



NETAJI SUBHAS OPEN UNIVERSITY

STUDY MATERIAL

**POST GRADUATE
GEOGRAPHY**

**PAPER – 4
GROUP : A**

**POPULATION AND
SETTLEMENT GEOGRAPHY**

PREFACE

In the curricular structure introduced by this University for students of Post Graduate degree programme, the opportunity to pursue Post Graduate course in Subject introduced by this University is equally available to all learners. Instead of being guided by any presumption about ability level, it would perhaps stand to reason if receptivity of a learner is judged in the course of the learning process. That would be entirely in keeping with the objectives of open education which does not believe in artificial differentiation.

Keeping this in view, study materials of the Post Graduate level in different subjects are being prepared on the basis of a well laid-out syllabus. The course structure combines the best elements in the approved syllabi of Central and State Universities in respective subjects. It has been so designed as to be upgradable with the addition of new information as well as results of fresh thinking and analyses.

The accepted methodology of distance education has been followed in the preparation of these study materials. Co-operation in every form of experienced scholars is indispensable for a work of this kind. We, therefore, owe an enormous debt of gratitude to everyone whose tireless efforts went into the writing, editing and devising of a proper lay-out of the materials. Practically speaking, their role amounts to an involvement in invisible teaching. For, whoever makes use of these study materials would virtually derive the benefit of learning under their collective care without each being seen by the other.

The more a learner would seriously pursue these study materials the easier it will be for him or her to reach out to larger horizons of a subject. Care has also been taken to make the language lucid and presentation attractive so that they may be rated as quality self-learning materials. If anything remains still obscure or difficult to follow, arrangements are there to come to terms with them through the counselling sessions regularly available at the network of study centres set up by the University.

Needless to add, a great deal of these efforts is still experimental—in fact, pioneering in certain areas. Naturally, there is every possibility of some lapse or deficiency here and there. However, these do admit of rectification and further improvement in due course. On the whole, therefore, these study materials are expected to evoke wider appreciation the more they receive serious attention of all concerned.

Dr. Surabhi Banerjee
Vice-Chancellor

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POST GRADUATE GEOGRAPHY

[M.Sc]

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Writer

Units 1 to 4 : Dr. Jyotirmoy Sen

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**NETAJI SUBHAS
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**PGGR-04
Population
and
Settlement Geography**

Group A

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Unit 1 □ DYNAMICS OF POPULATION GROWTH :

Structure

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1.1 FERTILITY AND FECUNDITY

The term fertility indicates the actual reproductive performance of a woman or group of women. Thus, if in any specific group of women who had completed the reproductive period, 1,000 of them had borne 2,900 living children, this figure would measure their completed fertility. It might equally well be expressed as an average of 2.9 children per woman. But a woman is considered fertile if she has ever borne a live child.

Fecundity, on the other hand, denotes the physiological capacity to conceive and bear children. The proportion of all women who are fecund or infecund is not known with any precision. In some societies where practically all women are married and where there is strong social pressure to have children, it has been found that as few as

1 or 2 percent of those married have been Childless after several years of married life. In most populations, however, the proportion appears to be somewhat higher. Under the conditions just mentioned, there is a strong presumption that a very large proportion of the infertile women are also infecund. However, even in such societies, infertility is not clear proof of infecundity. There is some reason to believe that the proportion of infecund married women is somewhat larger in the United States today than it was in the past and may amount to between 4 and 6 percent of all married women, but this cannot be stated positively, for the data available relate to childlessness and not to infecundity. Childlessness may be due to the voluntary control of conception or to the sterility of the husband as well as to the infecundity of the wife.

FERTILITY AND FECUNDITY :

However, some writers have used the terms fecundity and fertility as synonymous. A man or a woman who has given birth to a live child is considered fertile. On the other hand those who have not produced a single child are considered sterile. Sterility may be also used in connection with groups, though generally it is computed only among women. The total number of children born by one couple are known as family size. The sequence of births of children is birth order. This sequence in the case of mothers is known as parity which is decided by the number of children born alive. The biological limits of child bearing capacity and period are known as voluntary abstinence. All these concepts must be clearly understood in order to understand the trends and causes of fertility.

SOURCES OF FERTILITY DATA

As has been already pointed out, the main sources of data about fertility are : Census, Vital Registration System and Sample Fertility Survey. Different types of measures are adopted for computing fertility according to the sources of fertility data. The main sources of data provide the following types of information :

1. Vital Registration System, (a) The number of registered births, usually in one calendar year.
2. Census, (a) The number of children ever born, (b) Census age distribution, (c) The number of births during the last twelve months.
3. Sample Fertility Survey, (a) The number of children even born, (b) The number of births during the last twelve months.

The basic measures of fertility are of three types :

1. The first type of measures are related to a particular period and based on data peculiar to it. These are therefore termed as period measures. The vital registration

system provides data for one year. Therefore, the question on the number of births during the last one year is asked in a census or sample survey.

2. Another measure of fertility refers to the reproductive performance of women up to a certain time. Therefore, question on the number of children ever born is asked in census or sample surveys.

3. Yet another measure of fertility attempts to measure it indirectly on the basis of the age and sex distribution of the population.

MEASURES OF FERTILITY

The following are the most important measures of fertility :

1. **The Crude Birth Rate.** This is expressed by the following formula :

$$\frac{B}{P} \times K$$

where :

B is the total number of live births during a year :

P is the total population in the middle of that year; and

K is 1,000

The crude birth rate for a sample area of Calcutta city for 1957-68 may be computed as follows :

Number of live births during 1967-68 = 163

Total mid-year population during 1967-68 = 9281

K is 1,000

The crude birth rate of 17.56 indicates that in the sample area of Calcutta city, there had been 17.56 births per 1,000 population during 1967-68.

As the name suggests, crude birth rate is a crude measure of fertility. It is simple and easy to calculate since it requires the minimum data. However, it suffers from several limitations.

2. **The General Fertility Rate.** This rate uses the number of women of childbearing age (15-44 or 15-49) in a population as a base for the calculation of a birth rate rather than the total population. The rate is the number of births per 1,000 these ages. This is expressed by the following formula :

$$\frac{B}{P} \times K$$

where :

B is the number of live births during a year ;

P is the mid-year population of women between the ages of 15 and 44 or 49; and

K is 1,000

The general fertility rate in the sample area of Calcutta city during 1967-68 may then be computed as follows :

Number of live births during 1967-68 = 163

Mid year female population in the age

group 15-44 during 1967-68 = 1,882

Therefore :

$$\begin{aligned}\text{General fertility rate during 1967-68} &= 163 \times \frac{1,000}{1,882} \\ &= 86.61\end{aligned}$$

The general fertility rate of 86.61 indicate that, in 1967-68, in the sample area of Calcutta city, there were 86.61 births per 1,000 women in the childbearing age group of women.

This rate is somewhat more refined than the crude rate in that in addition to eliminating the influence of differences in size between populations it also eliminates the effect of certain compositional differences which might exist in the populations being compared. For example, it eliminates the influence of any differences in the proportion of males in the populations that are compared, a difference which may be quite large after a war and may also be significant when emigrations or immigrations have been large and prolonged, as they have been frequently when peoples have been emigrated from the United Kingdom into the United States. This rate also eliminates the effect of differences in the proportion of all women who are between the ages of 15 and 44 or 49. It does not take into account, however, differences in the age distribution of women aged 15-44 or 49 in different populations, nor does it allow for the fact that a larger proportion of the women 15-44 in group A than in group B may be married.

3. Age Specific Fertility Rates. The general fertility rate is not a very effective refinement of crude birth rate. It loses sight of the fact that the fecundity of women changes during the span of the child bearing period. Therefore, further refinement of fertility measures leads to the development of Age Specific Fertility Rate, which is computed as follows :

$$\frac{bl}{P1} \times i$$

where :

bl is the number of live births to mothers of a specified age group in the population during a year :

P1 is the mid-year female population in the same age group :

i = is 1,000.

The age specific fertility rate for women in the age group 20 to 24 in the sample area of Calcutta city during 1967-68 is :

Number of live births to women in the age
group 20-24 during 1967-68 = 57

Number of women in the age group 20-24
during 1967-68

Therefore

The age specific fertility rate for the age group 20-24 during 1967-68

$$\frac{57}{378} \times 1,000 = 147.29$$

Age specific fertility rates are not affected by variations in age structure. Therefore, these are considered to be refined. Since these rates are with reference to married women they are called age specific marital fertility rates. These are further refined. However, the comparison between two population groups on the basis of age specific fertility rates is full of difficulties. Therefore, Total Fertility Rate is required for such purposes.

4. Total Fertility Rate. Total fertility rate is the sum of the age specific fertility rates of women in each five year age group from 15 to 44 or 49. This is computed by dividing the number of births with the number of women multiplied by 1,000. For example, age specific fertility rate for the sample area in Calcutta city during 1967-68 is calculated as follows :

Sum of all the age specific fertility rates of women in each 5 year age group from

15 to 44 = 467.15

Total fertility rate = $(467.15) \times 5$
= 2.34

The total fertility rate, according to George W. Barclay, is a hypothetical rate indicating, "the total number of children that would ever be born to a (hypothetical) group of women. If the group passed through its reproductive span of life with these birth rates in each year of age." It is believed that the women in this hypothetical group would survive till the end of the reproductive period. Total fertility rate is particularly useful for comparisons between the reproductive performance of two groups of women in two countries or in the same country.

5. Gross Reproduction Rate. While the total fertility rate refers to the total number of children a group of women is expected to have, the gross reproduction rate is restricted only to the number of female children. This is computed by summing up age specific fertility rates, multiplying the sum by 5 and finally dividing the product by 1,000. For example, the gross reproduction rate for the sample area in Calcutta city will be computed as follows :

$$\text{Total fertility rate} = 2.34$$

$$\text{Gross production rate} = 2.34 \times 0.49 = 1.15$$

In the above calculation the digit 0.49 has been arrived by assuming that the sex ratio at birth is 105 male babies per 100 female babies. Therefore, in order to arrive at the percentage of female births in the total population, the formula is so divided by 205 which is approximately 0.49. The value of the gross reproduction rate is thus about one half of that of the total fertility rate. In it also it is assumed that the women in the reproductive age groups would survive till the end of their child bearing period. Gross reproduction rate indicates the number of daughters a group of women is expected to produce. The net reproduction rate indicates the number of daughters ever born. It measures the extent to which a group of newly born girls will replace their mothers under predetermined schedules of fertility and mortality.

6. Sex-Age Adjusted Birth Rate. According to the United Nations, the sex-age adjusted birth rate is, “the number of births per 1,000 of a weighted aggregate of numbers of women, in the various five-year age groups from 15 to 44.” The United Nations has recommended a standard set of weights in computing this aggregate. These are 1, 7, 7, 6, 4, 1, which correspond to the average pattern of age specific fertility rates for the five year age groups, 15-19, 20-24, 25-29, 30-34, 35-39 and 40-44 respectively. The weights are “roughly proportional to the typical relative fertility rates of various age groups.

The sex-age adjusted birth rate may be computed as follows where :
SAABR =

$$\frac{\text{Number of live births in the year}}{1 \times W_1 + 7 \times W_2 + 7 \times W_3 + 6 \times W_4 + 4 \times W_5 + 1 \times W_6}$$

where :

W_1^1 , W_2 , W_3 , W_4 , W_5 and W_6 are the number of women in the age groups 15-19, 20-24, 25-29, 30-34, 35-39 and 40-44 respectively.

The above formula is used due to the reason that even in countries with different levels of fertility, the relative levels of age specific rates for women are rather similar. Absolute age specific fertility rates can be neither high nor low. The percentage of births at a given age do not differ very much.

7. Measures Based Upon Census Age. Census age distribution is utilised to

compute the child-woman ratio. This is the ratio of children under five years of age to women in the child bearing age. The formula for this computation is as follows :

$$\frac{P0-4}{f15-44} \times K$$

where :

P0-4 is the number of children of both sexes under the age of 5 :

f15-44 is the number of women between the ages of 15 and 44

K is 1000.

For example, the child-woman ratio for India in 1971 was :

Number of children under 5 in 1971 = 78,337,100

Number of women in the age group 15-44 in 1971 = 111,327,600

Therefore :

$$\begin{aligned} \text{The child-woman ratio for India in 1971} &= \frac{78,337,100}{111,327,600} \times 1,000 \\ &= 703.66. \end{aligned}$$

Thus in 1971 in India, there were 703.66 children per 1,000 women in the age group 15-44. Child-woman ratio suffers from serious limitations due to under-enumeration in the Census and due to the influence of infant and child mortality. Therefore it is not considered to be very much important, though used for several purposes.

8. Measures Based on Number of Children Ever Born. Census survey and fertility surveys collect information on the number of children ever born from every married woman. The same source also provides data concerning the present age of the mother. Now by cross classifying the age of the currently married woman and the number of children ever born to them it is possible to compute the number of children ever born. This measure is known as completed fertility of completed family size. It is a cohort measure against current measures based on reproductive performance in one year.

Completed Fertility. As the name indicates, “completed fertility” is a measure showing the total number of live births per woman, or per 1,000 women, who have passed through the child bearing period. It is generally stated as the number of children ever born per 1,000 women at ages 45-49, 50-54, etc., or for all ages 45 or over, on a specified date. In the United States, data needed to calculate a considerable variety of such rates are available in the 1910, 1940, 1950, and 1960 censuses.

Since the census data on completed fertility generally distinguish between all women, mothers, and married women, and are also available in these four censuses

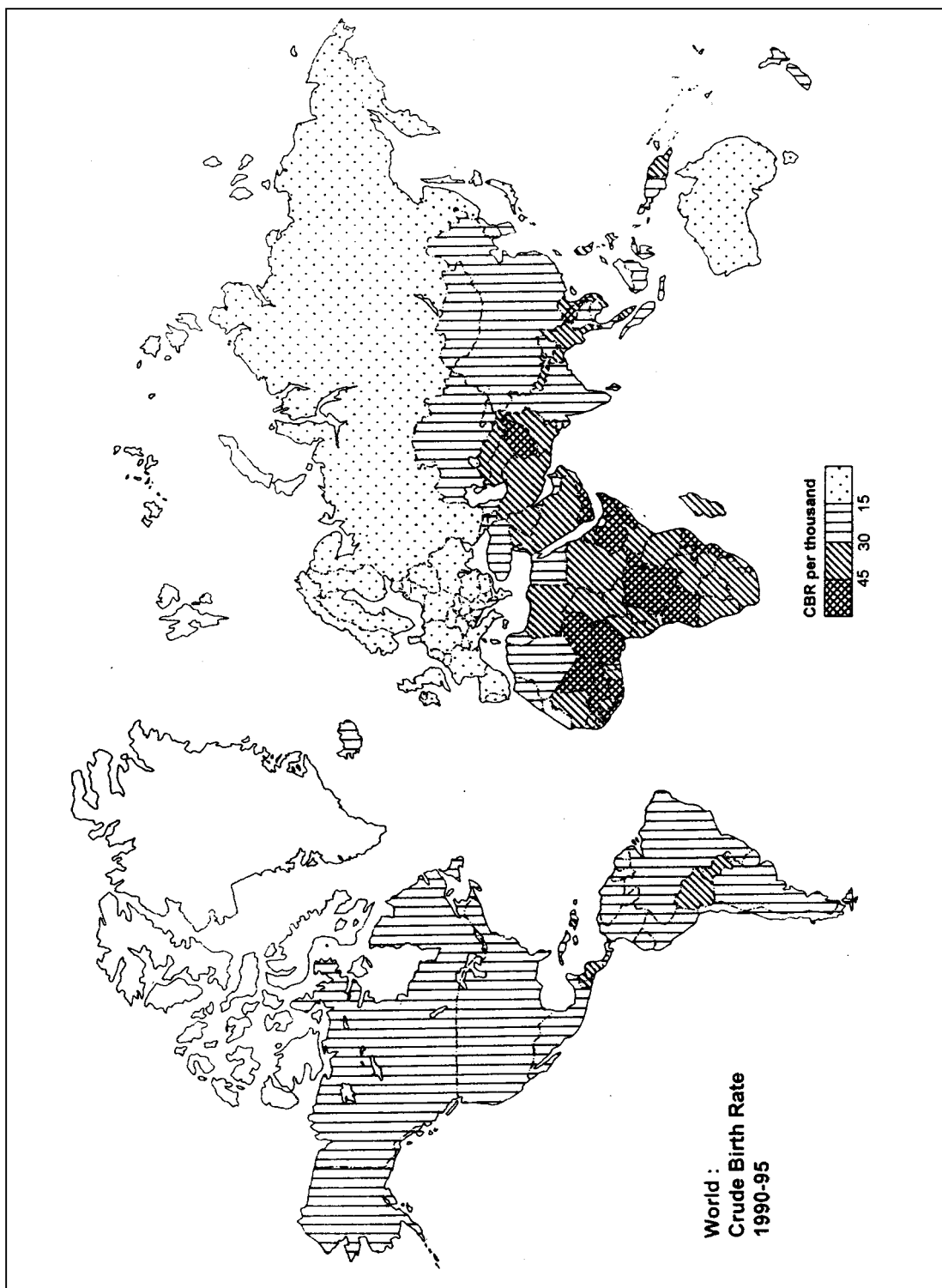
for certain important residence groups, such as urban and rural, cities and states, and for occupation of husband, duration of marriage, and for white and non-white, it is possible to calculate completed fertility rates for a considerable number of different segments of the population. In addition, in the censuses of 1910 and 1940 the data on completed fertility enable us to divide the women aged 45 and over into 5 year age groups upto 70-74 years of age. This enables us to ascertain completed fertility for women whose families were completed during the 25 to 30 years preceding the censuses of 1910 and 1940. (Thompson and Lewis, 1965)

There may be an error in these data which somewhat minimizes the decline in the number of children ever born to women of completed fertility during the period from 1885 to 1940. The older women, 65 and over at the time of the census, are more likely to forget how many births they have had and/or to regard a child that after birth many years before as a stillbirth. In the days when a large proportion of the births were not attended by a physician and when there were no well-established criteria for distinguishing a live birth from a stillbirth, the actual number of live births per 1,000 women of completed fertility aged 65 or over at the time of the census was probably somewhat higher than the census figures.

