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1981

* Under Para 2, Clause 5 of the Ph.D. Degree Regulations of the Sri Venkateswara University, "A Candidate may also forward as supplementary papers to his thesis printed copies of any contribution or contributions to the knowledge of his subject or of any cognate branch of science he may have published independently or jointly in Journals or Periodicals together with the names of such Journals or Periodicals".
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19. Well Irrigated Ayacut Stabilisation and Expansion Project, Venkatagiri Taluk 1974. A Report submitted to Catholic Relief Services, Madras and received a grant of Rs. 1.5 lakhs for its implementation by U.S.A.I.D.


* Only papers marked with the asterisk are included here.
"The shadow that lies on the land is the population problem not merely the current rate of population growth but, above all, the state of excess population which the population explosion of the past hundred years has produced. Excess population breeds social institutions and attitudes that are hard to exchange. In particular it produces those instinctive and pervasive work-making and work-spreading tendencies which are not conducive to development. Herein lies a good part of the case for drawing more people into useful capital works at once, even before each man can be equipped with a bulldozer or steam shovel to lighten his toil."  

Surplus manpower describes a situation wherein there are more people than necessary to maintain the present levels of production under the existing conditions of technological know-how. In India there is excess population both in rural areas and urban centres. Almost all the over-populated and under-developed countries are suffering from this malady. This problem is further aggravated by the continuous "population explosion" occurring during the recent decades. Consequently the problem of providing adequate employment opportunities to their teeming millions has become a formidable one to all the under-developed

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countries. The Government of India is making Herculean efforts to provide adequate employment opportunities through rapid industrialisation of the country. In the rural areas, the Community development Projects are designed among other things to employ effectively the excess labour-force.

Achieving full employment has been a major objective of all modern Governments. India has undertaken to achieve full employment through the implementation of her Five Year Plans. But her attempts to achieve full employment are being neutralised by the continuous rapid rate of growth of population, particularly since 1951 when her First Five Year Plan was launched. Professor Chandrasekhara also expresses the view that "a major objective of planned economic development is to create full employment. It is true that full employment is also the product of such development. But the present annual rate of population growth, ranging between 1.8 and 2.0 per cent, worsens the employment, or rather the unemployment situation by stepping up the number of entrants to the labour-force to the extent of something like 15 millions in the five years of the Third Plan period. It is rather unlikely (even if all the proposed ambitious targets outlined in the Third Five Year Plan are achieved) that the Indian economy will create a sufficient number of jobs to absorb these additions to the labour force". 3 The development programmes undertaken during the first

---

2. According to the 1961 census, annual population growth in India during the last decade was 2.15 per cent.
two Five Year Plans and the present Third Plan have provided additional employment opportunities to a significant extent. But the creation of employment opportunities are not fast enough to absorb the additional number of workers who enter the labour force each year. To avoid deterioration in the employment situation in the country, and since increased population results in smaller per capita income with a given increase in the additional dividend providing employment for the increased labour-force involves substantial additions to the volume of investment required, and the objective therefore should be to absorb in gainful employment at least the equivalent of the new entrants of the working force during certain time period, say, five or ten years.

SURPLUS MANPOWER - "DISCONTINUED SAVINGS"

The models of Professors Nurkse 4 and Lewis 5 for the development of underdeveloped countries advocate a shift of population from the primary sector to the other sectors. In all the overpopulated countries the agricultural sector suffers from serious under-employment or disguised unemployment while the contribution of the marginal worker on cultivated land falls to more or less zero. When the marginal product of worker falls to zero, the

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marginal worker should be shifted to the non-agricultural sector where he can be profitably employed; that is to say, a shift of workers from a sector where the average income per head is low to one where the average income is high.

Professor Nurkse asserts that the surplus manpower represents a 'disguised' potential of savings. Since the unemployed population in rural areas is maintained by their families or the local community, it follows that if this manpower is used for productive purposes (such as constructing irrigation works, etc.), there would not be a very large addition to the demand for consumer goods; whatever the unemployed are presently consuming represents the saving potential of the population (which can be used as a means to productive investment) when they are put to work.

According to the thesis of Professor Nurkse, capital formation in the final analysis is stored up labour. To the extent that there is idle manpower in the rural areas, there is a potential available for increasing the rate of investment. There are however, several limitations to the practical application of this idea. Firstly, additional employment would generate additional incomes likely to be spent on food and other consumer goods. That is to say, there must be an increase in agricultural production and other consumer goods as a pre-condition for stepping up the rate of investment and to control the inflationary trends in the economy. Moreover, the problem is not so much that of unemployment as of underemployment. During seasonal peaks, in
fact, there would be a shortage of labour in many parts of the country.

POPULATION GROWTH IN ANDHRA PRADESH DURING 1951-1961

Andhra Pradesh State was carved out of the former Madras State and the erstwhile Hyderabad State. Its population was 31,115,259 in 1951 and 35,983,447 in 1961. During the last decade (1951-1961), its population has grown by about 5 millions. Total increase in the rural areas is more than four millions as against less than a million in the urban centres. This points out the gravity of population pressure in the rural areas in Andhra Pradesh. The population increase during the last decade was 15.65 per cent. 7

Andhra Pradesh is basically an agricultural state. The State's population living in rural areas is 82.59 per cent which approximately conforms to India's average of 82.18 per cent. 8

"The percentage of population depending upon agricultural occupation is 67.3 as against the All India percentage of 69.6. The cultivating labourers are more numerous in the State constituting 18.4 per cent as against the All India figure of 12.5"


7. Ibid.

Table-1 shows the population increase of Andhra Pradesh state during the last decade in rural and urban areas.

The percentage growth of urban population during the last decade is a little more than that in rural areas. But, in actual numbers, there is a net addition of more than four million people in rural areas as against less than a million people in urban centres during the last decade. This shows the magnitude of population pressure on land and in rural areas. It is this phenomenon that gives rise to several serious economic problems, some of which are discussed in the following paragraphs.

The employment position in the state at the end of the Second Five Year Plan (1961) is described officially as follows: "... against the total job requirements of 15 lakhs, additional employment could be secured in respect of 5.53 lakhs only during the Second Five Year Plan period. There will, therefore, be a back-log of unemployment to the tune of 9.47 lakhs at the commencement of the Third Five Year Plan as against 4.6 lakhs at the commencement of the Second Plan. This explicitly reveals that the state has failed even under a planned economy to employ gainfully the additional labour force which is being added to the labour force every year."

### TABLE-1

**Rural-Urban Population Growth, 1951-61**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>Rural</th>
<th>Urban</th>
<th>Population increase</th>
<th>Percentage increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>31,115,259</td>
<td>25,695,329</td>
<td>5,419,930</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sources:**


(b) Ibid. P 112.

(c) [Census of India 1961 Volume II Andhra Pradesh, Part II-a General Population Tables, Delhi, Government of India Press, 1963](#), p. 76.

(d) Ibid.
the total work force every year. The state should, therefore, accelerate and intensify its efforts in this direction in the future Five Year Plans. If employment opportunities do not develop adequately in the non-agricultural sector, under-employment in agriculture will be further intensified. The difficulty, however, is that employment opportunities in the other two sectors (secondary and tertiary) can be increased only relatively slowly. This is a long-term process. Rapid unplanned movement of labourers from rural to urban centres creates numerous economic and social mal-adjustments.

**FINALE STATE**

Prior to the time of large scale industrialisation, the number of people engaged in the agricultural sector or subsistence sector was fairly large. Usually with the growth of industries there will be a shift of labour-force from the subsistence sector to non-agricultural sector (both secondary and tertiary sectors). Industrialisation will create better employment opportunities and result in increase in both per capita incomes and aggregate national dividend. Further, industrial development will lead to a shift in the occupational structure of a country, where workers employed in the non-agricultural sector or modern sector outweigh labourers engaged in the subsistence sector.

In highly industrialised economies like those of the United States of America, the United Kingdom etc., a small proportion of
labour-force is engaged in agriculture and yet are able to supply a significant proportion of the needed food and raw materials. The percentage of labour-force engaged in agriculture, forestry and fishing in the U.K. in 1951 was 5.2, in U.S.A., 10.9 in 1950 and 48.4 in Japan in 1950. But the percentages in All-India and Andhra Pradesh were 72.38 and 71.71 respectively in 1961. This reveals India’s relative industrial backwardness. Further, it is possible to transfer at least 35 to 40 per cent of India’s workforce engaged in the agricultural sector to non-agricultural pursuits and still maintain the present volume of production from land.

It is not possible for us, in India, to siphon off this labour force from rural to industrial centres within a few years, say, five or ten years. Rapid mobility of labour from rural to urban areas will aggravate the status quo conditions and adversely affect the social pattern. Dr. Khurshid has argued that under the existing conditions in India “the demand for labour in the non-agricultural sector is not sufficient to absorb the supply of labour from within that sector for many years to come .......”


He asserts that "... a state of near-full employment will
emanate in the non-agricultural sector, well after 1975". 14
This is contrary to certain recent theories of population
transfer and development. There are under-employed or disguisedly
employed workers both in the agricultural and non-agricultural
sectors. If this is to be eliminated in the latter sector and
absorption of surplus labour-force from the former made possible
sooner, it is necessary and essential that we should slow down
the rapid population growth and increase the rate of capital
formation. But if there is unemployment and underemployment in
the non-agricultural sector, then the shift of excess people
from agriculture will merely add to the pool of unemployed in the
non-agricultural sector. Thus, until such time as the demand
for labour in the non-agricultural sector overtakes the supply
from within the sector, it is not economically useful to shift
workers from agriculture to non-agricultural sectors.

MEASURES FOR THE EFFECTIVE USE OF SURPLUS LABOUR-POWER

What is the remedy for underemployment and disguised un-
employment in the rural areas? Where the absorption of agri-
cultural workers in non-agricultural jobs is not possible for
even temporary periods, there should be increased employment
opportunities within agriculture rather than in industry and
trade and commerce. If we select labour absorbing or labour-
intensive techniques rather than labour-displacing (capital

intensive techniques, this will solve the problem to some extent. The following are some of the projects where the rural excess population can be effectively utilized: irrigation works, reclamation, levelling and bunding of land, well-sinking, conversion of dry land into wet land, single cropping into double cropping etc., and small-scale industries and industrial estates. All these and others, lend themselves to labour-intensive methods and simultaneously increase agricultural productivity in particular.

The ideal way of utilising surplus manpower resources in the rural areas is by starting constructional activity through the use of surplus manpower. Here, there is no question of payment of wages because the workers consume food in their own homes as before. But as they are engaged in capital formation the increase productivity. The difficulty here is that the surplus labour force of one family is too small to undertake any substantial constructional activity on the family farm. Each family might be able to spare one or two persons at the most for constructional activity, in which case, the gestation period of the project would be very long. This would not be of any substantial use to individual families. That is why in under-developed countries, despite surplus labour resources and knowledge of improved techniques, small farmers do not undertake investment activity. It is here that cooperative score over individual efforts and these ought to be recommended to individual farmers in under-developed regions. When all the families in a
village, cooperate and bring together all their surplus resources (men and money), it would be relatively easy to complete any investment programme for specified constructional activity within a very short period. All this needs organisation, and if it is adequate and efficient, it is possible to increase in this manner, capital and even land by reclamation. Increase in gross sown area provides an opportunity for increased employment and intensive cultivation which is made possible through irrigation absorbing more men. Increase in farm output requires more labour for harvesting, transportation, etc. It is certain that when agricultural productivity rises, the demand pattern for farm products gets diversified, markets expand and employment is generated in non-agricultural sector too. Thus, the absorption of excess labour force within their own farms or their cooperative farms on capital projects is the best guarantee of additional employment and increased farm productivity without inflation and intersectoral imbalances.

In addition to these, community spare time work on capital formation projects can be of considerable value. The villagers, for example, can build their own roads, schools, wells, fisheries, and common pastures, and do much afforestation and soil conservation work for themselves. Such works need to be organised by community leaders with some financial help from the Government. "This work is valuable not merely because it creates capital without reducing consumption but also because it is a
means of awakening the interest of what are sometimes rather stagnating communities. Thus village cooperative societies, the village panchayats and the Community Development Projects can play an important role in the mobilisation of surplus labour-force in the rural areas. Further there will be some time-lag in the transference of such surplus labour to other sectors of the economy. This lag can, however, be minimised under one condition. It is to enlarge the rate of capital formation in the non-agricultural sector so that the employable labour-force can be employed sooner. This requires larger plans of industrial development and capital formation than envisaged currently in under-developed countries.

APPROACH OF INDIA'S FIVE YEAR PLANS

The problem of surplus manpower and rural employment has been discussed in all the three Five Year Plan Reports. The First Plan referred to the two aspects of the problem in relation to economic development: (1) the necessity of utilising to the full the idle manpower for promoting development and (2) increasing the productivity of labour in order to ensure that increase in employment is accompanied by an increase in real income. These two are interdependent. Utilisation of idle manpower for building up productive assets without impairing the stability of the economy requires as a pre-condition an increase in the

productivity of labour and availability of larger supplies of essential consumer goods like food grains on which the bulk of the increase in money income tends to be spent. The plan also took the view that unemployment was not merely an economic problem but a social problem as well involving human values and had to be approached from a broader point of view.

The Third Five Year Plan states that "a comprehensive programme of rural works ... is significant not merely for creating the additional employment opportunities which are required, but even more as an important means for harnessing the large manpower resources available in rural areas for the rapid economic development of the country ... For many years the greatest scope for utilising manpower resources in rural areas will be in programmes of agricultural development, road development projects, village housing and provision of rural amenities. A lasting solution of the problem of under employment will require not only the universal adoption of scientific agriculture but also the diversification and strengthening of the rural economic structure."

The two important solutions to over-population and consequent under-employment are the rapid economic development and effective implementation of family planning. The development of industries-

heavy and small-scale would absorb an increasing number of workers in the long run. Large-scale industrialisation will help in the long run to augment farm productivity too. Industrialisation leads to urbanisation and urbanisation influences the birth rate and results in smaller families.

