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An underdeveloped country, such as India, serves as a prime example of economic developmental theory - with all of its complications and problems. Agriculture holds the key position in the total scheme of economic development - particularly in an underdeveloped country. For the agricultural sector, being the predominant sector, must muster together all the elements of development in order to care for the needs of its population and at the same time generate development in the industrial sector.

It must be kept in mind that the key to development in India will, in the long run, depend on the success of its industrial development. This, in no way lessens the importance of the agricultural sector. For India is far from reaching her goal of becoming an industrialized nation, at the present time. This relationship between agriculture and industrialization must be kept in proper perspective. Unfortunately, Indian planning officals have, in the past, failed to see the correct relationship between the two. Early in the Second Five-Year Plan, there was a sharp shift of interest to industrial development at the sacrifice of the agricultural sector. This premature shift cost the Indian people dearly on their road of development and they were forced by the reality of their economic condition to return to the development of the agricultural sector to its fullest extent in order to make the way ready for Indian industrialization.

The economic problems of an underdeveloped nation differ greatly from those of the more advanced nations of the world and it is, many times, difficult to appreciate the issues and reasons for the complexity of economic principles when applied to the seemingly-simple underdeveloped countries.

> It is very much easier to transplant the fruits of economic development, or at least go through the motions of doing so, than to transplant the seeds. It is fatally easy to transplant them, not as end products but in isolation, divorced from the process which has created them in the industrialized nations. Treated in such a fashion, these fruits of economic development have a way of putrefying and even checking development itself.[1]

Through an understanding of the vicious circles which the economy of an underdeveloped country finds itself, realization of the complexity of India's growth problem is more easily attained. In an underdeveloped country we are faced with a system not only of vicious circles, but of vicious circles within vicious circles.

There is the dominant vicious circle of low production. An underdeveloped country is poor because it has no industry; and has no industry because it is poor.

A vicious circle between agriculture and industry appears. There are two lines of industrialization which would be promising to agriculture - (a) the manufacturing of goods that can serve as incentive goods to farmers. In reality, subsistence farming, lack of division of labor, and premonetary arrangements prevail in underdeveloped countries due to the lack in supply of incentive goods. (b) The production of agricultural tools and equipment suitable for raising agricultural productivity. However, low agricultural output prevents the importation or domestic production of improved equipment, and the lack of equipment prevents higher agricultural output.[2]

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[1] Hans W. Singer, "Vicious Circles in Underdeveloped Economies," Economic Issues and Policies, ed. Arthur L. Grey, Jr. and John E. Elliott, (Houghton Miffin Co., New York, 1961), p. 329.

[2] Ibid., p. 330.

Underdeveloped countries, with the modest resources at their disposal and with a natural impatience for results, are under constant temptation to skip the necessary external economies and engage in premature projects which fail to attain their full productivity for the lack of external economies, or else to sit back hopelessly and do nothing.[3]

Population poses an ominous barrier against economic development. It is likely that a nation who sustains development and industrialization long enough will reach a point of a lowered birth rate, which releases greater sources for investment. However, it seems that this stage is never reached in the underdeveloped nation because the immediate effect of small improvements is such as to throw the underdeveloped country back to its starting point in population control.

Another important problem includes the political complexities which have a vicious circle all their own. The desire for economic development may or may not arise from popular feelings and popular pressures, but in underdeveloped countries it is always the government that has to formulate the desire and translate the desire into action. This dependence of economic development on government action has two signficant implications. (a) There is the problemof government stability. Underdeveloped nations need stability of government far more than industrialized countries, where development is automatic. At the same time, the very lack of economic development in many countries makes for instability of government. (b) The soundest advice on economic development would generally be in the direction of patience. To proceed until enough resources for sizable investment and for the creation of external economies can

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[3] Ibid., p. 331.

be accumulated. "To the peoples of underdeveloped countries, this is highly unpalatable advice; to their governments, it is unacceptable."[4]

The growing literature on economic development has recognized the important place of agriculture in the underdeveloped countries. It has been argued that economic development requires that a vast number of people should shift out of agriculture. If a vast number of rural people shifts out of the agricultural sector of the economy, then alternative sources of employment must be made available in the non-agricultural sector. This means that substantial industrialization is necessary if this agricultural population is to find more productive non-agricultural employment. This would permit those who remain in agriculture to organize their farms in more efficient, large-scale units. According to the principle of efficiency, resources should be transferred from employment in which productivity is low to those in which it is high. Such a marginal transfere brings about an increase in output. In a situation where labor is so maladjusted that its excessive application in any one line has brought its marginal physical productivity very close to zero, the gain from shifts are: (1) from increase in productivity of men remaining in their former occupations since the withdrawal of superfluous men may lead to organizational improvements and thus may make an increase in output per man hour possible; (2) from gainful employment of formerly unproductive workers if they are supplied with tools and raw materials with

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[4] Ibid., p. 332-333.

which to work.[5] Taking a long period perspective, these conclusions "are beyond cavil for any underdeveloped country. But as guides to the establishment of short-run planning goals these conclusions are often misleading."[6]

In a closed economy where there is the absense of international trade, one of the important pre-conditions of industrial expansion is the achievement of an increase in agricultural productivity. Rising agricultural productivity sustains industrial growth in three important ways. First, it allows agriculture to release part of its labor force for industrial employment while at the same time meeting the increasing food needs of the non-agricultural sector. Second, it increases agricultural incomes. This creates, on the one hand, rural purchasing power needed to buy the new industrial goods and, on the other hand, rural savings which may be mobilized to finance industrial development. Third, it enables agriculture to supply the major wage goods to industrial workers at prices favorable to the new industry.[7]

In the open economy or in an economy which has access to international trade, the contribution of rising productivity to industrial development may not be as high as it was in the closed

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[5] S.K. Awasthi, "Agriculture and Economic Development," Economic Affairs, (New Delhi, September, 1968), p. 217.

[6] Ibid., p. 217.

[7] W. Arthur Lewis, Theory of Economic Growth, (George Allen & Urwin, London, 1955), p. 334.

economy. Here the nation may find it more economical to import some of its food needs.

Industrialization increases the demand for wage goods and food is initially the most important wage good. This results in more favorable markets for agricultural products. And this tends to break down the stagnant subsistence of the agricultural sector. There will be no incentive for producers of primary goods to increase output by extension of cultivation, adoption of new cultivation methods, introduction of new crops, unless they are certain of an expanding market for their products. Thus, as higher incomes in the agricultural sector help to absorb finished products of the non-agricultural sector, rise in income levels in the industrial sector raises the demand for agricultural products. Industrialization creates more productive non-agricultural employment opportunities.

> If farm labor is thus absorbed and if this absorbtion proceeds far enough, increasing labor scarcity in agriculture will raise direct or imputed farm wages. Thus, those who remain in agriculture must find ways of raising the productivity so that they are worth these higher wages. In as much as the agricultural sector in many underdeveloped countries is incapable of generating sufficient savings to bring about any improvement, it find financial resources from outside. But where agriculture is developping in step with industry, the flow of savings will be in both directions.[8]

Thus it is clear that rising agricultural productivity and industrial development have much to contribute to one another. But the problem of fixing priorities is a difficult one. The answer does not lie in balanced agricultural and industrial development. This is because of the fact that in an underdeveloped country, the resources are severely limited. Thus the application

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[8] Awasthi, p. 219.

of these limited resources in a balanced fashion may spread so thin that they are below minimum levels for both sectors. However, some sense of balance is unavoidable in that "the minimizing of the waste of productive resources that results when one sector of the economy acts for an unnecessarily long time as the effective limiting factor (bottleneck) on the growth of other sectors."[9] One sector of the economy can hold back another in either of two ways - by failing to provide it with essential materials or services and also by failing to provide a market for its product or service. If industrial production expands while agricultural production does not, the excess income of the industrial sector would exert a pressure on the limited supply of the primary sector. This would result in the generation of inflationary pressures. If increases in agricultural production take place while the non-agricultural sector remains stagnant, the demand for agricultural products will fall short of supply. This would lead to a depression in agricultural prices and a fall in incomes and this would also hamper growth.

If balanced agricultural and industrial development cannot be put into practice, it is therefore necessary to make a choice and economists have fallen into two groups with regard to the prefereence over the relative emphasis which agricultural investment should receive. T.W. Schultz, Coale and Hoover, Khan, and Jacob Viner

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[9] Ansley J. Coale and Edgar M. Hoover, Population Growth and Economic Development in Low-Income Countries: A Case of India's Prospective, (Princeton University Press, Princeton, 1958). p. 119.

argue that efforts to increase food supply should receive highest priority. Schultz comments: "In a high food grain economy where most of the economic income of the community is represented by food, there is little room except in agriculture for new and better production possibilities, because the productive efforts required to produce food are so large a part of the whole."[10] Coale and Hoover argue that "very substantial progress in that most backwards part of the (Indian) economy" (agriculture) is "a prerequisite to successful development of the...economy as a whole" and that "if one sector limits the growth of the other, it is more likely to be a case of agricultural growth limiting non-agricultural rather than visa-versa."[11]

Economists like Higgins, Leibenstein, Albert Hirchman, K.K. Kurihara recognize the need for raising agricultural productivity but conclude that this can be accomplished only be giving a "big-push" industrialization program top priority. Opposing the views of the economists who stressed the the need for agricultural-dominated development in underdeveloped countries at the International Conference of Economic Growth in Tokyo in April, 1967, Professor Kunneth K. Kurihara pointed out that this would be an unwise policy because of three considerations. Firstly, the marginal productivity of capital in agriculture is lower than in industry. Thus, it would be uneconomic to waste away the meager capital resources by investing in agriculture. Secondly, the propoensity

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10 T.W. Schultz, The Economic Organization of Agriculture, (McGraw-Hill, New York, 1963), p. 273.