Cohort Fertility. Cohort fertility is a relatively new refinement of fertility rates now coming into use. The measure takes its name from the fact that it uses as its base of calculation all the women born in a given year - called a cohort - and following the reproductive experience of these same women through their childbearing years, generally the years 15-49, or such of those years as they may have attained at a specified date. A group of cohorts, e.g., the women aged 15-19 constituting five cohorts, may also be used and is quite satisfactory for many purposes. The minimum of data needed to calculate the age-specific birth rates number of women surviving from each cohort in each year of age 15-49, and the children borne each year by age of mother. If other data, such as order of birth of child, viz., a first child, second child, etc., and/or age of mother at marriage and date of marriage, are available, additional useful rates can be calculated.

1.2 DIFFERENTIAL FERTILITY

The levels and patterns of fertility vary considerably in various sub-groups of the same population. These sub-groups may be based on residence, whether urban or rural, social and economic status in terms of educational attainment, occupation, income, size of land holding, religion, caste, race, etc. A study of differential fertility is useful in identifying the factors which determine fertility levels among various sub-groups. This study is also important from the point of view of the implementation of family planning programmes because it helps us to identify high fertility groups on which the programme efforts can be concentrated.



The following important items are considered for a study of differential fertility : (1) **Ecological factors** : (a) regional differences in fertility ; and (b) rural-urban residence and fertility ; (2) **Socio-economic factors** : (a) educational attainment and fertility ; (b) economic status and fertility ; (c) occupation of the husband and fertility ; (d) employment of women and fertility ; (e) religion, caste, race and fertility. It may be noted that fertility differentials may be due to demographic factors such as the age and sex structure of the population and / or ecological and socio-economic factors. While studying fertility differentials, it is necessary, therefore, to ensure that the effects of age/sex distribution among the various sub-groups are eliminated as far as possible. For this reason, a study of differential fertility according to various ecological and socio-economic variables is undertaken by using standardised measures, such as the total fertility rate, the average number of children ever born to women who have completed their reproductive cycle, standardised average number of children ever born or average number of children ever born for each age group.

(1) Ecological Factors

(a) **Regional Differences in Fertility.** The fertility rates of various States within one country may differ widely. In India, for instance, there is a great deal of variation in the fertility levels of various States and Union Territories. The fertility round of 1971-1971 conducted by the Sample Registration Scheme indicated that the total fertility rate for rural areas in the States and Union Territories ranged from 3.78 children per woman in Goa, Daman and Diu to 7.15 children per woman in Delhi. High total fertility rates (around 7 children per woman) were found in States like Uttar Pradesh, Haryana, Madhya Pradesh and Rajasthan. Gujarat recorded a total fertility rate of 6.42 children per woman. West Bengal, Orissa and the southern States of Andhra Pradesh, Kerala, Tamil Nadu and Karnataka had the lowest total fertility rates (less than 5.0 children per woman). The total fertility rates for the remaining States were between 5.0 and 6.0.

(b) **Rural-Urban Difference and fertility.** Numerous studies have been conducted on fertility differentials according to rural-urban residence. Towards the end of the last century, in the low fertility areas of the world, it was found that the fertility of those residing in cities was lower than that of rural residents ; and these differentials were more or less stable. However, when national birth rates declined these fertility differentials widened in a more pronounced manner among urban upper classes than among others. Rural-urban differences narrowed down again when birth rates rose after the Second World War. 15 In the United States, the difference between rural and urban fertility was more or less constant between 1920 and 1940. Since 1940, however, this gap between the two narrowed. According to the 1970 census of the United States, the number of children ever born per one thousand ever married women between the ages of 35 and 39 (that is, those who had almost completed their fertility

period) was 2,929, 2,990, 3,114, 3,265 and 3,584 in the central cities, urban fringes, other urban areas, rural non-farm areas and rural farm areas respectively. In many European countries, especially in eastern and southern Europe, rural urban fertility differentials continued to manifest themselves even around 1970, although the gap was found to be narrowing. It is expected that in developed countries, these fertility differentials would eventually disappear as the forces of modernisation impose increasing homogeneity upon rural and urban areas and the rural population becomes more urbanised in terms of its attitudes and life style.

The National Sample Survey and the Sample Registration Scheme in India have consistently shown the rural crude birth rates to be higher than the urban crude birth rates. The total fertility rates for rural and urban areas were 5.8 and 4.3 respectively in 1972. The total marital fertility rate was also higher for rural areas (6.8) than for urban areas (6.0). In fact, each fertility index shows that, in 1972, rural fertility was unambiguously higher than urban fertility.

According to the Sample Registration Scheme in India each of the selected fertility indicators was higher for rural areas than for urban areas in 1987. The details are given below :

1987		
	Rural	Urban
General Fertility Rate	141.8	108.5
Total fertility Rate	4.4	3.2
Gross Reproduction Rate	2.1	1.5

Source : Sample Registration Bulletin, Vol. XXIV, No. 2, December 1991, Registrar-General, India, Ministry of Home Affairs, New Delhi.

In low fertility countries, an inverse relationship has been observed between fertility and the size of the locality. In the fertility and family planning studies conducted in twelve European countries around 1970, a striking negative relationship was observed between fertility and the size of the locality which was more pronounced in Finland, Hungary and Poland. In 1931 and 1941, it was observed that fertility was lower in the cities of India than in the countryside. It was also observed that the larger the city, the lower was the fertility. A fertility study conducted in India in 1972 revealed that the towns with a population of more than 1,00,000 had a lower total marital fertility rate than smaller towns.

Many researchers have also studied the fertility behaviour of women in metropolitan areas having different residential backgrounds. Implicit in such studies was the expectation that rural migrants to these metropolitan areas would continue to have high fertility values as “a carry over” from rural areas. Such studies have added a new dimension to the study of ‘rural-urban fertility differentials.’ Many have

clearly indicated that, in metropolitan areas, fertility differentials are studied not only on the basis of migration status, but also on that Planning Study conducted in Greater Bombay in 1966, it was found that migrant women with a rural residential background had the highest standardised average number of children ever born (3.42) in comparison with migrant women having urban residential background (2.90) and non-migrant women (3.00).

(2) Socio-Economic Factors

(a) Educational Attainment and Fertility. The educational attainment of couples has a very strong bearing on the number of children born. Educational attainment, especially of women, is one of the indicators of modernisation and the status of women in society. In low fertility countries, historically the relationship between fertility and the educational attainment of the wife has been a negative one, in the sense that the higher the educational level, the lower was the family size. In some recent investigations, however it has been observed that the curve tended to go up slightly at the highest educational levels.

In the high fertility countries, such as Egypt, Taiwan and Chile (Greater Santiago) a distinct negative relationship has been observed between the educational attainment of the woman and the number of children born to her. In Bangalore City, women with high school or college education were found to have a smaller family than those with a lower educational attainment. The sixteenth round of the National Sample Survey (1960-61 urban areas) also brought out a clear-cut relationship between the educational attainment of the married urban woman and her completed family size. It was observed that the completed average family size was 6.10, 6.32 and 6.25 respectively for the illiterate for those whose education did not go beyond the primary school level, and for those who had completed their primary school education. For those who had the secondary school education the average family size was 4.25 and 2.62 respectively.

Two recent Indian studies have established a distinct relationship between the education of the woman and fertility. The first study was conducted in the metropolitan city of Greater Bombay in 1966, and the second in Panaji, Goa, in 1969. A negative association between the educational attainment of currently married women and fertility was observed in Greater Bombay; and this association was sharp and consistent for each age group. The nearly completed family size in the age group of 40 and above for women, who were matriculates or had studied beyond that level, was 2.95, which was distinctly lower than the corresponding average for women with a lower educational attainment. In Panaji, it was found that the average number of children ever born, standardised for age, was 3.51 for those who were either illiterate or had studied up to primary school level, 3.45 for those who had some secondary school education but had not passed the matriculation examination, and 2.57 for those who

had either passed the matriculation examination or had studied beyond that level.

Another recent study by the Registrar-General of India has demonstrated an inverse relationship between the educational attainment of the woman and fertility. Here, again, the two fertility indices, standardised general marital fertility rates and total fertility rates, indicate that, with increase in educational status, fertility decreases.

These findings show the progressive emergence of fertility differentials in India, beginning with metropolitan cities and other urban areas. It may be emphasised here that the cutting point in women's educational attainment for exhibiting a negative relationship was the level of matriculation and above. Women who had either passed the matriculation examination or had studied beyond that level generally have, on an average, 1.0 to 1.5 children less than illiterate or semi-literate women. This finding has important implications for development planning and points to the need for emphasising, to a greater extent, the value of the education of women.

Higher levels of education for women are usually associated with a higher age at marriage. It may also be noted that the higher levels of education provide a higher level of information about keeping fertility under control and create and sustain motivation to keep the family size small with a view to achieving better standards of life. High levels of education provide alternatives to repeated child-bearing. They are associated with lower infant mortality rates and a greater receptivity to innovations in general.

(b) Economic Status and Fertility. General studies in the part have highlighted the inverse relationship between the economic status of the family and fertility. This traditional relationship is now undergoing substantial changes as far as the developed countries are concerned. In India, very few studies have gone into this question of the relationship between the income of the family. In three rounds of National Sample Survey (1959-60, 1960-61, and 1961-62), the Fertility and Family Planning Study conducted in Greater Bombay (1961) and in the studies of fertility differentials in India conducted by the Registrar-General, the traditional inverse relationship between economic status and fertility has been observed. In Table 9.10, the crude birth rate in rural India (1959-1960) and in urban India (1960-1961 and 1961-1962) on the basis of per capita monthly household expenditure in rupees, and the total marital fertility rate and standardised general marital fertility rates for rural and urban India (1979) are presented. It is obvious that as per capita monthly household expenditure increases, the fertility rate goes down. Thus an indirect relationship between income and fertility has been confirmed.

(c) Occupation of Husband and Fertility. In developed countries occupation, especially that of the husband, is used as an indicator of social economic status, and differential fertility is studied according to the occupation of the husband. Studies conducted in Europe around 1970 indicated that the wives of farmers and farm

workers recorded a higher fertility than the wives of men engaged in non-agricultural occupations. Even amongst those engaged in agriculture, the fertility of the group of farm workers was higher than that of the group of farmers. These differences were more pronounced in France and the United States than in the other countries. Manual workers were also found to have, on an average, more children than non-Manual workers. In the non-manual class, the differences between the higher and the lower grades either did not exist or were negligible.

In India, some studies have tried to investigate the relationship between the occupation of the husband and fertility. It was generally observed that the wives of those engaged in professional jobs has the lowest fertility. Agarwala found that cultivators and labourers had, on an average, 7.4 children, and those who were professionals had, on an average, 6.6 children. Driver's findings indicated that the wives of unskilled workers, agriculturists and artisans has higher fertility than the wives of clerks.

(d) Employment of Wife and Fertility. It has been found in several studies that the gainfully employed women have a smaller number of children than those who are not employed. Though this relationship has been quite distinct in many industrialised countries, the exact nature of this relationship is not yet known. Is it that women who have smaller number of children tend to take paid jobs outside their homes, or is it that those who have already paid jobs restrict their family size to the very minimum, so they can work ? It is difficult to say anything very firmly.

(e) Religion, Caste, Race and Fertility. Religion is considered to be an important factor affecting fertility. The study of differential fertility of various religions as well as ethnic groups has important social and political implications. In a democratic society, where each person has the right of vote, the size of a particular religious, caste or ethnic group may be an important factor in determining the political power-structure. Several studies have been conducted in developed as well as developing countries to investigate the influence of affiliation to a particular religion on the fertility behaviour of the people.

At one time, all the religions of the world, except Buddhism, were pro-natalist or "populationist". The injunctions laid down in various religions indicate the importance of high fertility. Some illustrations are : "Be fruitful, multiply and replenish the earth" (Judaism and Christianity); "Marry a woman who holds her husband extremely dear and who is richlyfruitful" (Islam) ; "Make the bride the mother of good and fortunate children, bless her to get ten children and make the husband the eleventh one" (Hinduism). It may, however, be pointed out that all these religions have their roots in the distant past, which was a period of high mortality. As such, the emphasis on prolific fertility was a functional adjustment to high mortality in order to ensure the continuation of the group. Resistance to human interference with fertility is common to all religions.

India may be taken as an illustration from the developing countries. In most of the studies conducted in India to study the fertility behaviour of various religious groups, it was observed that the Muslims had 'a higher fertility rate than the Hindus or the Christians. An analysis of census data from 1881 to 1971 indicates that the Muslims have invariably had higher growth rates for each decade, and these have been attributed to their higher fertility. In pre-partition India, the fertility of Muslims was about 15 per cent higher than that of the Hindus. Recent rounds of the National Sample survey and other small-scale surveys have confirmed this finding. The Fertility and Family Planning Study conducted in Greater Bombay in 1966 also found that the marital fertility of Muslim women was significantly higher than that of Hindu women. No differences were observed between the fertility of Hindu and Christian women. The fertility of Zoroastrian (Parsee) women was the lowest among all the religious groups studied.

Some sociologists are of the opinion that minority religious may tend to have higher fertility rates to gain more political power. This, however, does not hold true in all cases. Two minority communities, that is, the Zoroastrian community in India and the Jewish community in the United States, have always shown lower fertility rates than the majority group. Other socio-economic factors, such as the educational attainment of the wives, the status of women, the degree of modernisation of the community, etc., are found to affect the fertility of the sub-groups in a particular society.

Inter-relationships between Socio-Economic Variables Affecting Fertility. In the discussion on differential fertility only one variable at a time has been taken into consideration with a view to explaining the differences in fertility among various sub-groups in any population. It must, however, be recognised that all these variables are closely interrelated. For Example, when the husbands are highly educated, they tend to have educated wives. Higher education levels are related to higher incomes and more gainful occupations, leading to higher standards of life. In a community in which women are educated, the influence of religious dogma is likely to be less rigid, while if the community has a high proportion of illiterate women, religious influences tend to be strong and affect fertility. Age at marriage is also closely associated with the educational attainment of wives.