In the industrially advanced countries voluntary limitation of families came into vogue as the average man's standard of living rose, and he realised the advantages of maintaining this standard. Its absence in under-developed countries is disturbing for countries seeking rapid development, adoption of family planning and limitation is an essential condition for securing a significant rise in living standards. In the conditions prevailing in India to-day, a spurt in population growth is certain to slow down the rate of economic growth. If the discoveries of science for increasing production are used, there is no reason why they should not be used to check the rapid growth of population.

In fact, Professor S. Chandrasekhar has all along advocated Family Planning as the major measure to arrest any decrease in our standard of living, let alone increasing it in the future in the underdeveloped countries. In this connection he has made a three-fold suggestion: (a) a programme of building a network

of educational institutions in the villages suited to the
Indian rural milieu; (b) supplying cheap and easily understood
and usable contraceptives; and (c) setting up State Family
Planning Boards to co-ordinate the village, town and district
units. Such a model of concerted attack, backed up by the
State Government in supplying free, expert advice in setting up
clinics in all important centres or rural areas will bring about
a swift decline in population growth. The Government's
responsibility in this regard is immense and vital. The success
of our economic development measures will depend on the effectiv-
ness with which the Government discharges this function.

Thus, a change in the occupational structure of the
economy to provide permanent employment to those who are redundant
in agriculture would become possible only in the long run.
Absorption of excess human resources in non-agricultural employ-
ment cannot but be a gradual process. Basically, it is a
question of augmenting the rate of investment and hence the rate
of growth of the economy as a whole. Meanwhile, temporary
employment can be provided in local development works of the
kind which are labour-absorbing, provided the supplies of food-
grains, clothing and other articles of essential consumption
can be increased rapidly. The object of our Plans should be to
secure maximum expansion of employment opportunities, both in the
agricultural and non-agricultural sectors of the economy.
Introduction

Free movement of labour force is very essential at the present juncture in the Indian economy. It is a sure foundation for all-round prosperity in a welfare state. It eliminates scarcity of labour in one sector by removing unemployed surplus in any other. At present India has embarked upon the colossal task of transforming the facets of her economy. To facilitate this process, labour mobility can help to achieve the set targets in industrial as well as agricultural fields. Under Clarkian analysis\(^1\) it is effected by labour movement from agriculture to industry and tertiary sectors. Accordingly, the pressure on land could be reduced and per capita production considerably increased. To absorb the excess labour from agriculture there should be expansion both in the secondary and tertiary sectors. This, of course, is sought to be done through expansion of the absorbent sectoral activities.\(^2\)

The work force in underdeveloped countries is largely attached to agriculture where its employment at the existing level of technology yields only subsistence returns. In contrast

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2. But according to latest expert studies made into the feasibility of transforming such agricultural surplus population, it is now known that for the next 15 to 20 years to come, it will be difficult to achieve this objective – Vide Khare, A.N. *Economic Development With no Population Transfers*, 1962, pp. 46-47.
to this, the highly developed countries typically devote relatively small part of their labour input to primary production of food stuffs, with most workers employed in the production of other goods and services for a growing market sustained by demands generated by rising level of real income and domestic capital requirements. Thus, economic development in its labour aspect is seen as a task of shifting workers from agricultural to industrial or commercial employments as far as possible.

Attributes of Mobility

Generally mobility is a quality of man-power that is of special significance in modern economies. The degree of such mobility directly influences and exercises its impact on the efficient use of manpower resources. Too little mobility can retard or prevent the effective allocation or distribution of man-power resources and thus occasion its under-utilisation or waste. Too much mobility can cause almost exactly the same detrimental influence because an economically backward region, although it needs the services of technical personnel, may all the time make them move away for lack of sufficient funds to pay them well. The services of many Indian scientists abroad is an example.

Charles D. Stewart points out that economic development, however, is conditioned by the character of the work force and
by the response of workers to innovations, large and small, which lead to more efficient production and increased real incomes. It is not at all possible without adaptation in attitudes and vocational skills in the structure of the work force, including scientists, public officials and others employed in the primary, secondary and tertiary sectors.

Mobility of labour may refer to either intra-industrial or infra-industrial events. Such mobility opens out wider possibilities for better utilisation and development of industries and their installed capacity than a relatively less mobile force. It provides the necessary stimulus to and flexibility in a labour force to meet the challenges of a growing labour market. Thus the attributes of labour mobility in a democratic administrative set-up are adaptability, flexibility, and freedom, and these assist the continuing process of equating demands for and supplies of man-power in an ever-changing and expanding economy. Labour mobility, therefore, derives a larger significance in that it can strengthen the bases of democratic institutions and can foster social values relative to changing ways of life, deemed necessary to remove bottlenecks in social upliftment of backward classes in different regions.


Types of Mobility

Against this background the question of growth in labour force and types of growth assumes considerable importance. Normally movement into and out of labour force is conditioned, among others, by (1) the overall population growth, (2) changing social opportunities like free or higher education, (3) changing age structure, and (4) new industrial opportunities. All of these will condition in turn the evolution of the types of labour mobility. Among these, the most popularly recognised one is that generally described as geographical or residential or horizontal mobility. It refers to the special migration of workers from one place to another. The second, occupational or vocational mobility, relates to the shift from one kind of job to another, while industrial mobility means the shift from one industry to another. The third is vertical or social mobility. It signifies the change of traditional and old jobs for new and different ones. Despite such distinction in categorising labour mobility, in actual point of fact it might be difficult, as conditions are, among Indian labourers, to rigorously separate them out under classified brackets; for all types of types of mobility have so far been interdependent and been

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governed by the logic of socio-economic factors, particularly the horizons of their ambitions, talents and social ties in a given area of work. 7

But with the growth of industry, agriculture will have to play a declining role as a field of employment, by releasing surplus labour to industrial and commercial sectors of the economy and thus lead to the redistribution of the occupational structure in the country. Such developmental stimuli ultimately determine the size and nature of the occupation of a large number of modern workers. So neither custom nor choice will play a dominant role. These conditions inherent in our economic progress postulate heavily on vertical and horizontal mobility of work force.

One phenomenon in India has been that mobility of labour may or may not last over a period for a labourer because it is

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7. In fact, in viewing inter-sectoral transfers of population, it will be better, in the context of studies in economic development, to define these functionally rather than demographically or geographically. Inter-sectoral population shifts then mean shifts from one occupation to another and not necessarily from one region to another. It happens, however, that in a large number of cases, functional shifts are also geographical shifts and this has a bearing on a discussion of transfer. Vide Professor Khuwo, A.M., op. cit. Yet another way of throwing profitable light on mobility is to distinguish between four types of changes in the labour market. These four types of changes are job-change, industrial-change, district-change, and occupational change. Vide, Mobility in the Labour Market by Margot Jefferies, 1954, Pp. 6-7.
dependent upon extraneous factors. For instance, the Royal Commission on Labour in India pointed out that migration from rural areas to factories is not a permanent exodus. It constitutes only a temporary change because the recruit to industry is 'pushed' by his adverse economic conditions at home rather than 'pulled' by the attraction of industrial development for he may not always possess the requisite skill or the domestic conditions may have changed.

**Factors in Labour Market**

Factors governing mobility in man-power market are of many kinds such as traditional outlook, cultural patterns, personal characteristics, laws and regulations of the region, institutional obstacles and interferences by influential persons or groups. For instance, personal friction such as lack of education, experience and skill, old age and under-age or personal and psychological difficulties may exercise great influence on the mobility of labour.

Several other conditions such as the lack of reliable information about the working and living standards in different parts of the country, absence of easy and established communications, and lack of suitable housing facilities and other conditions conducive to the welfare of the workers in areas of

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employment generally restrict mobility of man-power.

... mobility and instability cause the problem of scarcity of certain categories of labour for industrial development in under-developed countries despite the existence of surplus man-power in rural areas. The transference of surplus man-power is, however, not quite an easy process, for migration is not only fraught with several hardships, but also involves a cultural change for which the worker with a rural tradition is not always willing. It is sheer economic necessity that pushes the worker towards industrial centres, and there must be proper means to make matters less difficult for him and to stabilise his connections with the industry. Thus the main man-power problems of industrialisation in backward countries like India are recruitment and migration of workers from villages, stabilisation of labour force in industrial centres and development of labour skills. It will quicken their mobility if the government were to establish particularly a credit institution to advance them grants for meeting expenses incidental to moving from one place to another - for this factor invariably arrests the tendency of the under and unemployed in reaching places of better job opportunities.

The way or manner by which labour is mobilised to new employment requirements becomes a major explanation of vast

increases in productivity rates. Employment thus increased, and at the same time, such employment involves higher levels of or more effective utilization of man-power. Otherwise, conditions will retard effective economic allocation of factors and utilization of resources stifling the rate of growth in national product.

Mobility in India

Let us now analyse the pattern of labour mobility in India. Table-1 deals with this. A close examination of Table 1 reveals certain basic trends in Indian workforce. The percentage of work force to total population in 1901 was 46.61 whereas in 1911 it increased to 46.97. Thereafter, there was a continuous decline in the percentage of total workers until 1951. However, there has been a rise in the total workers since 1951, which also marks the commencement of planning in India.

One major feature of the Indian economy that one can notice in the Table is that it is primarily an agricultural economy even today, in the middle of the Third Five Year Plan. There does not appear to have been much change in the employment structure in the country. This is because of lack of sufficient opportunities and incentives in the industrial field. But by 1961 the total volume of workers increased to 42.98 per cent and the proportion employed in primary sector was 31.06 per cent. In other words, a lesser proportion of labour force joined the
### Table 1

**Percentage and Sector-wise Distribution of Population into Workers and Non-workers: 1951-61 (All India)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Workers</th>
<th>Total Population (i, II, III)</th>
<th>Primary Sector (IV, V, VI)</th>
<th>Secondary Sector (VII, VIII)</th>
<th>Non-sector Workers (IX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951</td>
<td>100</td>
<td>46.61</td>
<td>33.44</td>
<td>6.88</td>
<td>7.29</td>
</tr>
<tr>
<td>1952</td>
<td>100</td>
<td>48.87</td>
<td>35.95</td>
<td>5.25</td>
<td>6.74</td>
</tr>
<tr>
<td>1953</td>
<td>100</td>
<td>46.92</td>
<td>35.65</td>
<td>4.89</td>
<td>6.38</td>
</tr>
<tr>
<td>1954</td>
<td>100</td>
<td>43.30</td>
<td>32.37</td>
<td>4.42</td>
<td>6.51</td>
</tr>
<tr>
<td>1955</td>
<td>100</td>
<td>39.10</td>
<td>28.20</td>
<td>4.15</td>
<td>6.75</td>
</tr>
<tr>
<td>1956</td>
<td>100</td>
<td>42.98</td>
<td>31.06</td>
<td>5.03</td>
<td>6.89</td>
</tr>
</tbody>
</table>

**Note:**

1. I, II, and III mean cultivators, agricultural labourers, and people employed in mining, quarrying, livestock, forestry, fishing, hunting and plantations, orchards and allied activities respectively.

2. IV, V and VI denote people employed in household industry; in manufacturing other than household industry; and in construction respectively.

3. VII, VIII and IX indicate people employed in trade and commerce; in transport, storage and communications and in other services respectively.

4. X non-workers.

**Source:** Census of India, paper No.1 of 1962, 1961 Census, Final Population Totals, pp. 396-397.

Ranks of the primary sector compared to the volume of additions to total labour force between 1951 and 1961. That is, after the commencement of planning, the development of several industries
has brought about a visible change in the movement of labour force from agriculture to industry, but the main difficulty in the mobility of labour from agriculture to industry is lack of sufficient technological skills and know-how among workers and slow industrial development in the country. This will be adverted to again later. Figures given in Table-2 throw more light on these problems.

The percentage difference in work-force to total population during the decade 1951-61 increased by 1.66 and in the subsequent years until 1951 there was a continuous decrease. During 1951-61 there was a rise in the percentage of total workforce. The same trend we can see in both male and female work force. The number of female workers was over two-fifths in 1951 but in 1961 it was a little less than one-half of the total male workers. With the growth of the economy, education, skills, etc., there would be several opportunities and incentives to female labour force to enter the labour market.

As far as the second column is concerned, i.e., the percentage of population in age-group 15-59 to total population, there is a change. From 1931 onwards there has been a steep decline in the total employed persons, i.e., 60.19 in 1931, 57.07 in 1951 and 54.41 in 1961. Of significance here is that although the number of females that can be employed is nearly equal to male population, the percentage of female working force was nearly half of male working force in 1961 while it was
<table>
<thead>
<tr>
<th>Year</th>
<th>Sex</th>
<th>I</th>
<th>II</th>
<th>I vs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>Persons</td>
<td>46.61</td>
<td>50.03</td>
<td>78.95</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>61.11</td>
<td>59.93</td>
<td>103.60</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>31.70</td>
<td>40.14</td>
<td>53.60</td>
</tr>
<tr>
<td>1911</td>
<td>Persons</td>
<td>48.07</td>
<td>60.23</td>
<td>78.61</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>61.90</td>
<td>60.35</td>
<td>102.56</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>33.73</td>
<td>59.11</td>
<td>55.13</td>
</tr>
<tr>
<td>1921</td>
<td>Persons</td>
<td>46.92</td>
<td>59.64</td>
<td>79.65</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>60.82</td>
<td>59.64</td>
<td>101.13</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>32.67</td>
<td>59.44</td>
<td>54.96</td>
</tr>
<tr>
<td>1931</td>
<td>Persons</td>
<td>43.30</td>
<td>60.19</td>
<td>71.95</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>58.27</td>
<td>60.59</td>
<td>96.17</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>27.63</td>
<td>59.77</td>
<td>46.23</td>
</tr>
<tr>
<td>1951</td>
<td>Persons</td>
<td>39.10</td>
<td>57.07</td>
<td>68.49</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>54.05</td>
<td>57.55</td>
<td>93.90</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>23.30</td>
<td>59.57</td>
<td>41.19</td>
</tr>
<tr>
<td>1961</td>
<td>Persons</td>
<td>40.98</td>
<td>54.41</td>
<td>78.99</td>
</tr>
<tr>
<td></td>
<td>Males</td>
<td>57.13</td>
<td>54.77</td>
<td>104.28</td>
</tr>
<tr>
<td></td>
<td>Females</td>
<td>27.96</td>
<td>54.03</td>
<td>51.74</td>
</tr>
</tbody>
</table>