11 Coale and Hoover, pp. 120, 139.

to save in the agricultural sector is less than in the industrial sector. Thirdly, in so far as there is a tendency for the terms of trade to move against agricultural goods, concentration on the development of agriculture would have an adverse effect on the country's balance of payments.[12] Therefore, a "balanced increase in agricultural output and industrial output is a luxury which an advanced economy with abundant real capital can easily afford. With limited savings and capital using projects competing for these limitied savings, an underdeveloped economy would do well to concentrate on the development of its industrial sector and to let its agricultural sector develop by repercussions."[13]

Excessive reliance on agriculture prevents underdeveloped economies from quickly raising the level of per capita incomes because agriculture is not organized on a commercial basis, but it is treated as a way of life. When there is a high percentage of the labor force engaged in agriculture, this sector contributes the largest share to the gross national product. In consequence, there is concnetration only in primary production of foodstuffs, raw materials, and forest products. The majority of people depend upon the land for their livihood. This gives rise to economic problems of land holding, land tenure, tenancy rights which need be to urgently solved if agriculture is to become a profitable

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12 Awasthi, p. 220.

13 K.K. Kurihara, "Theoretical Objections to Agricultural Biased Economic Development," Indian Journal of Economics, (New Delhi, December, 1958), pp. 163-169.

occupation.

"The unit of ownership and the operational holding are the two distinct entities which are fundamental to an understanding of the land tenure problems in any agarian economy."[14] An uneven distribution of land ownership merely aggrevates the problem, for the growth of population without the proper siphoning off of the surplus agricultural population makes the problem one of a permanent nature. "So long as land remains an economic opportunity for the large owners having control over land use and marketing, so long as the mounting population exerts itself to reduce the standard of living which in turn gets capitalized into higher land values, mere vesting of ownership rights to the operators would come to nothings."[15]

In any analysis of land tenure, three aspects emerge out of the discussion - (1) overpopulation and its consequences; (2) the operational holding; and (3) the uneven distribution of ownership.

Whatever the definition of overpopulation, it is true that with a growth rate of 2 percent and 80 percent of the gainfully occupied population dependent on agriculture, a large scale underemployment exists in rural India and a large portion of the rural population can disappear without the slightest effect in national income. The effect of overpopulation is thus felt in every level from the landless laborers through the tenants to the landowners. The overall effect is, however, a downward trend in the size of the holdings.

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[14] Salil Kumar Sanyal, "Some Topics Related to Land Tenure Problems in India," Economic Affairs, (New Delhi, October, 1968), p. 225.

[15] Ibid., p. 225.

Since in India, large families are the rule, on account of the working of inheritance laws, the holdings get subdivided and fragmented. This may lead to an effect in the cropping pattern where it may be necessary to produce high income yielding crops per unit of land even though national interests, market outlets and other conditions may call for production of more extensive crops.[16]

There is one striking feature of Indian land holding and that is the ratio of working members to total members changes very little over the different scales of household operational holdings. Thic can be seen from the data of Table 1:

PRECENTAGE OF WORKING AND NOT WORKING MEMBERS BY SIZE OF HOUSEHOLD OPERATIONAL HOLDING, AGRICULTURAL YEAR 1960 - 1961.

	size of household operational holding (acres)	household size	Percentage of working members	Percentage of not working members
	(1)	(2)	(3)	(4)
1	up to 0.49	2.71	43.9	56.1
2	0.50-0.99	4.59	43.1	56.9
3	1.00-2.49	4.77	43.8	56.3
4	2.50-4.99	5.27	43.1	56.9
5	5.00-7.49	5.85	43.8	56.2
6	7.50-9.99	6.13	44.0	56.0
7	10.00-12.49	6.54	43.6	56.4
8	12.50-14.99	6.70	43.6	56.4
9	15.00-19.99	6.91	45.1	54.9
10	20.00-24.99	7.40	45.1	54.9
11	25.00-29.99	7.24	44.7	55.3
12	30.00-39.99	7.94	46.1	54.0
13	50.00&above	8.75	45.5	55.5
14	all sizes	5.20	43.7	56.3

Source: Land holding inquiry, 17th round, National Sample Survey, September, 1961 - July, 1962.

A greater proportion of operated area, as seen in Table 2, is taken on lease by the small cultivators, although a substantial proportion of the total rented area is operated by large operational

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[16] Ibid., p. 226.

holdings. The system of renting in against a share of produce is the most prevalent practice and in small holdings is relatively of greater importance.[17]

PERCENTAGE OF LEASED IN AREA UNDER DIFFERENT MODES OF TENANCY BY SIZE OF OPERATIONAL HOLDING, AGRICULTURAL YEAR 1960 - 1961.

holding size (acres)	percentage of operated area leased in	percentage distribution of leased in area	% of leased in area reporting tenancy for fixed money	for fixed produce	for share of produce	free of rent	on other terms	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
up to 0.99	19.7	2.3	17.2	4.6	39.8	6.8	31.6	
1.00-2.49	15.9	8.3	17.4	14.3	43.7	6.6	18.0	
2.50-4.99	14.0	16.3	18.3	14.2	47.5	6.2	13.8	
5.00-9.99	10.2	22.8	21.7	16.4	41.4	4.8	15.7	
10.00-14.99	10.6	14.1	24.5	14.7	33.7	4.8	22.3	
15.00-24.99	8.8	14.0	32.1	11.6	35.1	4.7	16.5	
25.00-49.99	8.6	14.0	34.2	7.8	31.0	6.1	20.9	
50.00&above	7.8	8.4	36.8	9.5	30.2	9.8	13.3	
all sizes	10.7	100.0	26.6	12.9	38.7	5.8	17.5	

Source: Land holdings inquiry, 17th round, National Sample Survey, number of sample villages: 3,486.

The above brings forward the problem of the ultimate unit of operation in Indian agriculture. If a parcel is defined as the ultimate unit of operation, the data on land holdings show that its size is too small, 1.15 acres on the average, less than one-fifth of the holding (6.49 acres). Even the large holdings are divided into extremely small parcels. This parcellization of holdings has a connotation different from the fragmentation of the units of ownership. While the latter is a result of the operation of the inheritance laws by which the land is divided into smaller and smaller units, the former is indicative of a subdivision of a farming unit. Large operators, the data show, have scattered small sized parcels and not compact large pieces of land. The existence of seperate pieces of land in a large holding only emphaizes the

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17 Ibid., p. 228-229.

complicated manner of tenurial relationships. And the consequences are an inefficient use of the soil which results in considerable loss of cultivable land used for roadways, and fences, great difficulties in water supply and the use of submarginal land.[18]

As the land holding inquiry shows, in India there is an uneven distribution of owned land, 12 percent of the rural households did not have any land, 26 percent owned below 0.50 acres, 63.5 percent owned below 5.0 acres. On the other hand, 0.60 percent of the households each owning 50 acres or more, owned 11 percent of the total owned land. Due to land reform legislation, the extent of landless households has decreased in many States, but even now as much as 31 percent in Kerala and 24 percent in Madras do not own any land and the size distribution in many States has undergone very little change.[19]

These are some of the problems concerning land tenure. The following conclusions emerge: (1) a large farm is not a large farm in India; (2) the pressure of population is great enough to nullify any social objectives in the land reforms; (3) the nucleus of large land owners still persists, the security of tenants remains for most of the States illusive as the operational holding is susceptable to frequent changes.

While industrialization offers considerable benefits of dynamic progress, it is essential to recognize the importance of agriculture to development. Industrialization depends on the surplus that can be tapped from agriculture. Moreover, agricultural

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[18] Ibid., p. 230-231.

[19] Ibid., p. 231.

and rural production can be rapidly raised with little capital and a low order of mechanization. There are possibilities of doubling crop products, increasing the acreage through irrigation, diversion dams, pumps and wells, the application of fertilizer and improved seed. Underdeveloped agricultural laborers can be used for construction of roads, houses and schools. Large returns in the agricultural sector are possible with relatively minor changes in techniques which the Indian cultivators are willing to make, given the suitable incentives. Agriculture is also important to development because it has a bearing on the balance of trade in a country such as India. India's balance fluctuates largely with changes in its food importation requirements. In addition to this, food shortages get more quickly reflected in price escalation in underdeveloped rather than in high income countries. This is because food is the most important wage-good which takes up to 60 percent of total concumption expenditure. This results in the institutions of compulsory grain collection, price control and rationing which are unfavorable for generating development. Much higher returns can be expected from a well organized program of raising agricultural output than from controlling its distribution.

If the agricultural sector declines in importance, the problem of capital accumulation will be rendered more difficult. Anything which raises the productivity of the agricultural sector will raise real wages in the industrial sector and since the terms of trade generally go against the rural sector, capital formation in the industrial sector keeps mounting. Indeed, increased rural net cash incomes serves as a stimulus to industrialization. Thus, while agriculture is the dominant sector in an underdeveloped

nation, the economic agruments in favor of developing this sector cannot be underestimated.[20]

It is often stated that India's per acre yield of many crops is among the lowest in the world, but this by iteself cannot lead to the conclusion that Indian agricultural output can either be increased rapidly with a few technical innovations or that it is inefficient. "It is the opinion of some experts that, given the present availability of factors of production and their prices, Indian agricultural production is efficient; this contributes to making changes so difficult."[21] Furthermore, there is evidence that Indian peasant farmers are sensitive to price changes that effect their output. They respond to new cost-price relationships, especially with regard to that portion of their output above subsistance.[22]

This raises the question as to whether present incentives in Indian agriculture encourage both greater output of agricultural products and an increase in their sale in exchange for manufactured products. One of the alternative policies on incentives in the agricultural sector is essentially a policy to encourage those individual peasant farmers with the resources and skills to take advantage of new techniques and improved prices. However, the slowing of output over the past few years raises some questions as

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20 M.F. Jussawalla, Economics of Development, (Oxford & Ibh Publishing Co., Bombay, 1969), p. 68.

