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AGRICULTURE AND THE THIRD FIVE-YEAR PLAN— SOME THOUGHTS

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PRODUCTION AND PRICES

It would be appropriate to begin with a mention of a few important features of agriculture and irrigation in the First and Second Plans. In the sphere of agricultural production, but more particularly food, the First Plan exceeded the targets. Relatively abundant food eased the position regarding supplies and prices. The level of production of cash crops was also extremely satisfactory. The working of the First Plan thus gave rise to an impression that the economy is capable of reacting favourably to an effort at planning and development. In the Second Plan, however, the problems of production confronted us in a more serious way. The economy began to offer friction and towards the end of the third year of the Second Plan, it was generally felt that the defect lay in the framework of the Plan itself. Foodgrains production began to taper off only to attain an estimated level of 73.5 million tons in 1958-59, but with grimmer prospects for 1959-60. Similarly, in the case of cash crops also, a number of difficulties arose as a result of which a steady decline set in the rate of increase in the level of production. The prices of foodgrains which were declining during the later period of the First Plan began to rise steeply. Of course, the prices of non-food crops were consistently registering a rise for long. Thus, in the sphere of production, the two important factors that emerge out of the experience of planning in our country are the hectic nature of agricultural production from year to year and a large measure of uncertainty about prices. These may be due either to uneven emphasis on different aspects of the economy or lack of a co-ordinated approach or both. The approach to our developmental problems has been lop-sided in this way. An integrated price policy is important for steady improvement in the level of production as well as the economic conditions of the agricultural community. We, however, could not evolve a definite policy either because there were extra economic considerations entering it or else we do not have the wherewithal, both financial and administrative, for such an approach. Superimposed on these two limitations was the question of the inflationary pressure which was giving an upward spurt to prices of the essentials of life but more particularly food. The demand for food was also growing due to improvement in incomes and through it the desire to consume more and better. It may be said that the approach to problems of agricultural production was *ad hoc*; we have not evolved any concentrated policy about prices and productivity. We are thus without lessons for the Third Plan on these two important questions.

OUTLAYS UNDER TWO PLANS

There are a few other important facts that emerge from the working of the two Plans which may be very briefly indicated. There have been financial outlays in excess of the original estimates on major schemes. This particularly applies to such items as major river valley projects and other canal systems, rural electri-

fication, road building, communications, etc. In the sphere of other works such as minor irrigation, supply of fertilizers and seeds, improvement in such ancillary activities as dairying, poultry farming etc., there have been difficulties in fully utilising the funds available under the Plans. It can, however, be said that on the whole, the expenses have been in excess of the targets provided for. On the other hand, in such matters as the creation of irrigation potential, power generation, rural electrification, road building, etc., the physical achievements have been lower than the plan targets. In the use of the potential created in such spheres as extension of irrigation to new areas and the use of electricity for agricultural purposes, the gap was even wider. Likewise in the sphere of seed multiplication farms and the supply of fertilizers and manures, the gap between the supplies made available and the actual plan targets, let alone the actual needs, was considerable. The paradoxical situation arose in which although the expenses incurred were larger than the provisions made, the actual potentials created and their use were much lower. Planning in agriculture has not lifted the rural economy from its subsistence base to one producing for the market. The plan effort has thus not helped agriculture to a self-generating and financing process.

LAND REFORMS AND CO-OPERATIVE POLICY

Similarly, in the sphere of bringing about an appropriate structural re-organization through land reforms to lead to a measure of egalitarianism and social and economic justice in the rural areas, we have a disappointing tale to narrate. The necessary laws have been more or less completed but their effectiveness has been limited. There have, besides, been serious differences and gaps from State to State in the dose of radicalism in the agrarian change contemplated. This creates an embarrassing situation both psychologically and which is not conducive to the generation of the necessary enthusiasm among the people for concerted effort at development. An element of uncertainty about the agrarian reforms was also introduced by the fact that the relevant legislative enactments and the amendments to them came in quick succession leaving very little scope for the laws to have full effect and for the agricultural communities to adjust and accustom to the changes. Incidentally, it also gave scope to find out loopholes in the enactments to nullify the objectives of such laws. In the sphere of the system of farming, besides, our policy vacillated from firmly rooting the peasant proprietor on the land for nearly a decade since Independence to one of an institutional approach in agriculture through co-operatives of various forms and types. Our agrarian laws as well as the non-official efforts like Bhoodan and Gramdan aimed at giving land to the tiller and the landless implying that it was the peasant farmer who was to be the pivot of agricultural planning. Subsequently, however, we hear of co-operative farming and ceilings on land holdings which appear to introduce an element of built-in-contradictions. The effect of these divergent approaches to agricultural re-organization on the farming communities is one of instability and uncertainty. As we reach the end of the Second Plan, it is very likely that these features might intensify so that when we begin the Third Plan, we would not only not have any definite idea about the correctness of our approach to planning and agrarian re-organization but we would have introduced a large measure of suspicion, uncertainty and instability among the agricultural classes about the future. A poignant illustration is provided by the co-operative policy which has vacillated considerably within the last five or six years. We introduced the Integrated Credit Scheme in 1954 and before it could have a fair chance of working

in practice, it was found to be not suitable. It is feared that the scheme would take away the initiative and self-reliance from the people for whom it was meant. It was also said that it largely concentrates on the productive financial needs of the individual cultivator. The need of the situation is that co-operative institutions should fit in the overall production and developmental programmes of the village or group of villages as a whole. Thus credit becomes a part of the total production programmes rather than an important activity by itself. It is not necessary for us to go into the rightness or otherwise of the various views on the subject of co-operative policy. What is intended to be conveyed is that like the approach to agrarian change and the future pattern of production in agriculture, the co-operative policy also appears to be in a state of indecisiveness. We are likely to begin our Third Plan without any definiteness about these fundamental approaches on which we should have at least been able to decide during the course of the first two Plans.

Superimposed on this are the prospects of a gloomy agricultural situation in the current year and which is likely to leave its mark for the coming years. There would be widespread crop failures as a result of heavy rains and floods. The food situation is likely to be intensified. There is also likely to be a fall in the production of such important cash crops as cotton, groundnuts, and jute which constitute the raw materials for a significant sector of our industries.

MAJOR VS. MINOR SCHEMES

The happenings this year have also thrown us into a measure of introspection about the gigantic river valley and similar major agricultural projects in our country. In some areas such as Gujerat, where we should have thought of projects for not merely irrigation but also flood control and power generation in the light of the experience of previous floods, we merely concentrated on irrigation projects and moved at a snail's pace, even in this limited sphere. It has now been realised in the highest quarters that the dams and the canal systems might have been in some measure responsible for intensifying the devastating floods or unfavourably disturbing the water table. The structures which were expected to last from 500 to 700 years, have partially given way or were on the brink of complete breakdown. It cannot be said that we do not have adequate experience and knowledge of the magnitude and intensity of floods in different parts of the country, and yet it passes the comprehension of an average Indian why the big dams were not able to withstand even the first test of major floods or accumulation of water in the rivers concerned. In addition to the organizational and structural problem, there is also a major financial issue involved in these large projects. The United States is a prosperous economy and, therefore, in a position to subsidize their agricultural sector in a large measure. They have their river valley projects. They have also had mishaps and adverse experiences. Over a period of 50 years or so, they have also not been able to strike a balance-sheet of the financial aspects of their gigantic river valley projects. But in a large, prosperous and growing economy, the maintenance of huge projects in the agricultural sector without the necessary financial viability may exert an undue strain on the nation's overall economy. We are an under-developed country. Our resources are limited and have, therefore, to be spread over not as between competing objectives but also over a large field. Even in the initial phases, investments in these projects are proving heavy and burdensome. We have not yet proceeded even in a limited measure whereby the benefits could

be made available and utilised by sizable agricultural areas. There are problems of friction and non-adjustability and matching resources for the use of irrigation water and electricity by the rural areas and the corresponding payments of taxes and levies and charges for them. The prospects of striking a balance-sheet of the outlays and returns in terms of revenue to the exchequer as well as towards improvement in productivity and stability in agriculture are very remote. In the context of recent happenings, however, the thought that comes uppermost is whether it would not be appropriate to concentrate in the Third Plan more on minor items of investments which can help to spread our limited resources over a very wide canvass or whether it would be appropriate to concentrate on limited number of major schemes. To some extent, the first two Plans give an answer to this query, in the sense that it has in a very large measure spread the resources thinly over large areas for development. Significant provisions have been made under them for investment in minor schemes which have shown satisfactory results. But for the organizational problems, the minor schemes would have had wider coverage and more phenomenal results. This crucial question of large versus small schemes and concentration on major items as against minor aspects of growth and development should engage us seriously while thinking of the approach to the Third Plan.

THIRD PLAN AND EMPHASIS

Likewise we hear of the great emphasis food production will receive during the Third Plan. It has been suggested that the country should achieve a level of food production in the neighbourhood of 110 million tons by the end of the Third Plan to place the economy on a comfortable position. We do not know how the target has been arrived at. It will be agreed that the Third Plan should take into account the increase in population and their needs, the higher consumption due to improvement in incomes, and also a certain allowance for reserves to meet unforeseen contingencies arising out of shortages and crop failures. In 1958-59, the level of production is estimated at 73.5 million tons. We are told that our actual requirements last year should have been of the order of 72 million tons. We are further told that by the end of the Second Plan our estimated level of production would roughly be of the order of 78 million tons which would at least be in excess of our reasonable food needs by about 2 million tons. It is not possible for us to be very precise about these figures. We may, however, reasonably draw the conclusion that if these levels of production are regarded as reasonable at the end of the Second Plan, it is not comprehensible how the claims under various heads which we have enumerated above get so much inflated as to require a target of food production of 110 million tons for the Third Plan. The continuously rising prices may be mentioned as a factor indicative of the unreliability of the figures of production. Here also, if the latest trends in the food prices are looked into, it would be found that the fluctuations are as important as overall rise in them over a period of time and that the prices of fruits, vegetables, fish, and milk and milk products have risen much higher than prices of cereals and pulses. It is also not possible to dismiss the effects of the inflationary pressures and the psychological factor that go into the creation of conditions of scarcity and high foodgrains prices. It is not contended that the food problem does not exist. The issue is whether it is so acute and emergent that it should more or less fully engage us in the agricultural sector during the Third Plan, at the expenses

of certain other major long-term issues which should equally claim our attention during planning in the next quinquennium.

The two major issues that should engage our attention relate to the requisite long-term changes in the agricultural sector and the creation of conditions in the non-agricultural sectors to supplement effort at agricultural reorganization. It will be accepted that not only from the point of view of organization but structurally also agriculture suffers from a variety of weaknesses which will have to be remedied over a period of time. The effort at higher production to meet the immediate problem should at least be co-terminus with the gradual solution of these problems within the rural sector. They are, for instance, social justice and economic equality, agricultural diversification and income stability and the creation on a large scale of external economies such as good roads and communications, markets and marketing systems, etc. While trying to bring about this social change care should be exercised to see that we disturb the existing pattern only when we are sure that what we are replacing is not less favourable than the original, so that it will not give a set-back to our developmental efforts but keep them continuous and progressively accelerating. This would demand, for instance, a serious re-consideration of the question of agrarian reforms but more particularly those relating to redistribution of lands, ceilings on holdings, co-operative farming and the radical definition of the tiller as one who contributes most of the necessary field labour from the family. On these important issues will depend the nature and extent of investments in agriculture in the private sector as well as a measure of parity between the social values that prevail in the agricultural and the non-agricultural sectors. It might, for example, be suggested that if along with the ceilings, floors are also imposed on all agricultural holdings, and a complete redistribution of land achieved, it would be possible to bring into existence a large number of co-operative farms with the below floor holders as well as the surplus lands with the landless labourers coming in. This would require that we limit the number of agricultural families and also achieve a complete redistribution for a convenient layout for co-operative farms. Administratively and financially, we do not know what would be the magnitude of this task. In like manner, it would be necessary to intensify efforts at rapid development of the non-agricultural sectors, particularly the large, small, medium, and cottage industries, so as to open out large non-farm and off-farm employment opportunities, to draw away substantial proportion of the superfluous agricultural labour force. There is no denying that a great possibility exists for such a withdrawal without adversely affecting the rural economy. The non-agricultural developmental aspects are emphasised because it is precisely through them that it would be possible to bring about a rapid and simultaneous agrarian change on the lines suggested earlier.

ORGANIZATIONAL ISSUES

We have indicated earlier the pattern of small investments in agriculture which would achieve a large coverage and quick results. We have proceeded to a large extent during the first two Plans on these lines and have succeeded only in a limited way. This is not to indicate the unsuitability of the approach but the absence of other pre-conditions for their success. These efforts remain largely unfulfilled because we do not have the necessary administrative and organizational

set-up which would permit this effort to percolate from the top to the smallest cultivators below. It is important that we streamline the organization and administration for this purpose and reconstitute the rural agencies such as the village panchayat and the co-operative to equip them to translate these efforts effectively and carry the developmental effort to rural families from the large cultivator to the humblest landless labourer. Like the social amenities created under the first two Plans and which reached the rural areas more evenly, it is essential that the economic efforts achieve a similar spreadover. The necessary resource base for the economic effort to percolate will come about gradually with the social change spelt out before.

THIRD PLAN PATTERN IN BRIEF

Thus the Third Plan should not force us into planning for certain purposes because certain emergencies compel us to do so. These emergencies should certainly receive significant attention in future planning. But the more important aspects that will demand continuous thought and attention and which can bring in long term and permanent changes should always occupy a place of priority not only in the Third but also in all future Plans. It is only through such steadfastness to long-term needs in agriculture that it would be possible for us to free ourselves from sudden appearance of emergencies and problems such as food shortage, floods, crop failures and consequent annual toll of miseries rather than merely by concentrating on them from year to year and devoting scant or little attention to the long-term issues in agriculture.

Generally speaking, the Third Plan would follow the broad pattern set earlier except for certain shifts in emphasis within the overall framework. It would, of course, straighten out organizational issues to make plan effort more effective and lend a measure of stability and certainty to the main currents of agrarian change. These will be conducive to better performance and bring forth public enthusiasm in full measure. The special attention to planning from the bottom will clear the web of lopsidedness, ensure direct popular participation and lead to an even spread of investment as between purposes and classes. It would, at the same time, make heavier claims on the organizational aspects; a problem which has come to the fore from the experience of the Second Plan and the significance of which to the Third Plan has been already brought out.

ROLE OF AGRICULTURE IN THE THIRD FIVE-YEAR PLAN

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AGRARIAN PICTURE

Our agrarian economy is suffering from the same old malady of atomistic size of the holding, low productivity, lack of irrigation and manuring facilities, antiquated land system, soil erosion, exploitation by money-lenders, rural indebtedness, halting measures of agrarian and tenancy reforms and heavy pressure of population on land leading to various types of unemployment. Backward agriculture coupled with rapid growth of population which has reached 40 crores by now presents the problem of "double crisis." This "double crisis" of rapid population growth and low agricultural productivity must be solved and tackled simultaneously. Effective economic planning must provide solutions for increased agricultural productivity and controlled population growth. Agricultural economic planning without population planning therefore will be fruitless.

Achievements and Success of Agricultural Planning under the Two Plans

The First Five-Year Plan was an agricultural plan. Agriculture was not neglected in the Second Plan either. But the Second Plan was an industrial plan. Financial allocation, out of the total outlay, in the two Plans, on agriculture and allied items of agriculture amounted to 33 per cent and 22 per cent respectively. Achievements and success can be measured in terms of increased productivity. All-round increase in agricultural productivity imparted stability to the national economy. Between 1951 and 1959, production of foodgrains, sugar, cotton, jute, etc., increased rapidly. Land areas under irrigation rose. Japanese methods of cultivation gave surprising results in increasing the per-acre yield. Virgin land areas were reclaimed and brought under cultivation. Increased use of chemical fertilizers was made possible. National extension services and community development projects provided the institutional frameworks of agricultural development. Improved credit facilities were also provided. Table I speaks in volume about the achievements and success in the field of agriculture during the two Plans. Targets of the Second Plan are also given. Red China, in the same period, made rapid advances.¹

Crop	India			China	
	Target for Second Plan			1951	1958
	1951	1959	1960-61		
Foodgrains (million tons) ..	54	72.5	80.5	132	225
Cotton (lakh bales)	29	55	65	10.1	25
Jute (lakh bales)	33	55	65	—	—
Sugar (lakh tons)	11	20	22.5	—	—
Fertiliser (lakh tons)	2½	8	18	—	—
Irrigation (million acres) ..	50	78	89	—	—

1. See "China and India—Economic Achievements Compared" by Asoka Mehta, *The Statesman* dated, 20th September, 1959.

In the words of Sri Mehta it can be said that "China's advance has been faster than India's. Between 1952 and 1958 gross national product increased in India by 20.3 per cent and in China by 73.2 per cent. Industrial production increased by 37 per cent in India and 188 per cent in China." Production of fertilisers and foodgrains rose tremendously in China. The picture of China's progress, if true, as presented by Sri Asoka Mehta, is really remarkable. But communistic countries' statistical figures are so astronomical that much reliance cannot be put and placed. Besides, their achievements are to be viewed in the light of immense human sufferings which a democratic country like India can ill afford to have. We cannot launch a scheme of 'A great leap forward' in the shape of coercive co-operative farming culminating in the "Chinese communes.". Looked at from another angle of democratic development our achievements are not ideal but nonetheless praise-worthy. The machinery has not worked properly. People have not been aroused. Institutions provided have failed to mobilise rural resources—human and material. Rural leadership has not been created. Gains of First Plan were not consolidated. Improved credit and warehousing facilities were not provided. Agriculture was not properly diversified and integrated with industry. Happy marriage between diversified agriculture and industry would have imparted solid and sound foundation of real economic planning.

Hence all the old problems, of food and hunger, low per capita income, low purchasing power of our people, inadequate supplies of basic necessities of life, shelter, unprecedented spiral of rising prices, unemployment, under-employment and rising population will be there at the beginning of the Third Plan. Solution of all these problems calls for bold, imaginative and realistic agricultural planning so that our planning may be real and progress assured and goals realised.

ROLE OF AGRICULTURE IN THE CONTEXT OF A DEVELOPING ECONOMY

Agriculture, the main prop, should be made the hard core and solid base of our economy in the Third Plan. Agricultural economy should be revolutionised. Rapid march to industrialisation can be achieved through modernised, reorganised and reoriented agriculture. Agricultural Revolutions have contributed to industrial growth of U.K., Russia, Japan and modern Red China. 'Forced collection of grains' appeared to have played the same role as land taxation in Japan; it was the principal weapon through which the gains in agricultural productivity were canalized in the direction of rapid industrial development. Organisation of 'Chinese communes' seems to be motivated with the same object of obtaining surplus agricultural product for industrial development. Surplus farm product, therefore, must be obtained through agricultural planning in the Third Plan to be ploughed back for agricultural and industrial development.

Agriculture should be so organised that food problem or crisis is solved, imports of foodgrains checked, mounting spiral of food prices brought down and stabilised, drainage of foreign exchanges due to heavy food shortages stopped and balance of payment position made easier. All these problems have to be tackled simultaneously so that the plan may not be reshaped and rephased in the middle.

Pressure of population on agriculture has to be lessened. Surplus population from agriculture should be mobilised and organised. Under 'Land Army' schemes for utilisation of 'human resources' in minor irrigation projects, mixed farming, roads and house constructions, bundings, soil conservation, manure and composts preparations and social services, be drawn and carried out. Rural and cottage industries should also be revived and reorganised to canalize the idle human resources and energies available in 'Rural India.' Thus the Third Plan should be labour-intensive.

Diversified agriculture if happily harmonised and integrated with rural, village and cottage industries will bring about increased per-capita income of the rural masses which stands at Rs.196 annually in terms of current prices. Herein 'Purna Swaraj' or Economic freedom, one can hope to realize. In such a set-up the life of rural India may throb and pulsate with new vigour, energy and vitality.

The Third Plan must launch a direct attack to solve the population problem. Agricultural planning without its counter-part population planning will be meaningless.

Thus, improved, developed, reorganised, reoriented, diversified and integrated agriculture with industries—big and small will solve the food problem, check spiral of rising prices, stop food imports, create marketable surplus which can be ploughed back for industrial development and growth. Rounded development will solve the unemployment problem, raise *per capita* income and purchasing power of the farmer and bring the goal of socialistic pattern within the possibility of realization. The gap between rural and urban incomes and wealth should be bridged and dawn of economic and social justice be brought within sight.

PATTERN OF AGRICULTURAL PLANNING IN THE THIRD PLAN

Mixed pattern of agricultural planning, consisting of 'State Farms,' 'Co-operative Farms' and 'Family Farms' will be most suitable kind of planning for the Third Plan. The State should open "State Farms" on culturable and fallow reclaimed lands and surplus lands available after ceiling fixation. Benefits of mechanization can also be reaped on such farms without creating any problem. These State farms will act as model and demonstrative centres for propagating the idea of increased productivity. Surplus can also be obtained. 'Co-operative Farming' experiment can also be launched over four thousand 'Gramdan villages' and 'Bhoodan lands.' The advantages of such farming to conservative, land-loving *Kisans* of the country be driven home to them. Proper atmosphere, environment in the shape of Japanese service co-operatives and Israelian Mixed Farming schemes and utilisation of Chinese Land Army for increased irrigation facilities must be provided first in the Third Plan and then the bold and revolutionary experiment of 'Co-operative farming' be launched. Foundation of such farming must be laid and advantages and benefits realized in the Fourth Plan. Reorganised and reoriented 'Family Farming' on Japanese pattern helped and aided at every step by service co-operatives is the proper answer and best solution of farming. Thus the mixed pattern of agricultural planning will solve the problem.

AGRICULTURAL PLAN-FRAME FOR THIRD PLAN

A bold agricultural plan-frame of Rs. 3,000 crores for all the three sectors—public, co-operative and private be drawn for all-round agricultural development. Financial outlay on the various sectors may be allocated in the manner pointed out below.

(Rupees in crores)	Public Sector		Private Sector		Co-operative Sector
	Rs. 1900 crores		Rs. 350 crores		Rs. 750 crores
1. State Farms	Rs. 100 crores	1. Consolidation of holding	Rs. 100 crores	1. Co-operative Farms.	Rs. 100 crores
2. Fertiliser Plants	200 ..				
3. Service co-operatives, Agricultural Banks, Marketing and Warehousing institutions	} 400 ..	2. Japanese and Chinese systems of cultivation	.. 200 ..	2. Minor irrigation projects	.. 200 ..
		3. Miscellaneous	.. 50 ..	3. Village Transport and communication	.. 150 ..
			350 crores		
4. Industrial Estates comprising of village, cottage and rural industries and finance organisations	} 600 ..			4. Manure and compost	.. 50 ..
				5. Gram Panchayat, N.E.S. and C. D. projects	.. 130 ..
5. Agricultural Education:	.. 100 ..			6. Land army	.. 80 ..
6. Agricultural services	.. 100 ..			7. Miscellaneous	.. 40 ..
7. Population planning	.. 100 ..				750 crores
8. Medical services	100 ..				
9. Animal Husbandry	.. 100 ..				
10. Miscellaneous	100 ..				
Total	.. 1,900 crores				

The policy of *laissez-faire* in agricultural planning particularly in a backward economy will spell disaster and therefore the public sector has been allotted a bigger slice of total outlay of Rs.3,000 crores. Democratic decentralised National Extension Services and Community Projects based on mobilised human and material rural masses with rural leadership as the institutional framework will bring about the desired development in agriculture. The State should take keen interest in agricultural planning in the real sense of the term. All the States of

the Indian Union should be provided with medium fertiliser plants of one-third size and capacity of Sindri Fertiliser. Agricultural banks should be established throughout the length and breadth of the country. Service co-operatives of different types and wide varieties should be opened. Agricultural schools, colleges and institutes for agricultural education should be started without any further delay. Agricultural economic service to organise, administer and manage agricultural economy should be recruited at once. Population planning be made real.

'Land Army' created out of the surplus agricultural population be employed under 'Co-operative sector' for minor irrigation works, village transport and communication, manure and compost preparation and in diverse social service works. Thus this sector will also contribute in a large measure to the success of agricultural development. Land area under Japanese method of cultivation should be increased and enlarged. Land area from 4 lakh acres to 80 lakh acres under Japanese system, is a big jump in the course of ten years but it should be increased to 240 lakh acres by the end of the Third Plan. Some sixty centres be selected for paddy cultivation on Chinese pattern. The Chinese system of paddy cultivation is said to be famous system of increasing the per-acre yield. Services of "Kirish Pandits" for increasing the per-acre yield be employed and utilised in all the sectors of the agricultural economy.

Resources to Finance Agricultural Planning

The stupendous financial resources of Rs. 3,000 crores are difficult to obtain within the framework of backward agricultural economy. Income from betterment levy, water rates, land revenue, profits and income from sale of fertilisers will not be large enough to finance agricultural development. Foreign exchanges earned from tea and coffee and other agricultural exports should be made available for improvement in agriculture. The suggestions of Dr. K. N. Raj for increased land taxation, tax on agricultural rent and surcharge on holdings above five acres under commercial crops under Third Plan should not be operative. Such taxes can be levied only when reasonable progress has been made and the agricultural sector has attained some maturity and strength. Any further tax burden will be disastrous.

