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BY

**NABAGOPAL DAS, Ph.D. ( Econ. ) Lond., I.C.S.**

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## PREFACE

This book has been written in response to requests received from many quarters that I should explain, in as brief a compass as possible, what all this talk about agricultural reconstruction in India means. It is a book for the general reader and I have merely tried to give a brief account of the more important problems in the agricultural economy of to-day and how they might be tackled. I do not, therefore, claim any originality or prophetic wisdom for what I have said.

I would also like to point out that, for reasons of economy of space, I have deliberately omitted to discuss in this book such aspects of agricultural reconstruction as prices, distribution, finance, land tenure, cattle breeding and management, utilisation of agricultural products, etc. I propose later to write another book covering these equally important problems. As far as the present volume is concerned, I shall consider my labours amply rewarded if, from a perusal of it, the general reader gets a fairly clear picture of the major problems that confront us to-day, and is also able to visualise what shape agriculture should take in the future economy of India.

Calcutta,  
The 22nd June, 1944.

N. DAS.

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# AGRICULTURE IN INDIA : PAST, PRESENT AND FUTURE

## I

### INTRODUCTORY

The most interesting fact about economic conditions in India is the overwhelming preponderance of agriculture in the economic life of the country. Notwithstanding the steady expansion of industry and trade and the increased employment therein of a steadily larger section of the population, agriculture still dominates the economic scene and the signs are that it would continue to do so for many years to come. While we do not possess up-to-date figures which could tell us accurately what proportion of the population is actually dependent on agriculture for a living\*, the figures that we have for 1931 are sufficiently illuminating and would apply broadly to present-day conditions as well. According to the census of 1931, out of a total population of 352·8 millions and a population of 168·8 millions actively following occupations of some sort, as many as 110·8 millions people in India actively followed agriculture, pasture, fishing and hunting as profession. If, to these be added

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\* These exceedingly useful figures were not collected at the 1941 census—mainly for reasons of economy.

the figures of non-working dependants, the population ultimately dependent on agriculture, pasture, fishing and hunting as profession would rise to 234·8 millions, i.e., 67 per cent of the total population of India. It is, therefore, evident that in India, agriculture still absorbs the greatest possible mass of human effort and energy.

But when we look at the figures of agricultural production and of the *per capita* income of the agricultural population of the country, we are struck by the singularly backward character of the agricultural economy. By whatever standard and from whatever angle do we attempt to appraise agricultural conditions in India, we find that, compared with conditions obtaining in European countries, India is still in the "middle ages". There may be occasional bright patches here and there (India can certainly boast of a few model farms and a few up-to-date agricultural research stations and institutes) but, speaking generally, agriculture is still pursued in old primitive ways. There is, in fact, a very vicious circle : agricultural operations are primitive because the cultivator is ignorant, poor, undernourished and lazy, and the cultivator is ignorant, poor, undernourished and lazy because agriculture, as at present conducted, does not pay.

## II

### THE BACKGROUND

Let us look at the facts. It is generally supposed that as far as agricultural production is concerned, India is perhaps not so backward, her export trade hitherto having been primarily in agricultural products. It is not realised by many that India is "compelled" to export agricultural products in order to be able to pay for her imports of machinery and manufactured goods : her exporting of agricultural products does not necessarily reflect her ability to produce them efficiently. In actual fact, the yield of practically every crop in which India still trades with other countries is conspicuously low. The following comparative figures\* for rice, wheat, cotton and sugarcane—to take only a few typical instances—would illustrate the point :

(a) *Yield of Rice (lbs. per acre)*  
(The figures are for 1938-39)

U.S.A.	1,469	Japan	2,276
Italy	2,903	Siam	943
Egypt	2,153	India	728

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\* For purposes of fair comparison between the countries concerned, figures earlier than the latest available for India (1941-42) have been taken.

(b) *Yield of Wheat (lbs. per acre)*  
 (The figures are the average of 1924-37)

Europe	1,146
U.S.A.	846
Canada	972
Argentina	780
Australia	714
India	636

(c) *Yield of Cotton (lbs. per acre)*  
 (The figures are for 1937-38)

Egypt	531
Anglo-Egyptian Sudan	277
U.S.A.	264
India	89

(d) *Yield of Sugarcane (tons per acre)*  
 (The figures are for 1939-40)

U.S.A.	20·06
Java	54·91
India	12·66

The above figures are too eloquent to need any detailed elaboration. According to a lead-

ing agricultural expert, the average production of British India, including irrigated crops, cannot, on the basis of prices prevalent immediately before the outbreak of the present war, be more than 40 rupees per acre !

The other important fact about agriculture in India to-day is the very large area of fallow land which is cultivable but not cultivated (vide Appendix—Table I). It is significant that notwithstanding the favourable prices of agricultural products during the present war, the net increase in the area sown has been negligible. India is believed to still possess more than 110 million acres of land classified as “culturable waste”, and all efforts to bring this land into cultivation have apparently failed. As a percentage of the total land in the villages, the proportion of this “cultivable waste” works out at 17 per cent, not an inconsiderable percentage when we remember that besides this “culturable waste”, there are many million acres of uncultivable land as well.\*

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\* In addition to the “cultivable waste”, there are some 87 million acres “under forest”, 120 million acres “not available for cultivation” and 59 million acres of “fallow” land. The net area sown with crops is only about 40 per cent of the total land in the villages.

Various are the reasons that are put forward for the apparent failure of India to bring this "cultivable waste" under cultivation. Lack of irrigation and drainage facilities, the inertia of the cultivator, unhealthy climate, difficulties of getting the required supply of labour—all these are said to stand in the way of putting more land under the plough. As a bare statement of facts, these "excuses" are understandable, but it is obvious that the need to-day is to go behind the facts and examine why such conditions as permit the immobilisation of 110 million acres of land are allowed to continue.

