

POPULATION GROWTH AND AGRICULTURAL DEVELOPMENT IN INDIA*

BY

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I feel greatly honoured to have been invited to address this august gathering on the occasion of the 26th anniversary of the Indian Society of Agricultural Statistics. But I am hardly competent to deliver a technical address to a group of experts like you and whatever views I may place before you will be that of a layman and I do trust that you will bear with me. The subject I have chosen for my talk today is "Population Growth and Agricultural Development in India".

The last decennial census of population in India, which incidentally marked the completion of 100 years of Census history in the country, was taken last year (1971). The decennial Censuses obviously have been the basic source of data on the size, distribution and composition of the population as well as its socio-economic characteristics. The 1971 Census has shown that India's population continues to be predominantly rural. 80 per cent of the population lives in rural areas. It is true that the growth rate of urban population has been faster than that of the rural population, not due to any higher natural increase of population in urban areas but due to the differential migration. If we studied the rural-urban composition of the country's population from the turn of the century the picture we get is as shown in the table which follows.

Thus even though the percentage of urban population to total population has increased from about 11% in 1901 to about 20% in 1971 it cannot be said to be very marked over such a long span as 70 years. India's population base is so large that it is doubtful if the country will reach in the foreseeable future the degree of urbanisation associated with the western countries. For example, about 79%

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Census Year	POPULATION			Percentage of Rural/ Urban population to total population		Decennial growth rate of Total/Rural/Urban population		
	Total	Rural	Urban	Rural	Urban	Total	Rural	Urban
	1	2	3	4	5	6	7	8
1901	238,337,311	212,485,438	25,851,873	89·15	10·85
1911	252,005,470	226,063,837	25,941,633	89·71	10·29	5·73	6·39	0·35
1921	251,239,492	223,153,325	28,086,167	88·82	11·18	-0·30	-1·29	8·27
1931	278,867,430	245,411,441	33,455,989	88·00	12·00	11·00	9·97	19·12
1941	318,539,060	274,385,763	44,153,297	86·14	13·86	14·23	11·81	31·97
1951	360,950,365	298,509,175	62,441,190	82·70	17·30	13·31	8·79	41·42
1961	439,072,582	360,142,827	78,929,755	82·02	17·98	21·64	20·65	26·41
1971	547,949,809	438,855,500	109,094,309	80·09	19·91	24·80	21·86	38·22

of the population of the United Kingdom is urban, it is 74% in Canada, 70% in U.S.A. and 56% in U.S.S.R. Among the Eastern countries the highest urbanisation has occurred in Japan where 68% of the population lives in urban areas. Even reckoning the fairly low proportion of India's urban population to its total population, in absolute numbers it is very large amounting to 109 million which is more than the total population of several countries. Leaving alone the statutory urban centres governed by Municipal laws, the other areas recognised as urban at the Indian Census, according to the definition adopted, are expected to have atleast 75% of their male working population in non-agricultural sector. In an economy as India's, one can see that it is an almost impossible task to get 75% of the male working population of a major part of the country diverted to non-agricultural sectors, nor is it necessary. According to the projections made by the expert committee on population projections set up by the Planning Commission under the chairmanship of the Registrar General, the proportion of urban population to total population even by 1981 is not likely to exceed 22%. By the end of the present century it is doubtful if the proportion of urban population in the total will be very much higher than a quarter. The total population of the country by then may have reached one billion mark. Even assuming that only a quarter of the population will be in urban areas their total numbers will be over 250 million which is more than the total population of U.S.A. or U.S.S.R. at present. However we are still in a realm of conjecture to some extent. We cannot as yet say with certainty what the effect of the massive family planning programme will be on the future population growth and size. There are signs that the family planning has started to make a dent on the population growth rate. The crude birth rate which stood at about 42 per 1000 population in 1955-61 is estimated to have come down to about 37 per 1000 at present. Some demographers predict that in such a transition 40 is a turning point and that thereafter, one can expect a sharp fall in fertility. Will there be a precipitous fall in the growth rate of India's population in the future decades? Can this come about entirely through the present efforts of the governments in their massive family planning programme? Should not this be accompanied by accelerated economic growth which in turn has a bearing on the future growth pattern of the population? Are not the better socio-economic conditions and better health and nutrition, on the other hand, likely to lead to greater survival and hence larger increments of population? On the other hand will not the growth of literacy, greater avocation for woman to work lead to a lowering of fertility? What will be the rural-urban differentials? These are

