PART TWO

THE FOOD POTENTIAL
CHAPTER V

REJUVENATING AGRICULTURE

DEPRESSED AGRICULTURAL PRODUCTION

The study of Part One brings out one fundamental point: the
depressed condition of agriculture in India. For one reason or another,
agricultural productivity of the country has so far lacked the necessary
incentive.

Constant croppings reduced the fertility of land and no steps were
taken to replenish it. An idea of the grave injury thus done can be
had from a comparison between the yields now and a few centuries
Dr. V. J. Vanse in a paper read by him before the Meeting of the Crops
and Soils Wing of the Indian Council of Agricultural Research, March 19
stated that "the average yield on medium type of 'poolej', (annually
cultivated) land during the reign of Akbar, was 2240 lb on an acre of
wheat land (equal to the present average yield in Western Europe), 2,333
lb on rice land (equal to that in China) and 1,940 lb on jowar lands."
The standard yields of wheat, rice and jowar now are only 850, 602 and
590 lb per acre respectively.

BOGEY OF SOIL EXHAUSTION - From all this, we must not conclude that
our soils have either been exhausted or permanently harmed. The bogey
of soil exhaustion, raised in the past, had only led to wrong conclu-

The point of soil exhaustion was raised by Voelcker as far back
as 1893, but he failed to put forth any positive evidence in support of

1. "There are parts of Bengal", wrote Pitcher (Capital Vol III, 1934)
India: Analysis, "which the government of India found gardens and
left as desert - and Bengal as an administrative and economic unit
never recovered from the grave economic injury thus inflicted."
About the productivity of Bengal during the Mugal period refer to
Francis Bernier, 'Travels in the Mugal Empire'.

A recent survey carried out by the FAO (The Hindustan Times,
September 12, 1962) also states, "Rice yields were about 50 per cent
higher during the Mugal period than at present."
his contention. Thirty-five years later, the Royal Commission on Agriculture (when faced with the same problem), attributed some loss due to lack of manure, but fully conceded that a "balance has been established and no further deterioration is likely to take place under existing conditions of cultivation." Later, the Bengal Provincial Enquiry Committee (1930) and Dr. Radhakumal Mukherjee reiterated the same view. The notion that there was soil exhaustion was based on the then available data regarding the yield per acre of various crops.

Dr. Radhakumal Mukherjee and Rao Sahadur Bai, the then Agricultur Chemist to the Government of CP and Berar, proved that India's soil was not in any way inferior to that of other countries. Food yielding capacity of 100 acres, according to the former, was - India, 100 to 110 persons; Great Britain, 45 to 50; and Germany, 70 to 75. In the case of Indian soil only the humus, called the 'Reserve Bank of the Soil' was being depleted and called for immediate attention. Otherwise, the 17th Indian Science Congress concluded that the soil was responsive to improved methods and proper manuring.

THE CULTIVATOR - Our cultivator also, though primitive in his methods and orthodox in his views, is as efficient as his fellow cultivator in the advanced countries. The conservatism and fatalism of the farmer are

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1. Dr. Voecker, Report, Quota, pp.36-37.
2. Royal Commission on agriculture Report, para 77.
5. Food Planning for Four Hundred Millions, Quota, p. 12.
7. "Speaking generally, however, we may say that the land is fertile in India", (P.N. Banerjee, A Study of Indian Economics, 1951, p. 49).
9. Indian Farming, Special No 1946, p.51; Voecker, Quota, p. 12; J. Millison (A Text Book of Indian Agriculture, 1901), quoted by Chowdhry Mukhtar Singh, Rural India, op.cit., p.18; Royal Commission on Agriculture, Quota, pp.144,180 and 297; and Sir John Strachey, India - Its Administration and Progress, p. 394.
more or less the same the world over. The Report of the American Business Men's Commission on Agriculture was quite vocal when it pointed out that "the farmer is ordinarily a prudent and conservative man but as his prosperity depends more and more on forces outside his control, this prudence and conservatism are affected with a touch of fatalism and in some cases, recklessness." Even then, as Dr. Voelcker observes the Indian peasant is not to be viewed as "a living emblem of inertia. In reality he is not so very conservative as he is supposed to be."

POSSIBLE EXPLANATION - Though India has had a long tradition of sound agricultural practices, the gradual deterioration in methods resulted from the lack of encouragement and proper technical help. Other factors contributing towards such deterioration were emigration of more efficient agricultural labour to the industrial areas, lack of equipment and finance, inability of the administration to mobilize the resources of the cultivator and the then existing land system under which the cultivator had no loca standi on the land.

UNRELIABLE DATA

The position was, however, made to appear worse because of the unreliable data. Statistics in Indian agriculture were attached the least importance in the past. The collection of such data was merely treated as an appendix to the administrative routine and incidental to the collection of land revenue. It was more or less a by-product of official activity or a luxury which was enjoyed in relatively easy times and skipped over / times of stress. As a result, many a time the average yield per acre, as depicted by the available statistics, was untrue or even imaginary. Sir Bryce Curt, the then Vice Chairman, I

1. Report, p. 111. Also see Dr. P.S. Deshmukh's circular Letter No. XVII, p. 11 and Villager, Famine or Plenty, p. 33.
3. Dr. A.L. Bevley and Professor D.M. Robertson, Rainfall, p.11. For details refer to Chapter III of the same, pp. 30-39.
made a review of the progress of Indian agriculture during the decade following the submission of the Royal Commission Report in 1929. He contended that the average yield per acre of several crops had been raised. The crops surveyed by him included rice and wheat in addition to the well-known cash crops.

The doubtful character of agricultural statistics in the permanently settled areas was due to the absence of any agency for primary reporting. In the Princely States as much as 50 per cent of the area was not even surveyed, and in the temporarily settled provinces where some reliable data could be obtained, the source was the illiterate and uninterested patwari or the 'karnam'. In spite of our best efforts beginning with crop cutting experiments on the recommendations of the Board of Agriculture in 1919, our food statistics even today remain just guess-work and surmise.

INTENTIONAL UNDERESTIMATION - Besides the absence of a proper machinery, there were also other depressing factors responsible for the malady has fortunately died out. All along there had been a tendency on the part of the cultivator to underestimate yields. This point was illustrated by Bryce Surt, Chairman of the 2nd Meeting of the Crops and Soils Wing. Difficulty in obtaining standard yields according to him was due to the fact that "land revenue and other taxes were based on this yield and the farmers were naturally anxious to make that figure as low as possible."

The introduction of rationing and procurement in 1943 aggravated this tendency to underestimate crop yields. Surplus as well as deficit

2. Prime Minister's address to the Food Ministers' Conference in February, 1951.
3. Proceedings, 1937, p. 80. Besides this "experience in other countries of the World has also been that growers are usually inclined to underestimate their production." (The National Sample Survey General Report No 1, p. 80).
States showed their actual yields to be much lower than the real position.