21 Rosen, George, Democracy and Economic Change in India, (New York, Random House, 1971), p. 187 - 188.

22 Ibid., p. 214.

to whether the incentives and the new technology possibilities that were provided in the past decade are still sufficient to encourage future growth.[23]

Higher prices have not been used as an incentive to raise farm output for the relationship between higher farm prices and agricultural output is a complex one. Within India there has not been a conscious attempt to use a change in farm prices to encourage farm output. At the same time, because of the poor farm output since 1961, farm prices have risen relative to other prices. Between March 1961 and January 1965, the wholesale rice index of food articles rose 40 percent compared with 9 percent for finished manufactured goods.[24] The effects of changing farm prices upon output will vary depending upon the type of polivy adopted. There is also evidence that changes in the relationship between the prices of specific inputs and the prices of the outputs they contribute to changes i the use of these inputs - water, fertilizer, etc.

However, there is a good deal of question with respect to the effect of changes in relative pricesof farm products and nonagricultural prices as a whole. Total farm output in India is still, in large part, dependent upon the monsoon. Thus, changing price relationships as a whole will have reatively minor effects upon total farm output. At the same time, the risky character of Indian agriculture encourages speculative withholding and fluctuating farm output prices can encourage such withholding either in the hope of higher prices or by improving the peasant's ability to hold off from selling.[25]

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[23] Ibid., p. 215.

[24] Ibid., p. 215.

[25] Ibid., p. 215.

For these reasons, the use of price policy is skeptical. In urban areas, such a rise in food prices would lead to demands for higher wages and higher industrial costs. That could have both serious political repercussions in the urban areas and possibly harmful to India's competitive industrial position in international markets. The effects of such a price movement would also lead to a shift in resources away from the industrial to the agricultural sector.

This does not mean to say that an improvement in the pricing mechanism would not be useful, for it could strengthen the stability of the Indian economy. Instability of farm prices probably discourages investment as a source of income. If the government were able to reduce risk by stabilizing prices, it would encourage farmers to greater investment and increase in output. Such a policy would also call for both widespread construction of public grain warehouses and a willingness by the government to buy its stocks and sell them to stabilize prices.[26]

Related to the problem of incentives is the question of cooperative farming. However, although voluntary cooperative farming would appear to be a useful institution, its introduction in India has faced serious problems. The cooperative farms which the government has established have not been successful. There is serious doubt whether the peasant farmers could successfully cooperate in light of the factionalism that pervades the village and the lack of administrative skill necessary to run such a large enterprise. Moreover, aside from the political and economic questions there is evidence against the economy of scale theory

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[26] Ibid., p. 216.

often used in favor of cooperative farming.[27]

> In agricultural policy in the past, there has been a stalemate between the voal and influential advocates of cooperative farm- and stronger land reforms, and the landowners, aprty members and state officals who are not vocal but are influential in carrying out policy. The former are against incentives that would encourage the individual peasant; the latter have not been strong enough to prevent the adoption of past policy statements or to fight for an alternative national policy, but they have been strong enough to prevent the stated policies from being implemented. In effect the result is conflict and no general policy. Instead policy has been a mosaic of bits and piecesm such as to discourage investment and greater output and to lead to the present agricultural stagnation.[28]

An outstanding factor in Indian agricultural policy is the crucial level of the population. This is a problem which is most frustrating, especially to the economies of the underdeveloped nations. According to certain projections based on current high birth and declining death rates, the population may well double itself and reach 800 million by 1985.[29] During the last three decades, the annual birth and death rates have fluctuated between 40-45 and 26-36 per 1000, respectfully. However, during the last fewyears, the general death rate and its components of Infant and Maternal Mortality rates have gradually been declining, though the Infant Mortality rate is still relatively high - 100 per 1000 live births in a year. Between 1951-1956 the death rate was 25.9 compared to less

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[27] Ibid., p. 222.

[28] Ibid., p. 223.

[29] Professor S. Chanrasekhar, "Population Growth and Economic Development in India," Economic Issues: Readings and Cases, ed. Campbell R. McConnell and Robert C. Bingham, (McGraw-Hill, New York, 1963), p. 263. *from S. Chandrasekhar, "Population Growth and Economic Development in India," Population Review, 1961, pp. 22-26.

than 10.0 in the United States. But the death rate is falling and is expected to be at 12.5 by 1972.[30] However, the birth rate is not declining proportionately with the death rate. Some of the reasons for the high birth rate are - (1) nearly everyone above the age of consent is actually married. It is a quasi-religious duty in India to get married. As an individual's economic security is seldom a prerequisite to marriage, and there is no individual choice in one's selection of a wife or husband, there is no economic or emotional deterrent to marriage. (2) Marriages are at an early age. (3) There are increaing numbers of men who are willing to marry eligible widows. This is contributing to the population problem. (4) There is the absense of any effective and widespread family planning habit among the rural population who constitutes some 80 percent of the total population.

The crux of the problem facing Indian planners is how to achieve higher levels of living standards and reduce the death rate, when the economy is unable to support the existing population even at the present low level of living, if at the same time the population continues to increase by about eight million persons every year? In other words, as the draft of the Third Five-Year Plan (1961-1966) sums up the situation:

> In an economy with low levels of income and consumption, high rates of population growth severely limit the pace of economic development. They increase the requirements of consumption and the difficulty of providing productive employment for the growing labor force. If the long-term aims concerning per capita income and the reduction in the proportion of population dependent on agriculture are to be realized, the effort by way of capital accumulation has to be substantially increased. The objective of stabilizing the population has ceratinly

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30 Ibid., p. 262.

> to be regarded as an essential element in the srategy of development.[31]

The population problem has serious consequences for Indian development. Firstly, this overpopulation has made it difficult to erase the poverty and low levels of living which is experienced by the majority of the Indian peoples. Secondly, India's population is relatively young from the standpoint of age and composition and it has inherent potentialities for increasing the annual additions to the already high number of citizens. The problem of rearing and caring for a disproportionate large percentage of young people who are not and cannot be gainfully employed, rests upon the relatively small proportion of the gainfully employed. This situation is bound to lead to considerable economic and social distress.

And lastly, a major objective of planned economic development is to create full employment. It is true that full employment is also the product of such development. But the present annual rate of population growth, ranging between 1.8 and 2.0 percent, worsens the employment, or rather the unemployment situation by stepping up the number of entrants to the labor force to the extent of something nearing 15 million in the next five years. It is unlikely that the Indian economy will create a sufficient number of jobs to absorb these additional numbers into the labor force.[32]

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[31] Ibid., p. 263. *from National Planning Commission, Third Five-Year Plan.

[32] Ibid., p. 264.

> Inevitably we are led to the only possible solution - the establishment of a socialist order, first within national bourdaries...with a control-production and distribution of wealth for the public good...(This) can hardly take place without the willing consent or acquiescence of the great majority of the people concerned. Is it desirable or possible for us to stop the functioning of big-scale machinery in our country?...It is obvious that we cannot do so. If we have railways, bridges, transport facilities, etc., we must produce them ourselves or depend on others. If we want to have the means of defense we must not only have the basic industries but a highly developed industrial system. No country today is really independent or resisting agression unless it is industrially developed. The cooperative principle should be applied to the exploitation of land by developing collective and cooperative farms. It was not proposed, however, to rule out peasant farming in small holdings ...but no intermediaries of the type of the talukdars, zamindars, etc. should be recognized after the transition period was over...Banks, insurance, etc. should at least be under the control of the State, thus leading to a state regulation of capital and credit. It was also desirable to control the export and import trade.33

> (The Plan) was inevitably leading us towards establishing some of the fundamentals of the socialist structure. It was limiting the acquisitive factor in society, removing many of the barriers to growth, and thus leading to a rapidly expanding social structure. It was based on planning for the benefit of the common man, raising his standards

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33 Jawaharial Nehru, An Autobiography, (Bodley Head, London, 1953), pp. 523, 526.

> greatly, giving him opportunities of growth, and releasing an enormous amount of latent talent and capacity. And all this was to be attempted in the context of democraric freedom and with a large measure of cooperation of some at least of the groups who were normally opposed to socialistic doctrine. That cooperation seemed to me worthwhile even if it involved toning down or weakening the plan in some respects.[34]

Policy makers in India describe their economic system as democratic socialism, or development under democratic but centralized control. In this framework, they state, the criterion for determining economic policy is what is good for the community as a whole. Although India calls herself a socialistic nation, the United States is much more socialistic than India in terms of the percentage of product spend by the government and the government's overall direction of the economy.[35]

The main goals of Indian planning include the following - (1) to increase per capita income, primarily by raising total output, (2) to place Indian growth on a self-sustaining basis is no longer so heavily dependent on fluctuations in agricultural output, which in turn depends so greatly on the vagaries ofthe annual monsoon, to make the Indian economy and its development less dependent on a few raw materials and traditional exports, which are subject to world market price fluctuations; and yet, at the same time, to make India eventually independent of foreign aid,

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[34] Jawaharial Nehru, The Discovery of India, (Meridian books, Ltd., London, 1956), pp. 405-406.