Note:  
I Percentage of working force to total population, 1901-61.  
II Percentage of population in age-group 15-59 to total population, 1901-61.  
III Percentage of working force to population in age-group, 15-59, 1901-61, All India.  
In the third column, the percentage of working force to total population in age-group 15-59 is given. In this case, there is a fluctuation from one decade to another. But from 1951 onwards the picture is reversed. With the initiation of planned development from 1951, the number of employed workers is

10. This is, however, not to ignore either the traditional position or contemporary changes (although they are insignificant) occurring in respect of woman in village agricultural operations. It is part of common knowledge that a modern village girl tends to take to educational opportunities (and more so if she happens to belong to a backward class) in an effort to find a job for herself. Simultaneously one will find that the number of aged people taking to agricultural operations increases so as to replace the young who move out of it. The magnitude of change in the number of the young and old may be the same such that the net labour mobility among women may be nil. It is only to show important social and cultural changes occurring within the rural female life.
increasing, from 60.49 per cent in 1951 to 70.09 per cent in 1961. The net increase is 10.50 in terms of percentage difference. This is a good start and we can expect further rapid growth in this direction with the implementation of successive five year plans.

mobility in andhra pradesh

We shall now examine the position of Andhra Pradesh State in this regard as compared to the All-India conditions. The growth in the percentage of total workers in Andhra Pradesh State during the decade 1951-61 is greater than that of All-India. The increase of total workforce in Andhra in terms of percentage difference is 14.97 whereas it is only 3.65 for All-India between 1951 and 1961. During 1951 the number of people employed in Andhra Pradesh in the primary sector were 1.93 per cent less than that of All-India level. But in 1961 the picture is completely changed. The workforce employed in the primary sector in Andhra recorded a rapid increase over that of All-India by a difference of 6.14 per cent. This is a discouraging feature of the Andhra Pradesh economy. During the plan period instead of movement of labour from agriculture to other sectors there was a rise in the number of people depending on agriculture in the State economy and the lack of adequate attention to industrial development. In the other two sectors, during 1951 to 1961, there has been a considerable increase in the percentage of working force and a considerable reduction by 14.97 per cent.
TABLE-3

Percentage Distribution of Population Into Workers and Non-Workers
in Andhra Pradesh State and All India During 1951 To 1961
(workers being further distributed by Broad
Industrial Categories of 1961 Census)

<table>
<thead>
<tr>
<th>Region</th>
<th>Year</th>
<th>Total Population</th>
<th>Total Workers</th>
<th>Primary sector (I,II,III)</th>
<th>Secondary sector (IV,V,VI)</th>
<th>Tertiary sector (VII,VIII,IX)</th>
<th>Non-workers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>1951</td>
<td>100</td>
<td>36.90</td>
<td>26.27</td>
<td>4.20</td>
<td>6.43</td>
<td>63.10</td>
</tr>
<tr>
<td></td>
<td>1961</td>
<td>100</td>
<td>51.87</td>
<td>37.20</td>
<td>6.98</td>
<td>7.69</td>
<td>48.13</td>
</tr>
<tr>
<td>All India</td>
<td>1951</td>
<td>100</td>
<td>39.10</td>
<td>28.20</td>
<td>4.15</td>
<td>6.75</td>
<td>60.90</td>
</tr>
<tr>
<td></td>
<td>1961</td>
<td>100</td>
<td>42.98</td>
<td>31.06</td>
<td>5.03</td>
<td>6.89</td>
<td>57.02</td>
</tr>
</tbody>
</table>

Note: Horizontal Roman numerals refer to classification given under Table-1.

Source: Census of India, op. cit, pp. 396-97 and 404 and 410.
in the number of non-workers in the state. By and large, in labour mobility conditions, with more and appropriate stimulus, the state can present a better picture.

Planning and Man-power

For the free movement of labour in India, therefore, the backward and depressing rural economic features should be changed. To begin with people must be educated. Facilities in the shape of a network of educational and technical institutes should be provided to train the labour force in different skills, since there is an immense need in the country today for skilled labourers. It is no doubt true that planning, especially measures in the Third Plan, tries to do the best in this regard. But the economy has not exhibited the impact of planning in this matter because of certain reasons. The main ones are: (1) The inability (apparent) to provide full financial efforts to cover all man-power shortages; (2) The lack of sufficient and correct information on the availability of and need for different types of man-power personnel and (3) The insufficiency to obtain the services of a maximum number of technical scientists and others needed to train people in requisite directions. As regards the first, it has to be only a plan over time in as much as training itself in certain fields must be a long-term process. All that can be said about it is that it should be given greater attention at least with foreign collaboration (either financing directly or securing personnel).
from abroad indirectly). The second difficulty is somewhat
assumed now with the inception of the Institute of Applied
Manpower Research (1962) whose objectives, among others, are to
advance knowledge about the nature, characteristics and utili-
sation of the human resources in India, to provide a broad
perspective of requirements of trained man-power for economic
development in different fields with the due regard to the
probable impact of technological changes on the pattern of
employment, and to develop improved methods and techniques for
dealing with related problems. The current Manpower Group
Survey undertaken by the Institute can be expected to throw more
information about the demand for and supply of different
categories of personnel. The third difficulty is more or less
akin to the first one. The remedy for it is multilateral external co-
operation in overcoming it.

A related problem is under-utilisation of the available
personnel. There have been particularly reports, for instance,
about engineering personnel in services and post-graduates (in
arts). Apart from other bottlenecks explaining their hopeless
conditions, one important factor appears to be how far the
Governments are able to muster factors of production (other than
technical personnel) in construction activities so as to finish
them according to scheduled time table. Either national or
international events can cause delay in project completion and
thereby emerges the problem of man-power. It can only explain
the paradox of man-power shortage co-existing with surplus but which could only be a temporary phenomenon. The remedy lies in more determined efforts by plan-executing agencies of completing projects by sticking to time schedules. It will enable redeployment and reorientation of technicians subsequently to run on a smooth course without causing dislocation anywhere. A central pool of technical teachers is to be created by the Union Government to meet shortages of professors or lecturers in engineering colleges and other technical institutions.

The Third Five Year Plan states in this connection that a lasting solution to the problem of using the available man-power has to be sought through universal adoption of scientific agriculture and the diversification and strengthening of the rural economic structure for the better utilisation of man-power resources; it is further proposed that there should be comprehensive works programmes in rural areas, which should be undertaken by development blocks. It is only a reminder to us of the Keynesian model of economic relief. Applied to our conditions, some projects calling for large amounts of unskilled and semi-skilled labour are irrigation (particularly minor irrigation) and flood control projects, land reclamation schemes, afforestation and soil conservation schemes, road development projects, etc. Works programmes on these lines

11. Third Five Year Plan, Chapter X, pp. 163–164.
should be adopted on a greater level than now during the slack seasons so as to minimize employment pressure on other industrial-urban sectors. No doubt, the development of industries - large, medium and small-scale - would help the population to move towards industrial centres. But these industries, particularly large and medium scale industries, require highly skilled labour which we are not adequately having. Even though it retards accelerated economic development in the short-run, the situation can be rectified with an efficient and well-organised programme of building up technical institutes and colleges. The contemporary proposal for setting up an Agricultural University for Andhra Pradesh is an example. With the growth of skilled labour and industrial development, there would be free movement of labour in the country, particularly from agriculture to industrial and commercial undertakings.

Conclusion

The above study reveals that there has been occupational mobility over the period 1901 to 1961 in India. Mobility of a greater and more significant order has, however, occurred during 1951 to 1961. It is only a tribute to the efficacy of planned measures through an all-embracing direction and control of the content and course of economic events. However, available evidence suggests that spatial mobility is less significant than occupational mobility which is in turn less than vertical mobility. At least evidence to the contrary is as yet not
available. There is, therefore, need to set up regional mobility councils (composed of representatives of the Planning Commission, the State and Central Governments, and representatives of trade unions and industries) whose functions, among others, will be (1) to disseminate knowledge of demand for and supply of defined categories of labour force and related information on wage and working conditions and (2) to arrange with regional deployment machinery to impart reorientation training wherever required. Such Mobility Councils can accelerate labour movement infra and intra-industrial and contribute effectively to the needs and exigencies of the present times.
The philosophy of socialism has gradually permeated the entire structure of society the world over, and almost the only points in dispute are the pace and methods of advance to its full realisation. India will have to go that way if she seeks to end her poverty and inequality, though she may evolve her own methods and may adapt the ideal to the genius of her race."

—Jawaharlal Nehru
(Dress, Address, Lahore Congress, 1929)

Democracy means not only political equality but also economic and social equality. "Socialism", according to K.N. Raj is "essentially a form of economic organisation in which private ownership of property is not allowed to be an instrument of exploitation of man by man and is therefore replaced by social ownership wherever there is possibility of such exploitation." Further, socialism according to Prime Minister Nehru "is the inevitable outcome of democracy. Political democracy has no meaning if it does not embrace economic democracy. And economic democracy is nothing but socialism." Now-a-days even some of the Western countries, such as Great Britain, are drifting towards socialist ideal under which the government endeavours to provide at least the minimum necessities, such as food, shelter, clothing, etc. Thus, socialism which guarantees not only political liberty but also social and economic justice is gaining hand in the present day world. The concept of

1. Raj, K.N. "What does socialism imply for Economic Policy in India now?" Mainstream (January 26, 1964, P. 16)."
"Democratic socialism" which was coined at Bhubaneswar during the 68th session of the Indian National Congress promises political and economic equality to all the people in the Indian Union within the limits of our Constitution.

**Democratic socialism superior**

Democratic socialism is a system which is superior to capitalism, communism and democracy. Capitalism insists on individual liberty and economic freedom and control of the Government would be much less over the economy. On the other hand, communism emphasises economic equality more than anything else and undermines individual liberty and freedom. Democracy as a form of Government always puts its emphasis on individual liberty and political freedom, whereas democratic socialism aims at not only achieving political equality but also economic equality. The latter is the need of the present day in almost all the under-developed and over-populated countries where there is much economic disparity, poverty, misery, etc.

Poverty on the one hand, and concentration of wealth on the other, have been the causes of many social revolutions. Economic equality is, therefore, much essential at the present juncture in India in order to avoid class war. Equality does not mean perfect equality, which is impractical. This is in vogue neither in Russia nor in China. Equality thus denotes relative equality, that is, fair share and social justice. This is what the party
in power desires to achieve peacefully within the limits of the Constitution. Further, the Indian National Congress commits itself to create an economy of abundance by the effective use of human and material resources which in turn ensures at least minimum essential requirements, such as food, clothing, housing, education, health, etc., as quickly as possible.

But there seems to be some doubt in certain quarters on the feasibility of this objective. Is it possible to achieve democratic socialism without authoritarianism? In the days when Gandhiji had led the movement for freedom, many thought that it was not possible to attain freedom from the Britishers without resorting to violence. But freedom was in fact achieved without violence and bloodshed. Thus, Gandhiji became a forerunner of a new technique and philosophy. Kamraj, the present Indian National Congress President, asserts that we shall be able similarly to establish socialist society without class conflict and dispel the popular belief that in a socialist state men lose their freedom.

Bhubaneswar Directions

To establish democratic socialism in the country, the 68th session of the Indian National Congress has directed certain policies. The following are some of the important economic policies: (1) reduction of inequalities in incomes and wealth; (2) efficient administration of existing government under-
Taking and starting of new industries wherever possible in the public sector; (3) establishment of Monopolies Commission; (4) speedy implementation of land reforms; and (5) encouragement of joint cooperative farming. It also plans to wipe out poverty, illiteracy, unemployment and underemployment, corruption, etc., in the country. Further, it has discussed the impact of rapid population increase and its negative effect upon the development of the economy and standard of living of the masses. It has also decided that in order to attain rapid industrialisation the private entrepreneurs would be induced, encouraged and promoted provided they strive for the common objective of planned progress and public good.

Ion of Inequalities in Wealth

Concentration of incomes and wealth is not favourable for social harmony. It leads to social discontentment and eventually to social revolution. So it is essential that there must be ceiling on incomes and wealth both in urban centres and rural areas which will gradually wipe out the economic disparity among the people. Excessive accumulation of wealth in the hands of a few individuals might sometimes try to influence and control the Government. In order to avoid all the disadvantages thus arising, it is imperative that there should be ceiling limit on wealth and incomes. This is a means to achieve economic justice to all the citizens in the country.

Some argue that reduction of inequalities in incomes and
wealth would not be favourable for rapid economic development of the country, since the private industrialists would have no incentive to invest more. But this is unlikely because human beings always strive hard to maintain their position in the society as far as possible under all circumstances and in order to achieve this they will try to earn as much as they can.

**Industrialisation and Public Sector**

Many of the industrial undertakings are not making good progress in the public sector. This is because among the several reasons, the important one is lack of efficient and honest administrative personnel. This should be rectified if the industries in the public sector were to make rapid progress. This is equally important in the case of starting of new industries. Government has to start new industries wherever it is possible, essential and necessary to promote common good.

It should be remembered that private sector should also be given incentives for its proper development. The record of achievement of the private sector is very satisfactory compared with the public sector. Therefore, wherever it is possible the authorities ought to encourage private industries provided the private entrepreneurs work within the broad strategy of national plan development. It is also emphasised that the co-operative method of organisation will have to play a dominant role, particularly in the field of agriculture, small-scale
and cottage industries, and retail trade. The proper and
coo-ordinated functioning of the three sectors - public, private
and cooperative - will help the country to advance industrially
very rapidly.

Establishment of Monopolies Commission

The development of monopolies is not good in the general
interest of the public, specially for the common man. He would
be always exploited by the monopolist. The monopolist can
control production and fix whatever price he likes. In this
regard, the consumers have no control whatsoever over him.
Sometimes the monopolist even discriminates products and quotes
different prices to different consumers. In order to eliminate
the evils of monopoly, it is found necessary to constitute a
Monopolies Commission in order to check the formation of new
monopolies and control the anti-social activities of the exist-
ing monopolistic set-up in India. For instance this has been
done in Britain to check the growth of monopolies and huge
corporations.