Human resources should be tapped to the maximum. Human capital and resources which were neglected under the two Five-Year Plans should be harnessed and utilised to the full capacity. This will solve the unemployment problem as well. Employment opportunities created will increase the *per capita* income and purchasing power of the rural masses leading to rise in their standard of living.

Foreign aid, grants, loans and assistance can play vital role in obtaining resources for agricultural planning and development. Agro-industrial development can be planned on loan, aid and grants from external sources. Long term loans, payments of which should start after ten or twelve years from the grant of loans in our own currency or in exchange of our own goods and merchandise will go a long way to solve the problem of financial difficulties which stand as rock-bottom in the path of planning.

Priorities and Targets of Production in Agricultural Planning

Our land is both thirsty and hungry. Land area under irrigation increased from 50 million acres in 1951 to 69 million acres in 1956 and likely to increase to 89 million acres by 1961. The target of 110 million acres by the end of Third Plan through minor Irrigation works and schemes, diversion channels and link channels organised on human labour should be brought into operation. Fertiliser production should be accelerated and salt and other manures like green composts, night soil and bones should increasingly be utilised. Use of chemical fertilizer increased from 2 $\frac{3}{4}$ lakh tons in 1951 to 6 lakh tons in 1956, but the target of Second Plan of 18 lakh tons cannot be realised by 1961. Hence there is the imperative necessity for setting up at least 14 fertiliser plants of medium and moderate size of the total capacity of 17 $\frac{1}{2}$ lakh tons under the Third Plan. In this way the problem of fertiliser can be solved and tackled. Land area under foodgrains and commercial crops should be fixed. Cropped land area under foodgrains and commercial crops increased from 227 million acres and 49 million acres in 1951 to 272 million and 60 million acres in 1954-55. It should increase to 300 million acres and 100 million acres by 1965-66. Target of food production for the Third Plan should be fixed at 110 million tons as recommended by the Ford Foundation Team. Population growth and increase should be limited between 5 and 5.5 million per year. If the various targets fixed for production, irrigation, fertilisers and population growth are realised and achieved then agricultural planning will be considered a success and objectives will be within the measurable distance of realization.

Integration and Harmonisation of Diversified Agriculture with Industry

Diversified agriculture should be organised. Rotation of crops and crop-planting should be undertaken. Farms should not only produce foodgrains but should also yield fruits and vegetables. Sheep, cattle, poultry and bee-keeping and rearing should be encouraged. Mixed farming will diversify agricultural economy. Diversified and mixed agriculture should be integrated and harmonised with rural, cottage and small industries. Every home and hamlet of village should be converted into a small industrial unit in the long run. Beginning with 500 to 600 industrial estates of the type started under Second Plan period be organised round about "Village India"—the heart of our land. These industrial estates should be managed by small Industrial Corporations. In such a diversified and integrated agro-industrial set-up the planning will be real and growth and development balanced. Herein lies the hope of submerged and down-trodden Indian humanity.

Machinery and Policy needed to Implement Agricultural Planning

To achieve the heavy and onerous task of integrated real planning the administrative machinery must be manned by people of highest honesty, integrity and efficiency. People operating the machine must be imbued with the motto of rendering service to humanity. They must work with zeal, take quick decisions and be fired with missionary spirit of realizing the goal of planning. Honest and incorrupt agricultural administrative services should be created to implement the plan. Services of social organisations like "Bharat Sewak Samaj," "Sarvodaya

Sangh" and "Bhoodan workers and Jeevan Danis" can be mopped up and utilised for agricultural development. Rural masses organised under Gram Panchayat and National Extension services can also contribute to rapid development. Planning then will grow from within and get the real push and gather momentum. "Planning by exhortation is no planning." Planning, if organised and based on the will and consciousness of the people, will be real planning.

Broad policy of Land Reforms, consolidation of holdings, fixation of ceiling, organisation of service co-operatives, increased facilities of all types of agricultural development and industrial growth will lead to all-round development. Price stabilisation through 'buffer stocks' and 'Price Stabilisation Board' and 'Intelligence Division' as suggested by Asoka Mehta Foodgrains Enquiry Committee Report should be implemented. In the developing economy, price stabilisation should not be based on cost of production or parity basis. It should be based on 'forward prices.' Stabilisation of agricultural prices on 'forward price' basis and its harmonisation with industrial prices will bring about integrated price policy which will be conducive for economic growth, development and progress. The novel scheme of our Food Minister Sri S. K. Patil of 'Grain Bank' created out of farm surplus of U.S.A., Canada, Australia, Burma, Indonesia and China if brought into being on their own account here in India will go a long way to stabilise prices which will be very helpful for our progress and development. Similar stocks of sugar and other raw materials so very necessary for industrial development be created. India would make payments or compensate, only when stocks are drawn and utilised. Price stabilisation can be achieved through the above measures and progress assured. Ordinary trade channels should not be interfered with. Trading in foodgrains in moderate form be organised and fully developed by the fag-end of Third Plan if traders still persist in behaving in anti-social manner. State Trading in foodgrains here and now may disrupt the normal channel of distribution. Channel of distribution can be perfected. Time is not ripe and resources are not available for such trading organisation. All such policies, if honestly implemented, will then usher in real dawn of prosperity and happiness.

CONCLUSION

Thus agricultural planning under Third Plan should be dynamic, flexible and pragmatic. It should have a mixed pattern. Agriculture and industry should be happily united and harmonised. It should be labour-intensive. It should be employment-oriented. It should create real democratic, socialistic society. It should provide the basic needs, necessities and requirements of the people.

THE ROLE OF AGRICULTURE IN THIRD FIVE-YEAR PLAN

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The Problem which agriculture is likely to face in the Third Five-Year Plan cannot be known unless the contents of the Third Plan and investment policies are known. But if the present trends are any guide for future action, agriculture may have to solve the following problems during the Third Five-Year Plan:—

- (i) The problem of balance between demand and supply of food.
- (ii) The problem of increasing productivity in agriculture through proper investment allocation.
- (iii) The problem of mobilisation of savings in the rural sector.
- (iv) The problem of developing appropriate organisations and agencies for increasing productivity and mobilising the surplus accruing in the agricultural sector.

PROBLEM OF BALANCE

In the First Five-Year Plan there was an emphasis on balance and so top priority was given to agriculture and irrigation. In the Second Plan the emphasis shifted from agriculture and irrigation to industry and mining and the concentration was on heavy rather than light industry and on more capital intensive projects. During the first three years of the Second Plan, certain imbalance has appeared between the rate of increase in the production of food and rate of increase in demand for food. The production of food has increased from 58.8 million tons in 1953 (a more representative year) to 73.5 million tons in 1958-59, an increase by 25 per cent. During the same period, on the assumption of an average rate of increase of population by five million per year during the First Plan period and an increase by 7 million per year during the Second Plan period, population might have increased from 368 million in 1953 to 404 million in 1959— an increase of about 10 per cent. Thus food production has been increasing at a rate double that of population. In spite of this there has appeared shortages in food necessitating imports of food from abroad. The other symptoms of the lack of balance between demand and supply of food are the steady rise of food prices during the last three years and a shift in terms of trade in favour of agriculture.¹ This is on account of growth of income and a high income elasticity of demand for food.

During the Third Five-Year Plan population is likely to increase at the rate of 10 million per year. The total investment for the Third Five-Year Plan has been estimated at Rs. 10,000 crores. This is near about the projected investment given for the Third Five-Year Plan during the formulation of the Second Five-Year Plan.² On account of these factors, the demand for food will increase further during the Third Plan and unless the production of food increases at a

1. Report of Foodgrains Enquiry Committee, 1957, pp. 167-170.

2. Report on the Second Five-Year Plan, p. 11.

rate commensurate with the increase in the rate of demand, a serious imbalance may appear.

This has led some people to suggest that top priority should be given to agriculture and an all-out effort should be made to increase agricultural productivity.³ There is no doubt that an increase in agricultural productivity is a necessary factor for capital formation in other sectors. It is necessary for providing food for the growing population, for less dependence on food imports and for releasing people from land. But should it be done at the expense of Industry?

In allocating investments to various sectors and industries, certain important factors have to be borne in mind. They are the indirect effects of allocation of investment on the expansion of growth factors (such as expansion of entrepreneurship, improvement in the quality of labour force, skill formation, etc.), on future saving habits and thus on future rate of investment, on future consumption pattern and on the rate of population growth.⁴ It is generally argued that investment in agriculture is in many ways a better proposition than investment in industry. The capital-output ratio is smaller and the output is generated more quickly in agriculture than in other enterprises. But this argument neglects the effects of such investment on growth factors, on future savings and investment, on consumption and population growth. Undue concentration of investment in agriculture would adversely affect savings and as a consequence the future investment rate. It is a well-known fact that the marginal propensity to consume of small tenants and landowners is close to unity. So any benefit from increase in agricultural productivity may merely increase consumption. In case of large landowners, the propensity to save and invest, especially in industry is very weak. According to A.W. Lewis, backward countries save less not because they are poor but because their capitalist sector is so small.⁵ Investment in agriculture would also mean greater rate of population growth and consequently a lower rate of increase in income. It would not also solve the problem of disguised unemployment in the rural sector of densely populated countries.

It is thus essential for rapid economic development of the country that agriculture should not get a disproportionate emphasis in the Third Plan. But this is not to deny that steps should not be taken to increase agricultural productivity or to affirm that agriculture has received the attention that it deserves. It is a well-known fact that agriculture has a low elasticity of supply and has a high inflationary pull. If the Third Plan is going to be a bigger and bolder plan, this bottleneck has to be overcome if we are to take a leap forward. In allocating investments to various sectors for Third Five-Year Plan, this factor has to be borne in mind. This makes out a case for a correct balance between agriculture and industry in the Third Plan.

ALLOCATION OF INVESTMENT

In the First Plan, agriculture (including irrigation) received the top priority. In the Second Plan it did not receive as much attention as it deserved. But that

3. Report on India's Food Crisis and Steps to Meet It, the Agricultural Production Team sponsored by Ford Foundation, 1959, p. 13.

4. H. Leibenstein: *Economic Backwardness and Economic Growth*, pp. 258-264.

5. A. W. Lewis: *Economic Development with Unlimited Supplies of Labour in Economics of Under-development*, p. 419.

does not mean industry got a disproportionate emphasis. Industry and Agriculture, taken together accounted for 50.8 per cent of the total investment in the First Plan and 49.3 per cent in the Second Plan. (Table I).

TABLE I—INVESTMENT ALLOCATION IN THE FIRST AND SECOND FIVE-YEAR PLAN

	Per cent	
	First Plan	Second Plan
1. Agriculture (including Irrigation)	32.1	21.9
2. Industry, Mining and Power	18.7	27.4
3. Transport and Communication	23.6	28.9
4. Other Sectors	25.6	21.8
	100.0	100.0

It is a known fact that in under-developed countries it is agriculture which finances economic development. The rapid progress of China in both agriculture and industry is partly on account of the greater emphasis on agriculture and industry in relation to other sectors than in India. (Table II).

TABLE II—ALLOCATION OF GROSS INVESTMENT IN INDIA AND CHINA⁶

	(Per cent)							
	The Plan		First Plan				Second Plan India	
	India (1950)	China 1950-52	First three years		Last two years			
			India	China	India	China		
		1951-53	1953-55	1954-55	1956-57	1956-57		
Agriculture ..	28	32.7	26.5	27.6	26.5	27.0	24.5	
Industry (including Power) ..	23.4	36.6	25.6	35.5	24.3	45.0	29.2	
Other Sectors ..	48.6	30.7	47.9	36.9	49.2	28.0	46.3	

In China the percentage of investment in agriculture and industry has been higher than that in India. In the allocation of investment industry has all along received a precedence over agriculture and both received greater emphasis than other sectors. In India, with a different political system, it is of course not possible to squeeze other sectors (which include social services) so much as in China. However, it is possible in the light of the Chinese experience and our own, to step up the percentage of investment both in Agriculture and Industry having a precedence over agriculture.

6. W. Malenbaum: "India and China, Contrasts in Development Performance", *American Economic Review*, June, 1959, p. 300, Table 4.

The next task to face in the Third Five-Year Plan is that of increasing productivity in agriculture through an appropriate investment allocation policy within the agricultural sector. The Japanese experience during the period 1881 to 1921 is very relevant in this connection. The Japanese situation then was more or less like our own now, with average farm holdings of two to three acres consisting of a number of minute fields scattered over a wide area. In spite of this there was a great spurt in agricultural productivity during the period 1881 to 1921. The index number of area of six major crops rose from 100 in the period 1881-90 to 121 in 1911-20, yield rose from 100 to 146 and production from 100 to 177 during the same period.⁷ This gain appears to have been achieved primarily on account of liberal use of fertilisers and improvement of rice strains. The changes in technique were adapted to the condition of Japanese agriculture. The innovations were all land-saving and their nature was such that they could be applied effectively to every small farm. The capital required to bring about these improvements was relatively small compared to the increase in output obtained. Seeds of superior variety were evolved which responded favourably to increasingly heavy doses of fertilisers and were distributed through a network of seed propagation farms covering the whole country. By all these methods the farm output increased by some 75 per cent and the output of farm labour nearly doubled with relatively little capital.

Our effort in this direction has not been impressive. An increase of agricultural production by 2 to 2.5 per cent per annum which has been achieved so far is not sufficient to support any large plan of economic development. Our efforts in the direction of irrigation, multiplication of seed firms and distribution of superior varieties of seeds on a wide scale and more extensive use of fertilisers have not been at the desired level.⁸ There is evidence to show that there has not been a concentrated effort to increase agricultural productivity and even the benefits accruing from the investments have not been utilised. It has been found that the emphasis on major irrigation projects has not been a desirable one and more attention should have been paid to minor and medium irrigation. According to the Foodgrains Enquiry Committee (1957), "in the achievement of physical targets the major irrigation was the lowest though in terms of expenditure it was the highest. With minor irrigation the position is the reverse."⁹ At the end of the First Five-Year Plan, about 50 per cent of the potential benefits from major irrigation Projects in the States of Bihar and West Bengal had not been utilised and this was more or less than the case with other States. Provisions for minor irrigation had not been adequately utilised (by 1958) and maintenance of existing minor irrigation works had been neglected. The programme for setting up seed farms had not been fully implemented and greater efforts in the direction of removal of shortage of chemical fertilisers had not been made. All these point to the fact that greater efforts are needed to speed up the programme of increasing agricultural productivity. There should be also proper selection of schemes so that optimal allocation of investible resources may be possible. Attention also should be paid to evolve such techniques as can be adopted in the present state of rural economy.

7. Johnston, "Agricultural Productivity and Economic Development in Japan", *Journal of Political Economy*, December, 1951, pp. 494 and 500-501.

8. Appraisal and Prospects of Second Five-Year Plan, pp. 39-49.

9. Report of the Foodgrains Enquiry Committee, 1957, p. 104.

MOBILISATION OF SAVINGS IN THE RURAL SECTOR

Another task that has to be faced during the Third Five-Year Plan is the mobilisation of savings accruing in the rural sector by an increase in productivity. This is necessary for the expansion of public sector ; for reducing the propensity to consume in the rural sector where it is very high, and to ensure a transfer of the surplus food accruing in agriculture sector to other sectors to secure a balance between demand and supply of food.

In India the public sector is expanding. In the First Plan, the investment in the public sector was projected to be 52 per cent of the total investment but actually it was only 48.5 per cent. In the Second Plan the investment in the public sector is projected to be 61.3 per cent of the total. But taking the savings and investment habit and pattern of the Indian economy into consideration, the actual investment in public sector may be probably 55 per cent of the total.¹⁰ So probably the investment in public sector in the Third Plan will be about 60 per cent of the total.

In India about 90 per cent of the output is generated in the private sector and the rest on the public sector. While the private sector is assumed to find out the resources required by it from savings within the sector, it is not so in case of the public sector. In the Second Plan, revenue surpluses from various government activities were to supply only 5 per cent of all public investment, 63 per cent was to be borrowed domestically (half of this through deficit financing), 12 per cent was to be raised externally and 11 per cent was the uncovered gap to be raised from domestic resources. The expansion of public sector in the Second Plan implied that no less than 73 per cent of the anticipated growth in savings during 1956-61 were to become available to the public sector. During the first two years of the Second Plan deficit financing and external assistance provided resources for 85 per cent of the actual public investment. The Government's difficulties in raising real savings from the people were at the root of this development. In the Third Plan, the expansion of the public sector further would necessitate greater efforts for mobilising real savings from the economy. The major difficulty hitherto has been the inability to tap the savings from the rural sector of the economy. It has been estimated by Dr. K. N. Raj that while Government taxation has probably taken away 40 per cent of the increase in income in urban sector, it has only tapped only 14 to 15 per cent of the increase in rural income between 1952-53 and 1957-58.¹¹

According to the Taxation Enquiry Commission the *per capita* tax is uniformly and distinctly high in urban than in rural areas.¹²

There is thus good scope for additional taxation in the rural sector. Taxing the agricultural sector is also necessary to raise resources for investment in the public sector for absorbing the disguised unemployed. This method has been followed in both China and Japan. In Japan efforts to increase agricultural productivity was followed by a heavy land tax to take away the surplus for invest-

10. The estimate is by W. Malenbaum in "How Large the Public Sector 1961-1966?", *Economic Weekly*, January, 1959, Annual Number.

11. K.N.Raj, "Resources for the Third Plan", *Economic Weekly*, January, 1959, Annual Number.

12. Report of the Taxation Enquiry Commission, Vol. I, p. 69.

ment projects by government action. The tax was initially fixed at 3 per cent payable in terms of money which provided 65 to 80 per cent of government revenue in 1870s. In India it would be necessary to siphon off a part of the increase in productivity in agriculture not only to finance the public sector but also to prevent it from being consumed. Dr. Raj has suggested certain measures to mobilise savings from the rural sector by way of taxation. He suggests that land tax should be doubled on all holdings above five acres. This measure will not affect about 75 per cent of rural households who own about 17 per cent, of the total area of land. Bigger landowners who seem to benefit most from an increase in agricultural productivity will only be affected by this measure. He also proposes a tax on agricultural rent which may amount to ten per cent of the gross produce of the tenants. He also supports the case for a surcharge on land holdings above five acres under commercial crops with adjustments for different kinds of commercial crops. To make these taxes acceptable to the rural population a part of the yield from these taxes should be spent locally on local development projects.

REORGANISATION OF THE AGRARIAN ECONOMY

But the most important task that is to be faced is the development of suitable agencies and organisations to increase agricultural productivity.

This involves in the main two questions : the question of having suitable agencies for popularising the improved agricultural techniques in the countryside and the question of having a suitable agrarian structure to absorb these techniques. Agencies have already been created for rural development through the establishment of Community Development and N.E.S. Blocks and Gram Panchayats. The entire rural area of the country will be covered by the community development and N.E.S. blocks by October, 1963. But as the Fifth Evaluation Report on the Working of the Community Development and N.E.S. Blocks shows, they have not been very successful in arousing popular enthusiasm for the acceptance of the new techniques and practices in rural areas. It is now proposed to transfer the responsibility for programme and of its relationship with wider aspects of development planning and execution of the programme, to the representatives of rural population.

This is a welcome move and there is no doubt that when this democratic decentralisation occurs, there will be more popular enthusiasm for the rural development schemes and greater measure of success in their implementation. In Rajasthan and Andhra steps have already been taken in this direction and it is expected that other States will follow their examples.

The Gram Panchayats can also be utilised for the implementation of development programmes. A large number of States have established Panchayats. But they are yet to play their vital role in the development of the rural Community.

The major difficulty, however, lies in the evolution of an appropriate agrarian structure which will have the capacity to absorb superior techniques. Measures were taken during the First Plan period to abolish intermediaries in land and to consolidate the holdings. In the Second Plan period tenancy reform is to be

completed to give security of tenure to the tenants. Besides this, a ceiling on agricultural holdings is sought to be imposed to reduce the inequalities in the distribution of land. These measures are likely to increase substantially the number of small peasant owners and aggravate the problem. But this is regarded as a preliminary step towards the reconstruction of the agrarian economy. The ultimate objective laid down in the Second Plan is co-operative village management and co-operative farming is regarded as a preliminary step in that direction. But conditions for successful co-operative farming are very exacting. For our country this would involve : (i) fixation of ceiling at a very low level to reduce great inequality in the ownership of land prior to formation of co-operatives ; (ii) consolidation of holdings; (iii) a homogeneous population; (iv) voluntary method of co-operation ; (v) large-scale investment in new equipment and buildings for co-operative farms and a more rapid rate of industrialisation to absorb surplus labour ; and (vi) provision for all credit needs of the co-operatives.

In India large-scale transition to co-operative farming in the near future is not possible without recourse to coercive methods. The individualist tradition is very strong here. There is no homogeneity of population even within a village. There is great inequality in the distribution of land which land reform measures may reduce but cannot eliminate. There is no chance for consolidation of holdings to take place through voluntary methods and there is not enough capital to absorb all the surplus labour from agriculture through a process of rapid industrialisation. So co-operative farming can, now, only be tried in a limited scale in some areas where favourable psychological and economic conditions exist. It may be extended to other areas in course of time when the ground is ready.

In the short run it would be better to start with individual farming with service co-operatives. Population pressures and small holdings are no great obstacles for realisation of higher yield per acre if proper credit, marketing and purchasing facilities are provided through co-operatives. What is essential is that provision of credit should be related to production plan of each farm, and to marketing. Their success would be further ensured if State purchases surplus foodgrains from the co-operatives at prices fixed in advance and remunerative to farmers. If necessity arises, farmers with uneconomic holdings should be forced to form co-operative farming societies and the surplus family labour may be given employment in local development works.

For the success of the Third Plan, it is necessary that the agrarian reorganisation should take place with great speed, if possible during the course of the Second Plan.

To sum up, in the Third Plan agriculture will be faced with the problem of securing a balance between the demand and supply of food on account of growth of population and income.

It will also be faced with the problem of increasing productivity through proper allocation of investment within the Sector. The problem of mobilisation of savings from the rural sector will assume greater importance during the Third Plan on account of the expansion of the public Sector. The problem of creating appropriate organisations and agencies for increasing agricultural productivity and mobilising savings from the rural sector will assume a greater importance

and urgency during the Third Plan. It is proposed in this paper to step up the percentage of investment both in agriculture and industry in the Third Plan to secure the balance between the two Sectors. But industry should be given precedence over agriculture. Since taxation in the rural sector is less heavy, it is proposed to increase taxation in the rural sector for expanding the public sector to absorb the disguised unemployed and to reduce the propensity to consume food.

It is also suggested that the question of reorganisation of agrarian economy should be settled as speedily as possible, because that is vital to increase in agricultural productivity and consequently to economic development of the country.

THE ROLE OF AGRICULTURE IN INDIA'S THIRD FIVE-YEAR PLAN

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The task of economic development in a preponderantly agricultural and backward country like India with a growing and excessive population pressing on the soil with backward techniques is basically two-fold: raising agriculture upto a distinctly higher level of technique and productivity and relieving the soil of its excessive population pressure through development of alternative channels of employment and preventing or at any rate slowing down the rate of further growth in the agricultural population.

Like most other underdeveloped economies, India possesses the well-known and typical characteristics of an overwhelming proportion of the population dependent on agriculture. The largest single source of her national income is the agricultural sector and incomes and standards of living of the agricultural population are the lowest in a country with all round low incomes. Alternative channels of employment are but poorly developed and their proportionate importance in the occupational classification is actually going down (*vide* census occupational statistics of 1931 and 1951). The contribution of agriculture to the national income has varied over the last few years between 45% and 51%.

AGRICULTURE IN A DEVELOPING ECONOMY

Prima facie, therefore, the main brunt of economic development has necessarily to be borne by agriculture. In the classical model of a backward agricultural economy, according to the familiar strategy, developmental efforts are first concentrated on the agricultural sector, creating a surplus there which is utilized in financing development in the non-agricultural sectors. This process is reflected in the character of the country's exports and imports. The traditionally agriculture-based exports become initially further dependent on agriculture and imports, while continuing to be overwhelmingly industrial, change their complexion into being predominantly producer goods in place of the former consumer-goods biassed.

Indian Agriculture under the Five-Year Plans

Deviations from this operational model were forced in the case of India, on the one hand by the already upset balance between an overgrown population and a subsistence-standard agriculture, aggravated and brought to the fore during the last war, and on the other, by the shortages in food and raw materials created and/or aggravated by the partition of the country.