The third important fact about agriculture in India is the very large proportion of food crops in the total scheme of agricultural production (vide Appendix—Table II). According to certain authorities, a high proportion of land under cereals and other food crops is an index of agricultural overpopulation. While this may or may not be true in respect of other countries (it is obvious that a high proportion may be due to climatic considerations, reasons of national commercial policy, lack of good communications, etc.), it appears to be unfortunately too true—albeit partly—in the case of India. (The area under foodgrains (mostly cereals) is still about

75 per cent of the total sown area, the remaining 25 per cent being covered by oilseeds, and fibres and other non-food crops like cotton, jute, tea, tobacco etc.) It is interesting to note that during the last three or four decades, the area under foodgrains has been slightly on the decrease and that under the so-called 'commercial' crops on the increase, but the change is not appreciable enough to warrant the conclusion that agricultural over-population is now on a downward grade.

The fourth important fact (it is not a fact about agriculture, but it has a direct bearing on what our aims and objectives should be in any planning of agriculture) is the under-nutrition of the people as a whole. While no definite data exist to show the extent to which Indians, as a people, cannot afford a nutritive diet, it is well-known that, mainly owing to the extreme poverty of her population and partly also due to the fact that she herself does not grow enough food for her people (this is true particularly in regard to the so-called "protective" foods like milk, eggs, meat, fruit and vegetables), her people have to remain content with a diet which is far below the essential requirements of health.\*

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\* In a recent memorandum prepared by the Govt. of India, it has been shown that on the basis that an adult

The fifth important fact about agriculture in India is the very large percentage of landless rural labourers who sell their physical labour to farmers in order to earn their livelihood. This has been the result partly of the pressure of a growing population on land and partly of the absence of opportunities for any other type of employment in the villages. Between 1921 and 1931, there was a very large increase in the number of agricultural labourers as compared with actual cultivators (i.e. cultivating owners *plus* tenant cultivators), as would be evident from the following figures.†

	(1)	(2)	(3)
	No. of agricultural labourers.	No. of actual cultivators.	Ratio between (1) and (2)
1921	21·7 millions	74·7 millions	29·1%
1931	24·9 millions	61·2 millions	40·7%

Unfortunately, no such data were collected at the 1941 census and so we cannot say with any degree,

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requires a minimum of 16 oz. cereals, 3 oz. pulses, 2 oz. sugar, 6 oz. vegetables, 2 oz. fruits, 1½ oz. fats and oils, 8 oz. of milk and 2·3 oz. of meat, fish and eggs per day, Indian production falls short of the national requirement by 1·5 million tons of pulses, ·7 million tons of sugar, 9 million tons of vegetables, 2·6 million tons of fats and oils, 14 million tons of milk and 6 million tons of meat, fish and eggs.

† *Census of India* (1931), Vol. I, Part I, p. 288.

of certainty whether the number of agricultural labourers is on the increase or not. We may safely assume, however, that the number of agricultural labourers has not gone down (agriculture passed through an acute depression between 1931 and 1941, and there occurred no phenomenal industrial development during this period) and that the relative proportion between agricultural labourers and actual cultivators has remained more or less the same in 1941 as it stood in 1931. In any case, the striking fact in the agricultural economy of India is that there is a huge army of landless rural labourers who can hardly make a living by working in the fields for only a part of the year and who have to spend at least three to four months in enforced idleness because there is no work for them either in the fields or in alternative vocations in the village. The weakness of the system becomes patent during a crop failure. The demand for hired agricultural labour goes down and field work is reduced to a fraction of its normal volume. With no resources to fall back upon, the landless labourer has to face complete starvation.\*

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\* This is more or less what happened during the Bengal "famine" of 1943.

The sixth important fact which has a direct bearing on the efficiency of the agricultural population is the conspicuous absence of occupations subsidiary to agriculture. Income from the land is hardly, if ever, sufficient to make both ends of the cultivator or labourer meet and it is, therefore, exceedingly important that there should be other sources of productive employment available. In actual practice, the sources of productive employment are very limited : most of the cultivators and their labourers have to eke out some sort of an additional income by working as cart-drivers, domestic servants or petty craftsmen. Horticulture, dairy-farming, poultry or bee-keeping are confined to only certain "advanced" tracts and even there they touch only a small proportion of the rural population. Even cultivators with sufficient land for the maintenance of their families have to earn their livelihood during five or six months and have to sit idle during the remainder of the year, because there is no proper organisation for the development of cottage industries and three-fourths of the cultivated area is sown with only one crop.

### III

## HINDRANCES TO INCREASED PRODUCTION

The foregoing analysis shows that the fundamental truth about agriculture in India to-day is the very low production as compared with the minimum requirements of her population. The causes are partly agricultural and partly economic. Among agricultural causes are the factors which prevent the bringing of a larger area under the plough, such as soil erosion, excess or scarcity of water, general poverty of certain soils and infestation of weeds. All these factors are remediable, but so far no comprehensive or planned efforts have been made to tackle them. As a matter of fact, even the preliminary data in regard to some of these "causes" are not available. For effective planning it would be necessary to measure present and potential productiveness of every block of land—whether cultivated at present or not, but no such measurement can be made as long as we are entirely in the dark as to the precise nature and extent of soil erosion, lack

of irrigation and drainage facilities and of the composition of the various soils. The first hurdle to be surmounted would be to collect and complete these data.