Joint Co-operative Farming

Joint Co-operative Farming is one where the land of small
owners is pooled in one unit but proprietorship rests with the
individual members. The management and cultivation of pooled
land are carried on by the society. The members work on the
pooled land and get wages for their labour. Ownership right is
recognised by the payment of dividend in proportion to the value and area of their land. The joint farming society will purchase manures, seeds, and other agricultural implements necessary for better farming collectively and dispose collectively the produce jointly raised. The members are empowered to sever their membership with the society after repaying the cost of any improvements that are made on their plots of land. Under this kind of farming all the advantages of large-scale farming are enjoyed and it is particularly suited for solving the problem of fragmentation and subdivision of holdings. But as the Indian farmer is conservative, cooperative joint farming has not yet become as popular as was expected in India. There must be proper propaganda in the villages about the advantages of joint cooperative farming for its rapid expansion. Moreover, if this form of farming is properly implemented in the country, it would raise total agricultural output in general and productivity of an acre in particular.

**Land Reforms**

The objectives of land reform programmes are to achieve an increase in agricultural productivity and to eliminate all elements of exploitation and social justice within the agrarian system. The latter is sought to be realised by the abolition of intermediaries and the reform of tenancy system. The tenancy reform secures to the tenant security of tenure, regulation and reduction of rent, right of ownership, etc.
In countries with limited cultivated land and large population dependent on it, the disparities in the ownership of land should be reduced. The policy of ceiling on landed property is widely accepted as an essential condition for economic development in under-developed, over-populated countries. This is being attempted in almost all the states in the Indian Union, but the progress is not very satisfactory. The Planning Commission is insisting that land reforms should be swiftly carried out for their social and economic values.

Effective implementation of land reform programmes are very essential for the establishment of democratic socialism also. Land reform programmes will regulate the anti-social forces in the agrarian system and thus secure social and economic justice in rural areas. The ceiling on large estates and the land acquired consequently should be cultivated by the cooperatives. The 60th Session of the Congress advocated speedy and effective implementation of land reform programmes not only to achieve rapid economic development but also to secure social and economic justice.

The Bhubaneshwar Congress also desired to root out illiteracy, un-employment and corruption in the country. Education, particularly technical education is an important factor in economic development. The authorities are taking all possible measures to wipe out illiteracy from the face of India. Kamaraj in his Presidential Address suggested that there should
be free education facilities to all at least up to secondary school stage. Education plays a dominant role in smooth functioning of democracy. Thus educational development is essential not only to attain rapid development of the economy but also to the working of democracy and several such institutions.

Unemployment and disguised unemployment are the common features of the economy at present. Educated unemployed pose a serious problem to the Government. One of the aims of democratic socialism is to provide jobs to all able-bodied persons who are willing to work. Rapid industrialisation and the control of population increase are two important solutions to solve unemployment problem in India. Small-scale and Cottage Industries can also solve the problem to some extent. But the permanent remedy lies only in the development of industries.

Corruption is very rampant in the rank and file of the Government offices. This should be effectively eliminated for the proper functioning of the Government. It is heartening to note in this regard that Shri Nanda, Hon'ble Home Minister at Centre, has appointed a Committee to deal with this anti-social element very severely. Further, speculative gains, evasion of taxes, etc., should also be tackled properly. All these will have decisive impact on the development of our national economy.
we have pointed out to the alarming population increase and its negative impact on the growth of our economy. Rapid and continuous population growth is hindering the economic growth of the country and has attracted the attention of all. The remedy suggested is family planning. Mr. Ashok Bhakta, the Deputy Chairman of the Planning Commission, inaugurating the 5th All India Conference on Family Planning said, "Economic planning and family planning have to move hand in hand. If levels of living are to rise, that is, if economic development is to make any advance towards its objectives and the desired transformation realised". The Central and State Governments are propagating and assisting family planning programmes. They have also allotted funds for the purpose of establishing family planning clinics and to encourage research in the same field.

All these will bring about rapid growth of our economy. Material prosperity alone cannot make a nation healthy and happy. What we need in the present-day world is spiritual awakening as well for the health and happiness of all the peoples. "Hera material prosperity alone will not make human life rich and meaningful. Therefore, along with economic development ethical and spiritual values will have to be fostered. This alone will lead to the full development of human resources and character". The objective of democratic socialism is thus not only developing the country very rapidly
and providing minimum necessities to all its people but also fostering spiritual values for realising higher purposes of human incarnation.

One cannot but pay one's tribute to this Congress Party of enlightened leadership with most reasonable socio-economic policies causing minimum dislocation but creating maximum contentment all around.
All nations in the world are committed to achieve for their peoples a higher standard of living, adequate and nutritious food, health, literacy, education and gainful employment. But one of the important barriers to achieve them is the rapid, continuous, current rate of population increase. In the next 35 years the present world population is likely to double, with a population of 6 billion people by the year 2000 A.D. If the population growth continues at the same rate, in 70 years from now there will be 12 billion and over 25 billion people by the year 2070 A.D. on earth. 1 Such a rate of population growth, which is out of proportion to present and prospective rates of increase in economic development, imposes a very heavy burden on all of us to constantly strive for the improvement of human welfare. The rapid population growth has thus become an international problem. It is not easily possible for us to escape from it, since we live in an interconnected world.

The problem of population in the underdeveloped, overcrowded nations is very acute and alarming. During the recent Asian population conference of the ESCAP held at New Delhi, the Executive Secretary of the ESCAP, U. N. Yim, said that the outstanding demographic fact for Asia is the rapid rate of population growth. This is the result of consistent high birth rate and

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declining death rate in recent times because of improved health facilities. He also pointed out that although the region covered only one-sixth of the world's land area, it was inhabited by more than half of the world's population. In about one-third of the countries of the region, population is increasing at a rate of between 2.5 and 3.5 per cent annually in the last decade. Further, U Nun estimated that Asia's population would increase by another 1.0 million people by 1980 and reach 2.60 million within a span of only 20 years if the fertility rates were to continue unchanged and mortality rates were to decline. The magnitude of the additional increase alone in Asia's population would be as large as the size of its entire population in 1940. That is to say, Asia's population would be more than doubled in about 40 years. 2

India's population has shown a rapid growth since the beginning of this century. In 1901, it was 236 million. Between 1911 and 1951 we added nearly 100 million to our population, bringing the 1951 census figure to 361 million. The decennial percentage increase in the above period varied between 10 and 15. During 1951 to 1961 the increase was nearly 70 million or about 21.50 per cent. India's population in 1961 was 439 million. 3

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India is thus no different from any other country in this crowded plane, and this makes for all difficulties - social, economic and political. If only every country can provide a proper food, shelter and clothing, then there is no population problem in the world. Since every nation is not in a position to feed, cloth and house their people properly, there is every conceivable type of population problem. The problem in underdeveloped and over-populated countries of Asia is very alarming, indeed compared to developed western countries. This rapid population increase can be arrested to some extent by effective industrial development which should help to alleviate population problem by influencing fertility rates.

Industrialisation and Change in Population Growth

To understand better the likely impact of industrialisation on population growth, one can profitably peruse the history in this regard of the European continent in the days of the Industrial Revolution and after. 4

There was a rapid rate of population growth in the West soon after the Industrial Revolution. The initial effect of the increase in man's productive power was to encourage an extremely rapid increase in the total population of Europe. But after considerable time lag, the birth rate fell down to a relatively

4. For greater details in this regard, see Harvey Leibenstein, Theory of Economic-Demographic Development (Princeton, N.J., 1954).
low level, and now there is the prospect of either a stationary population or slow growth in the population of the Western Europe.

In the underdeveloped countries, however, the initial favourable impact of industrial investment was swamped by population growth in a way which did not occur in the advanced countries of to-day. In most countries, an initial increase of population growth seems to have followed the first wave of rapid industrialisation. In the advanced countries of the West, the rise in per capita income was sustained long enough to bring in subsequent drops in fertility rates and to permit economic growth to be lasting. But there is one great difference between the European countries before industrialisation and the underdeveloped countries of to-day. The former were not ever populated in any way whereas the latter suffer from that malady. Hence the results that followed industrialisation in the West might not accompany industrial growth in the over-populated and underdeveloped countries, such as India. But this theorisation appears to be disproved at least in the case of one Asian country. Japan with a very high density of population has achieved rapid industrial growth in the last century and the results were similar as in the case of West. 5

A crucial factor in the course of bringing about augmentation in per capita incomes is the length of the time lag between the drop in mortality rates in the early stages of industrialisation and the consequent drop later in fertility rates. The population explosion of Asian countries reflected a longer lag than what actually occurred in European countries. The decline in birth rates typically occurs after a substantial time lag, in comparison with the decline in mortality rates. The slower response of birth rate to economic changes is attributed to the fact that fertility decline depends more strongly on the alteration of long-established customs and institutions.

Just as early decline in the death rate in Europe succeeded the development of modern medical innovations, so also the early decline in fertility followed the development of modern techniques of birth control. In many areas a marked decline in fertility has depended only on techniques of contraception known in many societies for centuries. However, both the extent and effectiveness of family limitation in industrialised countries have no doubt been facilitated by the development and manufacture of efficient contraceptive devices.

The decline of the fertility rates in the industrialised nations was caused by the very concentration of people, made possible by the application of steam to manufacturing and

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transport. It seems to have been instrumental in the development of modes of living which provide very powerful motives for the control of family size. Industrial development is increasing urbanisation, and children are usually more of a burden and less of an asset in an urban setting than in rural areas. It also weakens the force of traditions, customs and attitudes. Industrialisation offers greater employment opportunities to both men and women and thus influence birth rate.

From the point of view of controlling population growth, employment of women through industrialisation is very significant. The employed women, even though they are given maternity benefits, would desire to have only limited families. Because of sheer physical difficulty they will not like to avail of these maternity benefits frequently. Women themselves do not like to have big families since the cost of living is very high in urban centres which influences their saving capacity and thus standard of living. Further from the employers' side they cannot afford their women employees rearing children too often because it not only hampers their physical efficiency but also cuts across accelerated industrial productivity programmes. As a matter of fact, nowadays the industrial establishments arrange for propagation of the need and the ways available for effective family planning.

Moreover, it has become quite obvious when the infant mortality is reduced to the minimum and when epidemics are largely
under control, survival no longer depends on unrestricted birth rate. Consequently, the voluntary control of births mainly through contraception has spread rapidly in the west. The upper economic groups of the more highly urbanised areas practised contraception first, and then the less favoured economic groups of the cities, and finally the people in the rural areas followed.

The industrial revolution has brought a change in our mental as well as economic life. In the past people were accepting unquestioningly custom and tradition. But now we are questioning these traditional beliefs and attitudes and are trying to develop more rational modes of conduct. Under these circumstances people's attitudes towards reproduction have also changed. We are now in the midst of a revolution in reproductive habits. What the outcome will be no one can tell, but we should not forget that it is the manner of life brought about by the industrial revolution which lies at the root of the changes in the population growth which have taken place in the west during the last century and a half, and of those upon which other parts of the world are now entering. The techniques of contraception as well as motives leading to their use must also be regarded as consequences flowing from the industrial revolution.

The theory of demographic transition thus asserts that the

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high birth and death rates, characteristic of an agrarian economy and affected by economic development. The changing structure of production, with a declining importance of the family as a production unit, and development of employment opportunities for women outside home, tends to increase the possibility of economic mobility that can better be achieved with small families and thereby tends to decrease the economic advantages of the large family.\footnote{G. Coale, Analys J., and Hoover, Edgar N., \textit{Population Growth and Economic Development in Low-income Countries}, (Princeton, Princeton University Press, 1968) P. 11.}

Now let us examine the impact of industrial development on population growth, particularly during the past two Five Year Plans and the trend during the present Third Plan.

India has undertaken the gigantic task of building its economy through Five Year Plans. In the First Plan much emphasis was given to agriculture while the Second Plan concentrated on industrial build-up. The Third Plan attempts to achieve rapid industrial development side by side with well organized agriculture. The Planning Commission aims at achieving 'take off' stage or self-generating economic set-up by the end of Third Plan.

Table-I gives industrial investment pattern in Second and Third Plans.
<table>
<thead>
<tr>
<th>Item</th>
<th>Second Plan</th>
<th></th>
<th>Third Plan</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public</td>
<td>Private</td>
<td>Total</td>
<td>Public</td>
</tr>
<tr>
<td>Village and Small Industries</td>
<td>90</td>
<td>175</td>
<td>265</td>
<td>4</td>
</tr>
<tr>
<td>Organised Industry and Minerals</td>
<td>870</td>
<td>675</td>
<td>1545</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>3650</td>
<td>3100</td>
<td>6750</td>
<td>100</td>
</tr>
</tbody>
</table>

The Planning Commission is providing large sums to industries, in order to have rapid industrial development. Investment only in the industrial sector (excluding tertiary sector) amounted to 27 per cent and 29 per cent of the plan outlays in the Second and Third Plans respectively.

LIMIT OF INDUSTRIAL GROWTH

In India, the past decade has witnessed striking developments in industry—in terms of the rate as well as the pattern of industrial growth. During 1955-60 the value of industrial production expanded by 60 per cent, i.e., at an annual average rate of 12 per cent.9 It is also evident from the following table which gives industrial production from 1950 to 1966.

<table>
<thead>
<tr>
<th>Year</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>100</td>
</tr>
<tr>
<td>1955-56</td>
<td>139</td>
</tr>
<tr>
<td>1960-61</td>
<td>194</td>
</tr>
<tr>
<td>1965-66</td>
<td>229</td>
</tr>
</tbody>
</table>

Note: 229 is the target for 1965-66.

The achievement of industrial production in different fields is also satisfactory. The following indices make it evident.

The industrial employment is increasing in India particularly after the commencement of Planning. In 1951, the average daily employment in factories stood at 39.12 lakhs. In the different states also we can observe the increasing trend of industrial employment. For example in Andhra Pradesh employment in factories increased from 197 to 217 thousands in 1957 and 1960 and again 228 thousands in 1961.10 The average per capita annual earnings of factory workers is growing. The general index of earnings were 170, 185 and 194 respectively in 1957, 1960 and 1961.11 In regards labour welfare most States and Union Territories are running a number welfare centres. These centres cater to the recreational, educational, vocational and cultural needs of the workers and their children. All private industrial establishments of some standing also maintain welfare centres for the benefit of their workers. All these changes have a favourable affect on the attitudes and beliefs of the industrial workers to control the size of their families. They have got accustomed to a certain degree of standard of living which they do not like to forgo because of unrestricted births.