The Indian Strategy of Development

In pursuance of its professed aim of repairing the damage caused to the economy by the war and partition, the First Plan had necessarily to accord the topmost priority to agriculture, devoting 32.5% on Agriculture, Community Development and Irrigation. The planned targets of agricultural production, however, had the rather modest aims of restoring the balance between supply and demand in respect of food and some agricultural raw materials like cotton, and not even aspiring for such a position with respect to commodities like raw jute. At the time of formulation of the First Plan these targets were not, and in view of the recent previous experience presumably could not be, regarded as underestimates of the economy's capacity to expand output in these fields. There was, thus, no question of the planned economy creating an export surplus in agriculture and thus financing a substantial programme of industrial expansion. Probably this accounted for the very modest programme in the industrial field, thus earning for the First Plan the appellation of one for the restoration of the pre-war *status quo*.

The highly welcome spurt in agricultural output with effect from the third year of the First Plan, was thus not only in the nature of windfall, but changed the perspective for the future rates and pattern of growth. The Second Plan stated: "More than any other factor, the rise in agricultural production which has taken place since 1952-53 has helped to end inflation, stabilise the economy and prepare the way for a higher rate of development during the Second Plan period." The food problem was taken to be solved and while the importance of increasing food production more than in proportion to the growth of population was realised, the task was considered to be much less formidable than what the task of improving agricultural production in the First Plan period was then viewed to be. The potential inflationary impact of large scale developmental outlay and the anticipated income effect of such growing expenditure on the demand for food were both to be tackled by growth in agricultural output which itself was not taken to be a particularly difficult task. The target of additional food production, however, was rather modest compared to the equanimity with which the task was viewed, being a mere 10 million tons, and had to be raised substantially later on. But at no stage did the strategy conceive of the creation of deliberate agricultural export surpluses in the context of planned promotion of Industries, despite the huge (albeit underestimated then) foreign exchange gap that was foreseen.

Agriculture's Relative Importance with the Growth of Industrialisation

Some of the more important and well-known effects of industrialisation on agriculture are the latter's declining importance in respect of generation of income and provision of employment, though through adoption of better techniques and

capital intensive methods, agricultural yields may substantially improve. Beyond a certain stage, the income-elasticity of the demand for food falls, and if production techniques have evolved a high level productivity where elasticity of adjustment is low, the terms of trade will move against agriculture.

Price Trends

Price behaviour in the latter half of the First Plan, which greatly facilitated the Plan's success was on line with the classical model referred to above of agricultural surpluses indirectly facilitating capital formation—if not through export surpluses, at least through reduction of import surpluses and prevention of rise in manufacturing costs in general through rises in the general price level. There was, thus, a temporary lowering of the terms of trade against agriculture, unlike the war and immediate post-war years, when the rise in prices of food articles and industrial raw materials was greater than the rise in prices of manufactured articles.

Since 1955, however, food prices have risen sharply whereas prices of manufactured articles have been more or less constant.

In India the last twenty years of steady expansion in money supply have witnessed a marked rise in the demand for food without a corresponding rise in supply, at any rate, without anything like a clear downward shift of the supply schedule. The terms of trade in the war and immediate post-war years probably moved a little in favour of rather than against agriculture. With an inelastic supply schedule for agriculture, a growing population with rising money incomes, therefore, have tended to bring to the fore the Richardian-cum-Malthusian phenomenon of a shift in real incomes in favour of agriculturists.

The operation of supply and demand functions for agricultural products and changes in the supply and demand schedules, however, in India have been too confused and frequent to permit of any simple generalisation. A significant fact is that agricultural incomes have not been immune from sharp fluctuations in response to and in the same direction as fluctuations in the volume of output, which rules out the assumption of an inelastic demand for agricultural commodities.

Indian Agricultural Yields

The other normal accompaniment of agriculture in a developing economy, *viz.*, rising per acre and per capita yields, is also not very discernible in Indian agriculture over the last few years with any degree of definiteness, though a recent study by Dr. Panse of the yield trends of Rice and Wheat from 1946-47 to 1955-56 on the basis of data of large scale crop-cutting surveys concludes that the average yield per acre was higher by 5.4 per cent for Rice and 11.8 per cent for Wheat in the First Plan period than in the preceding quinquennium. Dr. Panse himself, however, admits the difficulty of entangling the effects of climatic variations on yields from other factors. Therefore, the figures as represented by Dr. Panse, even if correctly representing the trend, do not necessarily demonstrate them to be the results of superior techniques, which only may be regarded as characteristics of prosperous agriculture. This of course, does not amount to saying, that there has been no real increase in yields either, but only that it has not been on a demonstrably significant scale.

INDEX OF GROWTH IN AGRICULTURAL PRODUCTION

	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57	1957-58
Foodgrains ..	91.1	101.1	119.1	115	115.3	120	107.3
Oilseeds	97.4	91.9	103.7	122.6	108.6	118.9	112.3
Fibres	128.3	128.4	132.1	140.4	149.7	171.4	167.2
Plantation.. ..	109.4	115.7	104.0	113.2	113.6	120.6	121.8
Miscellaneous ..	114.0	101.5	97.4	115.8	120.1	128.0	123.1
General Index ..	97.5	102.0	114.3	117.0	116.9	123.8	113.4

The following figures of measures at improving agricultural techniques and yields are interesting :

Distribution of Fertilisers	Year
Nitrogenous Fertilisers	1951 = 275,000 tons
	1956 = 610,000 "
	1961 = 1,800,000 tons (Target)
Phosphatic Fertilisers	1951-52=43,000 tons.
	1955-56=78,000 "
Urban Compost	1946-47=2.89 lakh tons
	1950-51=10.63 "
	1955-56=20.00 "
Tractors Imported	1949-50=3,318
	1951-52=7,400
Japanese Method of Paddy Cultivation : Area Covered	1956 =1.6 Million acres
	1961 =4.0 " " (Target)

The following Table¹ is further of relevance and interesting in this context.

CHANGES IN AREA, PRODUCTION AND YIELD, SELECTED CROPS IN INDIA: 1951-56

Crop	1956 percent change from 1951		
	Area under cultivation	Production	Yield per acre
Rice	+ 6.1	+34.2	+26.5
Wheat	+40.5	+49.0	+ 6.2
Jowar	+ 7.6	+24.2	+18.5
Bajra	+17.1	+26.7	+ 8.2
Maize	+13.0	+47.8	+30.7
Barley	+10.1	+17.8	+ 6.9
Gram	+42.2	+77.9	+25.1
Groundnut	+ 7.8	+30.0	+17.8
Sugarcane	+ 4.7	+10.3	+ 6.4
Potato	+12.0	- 2.1	-13.6
Tobacco	+43.3	+48.5	+ 3.7
Cotton	+22.5	+50.8	+22.4
Jute	- 3.5	- 9.8	- 6.5

1. Presented by J. Hart Walters in his article on "Distributing Fertilisers", in the *Indian Economic Journal*, April, 1959, p. 449.

Other measures for improving yields per acre relate to distribution of improved seeds and bringing of land under mechanized cultivation. Data about improved seeds are incomplete and unclear. Thus according to the Statistical Abstract for 1953-54, only 10 per cent of the paddy land in West Bengal was under improved seeds, which according to Dr. Panse's survey was a leading state in point of increased per-acre yield of Rice. The area brought annually under mechanical cultivation under land improvement schemes declined (annual figures from over 1.3 lakh acres in 1948-49 to only 93,000 acres in 1952-53). The above figures, however, indicate, on the whole, considerable progress achieved yet admittedly, compared to the size of the country, the achievements fall far short of needs.

On the evidence, then of per-acre yields or total yields and the contribution of agricultural sector to the national income it is clear that the basic position of agriculture in relation to the rest of the economy has undergone little change. Agriculture continues to be as predominant as ever before in point of the number engaged in it or the proportion of the national income generated therein. Industrialisation has made little impact yet on the economic face of the country directly and indirectly. The bulk of the efforts at raising yields in agriculture have been in terms of distribution of manures, provision of facilities for irrigation and attempts at improvement of the livestock. The technical changes normally associated with an advancing economy, which have been recorded in the country are negligible. Organisationally, again growth of capitalistic farming, normally associated with the process of transition from backward feudal to enlightened modern agriculture, has not taken place to any appreciable degree in the past, and is now being actively discouraged on both political and economic grounds.

TASK FOR THE THIRD PLAN

It is against this background in India as also on the discussion of the role of agriculture in a developing economy that the task for the Third Plan period has to be visualised. From what has been said above, it follows that the main concern of Agriculture in the Third Plan will be (i) provision of adequate food to a growing population (ii) raising general yields in agriculture (iii) location, mobilisation and creation of rural surpluses (iv) reduction of inequalities through agrarian reforms and progress towards a socialist pattern of society (v) absorption of a growing working force in agriculture.

Land Tax

The first one of the above items has again acquired the priority that it once had on the threshold of the First Plan and involves, in course of its implementation, the attainment of higher yields in agriculture ; the third objective is a logical part of the process of industrialisation of agricultural countries, and needs to be emphasised afresh as it did not receive the attention hitherto that was its due. Quite a few observers of the Indian economic scene have laid stress on the need to make agriculture bear its due share of the burden of development—a burden that it has probably managed to escape so long. The responsibility for this probably lay with the permanent or quasi-permanent nature of the land revenue settlement throughout the country, which were and even now continue to be the almost only direct means of tapping agricultural incomes available to the Governments.

Though the agricultural income-tax was specifically introduced in some of the older provinces to by-pass the rigidity of the land revenue structure, their yields due to various reasons, have been generally disappointing. A thorough re-organisation of the land tax, thus, seems to be called for. While the land revenue structure in most States seems clearly to have been regressive there is little doubt that by and large the revenue incidence in the country as a whole is inadequate and stands in need of a general revision.

The land tax acquires importance both as an instrument for securing monetary and real resources as also for compelling cultivators to part with their produce in the market to be able to pay off their dues to the State.

Structural Reorganisation of Agriculture

Simultaneously, the task of reorganisation of the agricultural structure will also have to be taken in hand as part of the broader socio-economic policy of march towards socialist pattern. Of course, the process of social reorganisation will have to be in conformity with the economic objectives and responsibilities of the agricultural as also of the general economy. The question of imposition of ceilings and introduction of co-operative farming, thus, will have to be viewed both from the re-distributive as also from the productive angle. While imposition of land ceilings is part of accepted policy the extent and nature of co-operative farming are still being debated. There is, naturally, general agreement on the point that ceilings and land redistribution will have to be so implemented that it is intensive farming in economic holdings that is promoted rather than a large number of uneconomic plots under poorly equipped and unenterprising farmers. Experience about co-operative farming, however, is so meagre, if not discouraging, that in this respect too progress must be slow and cautious. While it is clear that successful co-operativisation of farming, credit and marketing will go a long way towards the location and mobilisation of agricultural surpluses, so necessary for the "real-financing" of economic development, the task is so gigantic and the issues involved so vital both for the individual peasant as also for the State and Government that upsetting the delicate mechanism of incentives, working within a democratic framework is all too easy, yet fraught with the gravest economic and political consequences. The primary objective, therefore, of agrarian reform shall be to evolve a structure which will promote productivity. If large farms can do it, whether through capitalistic or co-operative farming, they must surely be promoted and protected wherever necessary, without a dogmatic approach being adopted towards the question. Principles of agrarian reorganisation thus, will have to be flexible enough so as to suit places and occasions.

Provision of Employment Opportunities

Absorption of the growing army of agricultural workers is a major headache of Indian agriculture. Not only the rural growth, but the overflow of the urban population growth finds its way into agriculture which is compelled to work as an unemployment insurance system with the list growing larger and longer at a time when a rational reorganisation would demand throwing off of some of the surplus labour force. The Agricultural Labour Enquiry of 1950-51 estimated the rural unemployment then at 2.8 millions. The Second Plan estimated the new entrants

to the labour force in 1956-61 at 6.2 millions in the rural and 3.8 millions in the urban areas, which together with the total backlog of 5.3 millions posed the problem of providing jobs for 15.5 millions in the Second Plan period. The Second Plan programmes were calculated to provide 8 million jobs. In addition, because of the general developmental measures in support of agriculture, 1.6 millions more were expected to be absorbed in agriculture. Thus, on their own estimates, by the end of Second Plan, the Planning Commission visualised 5.7 million people as unemployed.

According to most observers now, the Second Plan is unlikely to create more than 5 million new jobs. In the first three years hardly 2.5 million jobs are reported to have been created. Thus even if two million new hands are absorbed in agriculture by 1961, 8.7 million people will remain unemployed then. This is in addition to the problem of under-employment in agriculture. In 1951 roughly forty per cent of the population of the country constituted the total working force; assuming that the same proportion will hold good in 1966 when the population is expected to be round about 462 millions, the total working force would stand at nearly 185 millions, compared to a little over 162 millions expected for 1961—thus recording an increase of over 22 millions.

If the whole of this increase in the working force together with the backlog of 8.7 million were to be provided with employment, the task would clearly be beyond the resources of the country. It may then be presumed that the bulk of the additional labour force would crowd in on agriculture. Between 1921 and 1951 the total working force went up by nearly 20 millions, while agriculture absorbed in this period a little over 20 millions, the employment in non-agricultural occupations actually going down from 40.76 to 40.23 millions.

Under-employment in Agriculture

Coming to problem of under-employment in agriculture, the Second Plan stated that while in rural areas there is no sharp distinction between unemployment and under-employment, there is general agreement on the broad conclusion that under existing techniques, if cultivating units were to approach what might be described as family holdings, affording possibility of fairly full time work in agriculture for a family of average size, agricultural production would be maintained with about 65% to 75% of the number of workers now engaged in it.

Size of the Farm and Volume of Employment

The Farm Management investigations recently conducted have brought out that whereas broadly the number of workers in the family shows an increasing trend with increase in the size of the farm owned by it, the increase in numbers is less than proportionate to the increase in size, thus opening avenue for employment of hired labour. Further, and more significantly, there is a general tendency for employment per worker to increase with the increase in the size of the holding.

These conclusions do not indicate possibilities for expansion of employment opportunities with the imposition of ceilings and redistribution of the surplus land in tiny plots.

CONCLUSIONS

By the end of the Second Plan period a sum of Rs. 925 crores will have been spent on Agriculture and Community Development, Rs. 765 crores on Irrigation, Rs. 122 crores on Flood Control and other projects, making a total of Rs. 1822 crores on Agriculture in a period of ten years besides normal expenditure outside the Plans. This is a colossal sum, and we must make sure that all this is being properly spent. The Community Project and National Extension Movement is being increasingly relied upon as the principal instrument for bringing about a rise in productivity, though successive Evaluation Reports have failed to notice significant improvements in this respect. The Extension Services in India are being overburdened with too many functions of a non-essential character, with limited resources being spread over extensive areas. It is to be seen whether the re-orientation that is being effected in the organisation of the Extension Services on the principle of democratic decentralisation will be able to achieve more concrete results in this field.

Agricultural Credit

The Integrated Credit Scheme incorporates the programme of marketing reorganisation as well. Once a well distributed chain of marketing primaries, firmly linked up with the State and All-India Warehousing bodies and fortified by financial links with the organised banking system succeed in reaching the avowed objectives of the framers of the Scheme, not only will the rural marketing-cum-credit co-operatives subserve the true interests of the agriculturists, but, in conjunction with the proposed comprehensive State Trading Scheme in foodgrains, will place the authorities in a position of strategic control of the agrarian economy, making easier not merely the administration of price and physical controls over agricultural products, but also the task of mobilisation of the "surplus".

Agriculture and Investment Allocations for the Third Plan

The practical implications of all the above discussion would be felt in the allocations of the total investment outlay. The important question is what proportion of the total outlay would be devoted to agriculture. The allocation on Agriculture, Community Development and Irrigation in the First Plan was 31.4% and in the Second Plan 19.7% of the Plan outlay.

No *a priori* proportion of outlay need be fixed at this stage. The correct procedure would seem to be fixation first of certain physical targets in agriculture on the basis of the considerations laid down above and calculation of investment equivalents for the same and then a general balancing of the sectoral investment figures thus obtained within the general framework of the plan's total outlay.

To conclude then, the approach to the rural sector in the Third Plan period shall be basically the same as in the preceding one and there is no going back in the interests of agriculture and the agriculturist himself, on the emphasis on rapid industrialisation for which agriculture will have to bear its due share of the burden.

A REALISTIC APPROACH TO THE PROBLEM OF INCREASING AGRICULTURAL PRODUCTION IN THE CONTEXT OF FORMULATING THE THIRD FIVE-YEAR PLAN

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Introductory

Seldom in the economic history of India was the need for augmenting agricultural production more pressing and urgent than it is today. The population of our country continues to grow at an alarming rate, the annual rate of increase being over 4.5 million. If this growing population is to be well fed and well clad and if the inflationary trends that arise from the accelerated development of public and private expenditure are to be kept down, it is of the utmost importance that the output from land must be stepped up substantially.

The First Five-Year Plan had accorded the highest priority to programmes for agriculture including community development and irrigation. This was a natural priority in a plan seeking to raise the standard of living of the mass of the people, specially in rural areas. More than any other factor, the increase in agricultural production which took place during the First Plan period, especially in 1953-54, helped to end inflation, stabilise the economy and prepare the way for a higher rate of development during the Second Plan period. The index of agricultural production with 1949-50 as base, stood at about 117 towards the close of the First Plan period as compared to 96 in 1950-51. According to the Planning Commission, "among programmes of development which have contributed to increase in agricultural production during the First Plan, minor irrigation works, increased use of fertilisers, land reclamation and development and extension of area under cultivation have been specially significant."¹ However, towards the close of the plan period symptoms of uncertainty were quite apparent and were accepted by the planning authorities in their review of the First Plan, where they say, "the fact that agriculture depends on several unpredictable factors and agricultural targets must necessarily be in the nature of a tentative approach is illustrated by the actual statistics of increase in the production of individual foodgrains."²

During the First Plan period it was of crucial importance that the agricultural programmes must succeed, for no other consideration had equal significance for the stability of the economy as a whole. But on the eve of formulating the Second Five-Year Plan it was all too readily assumed that agriculture could be safely relegated to a secondary, if not inferior, status and that all that the country needed was a bold programme of industrialisation. Though a goal of doubling³ the agricultural production within a period of ten years was placed before the Indian farmers, the Planning Commission did not work with foresight in outlining the means for achieving the desired aim. The planning authorities seem to have ignored what the Governments of other countries have been doing in the sphere of agricultural development. Throughout the world, agriculture has been given

1. *Vide* Report on the Second Five-Year Plan, p. 258.

2. *Ibid*, p. 257.

3. *Ibid*, p. 259.

most favourable treatment, more specially since the outbreak of the Second World War. And what has so far been done in India is nothing as compared with what the Governments of the U.S.A., Canada, Australia, the U.K., Italy, the Scandinavian countries and Japan, to mention only some of the free countries, have been doing for raising agricultural production and for the welfare of their respective farmers. It is high time that the planners in India realise the overwhelming importance of agriculture in our national economy and give top priority to the implementation of all programmes of agricultural development.

Agricultural Production in Recent Years

Let us first examine the course of agricultural production since the launching of the First Five-Year Plan in 1951-52. In this connection, Table I which sets out the index numbers of agricultural production would be more useful than the absolute quantities of various crops.

TABLE I—INDEX NUMBER OF AGRICULTURAL PRODUCTION: 1951-58

Base: rop Year ending June, 1950=100

Items	Weights	1951-52	1952-53	1953-54	1954-55	1955-56	1956-57 (a)	1957-58 (a)
Cereals	58.3	91.2	101.4	120.1	114.5	114.9	119.9	108.3
Pulses	8.6	90.3	98.8	112.0	118.5	118.4	124.5	100.9
<i>Total Foodgrains</i>	66.9	91.1	101.1	119.1	115.0	115.3	120.5	107.3
Oilseeds	9.9	97.4	91.9	103.7	122.6	108.6	118.9	112.3
Cotton	2.8	119.2	121.0	151.8	163.6	153.9	182.2	182.9
Jute	1.9	151.4	148.6	100.0	94.8	135.8	138.7	132.3
Tea, Coffee, Rubber ..	3.6	109.4	115.7	104.0	113.2	113.6	120.6	121.8
Sugarcane	8.7	122.8	101.6	89.5	115.9	119.8	135.3	127.6
Total Other Crops ..	33.1	110.5	103.8	104.7	120.9	120.0	130.4	125.7
<i>General Index</i>	100.0	97.5	102.0	114.3	117.0	116.9	123.8	113.4

Source: Computed from *Records and Statistics*, Vol. 10, No. 4, p. 204.
(a) Provisional.

It is apparent from the above Table that years 1953-54 and 1956-57 have been years of peak production in the First and Second Plan periods respectively. Although there has been a steady increase in almost all the crops, the rise shown by cotton, jute and sugarcane has been quite encouraging. It is significant that the overall index of agricultural production has been maintained at a fairly high level during the last five years. This has been accompanied by a marked decline in foodgrains which account for about 67 per cent of the total value of agricultural production. In this connection the data given in Table II make an instructive reading.

TABLE II—PRODUCTION OF FOODGRAINS: 1949-50 TO 1958-59

Agricultural Year	Foodgrains in million tons
1949-50	57.9
1950-51	52.4
1951-52	52.9
1952-53	58.8
1953-54	68.9
1954-55	67.1
1955-56	65.3
1956-57	68.7
1957-58	62.0
1958-59	73.3 (Estimates)

A perusal of the above figures shows that the trend of production is very sensitive inasmuch as it is influenced more by the weather conditions than any other factor. Barring the estimated yield for the year 1958-59, the highest production was recorded in 1953-54. This was mainly due to good monsoon⁴ and less of natural calamities. Thus, the annual rate of increase in foodgrains production during the last decade works out to a low of only 2.6 per cent which compares very unfavourably with the overall target of doubling the agricultural production as a whole within a period of ten years.

LESSONS OF THE FIRST TWO PLANS

Before making an approach to the Third Plan, let us take stock of the short-falls of the past decade of Planning. They may be briefly outlined as follows:—

- (a) The tempo of increasing agricultural production received a considerable set-back during the Second Plan period as there was some element of complacency in planning⁵ authorities and consequently a shift in emphasis from agricultural development to rapid industrialisation. As a result not only the allocations for agriculture were inadequate but the pressing priorities were also neglected during the Second Plan period in a zeal to diversify agricultural production.
- (b) The demand for agricultural produce, particularly the foodgrains, was rather under-estimated and the production overestimated. The planners were expecting a rise of 1.25 per cent per annum in the population while actually it works out to about 2 per cent. Similarly, on the production side, they depended too much on the statistical computations rather than hard facts. They were led astray by the bumper harvests of 1953-54, thus ignoring the vagaries of monsoon and possibilities of other natural calamities besides the proverbial conservatism of the Indian farmer.
- (c) Too much reliance was placed on the N.E.S. and C.D. machinery for development of agriculture. A perusal of the reports of the Programme

4. The Congress Planning Sub-Committee also accept this fact when they say, "Agricultural output still depends largely on the monsoon." *Vide* Report of the Committee, para. 7, p. 4.

5. *Vide* Report on the Second Five-Year Plan (A Draft Outline), p. 90, where it was stated: "The satisfactory results attained in the agricultural sector during the First Plan suggest a change in the perspective for agricultural development during future Plans."

Evaluation Organisation, Estimates Committee of Parliament and Committee on Plan Projects shows that Community Development Programme has been either a partial failure or, at best, a partial success. This was mainly due to a wrong approach by the development staff and ignorance and callousness of the villagers.

- (d) Throughout these years there has been an element of uncertainty regarding land reforms, notably on the question of ceilings on agricultural holdings. Neglect of consolidation of holdings, lack of effective implementation of land reform laws, unrealistic policy of fixing low ceilings on holdings have all affected the agricultural production quite adversely.
- (e) Sustained production in the agricultural sector needs an integrated price support policy.
- (f) Programmes of research and scientific land management have been mostly matters of academic interest so far.

APPROACH TO THE THIRD PLAN

It is against this background of lessons of planning in the past that we should make a realistic approach to the solution of the problem of increasing agricultural production during the period of the Third Five-Year Plan. The first and foremost task of the planners would be to give the highest priority to the development of agriculture not only in the Third Five-Year Plan but in all the succeeding plans till the production in this sector, especially that of foodgrains, far exceeds the demand. It is agreed on all hands that in the Third Plan agriculture has to be given much greater importance than it has received so far, as industrialisation of the country can succeed only if its agricultural base is strong and sound. In this connection, it would be worthwhile to quote the Congress Planning Sub-Committee: "Foremost among these (directions of development) is the need to increase agricultural production and, in particular, the production of foodgrains to levels which will meet adequately the requirements of the increasing population and of a fast growing economy."⁶ From the point of view of social as well as economic objectives, the Committee says, "Rapid development can only come when there is substantial improvement in the agricultural sector The pace of our industrialisation largely depends on the success of agriculture and the surpluses which it can provide."⁷ Further, it is heartening to know that the industrialists and the business community also lay welcome emphasis on increasing agricultural production and recognise the urgent need of according top precedence to agricultural development in the Third Plan.⁸

Magnitude of the Problem

The increase in agricultural production is needed not only to meet the needs of the population at existing levels of consumption but also for meeting the increase in demand and for building the marketable and investible surpluses for domestic consumption as well as for converting domestic savings into foreign

6. Report of the Committee, September, 1959, p. 7.

7. *Ibid.*, p. 8.