all several imponderables for which we cannot as yet provide a ready answer. Studies indicate that there is a differential in the fertility of rural and urban population in India, the level of fertility in urban population being distinctly lower than in the rural population. Several factors operate leading to this differential, such as differential levels of literacy and education, type of occupations, sex ratio, age structures, facilities for observing family limitation and so on. The expected lower level of fertility in urban population is one of the factors that was taken into consideration while estimating the future trends of the growth of urban population in India. On the other hand, in Japan, an interesting picture emerged in the 1950s and 60s and it was found that the natural growth rate of the urban population was much higher than that of the rural population. Due to rapid industrialisation there was a massive shift of population from rural areas to larger urban centres. Such migration was age selective and largely made up of persons in the age group of 15 to 29. The resultant age structure of the urban population was more conducive to a higher natural growth of population in urban areas than in the rural areas. This also led to a dearth of labour force in the younger working age group in rural areas which resulted in some revolutionary changes in the pattern of agriculture in Japan.

Early last month some of us attended the Asian Population Conference in Tokyo. One Sunday, we were taken on a fairly long drive through the country-side in Kanagawa prefecture. I was quite impressed by miles and miles of vegetable farming and extensive fruit farming. I was expecting to see large areas of wide paddy fields as in India, for we had known Japanese to be basically rice eaters. I was shown a few plots protected by Polythene covers and was informed that the crop under some of them was paddy. I was quite impressed by the explanation of the guide, an old man, who said that there has been a basic change in the economy, food habits and the mode of living of the Japanese since the war. Rice was the staple food of the Japanese before the war. With the rapid growth of population in the years immediately after the war and the limited extent of agricultural land, the country had to depend on large extents of imports of rice to feed the masses. There was tremendous industrialisation and shift of population to urban areas. There came about a revolutionary change in the food habits of the people. They took more and more to bread consumption in preference to rice. The agricultural patterns and techniques quickly adjusted to meet the changed requirements and the dearth of labour also made agriculture less

labour intensive. Agricultural reforms gave the small landed peasantry ownership rights. It is said that several farmers engage themselves in part-time non-agricultural avocations. The lot of the farmers improved by leaps and bounds and most of them are able to afford amenities like refrigerators, televisions and motor cars.

Now, what are the prospects in India? As has been stated earlier the vast majority of India's population, 80% lives in rural areas. India's economy is basically agricultural. Agriculture accounts for about 50% of the net national product. The 1971 Census figures show that 70% of the working force is engaged in agriculture (67.5% among males and 80.1% among females). The proportion of agriculture workers (cultivators and agricultural labourers put together) to total workers as revealed in the past few Censuses has been as follows:

Year	<i>Proportion of Agriculture workers (cultivators + Agriculture labourers) to total workers</i>
1901	67.53*
1911	70.37*
1921	71.79*
1931	69.83*
1951	69.74*
1961	69.49**
1971	69.67

The changing concepts from Census to Census of workers and non-workers make the figures somewhat not comparable. All the same the above figures do reflect that the working population gets absorbed largely in agriculture.

*Excludes Goa, Daman & Diu and Arunachal Pradesh.