The next set of factors result in the exceedingly low yield per unit. These are lack of proper manures, lack of improved seeds and continuance of primitive agricultural practices. Lack of manures is the most important difficulty. A large proportion (about 60 per cent) of farm-yard manure is now used as fuel because no alternative supplies of fuel can be had at reasonable prices. There is very little green manuring and the utilisation of vegetable and organic wastes, after converting them into composts, is almost unknown. Chemical fertilisers are also scarce and/or expensive.\* As regards improved seeds, although a number of improved varieties have been evolved at some Government research stations, they have not yet been accepted on a wide scale by the cultivator, partly because the efficiency of these seeds has not been tried out under normal village conditions and also partly because they have not been made available to the cultivator in

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\* It has been estimated that there is need in India for not less than 5 million tons of sulphate of ammonia alone!

sufficient quantities. Finally, agricultural operations in India are still carried on in the most primitive style, the cultivator using the traditional wooden plough and sowing seeds and transplanting crops exactly as his grandfather or great-grandfather did. In spite of what has been said in the past about the native intelligence and shrewdness of the Indian cultivator, it would be wise to admit that he does *not* know his business in the strict sense of the term and that science has quite a lot to teach him.

Among the economic factors which hinder agricultural production in India, the most important are the cultivator's indebtedness, the peculiar land tenure system in certain parts of the country which deadens all initiative, the small size of his holding and, finally, the question of price. Sometimes these economic factors act as a heavier drag than the purely agricultural factors, because the urge to make greater and more intensive efforts comes only when the cultivator feels that he is working under conditions in which the fruits of his labour will not be taken away by circumstances over which he has no direct control. As has been aptly remarked by Professor Ashby, "both uses and yields of land are determined by economics."

The first economic handicap which has to be tackled is indebtedness. It is well-known that Indian ryots have been in debt to the extent of quite a few hundred crores of rupees, but it is not perhaps so well-known that, notwithstanding recent efforts at compulsory or voluntary liquidation of debts, these debts were on the increase up to the outbreak of the present war. The reason for this was that the average cultivator never received an adequate return from his land and perforce had to borrow to meet his essential obligations and to carry on his next agricultural operations. Also, the enforcement of debt settlement laws and regulations in certain areas dried up the normal sources of credit for him and not infrequently he had either to seek accommodation, perhaps at even higher rates, from other classes of creditors or to mortgage or sell away portions of land. It is possible that, during the period of the present war, largely as a result of the high prices of agricultural products, he will have paid off part of his debts, but it is highly improbable that he will be entirely free from debt. He will perhaps have to face a period of depression with still a large volume of debt round his neck.

The second economic handicap which obtains primarily in Bengal, Assam and Bihar

and to a certain extent also in the U.P., Orissa and parts of Madras, is the peculiar land tenure system whereby most of the profits of increased production are appropriated from the cultivating tenants by superior tenure-holders and/or landlords : they do not accrue even to the State which might have passed on the benefits indirectly to the actual ryots. Again, as the cultivator does not have adequate security of tenure, he has no inducement to try to effect improvements or increase production. Finally, the very fact that most of the landlords or superior tenureholders are absentees from the land hinders the exploitation of new ideas or new agricultural practices.

The third and the most important economic cause of the very poor return from land is the endless subdivision and fragmentation of holdings. As is well-known, subdivision has been caused, and continues to be caused, by the pressure of population combined with the effects of the Hindu and Muslim laws of inheritance and succession. It is not so much the growth of the so-called spirit of individualism that has led to excessive subdivision : the spirit of individualism or particularism, as it is sometimes called, is still mainly an urban characteristic and has not permeated to any appreciable degree among the rural population.

Much more significant is the continued and almost insistent application of the laws of inheritance and succession, together with the steady increase in the population of the country without any corresponding opening up of new avenues of employment or of making a living. The evil became acute when all the unoccupied land, which could be brought under the plough without much effort and expenditure of capital, came to be occupied and there was no more easily cultivable land to go round. An additional complication arose as a result of the decay of village handicrafts and small industries : faced with unemployment, artisans as a class tried to fall back upon land as the last straw, thereby accentuating the difficulty still further. And the vicious circle was completed when the cultivator found that even if he wanted to give up his land and migrate to the town, there was no employment in which he could fit in.

Various estimates have been made of the average size of an agricultural holding in India and many agricultural economists have tried to establish that this average size is not 'uneconomical' in the absolute sense. Now, the exact implication of an 'economic holding' has been interpreted in widely different ways by different

writers. While some have defined an 'economic holding' as 'one which would provide an average family with the minimum standard of life considered necessary', others have sought to find in it the concept of a holding of an 'ideal size' which would ensure to the farmer a 'reasonable' standard of living.

We need not enter into these controversies at this stage. To us, the facts are certainly more important and the most important fact, as far as the agricultural economist is concerned, is the size of the individual cultivable plot (the physical unit of tillage).<sup>\*</sup> This naturally varies from province to province, but according to the 1931 census, taking into account only the figures of owner and tenant cultivators, the average size of a holding in India is  $4\frac{1}{2}$  acres, of which just over 1 acre happens to be irrigated. In Madras, the size of the average holding is  $4\frac{1}{2}$  acres, in U.P. it is 6 acres and in Bengal the size is 4.4 acres. Much more important than the size of the average holding, however, is the fact that at least 60 to 75

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\* Emphasis has been laid on the 'individual cultivable plot' rather than on the holdings of various categories of rent-paying interests because the latter is more or less a legal concept and is of minor significance in determining agricultural productivity.

per cent of the holdings in each Province are even below this average ! In Bengal, for instance, it was discovered by the Land Revenue Commission of 1940 that the percentage of families holding 2 acres or less was 41·9 and that of families holding between 2 and 4 acres was 20·6.†

The above facts show, beyond a shadow of doubt, that not only are the holdings too small for economic operation—they are too small even for subsistence. A League of Nations Enquiry Commission estimated in 1939 that the size of holding roughly necessary for subsistence is five hectares (or about 12·4 acres), a system of mixed husbandry in which cereal crops predominate having been assumed. Judged even by this very conservative standard, the average Indian holding is unable to maintain the cultivator at the level of subsistence. Much more alarming is the fact that a very large proportion (about 60%) of the holdings is below the average : the actual size is less than 2 acres !