[35] Raffaele, Joseph, The Economic Development of Nations, (Random House, New York, 1971), p. 187-188.

which would contribute in turn to its freedom in foreign policy and its political independence, (4) in this process to provide increased employment for the unemployed and underemployed, (5) to diminish the inequalities in income and status among persons and regions.[36]

Economic planning has put several demands on Indian agriculture. The success and failure of agricultural policy will be based, in part, on meeting these demands. First of all, it must contribute to the political and economic democracy of the nation.[37] In India, nationalism raises the horizons beyond the family and caste and province. With India being predominantly a rural nation having three-forths of its population classified as rural, regionalism and diverse tendencies are strong. Thus, the objective is to develop wide local participation in political and economic processes. But, for this to occur, it is necessary to significantly develop the local governmental bodies. Varying social and economic conditions also requires a tailoring of development efforts to meet local requirements and vitiates centralized government.[38] It is important to note that progress in this area has been slowed by a conflict between national political philosophy favorable to development and the self-interest of the governing bureaucracy.[39]

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[36] Rosen, p. 126.

[37] John W. Mellor, Developing Rural India, (University of California Press, Berkeley, 1966), p. 7.

[38] Ibid., p. 7.

[39] Ibid., p. 7.

Indian agriculture must also provide employment for a growing population. Expanding employment is a prime means of raising per capita incomes for the amount of employment is important in determining the breadth of income distribution.[40] In the long run, the Indian unemployment problem is more serious than the shortage of food supplies. Even though pressure on land resources has increased, the rate of population growth has accelerated. Moreover, the death rate will decline with India's success in raising the availability of food and raising the living conditions.[41]

The Indian agarian sector must also provide for the expanding agricultural employment which will develop. Within the context of traditional agriculture with diminishing returns to increments of labor and capital, the distribution of population with three-fourths of the population found in the rural areas is, in the short run, a major failure of Indian economic development.[42] The proportion between rural and urban population has stayed the same over the first three five-year plans. From 1949-50 to 1964-64, over one-half of the additional agricultural labor was absorbed on increased acreage of irrigated and unirrigated land. The remainder was absorbed by increased intensive farming which brought about a return of about 15 cents for each added day of labor. Major technical changes in Indian agriculture may increase labor requirements as well as raise yields per acre. Additional

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40 Ibid., p. 7.

41 Ibid., p. 9.

42 Ibid., p. 11.

opportunity for absorbing a growing labor force is provided by the structure of modern agriculture including improved roads, education, cooperative marketing and supplying organizations.[43] Any policy oriented towards employment must also necessarily include efforts to increase agricultural production. Likewise, there is a close relationship between employment-oriented policy and food aid.[44]

A rural public works program could play an important role in increasing efficient rural employment. The effective implementation of a successful rural public works program has four reuirements: (1) financing of labor force; (2) complementary physical resources; (3) technical know-how; (4) administrative structure.

Indian agriculture plays a key role in expanding the urban employment sector. Without a doubt, the major burden for providing employment must fall on the urban sector. However, urban employment requires vast inputs not only of direct inveestment in production facilities, but also for investment in housing and other urban necessities.

The three major sources of capital for industrial development are (1) foreign aid; (2) foreign private investment; (3) and domestic savings. Agriculture must be a prime source of savings. Thus it is agriculture which must provide greater employment, either within itself or by providing capital to create nonfarm jobs.

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[43] Ibid., p. 15.

[44] Ibid., p. 15.

jobs.

The prices at which agricultural commodities are exchanged for urban goods largely determine the rate of savings and investment in the urban sector. Food prices are the most important part of the cost of living for the working class, and they determine the level of money wages. If food prices are low as a result of high agricultural production, money wages can be low; consequently the level of profit will tend to be high, providing a fund for savings and investment in industrial expansion. During the first year plans, agricultural prices fluctuated substantially, but around a flat trend line. Over this period, changes in the relative price of agricultural commodities neither fostered nor inhibited industrial development.[45]

High taxes on agriculture can enable a government to finance the transfere of agricultural commodities to other sectors. India has low taxes on agriculturists: during 1961-61 all taxes on agriculturalists took less than 6 percent of agricultural income.[46] The tax burden on the upper-income farmer (about 7 percent of income) is only slightly higher than the average tax for agriculturists. It is lower than the tax rate - about 18 percent of income - for people in the same bracket in non-agricultural sectors.[47] For the upper income agriculturists, land taxes comprise only about 20 percent of the tax burden and indirect taxes make up the bulk of the remainder.[48]

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[45] Ibid., p. 18.

[46] Ibid., p. 18.

[47] Ibid., p. 18.

[48] Ibid., p. 20.

Any across-the-board increase in the tax on the agricultural sector will bear heavily on lower-income agriculturists, and for that reason will probably not be acceptable. Thus a major increase in the burden of taxes on the agricultural sector would almost certainly be associated with a reform of the tax structure so that the burden is more fully borne by upper-income rural people.[49]

With respect to direct taxation, there is little reason to believe that the proportionate burden borne by agriculture has increased over the past decade; it has more likely decreased since, of the main direct taxes, neither the land revenue payments, which include payments formerly made to intermediaries in the early years, nor the agricultural income tax have shown substantial increase.[50] The main direct tax on agriculture, the land revenue tax, which has not been adjusted since the war, declined from 4.5 percent of the net value of agricultural output in 1938-39 to less than 2 percent of net agricultural output in 1960-61.[51]

Although some states have agricultural income taxes, these have many defects and their extension has not been advocated. As a result, Ashok Mitra concludes that in the 1950-58 period, while per capita agricultural income averaged about 40 percent of nonagricultural income, the per capita tax paid by the agricultural population was only about 12 percent of that paid

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[49] Ibid., p. 20.

[50] Rosen, p. 146.

[51] Ibid., p. 146.

by the nonagricultural sector.[52]

There have been many suggestions on how to raise the land revenue payments of the peasants and to introduce an element of progression into the system by relating payments to the size of th farm, but none have been adopted. In the budget proposals of the years 1963-64, the central government proposed a compulsory deposit scheme under which those peasants paying land revenue would be required to deposit with the government offices a sum equal to 50 percent of the land revenue they paid in 1959-60, or half of the average land revenue of Rs 3 per acre. The proceeds of this compulsory deposit would have gone to the states. However, this indirect proposal to tap a major potential source of additional revenue was withdrawn after protests from the states. This withdrawal is an indication of the power of the peasat groups in both the state and national Congress parties.[53]

> With a tax policy that results in taxes lagging behind expenditures in the agricultural sector, there has been a steady flow of resources through the government from the nonagricultural to the agricultural sectors. Under such circumstances it is not surprising that the shift in the structure of the Indian economy from agricultur to non-agriculture has been lagging behind both hopes and plans.[54]

Providing an increasing quantity of food is another important demand placed on the Indian economy. Increasing the productivity per capita of its population constitutes the basic task of the Indian economy. There are two related reasons why it is

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[52] Ibid., p. 147.

[53] Ibid., p. 147.

[54] Ibid., p. 149.

sensible for India to place particular emphasis on raising incomes through increased agricultural production. First, rapid growth in the demand for food creates a favorable economic environment for expanding agricultural production. Equally important, India has a natural resource base in agriculture which provides clear potential for raid increase in production and high rates of return to the necessry investment.[55]

The argument against agricultural development is that over a period of time, the prices of agricultural commodities will tend downward in relation to nonagricultural commodities, thus favoring production of industrial products. This is a silly assumption. The Indian demand for agricultural commodities is potentially so great that the inability of India to meet the bulk of its agricultural production needs through domestic production would eventually raise world agricultural prices.[56]

Although in the past, population has been the prime factor in growth of demand for food, rising per capita incomes are playing an increasingly significant role. The importance of income in determining demand for food suggests that the agricultural sector will continue to play a strong and positive rolw in Indian development even if a solution is found to the population problem.[57] Indeed, slower population growth will increase the per capita demand for food, since one of the prime effects of a decrease in the rate of population growth will be to increase

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[55] Mellor, p. 22.

[56] Ibid., p. 23.

[57] Ibid., p. 26.

per capita income. Higher income will also sharply increase the demand for food. Growth in per capita income also increases the demand for what might be termed luxury commodities, such as livestock products, fruits, and vegetables, much more than it increases the demand for grain.

Rising incomes increase the demand most for commodities such as milk, eggs, vegetables and fruits that provide a large value of output per acre of land and require a large labor input. These commodities are particularly well suited to the resources available to Indian agriculture. Despite this potential, however, the Indian economy has apparently been less effective in increasing production of these commodities than of the basic food grains, and the prices of milk, vegetables, and similar products have consequently risen much more then prices of food grains.[58] Small changes in prices for these commodities cause substantial shifts in consumption. The price differences indicate a major failure in meeting demand. This failure is probably due to a lack of concern for agriculture, to the lesser aggregate importance of these commodities and the lack of political pressure from rising prices, and to the particularly difficult problems of marketing and producing many of these commodities.[59] As a result, a major potential of contribution to income generation has not been used. Solving the production and marketing problems for such commodities will become more important as rising per capita income increases the proportion of the total

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[58] Ibid., p. 26.

[59] Ibid., p. 27.

demand for food that is comprised by demand for these commodities.

To asurprising extent, increased agricultural production in India creates its own demand. This tendency can be reinforced if increased agricultural production encourages greater employment of low income laborers. Thus, increased employment and better welfare would maintain upward pressure on food prices. As a consequence, agricultural success would appear to be a failure; there would be continuing political and economic pressures for food aid, even though Indian agricultural production were increasing rapidly. A program of steady achievement in agricultural development will not end either the pressures on India's agriculture or the need for continued development and contribution from rural India.[60]

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[60] Ibid., p. 27.