1.3 FACTORS ASSOCIATED WITH LONG-TERM DECLINE IN FERTILITY IN DEVELOPED COUNTRIES

In the section, the factors which have brought about a change from high fertility to low fertility in developed countries will be discussed in detail.

(1) **Motivational Factors.** Motivational factors have played an important role in

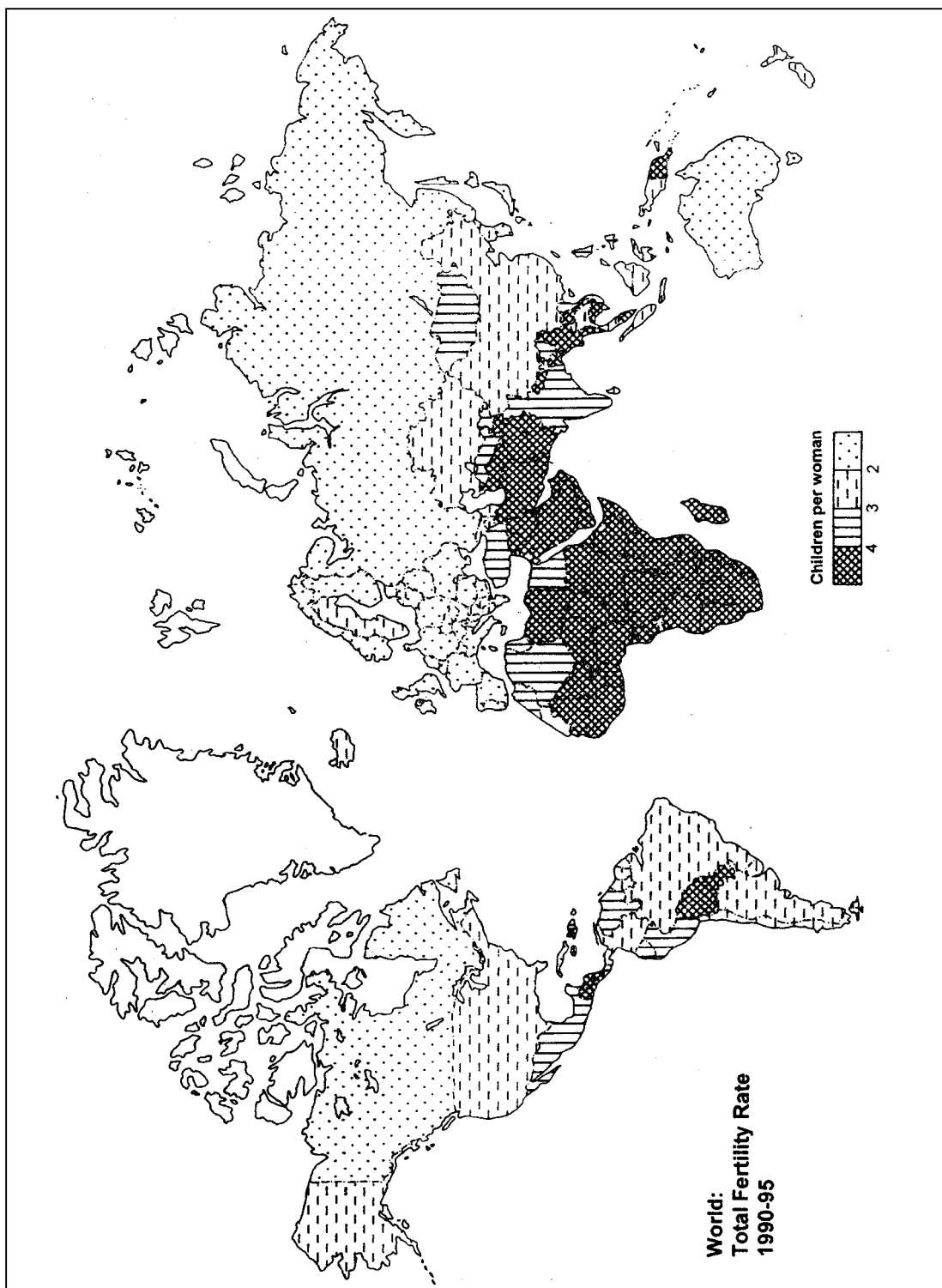
bringing about a change from high fertility to low fertility. Demographers are of the opinion that, over the years, tremendous changes have occurred in the attitudes of couples towards reproduction. It appears that they have moved away from a strong positive desire to have several children to a strong motivation for a limited family. It is difficult to provide research evidence in support of this shift in the attitudinal and motivational forces which came in the wake of the social and economic conditions arising out of the Industrial Revolution. It is, however, quite evident that these forces operated at the level of individual couples, who translated into action the desire for a small family, for the social atmosphere was not favourable to birth control, nor were there any effective means of contraception. The State in most, and the Church in all, the cases did not approve of birth control, nor were there any effective means of contraception. The State in most, and the Church in all, the cases did not approve of birth control. In fact, as Gunnar Myrdal put it, "All the forces of organised society - the law, officialdom, the clergy, educators, the press, the medical profession - were mobilised to prevent birth control from spreading." Yet the strong motivation of individual couples drove them to the achievement of their desired goal of having small families.

(2) Economic and Social Factors. The phenomenon of fertility decline in the now developed countries is very complex. Several interacting and overlapping economic and social factors were responsible for the transition from high to low fertility. It follows therefore that no single factor can be held responsible for this fertility decline. In what follows, some economic and social factors are reviewed in the context of fertility declines. These are : (i) industrialisation ; (ii) urbanisation ; (iii) rising levels of living and increased costs of bringing up children ; (iv) family functions and structure ; (v) relationship between mortality and fertility ; and (vi) social mobility.

The process of industrialisation began towards the middle of the eighteenth century, first in England and later throughout Europe and North America. It brought in its wake several far-reaching economic and social changes, which in turn brought about fertility declines. Most important, the process of industrialisation initiated the process of modern economic growth : the per capita productivity increased and real income rose. Advancements in science and technology further improved the productivity of labour, for they created conditions in which workers received better education and training, worked shorter hours as a result of social reforms, and had better nutrition because of increased availability of food supplies. Several structural changes also took place about the same time. The share of agriculture to total product and that in the labour force decreased ; there was a corresponding rise in the share of industry and other non-agricultural sectors. Industrialisation was accompanied by urbanisation. Declines in mortality were registered because of agricultural, economic and social development that came in the wake of industrialisation.

Several changes accompanied growing industrialisation and urbanisation, which had implications for fertility decline of particular interest are the changes which took place in the structure and functions of the family - the basic unit of society. The family lost its function as an economic unit, in the sense that it ceased to be a producing unit and became only a consumer unit. With the introduction of laws which prohibited child labour and made education compulsory, the economic usefulness of children to their parents was drastically reduced. In fact, they became a liability because of the increasing costs and lengthening duration of education. At the same time, there were declines in mortality, specially infant and child mortality; more children survived and the burden of bringing them up entirely on the nuclear family. Parents soon realised that, because of declining mortality, there was no need to have a large number of children in the hope that a few at least would survive. They therefore had fewer children. The advantages of rising real incomes flowing from industrialisation were in danger of being nullified by large families, especially because of the rising costs of bringing up children. A large family was, therefore, seen as a threat to maintenance of a certain standard of life, and couples responded to this threat by having a smaller number of children. Rising costs of child rearing was thus an important factor in fertility declines in developed countries. Certain measures initiated by the Governments of various countries also contributed to changes in possibility, for medicines and medical treatment, provision of old age security. etc., which were originally shouldered by the family, were taken over by the State in many countries. Children, therefore, were no longer the only source of old age security. With the spread of education among women, social attitudes to women, as well as the attitudes of women to themselves, underwent profound changes. It was realised that a woman need not be restricted to her age-old role of homemaker and bearer of children. Women began to participate in gainful employment which provided an alternative to child-fringing and child-rearing. Education was also responsible for dearing bringing about a rational outlook, free from religious dogma; and control. Moreover, flowing from education opportunities and rising prosperity was the aspiration on the part of the individual to rise in the social scale. Too many children were perceived to be an obstacle in the attainment of this objective to climb the social ladder ; and the natural result was the limiting of the size of the family.

According to Frank W. Notestein, the noted demographer, the growth of a huge and mobile city population largely changed the corporate family way of traditional society ; instead came individualism, which was characterised by increasing personal aspirations to move upward. Large families became “a progressively difficult undertaking ; expensive and difficult for a population ever increasingly freed from old taboos and increasingly willing to solve its problems rather than accept them.” Notestein pointed out in 1953 that the decline in fertility in the West occurred as a result of the growth of an urban industrial society. He concluded that the development



of technology was the underlying factor for fertility transition. He also pointed out that industrialisation and urbanisation resulted in “the development of a rational and secular point of view; the growing awareness of the world and modern techniques through popular education, improved health, and the appearance of alternatives to early marriage and child-bearing as a means of livelihood and prestige of women.”

The reasons for the recent declines and low current levels of fertility in most of the developed countries may be summarised as follows : (1) Development of improved methods of fertility control and increasing use of the most effective methods ; (2) Liberalised abortion laws and extensive grounds and facilities for abortion ; (3) Decreasing desire for large families ; (4) Rising costs of rearing child ; (5) The increasing trend of women’s employment in paid jobs outside the home ; (6) Instability and changes in the values attached to the rewards and penalties of parenthood in the context of other needs and aspirations.

Factors Related to High Fertility in Developing Countries

In order to understand the factors which are responsible for high fertility it is necessary to study the social, cultural and economic conditions prevalent in the countries with high fertility, which may then be compared with the conditions in the countries where fertility has declined. The following section considers the same factors that were identified earlier for fertility declines in low fertility countries, but in a different context.

(1) Motivational Factors and Factors Relating to Family Structure and Functions. Two general explanations are put forward for the high fertility in some countries. The first explanation is that high fertility is a fundamental adjustment to high mortality and that high “fertility is necessary for group survival when mortality is high. When infant and child mortality rates are high, this consideration becomes ever more important, becomes necessary in view of the fact that the chances of survival of children to adulthood are slender. Even when infant and child mortality rates begin to decline following improved health services, this fact does not become immediately evident to the people.

The other explanation is that high fertility is also an adjustment “to the central importance in community life of familial and kinship ties.” In pre-industrial societies, all activities are centred around kinsmen and children and a great deal of occupational co-operation is required from them for the large task that are to be carried out. In fact, in such societies, economic and social relationships overlap. The production and consumption of goods and services, leisure-time activities, assistance in illness and old age and several other activities, which are normally entrusted to various non-familial institutions in complex societies, fall in the domain of the family and kinship groups in pre-industrial societies.

In such a social structure, children have a great economic, social, cultural as well as religious value. They become economically useful by the age of six or seven, and therefore are not an economic liability for their parents, but are, in fact, economic assets. They produce various types of goods and a wide range of services : they fetch water and fuel, care for cattle, look after their younger siblings, sweep, etc. When they grow up, these children help their parents and look after them in sickness and old age. In most pre-industrial societies, great importance is attached to the procreation of male children, for sons extend the family line. Amongst the Hindus, a son is essential, for only he can ceremoniously kindle the funeral pyre and thus effect the salvation of his father's soul. He is also responsible for performing religious services for his ancestors. Children are generally considered to add to the wealth and prestige of the family, for with the increase in the number of children and consequent increase in relatives and grandchildren come more political power and additional economic resources for the family. Even when children migrate to urban areas, they continue to add to the family income because of strong family ties and their sense of duty towards parents which is ingrained in traditional societies.

In such societies, biological parents may not be called upon to provide for the basic needs of their children, for the family is jointly responsible for all the children born into it. There is, therefore, no economic motivation for restricting the number of children.

In most traditional societies, a fatalistic attitude to life is ingrained and fostered from childhood. Such an attitude acts as a strong influence against any action that calls for the exercise of the right of the self-determination with reference to reproduction. It is for this reason that, when people are asked how many children they would like to have, they are sometimes known to reply : "It is not for us to decide," "Children are the gifts of God," etc. Religious institutions also generally promote high fertility values which are definitely incorporated in the tenets of Hinduism, Judaism, Islam and Christianity, specially among the Roman Catholics.

(2) Economic, Social and Other Factors. The motivational factors mentioned above are supported by the low level of economic and social development which exists in most developing countries today in spite of the fact that the process of industrialisation has already commenced in these countries. In most developing countries, there is still widespread poverty, and the literacy rates are low. (India, Pakistan, Bangladesh, Burma, Indonesia, Thailand are some examples.) The status of women is also quite low, leading to their unquestioning acceptance of excessive child-bearing without any alternative avenues for self-expression. The general low level of living leads to an apathetic state of mind, and there is

hardly any desire to improve the standard of life. Lack of education acts as a constraint on rational and secular living, and the influence of religious dogmas persists. The result of all these factors is that the size of the family grows without any inhibiting influences.

Taking all these factors into account, the governments of most developing countries have launched official family planning programmes to educate their people to accept, in keeping with the changing times, the small family norm. Though these family planning programmes cannot be a substitute for economic and social development, and are definitely not meant to be so, they can be quite effective in augmenting the control of fertility.

1.4 CAUSES OF HIGH FERTILITY IN DEVELOPING COUNTRIES

In contrast to the above mentioned factors resulting in low fertility, the following factors have resulted in high fertility in developing countries :

1. **Motivational Factors.** According to Ronald Freedman, high fertility is an adjustment, “to the central importance in community life of familial and kinship ties.” In pre-industrial societies and in agricultural social groups there is emphasis upon corporate activities. Joint family, joint cultivation, joint occupations and community living motivate in favour of high fertility and against low fertility. In agricultural societies children are valued due to economic, social, religious and cultural factors. Economically they start earning and helping the parents in a very young age. Several females with dozens of children are assets to a male in backward societies particularly in Africa. Most of the great religions have eulogised the birth of a son. In most of the primitive societies, bigger family leads to higher social status. In many primitive societies the socio-economic status of a person is measured by the number of his wives.

This has encouraged polygamy and reckless procreation. Wars have also been motivating higher birth rate. Another significant motivating factor has been the fatalistic attitude such as the theory of Karma in India according to which, “children are the gifts of God.” Similar views have been expressed by most of the great religions thus motivating high fertility. It may be remembered here that along with Hinduism, Islam, Judaism, Christianity has also motivated high fertility, but this has been counteracted by other factors in developed countries. On the other hand among the countries professing Hinduism, Islam and Judaism religion has motivated high fertility.

2. **Economic Factors.** Widespread poverty leads to illiteracy, lower standard of living and corresponding high fertility. The children in lower economic group very soon start helping their parents in earning their living. Therefore the number of children is rather a welcome factor. Again, lower economic status leads to fatalism motivating high fertility.

3. **Social Factors.** social factors such as joint family, caste system, lack of social nobility, lower status of women, community life and joint occupations encourage fertility.

Due to the above mentioned factors one finds a high rate of birth in developing countries. Therefore the governments in these countries have launched family planning movements to curb birth rates. As it is a well known principle these days that peace and prosperity anywhere requires peace and prosperity everywhere, most of the developed countries are giving aids to developing countries to check population growth. Similar campaigns have been organised by subsidiaries of United Nations to curb population growth in developing countries. These efforts have shown some results in some countries particularly in big countries like China, and India. However, most of the developing countries, particularly the Islamic countries, are still showing high fertility rate. In fact unless social, cultural, economic and religious changes occur in these countries, the efforts of United Nations or those of the developed countries will not bear fruit.

1.5 MORTALITY

Concepts

The United Nations and the World Health Organisation have defined death as follows : “Death is the permanent disappearance of all evidence of life at any time after birth has taken place (postnatal cessation of vital functions without capacity of resuscitation).” A death can thus occur only after a live birth, and the span between birth and death is life.

