves had taken in forming small but viable and autonomous groups consisting only of the poor who built common funds with their own savings. Myrada of course had to act as a catalytic agent, imparting literacy, numeracy and necessary skills to all the members of the group to manage their transactions themselves. These groups were essentially small, with no more than 25 members, and had a high degree of economic and social homogeneity, which ensured proper interaction and mutual faith. If NGOs and development bankers in rural areas can exercise a similar social catalytic role, credit can be routed through these small autonomous groups. This could greatly improve the responsibility and efficiency of the rural credit system.

Ensuring adequate, well supervised credit at concessional rate of interest is only one of the ways of stepping up investment and growth rates in agriculture. Direct investment in agriculture by the government in infrastructure plays an important supportive role in improving private investment. Unfortunately such an investment by the government has been discouraged by poor rates of financial return which in turn is more due to a political environment not conducive to recoveries, than due to lack of profitability as such. Though financial return is not the criterion for investment even in directly productive sectors like irrigation, the government also needs to recycle funds. It cannot continuously put its resources without considering their utilisation and has to recover at least a part of its investment. There is now an increasing

recognition of the need to recover at least the operating or maintenance expenditure on irrigation from the beneficiaries.

All government investment, however, need not be subjected to similar recoveries. The principle could be applied to directly productive sectors where economic benefits to beneficiaries are large and immediate. The government investment has to be stepped up in other sectors too in rural areas, to improve the quality of life of the people and reduce the transaction costs of living in the rural areas. Many villages do not still have access to clean drinking water. Farmers and others alike have to spend a lot of money in giving themselves and to their children good education and good medical care as they have to go to urban areas for the purpose. Many villages do not have easy access to these facilities, and even the limited facilities that are there are in a dismal state. Even transport facilities in rural areas are extremely inadequate. It is a common sight to see people perched on bus tops in rural areas, in addition to those fully packed inside the buses. The ability of the government to invest in rural infrastructure is reduced by the need to provide massive subsidies on fertilisers and irrigation, which could more justifiably be diverted to reducing urban-rural disparities in infrastructure and other facilities. This would indirectly improve the productivity of investment in agriculture and stimulate further investment itself.

#### IV. TOWARDS SUSTAINABLE AGRICULTURAL DEVELOPMENT—CONCLUSION

It is not necessary to labour the point that economic development which is unsustainable from an environmental point of view can not be sustainable from the economic point of view either. We reiterate instead the environmental significance of some of the policy proposals made above, and indicate additional policy measures in the interest of sustainable agricultural development, which should be an important goal of agricultural policy.

A stricter implementation of ceilings on the ownership of agricultural holdings proposed above will make the distribution of

holdings reflect the scarcity of land more realistically and will lead to a more efficient land use. Though land is a scarce resource from the point of view of the society, it is not so to a large holder who may very well keep parts of it idle or even allow it to be eroded in the long run for short term gains or through neglect. The proper care of land needs a higher endowment of labour which small and medium holdings have, more than the large holders. Moreover, co-operative and collective participation of individual holders is necessary for implementation of soil and moisture conservation schemes in watershed development and for efficient and equitable management of canal and tank irrigation. The possibility of securing such a co-operation and group participation is enhanced when there is a greater economic homogeneity among individual holders, but is vitiated when there are one or two dominant and many small holders.

Under land reforms, it was also proposed to ensure that all villages have some common lands for grazing cattle, and as a source of fuel wood, green manure and fruit. By growing herbs needed for indigenous medicine, they can even provide some medical care. These lands, wherever degraded, have to be rehabilitated and given over to people's management to ensure sustainable use. Development of common lands should be imaginative and meet people's needs, instead of serving as a source of funds for village panchayats by growing commercial species. Commercial monoculture forestry is hardly an example of sustainable development. By meeting people's direct need for fodder, fuel, manure and fruit, common lands have the potential of reducing costs of cultivation and improving agricultural productivity indirectly. They would also be a source for protecting bio-diversity of plant species.

The employment programmes for poverty alleviation also can have environmental significance in so far as they are carefully planned to restore the viability of community assets like village tanks and woodlots. Even if tank desilting is not sometimes viable from a strict economic criterion, it can be taken up as an employment programme. Similarly soil and water conservation works, new storage tanks and the like can be taken up.