FUTURE OUTLOOK - This discussion should not, however, give us the impression that our yields compare favourably with the yields in other countries or that they have not gone down over a period. It only proves that not much reliance can be placed on the existing data. And there can also be no two opinions about the fact that the existing yields are much low,

DETERMINANTS OF AGRICULTURAL PRODUCTION

With our soil quite fertile and cultivator efficient as well as keen to improve, there is thus an immediate need to rejuvenate agriculture. Every productive activity depends upon the existence or otherwise of both endo-genous and exo-genous factors and agriculture is no exception to this rule. The former are those which are inherent in the system and the latter originate from some external source.

The main factors of production as enumerated by Marshall are land, labour, capital, and organization. All these are the endo-genous factors. The exo-genous factors are the land policy, size of holdings, communications and marketing facilities and the pricing policy. These factors do not have any direct effect on production but have considerable indirect influence.

ENDO-GENOUS FACTORS

Land is the first requisite in agriculture and its supply is more or less inelastic. But in India, all the available fertile land has not so far been brought under the plough. Not more than 300 million or 36\% per cent out of a total of 621 million acres are at present under cultivation. In European countries, on the other hand, as much as 90 per cent of the available land is under the plough. In the world as a whole,

2. Media and Merchant, Our Economic Problem, p. 208. Also page 115, Chapter VI, below.
Prof. Fawcett estimated years back that nearly 30 per cent of the land was cultivable. But hardly 9 per cent of it is being cropped at present. Further discussion on extensive cultivation in India will be found in Chapter VI.

Maximum economy in the use of land can at the same time be obtained only if the marginal product of labour as well as capital is zero. This, in other words, means that the high input of capital and labour per acre should result in a high output per acre. Land is actually like a living being. It gives nourishment to the crop and calls for nourishment in return. The inputs are water, manure, seed, human or cattle labour and the use of machines. The optimum utilization of men, cattle, or machine power depends upon the availability of other factors in a country. In India, for lack of capital, both men and cattle are required to be used to the maximum in agriculture. The best use of land is a fit subject for discussion under the head of "Intensive Cultivation" and has been discussed in detail in subsequent chapters.


2. According to the Yearbook of Food and Agricultural Statistics, FAO, 1949, the total area of the land available in the world is estimated at 33,113 million acres, out of which only 3,006 million acres is under the plough.


5. The subject enters the field of mechanization or otherwise of agriculture. It is not necessary for us, to go into a detailed discussion of the subject. We can, however, say that in the present context of conditions in India, a devetailing of all the resources is necessary. We need heavy machinery to reclaim jungle infested lands and cultivate big estates. Human and cattle labour will still be more economical as well as useful in the matter of intensive cultivation in all areas where the holdings are small and capital scarce. For an interesting study refer to Deshmukh's Circular Letter No XVIII, pp. 63 to 72 and the Indian Journal of Agricultural Economics, March 1949, pp. 185-198.
The Indian cultivator is quite capable of organising his agricultural operations efficiently. But so far he has lacked the normal facilities required for intensive cultivation. This has sapped his enthusiasm so much that today he has lost all his interest not only in his profession but also in life. Efforts are now being made to infuse in him the new spirit and encourage him to take to improved methods of agriculture. This is being done on an intensive scale in the Community Project areas and on an extensive scale in the National Extension Blocks. There is every reason to believe that the Indian farmer will soon come to his own and reorientate Indian agriculture.

EXO-GENOUS FACTORS

It is difficult to measure the effect of these factors statistically, but all of them have an indirect effect on agricultural production and we cannot afford to ignore them.

LAND POLICY

Until recently there prevailed in India a feudal land system whereby the tiller of the soil was deprived, in a majority of the cases, of the well-known three Fs: Fair rents, fixity of tenure and free sale. He had, therefore, little incentive to improve his agricultural methods.

Dr. Gangulee pointed out long back that low agricultural production in India was due more than anything else to the circumstances in which the Indian peasant worked, the ownership of land under the existing

1. For a detailed study of the Community Projects and the National Extension schemes refer to Appendix III.

2. W. S. & E. S. Woytinsky (World Population and Production - Trends and Outlook, p. 324) while discussing agricultural production in underdeveloped areas point out that "agriculture in these areas is handicapped less by the scarcity of the poor quality of the soil than by the lack of good roads, storage facilities, organised markets and by diseases among men, plants and animals."
agrarian system being unequal and unjust. The title to land is a thing a farmer cherishes most. "Possession of land gives him a status in society" so goes a local saying. This being the case land values in most parts of the country are incredibly high. A removal of these handicaps is thus a necessary pre-requisite to improve our agriculture.

The urgency of changing the old order was felt long back. Land reforms which aimed at both increasing production as well as dispensing social justice, were taken up as far back as 1937, but much headway could not be made till recently. Wolf Ladejinsky, architect of land reforms in Japan and Kenneth Parsons, Professor of Agricultural Economics at the University of Wisconsin, who visited India in 1952, on an invitation from the Government, declared that "the progress in land reforms was much too slow to meet the rising discontent of the villagers." Recent land reforms have, however, swept away the 162 year old zamindari system established by Lord Cornwallis which, like an over-ripe fruit, came down in the sheer fullness of time. The existence of philosopher landlords has come to an end and a direct relationship has been established between the farmers and the State by the elimination of intermediaries and zamindars.

1. Dr. M. Gangulee, Health and Nutrition in India, p. 23.
2. V.V. Sayana, Readings in Rural Problems, p. 58.
4. Recent Development in Certain Aspects of Indian Economy, ILO, p. 22. The original constitutional, financial and other difficulties are also given at pp. 23-26.
5. Most of the Legislation for the abolition of intermediaries was put through during the last four or five years. For details refer to Agricultural Legislation in India, Vol IV - Land Reforms, Directorate of Economics and Statistics, 1953.
6. Ambassador's Report, quidita, p. 143. Again, the measures taken by the Government according to Ladejinsky were "half hearted and inadequate (The Indian Express, October 3, 1953)."
Agriculture under the Indian Constitution is a state subject as against the Central head. Measures have, therefore, been taken by the state governments to bring about land reforms. While the main plank of such reforms is the conferment of proprietary rights on the tiller which we will discuss in detail, legislation has also been passed by the various state governments to fix reasonable rents and ensure security of tenure where conferment of immediate proprietary rights was not possible.

PEASANT FARMING

In a country like India where there is an intense love for the land, the ver, title to it naturally serves as nothing short of magic in the matter of stimulating agricultural production. The old Carver type of argument in favour of tenant farming is no longer valid in the present day world. China and Egypt have given conclusive proof of an increase in agricultural production as a result of the restoration of land to the peasants.

It may be that peasant farming failed in countries like Romania and Yugoslavia where the holdings proved to be too small. Such a system might have also been less successful in Russia than in Germany, Hungary too was faced with an acute problem when in 1948, as a result of the introduction of land reforms, 642,000 agricultural workers

1. 'Progress in Land Reforms,' Quo Libet, pp. 113 and 127.
5. Doreen Warner, Economics of Peasant Farming.
found themselves in possession of 1,914 thousand hectares of land. There were no communications, drainage facilities, and technical skill. Equipment, and other resources were also lacking.