INDIAN PLANNING -

THE THREE FIVE-YEAR PLANS

Through the first three plan periods, Indian agriculture succeeded in meeting roughly the growth in demand for food and in absorbing about three-fourths of the growth in demand for food and in having absorbed labor only at declining levels of productivity, hence lowering real income, and in contributing nothing to the formation of jobs in the nonagricultural sector. As a result a failure to increase productivity and to contribute to increasing incomes in the economy, agriculture did not contribute to a more equitable distribution of income, particularly with reference to the landless laborer.[61]

The success of Indian agriculture was achieved largely without the benefit of major technological change. Prior to 1961, the production increase resulted from expansion of the total land area and of the area under irrigation, and from increased labor. New crop varieties, new agronomic practices, and inorganic fertilizers played a modest role during this period. The faster rates of growth upon which other objectives of development depend can only be achieved through technological change. With better technology production may be increased at the same time that incomes and returns to factors of production are increased.[62]

There are four prerequisites to technological change in agriculture: (1) an incentive system that encourages acceptance of innovation; (2) a set of improved production processes created for local conditions; (3) an educational system to teach farmers how to choose and adapt technology to specific conditions; (4)

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61 Ibid., p. 29.

62 Ibid., p. 29-30.

efficient supply to farmers of the added inputs in which technological change is embodied.[63]

India has controlled its economic development by means of a series of five-year plans that began in 1951. The device was borrowed from the Soviet Union by the late Prime Minister Jawaharial Nehru who hoped to achieve for India an economic growth similar to that of the USSR. Each plan stipulates a series of investment and production targets. Industrial expansion is stressed and agriculture and manpower are given low priority. This relative emphasis reflects an early view of economic growth that held as a nation progressively raises its industrial investment, a point is reached where grwoth becomes "pervasive and self-sustaining."[64] The Indian planners concede that low productivity, the high proportion of the population in agriculture and large-scale unemployment are deterrents to growth. They believe, however, that these factors will be responsive to a policy designed to raise investment to about 17 percent of the national income.[65]

In the First Five-Year Plan, the government's objective was to raise the living standards of the Indian people. The planning document states:

> The central objective of planning in India at the present stage is to initiate a process of development which will raise living standards and open up to the people new

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63 Ibid., p. 30.

64 Raellaele, p. 188.

65 Ibid., p. 188.

opportunities for a richer
and more varied life.[66]

The First Five-Year Plan (1951-1956) was no plan at all. It recognized the prime necessity of continuing to consolidate the nation into a political whole, of beginning to build an economic as well as political democracy by turning attention to social-welfare objectives, and of beginning to expand the income base. "It emphasized what was the easiest to emphasize and did what was easiest to do."[67] The deficiencies of the plan - how little of value economics had to contribute about the processes of building an economy from a base like that of India - was not evident at the time. "The Planning Commission embarked upon a program of planned and facilitated development long before planning tools and underlying knowledge were at hand."[68]

The characteristics of the First Five-Year Plan were as follows - (1) it assumed that landowners, moneylenders, and traders in agricultural commodities severely exploited agriculturalists; (2) it assumed that agriculturalists were basically ignorant people who continued to farm in a backward and unproductive manner; (3) although it recognized that agricultural production was also dependent on inputs, and that among these, water was particularly important; there was little understanding of the role of technological change or of its conditions.[69] Remedies to the problem of exploitation lay in land reform and abolition and provision of alternative means of marketing agricultural commodities.

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66 Government of India Planning Commission, The First Five-Year Plan, Vol. 1, (New Delhi, December, 1952).

67 Mellor, p. 33.

68 Ibid., p. 33-34.

69 Ibid., p. 34.

To alleviate backwardness, carrying of information concerning improved methods to farmers, programs of social welfare to gain the confidence of cultivators, and literacy programs to increase the level of education.

The problem of inputs was attacked through major investment in irrigation facilities which made up 16 percent of the first plan expenditure.[70] With India's shortage of administrative and organizational manpower, plus lack of basic knowledge both of the agricultural sector and how it should be developed, large-scale multi-purpose irrigation projects seemed the most sensible choice.[71]

The Community Development Program was the most ambitious and exciting feature of the First Five-Year Plan. It was not oriented purely towards developing agricultural production. Its basic design was intended to change the attitudes and outlook of the rural population. However, much of the decisions regarding the Community Development Program were based on an incorrect appraisal of village attitudes and the prerequistes of agricultural development.[72] It offered literacy classes, better supply of drinking water, community centers, cooperative organizations, youth programs, improved roads, new local governmental bodies, and better seeds, tools, and farming practices. The program reached 123,000 villages and 80 million persons.[73]

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70 Ibid., p. 34.

71 Ibid., p. 34.

72 Ibid., p. 37.

73 Ibid., p. 37.

The basic unit of the Community Development Program was the Community Development Block (100 villages and 60,000 to 70,000 persons). It coordinated an administration which treated the needs of village development. The Block Development Officer directed the hierarchy of technical specialists and village-level workers. In practice, however, he was a general administrator. The Technical Specialists were heavily burdened with administrative chores. Their time was spent more with facilitating loans and subsidy assistance than extending technical knowledge. The function of the village-level worker was to set up field demonstrations, to iniate talks and group discussions, to investigate villagers' needs, to awaken concern, and to carry out programs developed by the technical specialists. They lacked formal education and knowledge necessary to understand new technology and the degree of respect they generated from the villagers varied from village to village.[74]

The structure of the Community Development Program created the tendency for administrative structure to form a line organization which unfortunately further isolated the higher order of competence in the Community Block from the farmer. The concept of the Block and village-level worker were clearly "visionary."[75] There was a general tendency to operate the Community Development Program as an entity, seperate from the rest of the State's program in agriculture. One of the few soldis bodies of technical competence, the British system of

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[74] Ibid., p. 37.

[75] Ibid., p. 38.

district agricultural officers, was seperated from the major rural development effort.[76]

In theory, each state's development commissioner appointed Block administrative staffs and the village-level workers and was also expected to coordinate Block activities with the state's technical departments. The district collector, the key administrative head at the district level, was responsible for corrdinating all activities in the district, including the CDP Blocks. In practice such coordination did not extend far, and the Blcocks operated mostly as seperate structures.[77]

The Blocks were generally isolated from sources of technical advice. There was no clear tie with agricultural experiment stations. There was further complication by the procedures for promoting Block personnel. Promotions were gained by impressing distant administrators. The bureaucratization of the system and the time spent in routine administration and report-writing cannot be stressed too much. Also frequent transfere of personnel made it difficult to discover the villagers' needs and desires.[78]

Criticism of the Community Development Program include the following - (1) did not place enough emphasis on increasing agricultural production; (2) expanded too rapidly at the expense of quality; (3) it was divorced from research and from the old agricultural extension program, thereby losing contact with the district agricultural officers and with the technical competence that did exist; (4) the administrative structure was such that the

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76 Ibid., p. 38.

77 Ibid., p. 38.

78 Ibid., p. 38.

government gave orders to be filtered out to farmers through a complex bureaucracy which received little influence or guidance from the farmers themselves.[79] Valid criticism of Indian agricultural developmental planning in the First plan period focuses not so much on the allocation of Community Development resources as on the failure to see what was missing and to build a base for supplying those missing elements. No effort was made to expand agricultural research or to increase technical competence or extension agents. The action programs were probable consistent with the needs and resources of the moment, but the total plan did not confront the necessity of changing the environment in order to facilitate quite different programming in the future.[80]

It is easy to argue the failure of the Community Development Program but it is difficult to formulate a better alternative for the India of 1951. The massive effort encouraged a constant concern and attention for the rural sector which would otherwise have been absent in a government dominated by intellectuals concerned much more with industrial than with rural development. Likewise, the application of a widespread administrative structure to rural problems generated pressures for reform and for development of a much useful institutional framework.[81]

Irrigation played an important part in the First Plan period.

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79 Ibid., p. 38.

80 Ibid., p. 40.

81 Ibid., p. 41.

Expanded irrigation facilities accounted for more than one-fifth of the real or weather-adjusted production increase of the First Plan period. The growth of population and the consequent pressure to move into marginal lands have expanded the land acreage, and have thereby proved to be more important factors in increasing agricultural production than has investment in irrigation.

Irrigation received major emphasis in the First Plan because water plays such an important role in Indian agriculture and because the types of administrative and capital resources required for irrigation were abundant at the time the First Plan was framed.[82] The natural desire of farmers to reduce the risk and the traditionally low price of irrigation water provided an obvious basis for India to emphasize irrigation in the First Plan. This was reinforced by the suitability of large-scale irrigation projects to an economy which has large sources of unskilled labor, an exceedingly short supply of industrial capital, and a scarcity of administrative resources for planning and executing industrial plants or complex agricultural schemes.[83] An additional factor which supported the adoption of large-scale projects in the First Plan was the need for tangible monuments of achievement in the new nation. Bhakra Dam, 740 feet high, dramatized the power of the new government.[84]

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82 Ibid., p. 42.

83 Ibid., p. 44.

84 Ibid., p. 46.

Irrigation has been an important contribution to increasing Indian agricultural production because of the heavy expenditures made for it, and not because these expenditures were efficiently used, for they afforded a high rate of return. The rate of return to irrigation has generally been small in both physical and monetary terms. The investment in irrigation should make a 10 to 20 percent return and increase production 2 to 3 fold, actually it has afforded a 4 percent return with 50 percent increase in production. High rates of return depend on the development of research and other institutions which were ineffective at the time of the First Plan.[85] Returns to irrigation were often lowered further because new facilities could not be used to full capacity by farmers which had not prepared their field channels. Inadequate preparation of the land is also a difficulty, for itf the fields are not level, there is poor distribution of water and full bebefit from irrigation is lost. As a result farmers have often found water use and conservation unprofitable, either due to lack of complementary crops, fertilizer, and farming practices or because poor distribution systems provided so much water per field that the returns to the final increments of water were very low.[86]

Major criticisms of the Indian irrigation policy - (1) too much attention has been given to famine relief and not to intensive development of agriculture; (2) total investment in irrigation has been insufficient; (3) management of irrigation systems has been

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[85] Ibid., p. 46.