Closely connected with the problem of subdivision is that of fragmentation, i.e., of the disposal of individual holdings in small parcels,

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† Report of the Land Revenue Commission in Bengal, Vol. I (Calcutta, 1940).

owing partly to the endeavours of holders to supplement their areas by the acquisition of further pieces of land, wherever available. In a sense, fragmentation is a greater and more serious evil than subdivision. It means that even the small holding that a cultivator owns and cultivates is not available in a compact block, but is scattered over a wide area, often at a great distance from one another. It is obvious that such dispersal increases the expenses of cultivation\* by (a) impeding the best possible use of the cultivator's labour and capital, (b) making it difficult for him to take a personal interest in each and every plot and (c) giving rise to endless litigation and quarrels with other cultivators in the village. Other disadvantages are that the best possible use cannot be made of manure, water and cattle.

The net result of all this is that the cultivator never gets enough out of his land to meet even the barest requirements of himself and his family. The cost of cultivation is often greater than the value of the produce, particularly at the prices

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\* According to a well-known authority, expenditure of cultivation increases by 5·3 per cent for every 500 metres of distance for manual labour and ploughing; from 20 to 35 per cent for transport of manure; and from 15 to 32 per cent for transport of crops.

which have prevailed during the depression years. Perforce, he has either to go half-starved, or to borrow, or to work as ordinary day labourer; suitable and remunerative subsidiary occupations are as hard to get as an extra plot of cultivable land. It is no wonder, therefore, that he finds no incentive to carry on : lacking enterprise and initiative, he becomes fatalistic in his outlook on life and looks askance even at schemes that are launched with the avowed object of ameliorating his economic condition.

## IV

### CERTAIN OTHER FACTS ABOUT AGRICULTURAL PRODUCTION

A remarkable feature of agricultural production in India is the very pronounced fluctuations in total yield from year to year. While it is admitted that agricultural production must always admit of a certain degree of fluctuation, in India this is always far too pronounced. During the last twenty-five year period, fluctuations in the production of certain crops have been as much as 50 to 200 per cent (vide Appendix—Table II)—a fluctuation that seems very peculiar when we remember that (a) the total acreage sown under the crop concerned has not fluctuated to a similar extent and (b) there has been no appreciable change in agronomic practices.

If we go behind these fluctuations, we would find that they are very largely due to the vagaries of the monsoons and consequent crop failures, either wholly or in part, over large areas of the country. Good and bad harvests are common in every agricultural country and nobody would deny

that the quality of the harvest must depend largely on weather conditions. The peculiar feature of India, however, is that at present it is almost wholly dependent upon these conditions. Sometimes it is the flood—at other times it is the drought; almost always, it is the failure of the rains to set in at the most favourable moment.

The other interesting fact about agricultural production in India is that, notwithstanding the very considerable increase in the population of the country, the area under crops, particularly food crops, has not increased to any appreciable extent. Population in India has increased\*, over the last two decades, by 70 millions—an increase of 22 per cent, but the corresponding increase in the acreage under agricultural crops has been less than half. In other words, the net area available both per cultivator and per person in the whole country has diminished, and been diminishing, progressively.

We may also take notice of the fact of the poor fertility of the soil. It has been asserted by many that the soil is *progressively* deteriorating in India.

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\* The population of India was 318·94 millions according to the census of 1921, 352·8 millions according to the census of 1931, and 389 millions according to the latest (1941) census.

Now, this may or may not be a fact\*, but there is no doubt whatsoever that the fertility of the soil is already pretty low. To-day, the pressing problem may not be how to arrest *further* possible exhaustion of the soil : the causes of the *stationary level* of low productivity, however, need to be looked into no less urgently now.

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\* The Royal Commission on Agriculture in India made the following cryptic remark : "A balance has been established, and no further deterioration is likely to take place under existing conditions of cultivation".

## PRICE AND MARKETING

Even after agricultural production has been raised to its highest possible level and all cultivable land has been brought under the plough, the lot of the actual tiller of the soil will not improve as long as he is unable to get a fair price for his produce. As matters stand, the cultivator has to accept low and unremunerative prices because (a) the general level of prices of agricultural commodities falls rather steeply during a depression (and depressions are rather too common in India !) and (b) the distributive organisation is such that a very large proportion of the price paid by the ultimate consumer goes to middlemen.

That there have been violent fluctuations in the prices of farm products during the twenty-year period between the end of the last war and the beginning of the present one will be patent to anyone who has studied the course of prices of at least the principal agricultural commodities. This may

have been of some advantage to the urban consumer and the capitalist-user of agricultural products, but it has been the cause of untold misery and suffering of the agriculturist-producer. Instances are not rare of cultivators having been compelled to sell off their produce at fantastically low prices in order to meet the dues of the State or the demands of the money-lender.

As regards the distributive organisation, it has been costly and defective, always operating to the disadvantage of the producer and unduly enriching middlemen and financiers only. After leaving the producer's holding, almost every agricultural commodity passes through several agencies before it reaches the consumer. Everyone of the intermediaries through whom the commodity passes makes a charge for the services rendered by him : the cost of distribution increases according to the number of times the commodity changes hands before it reaches the final consumer. When, ultimately, the consumer pays his price, it is found, on analysis, to be considerably higher than the rate at which the producer had originally parted with the commodity.