A reduction in inter-regional disparities in agricultural development also contributes to sustainable development. There are development laggards - both regions and crops - which need more attention. Subsidies in agriculture have benefited the prosperous regions more. Both dry land development and irrigation development needs further emphasis in backward regions. This calls for more investment in infrastructure and in research and extension suited to such regions.

A phased abolition of input subsidies especially on fertilisers, irrigation and electricity would be another move towards sustainable development, as it would make their prices better reflect the cost of supply and induce a more economic use of the scarce resources. A subsidy on fertilisers interferes with the choice of mix of fertilisers and could induce neglect of organic manure. It is necessary to reduce dependence on inputs which are based on an exhaustible and that too a significantly imported resource procured at high cost, and to develop more sustainable alternatives. It is equally imperative to improve the productivity of whatever limited quantity of inputs that we may use. A subsidy on such inputs distorts the socially and ecologically desirable choice. Instead the subsidy should be diverted to eco-development projects and building of rural infrastructure which indirectly improves productivity in agriculture and increases employment opportunities. Since the government's own resources are limited, they should be allocated where social gains are high.

Pollution in agriculture due to chemicals is more dangerous as it is difficult to treat it at a point. Farmers are often not trained to take due precautions in their use. It should be the policy to totally ban hazardous chemicals, and even other synthetic pesticides should be gradually phased out by promoting environmentally safer and economical alternatives. Herbal pesticides based on neem, for example, have already been developed commercially which hold promise in this regard. There are also promising reports of genetically engineered crops being evolved which are not only high yielding but also have in-built protection against pests.

Their ecological implications have to be further assessed, and if found suitable and economical they could displace chemical pesticides. More research and extension effort has to go in this direction.

Stability is one of the attributes of sustainable development, but unfortunately the green revolution seems to have rendered agriculture more unstable. Fluctuations around trend are higher and sensitivity to rainfall greater in the post-green revolution period than before. Rice, coarse cereals and pulses particularly became more sensitive to rainfall. In general, kharif crops became more sensitive than rabi crops, because irrigation contributed to a more controlled environment on rabi season (Rao et.al., 1988 : 15-34). This would mean that a proper development of irrigation and dry land development are both necessary to reduce instability, and promote growth. Also areas which are marginal and very sensitive to rainfall fluctuations should be diverted from cultivation of crops and brought under afforestation and pastures. India has an extremely large proportion of area under cultivation compared to other similar countries at the cost of pastures and forests. This has been a source of instability.

An inefficiently managed irrigation can actually become a source of increased instability and lowered productivity. Indiscriminate irrigation has rendered vast areas water-logged and saline involving the wastage of both precious resources - land and water. The emphasis has therefore to be on qualitative improvement in irrigation, and not merely on its quantitative expansion.<sup>14</sup> A major surface irrigation project is particularly subject to hard management problems of water distribution and crop localisation patterns (see Reddy, 1990), apart from negative externalities that such a project may create in the form of submergence of forests and displacement of people. If farmers are willing to jointly take over management of canal irrigation efficiently and also justly, they

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14. There are many intricate policy issues in irrigation, to all of which it is difficult to do justice here. They have been discussed in depth by others (See esp. Vaidyanathan, 1991; S K Ray, 1992).

should be encouraged to do so, though some monitoring may be required on the part of irrigation officials. Instead of taking a doctrinaire approach and opposing all major irrigation projects, it would be more rational to subject such projects to a proper social cost benefit analysis for a decision. Such an analysis should incorporate all ecological costs and provide for rehabilitation of displaced people. Having taken a decision, it is equally important to be strict on efficient execution.

Well irrigation has overtaken canal irrigation since the mid-seventies. In a way this is a welcome trend because well irrigation is more controlled and does not create problems of water logging etc. Nevertheless, due to free electricity supply or fixed charges based on horsepower, there could be wastage of both electricity and water. Electricity supply should be metered and charged accordingly, except in cases where there is reliable evidence that the well water is shared with neighbours.