[86] Ibid., p. 46.

poor, resulting in part from the division of authority between the Ministry of Food and Agriculture and the Ministry of Irrigation and Power; (4) irrigation development (particularly in regard to new facilities) has not been corrdinated with increased input of fertilizer and extension services; (5) there has not been enough research for irrigation.[87]

The problem of removing exploitation from the agricultural sector was also tackled under the First Five Year Plan. In discussing the success and/or failure of policy under this program it is necessary to determine three things - to what extent does exploitation actually occur; to what extent of any exploitation which did occur actually affected agricultural production; and to what extent were government policies effective.

At the time of independence, the zamindari and the yrotwari were the two dominant systems of land tenure. The latter is generally described as a peasant-proprietor or small-holder system; the former was in essence a feudal landlord-tenant system. One of the prime policies of the All-India Congress was to eliminate intermediaries between the cultivator and the government. After independence, a major and largely successful effort was made to implement this policy, and the report of the 1948 Agarian Reform Committee of the Congress established a basis for subsequent legislation. Reform legislation attempted to eliminate all intermediaries including the zamindars, and to protect by suitable regulation the tenants who might remain.

The whole problem of land-tenure reform has been greatly complicated in India not only by the multiplicity of systems existing at the same time, but also by the provision that land-

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87 Ibid., p. 47.

tenure legislation was to be left to the states. Zamindari abolition hoped that it would be accomplished (a) under the new constitution, which protected property rights (b) with compensation to the former zamindars and (c) with ample protection for the right of the zamindars themselves to resume personal cultivation on land previously let to tenants.[88]

In regard to regulation of tenancy, Indian land reform has been much less successful. The basic reason lies in the fact that since land is so important in making a living, the landowner necessarily has great power over the tenant. When there is no alternative for a tenant, he can be prevented from even appealing to the protection of the law. Much renting tends to be "sub-rosa" and short-termed, hence difficult to regulate.[89]

According to Indian economist Ali Khusro, 75 percent of Indian agriculture is now based on essentially peasant systems. Under these systems the land is divided into holdings of a size which provides, under existing technology, a full-time job for the farm family. The family supplies the labor, makes the basic decisions, and reaps the primary benefits. The remaining 25 percent of land is still under various systems of tenure.[90]

A full appraisal of Indian land reform must take into consideration (a) the extent of one man's arbitrary power over

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88 Ibid., p. 51.

89 Ibid., p. 53.

90 Ibid., p. 53.

another (b) the efficiency and level of agricultural production (c) the distribution of income (d) the distribution of political power. The zamindari system gave the zamindars great power over their tenants. With such a large amount of illiterate tenants, abolition has allowed new exploiters to enter the vacuum. Also, from a base of greater than average economic power and education, the zamindari landowners continue to dominate most political positions.[91]

From the teoretical side,"the First Five-Year Plan was, essentially a collection of several projections and contained a Harrod-Domar type exercise which sought to examine growth rates that would be achieved by specification of feasible marginal savings rate and a resulting average savings ratio."[92] The model was not given an explicit analytical form, but was implicit in numerical figures which constituted a perspective plan for developing the Indian economy. It was essentiaaly a simple variant of the Harrod-Domar model. The sole modification, but a crucial one nevertheless, was the distinction between average and marginal propensities to save.[93] The capital-output ratio was assumed the same on the margin as well as on the average.

The model was essentially developed for a closed economy with the following basic equations underlying growth -

(1) $I_t = S_t$ (2) $S_t = aY_t - b$ (3) $Y_t = \alpha K_t$ (4) $I_t = K_t$

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91 Ibid., p. 54.

92 Jagdish N. Bhagwati and Sukhamoy Chakravarty, Contributions to Indian Economic Analysis: A Survey, The Economic Review, (Sept., 1969, Vol. LIX, No. 4, Part 2, Supplement), p. 3.

93 Ibid., p. 4.

I_t - investment at "t"

S_t - corresponding amount of savings

Y_t - income

All equations except (2) are the same as the Harrod-Domar model. Equation (2) introduces the distinction between marginal and average propensities to save. The model leads to the basic differential equation $K_t = a\alpha K_t - b$ which can be solved to give a time profile of capital stock and output:

$$(5)\ K_t = (K_o - b/a\alpha)e^{a t\alpha} + b/a\alpha$$

Unlike the Harrod-Domar model, growth rises from period to period (provided $a > S_o / Y_o$). An economy saving more on the marginal than on the average can do better over time in terms of the rate of growth.

This model is useful in indicating the basic macro-economic features that a more elaborate system would equally satisify. It serves as a simple mechanism for computing external assistance that may be necessary for supplementing domestic savings to sustain the projected rate in income.

The Harrod-Domar model, however, obscures some problems of importance. Concentration of the flow equilibrium and implicit assumptions that there are no structural difficulties in transforming savings into investment may ignore the real constraints in the economy. With the framework of assumptions, the model ignores the fundamental choice of planning over time which requires a weighing of present versus future gains by assuming

a constant marginal propensity to save for the economy as a whole.[94]

> It appears that the selection of projects by governmental expenditure reflected essentially the "Overhead-Capital" approach to developmental planning and the model was largely an intellectual appendage with little impact on actual formation of the First Five-Year Plan.[95]

The Second Five-Year Plan (1956-1961) was essentially a continuation of the agricultural program carried out under the First Plan. It was not until late in the Second Plan that planners began to ask serious questions about agricultural development. The program was organized with the Community Development Program expanded to country-wide coverage. More attention was given to minor irrigation schemes. Concern about the exploitation of farmers continued with more attention given to circumventing moneylenders and traders by cooperatives and regulation. The emphasis on cooperative farming reflected the increased concern with the farm structure as the abolition of intermediaries was believed not to have solved the land tenure problems adequately.[96]

Any discussion of the Second Five-Year Plan falls into two parts: (a) policies and programs which were logical outgrowths of the First Plan - (1) moneylenders and credit cooperatives; (2) traders and service cooperatives; (3) farm structure including cooperatives and consolidation; (4) development of panchayats; and (b) rising criticism of agricultural developmental planning which has provided a basis for the experimentation of the Third

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[94] Ibid., p. 5.

[95] Ibid., p. 5.

[96] Mellor, p. 60.

Plan.

At the beginning of the First Plan it was recognized that an adequate solution to the credit problem had not been found and the All-India Rural Credit Survey was initiated in 1951. The report of the survey was issued in 1954 and showed that credit societies had not provided widespread alternatives to the moneylenders and it formed the basis for future positive efforts in the credit field.[97]

In moneylending, the problem was poorly diagnosed. In general, the peasant cultivators responsible for the bulk of production were not in the grasp of the moneylenders and were not held back from production by lack of credit. The literature of protest against the moneylenders was not based on fact, for those exploited represented a small minority of the poorest and economically weakest in the society. Loans to these groups were basically consumer loans required to maintain a low standard of living. The basic problem was not exploitation by moneylenders, that was a symptom, the problem was poverty.[98]

Moreover, the moneylender system seems quite efficient. There appears to be relatively free entry into moneylending and this keeps rates in line with costs. Thus, competition limits abuses.[99]

The cooperative credit programs failed initially because they

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97 Ibid., p. 61.

98 Ibid., p. 63.

99 Ibid., p. 64-65.

had stepped into a situation where there was competition among efficient private operators who possessed great knowledge of the community and who operated in a highly flexible manner. The bureaucratic governmental agency was poorly suited for handling consumer credit to the economically poorest groups who are least likely to repay. Lending for purposes of increased production and providing increased income to facilitate repayment are the areas where the cooperatives have the greatest advantage. To be able to compete in making such loans, cooperatives must become more flexible in timing and terms of the loan and they must minimize bureaucratic red tape. Another important requirement is the provision of sound possibilities for profitable investment in new technology. The relative growth in importance of cooperative credit has been associated with improving technology.[100]

If trading and service cooperatives are to be successful under existing conditions, they must be highly efficient and preferably should offer additional services. In general, marketing and supply cooperatives have not been successful in India. Not only have they attemped to compete in situations where the average margins are thin, but also they have been hampered by bureaucracy which has lessened their efficiency and flexibility. Rather than render better service, they have all too often rendered worse. There are, however, some outstanding exceptions including the Kaira District Milk Cooperative, a number of sugar, oilseed, and cotton-making cooperatives. Successful cooperatives operate

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100 Ibid., p. 66.

outside the governmental bureaucracy, enjoy first-class administrative imagination and leadership, and have offered special services.[101]

The key to providing services which farmers desire is efficient management and sufficient decentralization of authority to allow the management to use its skills and abilities. Once good training programs are established, local boards of directors or advisors should be set up for two purposes: (1) to advise cooperative managers of local problems and provide background knowledge; and (2) to provide a basis for local responsibility. Far too little progress has been made in recognizing the problem of competing with private trade, of training competent management, and of shifting real authority to the local level.[102]

Concerning land tenure and farm structure, the Second Plan asserts that "The main task during the plan is to take such essential steps as will provide sound foundations for the development of cooperative farming so that over a period of ten years or so a substantial proportion of agricultural lands are cultivated on cooperative lines."[103] The problem lies in that there have never been guidelines for and effective administrative action aimed at spreading cooperative farming.

There is a credible case for expecting economies to accrue from consolidation of Indian farms. Average Indian farms consist

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[101] Ibid., p. 67.

[102] Ibid., p. 69.

[103] Ibid., p. 71.

of five acres or so. Most agricultural production in India takes place on farms which make relative use of the family labor force, at least at seasonal peaks. Joint farming offers no basis for greater efficieny. There are propects for efficiency from farmers with small holdings. The common error in appraising the question of scale is to confuse it with the man-land ratio. Pooling both the land and the family labor forces of many farmers cannot add significantly to the amount of land per family.