There is all the same - an overwhelming evidence to prove that once land is restored to the actual tiller of the soil, agriculture gets an impetus. A reconstruction of the legal fabric of the land system is actually a pre-condition to any improvement in land management. R.C. Fawcett rightly observed, "Improvement of agricultural methods is no doubt indispensable, but it is idle to preach that doctrine to cultivators so impoverished by exactions of parasite interest that they do not possess the resources needed to apply it." With the exit of the absentee landlord, the fear of eviction and the perpetual dread of increase in rents are removed. The cultivator finds himself in a better position to invest in the land and bring about permanent improvements in it. Even the early British administrators, brought up in the school of Adam Smith and Ricardo, pointed out,

"Give the cultivators a definite property in the land, give them security of tenure, a guarantee that the improvements will not be taxed, and a light equitable assessment, and with settled conditions, there will be a great improvement in agriculture and a marked increase in prosperity." (5)

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1. Co-operative Farming, Reserve Bank of India, p. 64.
2. Quoted by Dr. R.V. Desai, Studies in Rural Economy, Quaker, p. 90. Also refer to Ambassador's report (Quaker, p. 107) which says that land reform is the first essential step to agricultural improvement.
3. The heaviness of existing rents would be judged from the fact that for the country as a whole, the rents account for anything between one-fourth to one-half of the gross produce. Land, taxes in Europe on the other hand represent only about 3 per cent of the gross revenue on the farm (V. B. Ramakrishna Aiyar, Agricultural Economics, pp. 223).
4. "Cases are not rare where the cultivator has been prohibited or brought into court of law simply because he tried to dig a well or improve his holding in one form or another." (Choudhry Nukhtar Singh, Rural India, Quaker, p. 107).
China has already shown the way. Jack Ealdon in 'China shakes the world' explains at length how land reforms are not just a question of land, but also a question of the whole social system tied to the landlord structure. Our first problem is to give the peasant a chance to live by freeing him from landlord exploitation. When he gets land, he realises he is an individual and that every one has equal rights and then he realises the need for democracy.

May be that there is some lacuna left in the existing land legislation, but the odds are all against the parasitic elements living on the land. All the forces are focussed against them and whatever is left out of the purview of the existing legislation, will be swept away under the tidal forces of social movements like Shoodan.

FUTURE POLICY

Though land reforms have so far been directed towards eliminating intermediaries, the ultimate aim is "to work out a co-operati system of land management in which the entire land and other resources of the village will be so managed and developed as to increase and diversify production and provide fuller employment to all the people working on the land". If in the second phase, steps could be taken to bring about a change in the management so that transactions in land become easy and it begins to change hands like any other commodity, most of our land problems would be automatically solved. As 'land gifts' under the Shoodan movement increase in a

1. Dr. Kusum Mukherjee (Land Reforms, p. 120) goes so far as to say that the loopholes in the legislation may be responsible for introducing landlordism b. the backdoor.

2. The movement launched by Ashwaya Vinoba Bhave, based on the 'Law of Land' in place of the 'Law of the Jungle' is a unique experiment of Gandian principles. It aims at collecting 5 crores acres of land for redistribution among the landless and land-hungry people, cf. Dr. J.B. Patel, The Indian Land Problem and Legislation, pp. 203-222 for a critical study.

3. Land reforms, UNO, Banika, p. 22.
particular area, there follows a drop in land markets and their prices. Other social movements like the Hindu Code Bill may also help towards greater flexibility in landed property and bring about a fall in its values. The combined effect of these factors may result in a psychological change in our ideas towards landed property.

It will indeed be a happy day for India when such a change takes place. But decentralization of industries would be the first prerequisite for the introduction of such a policy. The cultivator is now wedded to the soil per force because he has no other place to go. When he can find other avenues of employment nearer home, he would be tempted to give up his uneconomic holding and thus release pressure on land.

Although the success is not so marked, efforts are already being made to encourage co-operative farming. Any progress in the scheme will also serve as a first step towards reducing intense land for the land. The next step of separating ownership from possession and an emphasis on the best utilization of land resources will follow.

SIZE OF HOLDINGS

India is admittedly a land of small farms. The average size of holdings in the various provinces varied between 2 to 11.7 acres in 1931. Nothing definite can, however, be said about the present average size of holdings in the country in the absence of a regular land census, work on which has already been taken up. But various

1. Ambassador's Report, Quashita, p. 193
3. Royal Commission on Agriculture, Quashita, p. 133.
scattered enquiries suggest that the situation has not improved.

Such a state of affairs is, however, not peculiar to India. It is a common feature of all old countries where every male heir is entitled to an equal share of the landed property of his father. Japan in East Asia, Egypt in the Middle East, France, Germany, Switzerland and Holland in Europe are some of the glaring examples where the evil is marked. According to Keatinge, the size of an individual share in France in some cases has been reduced to a single vine or a single tuft of laurana grass. The position in Egypt is even worse. The field belongs to one person while different date trees thereon are the property of other persons.

CONsolidation OF HOLDINGS

In India as in any other country, where the holdings are not only fragmented but also sub-divided, the remedial measure adopted has been consolidation of holdings. In spite of the best efforts of the Government, no tangible results have, however, been achieved.


2. Dr. R. R. Rao, Analla, pp. 32-33.


This seems to be rather negligible when compared with the present net
area of about 300 million acres. In the Punjab alone with tops
list with 37.88 lakh acres, the total area involved is 12.8 million
Advantages—Though there has been little progress, we cannot deny the
advantages of consolidation of holdings which reduces the number of
village quarrels over field boundaries. A fairly large area may also be
released from the existing boundaries. In Japan, during 1932, out of a
total cultivated area of 14 million acres, nearly 1½ million acres of
land was restriped. The area available for cultivation increased by
60,000 acres from 1,471,000 to 1,530,000 acres by the abolition of super-
fluous boundaries. This may also help the villagers to look after the
fields properly when it is in one compact whole and may mean a good
of saving in time and energy, both human and cattle. The cultivators may
as well be enabled to introduce some improvements in the land by digging
a well, resorting to contour bunding and other dry farming practices,
by preserving more of manure if under the changed circumstances he
3
his livestock near his holdings.

CASE FOR SMALL UNITS

But too much emphasis on consolidation seems to be misplaced. As
stated by Keenan on the basis of his interviews with farmers "scattered
land means less risk of crop failure, with land scattered in different
places one field may suffer from flood, frost or drought.