The following typical instances of the price spread from producer to consumer would be of interest:

(a) *Rice*

Consumer's price :	100
Producer's share :	51·5

(b) *Potatoes*

Consumer's price :	100
Producer's share :	60

(c) *Groundnuts*

Consumer's price :	100
Producer's share :	45

(d) *Milk*

Consumer's price :	100
Producer's share :	60

It is true that in some Western countries also, the producer's share in the price paid by the ultimate consumer often ranges between 50 and 60 per cent, but there is an important difference. In those countries, quite a considerable proportion of the margin is covered by actual costs of processing, but, in India, although a commodity happens to pass through various agencies, very little processing is done.\*

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\* For example, under the Milk Marketing Scheme in England and Wales (before the War), the producer received only 42% of the price paid by the consumer, but 41% of the difference was covered by expenses of processing. In India, although the producer gets more, i.e., 60% of the price paid by the consumer, hardly 1% of the difference represents any processing costs.

In actual practice, the price of agricultural commodities is determined in this country, not so much by their cost of production as by the expectations of supply and anticipations of probable demand by certain groups of wholesale dealers. Buyers at secondary markets and in the villages are guided by these prices as determined by wholesale dealers and pay the sellers at the *mandi* or the village accordingly. The latter make a further reduction on this price to cover their costs, risks and profits and the price that the cultivator-producer ultimately gets is far removed from the price he would have received if the ordinary economic forces had free play. The price mechanism works backwards and not forward. The producer becomes puzzled and resentful because he feels he has been cheated of a large portion of his legitimate due.

Another factor which disturbs the price mechanism, in so far as the primary cultivator is concerned, is the frequent adoption of economic policies without due consideration of the repercussions they would have on primary prices. Very often, imports of competing commodities have been permitted notwithstanding the fact that the internal price-levels of those commodities were already on the downward grade. Sometimes, the expansion

or curtailment of the acreage under certain crops (e.g. jute, sugarcane and cotton) has been advocated without a proper examination of the effects of such a policy on the prices of other agricultural crops. In an individualistic economy, the price that the producer receives is so very important that one cannot afford to unleash any forces that might adversely affect his production incentive.

## VI

### THE CASE FOR PLANNING

What has been stated in the foregoing chapters abundantly shows that there is urgent need for the planning of agricultural production\* in India. It is true that the Royal Commission on Agriculture made an extensive study of India's agricultural problems in 1928 and many of their recommendations have been acted upon and various organisations set up both at the Centre and in the Provinces and States, but to-day, after the lapse of more than a decade, we are perhaps able to pronounce the verdict that these organisations have proved unequal to the task before them. The principal reason for this failure is that no comprehensive and far-reaching plans were worked out. Although the problems were admittedly complicated, the methods by which solutions were attempted were imperfect and inadequate. Moreover, the Royal Commission did *not* think in terms

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\* The question of "equitable distribution" has been purposely left out in this book, as that, by itself, is a big and intricate problem.

of having to increase the productive capacity of agriculture within a definite period of time and at a definite pace : while they felt a genuine sympathy for the ryot, they honestly and sincerely believed that his lot could be improved by slow degrees, and that also by introducing piecemeal reforms which would not be too revolutionary. Above all, they concentrated their attention on the setting up of certain institutions for basic research and naively hoped that, in due course, the fruits of research would reach the cultivator who, after all, was a person possessing the same degree of commonsense, intelligence and shrewdness as the average farmer in any other country. We now know that their approach to the problem was not bold enough : their suggested recommendations—at least those that have been accepted and acted upon—have not, therefore, made any appreciable difference between the state of agriculture as it was, say, in 1925 and as it is now, in the year 1944 !

We thus come to the inescapable conclusion that, if agriculture in India is to be lifted out of the morass in which it finds itself to-day after fifteen years of so-called research and reform, we must plan, and plan boldly. The standard of living of the cultivator and of all those who are

dependent upon agriculture for a living, either directly or indirectly, must be raised and this can only be done by increasing their income. This brings us back to the central thesis, viz., that the poverty of the soil must be abolished and production increased to meet, at least approximately, the probable requirements of the entire population. In short, the renaissance of India's vast land is an indispensable condition of her future stability and of her physical, moral and spiritual well-being.

In this connexion, it would be important to bear in mind one fact. Planning for the renaissance of agriculture should be very different from planning for the 'Grow More Food' campaign which has been inaugurated and is being steadily pursued under the pressure of war. In the 'Grow More Food' campaign, the objective has been to increase the production of food crops only and, as far as possible, with the aid of existing resources. The result has been that, in not a few cases, not only has there been no increase in production (notwithstanding increases in acreage), but in some cases production has even gone down. In other cases, there has been some increase in yield, but this again can be attributed either to favourable weather conditions or to the effect of propaganda whereby larger areas have been sown with food-

crops. A really sound national agricultural plan, on the other hand, must advise how the poverty of the soil can be removed ; it must also envisage the creation of conditions whereby the actual tiller of the soil regains his old incentive to work harder and better ; and it must suggest to what extent existing practices, beliefs and obstinacies should be scrapped so that a new era in agriculture may begin.

## VII

### MAIN ITEMS IN THE PROGRAMME

We may now consider what should be the main items in a programme of agricultural renaissance in India. The first item should be to bring under cultivation the large area of land still out of cultivation or only half-cultivated. It is obvious that the ordinary incentive of higher prices during the war period has failed to induce cultivators to take up this land and more drastic steps will, therefore, have to be taken. The State will have to "reclaim" this land, so to speak, for the cause of agriculture. This would perhaps involve the use of mechanical contrivances of some sort or other (e.g., in breaking up derelict land), expenditure of large sums of money on drainage and irrigation projects (these would help to bring fallow land into a good state of cultivation) and the grant of special terms to such cultivators as are willing to take up the new land. It should be borne in mind that most land, except the very worst, has productive value in some form or other and only those who have a defeatist mentality

argue that the limit of expansion in cultivation has been reached in India.