10. For other states vide, *India 1961*, Table 168, P. 337.
Index number of Industrial production (1950-51 = 100)

<table>
<thead>
<tr>
<th>Group</th>
<th>1955-56</th>
<th>1960-61</th>
</tr>
</thead>
<tbody>
<tr>
<td>General index</td>
<td>126</td>
<td>133</td>
</tr>
<tr>
<td>Cotton textiles</td>
<td>122</td>
<td>238</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>192</td>
<td>303</td>
</tr>
<tr>
<td>Machines (all types)</td>
<td>179</td>
<td>230</td>
</tr>
</tbody>
</table>

Source: Third Five Year Plan (Government of India, Planning Commission, New Delhi, 1961) p. 39.

The third plan attempts to achieve a still more diversified and rapid development of industries. All these changes will influence population growth in India like that of Europe in the past. The concomitants of industrialisation are coming into existence, such as urbanisation, weakening of traditional customs and beliefs, employment of women in economic pursuits, increase in literacy rates, growth of national and per capita incomes etc. For example, urbanisation is growing in as much as we have 107 towns with a population of over 1 lakhs of persons each now, as against 74 in 1951.\(^\text{12}\) Literacy was 14 percent\(^\text{13}\) in

\(^{12}\) India 1961, p. 69.

\(^{13}\) Ibid. p. 160.
India in 1961 as against 18 per cent in 1951. It is estimated that over the period of the first two plans national income has increased by 42 per cent and per capita income by about 16 per cent only, owing to a rapid population growth.\textsuperscript{14} and as far as rise in per capita income is concerned, the Planning Commission's target is to achieve an increase of 61 per cent in 1975-76 as compared to 1960-61 i.e., an increase from Rs. 330 to Rs. 530.\textsuperscript{15}

\textit{Present Position}

Let us now see whether there is any change in the pattern of birth and death rates after a decade of Industrial Planning in India. Table-4 shows that the trend of population growth is not at all different from that of European countries soon after Industrial Revolution. There is a marked decline in the death rates, particularly the infant mortality rate. This is a sign of survival and a source of rapid population growth in the future. We can also observe in the table the declining trend even in birth rate. But it is not a marked decline. This will happen only after a considerable time lag, as discussed earlier.

The decade 1951-1961 shows definite improvement in this regard, although its volume may not be very satisfactory which

\textsuperscript{14} Ibid. P. 139.

\textsuperscript{15} The Hindu (January 19, 1964), P. 7.
TABLE 4

Birth, Death and Infant Mortality Rates (adjusted)

<table>
<thead>
<tr>
<th>Year</th>
<th>Birth Rate</th>
<th>Death Rate</th>
<th>Infant Death Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957</td>
<td>33.9</td>
<td>16.1</td>
<td>107</td>
</tr>
<tr>
<td>1958</td>
<td>33.1</td>
<td>16.6</td>
<td>111</td>
</tr>
<tr>
<td>1959</td>
<td>34.0</td>
<td>14.2</td>
<td>98</td>
</tr>
<tr>
<td>1960</td>
<td>32.6</td>
<td>14.3</td>
<td>92</td>
</tr>
</tbody>
</table>


Note: These cover only five states of Punjab, Mysore, Madras, Gujarat and Maharashtra, which have facilities for comparatively better registration of vital statistics than the rest of India. Even these figures are not very accurate.

is a direct result of rapid industrialisation. Thanks to more foreign aid and plan resources largely utilized for starting more industrial units, there is every possibility for workers' standards to increase as a result of conscious curtailment of the tendency to have bigger families. We do find that in many respects, the rapid movement of our country on the scale of industrial development assures a safer and sounder population programme than what we have had hitherto.

In order to achieve steady decline in birth rates the
government of India has undertaken several measures. The
programme of family planning must attract the attention of all.
Mr. Asoka Mehta, the Deputy Chairman of the Planning Commission
inaugurating the Fifth All-India Conference of Family Planning
recently said "Economic planning and family planning have to
move hand in hand if levels of living are to rise, that is, if
economic development is to make any advance towards its
objectives and the desired transformation realised". The first
plan set-up 126 family planning clinics in the urban areas and
21 in rural areas. During the second plan the number of clinics
increased to 549 in urban and 1,100 in rural areas. In addi-
tion to these clinics, family planning services are provided
at 1,864 rural and 330 urban medical and health centres.
According to the Third Plan programmes, the number of family
planning clinics is likely to increase from about 1,600 at the
end of the second plan to about 6,200. Of the latter, about
2,100 clinics are in urban centres and 6,100 in rural areas.16
A number of sterilisation centres have also been established.
In several centres considerable amount of research work is
also in progress.

CONCLUSION

Thus industrial development is having its impact on
population growth. But the present need in underdeveloped, over-

16. Third Five Year Plan, pp. 575 and 677.
populated countries is to achieve rapid industrialisation, so that the impact of industrial growth on fertility control will be seen visible and birth rate will decline within a shorter period than otherwise. To control the population increase in overcrowded regions in the initial days of industrial development, the underdeveloped countries have to advocate and implement effectively family planning programmes. The government of India is providing finances and necessary propaganda for the effective implementation of family planning programmes.

The present problem in India is not so much of population increase in urban centres but of 'population explosion' in rural areas. The latter should be tackled very effectively. The remedy for this lies in mass education, scientific agricultural development and rural industrialisation - through industrial estates, small scale and cottage industries. Mass education in rural areas will bring about changes in the attitudes of the country-folks, such as custom, tradition, etc. The development of agriculture will not only increase food production but also raw material to industries, which will run the wheels of industry. Industrial development of the country-side is significant not only in providing additional incomes to villagers but also providing employment to un-employed and disguisedly un-employed persons. Women, who generally look after house-hold affairs will find a place in cottage and small scale industries. This is a favourable and encouraging feature
Generally improvement in the status and economic opportunities of women will tend to influence birth rate and result in decline in fertility rates. Industrialisation of rural areas is thus very important, since it induces an urge for better living standards which exert their impact on fertility, not to mention the definite improvement occurring in the financial status of villagers - and this is the present day need in rural India.

Another matter of considerable importance to us is the pattern of industrialisation policy pursued under Planning. We have now seen how population can be curtailed by industrial growth. But it can happen only when more and more people can move into the work-force of the industrial sector and this in turn depends upon how far our industrial projects are labour intensive. In this respect, we find that the policy pursued so far in India has only been capital intensive. A change in approach is thus desirable. It will confer two important advantages: (1) It will employ more people implying more income, demand for goods etc. (2) It will increase the supply of consumer articles available in sufficient and cheap manner. Both these will induce the labour groups to (1) work for more time and more efficiency for earning more income and (2) be attracted by low priced industrial goods so that more income accrues to industrial sector. Such a course of events will make workers always strive for an increased standard of living.

17 For more details in this respect, see: Shanoy, B.R. Indian Planning and Economic Development, (Asia Publishing House, 1963) Chapter I.
which means in effect that they must contain their families to improve their economic standards, as otherwise, they know that additional incomes will go to plug only additional needs of a growing family. In this, they find sufficient reason for a change in the pattern and structure of industrial production.

It may also point out here, the efficiency of private sector in industrial development. With the necessary incentives, private entrepreneurs will realize any production objective sooner than the public sector. But the present mood of nationalization and the establishment of "Democratic Socialism" in the country adopted by the 68th session of the Indian National Congress which met at Bhubaneswar recently are some of the hurdles that threaten the private industrialists to invest here. Sometime ago, the President of the All India Chambers of Commerce highlighted the achievements of the private sector. He pointed out the satisfactory achievement of industrial sector, except a very few industries, many of the public undertakings are not making good progress in the public sector. Given the necessary incentives and guarantees by the Government, the private sector can help rapid industrial growth. Hereover the Central Government must relax its control over the private entrepreneurs so as to achieve a higher rate of industrialisation within a short period. The Government can also assist the opening of family planning clinics by the private industrialists to advice their employees in this specific field. They can either subsidise the
schools or except today a portion of the profits of the industrialists in order to maintain the family planning clinics.

All the above measures will help in the future to arrest the growth of our teeming millions and facilitate rapid industrial development, which in turn influence birth rate.
In spite of the process of industrialisation, the number of persons employed in the primary sector - as high a percentage of labour force as 72.2% - continues to increase. This surplus labour acts as a drag on the economy in general and adversely affects productivity in agriculture. A lasting solution to the problem of surplus labour in agriculture lies in the universal adoption of scientific methods of agriculture and the diversification of the rural economic structure.

The present phenomenon of underdeveloped and overcrowded parts of the world is excess population pressure on land. India is not an exception. The total population of India which stood at 236 millions in 1901 increased by 109 millions between 1911 and 1951, bringing the 1951 census figure to 361 millions. The decennial percentage in the above period varied between 10 and 15. During 1951 to 1961 the increase was nearly 76 millions or about 21.50 per cent. India’s population in 1961 was 439 millions. It is thus evident that in recent times the problem of population pressure on land is becoming increasingly serious. This results in surplus labour force in rural areas which is not necessary to maintain present levels of production even under existing levels of technological knowhow.

New Frances of Agriculture

The excess population dependent on land retards agricultural productivity. This may not be the only cause, but it is an important one. We have failed to achieve satisfactory progress in agriculture in spite of the large outlay on it in the first two plans besides greater stress under the third plan on agriculture and ancillary projects, community development and package scheme programmes. We have lagged behind in achieving the average annual targets fixed for the third plan period. In fact, there was a declining trend instead of a rise in agricultural production during 1962-63. Although, there might be an increase in the total agricultural output, there seems to be no significant rise in per acre production. This is because of the heavy burden of population on the land — preventing even a reasonable amount of capital formation — and the nature of farming which is outmoded and primitive in character. Under the existing inheritance laws, the population pressure leads to fragmentation and subdivision of landholdings, and strikes at the root of even a modest amount of mechanisation of agriculture. The number of landless agricultural labourers is also increasing simultaneously at a fast rate resulting in a decline of man-land ratio. For instance, in Andhra Pradesh they rose from 4.78 millions in 1956-57 to 5.34 millions in 1961.2

Plan and Agricultural Production

Let us now have a look at the trend of agricultural production since the commencement of planning in India.

### Table 1

<table>
<thead>
<tr>
<th></th>
<th>1950-51</th>
<th>1955-56</th>
<th>1960-61</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food crops</td>
<td>91</td>
<td>115</td>
<td>132</td>
</tr>
<tr>
<td>Other crops</td>
<td>106</td>
<td>120</td>
<td>142</td>
</tr>
<tr>
<td>All crops</td>
<td>96</td>
<td>117</td>
<td>135</td>
</tr>
</tbody>
</table>

Source: *Third Five Year Plan*, p. 36.

Although there was a perceptible rise in the total agricultural production in the first two plans, progress on the agricultural front was not very encouraging after 1962. During the first three years of the third plan, about Rs. 650 crores were spent on various forms of agricultural development including nearly Rs. 300 crores on major and medium irrigation schemes. Rs. 125 crores on minor irrigation and the rest on other programmes. But the impact of this developmental expenditure is very negligible. While there was a small increase in agricultural production in 1961-62, there was a decline of two par
cent in 1962-63 compared to the last year of the second plan.\(^3\)

In other words, according to the latest official information, the index number of agricultural production which increased from 116.3 in 1955-56 to 139.6 in 1960-61 rose to 141.4 in 1961-62 and fell to 136.8 (provisional) in 1962-63.\(^4\) But the level of foodgrains production must be raised to 100 million tons by 1965-66.\(^5\)

In the first two years of the Third Plan the annual rate of growth of national income is estimated to have been about 2.5 per cent as compared to the average rate of over 5 per cent per annum envisaged for the five year period. At this rate the national income can rarely keep pace with the growth of population, leaving per capita income unimproved. The basic cause for such low rate of increase is the failure of agriculture which is the largest contributor to national income even today. As against the annual rate of six per cent expected during the third plan, aggregate agricultural production rose marginally in 1961-62 and then declined so that in 1962-63 the increase of agricultural production was actually lower than in the last year of the second plan.\(^6\)

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Thus the progress in the primary sector of our economy has been poor despite all possible financial, technical and administrative assistance by the government, neither could we feed our millions properly on a balanced diet nor produce adequate raw materials to feed expanding industries, leave alone providing for surpluses and agricultural exports which are very essential for economic development. No efforts for rapid growth of agricultural production should have the highest priority, next only to defence efforts. This job must be done, and done soon, but it is by no means the end. The balance between population and food supply must never tilt to an uneconomic and unhealthy extreme. Only then can there be an increase in national income sufficient to accelerate the process of industrialization.

**Occupational Structure**

Let us now examine the occupational pattern of different countries in the world to have a comparative idea of the enormity of efforts necessary to improve our economy. Table-2 gives the necessary data.

India’s position is unique in as much as its economy is heavily agriculture-oriented. We also find that the all India and Andhra Pradesh occupational patterns do not vary much. In both the cases, workers engaged in the primary sector are more numerous than is necessary, compared to other countries in the


### Table 2

Labour Force: Percentage Distribution by Industry

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Agriculture, Forestry and Fishing</th>
<th>All others</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>1951</td>
<td>5.2</td>
<td>94.8</td>
</tr>
<tr>
<td>Germany (W.R.)</td>
<td>1950</td>
<td>12.6</td>
<td>87.4</td>
</tr>
<tr>
<td>Japan</td>
<td>1950</td>
<td>48.4</td>
<td>51.6</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>1950</td>
<td>10.9</td>
<td>89.1</td>
</tr>
<tr>
<td>U.S.S.R.</td>
<td>1955</td>
<td>43.0</td>
<td>57.0</td>
</tr>
<tr>
<td>India</td>
<td>1951</td>
<td>72.12*</td>
<td>27.88</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>1951</td>
<td>71.20*</td>
<td>28.80</td>
</tr>
<tr>
<td>India</td>
<td>1961</td>
<td>72.28*</td>
<td>27.72</td>
</tr>
<tr>
<td>Andhra Pradesh</td>
<td>1961</td>
<td>71.71*</td>
<td>28.29</td>
</tr>
</tbody>
</table>


world. This surplus should be shifted to the non-agricultural sector, where it can be profitably employed. Besides, the number of workers employed in the primary sector, both in India and Andhra Pradesh, is increasing instead of decreasing. This is a peculiar phenomenon. Under normal circumstances, with the
growth of industries, people engaged in the primary sector decrease and the number of people employed in the non-agricultural sector increase. India thus after the completion of her two five year plans has not achieved a change in her employment structure. In fact, the gulf is widening instead of narrowing.