**Excludes Goa, Daman & Diu and a population of 297,853 in respect of Arunachal Pradesh for which data is not available.

The 1971 Census has indicated that the annual geometric growth rate of population has been of the order of 2.2%. Even if there are distinct prospects of the family planning programme making a deeper dent on the fertility and growth rate of population in the future decades, the persons who get added annually to the working force in the next decade or two are already born and the problem the nation faces is how best these increments to labour force could be utilised as to give the best socio-economic returns to the country. The large mass of growth of labour force occurs in the rural areas. It is inevitable that this has to be largely absorbed in the rural areas. It is difficult to envisage that the increments in labour force in the rural areas can be syphoned off to urban areas. It is doubtful if the heavy investment needed will be forthcoming to absorb even the major part of the increments in the rural labour force in non-agricultural sector. Experience in the past has shown that the Indian agriculture has been by and large absorbing the rural labour force. But with what result? Has this led to less productivity of labour? Is there greater under-employment among the rural labour force? In the rural economy we have not been able to gauge fully the extent of unemployment or under-employment. The dependence of our agriculture on family labour to a considerable extent has given the feeling that agriculture can absorb most of the rural labour force. The extension of area under cultivation during the last few decades, provision of larger irrigational facilities had made it possible to extend agriculture. There has been a feeling as Dr. S. R. Sen had cautioned in a technical address to your society in 1967 that "on account of the pressure of population, the production of foodgrains has been extended to sub-marginal lands which are unsuitable for food production either because of poor quality of the soil or lack of moisture, and which should never have been put under foodgrains. As a result, whenever there is any drought, there are large declines in foodgrains production". I believe we have more or less reached the end of the tether as far as the area available for productive cultivation is concerned. Our efforts necessarily have to be in the direction of intensive cultivation, better techniques, greater and more scientific use of fertilizers, better seeds and so on. These have brought dividends in recent years and the green revolution has apparently been achieved. But the pattern of our crop choice has more or less remained the same. The following statement gives a picture of the production of selected agricultural products since 1950-1 ;

Sl. No.	Item	Unit	1950-51	1955-56	1960-61	1964-65	1968-69	1969-70	1970-71
1.	Index of agricultural production 1949-50=100	—	95.6	116.8	142.2	159.4	159.5	—	182.2
2.	Foodgrains	mill. tonnes	50.8	66.8	82.0	89.3	94.0	99.5	107.8
3.	Sugar & Gur	mill. tonnes	7.1	7.3	11.4	12.5	12.5	—	13.2
4.	Oilseeds	mill. tonnes	5.2	5.7	7.0	8.6	6.8	7.7	9.2
5.	Cotton	mill. bales*	2.9	4.0	5.3	5.7	5.1	5.2	4.6
6.	Jute & Mesta	mill. bales*	3.3	5.4	5.3	7.7	3.8	6.8	6.1
7.	Tobacco	thou. tonnes	261	303	307	336	361	337	350
8.	Tea	thou. tonnes	275	225	322	372	397	396	421
9.	Coffee	thou. tonnes	24.6	34.4	43.2	47.1	73.5	63.0	108.0

* One bale=180 kg.

Source : Country statement for India to the Second Asian Population Conference.

Our concentration has still been on the production of foodgrains. This could not be helped, in order that our past heavy dependence on imports of foodgrains could be eliminated and we could feed the ever increasing numbers of the population. A substantial proportion of the rural households is still at a stage of subsistence economy. Though we have achieved green revolution in respect of wheat production, we have not been as successful in respect of rice. An unfavourable monsoon season cause us anxiety. Recently at the last session of the parliament, apprehensions were voiced against the euphoria of green revolution.

The question one is often asked is if improved techniques of agriculture which involve mechanization to some extent can be continued in the face of ever increasing pressure of rural labour force on land as a result of high population growth. But it has been demonstrated that improved techniques, multiple cropping, better irrigation management has in fact created greater demand for the rural labour force. During peak seasons dearth of agricultural labour had been experienced in the green revolution areas. It has also created large employment opportunities in the secondary as well as tertiary sectors

as a result of the establishment of a large number of workshops in rural areas for repairs of tractors, pumping sets etc., the rapid growth of transport systems, marketing system, extension services and so on. The need and demand for new types of skills in the rural areas has been emerging. It is expected that the scope for self-employment of skilled workers in rural areas will vastly increase when the fuller impact of the green revolution is felt.

The following statement derived from the tabulation of 1% sample data of the 1971 Census provides a picture of the literacy and educational levels of persons working in agriculture in rural areas for the nation as a whole:

<i>Educational Levels</i>	<i>I</i>		<i>II</i>	
	<i>Males</i>	<i>Females</i>	<i>Males</i>	<i>Females</i>
Total	676,779	90,254	302,970	151,241
Illiterate	443,884	83,179	241,592	143,853
Literate (without educational level)	89,307	3,391	28,467	3,780
Primary	88,683	3,006	24,480	3,144
Middle	40,630	597	6,954	430
Matriculation or Hr. Secondary	13,208	72	1,419	31
Non-Technical diploma or certificate not equal to degree	93	1	15	..
Technical diploma or certificate not equal to degree	76	3	10	1
Graduate and above	898	5	33	2