1. There are also examples in the Punjab (personal enquiries in village
Dundpur, Ferozepore District) where hitherto un-cultivated land has
been brought under the plough as a result of consolidation. See
Vidya Sagar, Girish, p. 66 also.
2. Narayanswamy and Narasimhan, The Economics of Indian Agriculture,
Part II, p. 155. Also Royal Commission on Agriculture Report, PP.
164-165 reff conditions in the Punjab.
3. For evils of sub-division and fragmentation and advantages of con-
solidation refer to Hastings, Agricultural Progress, 1929, pp. 1334-1338, and
Vidya Sagar, Girish, pp. 62-65 and 66.
4. Dr. D.R. Godbole, while addressing a meeting at the Delhi School of
Economics said, "Consolidation of holdings is the basic plan of a
progressive land policy for India" (The Hindustan Times, October
11, 1933). Also refer to his Presidential address at the 16th Annual
Conference of the Indian Society of Agricultural Economics—The
Indian Express, December 20, 1934.
while fields in other localities might escape. Again, a farmer can have different kinds of soils to enable him to have a more diversified cropping pattern.

The argument of a saving in time and energy would also seem to be not of much consequence under the existing Indian conditions because our cultivator as well as his oxen remain unemployed from four to six months in a year. It must, however, be borne in mind that most of the agricultural operations being seasonal, a saving of time during the sowing and harvesting periods is of an advantage which cannot be There is also said to be a reduction in the cost of production. But all these things are not of much consequence in the existing rural set up under which the cultivator does not reside on any particular field but returns home every evening along with his oxen. So long as these scattered holdings are not far removed from his homestead, it does not matter much for him. More so, when the time and energy thus saved cannot be employed elsewhere.

Along with the problem of finding useful employment for the spare time already at his disposal and now released, after consolidation of holdings, there may crop up another problem of finding alternative


2. P.J. Thomas and Ramakrishnan, Anurita Studies made by Dr. H.K. Mukerjee in Northern India; Dr. Slater in South India; Keatinge, Agricultural Progress, p. 127 in Bombay and Calcutta in the Punjab. Even our agricultural labourer according to All-India Agricultural Labour Inquiry (p. 15) remains unemployed for 98 days and self-employed for another 49 days in the year.

3. According to studies made in Austria (Vidya Sagar, Anurita, p. 64) the expenses of cultivation increase by 5.3 per cent for every 500 meters of distance for manual labour and ploughing, from 50 to 23 per cent for the transport of manure, and from 15 to 32 per cent for the transport of crops. Vidya Sagar also gives (p. 68) his own estimates and quotes those of U.S. Asthana and Cyril P.K. Pared which compare well with the Austrian study.

4. May be that the induges in some sort of unsocial and harmful activities when he has nothing else to do.
aveneus of employment for the displaced labour. Although it is desirable to siphon off surplus farm population to the industry, this may not be possible under the present conditions of India. These sub-divided holdings - small as they are - will help in keeping all these people on the soil in conditions which render them reasonably happy. This point was raised by the Government of India in a resolution on the Report of Sir James Caird (on Famine Commission) submitted to the Secretary of State for India in 1879. The resolution rightly pointed out that such a step on the part of the Government would not prevent all these heirs from remaining on the land so long as some alternative avenues of employment are not opened out for them.

We may thus agree with Levy who concludes that large holdings are preferable where capital is required, and small holdings where intensity of labour is essential.

INCOME PER CULTIVATOR - There is no doubt about a rise in the yield per acre in a small holding. But the objection raised is that the yield per unit of labour spent in a small farm is reduced so that the income per farmer is low. An objection of this nature will also have

1. Keatings in his evidence before the Royal Commission (op.cit., p.157) however, maintained that there would not be any population displaced from the land, some of those according to him who otherwise might be owners would become labourers and it would mainly be a change in status. But we have already seen (foot note 2 on p.79) that even existing agricultural labour has no employment on the field for 147 days in the year. This would go to refute the argument of Keatings.


5. Dr. S.R. Sen, Paper read by him at the World Population Conference, Rome, September, 1964, Agricultural Situation, November, 1964, p.522. "In theory there may be almost no limit to the yield of crops per acre; indeed, before the Royal Commission of 1879 (UK) some witnesses declared that, by an abnormal application of 'capital (in this case stable manure), he had secured a yield of twice of 130 Bushels to the acre. (J.A. Venn, Foundations of Agricultural Economics, 1923, p.576).

6. G.F. T.N. Carter, Principles of Rural Economics. J.A. Venn (op.cit., p.29) while discussing this problem also agreed with Grunia who had said, "Taking the results as they stand the fact emerges that employment and production vary inversely with the size of the holding, but that the production per man employed varies directly with the size of the holding."
no validity in India. Chester Bowles points out in this context that "the argument that small holdings of land in the hands of individual owners will mean less production is simply not valid. It confines the cut of production per ton in America with the amount of production per acre. We have believed this myth because in the United States, where land is plentiful and labour is scarce and costly, we have found large scale farming with giant machines highly profitable. But a Long Island farmer with two acres of good land, with plenty of fertilizer and intensive cultivation, could produce more wheat per acre than a North Dakota farmer with a tractor combine working a large farm."

Again, the number of people on the land here are there not by choice but by force of circumstances. It is not a business proposition, but a way of life for them. The question of their removal from the land will not, therefore, arise. An increase in the yield per acre would go to give an increase in income per head as well, which cannot be reduced.

This is particularly so when some 25 to 30 per cent of the net area sown in India is under a crop like rice on which some 50 per cent of the population depends for food, and where mechanized cultivation on a large scale is not suitable. Then, emphasis has already shifted under the Second Five Year Plan to protective foods which would mean bringing larger areas under vegetable and garden crops. The need here also will be that of small farms. Garden farms of Denmark and Germany are glaring examples of the type. They have succeeded in doing away with the disadvantages of marketing economies as well, by adopting co-operative methods.

1. Ambassador's Report, Pakistan, p. 175.
2. T.N. Middleton, The Recent Development of German Agriculture, pp. 82 and 86.
LESSONS OF HISTORY - Small family farms have their own place in the agricultural economy of the world. Much of the progress in intensive cultivation in China and Japan is, perhaps, due to the small size of farms there. "Canada, France and New Zealand have long been nations of family farms. Years ago, the Netherlands, Denmark and Sweden divided small estates into family farms by positive action propaganda. In Czechoslovakia and England, steps in this direction have been taken since the second World War".

Issued with the spirit of increasing production and general well-being, public opinion in Denmark set steadily in favour of small peasant farms. A Law was passed to bring into being a large number of such farms. The applicant if he could prove that he had a sufficient knowledge of farming and was industrious, was given a farm of 3 to 16 acres on payment of one-tenth of the cost and further payments were required to be made only after 5 years.

Small holdings should not, therefore, be condemned outright. In a country where there is the maximum pressure on the land, we cannot, perhaps, do away with them. The only way then, out of the evil of subdivision (if we may call it so) is a change in our laws of inheritance. But it may not be possible. Even if this could be done, the advantages are a little dubious.