The above definition of death does not include and death prior to a live birth, which has been defined by the United Nations as follows : “Live birth is the complete expulsion of extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached; each product of such a birth is considered live-born.” It is, therefore, evident that any death prior to a live birth is not considered as a death. Thus abortions and still births are referred to, not as deaths, but as foetal deaths. Any

expulsion of the foetus, either spontaneous or induced, which occurs before the foetus becomes viable, that is, capable of independent existence outside its mother, is known as an abortion. When a birth does not have any of the characteristics included in either of these two definitions of live birth or abortion, it is known as a still birth.

The study of mortality is useful for analysing current demographic conditions as well as for determining the prospects of potential changes in mortality conditions of the future. The public health administration depends heavily on the study of mortality, for statistics of death are of great value for the formulation, implementation and evaluation of public health programmes. Statistics on deaths also form the basis of the policies of insurance companies.

Sources of Data

The above explanation of the concept of mortality implies sources of data about it. An important source of data is the registration of vital event. This however, is very inadequate in developing countries except in some major cities. It is only rarely that mortality data are gathered through census. On the world level The Demographic Year Book of the United Nations provides data on mortality including number of deaths, death rates, death by age and sex, infant deaths, infant mortality rates, causes of death, etc. Statistical report of the World Health Organisation also provides information on mortality. The following explanation of the sources of mortality data in India will help in understanding the sources in developing countries :

1. Vital Registration. In India the history of collecting vital data dates back to 1886. Vital Registration has been the function of The Registrar General of India. The

MORBIDITY

Mortality should not be confused with morbidity, which refers to the occurrence of disease. Morbidity rates are usually expressed as the incidence of a disease or disorder per 100,000 population in one year (**Principles of Sociology**, 4th edn., L. Broom and P. Selznick, 1970).

Morbidity rates are of two types : the **prevalence rate**, which gives the numbers suffering from a specific condition at any one time, and the **incidence rate**, which gives two number of individuals suffering from a particular condition within a given period of time, usually one year. Regional variations in morbidity are of interest to medical geographers, and may indicate regional differences in living standards and life-styles. At the time of writing, attention is focused on the fact that the incidence of bowel cancer is higher in Scotland than in the rest of the UK, and the incidence of breast cancer is higher in the UK than in the rest of Europe (**Oxford Dictionary of Geography**, New edition.)

same source provides data for under registration of deaths in different states of India. Thus there is a serious handicap for gathering mortality data in India.

2. National Sample Survey. Another source of mortality data in India is the National Sample Survey (NSS). It collects information on a variety of topics. It was established in 1949. It is gathering mortality data since Oct. 1953. Its estimates are better than those of Registrar General of India. But it also suffers from certain limitations like recall lapse and mis-statements of events due to the mixing of the reference period.

3. Sample Registration Scheme. This scheme was launched by the Registrar General of India in 1964. It is also known as Sample Registration System. It aims at obtaining more reliable mortality data. It involves continuous enumeration by a part time local resident enumerator, along with a six monthly cross check survey by a supervisor, manual matching of two sets of records, verification of discrepancies of the field, preparation of a final list of verified events and calculation of birth and death rates based on them. Kerala, Maharashtra and Mysore, for the purposes of testing the schedules and instructions, assessment of organisational problems and orientation of officials involved at all the levels. In 1966 there was full scale sample registration in all the States with a stratified one stage sample in 156 village. In the urban areas a stratified two stage random sample was drawn. The rural area covered had a population of 350 million, spread over 545,000 villages in sixteen States. The urban areas covered had a population of 79 million in 2,700 cities and towns. Since the introduction of this scheme, more reliable information on birth and death rates, age-specific fertility and mortality rates, infant and adult mortality, etc., have become available.

4. Indirect Methods. Besides the above mentioned direct methods of obtaining death rates, demographers also use the following indirect methods of estimation of mortality. Firstly, age data of two consecutive censuses are used and the death rates are obtained through the application of 'differencing method', 'reverse survival method' in combination with the differencing method, 'stable' and 'quasi-stable' population methods, etc.

1.6 MEASURES OF MORTALITY

The following are most important basic measures for the general understanding of the process of mortality :

1. Crude Death Rate : This is the most simple, the most commonly used and the most quickly calculated and understood measure of mortality. Crude death rate is a ratio of the total registered deaths of a specified year to the total mid-year

population, multiplied by 1000. It is computed as follows

$$\frac{D}{P} \times K$$

where

D is the total number of deaths registered during a calendar year (January 1 to December 31) ;

P is the total population at the middle of the year (July 1) ; K is 1000. For example, the crude death rates for Greater Bombay in 1973 have been computed as follows :

Total number of deaths 1973 ;

(January to December 31) = 61,931

Total population at the middle of

the year, (i.e., mid-year population July 1 1973) = 6,551,00

Therefore,

the crude death rate for

$$\begin{aligned} \text{Greater Bombay for 1973} &= \frac{61,931 \times 1,000}{6,551,000} \\ &= 9.45 \end{aligned}$$

The crude death rate expresses the frequency of deaths in total population as a single number. For example if it is said that in 1971 the crude death rate in Greater Bombay was 9.45, it means that 9.45 death occurred per 1000 population. The crude death rate provides the basis for computing the rate of natural increase in population by comparison with the crude birth rate. It is the most widely available index of mortality. It may be compared with similar data from other countries to know the trend in mortality. However, it is a refined measure. It suffers from severe limitations, the most glaring of which are the following :

1. Its coverage of death statistics is inadequate.
2. It hides the experience of population group with varying mortality.
3. It gives a greater weightage to the mortality experience of large group in the population.
4. It does not take cognisance of the differences in the age sex structures of different populations.

2. Average Life Expectancy : This is average expectation of life at birth. It is

a useful measure of mortality because it is not influenced by the age structure. It is derived from the life table which is constructed to summarise the mortality experience, of a single hypothetical generation. Average life expectancy means the average-number of years of life which cohort of new born babies may be expected to live. This measure is rather complicated, calculated. However, it is most easily understood by the common man. Therefore, it is widely used in different countries.

3. Infant Mortality Rate : According to George W. Barely, “Infants are defined in demography as an exact age group namely, age zero, of those children in the first year of life who have not yet reached age one.” The infant mortality rate is a measure of the risk of death between the birth of the baby and its first birth day. It is computed as follows :

$$\frac{d_0}{B} \times K$$

where :

d_0 is the number of deaths below age one, registered during calendar year.

B is the number of live births, registered during the same year K is 1,000.

For example, infant mortality rate for Greater Bombay for 1973 was computed as follows:

Total number of registered deaths among infants during 1973	=	7,023
Total number of registered live births during 1973	=	81,642
Therefore, infant mortality rate for Greater Bombay for 1973	=	$7,023 \times 1000$ 81642 = 86.02

The above mentioned mortality rate show that in 1973, 8602 infants per 1,000 live born babies died during the first year of their life in Greater Bombay. These measures of mortality will be discussed in more details in sequence.

AGE-SPECIFIC DEATH RATES

An age-specific death rate (number of deaths of persons of a given age per 1,000 population of that age) can be calculated with precision only if we know the size of the different age groups and if the deaths for the same groups are adequately registered. It is also highly desirable to calculate these rates by sex. Such rates are the basis for practically all refinements in mortality rates that are in use today. They give an

accurate picture of mortality for both males and females at each age. The population base is usually the population in the middle of the period under consideration. If single-year groups are used, there are about 100 rates.

AGE-STANDARDIZED DEATH RATES

The standardized death rate, based on age-specific death rates, supplies a simple and accurate basis for comparing the death rates of different populations. Assuming that the death rate of each sex is standardized for age, we find from this rate what the rate would be if the population being studied had the same age composition as some other population which is used as a standard. When the death rate for males and females of two or more populations are standardized for age on the same population base (a standard population) their sex death rates can be compared with assurance that age differences do not account for any part of the difference in these rates. Rates can also be standardized for other differences in the composition of populations, e.g., education, marital status, occupation, and so forth.

LIFE TABLES

Life tables are based on knowledge of the exact age of death of persons in a specified population. Since they arose out of the need for knowing the probability of dying at, or conversely, of surviving to, any specified age if life insurance were to become a business, and since there has never been any hope of telling that a particular individual would live to, or die in, any specified number of years, it was necessary to resort to the calculation of the probability of living or dying of the individual as a member of a fairly large group.

Life tables, must be based on a fairly large population, and the basic rates used to calculate them are the age-specific death rates. It has become standard practice to convert age-specific death rates to show the probability of an individual of any specified age dying in any particular interval, e.g., the probability of a male aged exactly 35 dying before reaching exact age 36. The life table generally starts with the assumption that 100,000 babies, usually 100,000 boys and 100,000 girls separately, are born at a given moment, let us say on January 1, and proceeds to answer the question how many of them will die in each annual interval, e.g., by the time the survivors are exactly 1, or 2, or 10, or 50 years old.

DEATH RATES BY CAUSE OF DEATH

The death rate from a given disease is another measure of mortality which is very helpful both in evaluating the effectiveness of present health work in different communities and also in indicating in which direction the extension of health services is most needed. Rates for deaths by cause are most useful when they are also shown by age and sex, since certain of the most important diseases operate chiefly

or almost exclusively at certain ages and a few diseases are found chiefly or females. Death rates for such diseases mean little unless differentiated by sex. For practically all the more important causes of death, the rates for males are higher than those for female.

1.7 MORTALITY DIFFERENTIALS

Important variations in the levels of mortality are evident for different sub-groups of the population even in the same country. For instance, the rural areas and urban areas of the same country have widely different death rates. In addition to mortality differentials by geographical residence, differentials due to other demographic and socio-economic factors may also be observed within the boundaries of a particular country. Such factors include occupation, income level, educational attainment, sex, age and mental status.

Rural Urban Differentials. Before the 20th century mortality was higher in the urban areas of America and USA. In America in 1830 mortality was worst in large cities than in small cities or in rural areas. Similar was the case in Europe. In 1841 the life expectancy in London, Liverpool and Manchester was 35, 25 and 24 years respectively, while the average life expectancy for England and Wales was 40. Similar examples can be given from other countries. For example, in India death rate 10.3. Similarly, in 1973 the average was 15.5 of which the rural mortality rate was 17.0 and the urban 9.2. As has been already pointed out, rural urban differential in death rate is active in India particularly due to the availability of medical facilities in the urban areas and their scarcity in the rural areas.

MORTALITY AND OCCUPATION

Occupation is an important factor in determining the death rate for several reasons. In the first place, the type of work done may, by its very nature, be detrimental to health, e.g., underground mine work, certain tasks in steel mills involving sudden and large changes in temperature, occupations in which one breathes much dust, and so forth; or it may be healthful because the exercise involved is not too strenuous and the general environment clean and pleasant. In the second place, the occupation largely determines the family income and the physical surroundings of the worker and of his family at home.

MORTALITY AND MENTAL STATUS

It has been observed that death rate of the married persons is low, particularly among the men. In this connection, Newsholme long ago noted that the “comparative freedom in marital life from the terrible risks of syphilis must be given weight.” This

factor is probably of less importance now than it was before the development of the antibiotics. Finally, marriage probably represents a better adaptation to life, physically and mentally, than does celibacy.

As regards the relatively high death rates of widowed and divorced persons, it may well be that these groups contain a rather large proportion of persons who made initial mistakes in the selection of mates from the standpoint of both health and temperament. In addition, the health of the widowed may have been affected even before the death of the spouse by having mates whose health was not quite up to normal, and the further hardships entailed by widowhood may increase their death rates. The divorced very obviously have been unable to make a satisfactory adjustment in marriage, and the inability thus indicated may possibly be associated, both as cause and effect, with physical weaknesses.

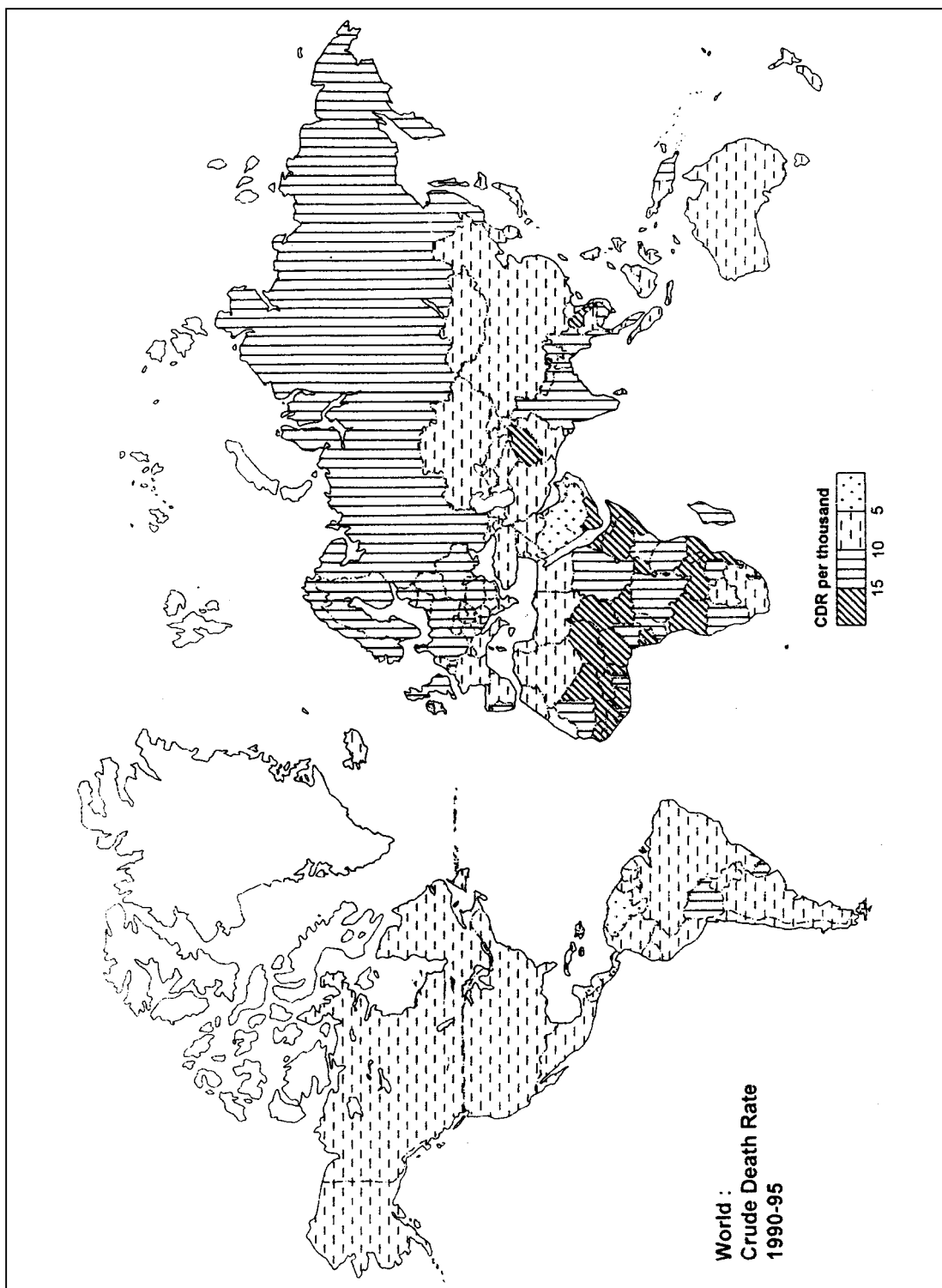
Educational Attainments of Parents. An important mortality differential is the educational attainments of the parents. It is so since the educated parents have a better living standard and more knowledge concerning health. However, in Hungary an inverse relationship was noted between the educational status of parents and the levels of infant mortality. This is an exception. According to United Nations report it was 95 for the mothers who had never attended schools while for those whose mothers had attended 1.3 or more years of schooling it was 27. In 1966 in Greater Bombay the infant mortality was low among mothers with educational attainment. It was highest among infants of illiterate mothers and lowest for infants whose mother had higher education.