In a study on relative efficiency of Indian agriculture conducted by Lawrence J. Lav and Pan A. Yotopoulos,"the conclusion resulted in favor of small farms (less than 10 acres). It appears that, given the fixed factors of production (land and fixed capital) and within the ranges of the observed prices of output and variable inputs (labor), the small farms have higher actual profits."[104] In the context of analysis, this finding means "that the small farms attain higher levels of price efficiency and/or they operate at higher levels of technical efficiency. They may imply that in agriculture the supervisory role of the owner-manager of the farm may be crucial for attaining high levels of economic efficiency. This test would draw limits of supervisory capacity at 10 acres."[105]

Indian experience with cooperative farming illustrates several important factors about Indian development and execution:

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[104] Lav, Lawrence J., and Pan A. Yotopoulos, A Test for Relative Efficiency and Application to Indian Agriculture, American Economic Review, (March, 1971), p. 96.

[105] Ibid., p. 96.

(1) it is sensitive to political processes and to social-welfare considerations. Economists and planners never appeared to be very enthusiastic about cooperatives because they recognized the economic pitfalls. The enthusiasm of politicans was based on "a heavy weighing of social-welfare factors, a misreading of the economy, and the recognition that cooperative farming was consistent with the current political doctrine."[106] (2) it illustrates the pragmatism of Indian politics.[107]

The land consolidation program of the Second Plan illustrates the problems of executing agricultural development programs in India: (1) it has not had political appeal as it is not dramatic; (2) it must be decentralized in order to utilize local knowledge of land quality and rights; (3) it requires a large number of administrators; (4) and it suffered from widespread stories of corruption.[108]

Due to the varied physical, economic, and cultural conditions in India, there is a valid criticism for local modification and administration of plans. Much failure in rural development can be attributed to a lack of a strong local political base from which knowledge of local conditions and problems can be gained. The Balwantray Mehta Committee in 1957 stressed the need for greater power and responsibility with the districts and above the village level if rural local government was to be effective.[109]

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106 Mellor, p. 69.

107 Ibid., p. 69.

108 Ibid., p. 74.

109 Ibid., p. 77.

A Three-tiered structure has developed - the village panchayat is elected directly by the village electorate at the lowest level. Several village panchayats are joined to form an intervillage panchayat samiti whose members are elected indirectly from village panchayats. Finally, at the top is the zila parisdad, and organization at the district level comprised of the presidents of the panchayat samitis, members of state legislatures and Parliment who represent the district and district officers.[110] Three important features suggest that rural government is maturing in India; (1) the clear improvement in quality of locally elected officals; (2) the beginnings of a tendency to raise local taxes for local purposes; (3) the gradual growth in recognition of local power over local developmental affaris. The continued growth of local government will lessen concern with ideology as a guide and lead to a more pragmatic approach for decision-making.[111]

> The Second Five-Year Plan marked a distinct departure in favor of the Feldman-Mahanobis type of structural model which emphasizes the physical aspect of investment and thus leads, subject to certain restrictive assumptions about transformation possibilities domestically and through foreign trade, to the proposition that the rising rate of investment requires increased domestic manufacturing of capital goods.[112]

This is a shift from the Keynesian "flow" analysis which emphasized the necessity to raise savings (assumed savings could

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110 Ibid., p. 77.

111 Ibid., p. 79.

112 Bhagwati and Chakravarty, p. 3.

be changed into investment), to a "structuralist" view which emphasized the transformation constraint and the supply of capital goods to sustain growing investment (assumes that the system would generate savings to finance growing supply of investment goods).[113]

The Second Plan model was greatly influenced by the two-sector growth model developed by P.C. Mahalanobis and also independently developed by Feldman in the USSR in the 1920's. Current investment flow I_t is divided into two parts, $\lambda_k I_t$ and I_{ct}, where λ_k is the proportion going to capital goods sector and λ_c is the proportion going to the consumption sector.

(1) $I_t - I_{t-1} = \lambda_k B_k I_{t-1}$ and (2) $C_t - C_{t-1} = \lambda_c B_c I_{t-1}$

The first equation inplies -

(3) $I_t = I_o (1+\lambda_k B_k)^t$

Further, $C_t - C_o$ can be written -

(4) $\sum_{r=1}^{t} (C_r - C_{r-1}) = \sum_{r=1}^{t} \lambda_c B_c I_{r-1} =$

(5) $\lambda_c B_c I_o + \lambda_c B_c I_c + \cdots \lambda_c B_c I_{t-1} =$

(6) $\lambda_c B_c I_o + \lambda_c B_c I_o (1+\lambda_k B_k) + \lambda_c B_c I_o (1+\lambda_k B_k)^{t-1} =$

(7) $\frac{B_c \lambda_c}{B_k \lambda_k} I_o \left[(1+\lambda_k B_k)^t - 1 \right]$

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[113] Ibid., p. 3.

Since $I_t - I_o = I_o \left\{ (1+\lambda_k B_k)^t - 1 \right\}$, by adding it to $C_t - C_o$, we get -

$$(8)\quad C_t - C_o = \left(\frac{B_c \lambda_c}{B_k \lambda_k} \right) I_o \left\{ (1+\lambda_k B_k)^t - 1 \right\}$$

Complete the solution for output at time = t -

$$Y_t = Y_o \left[1+\alpha_o \left(\frac{(B_c \lambda_c + B_k \lambda_k)}{(B_k \lambda_k)} \right) \cdot \left\{ (1+\lambda_k B_k)^t - 1 \right\} \right]$$

where $\alpha_o = I_o / Y_o$ - the initial investment-income ratio.[114]

$\lambda_k B_k$ is the asymptotic rate of growth in the system, where λ_k is the crucial allotment ratio for capital goods production. Thus a higher λ_k would always have a favorable effect on the asymptotic growth rate for the system, no matter whether it is consumption or output. Thus, the relative rate of growth in consumption or output is changing over time.[115]

While the assumption underlying the aggregative model was that the savings rate was reflected in the behavorial characteristics of the decision-making units such as the household, the corporate sector or the government, Mahalanobis effectively made it a rigid function of certain "structural" features such as capacity of the domestic capital goods industry and capital-output ratios of the capital goods sector and consumer sector,

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[114] Ibid., p. 5-6.

[115] Ibid., p. 6.

By making the allocation ratio of current investment going into the investment sector the policy variable, he skowed that a higher allocation would mean a higher saving rate of growth of output or consumption.[116]

There was much disenchantment and criticism with the Second Plan. The second year of th eplan suffered a sharp drop in agricultural production. For the fourth straight year, production failed to top the 1953-54 mark, while demand continued to increase. Previous criticism has been based on the assumption that the basic structures for achieveing agricultural development were correct and that they only needed refinement. However, this new criticism focused on the very foundation of the effort, particularly the Community Development Program.[117]

The following recommendations came out of the criticism - (1) a greater emphasis on agriculture, made tangible by the requirement that all of the village-level worker's time should be devoted to agricultural development activities; (2) an emphasis placed on inputs of agricultural production, since output was a function of input; (3) the recognition of complementary relationship among all aspects of the development process and hence, of the fact that any one missing element would nullify the influence of all the others. The outcome of this recommendation was a package program approach to agricultural development.[118]

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116 Ibid., p. 6.

117 Mellor, p. 80.

118 Ibid., p. 81.

At the end of the Second Plan there was satisfaction that targets had been met, but that the problems of agriculture had not been solved. The Intenisve Agricultural District Program (the Package Program) was instituted in 1961. The Package Program was conceived as a set of pilot efforts that would demonstrate what could be done to agricultural production by a massive, well-devised, concentrated attack on the agricultural problem. Its four major innovations included - (1) emphasis on measures for immediate increase in agricultural production rather than increases for improving the general context for development or immediate welfare; (2) it chose for trial those districts most likely to respond to massive investment in agricultural production; (3) emphasis was directed toward profitability at farm level. Farm to farm variations in profitability were taken into account; (4) emphasis was on supplying the physical inputs of production, in principle, it included a wide range of inputs, in practice, it was a fertilizer package.[119]

Unfortunately, the Package Program (1) failed to set up priorities and was excessively diffuse (2) it tended to ignore the problem of research and evaded institutional and managerial aspects of the water problem.[120]

The poor production record and rapidly rising prices which characterized the Third Five-Year Plan forced the government's

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[119] Ibid., p. 83.

[120] Ibid., p. 84.

attention to the price problem and the role of the merchant and trader in determining prices. The level of agricultural prices is crucial to the economic and political life of Inida.[121] There are four ways of dealing with rising food prices (1) increase agricultural production, but this not easy to accomplish. Furthermore, this solution will probably only be effective in the long-run; (2) a price-depressing mechanism including imports and price regulation; this would be unpoplar with the farmers and may cause them to reduce production; (3) introduce rationing which will probably be ineffective as a long-run measure; (4) reduce the margin between farm and consumer prices eliminating or regulating the middleman. The standard response of the Indian government to the failure of the monsoon and rising prices has been asystem of price controls, rationing and compulsory procurment.[122] The basic objective is to provide a minimum ration at normal prices to the poor in the large urban centers. The problem is how to procure and distribute the necessary supplies in the face of sharp budgetary and administrative restrictions. The usual solution is compulsory procurement from farmers at prices which are low for a year of scarcity but more nearly at the level expected in normal crop years. There are restriction on movement of grain between states, however, because of the administrative and enforcement problems.[123]

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121 Ibid., p. 87.

122 Ibid., p. 88.

123 Ibid., p. 89.

In general, government ventures into actual trading activities has been ineffective except to solve certain problems associated with extreme stress. This is due to the efficiency of the Indian private trading system.