The law of primogeniture under which the eldest son inherits the entire holdings and he has to pay in cash to his younger brother's by way of compensation is infure in Burma. But the Burma Provincial

1. According to J. A. Back, Land Utilization in China, 1937, p. 184, the average size of the fields throughout the country is half an

2. Indian Journal of Agricultural Economics - Vol III, No 2, p. 79. Two members of a famine commission (1945) - Mr. Ramasamy and Mr. M. S. Bussain were also in favour of small holdings as compared to medium ones (Final Report, p. 250).

Enquiry Committee found that one of the main causes of the poverty of
the Burmese was the existence of this law.

CONCLUSION

It may thus be added that the size of the holding, important as it is, is not all that matters in the agricultural economy. Consolidation of holdings, no doubt an important preliminary step for a more rational use of land, is considered to be no permanent solution to the problem of uneconomic holdings. Many of our difficulties in this respect may be automatically solved as a result of whatever progress we can make in co-operative farming. The desired change in our ideas about land values as envisaged under our future land policy, which we have already discussed, may also go a long way towards stopping further subdivision of holdings.

Slow progress made so far in the matter of consolidation seems to be due to the dearth of experienced staff, heavy costs which accrue after every generation and other complications involved. The Bihar Co-operative Planning Committee, under the chairmanship of Mr. Deen Narain Sinha, the State Minister for Co-operation has already declared that a complete consolidation of holdings is neither practicable nor desirable. The solution suggested by the Committee is to permit mutual exchanges of plots under the supervision of the village parshaya.

The problem may immediately be solved by what is known as the consolidation of cropping under which different farmers cultivate the same

crop in contiguous fields so that it looks like a single farm in appearance. This system promotes the use of better seeds, fertilizers and implements besides securing other allied advantages. The ultimate solution, perhaps, lies in the establishment of Co-operative Village Management as envisaged by the Planning Commission.

Such being the nature of the problem it would be better for us to appreciate the real position and not to unnecessarily magnify our difficulties. Whatever size acreage can profitably be consolidated is good, but even the existing land pattern should not stand in the way of our stepping up agricultural production. A dovetailing of small and big farms as they exist is, in fact, the need of the hour.

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COMMUNICATIONS AND MARKETING

VILLAGE COMMUNITIES AND THE BRITISH

Before the advent of the British in India, village communities formed a special feature of her economy. These 'communities' performed a useful role and the villages functioned as small 'republics' which, being self-sufficient, depended but little on the outside world. Communications and marketing did not, therefore, figure predominantly in such economies.

After the British rule, however, agriculture in India changed rapidly. Although it is of the nature of subsistence farming, "the prosperity of the agriculturist and the success of any policy of general agricultural improvement depend, to a very large degree, on the facilities which the agricultural community has at its disposal for marketing to the best advantage, such of its produce as is surplus to its own requirements." Transport is, no doubt, only an adjunct or contributory service in the process of production, yet it promotes the division of labour in space as between regions or countries. Improved communication and marketing services thus play an important part in modern society. Such services serve as an impetus to agricultural production, both directly as well as indirectly.

COMMUNICATIONS

Good roads help the cultivator to market his produce profitably. They also "promote the free exchange of ideas no less than that of...

1. Royal Commission on Agriculture, op.cit.a, p. 367.
4. Denmark was the pioneer in understanding what may be called the "language of the market", cf. Chowdhry Mukhtar Singh, Agrarian Reliefs, Anuwalla, pps 41-42, for details.
merchandise", according to the Royal Commission. They help in reducing illiteracy the sumum buman of all the rural ills - as closer contact is established between the town and the country.

Bad communications are a constant strain on the health and stamina of draught animals, thus seriously affecting their efficiency. The strain is all the more greater in areas where the marketing of 'jharif' produce coincides with the sowing of 'rabi' crops. Improved roads, on the other hand, indirectly improve the efficiency of bullocks.

Cheap transport helps the cultivator in reducing his cost of production, in so far as he can get fertilizers, iron, cement etc., at lower cost. He is thus able to supply his goods in the market at cheaper rates. Invariably transport constitutes a major percentage of the cost even when the whole-sale dealer is quite near the village. Such costs have been estimated in India by the Marketing surveys as between 7 to 27 per cent of the consumer's price. This comes to about 30 per cent according to Nanavati and Anjaria, while in an advanced country like the USA transportation does not account for more than 23 per cent of only the marketing costs. An improvement in communications in India as anywhere else can therefore, go a long way in reducing total marketing costs, thereby giving great fillip to production.

RAILWAYS - The Indian Railway system is the largest nationalised undertaking in the country. "It is one of the few systems in the world with a net earning power adequate to meet all fixed charges

2. ibid., p.368.
4. G.W. Shephered, Marketing of Farm Products, Iowa, 1946, p. 213
   quoted by Sayana, Mainit, p. 112.
3(a). on dit., p. 56.
and provide substantial sums for development and reserves*. After World War II, the railways were faced with the serious problem of rehabilitation and the total stock needing replacement by the end of March 31, 1956 was estimated by the Planning Commission at 2,092 locomotives, 8,535 coaches and 47,553 wagons. A major portion of this rehabilitation work will be completed by the end of the First Five Year Plan. With 19 per cent of the total outlay of Rs. 4600 crores allocated to railways, the Second Five Year Plan has already placed great emphasis on meeting the increasing demands for both goods and passenger traffic and also constructing new lines. Railways are thus sure to play an important role in the future economic setup of the country.

OASIS - Besides waterways, roads-metalled or unmetalled form an important part of the country's economy. Existing roads in India fall far short of the actual requirements. The Nagpur Report (1943) on the Post-War Road Development had recommended a ten year development programme in which the mileage of hard-surface roads was to be increased from 6,400 to 122,000 and low type roads from 112,000 to 207,500. The objective underlying the Plan was that no village should be more than 5 miles away from the main highway.

Immediate attention was paid, under the First Five Year Plan to the roads which were neglected in the past. The length of the national highways was to be increased from 11,900 miles in 1950-51 to 12,500 miles in 1955-56 and of the state roads from 17,6 thousand miles

1. The First Five Year Plan, p. 461.

2. Second Five Year Plan, Draft Outline, pp. 36 and 143.

3. India has at present only about 349,000 miles of roads other than municipal, of which only 90,000 miles are metalled. (India - A Reference Annual, 1953, Publication Division). According to All-India Rural Credit Survey, Vol II, p. 94, the length of municipal roads in 1947-49 was only 1,81,000 miles in Part A States. The All India average (p. 23 of the report) is only 0.42 miles per square mile which is less than the average (0.30 miles of highway per square mile) for a 'desert' area in the United States.
to 30,000 thousand miles during the same period. The Second Five Year Plan provides for additional 9,000 to 10,000 miles of national highway and state roads.

But no road development programme can be of any real meaning unless 5 lakh and odd Indian villages are connected with the marketing centres and other state roads or national highways. The Central Roads Organisation has formulated a 'model scheme' for the development of village roads on a co-operative basis and has made an initial offer of a grant of Rs. 15 lakhs from the Central Road Research Fund as a contribution towards specific projects.