Religion : Study by Vaidyanathan has shown that in India the Christians and Muslims have lower mortality rates than the Hindus. Thus one finds a distinction in mortality rates in different religious groups, though obviously this cannot be due to any religious reason but due to the economic and social factors.

Caste : Mortality differentials exist between different castes. Among the Hindus the upper caste groups have a lower mortality rate than the lower caste groups.

Socio-Economic Status : Socio-economic status has proved to be an important mortality differential in different countries. The ratio however is not in straight line. One finds inverse relationship between mortality and socio-economic status as a general rule. In other words, as socio-economic status rises, rate of mortality falls and vice versa. However, in some of the cases it may be noted at the highest level. As a general rule a middle class socio-economic status is favourable for the lowest mortality rate. Mortality rates are generally highest at the lowest socio-economic level.

Regions : In almost all the countries region is a differential in mortality rates. In



India mortality rate is highest in Uttar Pradesh and lowest in Kerala. The following table gives the estimated death.

MORTALITY AND CLEANLINESS

Today, in the more developed industrial countries, we take for granted that a high standard of personal cleanliness, household cleanliness, and public cleanliness (sanitation) have long been man's normal lot. It is not widely realized that for most peoples cleanliness is a relatively recent achievement. However, until about 1900 few people knew that filth harbors many kinds of bacteria which cause a great variety of diseases. Contaminated wells have led to untold thousands of epidemics of intestinal diseases in villages and parts of cities where wells supplied all the water for the household. Public water supplies, carefully managed to avoid contamination, were not provided by many towns and cities here and in Western Europe even in 1900. Until a few decades ago, careless sewage disposal was the rule rather than the exception in most communities in most parts of the world. Hence many diseases were spread by many types of carriers of bacteria, e.g., by houseflies and mosquitoes and by air from dumps and open pools into which all manner of wastes were drained and from which drinking water was drawn.

When one member of the family or of the household had tuberculosis, the infection of others in the household was almost inevitable because of the crowded, unventilated, and filthy living quarters which were very general until about 150 years ago. Inadequate food, poorly prepared, weakened the resistance of a large part of most populations to the diseases which they were likely to contact. In fact, carelessly prepared food was itself a frequent cause of intestinal diseases; it still is, in many areas.

This whole matter of cleanliness of person and home and in all manner of public services is today very closely related to the level of living of any population.

Age. Finally the most important mortality differential is age. As a general rule people die of old age. This is a normal feature. However if mortality rate is high among infants, childhood and growth, that is a defective situation. As is clear by the following table, in India infant mortality is the highest even more than old age mortality. Otherwise age makes normal difference in mortality.

1.8 WORLD PATTERNS OF MORTALITY

The Human Development Report, 1997 reveals that the crude death rate, for the world as a whole, was 9.2 per thousand (1990-95). There was little to differentiate

between the mortality rates of the developed regions and less developed regions. The developed countries had a death rate of 9 per thousand and the less developed countries had a death rate of 10 per thousand. From amongst the various continents, Africa suffered the highest mortality rate of 16 per thousand. Interestingly, Europe with a mortality rate of 11 per thousand ranked second. It was followed by Asia, North America, Latin America and Oceania in this order. The mortality rate of Russian Federation was 14.9 per thousand.

In most countries of Africa (except Egypt and South Africa) the crude death rate ranged between 10 and 20 per thousand, implying 50 to 100 percent higher mortality than the average mortality rate of the less developed realm in general. It means that Africa still continued to be the most backward continent where even the sharp declines in mortality experienced by the continent have failed to bring down the crude death rate at par with that of the less developed countries of other continents. In fact, the infant mortality rate in most of these African countries still soared high, indicating the need for large scale immunization programmes in all such countries.

In Europe, most of countries displayed a mortality rate of around 10 per thousand. However, countries like Ukraine (5.2), Russian Federation (14.9), Hungary (14.0) had depicted the revival of high mortality rate perhaps due to invreased stresses in life enhancing the middle aged mortality among their populace. The infant mortality rate in case of most European countries was lower than their average crude death rate. Interestingly, the fertility rates having been stabilized at a low level in most of European countries, it is not surprising to find that most of such countries are confronted with the problem of either negative growth or near zero population growth.

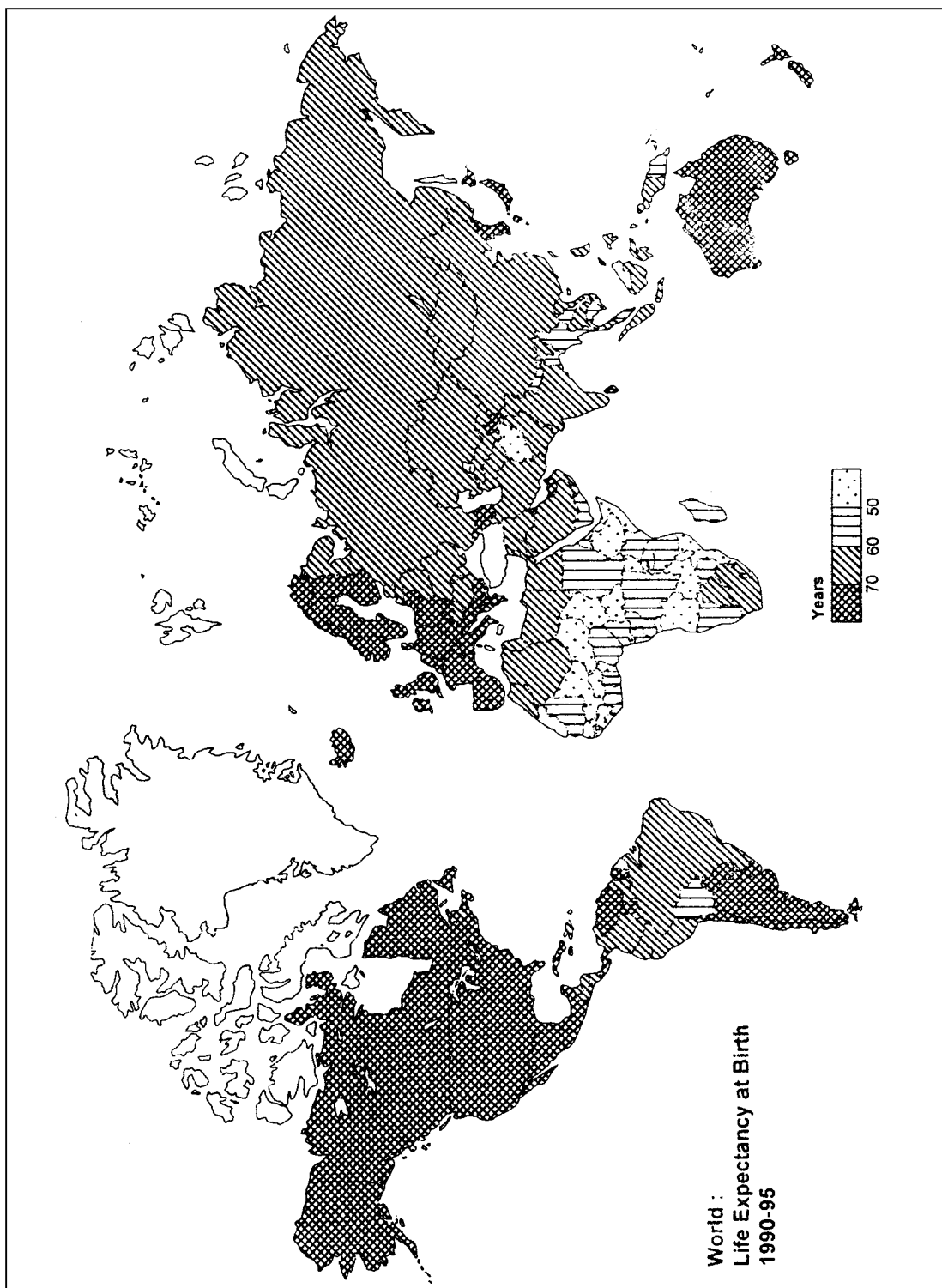
North and Central American countries by and large, displayed low mortality rate of less then 10 per thousand. And so was the case with most of South American countries and countries of Oceania. However, Asia still continued to be the land of contrasts. On this continent, U.A.E. displayed the lowest crude death rate of 2.7 per thousand which perhaps may be lowest in the world. By contrast, in Afghanistan (22.3) one could come more across one of highest crude death rate in Asia. Yemen Republic was a close follower with its mortality rate of 21.2 per thousand. The two most populous countries of China (7.2) and India (9.2) had fairly low mortality rates comparable with average of the more developed countries and even lower than that found in some of the more developed countries.

Japan, Israel, Sri Lanka and Singapore were other Asian countries with significantly low crude death rates. Lowering of mortality rates in some of the less developed countries, particularly large sized countries, to a level equivalent or below

the mortality rates of more developed countries indicates that the war on mortality has been won in large parts of Asia while that on fertility needs to be fought much more vigorously now.

Table 10 reveals that the life expectancy at birth for the world as a whole in 1997 was 66.7 years. In case of females it was little higher (68.9) than that of males (64.7). Females are biologically a stronger sex. They are less susceptible to diseases. Their immunity system is much stronger than that of males. The nature has made them stronger perhaps due to the fact that their role in reproductive process is much more crucial in comparison to that of males. In case of the developed world, the life expectancy at birth was 77.7 year while in case of the less developed realm it stood at 66.4 years, lower by a significant margin of over 13 years. However, it was heartening to note that even in their case the life expectancy of females was higher (66.1 year) than their male counterparts (63.0) by about 3 years. It is a significant improvement upon their situation of about 50 years ago when not only their general life expectancy was low but also their females had lower life expectancy than males due to high female mortality rates prevalent in these countries. As far as industrialised countries are concerned, their females displayed a significantly high life expectancy at birth (80.9 years) though their males too were not very much far behind with a life expectancy of 74.5 years at birth.

Interestingly, the highest life expectancy at birth in the world was displayed by one of the developed countries of Asia. Japan had on average life expectancy of 80 years varying between 82.9 years among its females and 76. years among its males. It was closely followed by Canada 79.0 years on an average for both sexes, varying between 81.8 years among its females and 76.1 years among its males. Sweden (78.5), Australia (78.2), France (78.1), U. K. (77.2), Germany (77.2), Singapore (77.1), New Zealand (76.9), U. S. A. (76.7) were many among the developed countries where life expectancy was significantly higher than the world's averages for persons as well as for males and females. From among the large sized most populous countries of Asia, China had succeeded in raising its life expectancy at birth to a level higher than the world averages. It had a life expectancy of 69.8 (persons), 72.0 (females) and 67.9 (males) years. India, on the other hand, still needed to put in little more effort to reach that stage. In case of India, the average life expectancy at birth in 1997 was 62.6 years. In case of its females it was only marginally higher (62.9) than that of males (62.3). On the continent of Asia Afghanistan displayed the lowest life expectancy. However, it was on the continent of Africa that lower life expectancy rates in the range of 30s, 40s and 50s were found. For example, Malwai had a life expectancy of 39.3 years, Uganda 39.6 years, Rawanda 40.5 years, Ethiopia 43.3 years, Yemen 50.1 years etc. Tropical Africa, by and large, exhibited lowest life



expectancy. These figures were reflective of the high mortality rates still prevalent on the continent of Africa.

Fig. portrays the spatial pattern of crude death rate prevalent in different parts of the world in 1990-95. It brings out that Saudi Arabia, U.A.E. and Venezuela were the only countries where the mortality rates were less than 5 per thousand. By contrast, large parts of Africa, Yemen, Afghanistan and Vietnam had high mortality rates where the crude death rate of above 15 per thousand and in some cases even more than 20 per thousand prevailed. In majority of such cases, it was the product of high infant mortality. Most of Europe (with only a few exceptions in the West) including CIS countries displayed a mortality rate which could be termed as moderately high. The crude death rate in these countries ranged between 10 and 15 per thousand. In all such countries, it was the product of high middle aged mortality rates because the infant mortality rates here were invariably low. How far it could be related to their life style full of stresses, is difficult to say. In South Asia, India and Bangladesh too displayed a crude death rate of 10 and 15 per thousand. Here it was more a product of comparatively higher infant mortality rates. Bolivia in South America too had a crude death rate of 10-15 per thousand due to similar reasons.

Rest of the world covered by the two Americas, Oceania, Western Europe, Northern Africa, West Asia, Central and East Asia constituted a large belt of low crude death rate of 1-10 per thousand. Thus, Fig. holds the testimony to the fact that mortality has declined significantly in larger parts of the world and only in a few pockets like West Africa the war on mortality is yet to be won effectively.

The infant mortality rate, which was a sensitive index of a country's development, showed wide regional variation from 12 per thousand in Europe to 98 in Asia. The infant mortality for the world as a whole was 64 per thousand. The more developed world had a very low infant mortality rate of 14 per thousand and the less developed world had a very high infant mortality rate of 64 per thousand. Africa, with shortest life expectancy and highest mortality, was a continent suffering from a high rate of infant mortality (93). Asia had highest infant mortality rate of 98 per thousand and South America had an infant mortality rate 84 per thousand. In Oceania, the infant mortality rate was 41 per thousand. Europe had infant mortality rate of 12 per thousand. It reveals that the differences between the less developed world and the more developed world were reflected more in the case of infant mortality rate. It implies that infant mortality rate is a better index of socio-economic development in comparison to crude death rate.

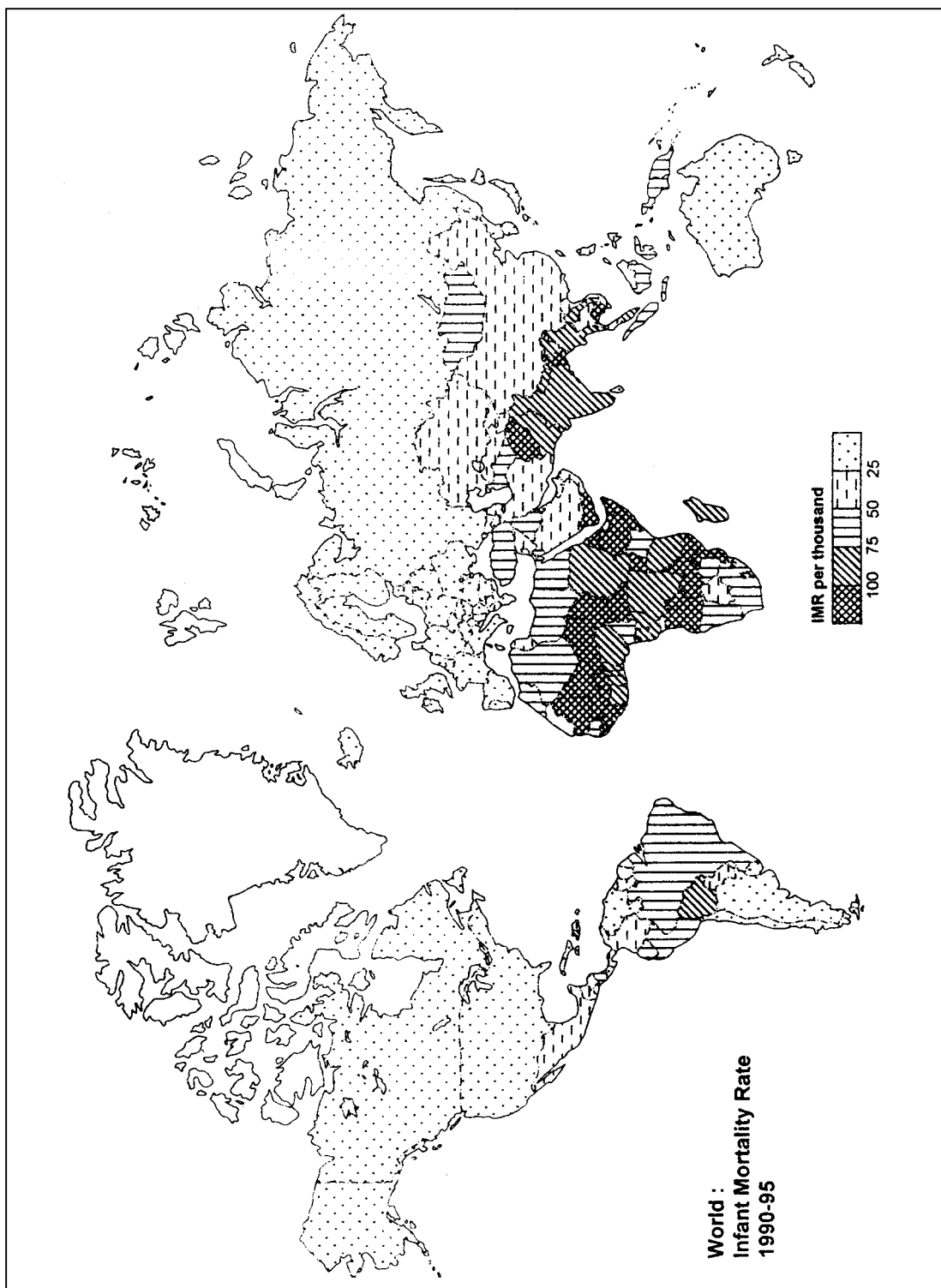
Fig. Showing regional pattern of infant mortality rate revealed sharper contrasts between more developed, moderately developed and less developed countries. The

countries of North America, Europe, CIS countries, Japan, Australia, New Zealand, Argentina, Chile, Uruguay, Paraguay, Venezuela, Guyana, Suriname, all had a low infant mortality rate of less than 100, particularly in Tropical Africa. The remaining countries of Latin America, and almost entire Asia, had a moderate infant mortality rate ranging between 50 and 100 per thousand. Bangladesh and Cambodia are other two Asian countries having an infant mortality rate (IMR) of over 100 per thousand. India had an infant mortality rate of about 70 per thousand. Although the disparity in the mortality levels between the developed and the less developed world remains large, yet it is declining fortunately. Consequently, the life expectancy at birth between the two groups of countries is fast approaching each other. The gap has narrowed down by 8 year during the last thirty years.