A word of caution may be urged here. Although most Provinces and States have got figures of areas under cultivation and areas not under cultivation (vide Appendix—Table I), it appears that many of them do not have details which could show what exactly prevents the land from being cultivated, what the nature of the soil is in these areas and what would be the cost of reclaiming such land. It would be necessary, therefore, for each Province and State first to make a survey of each block of land which is cultivable but not cultivated, with special reference to (a) area and location, (b) nature of the soil, (c) reasons for its having gone out of cultivation, (d) what steps are essential to make it cultivable and (e) what would be the approximate cost thereof. It is not generally realised that the causes of land having gone out of cultivation or of not having been cultivated at all for years together, are many and varied. In some areas, the land in question may simply be infested with deep-rooted grasses which render cultivation very difficult. In others, it may be due to the nature of the soil which may have too much of sand or salt or alkalinity. In still others, derelictness may be due to lack of

water or to too much water or to malaria prevailing in the region. In not a few instances, soil erosion may be responsible. In any case, only a careful and co-ordinated survey can show why certain blocks of land have not been under cultivation and how they may, if the State so wishes, be brought under the plough. Any crop-planning on an all-India scale must follow, and not precede, such a survey.

In this connexion, it may not be out of place to recall what tremendous progress was achieved in pre-War Italy and Russia in the matter of bringing derelict land under cultivation. The famous "wheat battle" initiated in Italy in 1925 was as much a battle to increase the area under wheat as also to bring about a higher unit yield. In Soviet Russia, literally thousands of acres of land—given up for lost during the Czarist regime—were brought under cultivation under the National Plan as part of a concerted nation-wide drive. What has been achieved in these countries can very well be repeated in India. Not only would such action increase production in the country as a whole; it would also considerably ease the present pressure on land—a pressure that results in the actual cultivated holding per cultivator being of a size of about 4 acres only and that also

scattered in tiny blocks all over a village or group of villages.

The second item in the programme would be to increase the unit yield of crops. The low unit yield which exists at present is due to a number of factors, not the least important of which are the use of bad seed, lack of proper manures and fertilisers, lack of protective measures against pests and diseases, absence of suitable irrigation or drainage facilities, absence of proper planning of crops and general bad management. To a certain extent, low yield operates in a vicious circle—low yield and consequent poverty of the cultivator preventing the accumulation of capital necessary for the introduction of technical improvements which could increase the yield.

Let us analyse, one by one, the factors behind low unit yield. Take the case of seed. Notwithstanding the fact that during the past two decades, many improved varieties of seed have been evolved by the various agricultural research stations and sub-stations set up by Government, the fact remains that the ordinary cultivator is still unaffected by the improvements made. True, certain new varieties of wheat, sugarcane and cotton have been readily taken up by the more enterprising cultivators in certain parts of the

country, but they represent barely 5% of the total agricultural population. The general body of the peasantry are still content to follow their traditional methods and sow only such seeds as their fathers and forefathers have sown from year to year.

Why has this been so? The failure of the experiments conducted at Government stations and farms to percolate down to the fields of agriculturists has been due mainly to the fact that there has been no proper demonstration of the capacity and yield of new and improved varieties of seed under actual village conditions. The Indian cultivator is a shrewd person and is apt to belittle the value of experiments that have been, or are, conducted on special plots or farms : he wants all Governmental researches to be demonstrated before his very eyes on his own or his neighbour's plot, before he would think of accepting them. If, therefore, the cultivator is to be induced to use new and improved seeds, it would be necessary to draw up a scheme whereby each village or group of villages can see selected and tested varieties of seed sown and the crop thereof harvested, on plots with average fertility and having the average facilities of drainage and irrigation. It is claimed by experts that by the use of better

seed alone, production can be increased by about 10 to 15 per cent : if the cultivator sees actual demonstration of this increased yield, he will not feel hesitant about sowing better seeds.

The question of manure has also to be tackled. All experts agree that soils in India are singularly deficient in nitrogen, but so far no comprehensive programme has been drawn up whereby the deficiency can be made good.\* While there is a considerable wastage of farmyard manure at present, it would not be feasible to meet the requirements of the Indian soil even if the entire manure that is available in the villages were conserved. Part of the requirement must be met from alternative sources, e.g., by composting village and town wastes, by the use of green manures and by a larger use of oil cakes. Even so, it would not be possible to bridge the gap entirely and, ultimately, the Indian cultivator must turn to the so-called artificial fertilisers. The supply of these will be the most formidable task of all, because vested interests are apt to stand in the way of providing artificial fertilisers at a cheap rate to the Indian cultivator.

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\* It has been recently estimated by the Imperial Council of Agricultural Research that the amount of nitrogen required for Indian soils is at least 2½ million tons per annum.

Then there is the problems of diseases and pests. It is perhaps not known that at least 10 per cent of the crops grown are wasted because there is no suitable protection against the ravages of diseases and pests. In countries which have a higher unit yield than India, diseases and pests have been very much brought under control. In India, scientific knowledge is not yet sufficiently advanced to enable the adoption of particular measures on a wide scale and no planning in this direction may, therefore, be feasible in the immediate future. It would be necessary, however, to bear this problem actively in mind and to undertake practical researches that would enable plans to be formulated for the control of the more common diseases and pests.

Irrigation, drainage and/or bunding would also need attention. At present, the irrigated area under crops is less than 25 per cent of the net area sown (vide Appendix—Table I) : most of the cultivated lands are, therefore, dependent upon the vagaries of the monsoon for their crops. This fact has a profound bearing on the question of unit yield. The outturn per acre is between 50 and 100 per cent higher on irrigated lands than on unirrigated ones and it can be easily imagined to what enormous extent the unit yield and conse-

quently total production could be increased if all lands, now under cultivation, were to receive the benefits of irrigation. In this connexion, it may be noted that irrigation need not necessarily mean the excavation of more canals. Of the 63·3 million acres of irrigated land, some 30 million acres are irrigated by wells and another 6 million acres by tanks. Side by side with the harnessing of water from rivers, streams and canals, the possibilities of extending irrigation by wells and tanks should be further explored.