8. *Vide* Third Five-Year Plan: A Tentative Outline by the Federation of Indian Chambers of Commerce and Industry.

exchange receipts. The Congress Planning Sub-Committee are fully justified when they say that; "The present limited approach of meeting the food requirements from this sector no longer appears to us to be adequate." Therefore, the Committee rightly suggest that: "this sector must develop so as (i) to supply the needs of the existing population, (ii) to meet the needs of the additional population, (iii) to raise the standard of living of the people in those areas, and finally, (iv) to provide its share of surpluses for the development of the economy as a whole."⁹

Agricultural Targets

Table III gives the most likely agricultural targets in the Third Five-Year Plan.

TABLE III—AGRICULTURAL TARGETS: THIRD FIVE-YEAR PLAN

Details	1960-61			1965-66		
	Target	Per cent rise from 1955-56 actual	Likely Result	Per cent rise from 1955-56 actual	Proposed Target	Per cent rise from 1960-61 actual
Foodgrains (million tons)	80.5	22	75.0	14	110.0	47
Cotton (million bales) ..	5.5	38	6.0	50	8.0	33
Jute (million bales)	5.0	19	5.5	31	6.5	18
Sugarcane* (million tons) ..	7.1	20	7.2	22	9.0	25
Oilseeds (million tons) ..	7.0	23	7.0	23	9.0	29
Irrigation (million acres) ..	88.0	35	85.0	31	111(a)	31

* In terms of *Gur*; (a) Rough estimate. *Source: Records and Statistics, Vol. 10, No. 4.*

As it is evident from the above Table, the most spectacular rise is contemplated in foodgrains in the Third Plan. In the beginning, a target of 110 million tons was first suggested¹⁰ by the Agricultural Production Team of U.S. experts and it is now generally accepted that this target, though it is nonetheless ambitious, will have to be achieved. This implies an increase of about 35 million tons or about 9 per cent per annum as compared to an increase of about 3% during the past decade. Instead of landing into an endless verbose controversy regarding the desirability and feasibility of these targets, let us plunge into the problem and find out the ways and means of increasing the agricultural production, for, as the Congress Planning Sub-Committee have pointed out, "there is no hope for this country unless agriculture with all its allied pursuits develops."¹¹ An all-out effort for the intensification of agriculture has to be made somewhat on the following lines:—

- (a) Maximum use of major and medium irrigation projects;
- (b) Greater attention to minor irrigation,
- (c) Special care of the soil;

9. *Vide* Conclusions and Summary of the Committee's Report, p. 69.

10. *Vide* Report on "India's Food Crisis and Steps to meet It" (April 1959).

11. Report of the Committee, p. 69.

- (d) Utilization of Research;
- (e) Development of animal husbandry;
- (f) Effective implementation of land reforms; and
- (g) Adoption of a suitable price support policy.

Use of Major and Medium Irrigation Projects

It is notorious that the major and medium irrigation projects have not been fully utilised in the past. This has been mainly due to the quarrels regarding betterment levies and the absence of a co-ordinated programme of utilising the benefits of the schemes. It would be in the fitness of things if the collection of betterment levies is shelved for the time being and efforts are concentrated on making maximum use of the facilities provided by these irrigation projects. With a view to reducing to the minimum the time lag between the availability of the facilities and their proper use, the various stages in irrigation planning should be suitably synchronised and co-ordinated somewhat in the following order:—

(a) construction of the dam or barrage for storing water; (b) construction of the canal and distributory system by the Government agency ending at definite and convenient points in every village; (c) construction according to a time schedule fitting into item (b) by the beneficiaries of field channels in every village so as to irrigate every acre that could be served by the project as soon as water is available in the canals; and (d) improvement of agricultural techniques so that by their adoption the maximum agricultural output can be secured.

Minor Irrigation

Recently there has been a welcome shift in emphasis from major to minor irrigation works. For achieving swift results, it is better to concentrate on minor irrigation projects which, as is well-known, have a quicker impact on agricultural production especially foodgrains than the major irrigation projects. This is amply proved by the contribution made by minor irrigation facilities to the total food production of the country during the last decade. The Asoka Mehta Committee which had made a very dispassionate study of the question also gave a clear verdict in favour of minor irrigation works.

It is, therefore, but natural that special attention is sought for minor irrigation programme in the Third Plan. With a view to deriving the maximum benefit from this programme, adequate allocations have to be made in the Plan not only for construction of new tanks, wells and tube-wells but also for repair and maintenance of the old works. The programme must be based on a scientific survey of the scope for minor irrigation works. Different regions offer different scope for minor irrigation—construction and repair of tanks, wells, and canals, construction of tube-wells, direct pumping from perennial streams and rivers, construction of diversion weirs on streams and *nallahs* and supply of oil engines, electric pumps, persian wheels, and other lift irrigation appliances. A nationwide survey is bound to reveal a large scope for irrigation in the country and to pave the way for an integrated scheme for minor irrigation works.

Special Care of the Soil

The most important factor affecting production is the basic quality of the soil and its proper maintenance. A missionary zeal must be created in the far-

mers to maintain the fertility of the soil by paying special attention to the adoption of the following practices:—

- (a) *Greater use of organic manures:* Cow dung, green manures and composts provide good and cheap manure, improve the texture of the soil and exercise an over-all beneficent residual effect. Chemical manures should be used only after a proper base of organic manure has been created. In this connection it is significant to note that besides making an intensive and extensive propaganda in the countryside for resorting to green manuring and compost-making, special efforts are needed for persuading the farmers to use the cow-dung to feed the soil instead of burning it as fuel. Though much has been said and done in the past in this direction, a large proportion of the precious cowdung is still being used as fuel. This is a very serious state of affairs and it must be stopped at the earliest for the nation cannot afford to burn a soil nutrient which is even more valuable than the food produce itself. Incentives should be provided in the Third Plan for the use of an alternative fuel. It may be done by subsidising the cost of alternative fuel in areas of scarce fuel resources.
- (b) Programmes of contour bunding, soil conservation, dry farming in dry areas, construction and maintenance of field enclosures and bunds should no longer be regarded as matters of academic interest. The cultivators must be induced to implement them without any further delay.
- (c) A scientific land management policy should be worked out on the lines suggested by the planning authorities in the Second Five-Year Plan for each village and the Village Panchayat must be charged with the responsibility of implementing it. The State has to provide technical guidance and supervision for its proper execution.

Utilization of Research

Not all the good work on agricultural research that has been, and is being, done by the various institutions of agricultural research in this country, has received the recognition that it merits. The results of research have not yet been made available to the farmer in a form in which he can adopt them readily with confidence. Various factors, such as poverty, smallness of holding, reluctance to abandon traditional ideas, fear of official interference, lavishness of the experiments on demonstration farms, callousness of some government officials, lack of proper personnel trained in publicity with the development departments, inadequate allocation of funds for propaganda work, lack of realism in the agricultural extension personnel of the blocks, etc., have been responsible for the tardy progress in carrying the fruits of scientific research from the laboratory to the field in India.

In dealing with the agricultural problems of India, all research workers should bear in mind the existence of a large number of people who had not got much education but who were nonetheless intelligent. They should also bear in mind that the peasants, owning small plots had no resources to employ costly methods of research suited only to large-scale farming. The results of research will prove useful in our country only if the agricultural research shapes itself, in the first

instance, to suit the requirements of these small farmers, which alone would go some way towards making the farmers adapt themselves at a later stage at least, in such a way as to derive the benefits of scientific research. At present the demonstration farms are not as useful or helpful as they should be because, they were being run on lines not fully appreciated by the ordinary agriculturists. These farms should be manned by local talent as far as possible and they should concentrate, *inter alia* on the following:—

- (a) They should supply the best seed and popularise its use in the area commanded by each farm.
- (b) Improved cultural practices should be popularised more intensively.
- (c) Greater use of organic manures must be emphasised. The use of modern fertilizers should be recommended only where there is either a shortage of organic manures or where the use of inorganic manures is justified by the nature of soil, climate and the crop grown.
- (d) Use of modern agricultural implements should be recommended to the farmers after the farm authorities are fully satisfied with the utility of the implement concerned in the local area. These farms should also provide first line servicing and repair facilities of costly machinery such as tractors and water lifting appliances at a reasonable cost to the farmers in the vicinity of these farms.
- (e) The demonstration farms should always be treated as clearing houses for new researches, improved practices and the like. The results are to be passed on to the cultivators only after carefully establishing their utility in the area.

Development of Animal Husbandry

Though an attempt was made to diversify the agricultural economy by making special allocations for development of animal husbandry, horticulture, fisheries and forestry in the Second Plan, the progress made has been far from satisfactory. Next to agriculture, animal husbandry is the most important source of income to the rural masses and hence its growth on scientific lines must be accorded a very high priority. As a matter of fact, cattle and land support each other and hence the agricultural development in general and development of animal husbandry in particular, must go apace side by side. There are tremendous potentialities of mixed-farming and the Planning Commission must make liberal allocations for solving the complex problems of breeding, feeding and treating the cattle wealth of the country.¹²

Effective Implementation of Land Reforms

It is common knowledge that the land reform legislation has not had the desired effect on production mainly because of two factors. First, most of the States have been more particular to enact the reforms rather than implement them with all sincerity. Secondly, there has been an element of uncertainty in the minds of the farmers regarding the question of ceilings and consequent redistri-

12. In this connection the suggestion made by the Ford Foundation Team regarding elimination of useless and surplus animals deserves serious consideration.

bution of land. Instead of coming forward with new complicated pieces of legislation of doubtful utility, such as imposition of *low* ceilings on agricultural holdings, every now and then, the people at the helm of affairs should pause and think for a moment whether the existing legislation has had the desired effects. Effective regulation of rents, consolidation of holdings and prevention of further fragmentation should be taken up in hand on the largest possible scale in all the States.

In this connection it would be pertinent to point out that the feeling of uncertainty should be completely rooted out from the minds of villagers by giving them a categorical assurance that for a period of, say, 15 to 20 years, there would be no further tampering with the land legislation. Further, though the development of service co-operatives and *voluntary* co-operative joint-farming should be given every possible encouragement by the State, at no stage the element of compulsion, direct or indirect, should be introduced in this movement as is sometimes advocated by certain quarters in a spirit of over-enthusiasm.

Adoption of a Suitable Price Support Policy

Last but not the least important matter which needs special care in the years to come is the evolution of a scientific price support scheme for the agricultural sector. What the farmer needs most is an assurance of at least a minimum income. There is always a sense of insecurity among the cultivators due to over-production as well as complete failure of crops. The Asoka Mehta Committee had also emphasised the overwhelming importance of a proper price support policy and State trading in foodgrains, but the steps taken so far by the State do not inspire much confidence. Little has been done to help the farmer maintain, let alone improve, his income. This is in a strange contrast with the very generous schemes of social security made available to the industrial worker. And yet, when one comes to consider the question, the Indian farmer needs, thanks to the vagaries of the monsoon and the consequent fluctuations in his fortunes, such security far more than the industrial worker or his counterpart in modern economies which operate price support schemes, and subsidised plans of crop and cattle insurance. In due course, the crop and cattle insurance schemes should also be tried, at least on experimental basis, in certain areas specially suited for the purpose. The Third Plan must make suitable allocations for these contingencies.

CONCLUSION

The problem of increasing agricultural production has to be fought on several fronts as outlined above. Not only a pride of place is to be given to the various schemes of development in the Third and subsequent Plans but a scientific over-all agricultural policy should be enunciated in no uncertain terms like the industrial policy. As pointed out by the Foodgrains Enquiry Committee, "the gravity of the food situation demands national efforts transcending regional and party considerations. Given a sympathetic policy and helpful administration we have no doubt that our cultivators are capable of greatly accelerating production."¹³ An all-out effort for the intensification of agriculture with a missionary zeal at all levels is bound to succeed in achieving the desired targets.

13. *Vide* Report of the Committee, p. 133.

THE ROLE OF AGRICULTURE IN THE THIRD FIVE-YEAR PLAN

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Agriculture has been from time immemorial the primary and basic industry of India and will continue to hold that position in the foreseeable future also. For feeding the growing population of the country and as a provider of raw materials to the expanding industries, which cater to the home and export markets, agriculture should receive priority in the Third Five-Year Plan. The role of agriculture in this plan will be a crucial and pivotal one—to establish self-sufficiency even in an adverse year and at the same time allow for an increase in the *per capita* consumption on the basis of an annual increase in population by 2 per cent and also provide for a safety margin for lean years should be the aim of the planners. In this connection a production figure of 110 million tons of foodgrains has been mentioned as the target in the Third Five-Year Plan. If the existing levels of nutrition, admittedly deficient at present, are to be increased further to better energy requirements, not only the present, but further increases in the present dietaries will have to be envisaged.

The need for export promotion is obvious not only in the traditional lines of exports, but also in new lines and not only in the old established markets but also in new fields. The quantitative side of the diet should not make one lose sight of the qualitative aspect where the aim should be to see that the average diet is more evenly balanced of starch, protein and energy giving substances instead of exclusive reliance on cereals and also that health giving products should be within the reach of the poorest man and woman.

AGRICULTURAL PLANNING

The only effective approach is to work out regional and area plans to achieve targets of yields per acre based on mobilisation of local as well as other resources in each area. Programmes for increasing agricultural production have to be considered in terms of (1) assets to be created especially irrigation, seed supply, fertilizers and manures, credit, etc. and (2) targets for increasing the yields per acre and the total output of each crop in each area. These two approaches, namely, the assets creation approach and the target setting approach are complementary. Thus, an additional quarter of a ton per acre is a suitable yardstick for increasing food production through major and medium irrigation works, and an extra one-fifth of a ton from minor irrigation schemes.

Thus, starting from a production of 75 million tons of foodgrains at the end of the Second Plan period, creation of various assets may add 26 to 27 million tons. If fertilizer production could be stepped up, 3 to 4 million tons may be added to this figure making a total of 105 million tons leaving a gap of 5 million tons for reaching the target of 110 million tons for the end of the Third Five-Year

* The views expressed in this paper are the author's own and do not reflect those of the Directorate of Marketing and Inspection.

Plan. A competent organisation for supplies and service rather than investment criteria is the key to the success of agricultural programmes.

As regards commercial crops, targets for cotton production in the Third Five-Year Plan envisage an increase from 60 lakh bales to 80 lakh bales, in jute production from 55 lakh bales to 65 lakh bales, raw sugar from 72 lakh tons to 90 lakh tons and oilseeds from 70 lakh tons to 90 lakh tons. The objective in respect of commercial crops is not only to provide for the requirements of an increasing population but also to make available large quantities for export with a view to earning foreign exchange from traditional items such as tea, cashew, pepper, jute manufactures and new items and making the country self-sufficient in commodities and varieties which are at present imported like long staple cotton. Special attention would have to be paid in the Third Five-Year Plan to larger exports of groundnuts and castor oil, cashew and black pepper and making the country self-sufficient in long staple cotton, coconut and arecanut. This reveals the importance of crop planning at the Central, State, district, taluk and village level. Crop planning machinery is a vital necessity in the Third Five-Year Plan.

The role of agriculture being paramount, the problems associated with it could be tackled on three fronts, namely from the angle of agricultural production, from the point of view of agricultural credit and thirdly from the side of marketing. All these three approaches should be simultaneous so that a co-ordinated effort could be made to lift the country from the slough of depression into which agriculture has fallen.

AGRICULTURAL PRODUCTION

The problem of agricultural production and its increase in the Third Five-Year Plan can be tackled under the familiar categories of irrigation, improved seeds, manures, and fertilizers, improved implements, plant protection, land reclamation etc.

Irrigation—Major, Medium and Minor

The gambling element associated with Indian agriculture should be eliminated as far as possible in the Third Five-Year Plan by utilising the surplus waters that are now being allowed to go to waste down the rivers of Kerala, Andhra Pradesh, Bihar, Assam and other States. No longer should it be said of Indian agriculture's performance that one year is good, one year is bad and three years are indifferent. Water is the *sine qua non* of Indian agriculture and once this water problem is solved, the country will be on the road to self-sufficiency. At present various multipurpose projects have been undertaken all over the country like the Bhakra-Nangal, Hirakud, Nagarjunasagar and once they are completed, there is no doubt that vast areas will be freed from the tyranny of the monsoons. Nevertheless, there are still large areas which will be bereft of irrigation facilities. The total irrigated area in India in 1954-55 under all kinds of irrigation was 61.3 million acres. This is expected to go up to 100 million acres in 1960. It should be realised that even after the maximum irrigation potential from large and medium projects as well as from minor irrigation works has been realised, say by the end of the Fifth Five-Year Plan, there will still be left a large area of 140 to 150 million acres in which yields can be increased only through contour bunding, soil conservation and

other dry farming techniques. Little has been done so far in this direction and farmers have to be trained to undertake such improved methods.

Since no exclusive reliance can be placed on major and medium irrigation projects alone, various suggestions are made here for tapping all available sources of water supply. A systematic survey of all the jungle streams in India should be conducted with a view to harness their flood waters. No worthwhile experiment has been conducted so far to ascertain the results regarding economy in the use of water and the circumstances under which the maximum yield from one acre of land and the maximum return from one cubic foot of water can be obtained and such studies should be undertaken.

As regards minor irrigation programmes, the highest priority should be given to the repair and restoration of tanks including the repairs and restoration of the supply channels, field bothies and sluices of the tanks in order to restore the original *ayacut* of each tank. A beginning may be made in the matter of entrusting to the Block Agency the execution and maintenance of minor irrigation work in the Development Block.

It is important to improve lift irrigation facilities. The subsidy for sinking wells should be extended from wells dug under the well subsidy scheme, where such a scheme is in operation, to new wells dug with the help of other Government loans, such as *takkavi* loans. The loan ceiling should be raised to Rs. 2,000 per well or more where wells are costly to build as in Coimbatore and Ramanathapuram districts. In this connection the Filter Point Scheme should be continued and intensified. In Madras State, at present, a subsidy of 25% is allowed in the Development Block for sinking filter point tubewells. A similar subsidy subject say to a maximum of Rs. 250 per well should be given for sinking filter point and borewells in the non-block areas also. An examination of the potentialities for ground water development by sinking tubewells and filter points should be made in respect of the entire country on the basis of past boring records and the performance of the existing tubewell pumps and filter point pumps. Similarly the scope for further expansion of the artesian well sinking programme should be explored as in the South Arcot and Tiruchirapalli districts. The Hire Purchase Scheme for pump sets should be continued and intensified utilising the co-operative agencies for its implementation.

The success of utilisation of water is not shown merely by the number of tubewells sunk. Thus the tubewells sunk under the United States Technical Co-operation Mission Programme have not been utilised to the maximum. In Uttar Pradesh, 3,095 tubewells were constructed during the First Plan but only 3,026 were energised. The average acreage irrigated per tubewell was only 166 acres while the target was 250 acres. Under the Second Plan, the U.P. Government has taken up schemes for the construction of 600 tubewells. 186 tubewells have been constructed of which 85 have been energised. Similarly, in Bihar 685 tubewells were constructed and energised during the First Plan. The average performance per tubewell in South Bihar is 33 acres as against the target of 150 acres for each crop season. In North Bihar the acreage performance per tubewell is 18 acres as against the target of 200 acres. In the Punjab 1,100 tubewells were constructed under the First Plan of which 908 were energised. The acreage irrigated per tubewell was only 30 acres as against the target of 250 acres. The reasons for the

non-utilisation of water from the tubewell vary from State to State and are due to lack of channels, the failure to supply electricity at the right time and unwillingness of the peasants to pay for the water. A practical approach to the problem is needed. Similarly in some areas irrigation water has been found to contain injurious salts detrimental to the production of certain crops as was found by the author in 1954 from personal enquiries in the Lower Bhavani Area where tobacco has ceased to be grown (Gobichettipalayam Taluk of Coimbatore District). Hence mere multiplication of tube wells and irrigation channels will not suffice and the response of crops, the water requirements of different crops, the effect of water on soil, etc., should all be studied in the Third Five-Year Plan.

During the First Plan 1951-56, 10 million acres of land benefited from minor irrigation works. The Planning Commission has said in its review of the First Plan: "At present there is no record of areas benefiting from small works which go out of irrigation year after year nor is there a close enough correspondence between returns of areas irrigated and of additional irrigation facilities established in successive years clearly. The entire subject needs closer investigation."

The Grow More Food Campaign should include a comprehensive programme of production, improved seeds and increasing manurial resources and attention should be concentrated on one district per year by each State Government. If the States concentrate on the irrigated area alone with the Japanese method of paddy cultivation, the yield per acre may go up from 50 to 100% and the shortage of foodgrains in the country overcome. If the Chinese method of paddy cultivation is adopted, the resultant is any one's guess.

Seed Multiplication and Distribution of Improved Seeds

Besides water, improved strains of seeds are essential to increase agricultural production. It is a sad tale that many farmers sell their seeds owing to poverty at harvest time and have to buy non-descript seeds from traders. Besides, improved strains should convince the cultivator of its performance and ability to withstand adverse local conditions. Hence the machinery for evolution and propagation of improved seeds should be efficient to a high degree.

The work of seed multiplication and distribution at the primary stage in the State Seed Farms should be undertaken by the Governments themselves even though they may have to incur some loss on this account as it is essential to ensure the quality of the primary seeds released for further multiplication in the secondary stage. 70 State Seed Farms of 25 acres each for paddy and millets and 140 State Seed Farms of 25 acres each for cotton, groundnut and millets or 210 State Seed Farms of 25 acres each in all will suffice to provide a State Seed Farm acreage of 3,000 acres for paddy, 1,500 acres for millets, 2,000 acres for cotton and 2,000 acres for groundnuts from which multiplication can be done to cover the entire State. The Committee on Agricultural Production constituted by the Government of Madras in August, 1958 has suggested in its report in August, 1959 that in order to reduce the number of State Seed Farms and thereby ensure a more effective and closer supervision of the Farms and with a view to effecting savings in the overhead charges the existing State Seed Farms should be expanded into 75-100-acre farms each of which should be managed by the same scale of staff as has now been sanctioned for a 50-acre farm. Assessed waste lands and *poram-*

bokes which are satisfactory and suitable from the point of view of assured irrigation, fertility of the soil etc., may be used for locating the State Seed Farms wherever such lands are available in order to keep down the expenditure on the State Seed Farms. There would be better results if co-operatives were started to undertake the seed multiplication and distribution work in each Development Block in an integrated manner. The Agricultural Banks may be persuaded to take up this work wherever they exist and in other places co-operatives may be started for this purpose. Both these institutions should obtain their primary seed requirements from the State Seed Farms and take over the work that is now being done by the Village Seed Farms. A subsidy of 25 *Naye Paise* per bag of 160 pounds for meeting incidental charges and 12 *Naye Paise* per bag of 160 pounds towards ceiling charges now being given to the village seed farm ryots in Madras State can be extended to other States in India. There is need for opening seed farms in other States where they do not exist and starting new ones when they are already working so that improved seeds are within the reach of every cultivator. As against the target of 485 farms sanctioned in the first year of the Second Plan, only 343 were set up. For the second year as against the target of 1,416 farms, only 598 have so far been taken up. Hence the targets in the remaining period of the Second Plan should be fulfilled.

Fertilizers

There is need for rational fertilizer use as recommended by a soil testing service. A systematic survey of the soil in all the regions of India should be conducted starting with the rice areas with a view to drawing up a detailed soil map of India and linked with this, there should be an agronomic survey of India and more soil testing laboratories should be established. At present the Government are propagating the use of chemical fertilizers for stepping up agricultural production but are unable to meet the demand due to shortage of stocks. Hence more fertilizer factories should be established throughout the country, at least one in each State, in such a way that no difficulty will arise in the matter of transporting the stocks by road or rail from the factories to the consuming areas. While fixing a target of production of 100 million tons of foodgrains and pulses, it was assumed that 6.2 million tons of additional foodgrains and pulses over the base figure of production in 1960-61 would be obtained by the use of fertilizers.¹

Fertilizers would play an important role in the achievement of the agricultural production targets. It has been estimated that the requirements of nitrogenous fertilizers in the last year of the Third Five-Year Plan would be of the order of 1.25 million tons of nitrogen, 5,00,000 tons of phosphatic fertilizers and 2,00,000 tons of K. 20. Steps have been taken to license capacity to the tune of 4,70,000 tons of nitrogen. A decision has been taken to license and establish capacity to the extent of 7,50,000 tons by the middle of the Third Plan thus leaving a gap of 5,00,000 tons. The manufacture of phosphatic fertilizers was conditioned by the consideration that the raw-material required by it, namely, rock phosphate was not available in India and would have to be imported. Apart from the existing capacity of 50,000 tons of phosphatic fertilizers, new licences had been issued to the extent of 2.5 lakh tons of super-phosphate. The private sector

1. *Vide* Shri K. R. Damle's speech at the Fourth Annual General Meeting of the Fertiliser Association of India on August, 24, 1959.

which was principally concerned with the manufacture of phosphatic fertilizers would have an important role to play in developing this capacity at an early date.