Although, the developed and the developing countries do not have wide disparity in terms of mortality rates, yet the disparities among the less developed countries themselves are quite significant. The countries in Africa and South Asia continue to have high mortality rates in comparison to those of Latin America and East Asia. It is reflected in their differences in life expectancy as well. Whereas the expectation of life at birth in Middle Africa was estimated to be below 50 years in 1990-95 in temperate South America, it was above 70 years. The variations between individual countries are even greater than those observed between regions.

The persistence of high mortality is one of the most shocking signs of failure of development so far. It generates pessimism about the future mortality trends, particularly in the less developed countries. The current pattern of mortality differentials and the recent trends in them, tend to establish that the crucial element in better health is not the availability of expensive facilities or treatment but an easy access to health information, simple nutritional advice and understanding the role of hygiene and diet. That is why, the countries like China, Cuba, Sri Lanka, Malaysia and Thailand have been able to achieve substantial gains in mortality reduction by orienting their primary health care towards the basic needs at community level.

However, the failure to achieve more rapid gains on this front of mortality decline may be associated with a variety of factors. Partly, it is due to lack of understanding of mortality determinates and their relationship to socio-cultural and development factors. Partly, it may be related to the fact that the public health programmes in most efforts. Furthermore, the modern medicine techniques, in some cases, may not be suited to the needs of the developing world e.g., in poor countries like India hospital based medical services using highly trained physicians may not be the best way of making health care accessible to the population which largely lives the rural areas. The propagation of Homeopathic and Ayurvedic systems of medicines may serve better purpose for Indian rural masses.



In case of the less developed countries, education, particularly, the education of mothers has shown great influence on mortality levels. The mother's characteristics appear to be the essential factor determining family health because she is most closely involved not only in the daily care of children but also in the overall organization of the household covering cleanliness and nutrition.

The recent trends of mortality in the developed countries, on the other hand, have been, on the whole, favourable. These countries recorded an accelerated decline in mortality. Their life expectancy continues to rise and their infant mortality rates declined to the lowest. However, their male mortality rates recorded a relatively slow decline in comparison to the female mortality rates. In their case also there were wide differences from country to country. The decline in mortality was quite notable in countries like Japan, U.S.A., Yugoslavia, Finland and Australia. Contrastingly, in case of Bulgaria, Hungary and Poland, the male life expectancy suffered a decline during recent times. In their case the middle-age mortality has been on the increase due to increasing stresses in life.

The virtual disappearance of infectious diseases was an important factor in the decline of mortality in case of more developed countries. The endogenetic factors and accidents were emerging as the chief causes of death in the developed countries. In these countries, the diseases of the circulatory system and cancer are emerging as the leading causes of death accounting for 1/2 and 1/5th of all deaths, respectively. The environmental factors such as industrial pollution and exposure to toxic substances, which are going to have a long-term effect on human health, are also not very easy to control and are likely to play a determining role in the future mortality trends of the developed world.

1.9 MORTALITY IN INDIA

The Indian mortality has traversed a long distance from a high level of over 40 per thousand at the beginning of present century to around 10 per thousand in 1991. The decline in mortality in India began during 1921-31 itself due to improvement in general health and sanitation conditions and tightening control over the abnormal deaths that used to take a heavy toll of human life in the country. The improvement in the distribution system was another milestone in the country's efforts towards controlling natural calamities like drought, famine, floods etc. shows that the mortality in India recorded its first major decline during 1921-31, when the crude death rate decreased from 47 to 36 per thousand. The decline in mortality, once began, continued at the rate of about 4 to 5 per thousand during each subsequent.

Indian mortality at present was close to 10 per thousand. Still there persisted significant differences in the rural and urban mortality rates, a significant fall in rural mortality notwithstanding. While the crude death rate for the rural areas in the country was 11.1 per thousand, for urban areas it was as low as 7.1 per thousand.

One notable feature of Indian mortality rates is that the state to state variations in crude death rate are not as pronounced as are those in crude birth rate. The mortality rate in India varied from a minimum of 4.1 per thousand to a maximum of 14.1 per thousand. Nagaland, with a mortality rate of 4.1 per thousand had the distinction of having the lowest death rate among the Indian states. It was followed by Kerala (5.9), Manipur (6.7), Tripura (7.7), Goa (7.8) etc. Other states that too had lower mortality than the national average included Jammu & Kashmir (7.9), Maharashtra (7.9), Punjab (8.3), Haryana (8.4), Tamil Nadu (8.6), West Bengal (8.6), Karnataka (8.7), Himachal Pradesh (8.7), Sikkim (9.1), Andhra Pradesh (9.3), Gujarat (9.6). Thus, most of the states have succeeded in bringing their mortality rates to a fairly low level (Table 11). The mortality of less than 15 is normally associated with the final stage of the demographic transition model.

At the other end of the scale were states of Arunachal Pradesh (14.1), Madhya Pradesh (12.8). Uttar Pradesh (12.6), Orissa (12.6), Bihar (12.1), Meghalaya (11.3), Rajasthan (10.6) and Assam (10.3).

All the union territories displayed a mortality rate of less than the national average. However, Chandigarh had the lowest mortality rate (only 3.8 per thousand) in the country. Followed by Andaman & Nicobar Islands (5.9), Lakshadweep (6.0), Delhi (6.7), Pondicherry (7.8), Daman and Diu (8.2). Thus, their mortality rates were more close to the national average for urban areas (7.1). Since most of the union was entirely a rural territory, displayed the highest mortality rates (8.5) among the union territories.

The urban areas in the country displayed lower mortality rates in comparison to the countryside. While the urban areas had a crude death rate of 7.1 per thousand, the corresponding figure for the countryside was 11.1 per thousand. Though environment in the countryside is certainly better than that in the urban areas, yet the crude death rate in urban areas is lower than that in the countryside because the health services in India are concentrated more in the urban areas.

Infant mortality provides another measure of mortality levels prevalent in any area. The infant mortality rate for India was as high as 91 per thousand. It was almost 4 times higher than that prevalent in the developed countries. In terms of infant mortality rates, the urban and rural areas presented a contrast. While in urban area

the infant mortality rate of 58 was recorded, in the countryside the corresponding figure was as high as 98. Orissa had the highest infant mortality rate (122) in the country. It was followed by Uttar Pradesh (118), Madhya Pradesh (117), and Rajasthan (96). The infant mortality rate in these states was high both in rural and urban areas. Kerala had the distinction of having lowest infant mortality rate in the country (22).

Some features of Indian mortality : (i) Indian mortality rates that soared very high at the beginning of present century have now reached fairly low level, comparable with some of the developed countries; (ii) state to state variations in mortality are less pronounced than that in fertility; (iii) unlike the developed countries, the urban areas in India portray lower mortality than the countryside; (iv) large and more populous states of the country still possess mortality rates that offer ample scope for further decline; (v) performance in controlling the mortality has been better than that in checking the fertility; (vi) infant mortality in India was still four times higher than the Western standards; (vii) Kerala was the only state where the infant mortality rate compared fairly well with Western standards; and (viii) while the mortality decline in India got established in the early decades of present century, the fertility decline could establish itself only after 1971.

1.10 MIGRATION

The Concise Oxford Dictionary defines migration movement as from one place, country or town to another. The migration is the movement from one place to another within the country or outside it. Migration among human beings is not biological. It is social, economic, political or cultural. The most important reasons behind migration are economic and political. The rush of immigrants in India from Bangladesh and Pakistan from time to time is mainly due to political reason. In fact, most of the emigration and immigration in this region is due to political reasons. In the Indian sub-continent, a large number of population migrated from India to Pakistan and vice versa due to political. Thus, though migration is generally voluntary, it is also sometimes compulsory due to political reasons.

Within the country generally, there is a migration from rural to urban areas. In western countries, in some cases, one may also find migration from urban to rural areas. All these different types of migration cause important changes in population movement. In contrast to migration among animals, migration among human beings has been defined by Donald J. Bogue thus : “It is thus a response of human organisms to economic, social and demographic forces in the environment.”

The study of migration is important due to following reasons :

1. It decreases or increases the size and structure, of any population drastically.
2. It determines the size and the rate of population growth as well as its structure and characteristics.
3. It plays an important role in the distribution of the population of any country. Thus, it is useful in preparing regional population projections.
4. It determines the growth of labour force in any area.
5. It is the symptom of basic social change in any country.
6. It is related to business cycle, supply of skilled and unskilled workers, growth of industries and the employment.
7. It is the basis for the analysis and solution of the social and psychological problems arising out of population changes, particularly large scale migration.

According to the United Nations Multilingual Demographic Dictionary, “Migration is a form of geographical mobility or spatial mobility between one geographical unit and another, generally involving a change in residence from the place of origin or place of departure to the place of destination or place of arrival.” The migration defined here is permanent migration as distinguished from other forms of movement, i.e. mobility.

TYPES OF MIGRATION

The following types of migration have been distinguished by the sociologists and demographers :

1. **Immigration and Emigration.** These terms are used in the context of international migrations from one country to another, for example, immigration of Hindus from Bangladesh to India and emigration of Indians to United States.

MIGRATION AND MOBILITY

Migration can be defined as a permanent move to a new location. It must be distinguished from the more general term mobility which refers to all types of movement by people. For example, all journeys to work, shops, and school would be forms of mobility. These are examples of periodic or cyclical movement. Migration implies a permanent change in residence.

2. **In-migration and Out-migration.** In-migration, as the term suggests, refers to movement in a particular area. On the other hand out-migration, as is clear by

the term, means movement out of a particular area. However, both these terms are applicable to internal or within the country migration only, (for example the migration of rural people to urban areas in India every where).

3. **Gross and Net Migration.** Gross migration is the volume of migration. It is the total of the arrivals of immigrants and immigrant and departures of emigrants and out-migrants. On the other hand, net migration is the difference between the total number of persons coming in any area and the total number of persons leaving out. Thus, net migration is the balance of migration.

The term 'Migratory Movement' is used for the section of population movement due to migration. The total number of movements made during a given migration interval which have a common area of origin and a common area of destination, are known as 'Migration Streams'. The most general types of migration, however, are internal migration and external or international migration.

INTERNAL MIGRATION

Definition

Internal migration is the movement of people within the country. It varies considerably from a few kilometers to several thousand kilometers, for example, migration to Mumbai, Kolkata, Chennai and Delhi from every corner of the country. On the other hand, people are constantly changing residence from one town to another town or one village to another village due to matrimony, occupation or several other reasons. The operational definition of migration as change of residence from one civil division to another is generally applicable to internal migration. A person who has changed his usual place of residence from one area to another is known as migration.

Sources of Data

The principal sources of data concerning internal migration are as follows :

1. **Census.** National Census is the most important source of data concerning internal migration in a country. Such Censuses are taken everywhere in almost all the countries. A Census report directly asks the place of birth, the place of last residence, the duration of residence in the place of enumeration and the place of residence on a specified date before the Census. These questions have been recommended to be given top priority in census operations by the United Nations. In India, in 1971, the question concerning the place of the last usual residence was asked to obtain information on migration.

2. Sample Surveys. Sample Surveys are the sources of direct information on internal migration. They provide information on the characteristics of the migrants, their motives for migration and their attitudes towards migration. These data are useful in studying the question of internal migration in depth. These techniques have been widely used in India.

3. Population Registers. Population registers record residential changes. Therefore, they supply valuable data concerning internal migration.

Methods of Measurement.

The methods of measuring internal migration are classified as direct and indirect.

1. Direct Measures for Estimating Migration. These include place of birth, duration of residence, place of last residence and place of residence at a fix prior date.

(i) Place of Birth. Place of birth gives information about Migrants and Non-migrants. Migrants are the persons enumerated in a place which is not their place of birth. Non-migrants are the persons enumerated in the place where they are born. These terms are generally applicable to States. For example, in India, Census data show place of birth. It shows population classified by state of birth and state of enumeration. It gives data concerning lifetime in-migrants by state of origin, out-migrants by state of destination and net life-streams of migration in different States of India. The place of birth provides data concerning rural-urban migration. For example, according to 1971 Censuses of India, life-time rural-urban migration was of about 23.8 million persons. Urban-rural migration was of about 7.8 million persons and the net migration to the urban areas was of about 16 million persons.

Advantages. The following are the advantages of using place of birth for measurement of life-time internal migration in a country :

1. The question on the place of birth is simple and easy to ask. It is also easily understood.
2. The information obtained through this question is generally correct and complete since it is expected that a normal person would easily remember his or her place of birth.

Disadvantages. However, the place of birth as a measure of life-time internal migration suffers from the following disadvantages :

1. Since answers to the Census questionnaires are generally given by the head of the family or some important members of the household, the possibilities of errors are there.

2. There may be deliberate misreporting for some political reasons.
3. There may be a tendency to report a better known place as the place of birth instead of the actual place of birth.
4. Another source of error is the frequently changing boundaries of a State due to political reasons of which the respondent may be unaware.
5. Sometimes, some social practice may introduce artificial bias about the information on the place of birth. For example, in India, girls go to their parental homes for their first delivery due to which the child born becomes a life-time migrant though actually he or she is a non-migrant for every other purpose.

Due to the above mentioned limitations about birth place, it is suggested that the usual place of residence of the parents should be taken as the place of birth of a child.

6. This practise is based upon the assumption of a single movement directly from the place of birth to that of enumeration. Actually, some persons might have moved into the place of enumeration from some place other than the place of birth.

7. It assumes that all persons enumerated at their places of birth are non-migrants. This, however, may not be true for some of these persons may be returned as migrants.

8. The birth place data do not convey any idea about the time of movement which may be from 4 days to 50 years, before the date of enumeration.

Comparing the advantages and disadvantages of using birth place data as an index of migration, it is suggested that in spite of its simplicity and facility it should be used with caution.

(ii) Duration of Residence. Along with the question concerning place of birth and place of enumeration, sometimes a question about duration of residence is asked in a Census. On the basis of the answers to this question are distinguished : i) All who have ever migrated, ii) those born outside the areas of enumeration and iii) those born in the area of enumeration. These data fill a serious gap in the place of birth approach. It is the basis of distinction between migrants and non-migrants. It gives information on the timing of the last move of life time migrants. In 1961 Census tabulation for India, migrants were classified into the six categories as A : Less than one year, B : one to five years, C : 6 to 10 years, D : 11 to 15 years, E : 16 and over and, F : period not stated.