In industrialised economies like the United Kingdom and United States of America, a small proportion of labour force is engaged in agriculture and yet able to supply a significant proportion of the food and raw materials needed by the country. The percentage of labour force engaged in the primary sector in the U.K. was 5.2 (1951), 10.9 in U.S.A (1950) and 40.4 in Japan (1950). But the percentages for all India and Andhra Pradesh were 72.28 and 71.71 respectively in 1961. This speaks about our heavy dependence on land and consequent surplus labour in rural areas and our industrial backwardness. In fact, it is possible to transfer at least 35 to 40 per cent of the work force engaged in the agricultural sector and still maintain the present volume of production from land.7

**Surplus Labour Brokes Capital Accumulation**

How does surplus labour act as a drag on capital formation in the agricultural sector? Of course, precise data on additional

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expenditure pattern of expanding families are not available, even under the national sample survey reports. We can only indirectly show how agricultural productivity is adversely affected by the existence of surplus labour. This occurs in a number of ways. The requirements with regard to food articles rules out production of surplus either for earning profits or cash income. Secondly, there is additional expenditure for the partially employed - which is actually the surplus labour - in respect of non-agricultural and non-durable items of consumption articles. Thirdly, a reference may be made to the breaking down of the traditional joint family system which means more expenditure in setting up new households. These are only some of the very many socio-economic forces eroding limited amount of capital formation possible for the average farm families. It is thus seen how, without materially adding to the current level of agricultural production, the surplus labour is capable of draining away all available savings.

Against this background, it becomes extremely difficult to raise enough capital from within the agricultural sector itself for its improvement. Self-financing is ruled out by surplus labour. How can investment hence be increased? Professor Arthur Lewis points out, "... communities in which the national income per head is not increasing invest 4 or 5 per cent of their national incomes per annum or less, whilst progressive economies invest 12 per cent per annum or more\(^8\).

To cap surplus off surplus labour from the land by

(i) providing alternative jobs in rural areas in (minor) irrigation works, road building, etc., and (ii) through development of small-scale and cottage industries. Even if we wanted to absorb the surplus labour in the industrial urban sector, it is not practicable at present in India due to population increase in the industrial urban centres. Professor Khawar has shown that under the existing conditions in India the demand for labour in the non-agricultural sector is not sufficient to absorb the supply of labour from within the sector for at least up to 1975. There are underemployed and disguisedly unemployed workers both in the subsistence and the modern sectors. In that case, the shift of excess people from the agricultural to the non-agricultural sector will merely add to the pool of the unemployed in the non-agricultural sector. Rapid mobility of labour from rural to urban areas will also lead to the worsening of conditions in the latter and adversely affect the social pattern. Thus, until such time as the demand for labour, in the non-agricultural sector overtakes the supply from within that sector, it is not economically useful to shift workers from the primary to the industrial sector.

The other remedy is to employ the surplus labour in the rural areas themselves. If labour-absorbing (labour-intensive)

rather than labour-displacing (capital intensive) techniques are selected, it will solve the problem to some extent. The following are some of the projects where excess population can be effectively utilised: irrigation works, reclamation, levelling and bunding of land, well-sinking, conversion of dry land into wet land, single cropping into double cropping, etc., and small-scale and household industries and industrial estates. All these lend themselves to labour-intensive methods and simultaneously increase agricultural productivity, and for lack of such capital and technical improvements Indian agriculture suffers. "A lasting solution of the problem of underemployment will require not only the universal adoption of a scientific agriculture but also the diversification and strengthening of the rural economic structure."\(^{10}\) Since increases in actual production depends upon better, higher and also a national level of inputs and investment in agriculture and techniques adopted, we must pay more attention to them in the future. Panchayats and Community Development Projects can play a more effective role in this regard than heretofore.

Further, schemes for increasing agricultural production are closely bound up with improvement of animal husbandry, dairying and development of fisheries. Besides, speedy implementation of land reforms and cooperative farming are also necessary for increasing the yield per acre. Improvement in agriculture can be accelerated through research and training.

\(^{10}\) Third Five Year Plan, P. 163.
Introduction

At present, the most outstanding problem of the world in general and India in particular, is "population explosion".

There are about 3 billion people in the world today. In the next 15 years i.e., by 2000 A.D., the present population is likely to double itself and reach 6 billion. 1 If it were to continue at the same rate, there will be 12 billion people and 25 billion people by about 2035 and 2070 A.D., respectively on this planet. 2 Such growth, which is out of proportion to present and prospective rates of increase in economic development imposes a very heavy burden on all of us. While the growth of population in the highly developed industrial countries of Europe and North America is below the general average, in economically underdeveloped countries, like India, it is above the average.

Today, there is an increasing awareness of the inadequacy of food supplies in countries like India and China with their teeming millions which threaten to make food shortages more intense in the coming decades. According to Food and Agriculture Organization (U.N. Report), about 40 to 50 per cent of the world's population goes without adequate nutritious food. In Africa and Asia, it is estimated that annually 10 million


Note: For detailed information of population growth in Asia and India refer my article entitled "Impact of Economic Development on Population Growth", Industrial India Annual, 1963.
persons die of malnutrition, under-nutrition and hunger.

Food and Prices

As elsewhere, the food problem in India too is the result of many causes. Production has not been keeping pace with the demand induced by increasing population, rising national and per capita income and growing standard of living with very many changes in consumption pattern. The "Ration System" has tended to work more to our dis-advantage than otherwise and the distribution machinery has been improperly and ineffectively organised, with the result that there are areas of surplus and areas of scarcity. So the prices of foodgrains have gone up, goading millions of poor people to seek desperate measures, for instance, looting. Further, the hoarder purchases and corners stocks with the large unaccountable money at his disposal and aggravates the problem. This tendency must be curbed forthwith, and the stocks should be brought out into the open market.

The price rise is indeed a secondary problem, the fundamental problem being raising of adequate food supplies. All the food produced in the country and imported into the country must find way into open market. Then prices should come down necessarily and automatically. The immediate remedy to avert any catastrophes or untoward emergencies is to import large quantities of food. Recently the Central Food Minister told that imports would have to continue until the end of the Fourth
Plan. There is nothing wrong to import foodgrains when we are short of them, but we should make every effort to improve production, through the aid of science and technology and properly distribute that we have among the poorer sections of the public.

Population and F...n

The future projections of population growth in India as estimated by Planning Commission, Registrar-General of India and Foodgrains Enquiry Committees are given below.

**Table-1**

<table>
<thead>
<tr>
<th></th>
<th>1961</th>
<th>1971</th>
<th>1981</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning Commission</td>
<td>408</td>
<td>465</td>
<td>530</td>
</tr>
<tr>
<td>Registrar-General of India</td>
<td>419</td>
<td>487</td>
<td>568</td>
</tr>
<tr>
<td>Foodgrains Enquiry Committee</td>
<td>476</td>
<td>627</td>
<td>826</td>
</tr>
<tr>
<td>Census Enquiry</td>
<td>439</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These projections clearly indicate that in future the demand for food will increase more rapidly than at present. The actual figures of the 1961 Census is 439 million, much higher than the Planning Commission's and Registrar-General's estimates.
Further, there are over 10 million mouths to feed every year in addition to the existing population. To meet the enhanced food demand in the future more prudent and objective policy has to be adopted, besides attempts for increasing the production of food grains at present.

**Plans and Agricultural Production**

India has spent enormous amount of capital on agriculture and allied fields in the First, Second and Third Plan periods. During the First Plan period almost all the agricultural production targets were achieved. The targets set for agricultural production in the Second Plan, even though there was increased production from year to year, were only under-fulfilled. On the other hand, during the Third Plan i.e., 1962-63 the agricultural production has shown negative trend and total agricultural production declined instead of increasing. The table-2 illustrates this.

According to the Planning Commission unfavourable weather conditions had markedly adverse effect on the volume of agricultural production in 1961-62 and 1962-63. The index number of agricultural production increased from 118.8 in 1955-56 to 139.6 in 1960-61. It rose to 141.6 in 1961-62, the highest recorded so far. However, according to provisional estimates the index fell to 136.8 during 1962-63. Thus, despite increased outlay on agriculture and other connected projects, 3. The Third Plan: Mid-Term Appraisal (Government of India, Planning Commission, 1963), p. 70.
## Table 2

Index Numbers of Agricultural Production
(Base Year 1949-50=100)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Foodgrains</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>97.9</td>
<td>114.2</td>
<td>136.2</td>
<td>136.0</td>
</tr>
<tr>
<td>Wheat</td>
<td>101.1</td>
<td>131.3</td>
<td>162.7</td>
<td>174.8</td>
</tr>
<tr>
<td>Total cereals (1)</td>
<td>90.3</td>
<td>114.9</td>
<td>135.9</td>
<td>135.9</td>
</tr>
<tr>
<td>Gram</td>
<td>98.0</td>
<td>138.9</td>
<td>162.3</td>
<td>152.7</td>
</tr>
<tr>
<td>Total pulses (2)</td>
<td>91.7</td>
<td>118.4</td>
<td>126.6</td>
<td>121.1</td>
</tr>
<tr>
<td>Total foodgrains</td>
<td>90.9</td>
<td>115.3</td>
<td>135.6</td>
<td>135.2</td>
</tr>
</tbody>
</table>

Source: [India 1963, p. 206.](#)

Note: (1) Includes jowar, bajra, maize, ragi, small millets and barley besides rice and wheat.

(2) Includes gram, tur and other pulses.

Agricultural production does not rise, worst part of it is that it is witnessing a declining trend. The Third Plan provides for an outlay of Rs. 601.56 crores on programmes of agricultural production including agricultural programmes under Community Development schemes, as against Rs. 260.65 crores in the Second Plan. This is in addition to the provision of Rs. 80.10 crores for cooperation and Rs. 599.34 crores for major and medium irrigation projects. 4 In spite of the increased outlays on

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4. [India 1963, p. 206.](#)
agriculture, we could not raise production to the desired level. The proposed outlay during the Fourth Plan is around 16,300 crores and every effort should be made to step up the effective utilization of these funds for speedy increases in agricultural production.

Measures to Increase Production

A comparative analysis of investment and yield position of some countries shows that the yield per acre during the past few decades registered a considerable increase in certain countries of Europe, whereas in others, mainly in Asia (with the exception of Japan) only a very small increase in yield per acre is recorded.

It is evident from the table—3 that yield per hectare in India is much less compared with several other developed countries in the world. So the major stimulus to agricultural production must come through increased per hectare productivity of land. In other words, the urgent need in India is to enhance output per hectare, not merely in order to cope with the rapid population growth and increasing incomes of the people, but also in order to provide more land for alternative uses, such as for fodder, to increase the milk-yield of the underfed cattle population, for growing forests, etc.

The Ford Foundation Team which inquired into the possibilities of increased production in India held the following view:
<table>
<thead>
<tr>
<th>Field of Major Crops in India and other Selected Countries (Quintal per hectare)</th>
</tr>
</thead>
</table>

**Wheat**

<table>
<thead>
<tr>
<th>Country</th>
<th>1950-51</th>
<th>1955-56</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>6.7</td>
<td>8.5 (8.8)</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>11.2</td>
<td>17.6</td>
</tr>
<tr>
<td>France</td>
<td>13.3</td>
<td>25.3</td>
</tr>
<tr>
<td>U.S.S.R.</td>
<td>8.4</td>
<td>10.6</td>
</tr>
<tr>
<td>China (Mainland)</td>
<td>6.9</td>
<td>13.0 (1959-60)</td>
</tr>
</tbody>
</table>

**Rice (Paddy)**

<table>
<thead>
<tr>
<th>Country</th>
<th>1950-51</th>
<th>1955-56</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>11.3</td>
<td>15.2 (15.1)</td>
</tr>
<tr>
<td>Japan</td>
<td>40.0</td>
<td>48.6</td>
</tr>
<tr>
<td>U.S.S.R.</td>
<td>37.9</td>
<td>50.1</td>
</tr>
<tr>
<td>China (Mainland)</td>
<td>21.7</td>
<td>25.4</td>
</tr>
</tbody>
</table>

**Maize**

<table>
<thead>
<tr>
<th>Country</th>
<th>1950-51</th>
<th>1955-56</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>6.9</td>
<td>9.2 (9.1)</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>24.5</td>
<td>33.5</td>
</tr>
<tr>
<td>Canada</td>
<td>32.0</td>
<td>35.0</td>
</tr>
<tr>
<td>U.S.S.R.</td>
<td>19.7</td>
<td>16.7</td>
</tr>
</tbody>
</table>


Note: Figures in brackets relate to 1961-62.

The average performance in productivity in India is low compared to other advanced countries of the world though the best in Indian agriculture compares very favourably with the
but elsewhere. The Team therefore felt that pushing up the low performance to the high levels attained by some Indian farmers would not be difficult of achievement provided better techniques and implements were made available along with intensive use of good seeds, manures and irrigation. It called for special efforts in improving upon the level of fertiliser consumption.

Agricultural development involves the process of making fuller and effective utilisation of the available agricultural resources. An increase in agricultural productivity not only depends on the application of fertilisers, compost and green manure, better seeds, improved implements and plant protection practices but also on the percolation of the assistance of all these types to the large number of small farmers. Completing the irrigation projects on hand and making full utilisation of the existing irrigation potential, extension of medium and minor irrigation projects and renovation of tanks will greatly help in increasing output per acre. Cooperative organisation would strengthen the agricultural base by providing the much needed facilities, such as credit and marketing and thus help agricultural development. Besides these measures, as Prof. Khurro and Agarwal point out, the immediate need is the radical reorganisation of present land holdings coupled with effective implementation of land reforms.