The intention should be to become fully self-sufficient in regard to nitrogenous fertilizers in the course of the next 7 years and to develop the production of the other two types of fertilizers to the extent possible. The Government of India have under consideration the establishment of our more fertilizer plants in the country.²

The fertilizers are best applied in irrigated areas or to areas of assured rainfall. While the farmers were conscious of the benefits derived from the use of fertilizers, such utilisation was limited owing to poverty and economic backwardness of the farmer. Hence the question of distribution of fertilizers and the building up of a proper organisation for this purpose should be considered. In addition, early steps should be taken to manufacture in India the machinery required to make fertilizers in order to save foreign exchange. The distribution of fertilizers through co-operatives should be the ideal to be aimed at. Co-operatives are already having the monopoly of distribution of nitrogenous fertilizers in the Development Blocks, and should be persuaded to take over the distribution of super-phosphate, potash and manure fixtures also in these blocks on a monopoly basis. As regards the non-block areas also, the co-operatives should be given the monopoly for the distribution of chemical fertilizers as soon as they are formed. In addition, more co-operative manure mixing societies should be started and given adequate quotas of straight fertilizers. To ensure that chemical fertilizers are made available to the agriculturists in proper time, indents should be placed by the distributors on the Collectors in advance of the time at which supplies are required for distribution to the ryots.

It is essential that fertilizer factories should be set up whether in the public sector or in the private sector in all the States in India. Thus the fertilizer factory in Andhra Pradesh in the public sector near Kothagudem for Rs. 30 crores is to be welcomed. The Andhra Pradesh is considered a granary of the South and the foreign exchange needed for a factory could be more than compensated by the saving of foreign exchange in the import of foodgrains.

Organic Manures

Bulky organic manure like composts and green manures have a place of their own in the production programme. In 1965-66, 982 million tons of bulky organic manures were estimated to be needed to maintain the fertility level of the soils and the quantity of such manures available throughout the country in the same year would be 309 million tons. Thus, there will be a considerable gap in the efforts to enrich the soil for increased production. The slow progress in the development of green manure is due to inadequate supplies of green manure seeds. The Forest Department should raise *sesbania* and *glyricidia* crops in the forest lands, collect the seeds and supply them to the Agricultural Department in the Third Five-Year Plan. Concessions can be liberalised in the matter of removal of green manure leaves from the Government reserved forests. Sufficient pro-

2. Dr. Punjabrao Deshmukh inaugurating the 79th meeting of the Indian Central Cotton Committee on March 20, 1959.

minence should be given for growing green manure plants in the village forests. The Forest Department can grow green manure plants on the fringes of reserved forests adjoining villages which should make available the green manure leaves to the ryots of those villages. Permission should be granted to ryots under permits to plant green manure plants, etc., on the canal, channel, river, tank and road *porambokes* in charge of the Revenue, Public Works and the Highways Departments. *Kist* can be remitted for the cultivation of green manure as a pure crop by ryots on lands which are classified as "Current Fallows", "Other Fallows" and "Cultivable Wastes." Also the Madras State celebrates the "*Glyricidia* Week" in October with a view to popularising the growing of this green manure plant on the major bunds of the paddy fields. It is estimated that a sum of Rs. 100 in the cost of manure can be saved for an acre by the cultivation of *Glyricidia*. Similar weeks on the lines of *Vanamahotsava* can be organised throughout India.

Compost and Farmyard Manure

The level of compost and farmyard manure production is 25 per cent of the requirements at present. The target should be fixed aiming at a production of compost which should be calculated at the rate of 10 tons of compost per acre per annum for irrigated crops and 2 tons of compost per acre per annum for rain-fed areas growing dry crops. The compost development work should be stepped up in the Development Blocks and in the Non-block areas. Village-wise targets should be fixed for compost development and the progress of the achievement watched periodically.

The cattle dung gas plant should be brought within the easy reach of the average ryot which permits the use of cattle-dung as fuel after its conversion into methane gas and enables the use of the cattle-dung sludge ejected by the gas plant as manure without any reduction in its manurial properties. The Government should offer to give financial assistance for the setting up of 20,000 gas plants in the shape of 50 per cent of the cost as a subsidy and the remaining 50 per cent as a loan. This will solve the age-old dilemma of using cattle-dung as fuel or putting it into the soil for enrichment.

Other Manures

The export of oil cakes outside the country should be regulated so as to ensure that enough supplies are made available for use within the country as cattle food and as manure. The use of fish meal as manure after processing should be popularised with a view to its utilisation to the fullest extent especially in the coastal areas of the States. As bone meal and hoof meal are two of the best sources of phosphate their export to other countries should be banned. Flaying centres equipped with bone meal digesters should be opened on a co-operative basis in large numbers at the rate of one for every group of two or three Development Blocks with a view to providing sufficient quantities of bone-meal for application to crops. The question of night soil, its efficacy and utilisation in the form of poudrette has been aired since the days of the Royal Commission on Agriculture, but owing to sentimental reasons, large quantities of this valuable manure go to waste in the villages. Though it will be difficult to overcome the repugnance, efforts should be made to conserve this valuable plant food as is done in China and Japan.

Plant Protection

Measures should be adopted to prevent loss of foodgrains by insects and pests. The loss due to this cause is estimated at Rs. 500 crores per year. Pesticides and fungicides should be sold at a concessional rate of 50 per cent of the cost price in all areas throughout the year and not as at present only in those areas, which are declared as pest affected by the district agricultural officer concerned. In addition, there should be mobile pest control units, at least 5 in each State. There is no point in increasing production to see it destroyed by pests and insects. Training should be given to farmers in handling dangerous pesticides especially Folidol and in the use of the equipment.

Agricultural Implements

In order to improve the supply position of improved agricultural implements some of the Government workshops of the various Government Departments, for example, those belonging to the Agriculture, Industries and P.W.D. which have a surplus capacity should take up the fabrication of agricultural implements. In addition, a system of quality control of the agricultural implements produced in India by various firms like Kirloskar should be introduced.

Supply of Electricity

The Government may consider giving subsidies to the State Electricity Boards in order to enable them to supply electricity for agricultural purposes to new rural areas in the under-developed portions of India expecting only the normal 10 per cent return without demanding the specific guarantee. Even in the well-developed areas of India if the upper limit of the special guarantee, at present Rs. 50/- per horse power as in Madras State, is reduced a larger number of ryots will come forward to take up electric supply and when the maximum limit is reduced, the Government may have to give a subsidy to the State Electricity Boards to reimburse it the loss that will be incurred thereby. Lift irrigation especially in areas where the wells are deep as in Coimbatore district can only be done by electricity at a cheap rate.

Agricultural Research and Extension

These are very essential in a developing economy—fundamental as well as applied—especially rice research. The Panchayat Union should provide the local leadership for implementing the agricultural plans formulated for its jurisdiction and act as the local committee for agricultural development. In this connection, the importance of agricultural extension work or propaganda bringing the results of research to the tiller of the soil need hardly be stressed. A District Agricultural Advisory Council should be constituted in each district for reviewing the extension material being put across to ryots in that district. Similarly at the State level, State Agricultural Advisory Boards similar to the State Livestock Improvement Boards should be set up under the Ministry of Agriculture. The control of the Collector over the Block Development Officer should be made real and effective and the level of performance of the Block Development Officer in implementing the agricultural programme in the block should be made the criterion for assessing his efficiency. In the Third Five-Year Plan

*Gramsevak*s in each Development Block should be classified into two equal groups called "Production" and "Amenities" groups and the former group should exclusively attend to the work relating to Agriculture, Animal Husbandry and Co-operation. As Shri S.K. Patil, Union Minister for Food and Agriculture has said in his letter to the State Chief Ministers on September 20, 1959, food production must be given the highest priority. He states that 80 per cent of the time of village level workers and the Block staff should be utilised on agricultural production during the latest *Rabi* drive and that all other work should be subordinated to this primary responsibility. This should be done not only during the present *Rabi* production campaign but also in the next Five-Year Plan, till the food production crisis is solved. All the developmental departments should work as a united team.

Land Reclamation and Land Improvement

The Hire Purchase Scheme for tractors should be continued and expanded. The manufacture of tractors through ordnance depots and factories should be encouraged, so that India could become self-sufficient in the Third Plan at least in track type tractors. Mobile tractor workshops should be opened and all private tractors and trailers used solely for the owners' personal agricultural purposes and those owned by the Agricultural Department should be exempted from taxation under the Motor Vehicles Taxation Act as in Madras State. This will popularise the spread of the tractor habit among the villagers

Land Utilisation Orders on the lines of the Madras State should be enacted with advantage by all States. The object of this order is to bring under cultivation food crops on any occupied waste or arable land which has been left uncultivated. A Special Officer of the status of a Collector may be appointed solely to this work in view of its importance. Similarly teams may be appointed consisting of the Agricultural Department and Irrigation Department personnel to make a survey of the waste lands belonging to the Hindu religious and Charitable institutions in India and draw up schemes for putting them to the best use.

In this connection, in June, 1959, the Government of India have appointed a committee of experts to examine the extent of cultivable waste lands in the country and assess the promise afforded by these sites for increased agricultural production under Dr. B. N. Uppal, Agricultural Commissioner to the Government of India. Since many conflicting figures have been given of the extent of waste lands and the increased production resulting by bringing them under the plough, basic statistics will at last be available in the Third Plan so that targets of production can be fixed for each district, village and each individual farmer.

Soil conservation by means of terracing contour bunding, etc., should be intensified by the Soil Conservation Board at the Centre and each State should have its Board. It is good that the Government of India have decided to set up in collaboration with the UNESCO a Central Arid Zone Research Institute by upgrading the existing desert afforestation and soil conservation station at Jodhpur. The Institute will carry out fundamental research on aspects of desert control, such as basic resources and their utilisation, hydrological investigations, human factor and animal studies, the most suitable natural plants for growing up in the area and determination of the best use of water and land for obtaining

optimum balance between forest, pasture, cultivation crops and livestock development.

Besides land reclamation, land improvement is also essential. The canons of good husbandry should be observed by the cultivator as envisaged in the Agriculture Act of 1947 in the United Kingdom. Thus in the former Hyderabad State, the Land Improvement Act of September, 1953 aimed at ensuring proper utilisation of land and provision for making and execution of schemes relating to construction of tanks, embankments, and other works, prohibition and control of grazing for purposes of preservation of soil, prevention of soil erosion, improvement of water supply and other matters in order thereby to protect and improve lands and crops in the State. The Act provided for the constitution of Land Improvement Board for the whole State and it was to constitute a Land Improvement Committee for any specific scheme. The contravention of the provisions of the Act was punishable with a fine which may extend to Rs. 50 or with simple imprisonment extending to one month or with both. Such Acts should be passed by all the States so that the lands can be improved and rational utilisation assured.

Supplementary and Protective Foods

The predominance of cereals in the Indian dietary is well-known. Owing to shortage of cereals and from the nutritive point of view, production of fruits, vegetables, fish, eggs, meat and milk should be encouraged in the Third Five-Year Plan so that a diet of over 2,500 calories per day is assured to every one. Dr. Aykroyd has pointed out the deficiencies in the average Indian diet. Any improvement requires a well thought-out policy of crop planning. Greater attention should be paid to increasing the production of varieties of nutritious fruits which are popular with the masses and the prices of which will be within the reach of the common man. Orchard-cum-Nurseries and Horticultural Research Centres could be established at irrigation dam sites.

The dairy development programme may envisage an increase of milk production from 4 ounces per head at present to 6 ounces in 1965-66, if not more. More milk colonies—one in each important town—on the lines of Aarey Milk Colony should be the aim. The poultry development programme may envisage an increase in the production of eggs from 2.9 million per annum to 4.5 million and the object should be that every man and woman gets an egg per day to keep the doctor away.

The fisheries programme may envisage an increase in the production of fisheries from 12.33 lakh tons per annum to 20 lakh tons by the end of the Third Plan by increasing fish landings from the sea and fish catches from inland waters, by applying improved techniques of fish culture, fishing methods, handling, preservation, storage, transportation and marketing, distribution of pablo boats and nylon nets at subsidised rates, setting up fish farms, the initiation of pilot projects of commercial fishing in reservoirs, establishment of fish curing yards at important centres, etc. In Madras State, the authorities have favoured the establishment of smaller boat building yards and maintenance units at Cuddalore, Nagapattinam, Pamban, Tuticorin and Colachel and a model departmental fishing unit. The Government have drawn up a number of schemes to establish ice and cold-storage

plants at important fish production centres. The other maritime States like Kerala, Mysore, Bombay, Orissa and West Bengal can also follow this example so that an item of food of great protective value is increased.

Forest Resources

The importance of forests to the national economy needs no iteration. Forests of India constitute only 22.3 per cent of the land as against the national goal of at least 33 1/3 per cent (60 per cent in hills and 20 per cent in the plains). During the Second Plan period, a provision of Rs. 22 crores had been made for the development of forests and it was estimated that over 300,000 acres would be afforested during the Second Plan period.³ The forests have been reclassified on functional basis into national forests, village forests and tree lands to focus attention on the objects of management necessary in each case. It is proposed to avail of the services of all the existing and future N.E.S. Blocks, each of which should be expected to plant 800 acres annually. This is likely to give 20 million acres of forests in five years. The Government of India enunciated a new national forest policy in 1952 formulated on the basis of 6 paramount needs of the country which forests were expected to fulfil and this will continue to be true in the Third Five-Year Plan also.

Crop Insurance

The agriculturists require protection from visitations of nature—floods, drought, pests, diseases, etc., and this can be secured only by a comprehensive scheme of crop insurance as done in the U.S.A. and in European countries. A scheme of crop insurance was prepared by the then Economic Adviser to the Government of Madras in April, 1949. The Government of India also appointed a committee in 1949 to go into this question. The importance of crop insurance in the context of the development of the rural sector needs hardly to be stressed. "Prices of foodgrains and other insured crops will be freed from wild oscillations. The agricultural economy of the State (and of the country) will be placed on an even keel. By regulating the flow and prices of essential raw materials, crop insurance will provide a boon to the industrial sector as well."⁴ This statement remains valid even today and at least in the Third Five-Year Plan pilot schemes in a few selected irrigated tracts and dry tracts could be started with a view to a wider, eventual coverage.

COMMUNITY PROJECTS AND CO-OPERATION

The idea of community effort has spread in the country and a sum of Rs. 400 crores is estimated as the expenditure on the Community Development Programme in the Third Five-Year Plan by the end of which all the 5½ lakh villages in the country are planned to be covered by the programme. From October 2nd, 1952 to the end of March, 1959, Government had spent Rs. 125.58 crores and the people had contributed Rs. 72.76 crores.⁵ The Community Projects have a very

3. Shri A. P. Jain, Union Minister for Food and Agriculture at the Convocation Address at the Forest College, Coimbatore on June, 30, 1959.

4. *Vide* my paper on "Policy for Development of the Rural Sector in the Second Five-Year Plan", *The Indian Journal of Agricultural Economics*, Vol. XI, No. 2, April-June, 1956, pp. 196-97.

5. Press Conference by S. K. Dey, Union Minister for Community Development and Co-operation on July 4, 1959.

important role to play in the agricultural production programme of the country. Legislation for effecting of "democratic decentralisation" of the Community Programme as recommended by the Balwantrai Mehta Committee was under way in 7 States—Andhra, Mysore, Rajasthan, Kerala, Madras, U.P., and Madhya Pradesh. Other States are expected to follow suit. The programme had helped in the distribution of better seeds, fertilizers and thus in the increase of agricultural output. During the past two years, a large number of progressive farmers have been trained and helped and there has been a wide dissemination of the knowledge of improved agricultural practices.

Co-operative credit is important as an alternative agency to the ubiquitous money-lender-cum-trader. The Full Finance Scheme should be launched in all areas of the country and as an interim measure to all Development Blocks immediately and to the whole of India by the end of the Third Plan period. All Government aids to agriculturists should be made available only through co-operatives. The objective of the Government should be to set up at least one multipurpose co-operative society in each village to serve the local agriculturists as a Service Co-operative catering to all their cultivation needs like fertilizers, seeds, credit and so on. In the areas in which the Full Finance Scheme is working, no *takkavi* loan should be granted. This scheme will meet only the short term and medium term needs of the agriculturists. Since the loans given for long term credit by the Land Mortgage Banks alone will not be adequate, long term *takkavi* loans could also be granted even in the Full Finance Scheme areas. As recommended by the Rural Credit Survey, for landless cultivators, marginal cultivators, sub-marginal cultivators, etc., standing crops rather than credit-worthiness could be the basis of extending credit. The Government could give a guarantee to the financing banks agreeing to make good one-half of loss, if any, incurred by them in cases in which short-term loans given by them on the security of the crops raised by landless cultivating tenants, etc., become irrecoverable on account of failure of crops, etc. Co-operative credit was, has been, and will continue to play a dominant role in the agricultural economy.

Co-operative Farming

At present there are two principal incentives operating in the field of agricultural production. They are derived from ownership of land and the desire for increased profits resulting from increased output. It is not the intention of co-operative policy to destroy or in any way reduce the power of either of these incentives. What is aimed at is to strengthen the power of these two factors by adding a third factor namely the means of concerted action by a group of farmers. This simple truth embodied in the old adage "United We Stand, Divided We Fall" has been clouded and obscured by the dust of political controversy. A good idea should not be sidetracked by irrelevant issues and in the Third Five-Year Plan co-operative better, joint, tenant and collective farming societies should be set up in as many areas as possible of the country.

AGRICULTURAL MARKETING AND PRICES

Till now the agriculturist concerned himself only with production and did not enquire too closely into the returns he received from marketing his crops. This was because there was so little of marketable surplus, the self-sufficient

mentality was prevailing in the country and also because the farmer felt that he had not the required expertise in marketing his crops. He preferred "not to be a Jack of all trades." Now, researches have revealed that the proportion of the consumer's rupee which trickles down to the cultivator is not commensurate with the efforts he puts forth and that a large margin goes to the wholesalers. With the campaign for increased food production, unless the cultivator receives a larger percentage, there will be no incentive to produce a large amount. Hence the need for regulating markets is being recognised. The Planning Commission has laid stress on the following measures (a) expansion of co-operative marketing and processing and establishment of warehouses, (b) promotion of grading of agricultural commodities on a compulsory basis for exports and on a voluntary basis for internal trade, (c) regulation of markets and market practices, (d) organisation of market news service, (e) training of personnel in agricultural marketing, (f) market research comprising marketing survey, studies in the analysis of price spread, standardisation of grade specifications and packages, etc. Regulated markets have been functioning in 7 States, namely, Madras, Andhra Pradesh, Kerala, Mysore, Bombay, Madhya Pradesh and the Punjab and recently Orissa has joined the number. The two centrally administered areas of Delhi, and Tripura have recently adopted the Bombay Agricultural Produce Markets Act and have prepared a programme for regulating the markets thereunder in their respective areas. The remaining States of Assam, West Bengal, Bihar, Uttar Pradesh, Rajasthan are also drafting the necessary bills. The aim should be to cover the whole country with regulated markets and bring within its purview all foodgrains and commercial crops, thus the extensive and intensive aspects receiving due attention. One of the handicaps in the proper development of regulated markets has been lack of well-laid out market-yards with amenities such as parking sheds, rest houses, approach roads, drinking water arrangements, auction floors, etc. During the Third Plan all the important markets should be developed from this point of view.

Similarly co-operative marketing societies and regulated markets are complementary in character instead of being competitive and an integrated development of both these patterns should develop side by side. Another important point is that the farmers do not get their due share due to lack of grading and standardisation of their products. Hence grade standards have to be laid down for as many commodities as possible and it should be seen that the farmers get just prices for the graded commodities in the regulated markets. Regional Control Laboratories and State Grading Laboratories will be essential for this purpose. The whole subject of market research has to be approached from a fresh angle and the Marketing Departments in the States should be strengthened accordingly.

Similarly the fruit and vegetable preservation industry has great potentialities, especially in Koduru, Nagpur orange region, Kulu Valley, Assam, Sikkim, etc. Hence this industry deserves expansion in the Third Five-Year Plan.

Stabilisation of agricultural prices is an important topic involving complex problems and it is better that a scheme at least in the pilot stage is worked out. For this purpose cost of production studies should be undertaken for fixing floors and ceilings for important agricultural crops. Guaranteed prices and guaranteed incomes will impart the necessary incentives for increased agricultural production.

In addition warehouses, refrigerated plants, cold-storages, etc., should be developed further with the same object.

CONCLUSION

Agriculture in India is an ancient industry providing livelihood to vast numbers who look upon it as a way of life. Hence agriculture has a crucial role to play in the development of the economy not only in the Third Five-Year Plan but also in subsequent Plans. Unless the base of the foundation is stable, the superstructure will be shaky. The various measures to increase agricultural production are but concerted attempts with the same objective. Hence whether it is co-operative farming, State trading in foodgrains or agricultural marketing, the end being the same, the means are complementary and therefore planning should be based on a broad assessment of the potentialities and capacities of each measure to contribute to increased agricultural production and thus to the betterment of the rural polity.

AGRICULTURE AND THE THIRD FIVE-YEAR PLAN

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There is no doubt that the Third Five-Year Plan shall have to be drawn on the basis of experience gained during the First and Second Plans. According to present indications, the outlay of the Third Plan is likely to be much larger than that of the first two Plans being in the order of Rs. 10,000 crores to be spent in both the public and private sectors. Of this, the share of the public sector is estimated to be Rs. 7,500 crores. Financial considerations apart, one of the major considerations shall be the character and composition of the Plan itself.

The First Five-Year Plan was an agricultural plan, the main objectives of which were to complete the projects on hand, to improve the food situation in the country and to restore the balance of our economy disrupted by war and partition. The Planning Commission in its First Five-Year Plan had observed that "in an under-developed economy with low yields in agriculture, there is of course, no real conflict between agricultural and industrial development ; one cannot go without the other, the two are complementary. It is necessary, however, on economic as well as other grounds, first of all to strengthen the economy at the base and to create conditions of sufficiency and even plenitude in respect of food and raw materials. These are the wherewithals for further development." The little success that was achieved during the First Plan period, in the matter of food production, made the Planning Commission to take an unduly optimistic view of the food situation in the country, and when the Second Plan was drafted greater emphasis has come to be placed on industries and transport. While no one denies the importance and necessity of giving priority to these sectors, it is wrong on the part of the planners to exaggerate the self-sufficiency in food production and declare that "it is no longer necessary to place a dominant emphasis

on the production of cereal crops." Even at the end of the Second Plan period, as we are at present, the condition of our agriculture has not changed to any appreciable extent. In the ninth year of planning, we find that the food situation in the country is bad enough. Prices of essential foodgrains have gone up unprecedentedly and in the case of several essential commodities like rice, wheat and sugar, there is a short fall in supplies in the open market. The middle and low income groups are extremely hard hit. The country is passing through, even according to official observers, a dangerous period of inflation. Even war period was not so bad, when, in spite of hoarding and black-marketing, prices were controlled. While it is too early to judge the success or otherwise of the policy of State Trading in foodgrains, the fall in the prices can only be expected to take place when there is an increase in marketable surplus. In recent years, hardly 50 per cent of the available surplus in the farmer's hands is coming into the market during the harvesting season. All efforts towards controlling the price level are likely to fail unless there is an increase in production and the cultivators are made to feel the sense of security of having adequate stocks for home consumption and the desirability of voluntarily parting with their surpluses.

Official statistics place the figures of foodgrains production at impressive levels. The latest in the series is the record output of 73.5 million tons during the year 1958-59. Even this output falls short of our total requirements which are estimated at 75 million tons at the end of the Second Plan period. Actually, the average production of the first three years of the Second plan, works out at 68.5 million tons as against 62.0 million tons for the entire five years of the First Plan period. In spite of this, the food situation in the country does not appear to be satisfactory both in regard to supplies in the open market as well as prices. Moreover, the increase in foodgrains in the last few years is attributed more to favourable seasonal factors than to planning as such.

Under these circumstances, therefore, the strong industrial base that is proposed to be created cannot be sustained, unless agriculture is capable of showing marked improvement in respect of production, distribution as well as price level. The Planning Commission shall obviously have to give a serious consideration in framing the Third Five-Year Plan, in regard to these aspects.

The country's requirements in the matter of foodgrains as well as other crops are increasing at a much faster rate than before. This trend may be attributed to several causes. Firstly, the population increases at the usual rate of 2 per cent per annum which itself is a factor in adding more mouths to be fed. In other words, agricultural production has to increase at a rate higher than the increase in population. Secondly, there has been a decrease in the death rate in recent years as a result of extension of medical facilities and improved health measures. Consequently, the increase in the survival rate will make the population pressure still greater. Thirdly, there has been a tendency in recent times on the part of the people to consume more. It would be appreciated that a population whose consumption standards have been abnormally low, given a slightly higher purchasing power and more psychological encouragement shall naturally spend their increases in incomes in the form of increased purchases of food-stuffs to feed themselves more fully than before. The income elasticity of demand in the case of necessaries is not less than unity as long as the existing consumption standards are low. Fourthly, the increasing tempo of industrialisation causes an automatic

increase in the demand for raw materials as well as more foodgrains for industrial workers. Fifthly, in a developing agricultural economy, increased agricultural production does not automatically show itself in the form of increased marketable surplus, as the producers themselves tend to hoard a larger part of their output than before, motivated as they are in Keynesian terminology, by transactions, precautionary and speculative motives. It is necessary, therefore, that the planners should keep these different aspects in view in allocating funds and fixing targets of output for the agricultural sector.