The vast majority of the rural working force in agriculture is illiterate. This may be a reflection on the generally poor level of literacy in the rural population itself. But it is hoped that rural literacy rate will improve in future years. The improvement of literacy and vocationalisation of education, are expected to help in providing a better quality of the labour force more receptive to new ideas. In some States schemes are being thought out for provision of special courses to school drop-outs and matriculates in such fields

as soil survey and testing, irrigation and drainage, pest control, farm management, cooperation, agricultural marketing and finance, repairs of agricultural tools and implements, pumpsets, tractors etc., rural building, design and construction of small irrigation tanks and so on. It has to be seen if the future will bring about major changes in agricultural techniques and management of land. In this context the scheme of land reforms becomes important. The archaic feudal systems of land tenures had been the bane of the Indian agriculture in the past. Land reforms have been set in motion throughout the country. Studies have shown that small farms under owner cultivation are the most productive. But this may be largely true in traditional agriculture. Agricultural labour continues to be a major input in agricultural production. Suggestions have been made for providing facilities for greater mobility of agricultural labour, formation of labour banks with an assurance of a minimum wage in order to absorb the growing rural labour force and also its effective utilisation for maximum agricultural production.

Food production in the country in recent years no doubt has kept pace with the growth of population. Some of the earlier Censuses of the country had clearly shown the disastrous effects of famine on the population. If the population of the country in the early decades of the century had not grown fast it was mainly due to famines and pestilence that occurred fairly frequently and the consequent high morality of human lives. A welfare state can never reconcile itself to such a situation and cannot afford to treat failures of monsoons and the resultant famines as an act of Providence. Independent India assumed the responsibility of finding the basic food requirement of every citizen. Initially our country had to depend to a considerable extent on the import of foodgrains from abroad. The over-dependence on heavy imports of foodgrains has since been eliminated. The elimination of the adverse effect of famine, the control of epidemics and better health facilities resulted in lowering mortality and a great spurt of population growth since 1951. The large increments of population has no doubt to be fed and much of the additional agricultural production has gone to maintain certain minimum level of consumption. We should reach a stage when we should not only be able to feed our population but be able to utilise our agricultural lands to produce adequate quantities of commercial crops for a market economy. So far our agricultural orientation has been towards the increase of production of cereals as to meet our basic food requirements. Our heavily cereal oriented agricultural production has also been due to the fact that the mass of the people in the present economic condition have to derive their calorie intake

primarily from foodgrains and starchy foods that they can produce comparatively cheaply putting in their own labour. It is well-known that a substantial section of the Indian population lives at a level below the minimum nutritional standard and about 80 per cent of the calorie intake is derived from foodgrains. Therefore, the farmer produces foodgrains largely to meet his domestic requirements of consumption. Our consumers are not yet able to afford other more nutritionally protective foods to any large extent to supplement their cereal consumption. If our population keeps on increasing unabatedly and if the increasing numbers must keep on depending primarily on the foodgrains for their nutritional needs, despite all the advances in agricultural techniques, it is not difficult to foresee that in this finite world a stage of crisis can hardly be avoided.

The prospects however do not appear to be dim. The future rates of population growth are bound to come down. Production of foodgrains can outpace the population growth for quite some time to come. It is also hoped that the increased tempo of economic growth will have its effect on the consumption pattern leading to a gradual substitution of cereals by other protective foods, thus relieving the demand for foodgrain consumption as had happened in Japan. It is hoped that the pattern of agricultural production may itself change to export-oriented produce.

Green revolution should be viewed not merely as a process of merely producing larger quantity of foodgrains but as a phenomenon leading to revolutionary changes in rural economy and life. It is the Punjab which had traditionally been a surplus area in wheat production which has also achieved the green revolution with perceptible results. As a result of the production of enormous surplus quantities of wheat through improved techniques of farming, better farm management, better seeds etc., a whole gamut of structural changes had to quickly come about to meet such requirements as storage, transport and marketing of the surpluses, provision of credit facilities supply and servicing of machinery etc. The improved economic conditions and the increased aspirations of the common man for better standards of living appear to have also led to adoption of family planning more readily. Punjab shows comparatively low growth rate of population among the States in the country, having also achieved low mortality level. During 1961-71, Uttar Pradesh showed a lower population growth rate than the Punjab, but it is due to a higher mortality rate prevailing in Uttar Pradesh. But in the Punjab both the birth as well as death rates have been among the lowest in the country. The available estimates for 1970 are that the

birth rate in Punjab was 30·8 per 1000 population and death rate 9·2 per 1000, as against the all India average birth rate of 37·0 and death rate of 15·9. Thus in the Punjab a chain of forces have been set in motion all portending accelerated economic growth, and greater well-being of the people. Lesser pressure on land, fuller utilisation of the labour force, adoption of advanced techniques of farming, production of appreciable surpluses for marketing, growing secondary and tertiary sectors, all seem to have had a multiplier effect on the economic growth of the State holding the prospect of a still brighter future for the people of the area in the years to come.