The Fourth Plan contained three features which characterized the development of agricultural planning during this period: (1) a considerable growth in emphasis in the agricultural sector, rising in part out of the apparent failure of the agricultural sector during the Third Plan; (2) major emphasis on inorganic fertilizer as a key input of agricultural development, together with a turn towards greater allocations of foreign exchange to fertilizer imports and an increased interest in foreign collaborations as a quick means of providing capital and technical information necessary for a rapid expansion of the domestic fertilizer industry; (3) the recognition of technical requirements of agricultural development and improvement in research aimed at providing profitable innovation to farmers.[124]

A greater emphasis on agriculture can be seen in the decision for increased fertilizer allocations and improved administrative and salary structures for agricultural research. One of the major criticisms of Indian development is the emphasis on agriculture which developed at the end of the Third Plan was too late in coming. It must be realized that the basic approach to Indian agricultural developmental planning has been evolutionary. Predictions of needs have been poor and planners have made the error of not planning the next step until the last step has

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[124] Ibid., p. 94-95.

proven insufficient. This has caused much in loss of time which is a valuable commodity to the Indian population. If broad outlines could have been determined at the beginning, programs such as the Community Development Program might have proceeded while groundwork of research and other institutions were being laid for the more effective programs of the future.[125]

The prerequistes for increased use of fertilizers in India are (1) a greater availability through domestic productions and imports; (2) a distribution system to transport the fertilizer to farmers in the time, place and form desired; (3) profitable opportunities for farmers to use the fertilizer. This last is a function of (a) research input as it effects the physical production function, (b) and extension programs as it effects the efficiency and skill with which farmers use fertilizer, (c) the availability of complementary resources such as water, and (d) a relationship between crop prices, prices of other inputs associated with increased fertilizer use, and the price of the fertilizer.[126]

Distribution of fertilizer was in the hands of monopolostic cooperatives which were operated by managements with little training or incentive to sell fertilizer aggressively. The distribution mechanism discouraged overordering much more than underordering, encouraged late ordering and late arrival and provided no incentive to sell.

There is also a tendency for agriculturalists to overstate the extent to which fertilizer has been profitable to Indian farmers. It is exceedingly important that intensive research be carried

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125 Ibid., p. 97.

126 Ibid., p. 100.

on to increase the profitability of fertilizer application in areas where it is already widely used. Despite the position of rice as the most important food grain in India, the research situation for rice has been lagging. At the beginning of the Fourth Plan, substantial success was had with a short, stiff-stemmed variety of wheat developed in Mexico that responded to heavy applications of fertilizer. "One of the most optomistic signs in Indian agricultural development is the clear evidence of an effective research program in developing plant varieties which transform very large inputs of fertilizer into very high yield."[127] A major criticism of India's agricultural developmental planning has been that India has an unusally unfavorable fertilizer-to-crop price relationship, much less favorable in India than in the United States or Japan.

Because of the variability within agriculture, new technology must be specific to precise conditions of the area where it is used; a situation which calls for widespread systems of adaptive and basic research. Prior to the last years of the Third Plan, major expenditure on agricultural research had made no significant contribution to raising the yields of any of the major food grain crops. The problem was that the agricultural effort in India was working under the wrong assumption - "that India was looked upon as a poor country which could not afford fertilizer. It presumed it necessary to develop crop varieties which could provide high yields ay low levels of fertility, which was apparently impossible to achieve."[128]

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127 Ibid., p. 103.

128 Ibid., p. 108.

The Indian agricultural research system had an ample number of stations but lacked the coordination necessary for success.

The development of a highly productive agriculture in India requires vast additional supplies of water and this was realized during the Fourth Plan. There was a total lack of knowledge concerning water management and water resources. There was little organized foreign assistance emphasis on water management problems in the early years of the Fourth Plan and major studies of water sources began to be made at the same time.

"Education is one of the key remaining weaknesses in Indian agricultural development programming, and in particular, the critical importance of the technically competent extension worker."[129] The basic error in the Community Development Program and the extension program lay in placing excessive emphasis on changing farmers' attitudes toward innovation and insufficient emphasis on the technology of change. By placing the Community Development Program back under the Ministry of Agriculture in 1966, this emphasis may have been re-established.

In addition to neglecting technical competence, the Indian extension effort has neglested the function of research relating to communication of innovation and to the social processes involved in rapid diffusion of knowledge.[130] Knowledge of the patterns of village leadership, of the processes and patterns of communication, and of the functions of existing social structures can help speed the diffusion process. So far, little research of this type has been done, instead there has been done, instead there has been a

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[129] Ibid., p. 116.

[130] Ibid., p. 120.

tendency to transfere knowledge of these processes from the United States to India.

During the Fourth Plan more attention was turned towards the question of the over-all level and the seasonal and year-to-year stability of agricultural prices. It became more apparent that farmers make their economic decisions with price as the signiificant variable. Various emperical studies of supply response indicated that farmers will change their cropping patterns according to relative price changes.[131]

Policy regarding the over-all level of agricultural prices is subject to conflicting political and economic pressures. On the political side it must be recognized that the bulk of the population is rural, but that the urban population carries 60-70 percent of the weight of food in the cost of living for industriak workers who constitute a dominant urban influence on the politics of food prices. And there is the economic conflict there there is pressure to encourage higher prices, but at the same time there is also the difficult problem of capital formation which requires that measures which transfere income and savings toward agriculture be minimized. Rising agricultural prices puts upward pressure on urban wages and not only reduces business profits but also squeezes public sector funds as well. Reduced capital formation in both the public and private sectors is the result. Finally, it is not clear whether higher prices would encourage an increase in total agricultural production. It is possible that the incentives of farmers to produce are much more influenced by ready availability of consumer goods than by modest changes in

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[131] Ibid, p. 120.

prices of agricultural commodities.[132]

> In fact little can be done to change the over-all relationship of agricultural and nonagricultural prices except through changes in imports. The over-all price relationships are largely a product of relative supply and demand for agricultual and nonagricultural commodities. It is possible that a reduction in uncertainity regarding agricultural prices achieved by reducing price fluctuations might bring about increased production without the unfortunate political and economic effects of a general rise in agricultural prices. However, there are major problems in reducing such fluctuations which still have not been solved.[133]

The use of these four plans as a planning mechanissm has led to general achievements during this period. The index number of agricultural output rose from 100 in 1949 to 139 in 1960-61, while the index number for food grains rose to 135. As a result, the per capita new domestic availability of food grains increased from 13.5 to 16.2 ounces per day from 1951 to 1961, a rise of 17 percent. The total production of nonfood grains rose by 47 percent compared with 1949-50, and that is faster than the production of food grains, which rose 35 percent.[134]

Much of the problem of the Indian agricultural situation lies the general characteristics of the Five-Year plans. It must be admitted that, on many counts, these plans have failed in their purpose. This is seen in the need to adandon the Fourth Plan after two years into that particular plan period. Why do these plans fail? The answer may be that the Indians "are more effective as intellectualizers than as doers."[135]

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[132] Ibid., p. 122-123.

[133] Ibid., p. 123.

[134] Rosen, p. 132.

[135] Raffaele, p. 189.

> The dichotomy between ideals and reality, and even between enacted legislation and implementation, should be seen against the background that India, like the other South Asian countries, is a soft state. There is an unwillingness among the rulers to impose obligations on the governed and a corresponding unwillingness on their part to obey rules laid down by democratic procedures.[136]

> Indian planning does not appear to be an indicator of realisitc goals or actual accomplishments to be achieved in production and consumption. If a person were to study the Indian economy on the basis of its Five-Year plans, he would not know whence the economy came, where it is presently, and where it is going. Indian planning is misleading by its suggestion of orderliness in an economy that actually operates in a chaotic manner[137]

Indeed, the Indian agricultrual sector has come a long way since independence, but its greatest challenge awaits it in the years ahead. The agricultural progress made in the last few years has convinced many observers of the possibility for India to feed her rapidly growing population. This is India'a central problem at the monent - to improve the ratio of food supply to population.

While no dramtic decrease in the birth rate can be expected, India's hope lies in increasing the agricultural output. The new developmental scheme enacted in 1969 following the failure of the Fourth Plan strieves to increase output. Originally called the Intensive Agricultural District Program, it is now called

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136 Gunnar, Myrdal, Asian Drama: An Inquiry Into the Poverty of Nations, (New York, Pantheon Books, 1968), p. 107.

137 Raffaele, p. 189.

The "Green Revolution." It contrats sharply with the Community Development Program which tended to disperse scarse resources over all the 500,000 villages, for the district program concentrates on one district in each state.[138]

This program guarentees to all cultivators in a district the inputs required to assure increases in output of 50 to 150 percent. The typical Indian production per acre is so low that increases of this nature are not impossible. "But such revolutionary changes require not only intensive preliminary demonstration and planning and training for each individual farmer, but alsothat all the components of the package be delivered on time and in the right amount."[139]

The principle elements of the package are water, new high-yielding seeds, fertilizer suitable for local soils, pesticides, labor to meet peak requirements, credit at economic interest rates, farm-to-market roads, drying and storage facilities, truck and rail transport, incentive prices and floor prices. With 20 million acres of India's total cultivated acreage of 372 million under the high-yielding seeds, success has been retarded by the unsuitability of the seeds to many of Indian agricultural conditions. This is particularly true of rice, by far the largest crop.[140]

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138 Brookes, R.R., "India's Central Problem Is How To Improve Ratio of Food to Population," New York Times, January 19, 1970, p. 68.

139 Ibid., p. 68.

140 Ibid., p. 68.

If India is to sustain growth, the following are neceaasry - (1) at least some political stability; (2) a pragmatic approach to agricultural research; (3) an increase in domestic savings; (4) and outside help in assuring adequate foreign exchange.[141]

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[141] Lelyveld, Joseph, "'Green Revolution' Transforming Indian Farming, But It Has A Long Way To Go." New York Times, May 28, 1969, p. 12.

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