The Community projects, in their turn were estimated to construct during the First Five Year Plan about 16,000 to 17,000 miles of roads in the village units where they are functioning. A sum of Rs. 150 crores has been allotted to the states sector for improving village roads constructed in the First plan under Community Projects and National Extension Service programme. The 'Panchayats' are invariably empowered to construct and maintain village roads, streets, halting places, cart stands and encamping grounds. In 'Panchayats' in Madhya Pradesh may even undertake the construction of paticular ways and roads outside their villages. Legislation for establishing 'Panchayats' has been passed by practically all the states. The number of 'Panchayats' functioning upto March, 1954 was 93,246 serving some 2,94,460 villages. Nearly half of the countryside was thus covered during the first two years of the First Five Year Plan period.

By the end of the Second Plan, their number is estimated to go up to 2 lakh so as to cover nearly all the 5 lakh and odd villages.

2. Royal Commission on agriculture(1, p. 373) says, "The provision of excellent main roads adequate in all respects for every form of transport is of little benefit to the cultivator if his access to them is hampered by the condition of roads which connect his village with them."
NEW OUTLOOK - What is more important in all these development schemes is not the absolute increase but a complete change in the whole policy. The transport system of the country in the past had been built up to serve strategic rather than economic ends. The railway and roads systems were regarded as the most powerful instruments of administrative co-ordination. Instead of helping the home economy, the system deepened the economic distress in the rural zones: 'Firstly, by precipitating "economic localisation" of industrial units in the new urban areas, and secondly, by setting up in the country a competitive rural market which has transmitted to the economic system all the instabilities of international economic trends.' The position has now completely changed. The new transport system being evolved under planned economy has a definite bias towards the economic development of the country and is thus sure to give an added impetus to agricultural production.

MARKETING

With the break-up of the old system of predominantly self-sufficient village economies and the setting up of industries depending on agricultural raw materials like cotton and oilseeds, commercialisation of agriculture started. The peasant began to produce for the market and agricultural commodities began to move from the surplus to the deficit areas. Thus the need of an agency for marketing was felt. This is especially so in regard to agricultural commodities which are produced seasonally, but are consumed throughout the year. The importance of an efficient marketing system as a fillip to agricultural production can, therefore, hardly be minimised. Notwithstanding all this, before the first world war, hardly any country, with the exception of the United States, appreciated the need for the efficient marketing of agricultural produce.

The Royal Commission on Agriculture recommended, for the first time in 1924, a proper study of exact information on marketing. The point was further emphasized by the Central Banking Enquiry Committee and the Provincial Economic Conference held in 1934. The Government of India in January, 1936 announced a scheme for the study of marketing and appointed a central marketing staff attached to the then Imperial Council of Agricultural Research. The Provincial Governments were also asked to appoint their own marketing staff and the Government of India undertook to meet the initial cost from Central Funds.

Although much headway could not be made by way of providing an efficient marketing organization for the cultivator, some work had already been done before the First Five Year Plan was launched in 1951. Regulated markets had been established in some of the States to remove the disabilities of the farmers in the 'Hentials'. Co-operative Marketing had also made some progress particularly in selling sugar-cane and cotton.

The First Five Year Plan provided for the setting up of regulated markets where they did not exist, encouragement of co-operative marketing, provision of more storage and warehousing facilities and grading of agricultural commodities. The Panchayat Acts, passed by the various State Governments, also provide for the establishment, maintenance and regulation of 'Hatts', Markets and 'Bazars' on the village sites. Orissa, Maharashtra and Travancore-Cochin Acts specifically mention the development of marketing on co-operative lines. Madras legislation authorises the 'Panchayats' to examine weights and measures in the village-markets under the Indian Penal Code.

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1. Report, p. 408.
When all the villages in the country are covered by Panchayats in the next few years and marketing facilities developed, rural development will get further stimulus. The Second Five Year Plan provides a sum of Rs. 2,07 crores for agricultural marketing of which the continuation expenditure is of the order of Rs. 1.63 crores and the balance for the introduction of new schemes. A Market News Service Scheme is proposed to be introduced during the Second Five Year Plan period. There is little doubt that the marketing facilities will improve as a result of the various schemes in hand and those proposed to be taken up. This is sure to serve as an added incentive for the cultivator who may develop a consciousness to produce for the market and increase production.

AGRICULTURAL FINANCE

That the role of capital in agriculture is an important as in industry is more or less an accepted truth. As the "All-India Rural Credit Survey" points out "a proper system of rural credit is basic to the development of agriculture and therefore to the prosperity of the country as a whole." But much need has not been paid to this fact all the world over except in a few instances. The position in India is still worse.

1. Sir Frederick Nicholson (Report on the Possibility of Introducing Land and Agricultural Banks in the Madras Presidency, 1898, p. 33) emphasised the need for the agriculturist to borrow. He added that "credit is not necessarily objectionable, nor is borrowing necessarily a sign of weakness."


3. Outside Europe and the USA, it is only in Egypt that Agricultural Banks were set up as early as 1930. For details in Germany and Denmark refer to D'Henin, Agricultural Economics, p. 199; Royal Commission on Agriculture, Quaestia, pp. 423-29 and Chaudhry Mukhtar Singh, Agrarian Reforms, Quaestia, pp. 90, 123-124 and 101 for Egypt and other European countries; and Dr. C. J. Agrawal, Reorganisation of Agricultural Credit, pp. 258-261, for USA, USSR, UK and France.
With low yields per acre as well as per man, the cultivator in India has to fight against heavy odds. His need for credit is therefore greater than that of his counterpart in western countries where also the farmer finds himself obliged to apply for credit not merely for buying livestock, implements and fertilizers, but also for meeting current working expenses. But the position of credit supplies in India is worse. With inadequate credit facilities, the total capital investment in the land — Rs. 1,600 million in 1950-51 — is of the lowest order. No wonder, if agricultural productivity, under the circumstances, has remained depressed.

Credit Needs

Total credit requirements of the cultivator are rather difficult to estimate. At the most only a rough guess can be hazarded. The Central Banking Enquiry Committee after comparing the figures of rural indebtedness and rough estimates of short term credit given by some of the Provincial Banking Inquiry Committees took a figure of Rs. 300 to 400 crores as the lower limit for short term and intermediate working capital, for the whole of British India.

According to another estimate made by S. Y. Krishnaswami, before the First World War, cash requirements of the cultivator for agriculture alone were of the order of Rs. 30 per acre for irrigated areas and half that amount for dry ones. Out of the total cropped areas of some 300 million acres, about 60 million acres are irrigated. Total cash requirements on this basis would work out to Rs. 540 crores. With the present price level when the index stands in the neighbourhood of 350, the figure should be Rs. 1,400 crores. But the needs of the cultivator...