In so far as the targets of production for the Third Five-Year Plan are concerned, it is learnt that the Planning Commission is working on the fixation of a target of 110 million tons of foodgrains, 80 lakhs of bales of cotton, 65 lakhs of bales of jute etc. In regard to foodgrains, this target would mean trebling of the present rate of increase, *i.e.*, to the extent of 45 to 50 per cent by the end of the Third Five-Year Plan. While the fixation of this target is certainly laudable, it is necessary to gear up the machinery in such a way as would be able to bring about their fulfilment.

Self-sufficiency in the matter of foodgrains is the primary objective that any country should aim at, especially when there are potentialities of development both through intensive and extensive methods of cultivation. There is not an iota of justification for incurring hundreds of crores of expenditure under the Plans if this basic necessity is not satisfied. The country can no longer afford to place itself in a precarious position of dependence upon other countries in such a vital matter as food supply and thus bring itself under some sort of foreign subordination.

While increase in cereal production should receive foremost consideration, at the same time we cannot afford to keep 60 to 70 per cent of population in an under-nourished and under-fed condition perpetually. Moreover, the decline in death-rate, improvement in general health conditions, increase in the desire for work, and increases in purchasing power, shall inevitably make a semi-starved population press forward their suppressed demand for not only quantitative increases but also qualitative improvements in food stuffs (better clothing, more accommodation etc.). It would be unreasonable to squeeze any further sacrifices from a generation that has witnessed the worst of struggles and calamities and has given out many more times than what the country has been able to give them materially. The Third Five-Year Plan must have to bear this aspect in view. On this basis only, the much needed people's co-operation and participation in the Plans can come about. Side by side with increase in the production of cereals, efforts shall also have to be made to bring about diversification of agricultural products, increase in dairy products and large scale popularisation of horticulture. With increase in the yields from land under cereal crops, it shall be possible to release some of the areas under cereal production for the production of other crops, without affecting the over-all increase of the former. As the Nalagarh Committee has pointed out, it is necessary that an over-all planning in respect of our crop pattern and land-use practices on a country-wide basis is introduced under a Common Central Authority. Further, it is high time that systematic soil surveys should be undertaken in different regions so as to bring about a proper analysis of the soil properties for the introduction of integrated production plans and crop rotation.

Though the entire agriculture in India continues to be in the private sector, and though there is no such conflict as in industry between the private and public sectors, the responsibility of the government, nevertheless is heavier, touching almost every aspect in the field. Supply of agricultural implements, better seeds, manures and fertilizers, provision of credit, improvements to land, consolidation and reorganisation of holdings, better storage facilities, better irrigation facilities, imparting of training in better techniques of farming, reclamation of waste lands, and soil erosion measures, expansion of employment opportunities through the promotion and development of rural industries and last but not the least, a proper price-support policy are all the essential requisites of our agricultural sector. These are the fields on which the State shall have to spend huge sums of money for a number of years to come so as to enable the sector to become self-sustaining and self-growing.

Continuous projection of investment into the agricultural sector is necessary till the entire cultivable land is put to optimum utilisation. In so far as the investment pattern in the public sector is concerned, a few pertinent factors may be brought out for consideration. During the First and Second Plans, certain commitments have already been made in regard to the construction of irrigation projects, establishment of development blocks, involving huge fixed capital expenditure. Several of these are still in an unfinished stage, and it would not be possible, nor desirable to reduce the outlay on them. In so far as new projects are concerned, a certain extent of re-orientation in thinking is necessary in the interest of bringing about a planned and even growth of the economy.

During the First and Second Five-Year Plans, larger proportion of funds have been allotted for the construction of major irrigation projects. While the major projects have the advantage of providing irrigation facilities over larger areas, they involve heavy capital expenditure over a long period until their completion, without any immediate returns. On the other hand, minor irrigation schemes can be undertaken at a lesser cost and can provide quicker benefits. The Co-ordination Committee of the Agriculture and Community Development Ministries has observed recently that in most States, there has been a continuing short-fall in expenditure on minor irrigation works. Small and medium size irrigation works alone act as the means through which it is possible to provide irrigation facilities over large and scattered areas where it is not possible to construct large projects and thus enable the homogeneous development of a given region. Besides, unplanned extension of large projects can render superfluous several of the minor irrigation sources that may already be existing in such areas. There is, therefore, greater need for proper planning and co-ordination of major, medium and minor irrigation projects so that all the three types of projects could be properly integrated on a planned basis and utilised to their optimum capacity. Moreover, in the matter of development of irrigation works, it would be better to consult the local population and seek their views and co-operation. In regard to the execution of large, medium sized projects, there is at present a serious lack of proper phasing of the project, in between the construction of the dam, reservoir, the digging of canals, and supplies of water to the cultivators. The absence of proper planning and execution in this respect will lead to huge losses. As it is, we do not have reliable statistical data, region-wise, in respect of additional output of crops that are likely to be obtained as a result of different types of irrigation projects. The National Sample Survey estimate of 0.20 ton additional output

per acre cannot be universally applied on account of large, regional variations in soils, and differences in water requirements of various crops. It is, therefore, very necessary for purposes of sound planning that investigations should be conducted regarding irrigation potentialities on different types of land—prior fallow, prior cultivated and prior irrigated—in increasing output under different crops.

Agricultural development necessitates the optimum utilisation of not merely the land resources but also the putting into full use of all available man-power through the expansion of employment opportunities. The Second Plan has become a flop in this respect. The problem of unemployed and under-employed has become more acute than it was before the commencement of the Second Plan. Even on a conservative estimate, the magnitude of unemployment and under-employment would be as much as 20 per cent in the case of urban population and 16 per cent of rural population. The Third Plan shall have to provide suitable employment opportunities for this surplus labour force. The only solution for this appears to be to bring about urbanisation of rural areas. The Third Plan in a way has to become an urbanisation plan. Such a plan obviously necessitates the development of processing industries which are directly dependent on agricultural and live-stock products and the promotion of rural industries and new opportunities of trade and commerce. The efforts towards creating employment opportunities should be invariably in the field of consumers' goods, utility goods industries and direct services. Though the undertaking of large public works programme can bring about the expansion of employment opportunities, such a measure is not desirable so as to avoid an inflationary spiral.

Yet, in an economy which is anxious to shed its cloak of backwardness, it would become inevitable that the State should undertake a heavy investment programme even at the cost of certain amount of inflation, so that ultimately it might be possible for the economy to move towards cumulative self-growth. Until such time, the responsibility of the State continues to exist. Under these circumstances, therefore, the investment programme under the Third Plan cannot but be heavy, in fact heavier than those of the earlier plans, keeping in view the need for doubling up the national income and the rate of capital formation. The proposed outlay of Rs. 7,500 crores under the public sector needs distribution somewhat on the following lines, placing more emphasis on the development of the agricultural sector. The following Table shows simultaneously the total outlay and the percentages of the same under different heads proposed under the First and Second Five-Year Plans as also that are now proposed for the Third Plan.

TABLE I—OUTLAY UNDER THE PLANS

(In Crores of Rs.)

Item	First Plan		Second Plan		Third Plan	
	Total	Per cent	Total	Per cent	Total	Per cent
1. Agriculture and Community Development..	357	15.0	568	11.9	1,500	20
2. Irrigation and Power	661	28.0	913	19.0	1,275	17
3. Industry and Mining	179	7.6	890	18.6	1,875	25.0
4. Transport and Communications	557	23.7	1,385	28.8	1,500	20.0
5. Social Services	533	22.7	945	19.7	1,200	16.0
6. Others	69	3.0	99	2.0	150	2.0
Total	2,356	100.0	4,800	100.0	7,500	100.0

It may be mentioned that during the Second Plan though the actual outlay on agriculture, irrigation and power is decidedly higher in terms of aggregates, yet the percentage of allocations under the agricultural sector is lower than those for industry, transport and mining. The proposals regarding allocation of outlay among the different sectors have been given by us in the above Table, keeping in view the need for speeding up the resuscitation of our agricultural economy. The development of agriculture through various schemes, and expansion of Community Development Programmes would need enormous outlay and an allocation of Rs. 1,500 crores, *i.e.*, 20% of the proposed outlay for this purpose need not be considered high. So is the case with regard to irrigation and power projects towards which as much as Rs. 1,275 crores, *i.e.*, 17 per cent of the outlay is earmarked. This expenditure would be necessary for completing the projects under construction as also to give more importance to minor (medium and small) irrigation projects.

Thus, when once the character of the Plan is decided, keeping in view the overall priorities, it would yet be possible to make the allocations flexible in such a manner as to push up the tempo of economic growth which shall have to make itself felt right from the agricultural sector. At the same time, the mobilisation of financial resources shall become the Achilles' Heel of our Planning. Efforts should be made for the mobilisation of internal resources to the fullest extent. There are appreciable chances of obtaining increased tax revenues from the rural sector, especially through increased land revenues, income and property taxes, betterment levy, water rates, etc., and thus meet a good part of the outlay on agriculture from within the agricultural sector itself. The present incidence of taxation on agricultural population is much lower than on the urban population especially as the latter are able to enjoy the benefits of higher prices for agricultural produce as well as heavy planned investments in the rural sector.

When once the allocation of finances under different heads is completed, a few pressing questions shall emerge in regard to the entrusting of the plan programmes to different agencies for implementation. Keeping in view the present trends in our thinking, the following aspects appear to be in need of proper decision before presenting the Third Five-Year Plan to the country:—

(a) To what extent the above activities may be entrusted to the Co-operative Societies?

(b) To what extent the Village Panchayats may be entrusted with the discharge of some of these functions?

(c) To what extent, the Government should have direct dealings with the peasants? and

(d) To what extent the different functions are to be entrusted to the different departments such as Planning and Community Development, Food and Agriculture, Revenue and a host of others and to what extent co-ordination is possible?

At the present moment, there appears to have arisen a great deal of confusion and over-lapping in performing these functions at various levels. It is not desirable, even if they are the villagers' own institutions to unduly entrust them with more powers, which may adversely affect the very goals of a Welfare State—individual freedom, productive efficiency and economic equality.

THE ROLE OF AGRICULTURE IN THE THIRD FIVE-YEAR PLAN IN BIHAR

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Bihar is a predominantly agricultural State. The problems of agriculture and of rural economy which the people and the Government of this State have got to solve, arise out of a number of features and tendencies of our economy, some of which we share in common with the rest of India and some of which are specially applicable to our State. These facts which confront us and give rise to our problems may be summed as consisting of a large population with a very high density per square mile, a high rate of annual addition to this population continuously increasing the pressure on land, small and fragmented holdings, dependence of agriculture on the vagaries of nature with the consequent risks and great fluctuations in even the low level of income in cash and kind of the cultivators.

About 82 per cent of the topographically usable area is under cultivation. The "Man to land ratio" is very low with a sown area of just above half an acre per capita. The density of population was 572 per square mile in 1951 (against 519 per square mile in 1941). According to All India Agriculture Labour Enquiry conducted during 1950-51 an average size of holding comes to 4.10 acres. The pressure of population on land has been steadily increasing. Population depending on agriculture rose from 73.8% in 1931 to 86.05% in 1951. The present increase in population is at the rate of 2 per cent per annum.

The per-acre yield of crops is also poor. The average yield for the six years, *i.e.*, from 1950-51 to 1955-56 is (in lbs. per acre) 602 for winter rice, 431 for autumn rice, 505 for wheat, 399 for gram, 425 for barley, 490 for maize, 450 for arhar and 365 for bajra. On an average, an acre of cultivated land can yield staple food for two persons, without any significant contribution to the production of industrial crops.

The normal rainfall is about 50 inches, and about 24 per cent of the net area sown is irrigated. Out of this total irrigated area only 20 per cent receives regulated and assured irrigation through Government canals which are the only source providing regulated and assured water for irrigation in the State. Private irrigation system, such as tanks, wells, *pynes*, *ahars* and other indigenous devices for storing water are more prominent. The efficiency of these is largely determined by the adequacy of rainfall, and hence they are apt to prove useless in times when irrigation is most needed. In years of scanty rainfall only 25 per cent of the area under irrigation could be sufficiently covered from the available sources. On the whole assured irrigation is available only to about 8 per cent of the net sown area.

At present, irrigation is available in Bihar primarily for the rice crop, which accounts for nearly two-thirds of the irrigated area. Facilities available for other important crops, such as wheat, maize and sugarcane, are comparatively small.

* The views expressed are in personal capacity.

It is necessary to extend irrigation facilities to other food crops, wheat, maize, barley, etc. The magnitude of the flood problem though great only for North Bihar has a grave impact on the economy of the State as a whole, subjecting about half the area of the State to insecurity in agriculture, the only occupation of the population. "About 35% of the agricultural population are cultivators of land wholly or mainly unowned and cultivating labourers. Lack of agricultural capital and credit, unsuitable land tenure traditions, deficiency in agricultural education, shortage of good seed, manure and irrigation combined with extreme fragmentation on account of the pressure on land reduced agricultural efficiency, Bihar standing eleventh among the first 20 States in farming efficiency according to Kendall's Ranking Co-efficient."¹

Since 1949, the cultivated area as well as net area sown, showed a downward trend because of adverse seasonal factors, floods and droughts, repeatedly experienced by the State. The proportion of current fallows to net area sown has also risen in the last seven years revealing that even the total area of land available for tillage is not being fully utilized. This is most depressing in a tract where the margin for extension of cultivation is narrow and requires emergent measures to prevent this waste. Only about one-third of the net area sown, is double-cropped even though the trend has been a rising one with the provision of irrigation facilities.

The agricultural situation in Bihar thus does not appear satisfactory and the Five-Year Plans have hardly touched the fringe of the problem. The agricultural base of the economy is shaky, with inadequate food production, widely fluctuating production trends, growing deficits and insufficient raw material for industrial programmes. No industrial structure can be firmly built on such feeble foundation. The future depends mainly on removing this instability through considerable investment in the provision for irrigation facilities and the control of floods and the vagaries of nature. All attempts to reorganise the pattern of land use and cropping would depend for success on the basis of structural reforms in tenure and tenancy to provide security for the cultivators and organisational adjustment to secure credit and other facilities for improving farm efficiency.

FIRST FIVE-YEAR PLAN

At the time of launching the First Five-Year Plan in April, 1951 we had the scarcity of rainfall in our State in the years 1950 and 1951. The result was drought for two consecutive years and severe damage to our crops. While there was already scarcity of foodgrains in Bihar, the continuous drought for two years aggravated the situation. Therefore, when the First Five-Year Plan was drafted in 1951, the main object was to increase the production of foodgrains in the shortest possible time. It was decided to raise 7.22 lakh tons of additional foodgrains in the First Five-Year Plan. The total production of foodgrains in the State in the base year 1949-50 was 57.12 lakh tons.

On the basis of approved yardsticks of additional production of cereals and pulses for the various Grow More Food schemes included in the First Five-Year Plan it was assumed that the target was fulfilled with the break-up given below:—

1. Bihar, Second Five-Year Plan (provisional) 1956, p. 5.

TABLE I

Names of Schemes	Additional production lakh tons
1. Minor Irrigation	3.22
2. Major Irrigation	0.53
3. Flood Protection	1.66
4. Land Development and Reclamation	0.77
5. Fertilizers and Manures	0.72
6. Improved Cultural Practices	0.32
Total	7.22

It is necessary to state that the production potential said to have been created at the end of the First Plan has not yet been reflected in actual production and, in fact, in the subsequent years the actual production has always fallen short of the base year, *i.e.*, 1949-50, except during the year 1953-54, as will be apparent from the available statistics given in Table II.

TABLE II

Year	Out-turn in lakh tons
1949-50	57.29
1950-51	43.72
1951-52	42.31
1952-53	56.57
1953-54	61.02
1954-55	45.15
1955-56	55.64
1956-57	51.96
1957-58	38.90

Old Bihar

New Bihar

SECOND FIVE-YEAR PLAN

Whereas at the beginning of the First Five-Year Plan there was an acute shortage of foodgrains as stated earlier and hunger threatened the country, at the beginning of the Second Five-Year Plan agricultural prices showed declining tendency and the spectre of unemployment was growing.

In brief, Second Five-Year Plan provides greater production of wealth, agricultural and industrial, with less concentration of foodgrain production and more on the industrial production to ensure a balanced economy.

Targets of Additional Agricultural Production

The total foodgrains production potential at the beginning of Second Plan was 64.34 lakh tons. A target of 19.65 lakh tons of additional production has been fixed for the various agricultural schemes being executed during the Second Plan period. The target of additional production fixed for foodgrain crops is 15 lakh tons out of the total. While the remaining 4.65 lakh tons have been fixed for other crops like sugarcane, cotton, oilseeds, etc., the break-up of estimated additional production is given in Table III.

TABLE III

Names of Schemes	Additional production in lakh tons
1. Minor Irrigation	5.56
2. Major Irrigation	1.16
3. Drainage of Chaurs	0.84
4. Land Development and Reclamation	1.57
5. Fertilizers and Manures	2.52
6. Improved Seeds	5.00
7. Improved Cultural Practices	3.00
Total	19.65

The anticipated achievement at the end of the Second Plan is, however, likely to be lower than what was envisaged in the plan. The main reasons of short-fall in production are attributed to short supply of chemical fertilizers, delay in establishment of seed multiplication farms and lack of a suitable agency to ensure exchange of improved seeds among the different classes of registered growers. If the target of additional production of 15 lakh tons of foodgrains were achieved, the estimated production potential of foodgrains including pulses at the end of the Second Plan could be of the order of 79.34 lakh tons. If this were to be reflected in actual production we would have become a surplus state in regard to foodgrains at the end of Second Plan period.

THIRD FIVE-YEAR PLAN

As mentioned earlier the actual achievement during the Second Plan period is likely to be lower than that envisaged in the Plan. The population growth is estimated to be at a higher rate than was assumed earlier. The increase in agricultural production has also been inadequate. Therefore, the greatest emphasis is laid on agricultural production and a draft outline of the State's Third Plan is

understood to have been drawn up on that basis. Agricultural production and especially the production of foodgrains is most vital for the success of the Third Plan and intensive efforts on a national scale should be organised.

It is proposed to double the foodgrains production potential of the base year 1949-50 by the end of the Third Plan period. It means that the production potential of foodgrains at the end of the Third Plan will be 114.24 lakh tons. This means an increase of 34.90 lakh tons of foodgrains over the production potential at the end of the Second Plan. The various Grow More Food schemes included in the draft Third Plan, however, are estimated to create an additional production potential of 42.98 lakh tons. The Scheme-wise break-up is given in Table IV.

TABLE IV

Sl. No.	Name of Scheme:	Production potential in lakh tons:
1.	Minor Irrigation	6.11
2.	Major and Medium Irrigation	5.03
3.	Land Development and Reclamation	1.43
4.	Fertilizers and Manures	14.26
5.	Improved Seeds	10.00
6.	Improved Cultural Practices	6.15
	Total	42.98

The population of Bihar according to census of 1951 was 38.7 million. Assuming population as equivalent to 0.83 in terms of adult units the population in 1951 may be taken as 32.1 million. On the basis of the estimated increase of 2% per annum the population in the subsequent quinquennials may be taken as follows:

TABLE V

Year	In million	
	Total Population	Adult Units
1956	42.6	35.3
1961	46.4	38.6
1966	51.1	42.4
1971	55.7	46.3
1976	61.3	50.9

On the basis of a *per capita* daily requirement of 15 oz. of cereals and millets and 3 oz. of gram and pulses, the annual requirements of foodgrains at the end of the Third Plan period are estimated at 64.84 lakh tons of cereals and millets and

12.96 lakh tons of gram and pulses, *i.e.*, a total requirement of 77.80 lakh tons. The substantial margin will take care of the fluctuations in the weather, the greater demand for marketable surplus on account of increasing urbanisation and for larger pipeline stocks.

By the end of Second Plan period, 414 community development blocks and 161 agricultural extension blocks will be working in different parts of the State. It is proposed to set up 575 seed multiplication farms of 25 acres each to cater to the needs for improved seeds in the State.

It is estimated that 3.56 million acres will be irrigated by the end of the Second Plan period. There will be 8.9 million acres under irrigation at the end of Third Plan period. Another 18.4 million acres will remain to be irrigated.

The State Government proposes to set up land-use cells under the direct control of the Development Commissioner for continuous study of the land-use pattern and changes brought about by various development plans.

AGRICULTURE IN THE THIRD FIVE-YEAR PLAN WITH SPECIAL REFERENCE TO ANDHRA PRADESH

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Introduction

The object of this short paper is to estimate in a short compass the progress of Agriculture during the period of the first and second year plans and to project, if possible on the basis of data, the possibilities of progress in the field in the Third Five-Year Plan. It will also attempt to suggest what steps—if any—can be adopted to concentrate on an increase in agricultural production by means of co-ordination of factors which contribute to agricultural efficiency.

ROLE OF AGRICULTURE AND ITS CONTRIBUTION TO NATIONAL INCOME

Agriculture has been the only stable and important industry in India for centuries including both cultivation and cottage industries, which has not only been feeding the population in its entirety, but has also been the main, if not the only avenue of employment among the masses. Thus India is essentially a country of agricultural villages with 5.6 lakhs of villages spread over an area of 1.3 million sq. miles. According to the 1951 census 82.7% of the population (out of 357 millions) live in the villages and 69.8% are employed in agriculture as occupation with the consequential under-employment for at least four to six months in the year.

The economy of Andhra Pradesh is also essentially rural in character and agriculture forms the only major source of livelihood for large number of its people. 258 lakhs of people accounting for 82.6% of the total population of the State live in its 26,450 villages while 210 lakhs forming 67.3% of the State's population depend on agriculture for their livelihood. Apart from being the major source of livelihood, the distinguishing feature of the State's agricultural economy is that it is surplus in foodgrains while the country is merely self-sufficient in respect of the same. The State can also take legitimate pride in the fact that its own efforts in raising its food production contributed in no small measure towards the attainment of self-sufficiency in foodgrains in the country. The State's foodgrain production in 1958-59 formed 12% of the All-India production of Rice, 15% of Jowar and 16% of Ragi while the State's population is only 8.8% of the all-India population. The importance of the State's contribution to the national economy is also underlined by the fact that the State accounted for 21% of groundnut, 42% of castor, 46% of tobacco, 10% of sugarcane and 29% of chillies produced in the Indian Union in 1958-59. Evidently the State has also a virtual monopoly in respect of tobacco and castor which are two of the important foreign exchange earners for the country. The relatively greater importance of agriculture in the economy of the State is also reflected in the State Income of which income from agriculture formed 58.9% while in India agricultural income formed 46.9% of the total national income in 1957-58.

Examining the land utilisation pattern, the following data concerning Andhra Pradesh are striking. Out of total area of 666.2 lakhs of acres according to village papers the net cultivated area is 272.3 lakh acres in 1957-58, *i.e.*, 40.9% of geographic area while the total cropped area is 296.4 lakh acres, which shows that about 9% of the net area sown is cultivated more than once. The net area irrigated by canals, tanks, etc., is 67.8 lakhs of acres out of gross irrigated area of 83.5 lakhs of acres. The total number of agricultural holdings in Andhra Pradesh is 44.4 lakhs, with the average size of holding worked out to be 7.8 acres. Of these 44.4 lakhs of holdings, 41 lakhs or 92.3% are under personal cultivation of owners, wholly or partly owned and the rest cultivated by tenants on rent or lease. The main crops grown are cereals and oilseeds with acreage of 18.6 millions and 4.7 millions respectively with estimated production of 6.03 million tons of cereals and 1.11 million tons of oilseeds; then come in priority in the matter of production, pulses, cotton, tobacco and chillies. Production of foodgrains has been increasing steadily from 42 lakh tons in 1951-52 to 63 lakh tons in 1958-59 leaving considerable quantities of cereals and pulses for export to the other States of India, since 1953-54 the amount of surplus varying from about 3 lakhs of tons to 7 lakh tons. But even so the unemployment and under-employment among the rural adult population in Andhra Pradesh is a great problem by itself. In this connection it may be pointed out that increase in population is of the order of 1.4% a year.