In areas of heavy rainfall, on the other hand, the problem is the other way about. Water-logging not only affects production adversely, but may be the cause of malaria as well. In these areas, therefore, it would be necessary to construct proper drainage cuts and to clean up these channels periodically. Similarly, on sloping lands, it would be desirable to have contour bunds rather than irrigation.

The next item which should receive immediate attention is the proper planning of crops to be grown on the field of the cultivator. This should be distinguished from crop-planning for the country as a whole on the basis of the minimum nutritional requirements of the population, the needs of industry, accessibility to markets etc. In

the planning of crops to be grown on the field of the cultivator, account has to be taken of the relative productivity of the various crops (as expressed by their yield per acre) which could be grown on a particular plot and the comparative advantage of one crop over another in terms of profit, cost of labour, cost of manuring etc. At present there is no planning as to what crops should be grown on a particular field at a particular time of the year. Following tradition and the ways of his ancestors, the cultivator grows, year after year, virtually the same crop or crops on his allotted field; he never keeps any account of his expenses nor does he bother to find out whether, by departing from or modifying the old routine, he could have made a larger profit. To obtain a better outturn from his field, therefore, the cultivator should work out the profit and loss in each case and plan his husbandry accordingly. In this planning, he should, of course, have help and guidance from those who may be entrusted with the execution of plans for the whole country.

Lastly, there is the question of implements and management. The latter embraces rotation of crops, proper tillage, sowing, transplanting and harvesting, and the methods of applying water, manure, etc. Contrary to what is believed in

certain quarters, the Indian ryot still has many things to learn in regard to crop management. Partly as a result of the stress of war and partly as a result of a conscious effort to increase unit yield. crop management or agronomy, as it is technically called, has received very close attention in Great Britain, Soviet Russia and the U.S.A. In these countries, the central question has been the most economic utilisation of every bit of land available and the attention of those who direct agriculture has naturally been focussed on how to get the utmost return from it by improving cultural practices and management. As regards implements, the precise extent to which agricultural production could be increased in this country by the use of better implements is still unknown. It is known, however, that in certain selected areas where mechanical tractors or improved ploughs have been used, production has increased considerably. Although, according to some experts, tractor ploughing is not suitable on the type of fields on which, for example, rice is grown, the phenomenal success which has attended tractor cultivation in Soviet Russia inclines one to think that, given favourable conditions, mechanisation could make considerable difference to agricultural operations in India.

## VIII

### LARGE-SCALE FARMING

The subject of mechanisation of agriculture brings us to the most crucial question, viz., the size of the agricultural holding and the land tenure conditions under which holdings are cultivated. It is not often realised that in any scheme of increased agricultural production, the size of the holding must be big enough to be remunerative and the actual tiller of the soil must feel that whatever larger or better crops he is able to raise, the addition will not be taken away by superior interest-holders or frittered away in making repayment of old debts. No technological schemes of increased production can work on an uneconomic holding of a size of no more than 2 to 4 acres, nor can a peasantry which has been virtually reduced to a state of serfdom find the incentive or enthusiasm to work out such schemes. If, therefore, there is going to be any agricultural renaissance in India, we must think in terms of farming on much larger holdings than we have at present and under the direct control and guidance of the State.

At first sight, to many these suggestions may appear fraught with dangerous possibilities. It may be argued that the eventual result of taking such a course would only be to throw a considerable number of men out of employment, that the individual peasant would never like to work on a 'group' or 'collective farm', that the State is not competent to guide the actual husbandry of the soil. To these objections, the obvious reply would be that even at present actual tillers of the soil are under-employed and, besides, there are a large number of non-cultivating labourers in the villages who have virtually no fixed employment. In any case, group farming does not necessarily mean that a lesser number of people shall cultivate blocks which had been previously cultivated by a certain fixed number. It only means that instead of cultivating tiny plots separately, they shall pool their labour and resources together and cultivate the plots collectively. It may be that, as a result of this collective cultivation, a few hands may appear redundant, but, even so, it need not necessarily follow that they shall be without employment. Collective farming foreshadows such an expansion of agricultural production at less cost that, firstly, there is much more to go round and, secondly, there are bound to spring up several new avenues

of employment (e.g., for the management of farms, use and repair of mechanical appliances, improvement of roads as between various farms and markets, etc., etc.) in which the so-called surplus labour can and would be easily absorbed.

As regards the argument that the individual peasant would never like to work on a 'group' or 'collective' farm, it should not be forgotten that there are at present barely 10% peasant-proprietors who have, and actually cultivate themselves, holdings of an economic size (i.e., at least 10 acres). All others are either tillers of uneconomic holdings or superior interest-holders having no direct interest in the increased productivity of land. While it is possible that the 10 per cent of better-class peasant proprietors would not like to join any scheme of collective farming, it is more than probable that actual cultivators of uneconomic holdings would welcome an arrangement whereby the total return from their lands would be considerably augmented and they would eventually be entitled to receive a very much larger value, whether in money or in crops, out of the collective produce.

Finally, the argument that the State is not competent enough to guide the actual husbandry of the soil does not also stand scrutiny. By the

word 'State' is meant its agricultural experts who would plan and guide agricultural development. In every country in the world, these experts have been guiding the cultivator, be he a small farmer or a big landowner or a member of a collective unit, in his agricultural operations, and there is no reason why they should fail to perform exactly similar services in India. It is, of course, true that officers with the necessary vision, drive and knowledge would have to be found for this work—persons who can make up for the sins of omission and commission of the State over at least a century, but, given officers with the requisite qualifications and experience, it should not be difficult to plan development and guide actual operations scientifically, economically and in the best interests of the peasantry.