Advantages

The advantages of duration of residence as a direct measure for estimating migration are as follows :

1. It takes into account the number of return migrants. Return migrants are those persons who were born in a given area but who subsequently moved out of it but later returned to it.
2. It gives an idea about the category of migrants according to the trends in past migration.

Disadvantages

This measurement, however, suffers from the following problems :

1. Usually the head of the family gives the information. He may not exactly know the duration of residence of each person in the family.
2. The percentages of those for whom information on duration of residence is not available are higher for females.
3. The data on duration of residence are affected by the digit preference tendency of the respondents. For example, while some persons have a tendency to report duration as 3, 7, 11, 13, etc., others may report as 10, 15, 20, 25, etc. This recalls lapse on the part of respondents and results in a large measure of inaccuracy of the data.

(iii) Place of Last Residence. The question concerning place of last residence fill up the gaps of place of birth data. This information may be classified into two categories : (i) Migrants whose place of last residence and the place of present residence are different and (ii) non-migrants who have never moved outside the area of their place of birth. These data may be used to measure migration in exactly the same way as data on the place of birth are used. These data, however, are more useful for an analysis of migration when cross-classified with the data on the duration of residence. It reflects a direct movement from the place of origin to the place of destination.

(iv) Place of Residence at a Fixed Prior Date. In some Census questionnaires, a question is asked about the place of residence at a fixed prior date. The answers to these questions are important since migration interval in it is given by a comparison of residence at two definite points of time. A migrant is defined as a person whose residence at the Census date differs from his residence at the specified prior date. This data is utilised for computation of “Prior migration rate”.

For example, in a study of Rural Migration Patterns in South Maharashtra, conducted by International Institute for Population Studies, Bombay, in 1965, a question was asked about the place of residence five years earlier, i.e., between 1961 and 1966. The data gathered showed that the migration rate was 8.7% for females and only 3.5% for males. The measurement of migration on the basis of residence at a fixed prior date is simple and therefore useful and satisfactory. However, the possibility of inaccuracy due to recall lapse cannot be ruled out. The data cannot be used properly if the reference period for the question is not the same as the inter-censal period.

2. Indirect Measures for Net internal Migration. The measures of migration discussed so far are direct. However, more indirect measures are used for estimating net internal migration particularly during the two successive census operations. The population may grow due to increase or due to migration. The difference between the actual population count at the end of the period and the expected population growth gives the estimates of the net change due to migration. The most important methods for arriving at such estimation are - the Vital Statistics Method, the Survival Ratio Method and the Migration Rate.

(i) The Vital Statistics Method. Vital Statistics means the data concerning population based upon birth and death. It is obtained on the basis of the data on the birth and death of the inhabitants. It gives an estimate of a natural increase from the total population change.

This method is used not only in the estimation of national but also international migration. The formula for estimation of net migration is as follows :

$$\text{Net M} = (P_1 - P_0) - B - D$$

where for any given area,

Net M is the net migration

P₀ is the population at the earlier census

P₁ is the population at the later census

B is the number of births in the area during the inter-censal period.

D is the number of deaths which occurred in that area during the same period.

The following is an example of the use of the Vital Statistics Method for the estimates of net migration.

**ESTIMATES OF NET MIGRATION TO MADRAS CITY BY THE
VITAL STATISTICS METHODS, 1951-1961**

1. Population of Madras	1951 = P	= 14,16,056
2. Population of Madras	1961 = P ₁ + 10	= 17,29,141
3. Increase in Population	1961 - 1951 = (2)(1)	= 3,13,085
4. Number of births in Madras	1951-61 = 8	= 6,53,190
5. Number of death in Madras	1951 - 61 = D	= 3,71,386
6. Natural increase in Madras	1951-(4-)(5)	= 2,81,904
7. Net Migration to Madras	1951-(3)-(6)	= 31,181

Vital statistics method however, cannot be much useful in developing countries. The data obtained in these countries are not adequate due to errors in the reporting of births and deaths.

(ii) The Survival Ratio Method. The Method, as is clear by the name, is based upon the use of estimates of probability of survival. It requires information about age distribution by sex, as enumerated in each area in two successive Census operations. The differences between the enumerated population at the end of the 2nd Census and the expected survival ratios of two consecutive Census operations. This is particularly true in the case where appropriate life tables are not available, and also where the use of available life tables is forbidden due to one reason or another. This method cannot be used for the estimation of net migration for persons born during the intercensal period. The data obtained by it about migration are better than those achieved by computing life table survival probabilities.

(iii) The Migration Rate Method. The computation of migration rate shows the number of migrants in a given population during a given interval period. The formula for this computation is given below :

$$m = \frac{M}{P} \times k$$

where :

m is the rate of migration for the specified migration interval ;

M is the number of migrations or the number of persons migrating during the interval ;

P is the population exposed to the likelihood of migration during the interval (mid-year population) ;

k is 100 or 1000.

1.11 THEORIES OF INTERNAL MIGRATION

Theories of internal migration discuss the different factors governing migratory movements. Such factors may be social, economic, political and even psychological. Therefore an internal migration is studied not only by sociologists but also by social psychologists, economists and political scientists. Researches in the field of migration are generally empirical. They contain a factual description of migratory movement. Majority of the studies lack generalisation. Demographers have devoted their attention particularly to methodological problems of the measurement of internal migration. Therefore, the present knowledge of the phenomena of migration is quite elementary. The study of motivational factors of migration is more complex than the study of factor fertility and mortality. Therefore, two distinctly different approaches are made here in this study.

1. **Theory of Push and Pull Factors.** This approach is situation oriented. It attempts to study the factors which force persons to move out of their place of origin. It also highlights the conditions that attract persons from outside to migrate. This is the traditional approach to the study of motivation for migration. Comparative studies have been made to find out the relative importance of push and pull factors. Push factors are these which motivate people going outside from his place of residence. These include high natural rate of population growth creating population pressure on the existing resources, or from areas which suffer from exhaustion of natural resources, droughts, floods, natural calamities such as earthquakes and famines, acute social, religious or political conflicts, etc. The pull factors, on the other hand, include those which pull migratory population from outside. These factors include establishment of new industries, provision of new opportunities of employment, facilities of higher education, better climatic conditions etc. The variable of technological change which results in the establishment of a number of attractive factors in urban areas is a very strong pull migration from rural to urban areas. The modern agricultural machinery frees so many persons from the bondage of agriculture and pushes there outside to urban areas. (Social Demography and Population Studies by Kumar).

The theory of push and pull factors is useful in the study of factors affecting migratory movements. It offers explanations of migration. It, however, does not lead to any theory. According to William Peterson, "It implies that man is everywhere sedentary', remaining fixed until he is induced to move by some force." In most of the cases, it has been observed that migration is not the result of push or pull factors alone or singly but of the combination of both. The motivational aspects of migration are highly subjective. The push and pull theory do not why some people migrate while others do not under the same circumstances.

2. **Empirical Generalization in the Form of Mathematical Models.**

According to United Nations (The Determinants and Consequences of Population Trends, Vol. I), another approach to the study of internal migration is the formulation of empirical generalizations and description of the patterns of migration in the form of mathematical models which are valid as universal laws. **(Social Demography and Population Studies by Kumar).**

The first scholar to formulate laws of migration was **E.G. Ravenstein** who based his generalizations on empirical studies of population movement in Britain, the United States and some of the countries of Northwest Europe. He observed the migration between 1885 and 1889 and arrived at certain very important conclusions on laws of migration. Subsequently, other leading scholars like Lee corroborated his findings and added some new laws of migration. The laws of migration, advocated by Ravenstein, are as follows :

(i) The majority of migrants go only a short distance (distance decay law)

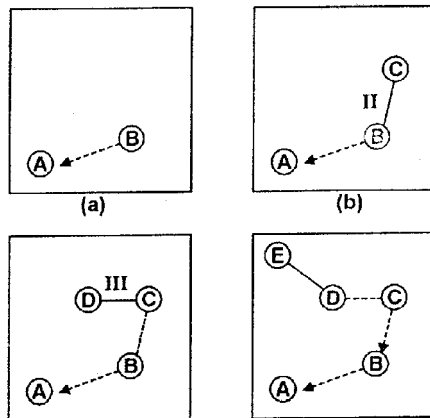
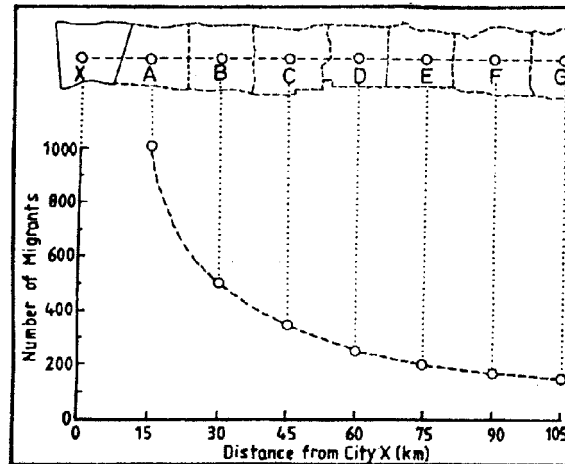
This law seems to have been operational at least since the medieval times and is still operative today. With the advent of modern transportation, the average distance travelled by migrants may have increased, but relatively short moves are still the most common.

There is a tendency that most of the migrants move short distances whereas few go long distances, this tendency is known as distance decay (Fig. 4.6). This expression applies to most of human activities. In fact, there is a decline in the amount of some phenomena with increasing distance from a focal place. In other words, many human activities tend to cluster near accessible places. So their frequency, volume or value usually declines with distance from the point of attraction. This tendency applies to the land values around a market, population densities ranging an urban centre, number of migrants to a place of attraction, and numerous other phenomena that are affected by spatial interaction. As an example, consider the number of migrants to city X who came from districts A-G. When the amounts of migration are plotted on a vertical axis and the corresponding distances are displayed on the horizontal axis, the graphed trend indicates that migration declines (i.e., ‘decays’) as distance increases. (Hussain, 2002)

(ii) Migration proceeds step by step

Ravenstein’s second law of migration is that the inhabitants of the country (rural area) immediately surrounding a town of rapid growth flock into it: the gaps thus left in the rural population are filled up by migrants from more remote districts (rural areas), until the attractive (gravitation) force of one of our rapidly growing cities makes its influence felt, step by step, to the most remote corner of the region.

Accordingly, sequential moves extend the effects of migration spatially.



Revenstein came to this evaluation by studying the behaviour of farmers who wanted to move on to new lands would often sell out to later migrants. On a different scale, a series of step by step residential shifts is usually generated in urban areas today when a family moves into a newly built house and thus vacants an older house, which is then reoccupied by another family (which leaves another residential gap and so on).

(iii) Migrants going distances generally go by preference to one of the great centres of commerce or industry

This tendency of moving towards the great centres of commerce and industry

has been operative since medieval times, when London attracted population from all parts of England. The pull of large cities is apparent in the developing countries, i.e. the industrial and commercial centres of Tokyo, Mumbai, Kolkata, Delhi, New York, Jakarta, Seoul, Shanghai, Mexico, Rio de Janeiro, Djakarta, Bangkok, Tehran, Dhaka. The effects of a large place on the size of the migration field is expressed by a Gravity Model which states that the number of migrants to a place is directly related to the population size of that place but inversely related to the migratory distance.

(iv) Each current of migration produces a counter-current of lesser strength

This law of migration seems to be universal and applicable in almost all the developed and developing countries. Even in the extreme case of slave trade (15th-19th centuries) produced a tiny counterflow back to Africa of people who, in one way or another, were able to regain their freedom and to return to their homes. Migrants who choose to move long distances to new places often move back. For example, of the 13 million migrants to the United States from 1900 to 1914, an estimated four million returned to Europe during the same period.

(v) The natives of towns are less migratory than those of rural area.

This observation was related to a stage of economic development in Europe in the 19th century, when rural-to-urban migration was predominant. In most of the developed and developing countries today, movement is still mainly from rural to urban places.

At present, most of the developed countries have large urban majorities and relatively small rural populations (Hussain, 2002). Therefore, most migration is inter-urban or intraurban (within a city). In these developed countries, there is an increasing trend of outflow from urban centres to rural areas. This migration is associated with the decentralization of industrial jobs and the willingness of commuters (daily passenger) to travel long distances to their urban places or work.

(vi) Females migrate more frequently than males within the country of birth, but males frequently venture beyond

This law of migration is related partly to a stage of economic development and partly to its particular cultural context. Since women have few employment opportunities in rural areas, they tend to migrate to cities.

At present, the gender of the majority of migrants depends on cultural conditions as well as on economic and employment opportunities. In India, for example, many more males migrate from rural areas to cities than do females. During the British era Kolkata and Bombay, Mumbai were the main centres of commerce, trade and industries

and attracted the people from distant places of Bihar and Uttar Pradesh. Nowadays, all the million cities of India, particularly Mumbai, Delhi, Kolkata, Chennai, Hyderabad, Ahmedabad, etc., are attracting male migrants from all comers of the country (Hussain, 2002). Migration between rural Indian villages, however, is commonly made by females because brides traditionally move at the time of marriage to the village of bridegrooms.

(vii) Most migrants are adults; families rarely migrate out of their country of birth

This law contains two observations : (i) The observation concerning adults is universal and indisputable. In voluntary migrations, the majority of people are adults, (ii) The second part of the law is more problematic. It is certainly true that families find it more difficult to move than unmarried adults. However owing to the cultural, religious and political factors, families migrated from one country and another country. Examples are large scale between Pakistan to India in 1947, and from Bangladesh to India in 1971.

(viii) Large towns grow more by migration than by natural increase

It is accepted that large cities grow more fast because of in-migration and population influx. For example, over 60 percent of the total population of Delhi, Mumbai and Kolkata belongs to people who came in these cities from the distant parts of the country in search of employment and got settled.

Most of the large towns and cities in the developing countries today are growing very rapidly by the in-migration of people from the rural areas due to job opportunities in large cities.

(ix) The main causes of migration are economic

This law is also universally accepted. It has been argued that international migrants tend to be influenced more by conditions in the area of destination than by the pressure of population at home. The movement of Indian labourers to Saudi Arabia and the Gulf countries is mainly because of unemployment in rural India and better job opportunities in the Southwest Asian countries.

Most of the above laws of migration are universally accepted. There are, however, many questions which Ravenstein did not address. For example, the non-economic, cultural, social, political, psychological and religious causes of migration have not been examined by him. Since the time of Ravenstein, several other theories and generalizations have been propounded by other scholars to explain i.e. process of migration.

Conceptual Framework for Migration Analysis

Lee has formulated several hypotheses within the conceptual framework of the above mentioned 4 types of factors. These hypotheses are as follows :

1. Volume of Migration. (1) The volume of migration within a given territory varies with the degree of areas included in that territory; (2) The volume of migration varies with the diversity of the people; (3) The volume of migration is related to the difficulty of surmounting the intervening variables; (4) The volume of migration varies with fluctuations in the economy; (5) Unless severe checks are imposed, both the volume and rate of migration vary with the state of progress in a country or area.

2. Streams and Counter streams of Migration. (1) Migration tends to take place largely within well-defined strands; (2) For every major migration stream, a counter-stream also develops; (3) The efficiency of the stream (ratio of stream to counter-stream or the net redistribution of population affected by the opposite flow) is high if the major factors in the development of a migration stream are minus factors at origin; (4) The efficiency of the stream and the counter-stream of migration tends to be low if the place of origin and the place of destination are similar; (5) The efficiency of migration streams will be high if the intervening obstacles are great; (6) The efficiency of a migration stream varies with economic conditions, being high in prosperous times and low in times of depression.