1. Report on Systems of Agricultural Credit and Insurance, Louis Tardy, p. 3.
2. Quoted by Dr. Maljit Singh, Whither Agriculture?, p. 221.
are manifold. From a detailed economic survey of 141 selected villages in Madras, Mr. Sathianathan indicated the following purposes for which borrowing was resorted to by the peasant:

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Payment of prior debt</td>
<td>25.1</td>
</tr>
<tr>
<td>Marriage and other ceremonies</td>
<td>10.8</td>
</tr>
<tr>
<td>Payment of land revenue</td>
<td>3.3</td>
</tr>
<tr>
<td>Relief of distress</td>
<td>6.1</td>
</tr>
<tr>
<td>Agricultural expenses</td>
<td>10.0</td>
</tr>
<tr>
<td>Improvement of land</td>
<td>4.4</td>
</tr>
<tr>
<td>Education of children</td>
<td>4.4</td>
</tr>
<tr>
<td>Trade</td>
<td>12.9</td>
</tr>
<tr>
<td>Purchase of land</td>
<td>13.6</td>
</tr>
<tr>
<td>Construction of houses</td>
<td>5.6</td>
</tr>
<tr>
<td>Other purposes</td>
<td>4.9</td>
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</tbody>
</table>

From the above it is clear that the agricultural expenses concerned with the land only account for 30 per cent of the peasant's total borrowings. Even if we take 50 per cent of the borrowings, as agricultural expenses, total needs of the peasant would work out to about Rs. 3700 crores.

Similar estimates for foreign countries, however, indicate that in Europe the value of farming capital is ordinarily between two-thirds of and equal to the value of land. If the average value of land per acre on a very rough estimate is taken to be Rs. 100, total value of 300 million acres of cultivated land in India would work out to be 30,000 crores. Farming equipment in India at present is not even half as costly as in Europe but if more intensive methods of cultivation are to be adopted, our future capital needs will tend to equal those of the European countries.

The total national income of the country is estimated at Rs. 10,000 crores, about half of it, i.e., Rs. 5,000 crores being the contribution of agriculture. The figure of Rs. 30,000 crores represents

1. Mr. Sathianathan Report on Agricultural Indebtedness, p. 42.
2. The Capital and Income of Farm in Europe as they appear from the Farm Accounts for the years 1927-28 to 1934-35. (League of Nations Publication).
the credit needs of Indian agriculture on the basis of the European standard would thus seem to be too high. The actual borrowings of the cultivator have been estimated by the Rural Credit Survey at Rs. 750 crores, and the total needs may roughly be taken as Rs. 1,000 crores, i.e., one-fifth of the contribution of agriculture towards the national income.

This can be taken as the short and medium term requirements of the cultivator. As for the long term credit which is needed to bring about permanent improvements in land, even the Central Banking Enquiry Committee admitted that no such estimate was possible. It could only say that there was an unlimited scope for the grant of long term loans to the cultivator in India.

It would thus be seen that the credit needs of agriculture in India are immense. The extent to which these needs can be fulfilled will, therefore, determine the progress of agriculture and provide "grease to the economic machine".

PRESENT POSITION

The two broad sources of credit are the private and the public or the semi-public agencies. Private agencies include the money lenders, the landlords and commercial banks. Notwithstanding legislation passed against the private moneylender, it has been estimated that as much as 95 per cent of the total amount borrowed by the cultivators is provided by this source.

1. Rural Credit Survey, Anand, p. 156.

2. R. G. Sen in a paper presented by him at the International Conference on Agricultural and Co-operative Credit held at Berkeley in August - September, 1952 (Studies in Agricultural Economics, Anand, p. 100) however, says that such needs for short and medium term credit alone are roughly between 500 to 600 crores. Also refer to G. D. Agarwal, Anand, pp. 77 to 87 for other estimates.


As for the commercial banks they hardly provide 1 per cent of the total borrowings of the cultivator. In the USA, on the other hand, loans to farmers account for nearly 45 per cent of the total advances made by the banks; such accommodation provided in India is only of the order of 4 per cent.

Public and the semi-public agencies thus hardly provide about 6 per cent of the borrowings of the cultivator. The 'Taccavi' loans provided by the Government are also quite insignificant, although they rose from Rs. 1 crore in 1938-39 to Rs. 15 crores in 1949-50.

Public institutions providing agricultural credit are the Co-operative Credit Societies and Land Mortgage Banks. The first Co-operative Society, Shamlat Society of Panjaver, was registered in 1892 and the number of such societies rose to 1.85 lakhs in 1982; yet the credit advanced by them covers only 3 per cent of the total borrowings of the cultivator. Again, medium and small cultivators have little association with the movement. As against this at least 60 per cent of the farms in America are associated with the Co-operative movement. In the matter of providing long term credit facilities, Land Mortgage Banks xxxx present an equally dismal picture while farm mortgage loans alone aggregated to Rs. 3500 crores in the USA in 1953, the total amount of advances made by such banks in India in 1951-52 was only a meagre sum of Rs. 2.51 lakhs.

1. ibid., p. 107.
2. Article by Lal Singh, Ex-Director of Agriculture, Punjab, in "Call to Farmers to Unite" in the Indian Express, April 4, 1955.
The Co-operative Planning Committee recommended that 50 per cent of the villages and 30 per cent of the rural population should be brought within the ambit of primary societies for purposes of short term credit, within a period of 10 years. The target of advances to the cultivator fixed by the Grow More Food Enquiry Committee was of the order of Rs. 100 crores per annum. The Planning Commission under the First Five Year Plan, however, preferred slower progress to hasty expansion.

The target fixed for medium term finance at the end of the Second Plan is Rs. 25 crores per annum and that for the long term another Rs. 5 crores per annum. The Finance Minister declared at the Farmers' Convention held in April 1965 that another 400 branches of the State Bank would be opened for the provision of credit facilities to rural India.

The Central Banking Enquiry Committee suggested the establishment of licensed warehouses, aimed at encouraging the proper storage of agricultural produce, and a uniform system of warehouses with provision for the grant of warehouse receipt, generally acceptable to bankers as security for loans. These recommendations were repeated by the Marketing Sub-Committee, the Agricultural Finance Sub-Committee, the Co-operative Planning Committee and the Rural Banking Enquiry Committee. The Food Minister revealed in the 'Lok Sabha' that a chain of warehouses will be built with all the speed so that the cultivator can deposit his produce and get credit against it.

The 'Panchayat' Acts in Assam, Maharashtra, Bihar and Madhya Pradesh also provide for the development of agricultural credit in order to meet day to day requirements of the farmers.

1. Quoted by the First Five Year Plan, p. 226.
4. The Indian Express, March 26, 1965.
5. Agricultural Legislation in India, Vol V.
PRICES AND PRODUCTION

Prices in a free economy are governed by the interaction of the forces of demand and supply and the normal equilibrium price which finally emerges tends to equal marginal utility on the one side and marginal cost of production on the other. But the existence of any such relationship between the supply of foodgrains in India and their prices is debatable.