In order to lessen the food crisis we have to change our
food habits. Animal food will supplement our total requirements to some extent, such as milk, meat, eggs and fish which are rich in protein. The livestock products can be increased four to five times by the application of improved methods of animal husbandry. There are also immense sources of fish which could be made available for human consumption. There must be proper drive for intensive fishing of our inland water and oceans. In U.S.A. on the average, the daily caloric consumption amounts to 3130 calories, and the consumption of protein amounts to 93 G. per head per day, while in India this stood at less than 2000 calories with only 52 G. of protein. Lack of proper food accounts for low vitality and results in infectious diseases which diminish work-efficiency. Mr. Thomas Brady, Columnist, New York Times, discussing the food situation in India, wrote (September 26) : "Food shortages are clearly the result of errors and omissions of the Nehru administration, but Shastri must face popular indignation. Nehru's charisma might have served to silence the howls of hungry men, but Shastri must feed his people as best as he can, and the best way of doing it, 'whether you like it or not' is, he told Parliament, to get wheat from the United States". 5 Thus the best way for immediate escape from popular indignation may be to import wheat from the U.S. and other countries. We are purchasing foodgrains from America under PL 480 and U.K., Canada and even from Pakistan. This state of affairs should

be stepped up so that we can save much needed foreign exchange to finance our industries, otherwise it would seriously undermine the development of the country.

The producers of foodgrains must get reasonable return for their labour and initiative in order to have a steady increase of agricultural production. We should have the necessary incentive to make investments. A suitable remunerative price policy for agricultural commodities has been neglected so far. Only during the recent food crisis, the Ministers of Agriculture in different States and at Centre have fixed minimum prices for different foodgrains. A policy to control fluctuations in prices and guarantee of certain minimum prices is very essential to accelerate agricultural production. Further the Government should announce the prices of foodgrains in advance so as to assure the farmer that his labour would be properly rewarded. This is now being done. But we must bear in mind the chain-reactions of an increase in agricultural prices on the other sectors of the economy. The effect of rise in prices of agricultural commodities will be all-pervading in the economy via its effects on costs, in general, and wages in particular. So in fixing prices of foodgrains specially one must be very careful so that not only the interests of consumer should be safeguarded but also producer will get fair a price for his products lest incentive for higher production be lost.
The recent decision to put the Minister for Food and Agriculture in overall charge of Community Development, Co-operation and Panchayat Raj is welcome as a means to coordinate all efforts at stepping up production. It results have to be quick and effective in a matter which concerns the whole country, the Central Government’s direction is necessary and inevitable. It can solve the defects of distributive strategy by making stocks available from surplus states to deficit ones properly and promptly.

Prime Minister Lal Bahadur Shastri winding up the meeting of the National Development Council remarked that food was “a matter of life and death for our people. We cannot afford to take chances in this matter”. Further he said that government is drafting an ordinance to deal with hoarding and profiteering in essential commodities. It is the urgent need of the day and it should come into effect soon, so that hoarding and profiteering can be checked effectively. Illegitimate hoarding for trade purposes should be declared as a criminal offence. The food problem is not merely an economic problem but a human problem too. It is but deplorable that some political parties in the country, instead of cooperating with the Government which has been trying hard to normalise conditions, have been creating tension. So we should call on opposition parties in the country to help the Government to meet the crisis; for food is not and

cannot be treated as a party question but only as a national problem.

**Price Behaviour In the Past**

All the measures discussed so far relate to raising agricultural production and organizing proper redistribution programmes, in as much as more steps are required to improve the quality of the diet. But there is another chief magnitude of the problem of food, namely, stabilization of its price.

The soaring prices of agricultural products, particularly food-grains have been a burning problem for some time. It is natural that prices will go up in the initial stages of a developing economy. When we embarked on the process of developing the economy through Five Year Plans the possibility of price rise was much greater under a democratic government.

Recently there is a phenomenal rise in prices and it appears to exceed the safe limits. The index number of wholesale prices of industrial raw materials, for example, has risen from 99.1 during 1955-56 to 136.5 in 1962-63 (base year 1952-53). The rise in prices has been particularly sharp in the case of food articles. The index number of their wholesale prices has increased from 88.6 in 1955-56 to 126.1 in 1962-63.

The wholesale price index numbers of food articles and industrial raw materials during 1955-56 is below the base year.
Index Number of Wholesale Prices (Base: 1952-53=100)

<table>
<thead>
<tr>
<th>Year</th>
<th>Food articles</th>
<th>Industrial raw materials</th>
<th>General Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955-56</td>
<td>83.6</td>
<td>92.0</td>
<td>92.5</td>
</tr>
<tr>
<td>1960-61</td>
<td>120.0</td>
<td>145.4</td>
<td>124.9</td>
</tr>
<tr>
<td>1961-62</td>
<td>120.1</td>
<td>142.6</td>
<td>125.1</td>
</tr>
<tr>
<td>1962-63</td>
<td>126.1</td>
<td>136.5</td>
<td>127.9</td>
</tr>
</tbody>
</table>


It is because of record agricultural production at the end of the First Five Year Plan. Thereafter, the position is reversed and the wholesale price index numbers of foodgrains and industrial raw materials have shown a steady and continuous rise till today. The present situation of prices of agricultural commodities in particular is very explosive and it is not surprising that the index numbers of food-stuffs and industrial raw materials would record a steep rise. The major explanation of the continued upward trend in wholesale prices in the Second and Third Plan periods is undoubtedly the rising pressure of demand resulting from the growth of population and of money incomes.

The steep rise in prices has affected the living standards of the people, specially persons in the fixed low income groups. It has also made them feel doubtful about the utility and
benefits and progress of our Five Year Plans. Moreover, rise in prices of foodgrains and raw materials affect the cost structures of various industries and inflates the financial cost of plan, thereby adversely affecting its physical content and targets.

Factors Responsible for Price Rise

There are two different views to explain the rise in prices. It is because of shortage in foodgrains production or because of excess demand? The demand is ever increasing. It is the result of larger outlays on defence and development, higher level of industrial activity, increase in income and employment as well as incessant rapid population growth. Deficit finance, created to finance Five Year Plans has tended to increase money supply in the economy without causing equivalent production of goods and services. Thus the increased money supply has only added fuel to the fire. But all this is quite natural in the initial stages of a developing economy. So, the excess money should be drained off to lessen demand.

Table-2 indicates that the fundamental defect is lack of adequate foodgrains production. The index number of foodgrains production has increased from 50.5 in 1950-51 to 135.8 in 1960-61. But it declined to 135.2 during 1961-62 (base year 1949-50). However, this should be weighed against the rapid increase of population during the last decade. Population has
increased in India from 350 million in 1951 to 439 million in 1961, that is, by 2.15 per cent per annum. Population growth coupled with unimpressive growth of agricultural output has led to raise the prices of foodstuffs.

During the Second Plan period the rise in prices was neutralised by the availability of foreign exchange reserves. Almost all the foreign exchange reserves were utilised during the Second Plan and it led to foreign exchange difficulties during the Third Plan. This neutralising factor is not available for the Third Plan and the planners have to resort to heavy deficit financing. In fact during the Third Plan, it was originally proposed to earn maximum foreign exchange through exports, which would tend to raise the prices of exportable goods for domestic consumption.

As referred to before during the initial stages of economic development, rise in prices is inevitable and it has to be borne by the people. Financing of developmental plans results in creation of money incomes ahead of the availability of good and services. The price spiral is much greater when the investment is larger on different projects. If the projects are long-term and long-maturing ones, the strain on the economic set up of the country would be much greater.

Therefore, one must conclude that both added demand and money income operate simultaneously to exert pressure on price levels.
Measures to Control Prices

The measures to control prices are mainly two - fiscal and monetary. Fiscal policy aims at restraining demand for consumer goods by tapping up the excess purchasing power through taxes and thus mobilises savings more effectively for the development of the country's economy. In other words, taxation should be adequate enough to restrict demand for consumer goods. Moreover, the plans should be financed not by the excess creation of deficit finance but by the resources mobilised through taxation from the public.

Monetary policy aims at controlling and regulating creation of credit through banks. Rise in the bank rate would lead to reduction of borrowings from the banks and encourage savings. Monetary and fiscal policies are complementary. The former controls the pace of credit creation whereas the latter avoids the creation of excess purchasing power.

Fiscal and monetary policies alone may not serve the purpose of controlling prices. If they fail to bring the desired effect upon the economy, then we must resort to controls, at least in certain sectors like foodgrains. For example, if an essential good like steel is in short supply, control of prices and distribution at a fair price to consumers who are in real need would be the proper course of action to adopt.

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7. See for greater details in this regard, Third Five Year Plan, Ch.VII, pp. 119-130.
The basic is applicable to necessities of life like food and clothing. Rise in prices of luxuries and comforts may be allowed but price rise of essentials should be prevented in order to avoid popular resentment and indignation. Further checking up of price rise in an economy like ours where most of the incomes of majority of the people are spent on food and such essential commodities is of utmost importance.

The means to stabilisation of prices of foodgrains is the building up of buffer stocks. The buffer stocks can be created either by purchase of foodgrains within the country or outside the country by the Government. To keep huge stocks of foodgrains, the Government must have proper storage facilities. It should construct as a part of its long-range food policy adequate storage and warehousing facilities. It must, however, be carefully done because excess storage either by Government or by primary producers (who will take advantage of it) leads to contraction of supplies. The latter will particularly store in expectation of future increases in prices. This unhealthy push to price level by an otherwise well meant warehousing policy must be precluded. The State should purchase foodgrains when their prices begin to fall and would dispose of the stocks if they tended to rise. The imports from America under P.L. 480 has helped to build up buffer stocks and it should continue up to that time when there will be sufficient production inside the country. The State Trading Corporation in foodgrains would go a long way in this regard. Government should prepare and
must have sufficient stocks at its disposal to sell whenever or whenever in the country prices of foodgrains tend to rise.

Control of population would help to solve the problem of food and subsequently rise of prices. If growth of population is effectively controlled, then the demand for food would decline in subsequent years. If we can implement family planning programmes effectively advocated by our Five Year Plans in the past, the birth rate will certainly decline and the net addition per year to the already existing huge population would also decline. Thus, population control would not only help to solve food problem and several other problems but also to stabilise prices of foodgrains by reducing demand for foodstuffs through declined fertility.

Conclusion

Our discussion on agricultural production and fluctuation in prices yields very valuable guidance for future policy in this vital matter. It can be stated in the following propositions:

(1) The tendency of productivity to increase is very modest;

(2) Physical measures and their completion as agricultural support schemes must be effective and speedily done;

(3) Both added demand and money income operate simultaneously to exert pressure on price levels;
(4) There is stupendous need for large scale adoption of family planning and drawing excess money income by a reorientation in fiscal and monetary policies;

(5) Illegitimate hoarding of foodgrains and other products must be checked without delay;

(6) Administrative organisation in respect of procurement and distribution must be streamlined; and

(7) Agricultural price levels must be fixed such that incentives to small farmers for greater production are not lost.

In short, there is need for a triangular discharge of responsibilities by the producer, the consumer and the Government. The producer to show a patriotic spirit by sparing no effort at increased productivity rates; the consumer to shed down stocking tendency, to pay only the right price and refuse to pay more; and the Government to implement policy measures effectively and take appropriate measures speedily both to put down unscrupulous and unethical elements in society and ensure the sustainability of the fair interests of producers, consumers and other sections of the public. Only then a lasting solution can be successfully made out in this country.
industrialisation is the core of economic development. All the developing countries can develop their economies rapidly through industrialisation. It is true that in the initial stages the contribution of industries to national output and employment may not be significant, but the presence of large basic industries introduces dynamism into the economy. Further, industrialisation and the accompanying factors such as urbanisation and increase in literacy rates may exercise a controlling influence on population growth and assist economic growth.

Almost all the underdeveloped countries suffer from widespread and acute poverty reflected in the low levels of per capita income and consumption. To raise per capita income, it is essential that industries should be developed. It is observed that per capita output is higher in manufacturing industries than in agriculture. This is because of huge capital investments, continuity of production, greater specialisation and division of labour, less dependence on nature and greater possibilities of internal and external economies in the sphere of industries. On the other hand, marginal productivity in agriculture is negligible in overpopulated underdeveloped countries. This, of course, does not rule out the possibility of improvement in agriculture with the help of scientific
known as and improved methods of cultivation it will certainly be possible to increase productivity of land. But the development of agriculture alone does not bring about any significant improvement in productivity and output. So industries should also be developed side by side with agriculture.

**Agriculture and Industry**

A developing country should have an integrated and co-ordinated plan to achieve balanced economic growth with proper emphasis on both agriculture and industry. Development of industries cannot progress beyond a certain stage without the assistance of agriculture. Likewise agricultural development beyond a certain stage is subject to industrial development. Industry depends upon agriculture labour force, raw materials and foreign exchange required to import industrial machinery through agricultural exports. A prosperous agricultural sector provides market for industrial products. Industry, in its turn, fosters agricultural growth by providing fertilizers, pesticides, various agricultural implements, tractors, etc. Further, it will siphon off excess labour force from overcrowded agricultural sector and thus help to increase agricultural productivity. That is to say, surplus population depending upon land for their livelihood will be absorbed by the industrial sector and thus facilitate increased yield from land. Thus agricultural and industrial sectors are inter-linked and interdependent and in the process of economic development they
exert profound influence on each other.

**Agro-Industries**

An agro-industry is that which utilizes agricultural products as its raw material, such as sugar, cotton and jute industries, etc. There are some other industries which are closely associated with agriculture and the development of agriculture depends on the development of such industries - industries that produce chemical fertilizers, insecticides, agricultural implements, etc.

In Andhra Pradesh agricultural resources are well developed. The major source of State's income is from agro-industries. It is noted that 70 per cent of income from factory enterprises and 63 per cent of small enterprises is derived from industries based on agricultural products.¹

Industrial development should be, as far as possible, resource-oriented. With the implementation of present agricultural plans, it is expected that area under different crops will increase, which, in turn, will increase agricultural production - both industrial raw materials and foodgrains production. The State has to develop agro-industries to take advantage of its vast agricultural potential. The industrial

units based upon agriculture are sugar factories, spinning
mills, solvent extraction plants, etc.