The very phrase "collective farming" seems repugnant to many who behold in it the spectre of communism and class revolution. There is nothing in a name and if the phrase "collective farming" is not liked, another nomenclature may be used. The important point, however, is that small-scale farming on plots between 2 to 4 acres is not remunerative at all : it is extremely difficult to introduce any improved cultural practices on such tiny plots and the use of mechanical appliances also becomes

impracticable on account of the high incidence of cost per acre. Tiny plot farming only adds to the cost of production by lowering the output per man engaged thereon as well as by adding to the overhead costs of the crops produced.

The lesson that the Kolkhoz or collective farm of Soviet Russia teaches us is that only by consolidating holdings and cultivating them jointly or collectively can the maximum amount of agricultural efficiency be attained.\* Modern machinery and modern science can triumph over obstacles only when they are tried out on a fairly large scale. Even in India, the most progressive farms are those that are of 25 acres and over and are cultivated as one unit by a single peasant proprietor. To secure the economies of large-scale production, to cut down costs and to get an all-round increase in production, it would, therefore, be essential to organise the multitude of small cultivators collectively and to see that all put in their best efforts to secure a higher return from land.

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\* Maurice Hindus : *Mother Russia*, Ch. 30 (London, 1943).

## IX

### CONCLUSION

If we go behind the objective facts, we would find that the fundamental obstacle to any scheme of agricultural improvement in this country is the ill-health, sloth and inertia of the cultivator. The ill-health of the cultivator is due partly to his ignorance and the insanitary conditions under which he lives (it is well-known that public health measures are still in a rudimentary stage of development in this country) and partly to his extreme poverty and consequent malnutrition. His sloth and inertia, on the other hand, are the results of years of habit coupled with the belief that whatever he does to improve production, owing to the curious interplay of certain social and economic forces, he himself shall never be able to reap the benefit thereof. In any scheme of agricultural reconstruction, therefore, these fundamental obstacles will have to be taken into account and squarely faced.

Secondly, in any framing and execution of a plan for agricultural reconstruction, we should

bear in mind the tragic fact that so far no attempt has been made to keep the farmer in continuous touch with the work of the research institutions and to help him in all practicable ways to apply the results of research on his farm. The contrast in this regard between what Soviet Russia has been able to achieve and our failure in India is too glaring to need emphasis. While in Russia an organic link has been established between the farmer and the State institutions engaged in agricultural research, in India the two still work in deplorable isolation from each other. Here, the research institutions and demonstration farms appear to function in an atmosphere which has little or no relation to the actual conditions under which agriculture is carried on, and the cultivator, for his part, has a deep distrust of anything new that is sponsored by Government. The wall of isolation that separates the cultivator at present from the State research institutions and farms must be pulled down. In the plan of the future, the State must actively organise large-scale farming units and prove by demonstration on the cultivators' plot or plots that scientific farming (i.e., better agronomic practices and management) is profitable not merely to the farm as a whole but to every member thereof.

To sum up, large-scale farming, practical demonstration of better cultural practices, technological improvements, better facilities for the disposal of his produce and a guaranteed minimum price for his produce so as to leave him a decent margin of profit—all these must be provided for simultaneously, if the Indian cultivator is to be lifted out of his present stupor. In these, the State must play an increasingly bold and imaginative part, going even to the extent of compelling any dissentient minority to fall in line with the general programme of development. Whether this would mean the “liquidation” of the objecting minority, as was done with the *Kulaks* in Soviet Russia, no one can foretell at this stage. But it is obvious that certain drastic powers will have to be assumed by the State. Past experiments in better farming, in voluntary consolidation of holdings and in the carrying out of the results of researches on the fields of cultivators by persuasion have almost always ended in failure. The lesson, therefore, is obvious. There must be authority to carry out plans of reconstruction and to compel all to fall in line. If India is to meet in full its obligation to make available to all its people at least the minimum of food, clothing and shelter, without which, in the words of President

Roosevelt, life itself would be impossible, there must be increased production and better distribution of agricultural commodities—an ideal which can be secured only by the wholehearted participation of all the sections of the community in a national plan.

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## APPENDIX

### *Table I.*

Area available, area which might be available and area which may not be available for cultivation in India.

(The figures are for 1937-38)

	<i>Million acres.</i>
Net area sown	280·9
Irrigated area	63·3
Area under forests	87·0
Culturable waste other than fallows	110·9
Current fallows	58·6
Area not available for cultivation	119·9

*Table II*

**Acreeage, Production and Range of Fluctuation in  
the Production of principal crops in India.**

(Average for 1938-39 to 1940-41)

	<i>Acreeage (Million acres)</i>	<i>Production (Million tons)</i>	<i>Maximum range of fluctuation in production over the last 25 years.</i>
Rice	78·9	25·7	50%
Wheat	35·5	10·4	60%
Barley	7·0	2·3	65%
Millets*	61·5	13·2	40%
Gram and other food crops (including pulses)	62·3	Not known	Not known
Groundnuts	6·2	2·7	200%
Other oilseeds†	5·1	·7	Not known
Sugarcane	3·9	4·8	150%
Cotton	22·8	·9	60%
Jute	3·6	1·6	120%
Tea	·8	·2	50%
Tobacco	1·3	·5	20%

NOTE: In most cases, data are available for British India and a few Indian States only. In this table, suitable estimates have been made for the non-reporting areas, and the final figures for the whole of India should be regarded as very approximate.

\* The figures are for jowar, bajra and maize.

† The figures are for linseed, sesamum and rape and mustard seeds only.