PRODUCTION HARDLY RELATED TO PRICE - Seasonal factors remaining the same, Dr. Natarajan established a high correlation between acreage and prices. Serious objections have, all the same, been raised to the validity of this cost of production theory.

This theory is assailed on the ground that firstly, agriculture in India is never a profitable or even a business proposition. It has, on the other hand, been accepted as a losing concern. Secondly, the cultivator is tied to the land not by choice, but by force since he can do nothing else. Thirdly, the supply of the various factors of production - land, labour and capital - which tend to be more or less inelastic is not responsive to the changes in the prices of

1. Dr. B. Natarajan, Food and Agriculture in Madras State, 1951, p.136.
4. The position though peculiar to countries like India, is not much different in the case of others. Business Men's Commission on Agriculture, 1900, p.4, pointed out that even in America "there are many sellers on farms who if subjected to ordinary business standards, would be eliminated from the reckoning."
agricultural produce. Even if some little elasticity is assumed in the supply of these factors, the greater time-lag between the 'input' of these factors and the corresponding 'output' renders the cultivator helpless to adjust production to price changes. Fourthly, agriculture being susceptible to natural hazards most, the cultivator can rarely think of his actual cost of production. Lastly, while the costs of production are more or less sticky, prices of agricultural produce are invariably determined mainly by extraneous factors. Cost of production varies from place to place, but agricultural prices tend to be the same over wide areas. There is, for example, only a slight difference in the basic prices of wheat in the various 'mandies' (market) in India. No wonder, if even world prices exert their influence on the prevailing prices in other countries, Farm prices are at least influenced to an appreciable extent by the general price level.

Changes in prices have been so varied and wide that they can have no relation to the cost of production. The prices of agricultural commodities fell by more than 50 per cent during the depression period while the cost of production fell only by 15 to 20 per cent.

1. George O'Brien (pp. 10-11) gives a very interesting discussion when he explains that land is more or less fixed, capital invested in the land also assumes a fixed form and the supply of labour becomes all the more inelastic, particularly when the farm is worked by the owner and his family. The abandonment of a farm in such cases means the abandonment of the home.

2. Besides the time-lag, the helplessness of the cultivator is aggravated by the fact that price levels which he can assume to a certain extent form only a fraction of the whole. In the supplementary costs which figure in the cost of production and they remain more or less fixed.

3. (Economic Prosperity and the Farmer, pp. 41-42) and by the latter 75 per cent of crop variations are due to weather conditions.

4. (Agriculture and Economic Progress, p. 145) after a study of farm prices in the USA, Sweden and the U.K., finds that "the most potent influence upon the absolute level of farm prices is the general price level."

5. (Report of the League of Nations on Depression, quoted by Dr. V. Venkatesh, p. 100).

6. S.C. Datta, Price Trends During the Last Decade, 1940, pp. 2-3.
A problem can be examined with respect to falling as well as rising prices separately.

**FALLING PRICES**

Normally it may be said that when the price of a commodity falls below its cost of production, the supply would stop over a period. The fundamental law, however, seems to be contradicted in the case of agriculture in general and food in particular, where farm consumption itself takes a big slice out of the total production. Again, owing to the peculiar nature of agriculture, the farmer cannot introduce changes in his programme at a short notice. There are certain paddy lands in South India which are not suitable for any other crop. No shift under such circumstances is possible even over long periods, where such a shift is possible, the cultivator can at best divert lands from less profitable to more profitable crops. Even this becomes impossible during a general depression.

A glaring proof of the inability of the cultivator to adjust production to the level of fall in prices is found when we study the position during the thirties. According to the Director General of Commercial Intelligence and Statistics, the value of agricultural crops taken at an average harvest price, fell from Rs. 10,840 million in 1928-29 to only Rs. 4,750 million in 1933-34. But there was hardly any decline in the net area sown or the agricultural output.

Odds are that in a country like India, where agriculture is more a mode of life than a business proposition, the cultivator may be compelled to increase rather than decrease his production under falling prices. The tendency was clearly observed during the 3 of 1929-33. This is because he cannot afford any further contraction.

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in his already scanty income. Of the two variables, price and returns, it is the latter that is more important. An individual farmer, who acting in isolation, reduces his production may have to face a double loss arising from a smaller output and a lower price. It may be argued that the demand for agricultural, particularly food crops being practically inelastic, the cultivator may charge monopolistic prices. Such possibilities are, however, rare. Firstly, because the number of producers is large and secondly scattered as these cultivators are over a vast area, there is no machinery or institution under which they can put themselves. Agricultural prices are accordingly rather competitive.

To conclude, production may have an inverse relation with falling prices, but the question of its having a linear relation would not arise. Supply in agriculture in other words remains more or less inelastic during falling prices.

RISING PRICES

The position with regard to rising prices would however, seem to be a little different. The farmer under depressed market conditions while not curtailing his production, is at the same time disinclined to raise prime costs. The application of fertilizers, for example, was uneconomical in India during the twenties, at least for food crops. But the demand for them had increased tremendously during the period of post-independence price spurt. High prices also provide sufficient incentive to the cultivator to try improved methods of cultivation and put into practice the results of experiments conducted in the past.

3. AFN, O'Brien, ibid., p. 19.
4. ibid., pp. 11 and 31.
laboratory. All these things may have the combined effect of increasing production but always in response to an effective demand.

CONCLUSION

It can be safely concluded from this study that agricultural, specially food, production may never have a sagging tendency either under falling or rising prices. The possibility, on the other hand, is that in both cases, production may increase. We can thus look to the future without any fear of a fall in food production as a result of the price debacle, which otherwise is the greatest curse for the farmer.

SUMMARY

We have in the preceding pages discussed the various endo-genous and exo-genous factors in some detail. We find that the effect of endogenous factors, which serve more or less as catalytic agents, is quite favourable in the case of India. The various policies already adopted and those contemplated for adoption are sure to create a congenial atmosphere for better productive activity. This would mean that beyond the narrow technical frontiers represented by endogenous factors, economic factors which generally play their part to an appreciable degree in the productive activity, will also be conclusive to increased food production.

As for the exogenous factors, we will study their effect in more detail in subsequent chapters so as to work out the approximate food potential of the country.

1. It is, however, implied that government will extend not only full co-operation, but also report to extirpate propaganda in that direction. If normal facilities are not available, even progressive cultivators who are keen to introduce new improvements will be helpless to do anything.

2. The presence of an effective demand is the most important thing. During the initial stages of the Green Mere Food Campaign, the cultivator was not prepared to divert cotton lands to food, unless the government gave a guarantee to purchase the extra produce at pre-announced prices (cf., p. 29—Chapter II).

3. Sir Roger Thomas puts it that next to rain, price changes have been the greatest enemies of the Indian farmer. (Quoted by the Final Report of the Famine Inquiry Commission, p. 496. Also page 361 of the Report and Dr. Desai, Famine, p. 340.)