Sugar Industry

The fertile soils and favourable climate of Andhra
Pradesh are very suitable for the cultivation of sugarcane.
The average yield of sugarcane in the State is highest compared
to the all-India average yield. The percentage of sugar content
is also very satisfactory. During the last ten years sugarcane
cultivation has increased considerably in Andhra Pradesh from
70,000 acres to 175,000 acres and it is expected to increase
to 366,000 acres by 1970-71. This development in the area of
cultivation of sugarcane has not only increased employment
opportunities in agriculture but also enhanced farmers' income.

According to the techno-economic survey of Andhra Pradesh,
there were 13 sugar factories in the State in 1962 with the
total daily crushing capacity of 13,000 tons. In addition to
these existing units, licences were granted to six more co-
operative sugar factories and one joint stock company. These
new units will raise daily crushing capacity of the factories
by another 6,000 tons of sugarcane. It is estimated on the
basis of total crushing capacity of 19,000 tons a day and the
minimum sugarcane recovery of 9.5 per cent that the total
annual output of the factories during the average crushing
season of 120 working days will be about 216,000 tons of

2. Ibid., p. 113.
The byproducts of sugar industry are not properly exploited in the State. Almost all the bagasses from sugar factories is used as fuel for boilers. It can be profitably used to manufacture paper, cardboard, etc. Only a meagre percentage of bagasses is utilised for the manufacture of alcohol and power alcohol. Therefore, subsidiary industries should be established to make use of the byproducts and waste material of sugar factories to the optimum extent.

It should be noted that the development of units to manufacture khandasari and jaggery should not be neglected. They should be encouraged side by side with factory units to ensure balanced growth of sugarcane industry as a whole.

**Oilseeds Industry**

Oilseeds such as groundnut, gingelly, castor, cotton, etc., play a prominent role in the agro-industrial economy of Andhra Pradesh. Its soils are well suited for the cultivation of oilseeds. Groundnut is a major oilseed cultivated in the state and it has got the highest development potential in the future with the extension of irrigation facilities under the gigantic multipurpose projects. The yield of groundnut can be doubled under irrigated conditions. The groundnut oilcake is not only a very nutritious cattle-feed but also a valuable

3. Ibid., P. 113.
Cotton seed is also an important raw material for agro-industries. Cotton seed oil is edible and in some western countries like U.S.A., they manufacture 'vegetable shortening', a product similar to vanaspati. In India much of the cotton seed is wasted. Only in Maharashtra crushing of cotton seed is prevalent. In Andhra Pradesh the estimated cotton seed production is 254,000 tons. Almost all the current production of cotton seed is not utilised as raw material to extract cotton seed oil in the state. So it is profitable and feasible to start an adequate number of small cotton seed crushing plants in the state near the ginning factories. Gingelly and coconut oils are widely used in Andhra Pradesh and their production ought to be encouraged. The coastal areas of Andhra Pradesh are suitable for raising coconut plantations. It is expected that the production of gingelly also will increase with the extension of area under cultivation. Gingelly oilcake is a good cattle-feed and manure as well.

At present all the oilseeds produced in the State are not utilised by the industries within the state. Part of the

4. Ibid., p. 117.
5. Ibid., p. 122.
produce is exported and processed in the neighbouring States. Hence adequate units should be established to utilise fully the available oilseeds within the State itself. Apart from this, secondary industries based on oils like vanaspati, soap, paints and varnish units should also be established.

The immediate need of the State is to establish solvent extraction plants. The National Council of Applied Economic Research recommended the establishment of at least 30 extraction plants, each with a capacity to process 50 tons of oil cake per day near the oil crushing areas. Further, "peanut butter" can be prepared out of groundnut and its export will earn foreign exchange. The Imperial Chemical Industries has developed a fibre from groundnut proteins, Ardil, which resembles natural wool. The State should set up a synthetic fibre plant to manufacture Ardil. It is also necessary to establish a factory in the State to manufacture varnishes, surface coatings, etc., from castor oil and a model plant to manufacture paper from castor stalks. Moreover a unit to make synthetic fibre known as Kisan nylon and plastic called Kisanite from castor oil may be established in Andhra Pradesh.

**Cotton Industry**

Most of the cotton grown in the State is of a short staple.
variety. Long and better staple varieties like Laxmi can be profitably cultivated in project areas. It is demonstrated that the yield from improved variety is more than that of the short staple variety. "Andhra Pradesh had about one million acres under cotton and produced about 130,000 bales of lint during 1956-57. The State contributes six per cent of the area and four per cent in the cotton production of the Indian Union." 7 It is likely that the area of cultivation and production of cotton will increase in the near future. Further, it is also likely that the cotton production will increase to 384,000 bales of lint by 1971. 8 All the cotton grown in the State is not entirely utilized within the state itself. Most of the ginned cotton is exported to other neighbouring States. The exports should be minimised and it is better as far as possible to utilise all the cotton within the state itself. "There are 14 cotton textile mills in the state with about 192,000 spindles and 1,219 looms, with a great emphasis on spinning. Licences have been granted for installation of additional spindles and looms and the total capacity of the mills will be about 250,000 spindles." 9

Besides big modern cotton mills, the handloom industry also needs to be encouraged. It is a major source of employment in the rural and semi-urban areas. The State ranks first

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7. Ibid., p. 120.
8. Ibid., p. 120.
9. Ibid., p. 121.
in the handloom industry in the country. There are about 450,000 handlooms. The State needs in addition to the existing capacity 200,000 spindles more to meet the entire demand of the handloom industry.10

Tobacco Industry: Next to the U.S.A. and China, India is the largest tobacco producing country in the world. In India, Andhra Pradesh is an important tobacco producing State. The problem that faces tobacco cultivation is not expansion of production as such but improvement of quality. In future, both quantity and quality should be improved. At present, all the tobacco produced in the State is cured within the State. A meagre part of the production is used to manufacture beedies and low grade, cheap cigarettes and the rest is exported to foreign countries. It is better to develop the necessary industries within the state to manufacture different products of tobacco.

Fruit Industry: The State ranks fourth among the fruit growing States in India and there are about 400,000 acres under fruits of all varieties. Further it is expected that the area under fruits and vegetables might be doubled by the end of the Fourth Plan.11 Mangoes, plantains and citrus are most important fruits of commercial significance. There is urgent need to develop adequate facilities for the preservation

10. Ibid., P. 121.
11. Ibid., Pp. 122 and 123.
of fruits, since the fruit preservation industry is in an infant stage. It is roughly estimated that about 25 to 30 per cent of the total fruit production in the State is going waste due to several reasons such as market gluts, transport difficulties, etc. There are only two medium-sized units in the State; one at Kadiam and the other at Kodur, manufacturing fruit squashes, jellies, jams, etc. These two are very inadequate and a number of units should be started to exploit the available fruit production in the State. There is good demand within the country for fruits and fruit products and the demand will certainly increase in the future. The per capita fruit consumption in India is very low compared to that in U.K. and U.S.A.

Rice Milling

Andhra Pradesh is one of the important paddy producing states of the Indian Union. Rice milling industry is well developed and all the paddy produced is processed within the state. Most of the rice mills are owned by businessman, whose major portion of profits is derived from trade speculation rather than rice husking. This leads to hoarding and speculation, which should be curbed in the general interest of the society. There are no subsidiary industries to exploit the byproducts of the rice milling industry. The byproducts are bran and husk. From rice bran "rice bran oil" and from husk "straw boards" can be manufactured. Further, it is
possible to make biscuits and rusk from deciled rice bran, so it is necessary that adequate number of units should be established in the important paddy producing centres and in delta areas where there is vast scope for the expansion of paddy cultivation.

There are some industries that depend not on agriculture but on industry for raw materials, but are very essential for the development of agriculture, for instance, agricultural implements manufacturing industry, fertiliser industry, etc. There is practically unlimited scope for the expansion of above industries in India. The Community Development projects and national extension services are demonstrating and advocating the usefulness and the necessity of using improved agricultural implements to raise agricultural production. It is also necessary to set up a workshop in each Community Development Block to provide repair and maintenance services for agricultural implements. Research centres should also be developed to improve the standard of farm implements, so that right type of tools and machinery will be manufactured to suit the needs of different regions. These research centres and block workshops will assist in the training of village mechanics also.

The production of agricultural implements is progressing well, but it should be accelerated. There are about 60 units in the country producing agricultural implements. They
include the two public sector units - Mahan foundry and the Nysore implements factory. Apart from tractors, the country is producing different types of improved agricultural implements, such as ploughs, cultivators, seeders, planting and threshing machines, oil ghamias, cane crushers, sprayers and dusters, etc. It is to be noted that Andhra Pradesh, a predominantly agrarian State has to establish one or two large-scale agricultural implements units to meet the internal demand. The existing small units are very inadequate to meet the growing needs of agriculturists. So the state should encourage and establish agricultural implements producing units to increase the present production.

Fertilisers

The importance of fertilisers in Indian agriculture is well known. There are several fertiliser factories now run under the management of the Fertiliser Corporation of India Limited, viz. the Sindri Fertiliser Factory, the Bourkela Fertiliser Factory and one more at Nanjal. Additional units are being set up in the public sector at Trombay, Nanrup, Gorakhpur, Kara and Durgapur with capacities of 90,000, 45,000, 60,000, 100,000 and 125,000 tons of nitrogen respectively.12 In Andhra Pradesh licences have been granted for setting up fertiliser plants in the private sector at

Visakhapatnam and Kothagudem. The present production of fertilisers by all the plants put together is very inadequate when compared with the existing demand. To produce adequate supplies, the existing factories should be geared up to the optimum extent and the new factories that are being established should be made to begin production early. The present level of fertiliser application per hectare of agricultural land in India is about 3.4 kgs. as compared to 257.4 kgs per hectare in Japan, 75.6 kgs. in the U.K., 21.6 kgs. in the U.S.A. and 185.8 kgs. in Netherlands.13

It is thus evident from the above discussion that there is vast scope in Andhra Pradesh for the development of agro-industries. Location of industries should be resource-oriented. That is to say, they ought to be established at such places where raw material is available in plenty. Accordingly, Andhra Pradesh has to give priority for the development of agro-industries.

India's population is growing annually at the rapid rate of 2.5 per cent. Over 13 millions are added to our population annually. We are adding one Australia every year in terms of population. Eighty-nine member countries of the United Nations out of 130 have lesser population than the yearly increase in ours. Our present population is almost equal to that of the United States, the U.S.S.R., Japan, put together, but our land area is only about one-third that of America and only one-seventh that of the Soviet Union.

A suitably oriented system of education can facilitate and promote social change and contribute to rapid economic growth by training skilled man-power for specific tasks of development. What is perhaps more important is creating the requisite attitudes and climate. Even in the case of human fertility, there is a positive relationship between the education level and the preference for children. For instance, 1960-61 National Sample Survey findings state that the number of live-births for women of completed fertility who had primary school education was 6.6, while the average births were 5.0, 4.6 and 2.0 respectively for women who were educated up to middle school, matriculation and university.

According to a definition provided by the UNESCO in this context, "Population education is an educational programme
which provides for a study of the population situation in
the family, community, nation and world with the purpose of
developing in the students national and responsible attitudes
and behaviour towards coping with that situation”. It is a
recent innovation and much experience has not been accumula-
ted on this subject, Population education is useful not only
in enlightening the people about various problems of popula-
tion and its growth but also provides the necessary means to
change the attitudes and behaviour of the younger generation.

One of the important features of our country’s population
is the predominance of young people. About 45 per cent of the
total population are below 15 years of age. Among this
section again a significant part will become parents after a
few years. It is exactly this group, the future parents, that
must be made aware of the population problems. With this in
view a massive programme of population education should be
started in the schools and colleges so that students could
take right decision about the size of their future families.

The education programme should give the learner an in-
sight into the totality of the issues involved including the
nature, causes, determinants, consequences of population
growth both at the micro and macro levels, the nature and
dynamics of the reproductive process and finally the possibi-
ilities of planning the family size and population growth.
The acquisition of such an insight may develop the desired
understanding and attitudes that contribute positively to rational decision making at the micro and macro levels as well.

The success of any such project depends largely upon the efforts of the individual class teacher, not administrators or planners at the top. Unless and until he is involved deeply in this process at all stages and levels, population education may not prove to be any more than of ornamental value. He is pivotal to the successful implementation of any such programme. His orientation and training are very important. Any planning of the programme should take into consideration this dimension and give it its due share and importance.

Until and unless a teacher himself is convinced, he cannot demonstrate any lessons effectively and will not be in a position to deliver the goods. This necessitates training of convinced and committed teachers about the imminent need of the population problem vis-a-vis the future prosperity of the country. Our teacher training institutions must take up population education as an essential and integral part of their pre-service and in-service training programmes. In this matter the National Council of Educational Research and Training through their extension service departments should come to our rescue. The State Institute of Education and Research (SCERT) and other such agencies responsible for in-service
training of teachers could also suitably restructure, re-organise and recent their present programme to include population education as an important item and design an integrated syllabus for the purpose.

In rural India where 70 per cent of the people live in abject poverty, illiteracy, ignorance and innocence and where the growth rate of population is higher than in their urban counterparts, the role of the teacher in providing population education to the dropouts, the non-entrants and adult illiterates must be given priority. The energies and the enthusiasm of the youth who are on the threshold of their reproductive ages in the countryside must be tapped and in the process we are likely to realise rich dividends. The adult literacy programmes can serve as a useful channel for spreading a deeper awareness of the hazards of unchecked population growth. The countrywide adult literacy campaign of the present Government must include education for population awareness and family planning in their curricula, for one of the basic aims of functional literacy is to impart to the adult learners, the knowledge and the information which would inculcate in them the new values which will have an immediate application and use in their day-to-day life. Thus the education programme can be effectively carried out by various institutions of adult education which are already in existence. The educators should not confine their experience, expertise, proficiency,
Training, skills and their new knowledge to the schools only but should strive to reach out to the society at large.

Properly planned population, education and well trained committed teachers are fundamental pre-requisites for the effective and successful implementation of the family planning programmes in any country. Population education will bring about the required change in the attitudes, the knowledge and the behaviour of the youth of the country and thus help the programme succeed, achieving thus a significant reduction in the birth rates.