In Bengal too, it is believed that in the last few years the agricultural production had registered appreciable growth. Bengal had traditionally been a deficit area. The State had also experienced very high growth rates of population since 1951. We must have seen the public announcements made by the State Government through newspapers of the achievements of the State in the extension of area under cultivation and in increasing food supplies. Food production appears to have undoubtedly kept pace with the population growth. This appears to have been achieved mainly by the traditional methods of increasing the area under cultivation and more intensive utilisation of land. The stress has been on extension of cereal production. While this is alright as a short term measure, if green revolution has to be achieved not merely as a measure of meeting the immediate food requirements of the growing population of the area but to build up the rural economy to reach the stage of self-sustained growth, indications are that there is a need of revolutionary changes in the cropping patterns and techniques and land management. It strikes any observer that just beyond the limits of the megalopolis of Calcutta the paddy fields appear where one would expect to see vast extents of vegetable cultivation or horticulture to supply the vast urban market. This clearly illustrates the need for restructuring of our farm economy from a mere consumption-oriented one to one of market economy if we have to bring about any significant improvement in the life of the rural folk.

In the context of the rapid population growth in our country and fairly low level of economy we shall have to view the agricultural development both from the short-term as well as long-term points of view. There cannot be any question that we shall have to attain self-sufficiency in foodgrain production as to meet the immediate and the prospective consumption needs. I believe we have by and large achieved this objective. Our agriculture is still precarious, easily affected by the vagaries of monsoon. We shall have to build up our irrigation potential and ensure an assured supply of water and high production levels by improved techniques as to get over the undue

dependence on monsoons. We cannot escape from the prospect of fuller absorption of the large annual increments of rural labour force in the next decade or two in agriculture and in rural works that are likely to augment the needs of agricultural operations. From the long-range point of view, efforts of green revolution, improved methods of farming, mechanisation, multiple farming, improved seeds, and efficient farm management must go unabated. It is commonly believed that the green revolution has benefitted only a few. With the land reforms and the acquisition of holding rights by a large number of small farmers, basic changes in farm management, institutionalisation of cultivation through cooperative organisation of small farmers, the provision of inputs and services required by small farmers' organisations, the creation of the requisite credit and marketing facilities and so on will have to be taken up urgently on an adequate scale if the green revolution has to be sustained. Unless the benefits of the green revolution become broadbased and are shared by the rural community as a whole it is likely to peter out.

This brings to focus the large section of the less privileged sections of the community viz., the Scheduled Castes and Scheduled Tribes. Together they form slightly more than a fifth of the total population, the Scheduled Castes accounting for 14.60% and the Scheduled Tribes 6.90%. They are essentially rural dwellers. More than 50% of the workers among the Scheduled Castes are agricultural labourers and about 28% cultivators, mostly with small holdings. Scheduled Tribes are also essentially rural dwellers spread over the remote forest or hill areas. Though for their economic activity nearly 70 per cent of the workers are engaged in cultivation, their methods of farming are primitive and they depend almost entirely on their family labour. In the process of green revolution it is essential that those sections of the population that have been providing the manual labour in the traditional pattern of agriculture should be borne in mind and necessary institutional changes should be brought about to enable these socially and economically backward sections of the agricultural community to partake in the benefits of green revolution as equal partners, lest social, cultural and economic tensions may not be created due to imbalances which may strike at the very root of the green revolution.

It is hoped that hand in hand will go the development of non-agricultural sector of economy and a larger complementarity of the agricultural and non-agricultural sectors of economy will be created, resulting in a better utilisation of the manpower, larger investment in improving the quality and skills of manpower in the rural as well as the urban areas, more equitable distribution of wealth and the overall socio-economic growth of the country.