MAIN PROBLEMS IN THE AGRICULTURAL SECTOR

From the above data relating to agriculture both in India and in Andhra Pradesh it is clear that a further increase of agricultural production in India and in Andhra Pradesh with agriculture as its main industry is urgent, if the country should be self-supporting in food production without depending upon foreign imports, the increase to depend upon both extensive and intensive methods of culti-

vation. There is a suggestion to increase production to 110 million tons during the Third Plan for all India. While extensive cultivation depends upon more and more irrigation facilities depending upon the crops both major and minor, the intensive cultivation depends upon introduction of modern agricultural techniques such as introduction of (i) improved seeds based upon agricultural experiments, (ii) fertilizers also experimented in different types of soil and (iii) changing the pattern of cultivation by introducing single planting, if necessary; and (iv) the apportionment of acreages under cultivation between food and non-food crops wherever possible is yet another method.

On the economics side, firstly the cost of cultivation corresponding to the gross yield of about 1,000 lbs. per acre for rice should be brought down, if agriculture should be a paying proposition. More yield and less costs should be the motto of the cultivation. The net yield per acre expressed as a percentage of investment and recurring costs which would include all items of farm costs including taxes and supervision charges should be calculated through surveys in the Third Plan, which may form the criterion of agricultural operational success in India. If the surveys show losses due to cultivation, methods should be devised and steps be taken promptly to reduce costs of cultivation. Secondly, since prices of food crops form an essential factor not only in regulating supply and demand of food-stuffs but also in curbing the current inflation of prices which has now become a serious problem to the economy of the country, it is necessary to develop both cottage and small-scale industries whose raw materials are both main and by-products of agricultural produce. The demand for agricultural products for the development of cottage industries will itself tend to raise the prices, unless concerted efforts are made to increase agricultural production all-round to meet not only the demand for food but also the demand for raw materials. It will only lead to the conclusion that enormous increase in agricultural production and production of other consumer goods is quite necessary to minimise the effects of inflationary trends.

ACHIEVEMENTS IN THE FIELD OF AGRICULTURE—OUTLAY AND RESULTS

A study of brief review on what has been achieved in the first two plans (*i.e.*, between the years 1951 and 1956 and 1956 and 1958) in agricultural sector may be interesting. Andhra Pradesh had a peculiar accident of firstly separating out from Madras State in October, 1953 and then of amalgamating Andhra and Telangana areas to form Andhra Pradesh on 1st November, 1956. Despite these disturbances, the impact of the first and second plans was felt in increased land utilisation and agricultural production. There has been a welcome change in the pattern of land utilisation with the net cultivated area increasing from 253 lakh acres in 1951-52 to 272 lakh acres in 1957-58 while the area under fallows registered a decrease from 91 lakh acres to 72 lakh acres during the same period. Consequently, net cultivated area formed 40.9% of the total geographic area in 1957-58 as against 38.1% in 1951-52. Double cropped area also increased from 22.5 lakh acres to 24.1 lakh acres during the same period. There was also a large increase in the output of foodgrains from 42 lakh tons in 1951-52 to 63 lakh tons in 1958-59, *i.e.*, by as much as 50%. During the same period the out-turn of groundnut went up from 9.86 lakh tons to 10.03 lakh tons, cotton from 1.26 lakh bales to 1.32 lakh bales, tobacco from 0.80 lakh tons to 1.16 lakh tons and sugarcane from 5.2 lakh tons to 7.12 lakh tons (in terms of *gur*). The impact of the first

and second plans was felt in increased agricultural production and land utilisation. The increase in production is not merely due to increase in the cultivated area but is also due to the rise in per-acre yields of the crops due to use of manures and fertilizers and adoption of improved agricultural practices popularised during the plan period. The yield per acre rose by 25% in the case of rice, 57% in the case of jowar, 15% in the case of Ragi, 18% in the case of groundnut, 7.2% in the case of tobacco and by 42% in the case of sugarcane between 1951-52 to 1958-59.

The irrigated area also increased from 57.4 lakh acres in 1952-53 to 67.8 lakh acres in 1957-58, *i.e.*, by 18.1% while there has been a greater increase in the gross irrigated area which rose from 62.32 lakh acres to 83.53 lakh acres, *i.e.*, by 34.0%, due to increase in the area irrigated more than once. Consequently gross irrigated area formed 28.2% of the cultivated area in 1957-58 against only 22.4% in 1952-53. Against a target of 7.04 lakh acres of additional area to be brought under irrigation through minor irrigation works and 6.40 lakh acres through major and medium irrigation projects during the Second Plan period, an additional area of 3.87 lakh acres under minor irrigation works and 2.51 lakh acres under major and medium projects was achieved during the first three years of the Second Five-Year Plan. It is also expected that on the basis of the present pace of progress in the execution of irrigation projects, the targets fixed for irrigation can be achieved by the end of the Second Plan.

The distribution of chemical fertilizers also increased from 1.13 lakh tons in 1956-57 which is the first year of the Second Plan to 1.81 lakh tons in 1958-59 while the target for 1960-61 is 2.82 lakh tons per year. The Community Development programme which covered 17.8% of the villages and 22.1% of the rural population at the end of the First Five-Year Plan (*i.e.* 1955-56) made tremendous progress during the Second Plan period and now covers 59.6% of the villages and 67.8% of the rural population (as at the end of 1958-59). On account of all these factors, *i.e.*, due to increase in irrigation facilities, increased supply of manures and fertilizers and due to various activities of rural development undertaken under the Community Development programme, the increase in the foodgrain production is estimated at 7.22 lakh tons between 1956-57 and 1958-59, accounted for by various factors as shown below:—

Increase due to				Second Plan Target (lakh tons)	Achievement 1956-57 to 1958-59 (lakh tons)
1.	Major Irrigation	..	..	2.69	0.66
2.	Minor Irrigation	..	..	1.99	1.32
3.	Land Development	..	..	1.28	0.60
4.	Manures and Fertilisers	..	..	4.47	2.05
5.	Improved Seeds	..	..	1.36	0.45
6.	Other Improved Agricultural Practices			4.64	2.14
Total				16.43	7.22

There has also been a phenomenal increase in the electricity generated in the State during the first and second plan periods. It was only 100.69 million k.Wh. in 1951 but this increased to 431.68 million k.Wh. in 1958 and rural electrification received tremendous impetus under the programme of power development. As against the total number of 1855 villages electrified in the State by the end of 1958-59, as many as 1067 were electrified during the first three years of the Second Plan. This will naturally provide increased supply of power to small-scale industries the growth of which will help reduce the increasing pressure on land. There was considerable development in the field of organised industry also. Production of cotton yarn increased from 185 million lbs. in 1953 to 259 million lbs. in 1958, *i.e.*, by 40.4%, sugar from 0.67 lakh tons to 1.40 lakh tons by 109%, cigarettes from 425 crores (in numbers) to 588 crores, *i.e.*, by 38%, paper from 7299 tons to 20,596 tons by 182.2% and cement from 2.09 lakh tons to 3.77 lakh tons by 80% during the same period.

Thus there has been considerable all-round development during the first and the second plans. Out of the total outlay of Rs. 82.5 crores under the First Five-Year Plan of Andhra Pradesh, Rs. 12.10 crores or 14.7% was allotted for Agricultural and Community Development Programmes while Rs. 47.37 crores or 57.4% was earmarked for Irrigation and Power projects. As against this, the Second Plan allocated Rs. 37.95 crores or 21.6% of the total outlay of Rs. 175.7 crores, for agricultural programmes including Community Development while the share of Irrigation and Power projects was fixed at Rs. 84.48 crores or 48.1% of the total outlay. During the first three years of the Second Plan, Rs. 14.98 crores forming 39.5% of the five-year outlay for agricultural programmes was spent while on irrigation and power projects Rs. 53.20 crores or 63% of the five-year target was spent. The initial outlay of such a high order in this State as well as similar outlays in other parts of the country would have been partly responsible for the inflationary trends which can be brought under check after the targetted increase in production materialises by the end of the Second Plan since there will be in general some lag between the creation of resources and their utilisation.

AIM OF THE THIRD PLAN

The increase in the prices of agricultural commodities despite an increase in production suggests that there are certain gaps in the development programme which have to be made up in the Third Five-Year Plan period. Though there has been a general increase in the cultivated area, and also in the production of food as well as non-food crops, still there has been a decline in the area under non-food crops in the State from 71.46 lakh acres in 1951-52 to 65.90 lakh acres in 1957-58 while that of food crops increased from 204.30 lakh acres to 230.55 lakh acres.

This kind of competition between food and non-food crops has to be avoided and can be avoided if instead of diversion of land from one use to another, land not previously cultivated is brought under cultivation. While more and more land under fallows has been brought under cultivation, the same has not been the case with cultivable waste-land which increased from 42.8 lakh acres in 1951-52 to 45.6 lakh acres in 1957-58. If more land from this classification of land is brought under cultivation the production of food as well as non-food crops can be enormously increased which will strengthen the agricultural base of the economy and enable it to feed the increasing population as well as meet the additional needs

of raw materials for industrial development. Secondly, since the average yield per acre of rice stands only at about 1,000 lbs. per acre, improved agricultural technique in the form of improved seeds and fertilizers should be made available through co-operative credit societies with Government aid. The data of production in Agricultural Demonstration Farms should be a guide. In this connection, it is a happy augury that the Andhra Pradesh Government have decided to start a fertilizer factory in the near future to bring the supply of fertilizers nearer to the people of the State. Thirdly, more of minor irrigation works and of tubewells should be implemented increasing the area under cultivation by at least 10% which should not be a difficult proposition. Fourthly, flood control measures particularly in Godavari irrigated areas which have been frequently visited by floods in recent years should be adopted to avoid recurring losses. Fifthly, improved methods of marketing of paddy at optimum prices consistent with cost of cultivation and net income of the holding should be tried combined with meeting all credit requirements of the cultivator needed from the stage of initial manuring upto the stage of harvesting and sale of produce. There should be a guarantee of floor price to the cultivator so that if market price falls below the floor price, Government or any Corporation may step in and purchase the produce at that price. This step may provide the ever needed incentive to the farmer to grow more on his land and lead to considerable agricultural production. Sixthly, the possibilities of developing cottage industries through co-operative organisations and new *Gram Parishads*, *Block Samithis* and *Zilla Parishads* should be fully explored.

In the light of these considerations it is in the fitness of things that the Government of Andhra Pradesh have decided to take up a development programme of Rs. 486 crores for the Third Plan period, allotting Rs. 90 crores or 18.6% for Agricultural and Community Development programmes and Rs. 211 crores or 43.4% for Irrigation and Power projects. By this outlay on agricultural programmes and irrigation projects, it is proposed to raise foodgrains production in the State by an additional 27.17 lakh tons during the Third Plan period distributed as follows:—

PROPOSED INCREASE IN FOOD PRODUCTION DURING THIRD FIVE-YEAR PLAN

Increased Food Production through	Target during the Third Plan in thousand tons
1. Major and Medium Irrigation Projects	484.00
2. Minor Irrigation Projects	394.45
3. Reclamation and Soil Conservation	76.82
4. Manures and Fertilizers	746.30
5. Improved Seeds	261.60
6. Plant Protection Measures	250.00
7. Improved Agricultural Practices	504.20
Total	2717.37

The targets proposed above are not very ambitious compared to the need for increased production and also in view of the fact that the State's outlay of Rs. 486 crores forms only 4.9% of the All-India outlay of Rs. 10,000 crores and also if the percentage of Andhra Pradesh population, viz., 8.8% to all-India total, is taken into account.

AGRICULTURE IN THE THIRD FIVE-YEAR PLAN—SOME SIDELIGHTS FROM KERALA

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The stresses and strains of the Second Plan period and the damaging impact of the food crisis on the progress of the Plan have left us in no doubt about the need for assigning a high priority for agriculture in the Third Plan. With our population increasing at the present rate of 2% per annum, the *minimum* target for foodgrains production by 1965-66 has to be fixed at 100 million tons. This represents an increase of no less than 25 million tons over the estimated capacity of the economy at the end of the Second Plan, assuming that the short fall in the food target set for the Second Plan will not be greater than 5.5 million tons. Simultaneously the output of commercial crops has also to be increased appreciably to provide for an increased rate of domestic consumption as well as a sizable export surplus. The Working Group on Agriculture has emphasised the imperative necessity for stepping up the overall index of agricultural production from say 136 in 1960 to 190 in 1965-66. This is no easy task and it calls for careful planning and determined effort. Agriculture planning in the past has often proceeded on the facile assumption that a certain amount of investment in irrigation projects, improved seeds and techniques, fertilizers and the like would automatically produce a proportionate increase in output. But the experience of the two Five-Year Plans has shown that in agriculture particularly investment is only one of the many factors which govern production. Our approach to the Third Plan, if it should be realistic, has to be essentially based on an assessment of the potentialities and needs of each region. It has also to draw lessons from past performance in each area, adjust resources to needs and remedy the defects in the organizational set-up of planning which have been largely responsible for our comparative failure in the agricultural front. It is the object of this paper to review the agricultural situation in Kerala with a view to throwing some sidelights in certain aspects of agricultural planning for the Third Plan.

PROBLEM OF DEFICIT AREAS

The goal of self-sufficiency in food leads us to the special problems of deficit areas. The Foodgrains Enquiry Committee (1957) has broadly classified scarcity areas into four main types. Firstly, there are areas like the districts of West Bengal where a scarcity is felt largely due to high density of population and higher demand from Calcutta and such other places where the *per capita* income of the people is very high. Secondly, there are the draught affected areas, e.g. some of the millet growing areas of Western India and the Deccan plateau with scanty rainfall and low yields, which have a relatively sparse population and the lowest income levels in the country. Thirdly, there are the tribal areas, e.g., in Assam or Central

India where *per capita* income is low, transport cost is high and the economy is not only primitive but also often isolated from the rest of the country. Fourthly, there are areas like Eastern U.P. and Northern Bihar which have a very dense population, extremely small holdings and low *per capita* income and are mainly paddy-growing areas with heavy rainfall. Kerala may well be included in this last category but it has peculiarities of its own. It has the highest density of population (1001 per sq.mile) and lowest per capita holdings (30 cents) and is chronically deficient in food.

The food problem is the crux of Kerala's economic problems. Rice being the staple food of the people, the problem of food is largely a problem of the availability of rice in sufficient quantities to meet minimum requirements. The production of paddy at the end of the First Five-Year Plan (1955-56) stood at 13.5 lakh tons. After making an allowance of 0.6 lakh tons for seed (at the rate of 1 ton for every 32 acres) the quantity of paddy available for consumption is 12.9 lakh tons only, which in terms of rice comes to about 8.5 lakh tons. Taking 2.25 per cent as the rate of annual increase of population of Kerala the State's population at present may be estimated to be 1,60,48,000 (the population of Kerala being 136 lakhs in 1951), the adult equivalent of which comes to about 120.3 lakhs. Calculating at the rate of 12 oz. of rice per diem per adult the total requirement is seen to be about 14.6 lakh tons of rice. The additional production of rice during the last three years is estimated to be 1.1 lakh tons. Thus the total quantity of rice produced within the State at present is only 9.6 lakh tons leaving a deficit of 5 lakh tons. At the present rate of increase in production only 10.34 lakh tons of rice will be available by the end of the Second Plan whereas the total requirement for an increased population would be of the order of 15.4 lakh tons. The deficit at the end of the Plan, then comes to about 5.06 lakh tons.

Table I gives the crop distribution of Kerala and the annual value of the crops as it stood in 1955-56.

TABLE I—CROP DISTRIBUTION AND ANNUAL VALUE OF CROPS : 1955-56

	Acre in '000 acres	Average Yield Per acre	Total Production (*000 tons)	Gross value of products (crores of Rs.)
1. All crops	5,466	...	...	180
2. Paddy	1,956	1,559	1,358	41.4
3. Pulses	111	1,343	17	0.4
4. Tapioca	558	6,298	1,569	7.8
5. Sugarcane	18	40,698	327	1.3
6. Pepper	214	280	27	7.1
7. Ginger	26	1,120	13	2.8
8. Turmeric	11	2,850	14	1.1
9. Sesamum	50	290	7	0.6
10. Lemongrass	35	60	1	0.3
11. Bananas	116	6,005	311	8.5
12. Coconut	1,107	2,800*	310@	49.4
13. Arecanut	144	45,000*	648@	9.9
14. Cashewnut	93	1,349	56	3.8
15. Groundnut	33	950	14	0.8
16. Cotton	22	560	6	0.5
17. Rubber	160	294	21	6.8
18. Tea	99	679	30	14.2
19. Coffee	41	164	3	1.6
20. Cardamom	69	32	1	3.0
21. Other miscellaneous crops	605	...	...	17.3

* Number of nuts. Source: Second Five-Year Plan, Kerala, p. 3.

@ Number in crores.

The above Table shows that paddy, pulses, tapioca and bananas, the main food crops occupy 27,39,000 acres or about 50.1 per cent of the total cropped area (paddy alone accounting for 36 per cent). Sugarcane, pepper, ginger, cardamom, arecanut, cashewnut, coconut, groundnut, rubber, tea, and coffee together account for 21,22,000 acres or 38.8 per cent of the total cropped area. The value of these cash crops comes to Rs. 101 crores whereas the value of the food crops is only Rs. 58.1 crores. From this it is clear that cash crops enjoy a major role in the economy of the State. This has a significant bearing on agricultural planning.

The important question at issue for the Third Plan is, what should be the crop pattern for scarcity areas? Should these areas aim at increased self-sufficiency or specialisation? From the strictly economic point of view it is clear that specialisation on the lines of comparative advantage would be the way of maximising output from our available resources. But inter-regional specialisation on the basis of availability of factors, though theoretically sound, is beset with practical difficulties. The pros and cons of the question may be examined with special reference to Kerala.

It is a well-known fact that plantation crops like tea, rubber, coffee, cardamom, pepper, cashew, lemongrass, etc., lend themselves to specialisation in the area west of the Western Ghats because this region possesses an absolute advantage in their production. The pepper area of India is from North Karnatak upto the Western Coast of Travancore. As there was no plan for the expansion of this valuable plantation crop, Government of India lost heavily. The value of the pepper exports fell from Rs. 18 crores in 1952 to Rs. 3 crores in 1958. In fact in the field of spices, pepper has lost ground to Indonesia and Sarawak. Even when prices rose immediately after devaluation, the area under cultivation did not show any corresponding increase.

Kerala is the most important producer of cardamom in India (92 per cent). During the last five years there was a six-fold increase in export earnings. At present 60 different countries are demanding cardamoms. Although cardamom is such an important and valuable crop no serious effort has so far been made either to improve the crop or to study any of the problems connected with the cultivation of cardamom. The Second Plan for the State envisages only a meagre target of establishing a plantation of a hundred acres.

The cashew industry in Kerala is an important contributor of the much needed foreign exchange for India. This industry is concentrated in Kerala and certain parts of Madras. The value of cashew exports rose from Rs. 1.29 crores in 1937-38 to Rs. 12 crores in 1952 and Rs. 15.5 crores in 1958. There are over 45 different countries demanding cashewnuts from India. With Russia also entering the field as a buyer, there is great scope for the expansion of the industry. But this industry is largely dependent on imported nuts from Africa. The importance of the industry in the economy of the State and the need for expanding the area under cultivation is emphasised in the Report of the Minimum Wages Committee for Cashew Industry (1953). The Spices Enquiry Committee (1954) also emphasised the need for undertaking the cultivation of cashew on a plantation scale. This is a matter deserving urgent attention in the Third Plan.

Kerala produces 75 per cent of the world output of lemongrass oil and she is the pioneer in exploiting lemongrass on a commercial basis. The oil is now in great demand because synthetic vitamin A is extracted from it and because citral, a content of the oil is used in the pharmaceutical industry. The Highranges of the State up to 4000 ft. above sea level are ideally suited for its cultivation. But the cultivation at present is carried on only in the comparatively less fertile regions of North Travancore and Malabar. As China has recently entered as a competitor in this field there is a strong case for chalking out plans for expanding the cultivation of lemongrass and taking steps to retain our position in the world market.

The annual production of tea, coffee and rubber in Kerala was valued at Rs. 22.6 crores and coconut alone accounted for Rs. 49.4 crores in 1955-56. These facts go to show that the strength of Kerala economy to a large extent depends on these commercial crops. Almost all of these crops are substantial foreign exchange earners. There is a great need for a planned specialisation in order to increase the output of these crops.

Specialisation, however, presents certain practical difficulties. The deficit areas which specialise in cash crops are to be provided with sufficient amount of foodgrains, at reasonable prices. Before the second World War, Kerala was able to meet her food requirements from Burma and other countries which in turn bought many of the commercial crops. It is incumbent on the part of the Government of India to meet the food requirements of this deficit area as foreign trade in these crops is controlled by the Central Government. The present zonal system is defective in its working as there is no planned distribution of food from surplus areas to deficit areas of the zone and black-markets develop due to artificial scarcities.

The recommendation of the Foodgrains Enquiry Committee for the creation of a Foodgrains Stabilisation Organization to undertake proper distribution of foodgrains at reasonable prices is worth considering in this connection. Though the organisation is expected to serve the needs of deficit pockets through "buffer stock operations", the Committee has emphasised the need to undertake some form of compulsory procurement—particularly of rice—for replenishing the reserve stocks and "maintaining supplies to vulnerable sections of the population at reasonable prices." They have also pointed out the need to cordon off certain areas where the Foodgrains Stabilisation Organisation will be the sole buyer for the purpose of export. In particular they have pointed out that the districts of Tanjore and Tinnevely in Madras be cordoned off for procurement of rice to be "released to the deficit areas within the Southern rice zone itself."¹ The implementation of these proposals would go a long way towards alleviating the distress felt in deficit pockets.

The absence of an efficient system of distribution of foodgrains and stable price levels would inevitably lead to the distortion of the crop pattern in deficit areas, e.g. when rice is in short supply prices soar up and cultivators experience great difficulty in meeting their domestic requirements. This often leads to the conversion of the best sugarcane fields into paddy fields. If deficit areas should

1. Food Grains Enquiry Committee Report (1957), p. 88.

concentrate on the production of commercial crops careful planning for maintaining a fairly uniform price level for foodstuffs throughout the country and for an equitable distribution of the available supply through State trading would be essential.

EXTENSION OF CULTIVATION

The two complementary methods of increasing agricultural production are bringing more acres under the plough and increasing the yield per acre. Kerala in spite of its high density of population has an area of 406,000 acres (4.3 per cent of the total area) of cultivable waste lands.² The Journal 'Planting and Commerce' has estimated that 2,031,788 acres or 21.6 per cent are waste lands. No effort is made so far in the Plans for profitable exploitation of these areas. Kerala has 25.8 per cent of forest areas, *i.e.*, 3.8 per cent more than that of the rest of India. In view of the excessive pressure of population on land, part of the forests may well be brought under the plough after exploring fully the optimum forest area required and the possibilities of economic utilisation of the areas reclaimed. But forest clearing and cutting down of trees have been going on without corresponding benefit to cultivation. The depletion of the forest resources would be a policy of killing the goose that lays the golden eggs. An investigation of the agricultural potentialities of the areas must be a necessary preliminary to clearing and an assurance of continuous cultivation in the areas reclaimed ought to be a condition for the allotment of forest lands for cultivation.

The relative importance of major and minor irrigation works is another issue to be considered. The Second Plan laid more emphasis on major irrigation projects. The Master Plan—a thirty years' plan of economic development drawn up by the Communist Ministry of Kerala concentrates mainly on the development of major projects which involve long gestation period and heavy foreign exchange. But as agricultural production is of immediate concern, quick-yielding minor irrigation projects which depend mainly on local resources have to be developed simultaneously in the Third Plan period so that every village will have shared the benefit from such schemes by 1965-66.

Kerala has 41 west-flowing rivers and the cheapest and easiest way of irrigation is the diversion of water from the seasonal stream flow to irrigate a given acreage during the flow time. It would also be desirable to have storage facilities such as tanks and wells suited to the local conditions.

Water management is an important factor which has not received adequate attention in Kerala. For example, Malampuzha the biggest river valley project in Kerala is not serving the cause of farmers to the extent it could. Even though there has been perennial water supply since 1956 no attempt has been made to reclaim the neighbouring low-lying forest areas and convert them into paddy fields. This is the case with several other projects also. It is advisable to provide both technical and financial assistance to the farmers in order that adequate systems of water conveyance and distribution may be provided. Land-levelling and proper distribution of water may form part of these schemes.

2. Basic Statistics, Kerala, p. 9.

INTENSIVE CULTIVATION

It is agreed on all hands that the solution of India's food problem lies in increasing the yield per acre. The increase in production per acre can be achieved only through judicious combination of various developmental measures such as programmes relating to irrigation, facilities to increase the supply of fertilizers and improved seeds, propagation of improved agricultural practices, measures for plant protection and popularisation of improved agricultural implements, land development and soil conservation. These various programmes are to be combined in the manner which will be giving the desired results at the minimum cost. In fact in Kerala no co-ordinated and planned effort on these lines has been taken so far. That the State has a poor record of production in spite of its natural fertility and abundance of rainfall may be seen from the following statement.³

State	Per acre yield of paddy
Travancore-Cochin	9.3 mds.
Andhra	12.3 mds.
Madras	12.7 mds.
West Bengal	13.5 mds.
Mysore	13.9 mds.