There is a reason for providing this exception. It is only the relatively large holders who can afford the expense involved in well irrigation, while canal irrigation is relatively neutral to scale. The inequity in well irrigation can be somewhat moderated by the development of water markets, which is facilitated by fixed charges of electricity (Chambers et.al., 1988 : Part II). However, there is no need to have fixed charges in all cases; it can be allowed only in the cases where water is shared. A better alternative to private sale of water is to have wells collectively owned by small neighbourhood groups for water sharing. Such groups are desirable even in the context of watershed development, soil and water conservation measures and to have small storage tanks to collect rain water for protective irrigation. The same groups can promote collectively owned and operated wells. Voluntary agencies and social workers can play a valuable role as catalytic agents to promote such groups.

As regards water, there is another major problem the importance of which will increase over time. Water is needed not merely for



irrigation, but also for drinking and household use, and industrial use. Water will be even more scarce than now in relation to needs. This makes the issue of economical and productive use of water all the more urgent, and cannot be decided by merely opposing urban use of water. Ultimately, the pressure of present population in agriculture has to be reduced, and a lot of the children of farmers are already settling down and will continue to settle down in urban areas. The burden and responsibility of economical use of water will have to be shared by both the rural and urban sectors. Even in rural areas priority has to be given to the need for drinking water more than for irrigation. The approach in irrigation has to be necessarily one of treating water as a scarce resource and maximising productivity per unit of water by better water management and wherever possible by using such water saving techniques like drip irrigation. Available water has to be stretched to larger areas and to cover more beneficiaries. Here again, group participation and collective action would be necessary. There has to be emphasis on recycling of water for industrial use, and all polluted water has to be necessarily treated upto desirable standards by municipalities and industries. Water so treated can be used for irrigation and be an additional resource.

A greater diversification of the agricultural economy would be welcome from the point of value addition and increasing the per capita income in a relatively low-income sector. However, pushing this too much cannot be sustainable from several points of view. Foodgrains provide a stable and assured demand in an economy like ours, whereas the other crops are more vulnerable to fluctuations in market forces and hence price instability. Moreover, diversification of agriculture can not be allowed to go beyond a point at the expense of self-sufficiency in foodgrains. A similar caution is needed in making agriculture more export oriented. Exports should be encouraged more in value - added and processed form rather than in raw form, because primary commodity prices in the world markets are unstable and also unremunerative as terms of trade tend to go against them in such markets. A greater encouragement to food processing industry would contri-

bute to greater economic viability and stability, in addition to creating non-farm job opportunities.

One of the risks of the green revolution based on HYVs is the loss of diversity of our crop varieties. Gene banks may not always give the expected results and are exposed to the hazard of sudden loss. We have also to explore the possibilities of in situ conservation of genes by ensuring that at least some areas continue to be under different traditional varieties under expert supervision. Otherwise, we may be foreclosing future opportunities of evolving new varieties. It is equally necessary to protect farmers' rights to grow their own seed if they so wish. It has been the demand of farmers and several voluntary agencies to ensure that no product patents be allowed in the name of protecting intellectual property rights, particularly patents in the case of life forms, plant species and seeds. There is a considerable justification in these demands.

Policy decisions are not always taken on the basis of what is right and wrong, but through interaction between interest groups. Unfortunately in the case of sustainable development, the future generations are not here today to plead their case or to fight for their rights. But, there are people's movements which have taken up this cause because the ill effects of unsustainable development are often faced by the present generation itself. Sustainable development can not be achieved by merely wishing for it, or by paying lip sympathy, but incorporating it in policy making and also in implementation.

Formulating agricultural policy and handling it is a complex task, since several interest groups and many intricate issues are involved. To pose the available alternatives in terms of single choices like (a) low output prices combined with low input prices involving subsidies, vis-a-vis (b) high output prices combined with high input prices with no subsidies, would not do justice to the complexities involved. There could be further alternatives of subsidies for some vis-a-vis for all. There are considerations of equity, efficiency and environmental soundness. We have made a

modest attempt to bring out the complexities as far as possible and yet aim at directions in which chances for a generally satisfactory solution are good, if not optimal in every respect. Achieving novelty in our proposals was not our aim; it was rather to find what could ensure a certain amount of justice to all sections, ensuring both growth and fairness. We hope that what is proposed above is equally workable.

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