The Foodgrains Enquiry Committee (1957) has come to the conclusion that "the Southern region excluding Kerala has shown the largest growth in rice output in the past and has got the highest yield level for rice among the States in India. Among the component States of the South, Kerala shows a poorer record than others." This is evidently a case of defective planning. Some of the deficiencies in this regard are indicated below.

Soil-testing and the application of chemical fertilizers are essential for increasing the yield per acre. For the entire State there is only one soil-testing laboratory and that is attached to the Agricultural College at Trivandrum. No progress is recorded for the first two years of the Plan. Some work in this direction is being done at present but one unit is totally insufficient for the purpose. Instances have been reported of farmers who increased the yield of paddy per acre from 300 lbs. to 3000 lbs. by adding the deficient plant nutrient after scientific analysis. A soil-testing laboratory in each district with a mobile unit to visit villages to educate the farmers and collect specimens would greatly help to reduce wastage of fertilizers and to get the best returns from their use. The work of the soil-testing units, the soil conservation research stations and other experimental stations should also be co-ordinated in order to obtain the best results.

Some progress has been achieved in raising local manurial resources in the State. In one year's time one crore of *Glarycedia* plants have been successfully planted. The progress in formation of compost pits is also encouraging. Laws to conserve the sewage and other wastes may be of some help in using these wastes profitably. A greater effort in this direction would be necessary during the next Plan period.

3. Kerala's Population Problem—Dr. R. N. Poduval.

The Agricultural Department of the State considers the Japanese method as the most suitable for raising the yield of paddy per acre. But upto 1958-59 only three lakhs of acres have been brought under the scheme, though the Plan target is 13 lakhs. The Agricultural Adviser to the State estimates that if the system were to be introduced in the eight lakh acres of irrigated area, four lakh tons of additional rice could be raised. But the scheme can succeed only if the farmers are better educated in this line and given facilities such as increased supply of fertilizers and easy credit.

Timely and adequate supply of improved seeds is one of the major factors promoting agricultural production. The State presents a large variety of agricultural conditions from the point of view of soil composition, level of fertility, irrigation facilities, etc. The research work so far done to evolve improved strains of rice suitable for the various types of soils and seasons has been negligible. Some of the strains evolved namely Cochin 1, M.O. 1 and M.O. 2 were given out for cultivation. But due to lack of attention for the maintenance of purity, they become badly mixed up and are not fit for multiplication and distribution. The main handicap has been the absence of suitable facilities for growing and multiplying the varieties under Departmental control. U.R.19 a high-yielding strain of paddy evolved at the Paddy Breeding Station at Kayamkulam is a great success and is suitable for the second crop in Onattukara region of Quilon District. For Malabar the Pattambi strains are better suited. In meeting the urgent and vital need of seed multiplication a cadre of seed specialists is essential. This task cannot be left to the extension workers as they are already burdened with many other duties. Specialists are required at the State, district and block levels for the proper selection of seeds to suit different soils.

Storage facilities are also required to maintain a high planting value of improved seeds because instances are not wanting when good varieties of seeds have been spoiled by bad storage. This is also a matter requiring study and research by competent experts.

The State by the nature of its topography has always been faced with the menacing problem of soil erosion which has not been tackled on a scientific basis. There has been a progressive depletion of the fertile top soil in many areas particularly in the hilly regions. Nearly two-thirds area of the State are affected by soil erosion. However, little has been done in this regard. The Progress Report on the Second Plan reads thus :— “The Research Station for soil conservation has not yet been started as the staff to man the station have not yet been appointed.” “No soil conservation was taken up in 1957-58.” These statements show that the importance of the problem has not been recognised by the authorities. This is again a matter which should be given high priority in the Third Plan.

ADMINISTRATION

The present administrative set-up is hardly adequate to meet the needs of developmental planning for a rapidly growing population. Both the designing and the execution of the Plans leave much to be desired. The Plan fund utilisation data throw some light on the efficacy of the departments in implementing the schemes. For the first three years of the Second Plan the department's Plan fund utilization percentage in relation to the allocation made to it are 8.16%, 9.68% and

16.23% respectively.⁴ A nil record of progress is reported in the Second Plan Progress Report 1957-58 regarding 17 items in the agricultural and allied sectors. The total plan target provision in these items comes to nearly Rs. 75 lakhs.

There is stagnation in implementing the programmes, particularly at the village level. The extension officer is loaded with a multitude of functions, ranging from the preparation of the local plans to the sale of fertilizers, seeds, etc. He is supposed to study the problems of the farmer and bring them to the purview of the department. He is also expected to take the results of research on improved methods and practices to the doors of the villagers. But in fact he does not do much more than his routine official duties. A reorientation of the whole administrative machinery would be essential for the successful implementation of our Plans. As the Ford Foundation experts rightly observe: "Mere organization will not do the job. Advisory Committees, consultative and co-ordinating bodies or discussion groups are not enough. Far-reaching, centralised authority with a clear line of command and execution alone can meet the challenge of growing more food".⁵

In a vast country like India with wide variations in soil composition and crop pattern and irrigation facilities, problems of agricultural planning have to be studied on a regional basis. The foregoing review of the agricultural situation in Kerala would, it is hoped, help to throw some light on the general problems connected with the increase in agricultural production and the special problems of deficit areas which demand attention in the Third Plan.

SOME ASPECTS OF AGRICULTURAL DEVELOPMENT IN U.S.S.R.

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SOCIAL REORGANISATION OF AGRICULTURE IN THE SOVIET UNION

The reorganization of agriculture along socialist lines, the organisation of collective farms and state farms brought about radical changes in the methods of farming and in the life of the peasantry.

Immediately after the Great October Socialist Revolution, the Second All-Russian Congress of Soviets, acting on V. I. Lenin's motion, passed a Decree on Land. Landed proprietorship was abolished all over the country without any compensation to the rent-receiving interests. The land was nationalized. It became national property, that is the property of all the people.¹ The land could

4. Planting and Commerce, April 23, 1959.

5. Report on India's Food Crisis and Steps to Meet It, 1959, p. 21.

1. Of course each country solves the agrarian question in its own way, taking into consideration national traditions, psychology of the people, their historical background, etc. In some cases, as in the USSR, the best methods of solving the agrarian question with a view to the highest possible development of productive forces would be the immediate nationalisation of land, while in other cases, confiscation of landlords' land without compensation and its free redistribution as the property of the tillers, could be the most suitable way out. Nationalisation of land could be carried out at the later stages of development of national economy.

not be sold or bought. Having received the land free of charge from the Soviet Government, our peasants could, in a comparatively short period of time, considerably improve their well-being.

However, further progress in agriculture was hindered by the existence of a multitude of scattered small peasant households which in 1928 numbered 25 million. Small farms were incapable of making any substantial capital investment in production. They could not utilize tractors and other modern farm machinery and employ scientific methods of cultivation. And, consequently they were unable to raise productivity in agriculture. Though during the first ten years of Soviet power, technical equipment in agriculture was slightly improved, yet 9.8 per cent of land was tilled in 1928 by the most primitive wooden ploughs, 89.2 per cent by horse-drawn ploughs and only 1 per cent by tractors. More than 50 per cent of the grain harvesting and practically all the harvesting of industrial crops was done by hand, with sickles, spades, etc. All that made the peasant's labour inefficient.

Scattered small-scale farms proved an obstacle in the way of the development of the Soviet national economy. During 1927-1929 the average annual increase in agricultural production was no more than 0.9 per cent, while that in industrial production was many times higher. There was a large gap between the development of industry and that of agriculture. The growth of the cities and the urban population stimulated by the industrialization of the country created an increasing demand for agricultural raw materials and food. However, our agriculture at that time could not sufficiently increase marketable surplus of grain or of agricultural raw materials. It lagged far behind the development of industry and the rate of growth of the industrial population.

The extreme backwardness of agriculture could be overcome only by large-scale farming capable of using machines and achievements of agricultural science. In other words, resting upon scattered peasant economy, we could not provide the conditions for rapid development of the whole national economy, we could not hold the place in the world, we are holding now as regards production, and, hence, we could not ensure constant improvement of living standard and well-being of peasant masses.

Large-scale agricultural production could be run either along capitalist or socialist lines. The capitalist way of development presupposed the organisation of big farms which would exploit hired labourers. That would mean a mass ejection of peasants from land, condemning millions of them to impoverishment and ruination.

This way of development was unacceptable to the Soviet state. It was rejected by our people, by our peasantry. They chose the way outlined in Lenin's famous co-operative plan, that is, the way of creating large-scale agriculture of socialist type potentially capable of unlimited increase in labour productivity, the way which guarantees the constant improvement of living and cultural standards of our peasants.

V. I. Lenin wrote, "We can no longer live as we do now . . . and such wastage of human resources and labour which is entailed by the operation of small farms

must not continue. If a transition from scattered individual farms to a socially-owned economy were accomplished, it would result in two to three times increase in labour productivity and a two to three times saving of labour for the benefit of peasantry.”

The principal idea of Lenin's co-operative plan was to persuade peasants to organise on a strictly voluntary basis in big collective farms (agricultural producers' co-operatives) with a collectively run economy, the land having been given to them free of charge for perpetual use. Lenin attached great importance to the method of persuasion, to the power of example. It was necessary to demonstrate to the working people of the villages that collective farming would be economically beneficial to them. In the big state farms set up by the Soviet Government, and co-operatives formed by the peasants, in the years immediately after the Revolution, the peasants had clear evidence of the advantages of large-scale production over small individual farming.

The peasants *en masse* turned to the collective farms. By 1937 the collective farms embraced 93 per cent of the total number of peasant households, and 99.1 per cent of the total land under cultivation was used by them. Thus Lenin's co-operative plan was carried into practice. It is due to the complete collectivisation of agriculture that the most important problems related to building of socialism in our country have been solved.

Simultaneously the collectivisation of agriculture solved another problem which was quite important. Rapid growth of large-scale industry in the Soviet Union helped to eliminate unemployment completely within a short period of time, *i.e.*, by 1930. We needed more and more labour force for the development of our industry. Collectivisation of agriculture, being accompanied in later stages by a wide use of farm machinery, permitted the release of a large labour force which could be absorbed by growing industry.

The correctness of Lenin's co-operative plan, especially in the conditions of a formerly backward country has been fully proved by the later development of the collective farm system. Experience gained in our country bears evidence to the advantages of large-scale farming of the socialist type over that of the capitalist type.

DEVELOPMENT OF THE COLLECTIVE AND STATE FARMS IN THE U.S.S.R.

Collectivisation of agriculture in the U.S.S.R. did not mean that the creation of large-scale highly mechanized agricultural enterprises was completed. The strengthening of the collective farms from economic and farm management point of view, improvement of the leading staff of the collective farms, rapid growth of the industry and in connection with it great increase of supply of farm-machines and implements laid down new possibilities and created new conditions for the activities of the collective farms. A huge number of up-to-date machines could be properly used only in a really large-scale enterprise, when not only the enterprise itself is large-scale but all the branches inside it are also large-scale. The achievements of agricultural science widely applied to practice also made the enlarging of agricultural enterprise necessary. The enlargement of the collective farms on a large-scale took place particularly in 1952 and the following years,

thus the 250 thousand collective farms set up during the collectivisation period were re-organized into large ones numbering 96 thousand.

From the collectivisation period upto 1958 all the large-scale mechanized operations were performed by Machine-Tractor Stations on contract basis. All the heavy duty machines were also concentrated in the Machine-Tractor Stations. At that time it was economical and justified, because we did not have sufficient number of agricultural machines and the collective farms were not strong enough economically and they did not have adequate number of qualified technical workers. In 1958, thanks to the enlargement of the collective farms, their economic growth and the improvement of the qualification of the co-operative farm staff, the Machine-Tractor Stations were re-organized and their machinery was sold to the collective farms.

Nowadays, the economic activities of the collective farms have increased. They are making wider use of machinery in agricultural production, carrying out the construction of farm and apartment buildings, agricultural production has become much more specialized and they are organising the processing of their products on a large-scale, etc. All these necessitated further enlargement of the collective farms. In the middle of 1959 there were 59 thousand collective farms with an average area of 13,500 acres. In the average collective farm there are 276 households.

Now the organisational structure of our collective farms is as under. The collective farm is an agricultural enterprise, where work is done collectively, and land and the main means of production (draught animals and part of productive cattle, farm buildings and agricultural implements) are commonly owned. Individual landholdings, that is plots of land with peasants' houses, kitchen gardens, orchards and vineyards on the plot, and a certain number of productive cattle are the personal property of the peasants. This does not mean that personal and holdings play a leading role in supplying the collective farmers with the necessary produce and that they are the chief source of their income. From their own experience the collective farmers know that the basis of their well-being is the commonly run economy of the collective farm.

The highest organ of the collective farm is the general body of members which elects its chairman and managing board and also decides all the most important questions concerning the collective farm life. The collective farm conducts its work independently. The state merely plans the quantity of agricultural production which the collective farm must sell it. And the collective farms, which organize their work on this basis determine the extent of their cultivated areas, the types of crops they will grow and the number of livestock and its productivity. After the collective farm has sold to the state a fixed amount of its produce it disposes of the rest independently. In contrast to the collective farms the state farms (there are 6.4 thousand state farms with an average area of 64 thousand acres) are state-owned enterprises and are headed by managers appointed by the government. One of the main differences between the collective and state farm is the form of payment for work. In the state farms as well as in the collective farms the principle of the payment according to the quantity and the quality work done is applied, but in the collective farms the peasants receive their payments in kind and in cash by work days in accordance with the results of the activity of

the enterprise as it is a co-operative enterprise of the peasants. The income of the collective farm is distributed according to the quantity and quality of the work done. The measure of labour is a work-day unit. The quota of work for this unit and the rate of payment are fixed by the general meeting of the collective farmers. However, in the state farms the workers receive monthly wages as in a factory.

The continuous increase in the number of the specialists engaged in agriculture promoted rapid growth of agricultural production. Now there are 370 thousand specialists with specialised higher and secondary education working directly in agricultural enterprises. Every year 31 thousand highly educated specialists graduate from one hundred agricultural colleges. In addition to it, 96 thousand specialists with a secondary education join agriculture. Great assistance to agricultural production is rendered by the agricultural sciences.

The Soviet Union has at present about 800 scientific agricultural establishments including 5 agricultural academies in the National Republics of the U.S.S.R., about 140 research institutes and hundreds of experimental stations. The agricultural colleges and over 1,500 variety test centres run by the state also conduct scientific work on a large-scale. There are altogether about 15,000 scientific workers in the field of agriculture. Well-equipped laboratories and large experimental farms are placed at the scientists' disposal. These activities help the collective farms and state farms by spreading the best varieties of crops and animal breeds, introducing new labour-saving machines, applying better methods of soil cultivation and fertilization and so on.

ACHIEVEMENTS OF OUR SOCIALIST AGRICULTURE

In order to speed up our agricultural production and to achieve even higher levels a number of radical measures of national importance have been undertaken during the last six or seven years.

We increased prices for agricultural products purchased by the state from collective farms; abolished the system of obligatory deliveries; changed the system of the planning of agricultural production so as to provide more initiative to collective farms in organizational matters; reorganized the machine and tractor stations and sold tractors and other machinery to collective farms, which stimulated better utilisation of agricultural equipment and contributed to an increase in labour productivity; stepped up the production of tractors and other machinery and raised the output of fertilizers; special organizational and technical measures aimed at increasing the production of such main food products as grains, meat and milk have been undertaken.

As a result, during 1954-1958 agricultural production increased 35 per cent in comparison with the average level of 1949-1953. The increase in the output of some products is shown in Table I.

It is noteworthy that the Soviet agriculture is developing rapidly, at much faster rates than that of any capitalist country. If we take, for example, the last 24 years (excluding the years of the World War II) the gross output of our agriculture was growing at an average annual rate of 4.7 per cent, while that of U.S.A. rose

TABLE I—AGRICULTURAL PRODUCTION

	1909-1913	1949-1953	1954-1958	1954-1958 in per cent of 1949-1953
Grain (million tons)	72.5	80.9	113.2	140
Sugar-beet (million tons)	10.1	21.1	35.5	168
Cotton, raw (million tons)	0.68	3.49	4.20	120
Flax (thousand tons)	316	227	400	176
Oilseeds (million tons)	1.0	2.51	3.86	154
Potatoes (million tons)	30.6	75.7	83.4	110
Vegetables (million tons)	5.5	10.0	14.0	140
Fruits (million tons) .. ..	..	2.23	2.84	127
Grapes (million tons)	0.59	0.84	1.34	159
Meat (slaughter weight million tons)	4.8	4.9	6.9	141
Milk (million tons)	28.8	35.7	48.7	136
Wool (thousand tons)	192	198	272	137
Eggs (billions)	11.2	12.9	20.1	156

at the rate of 1.5% only. During the 1952-58 period the rate of growth increased upto 7.7 per cent a year, while that in U.S.A. rose upto 2.6% only. In the current seven-year period (1959-1965) an annual increase of 8 per cent in our gross agricultural production is planned.

As regards the production of some of the most important agricultural products, the picture is the same. The average annual rates of growth are much higher than those of U.S.A. During 1954-1958 these were as follows:

TABLE II—AVERAGE RATES OF GROWTH: 1954-58

	U.S.S.R.	U.S.A.
	(in per cent per year)	
Grain	11.0	5.6
Meat (slaughter weight)	6.0	1.7
Milk	10.0	0.8
Wool	6.0	none

In a short period of time the Soviet Union became world's largest producer of wheat, sugar-beet, flax, sunflower, milk and butter and is second in the production of cotton. This was achieved by solving several urgent problems.

The most important question was that of grain production which is the backbone of agriculture. We paid special attention to it, as the increased production of cereals helps to solve not only the problem of supplying the population with more foodgrains, but the problem of raising the production of meat, eggs and milk as well.

The first and the most decisive factor in this matter was the extension of the area sown to cereals by reclaiming 90 million acres of land in eastern parts of the country. In 1954 when the U.S.S.R. embarked on this gigantic reclamation programme there were no other alternatives for increasing the production of grain.

At that time the annual output of artificial fertilizers in the country amounted to 6-7 million tons only. Of course, if 25-30 million tons of fertilizers were available we could have obtained some additional quantity of grain in our old grain-producing areas. But at that time, we did not have sufficient supplies of fertilizers even for the most important industrial crops. And out of whatever supplies there were of fertilizers we could spare nothing for raising the yield of grain crops.

In order to raise the output of fertilizers to 25-30 million tons our industry would require considerable time. In 1958-1959 we produced 11 million tons of fertilizers, and only by 1965 we plan to supply our agriculture with as much as 31 million tons. By that time we shall be able to apply fertilizers not only to industrial crops, but also to grain and fodder crops. That is why the gigantic programme for the reclamation of 90 million acres of land was adopted and carried out in the 1954-1956 period. This resulted in the extension of the total area under grain crops to 313 million acres, including 167 million acres sown to wheat. In 1958 the regions, where new lands have been developed, produced three times more grain than in 1953.

I would also like to stress one more point. The cost of production of grain on newly-developed lands is the lowest in our country. It is only about one-half or even third of what it is in other regions of our country.

The reclamation of virgin lands has proved to be very economical. During the last six years (1954-1959) the state invested 37.4 billion roubles in cultivating virgin lands. Within the same period the State budget revenue was increased by 62 billion roubles from marketable grain grown on new lands, that is, 24 billion roubles more than the amount invested. Hence, the state was fully reimbursed within a short period. Since the reclamation of virgin lands was financed from the state budget, large-scale state farms were set up there, for agricultural production on state farms is more economical than on collective farms. Fifteen hundred new state farms were organised within the last six years, including 500 grain-producing farms. Whereas in 1953 the state farms turned out only 12 per cent of the total amount of grain and 10 to 17 per cent of livestock products procured by the state, in 1958 these figures went up to 40 per cent and 23 per cent respectively.

By the way, several days ago at a symposium on problems of food production in an under-developed economy, held in the Indian Parliament, I mentioned in my speech that in your country there are 97 million acres of uncultivated land. According to my rough estimates, if 2.5 million acres of this land were reclaimed and, let us say, 100 large-scale state farms of 25,000 acres each were set up on this territory, then with proper irrigation facilities, a proper mixture of crops and two crops a year, these 100 state farms will produce another 3 million tons of grain if the yield is taken to be only 0.8 tons per acre. This measure would solve the problem of supplying your country with grain and would help your country to ward off the threats of famine. The experience of the Soviet Union and the example of the Suratgarh State Farm in India amply show that it is possible to solve the problem of supplying the population with grain in this way. The Suratgarh State Farm has over 29,000 acres out of which only 14,000 acres are now under cultivation. Here the yield of wheat amounts to 20 maunds per acre, while the average yield in India is only 7 maunds. The net annual profit of this farm totals

nearly half a million rupees. The expenditures entailed in the establishment of 100 such farms would not be very great. It would be easily possible to find this amount from the sum allocated in the programme for the agricultural development in India. These expenditures would be recovered during several years for the high profits of such farms are assured. This is, of course, my personal opinion and I do not want to thrust it upon you. It is up to you to accept it or not, and you will decide yourselves how to solve the food problem in your country.

A second important factor in the increase of the grain output was the replacement of low-yielding crops by higher yielding ones, especially by maize. In the U.S.S.R., the area under maize increased from 9 million acres in 1953 to 56 million acres in 1959, or by 5.7 times. The yield of maize is two times higher than that of any other cereal crop. That is why in 1958 maize occupied 12 per cent of the total area under grain crops in our country (as against 4 per cent in 1953). At present in the U.S.S.R. maize plays a very important role in animal husbandry, supplying the livestock with an adequate amount of fodder grain and roughage.

In 1959, as many as 148 million tons of silage were made in our country, that is, 5 times more than that in 1953. This was possible due to the high yields of maize. Silage, and especially maize silage, was the decisive factor in the sharp growth of total milk production and a two-fold increase of milk yield per cow. In 1958, the total production of milk amounted to 59 million tons against 36 million tons in 1953, or it increased by 61 per cent. The expansion of maize production resulted in a considerable increase in number of livestock and poultry. Within the last five-year period we raised the output of meat by 32 per cent and that of eggs by 44 per cent.

A third important factor in the increase of grain production in the U.S.S.R. was a better supply of high quality seeds to our collective farms and state farms, a better utilization of local fertilizers (manure, peat, ash), as well as a greater number of tractors and other farm implements which reduced the time required for agricultural operations.

More and more tractors and other farm machinery are being manufactured with every passing year. In 1958 Soviet industry manufactured 220,000 tractors as against 111,000 in 1953. The power capacity of the collective farms and state farms in 1958 increased by 57% over the 1953 level. The consumption of electricity within the same period more than doubled. Today, on an average, each worker engaged in agriculture is 9 times better off in power facilities than the individual farmer before the Revolution. Now the power capacity per 100 hectares of arable land is 3.5 times more than in pre-revolutionary Russia. The mechanization of all major agricultural jobs resulted in a 50% increase in labour productivity by 1958 as compared with 1953, and is now 4 times higher than in agriculture in the pre-revolutionary times.

In a short span of time the Soviet Union not only solved the food problem but also augmented her grain exports noticeably. Now we are producing annually up to 141 million tons of grain and exporting over 5 million tons.

By gaining higher and higher levels of mechanization a constantly growing productivity of labour and utilising advanced methods of production the Soviet

agriculture will increase its output with every passing year and raise the living standard of the Soviet people.

During the last several years considerable progress has been achieved in the per capita production of agricultural products. In the current seven-year period the gross volume of agricultural production is to increase by 1.7 times as compared with 1958. Per capita production of foodstuffs will be raised by 1.4-2.0 times or even more. The following Table illustrates this.

TABLE III—PER CAPITA PRODUCTION OF SOME AGRICULTURAL PRODUCTS

	1953	1958	1965 (target)
Grain (in kgs.)	435	683	786
Potatoes (in kgs.)	383	418	645
Meat (in kgs. slaughter weight)	31	37	70
Milk (in kgs.)	192	284	458
Butter (in kgs.)	2.6	3.8	5.0
Eggs	85	111	162

In the U.S.S.R. the growth of agricultural production is accompanied by an increase in incomes and by rising living standards of farmers. Since 1953 cash incomes of collective farms have increased almost three-fold.

The continuous growth of socialist economy, which does not suffer from crisis or depression, ensures constant improvement of the well-being of the Soviet people. The result is a rise in birth rate, a fall in the mortality rate, particularly in infant mortality.

In 1955-1956 the average longevity was 67 years, while in 1897 it was only 32 years and in 1927 it was 44 years. The expectation of life will rise further by the end of the Seven-Year Plan period.

Our country has already reached a higher level of production and consumption of food products as compared with recent years. We are planning now to achieve more far-reaching aims, namely, to secure such per capita consumption rates as are scientifically approved.

We are convinced that our agriculture will be able to reach this aim, for it is based on principles which ensure continued development of agricultural production. These are, first of all, socialist ownership of the principal means of production and large-scale farming, upon which our collective and state farm system is set up, that assures higher productivity.