3. Characteristics of Migrants. (1) Migration is selective; (2) Migrants responding primarily to plus factors at destination tend to be positively selective; (3) Migrants responding primarily to minus factors at origin tend to be negatively selective, or where the minus factors are overwhelming for the entire population group, they may not be selected at all for migration : (4) When all migrants are considered together, selection for migration tends to be bimodal; (5) The degree of positive selection increases with the difficulties posed by the intervening obstacles; (6) The characteristics of migrants tend to be intermediate between the characteristics of the population of the place of origin and of the population of the place of destination. (Social Demography and Population Studies by Dr. Kumar).

Zelinsky's Mobility transition Model

Zelinsky's theory of migration (1971) is known as the Mobility Transition Model.

Zelinsky proposed that changes in migration behaviour have been paralleled by the stages of the Demographic Transition Model. Similarity, between the two models is not surprising because demographic conditions and migratory decisions are both related to changes involved with the urbanization, industrialisation and modernization process.

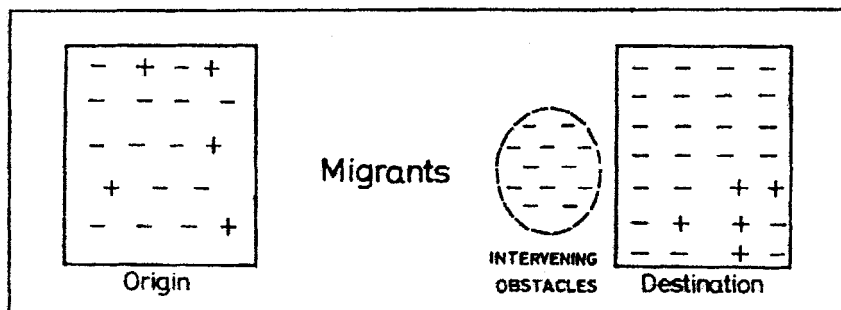


Fig. : Lee's Model of Migration

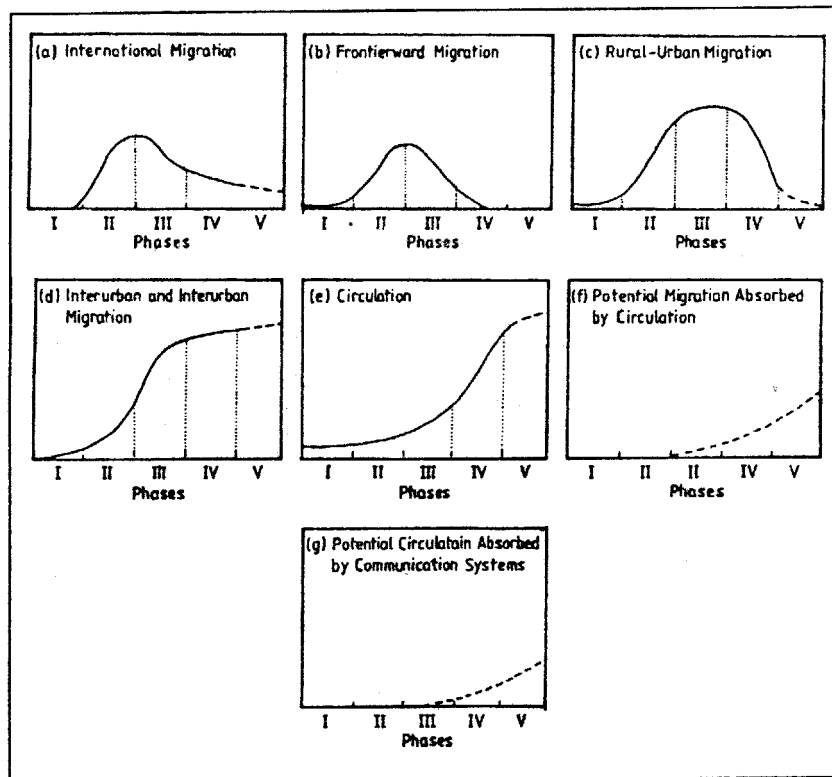


Fig : Mobility Transition Model

Zelinsky's generalizations about the migration model are shown in Figure (a to d). This figure shows the trends in volume of migration through the five stages of the demographic transition model at four different scales : (i) international, (ii) regional, (iii) rural to urban, and (iv) urban to urban including intra-urban.

In addition, Zelinsky prepared graphs showing interrelationships between migration and circulation (short term generally repetitive movements) over the five stages.

The mobility transition, is primarily a depiction of stages experienced by modernized societies. Nevertheless, it provides a basis for anticipating some future migration patterns in countries undergoing economic and demographic changes.

In the **first stage** of mobility transition, when population growth was negligible because of high death rates cancelled out high birth rates, little migration occurred at any scale. In India, in 1931, for example, only 10 percent of the population lived outside the place of their birth. Life was careless, information on other places was in short supply and most people lived and died in the place of their birth. Some population movement did take place, but relative to later stages of the demographic transition model, migration was less common. Circulation was mostly daily trips to fields and occasional journeys to markets and festivals.

The **second stage** when population increased rapidly because the death rate dropped while the birth rate remained high, was a time of great migration. Mounting population pressure on the land, better transportation system, and a widening sphere of exploration and trade, and bringing knowledge of other places gave rise in the past to increased population movements at all scales. People migrated from one country to another, from settled areas to new frontiers, Emigration from Europe and 19th century domestic migration to American frontier illustrate these conditions.

Zelinsky's **third stage** is transitional, matching the third stage of the Demographic Transition Model when the birth rate began to fall toward the death rate and population growth rates declined. International migration lessened and agricultural frontiers closed. But, at the same time, rural to urban migrations and movements within and between cities became more important. With the shift to secondary and tertiary occupation, people increased their circulation by commuting to jobs and travelling to obtain special services (like, medical and educational).

By the **fourth and fifth stages**, when low birth and death rates brought little population growth to the newly developed society, migration was predominantly inter-urban and intra-urban. Some international movements occurred, particularly of skilled and unskilled workers from the less to the more developed countries, but progressively strict immigration laws limited the number of people who could cross international boundaries legally.

As would be expected, circulation increased as the societies modernized. This is to add that the development of the private automobile greatly widened the radius of daily travel. It may be summarized that as the economic interdependence increases and standard of living rises more and more people outmigrate from the places or their births and countries.

1.12 MIGRATION DIFFERENTIALS : FACTORS DETERMINING MIGRATION

Migration is differential as is the case with mortality and fertility. These migration differentials have been studied by sociologists and demographers for various purposes. These differentials include so many factors such as age, sex, marital status, educational attainments and occupation. Their study shows why some persons migrate and others do not. They form a basis for a suitable migration theory. They provide data for the discovery of persons. For example, the migration from village to city is mostly found in rural males. A study of migration differentials is, therefore, necessary to understand the factors determining migration. The most important migration differentials are as follows :

1. **Age.** It has been studied that age is an important migration differential. Most of the migrants are adolescents and young adults. This is true both in internal and international migration. According to Zachariah, among the migrants to Greater Bombay in 1961 there was an excess of adolescents and young adults. 81.05% were in the age group 15-59 years. Less than 10% of the migrants were below the age of 10.

2. **Sex, According to Ravenstein.** “Females appear to dominate among short journey migrants.” However, most of the studies, particularly in Asia and Africa, have contradicted this statement. According to these studies sex is an important migration differential but it is in favour of the male. The studies conducted in Greater Bombay in 1961 revealed that males pre-dominated among the migrants. This is true about most of the cosmopolitan cities of the world. Among manual workers particularly, the migrants to the cities are males with the result that the proportion of males in the population becomes higher. This has led to the institution of prostitution in the cities. However, there may be certain exceptions to this rule. It has been found that rural migration is dominated by females due to marriage. The migration due to occupation is generally male dominated, particularly in India and other developing countries where working males very much outnumber working females. In the developed countries however, the female migrants may not be lagging behind male migrants in search of occupation. These two factors, the occupation and marriage, make the sex differential in migration a complex affair making it different in different cases.

3. Marital Status. An important migration differential is the marital status. It is known that most of the rural migrants to the city are males who leave their families behind in the rural areas. The number of females who migrate to cities because of marriage is almost 50% of the female migrants. In those countries, where married women also seek employment, the situation might be different. For example, in Latin America, a large number of urban migrants in search of employment are females. In fact, not much data are available to determine the influence of marital status as a differential in migration within the country as well as out of it.

4. Educational Attainment. Very high educational attainment is one of the causes of international migration. Most of the studies have established that people with higher educational attainments in the rural areas tend to migrate to the city in search of better job opportunities. This is particularly so in the case of developing countries. The situation however, is not so simple. As unemployment grows in cosmopolitan cities, men with educational qualifications migrate to other areas. Again, among the urban migrants the uneducated labourers far outnumber those with educational qualifications. It is generally seen that in cities educated unemployment is more rampant while uneducated persons easily get employment as labourers. In the United States during the period 1940-1950 among the net out-migrants from rural areas were very highly educated persons as well as persons with low educational attainments. In England and Wales the educational attainment was a positive factor in migration. Similar reports have been achieved from other countries.

5. Wealth and Money. Besides the above mentioned migration differentials there might be some other minor factors determining migration within the country and also outside it. For example, wealth and money is one such factor due to which people migrate from small towns to big cities in to cosmopolitan cities like Calcutta from rural Rajasthan in search of their luck in big business.

6. Freedom, Progress and Adventure. However equally important causes of such migration are the lure of Western culture, the freedom, the opportunities of progress and the sense of adventure in international migration. However, the above mentioned migration differentials are the most important determinants of migration within the country as well as out of it.

7. Technology, People with more sophisticated technology may invade and conquer new areas. Contrary to this less advanced groups may be attracted to the greater opportunities provided by a more developed society. We may site here three examples : (i) Ancient Romans conquered vast areas in Europe, North Africa and Southwest Asia, (ii) During this period, many people migrated to Rome which provided better economic and employment opportunities. During the medieval period, the Arabs were quite advance in education and technology. With this, they conquered large territories in Central Asia, Northern Africa, Iberian Peninsula (Spain and Portugal)

and eastern parts of Europe, (ii) In the 14th and 15th centuries, the Europeans has better navigationships and they discovered America, Australia and numerous unknown islands of the Atlantic, Indian and Pacific Oceans. They colonized and exploited more populated territories of Asia and Africa.

8. Overpopulation, Throughout the human history, migration took place because of the overpopulation in a community or region. In such a case, emigration may affect all social classes. At present, overpopulation is the most important cause of emigration in the developing countries of Asia, Africa and Latin America. For example each year about 3 lakh skilled and semi-skilled people outmigrate from India. The emigrants include domestic servants, agricultural labourers, unskilled workers, technicians, engineers, doctors and academicians.

9. Social and Religious Causes, The human desire to stay, work and enjoy life with the people of his ethnic, social and religious groups is also an important cause of migration. The feeling of insecurity is compelling many of the Kashmiri Pandits and Punjabi Hindus to outmigrate from Jammu & Kashmir and Punjab respectively, while the Muslims prefer to migrate from the Hindu dominated areas. (Hussain, 2002; Sen & Sen, 1989).

10. Political Causes, One of the important causes of migration, especially after the II World War, is the political one. Political refugees is a worldwide phenomenon now-a-days, i.e. Turkish, Armenians, and white Russians early in the 20th century; European Jews after the Second World War, Palestinians, Chinese, Hungarian (freedom fighters), Cubans, Indians, Pakistanis, Bangladeshis, Kashmiris, Tamils, Vietnamese, Afghans, Iranians, Somalians, Kurds, Serbians, Bosnians, Kosovos and Albanians. All these are the examples of forced migrations induced by political factors.

Another form of involuntary migration is the expulsion or exchange of minorities by nations. For example, the Sudeten Germans repatriated from Czechoslovakia after the Second World War, and the Muslims and Hindus exchanged when India and Pakistan were created by the partition of the sub-continent in 1947.

11. Demographic Causes, A number of demographic factors also play a vital role in the migration pattern. Adults are more migratory than other age groups. The large-scale outmigration from the densely populated parts of Orissa, West Bengal, Kerala, Bihar and Uttar Pradesh is largely due to a poor population-resource ratio in these areas.

12. Diffusion of Information, The availability of information through education, cultural contacts and spatial interaction also increase the chances of population migration. The information network and cultural contact increase the horizons of job opportunities. Thus, migration generates more migration, which

signifies the role of information network in the stimulation of migration. For instance the Sikhs of our country are the most adventurous and well-informed people, who migrate even to the less developed and less attractive areas like Bolivia, Columbia, Sudan, Ethiopia, Yemen, etc.

13. General Rise in the Level of Aspiration, Everybody desires a better standard of living. In India the young men who were better-off than their fathers were nonetheless dissatisfied, and many sought to better themselves overseas. It is mainly because of this reasons that Indian engineers and doctors are emigrating to U.S.A., Canada. Similarly, large number of unskilled labourers are migrating towards Saudi Arabia and the Gulf countries.

14. Wars, Wars have been one of the important cause of human migration. Wars have always involved upheavals, particularly in the regions where these have been fought. The First World War (1914-1919 A.D) involved the displacement of about 6 million people, and the Second World War (1939-1945 A.D.) involved the involuntary displacement of about 60 million people.

After the Turko-Greek war of 1921, about 0.35 million Turks were moved to Turkey from Greece and about 1.2 million Greeks went to their own country from Turkey. After the attack of U.S.A. on Afghanistan in October 2001, millions of refugees migrated to Iran, Pakistan, Tajakistan and Uzbekistan.

15. Government Policy, The government policy of a particular country also affects the pattern of population migration. The British, French, German, Russian, American, New Zealand, Canadian and South African governments have specific population policies and most of them discourage immigrants.

Internal Migration

Push Factors

Three major kinds of push factors can be identified - political, economic, and physical. Each involves a different type of decision on the part of the migrant.

Political Push Factors People who are forced to migrate from a particular country for political reasons are known as refugees. The United Nations considers political refugees to be people outside their individual home country who cannot return for fear of persecution. Such people have no home until another country agrees to allow them in.

In recent years political refugees have been generated primarily as a result of people fleeing totalitarian governments, such as Communist states and military dictatorships that restrict people's personal freedom (Rubenstion and Bacon, The Cultural Landscape).

Political refugees, are also created by war. People may be forced to move during wartime if hostile forces invade their land or if boundaries are changed after a ceasefire.

Economic Push Factors. Economic reasons frequently push people out of their homes. In Ireland between 1845 and 1851, a blight destroyed most of the potato crop, the major source of food in the country. The Irish were unable to alleviate the economic conditions. The inadequate supply of food caused mass starvation and death. In desperation, several million Irish were pushed out of the country in search of better economic conditions.

People are also pushed from their homes by the physical environment. Many people live on land that is not suitable to comfortable stay.

The most common environmental hazard is too much or too little water. People are forced to move from land affected by floods or storms that destroy homes and farmland. In particular, people live in floodplains -subject is to periodic flooding. A study conducted by Burton, Kates and White (1978) shows that 40 percent of the world's natural disasters are due to Floods and 20 percent to storms.

Drought is another environmental hazard. The lack of water for several years in the Sahel region of North Africa has produced drought conditions. The land, which was always of marginal quality for agriculture, has lost its productive capability. Many of the nomads were forced to move out of the Sahel because of an inability to generate sufficient food. They live in camps and cities and are taught sedentary agricultural techniques.

Pull Factors

Pull factors are the desirable features of a particular location , i.e. factors tract people to live there. Like the push factors, pull factors of three political, economic, and physical. It is mention are here that most moves are made for a combination of push and pull factors.

Political Pull Factors The major type of political pull factor is the lure of freedom. People are attracted to democratic countries where individual decisions can be made concerning career, place of residence, tax rate, and so on. This pull factor of democracy is normally accompanied by the push from a totalitarian country.

U.S.A. is country with the strongest pull for people elsewhere in the world. Without engaging in a political treatise on the relative merits of, political systems, suffice it to say that the demand by people from elsewhere in the world to migrate to the U.S.A. exceeds the set quotas; on the other hand, anyone who wishes to move from the U.S.A. may do so without government opposition.

Steel magnate and philanthropist. Andrew Carnegie remarked that the Following popular song inspired his father to come to America.

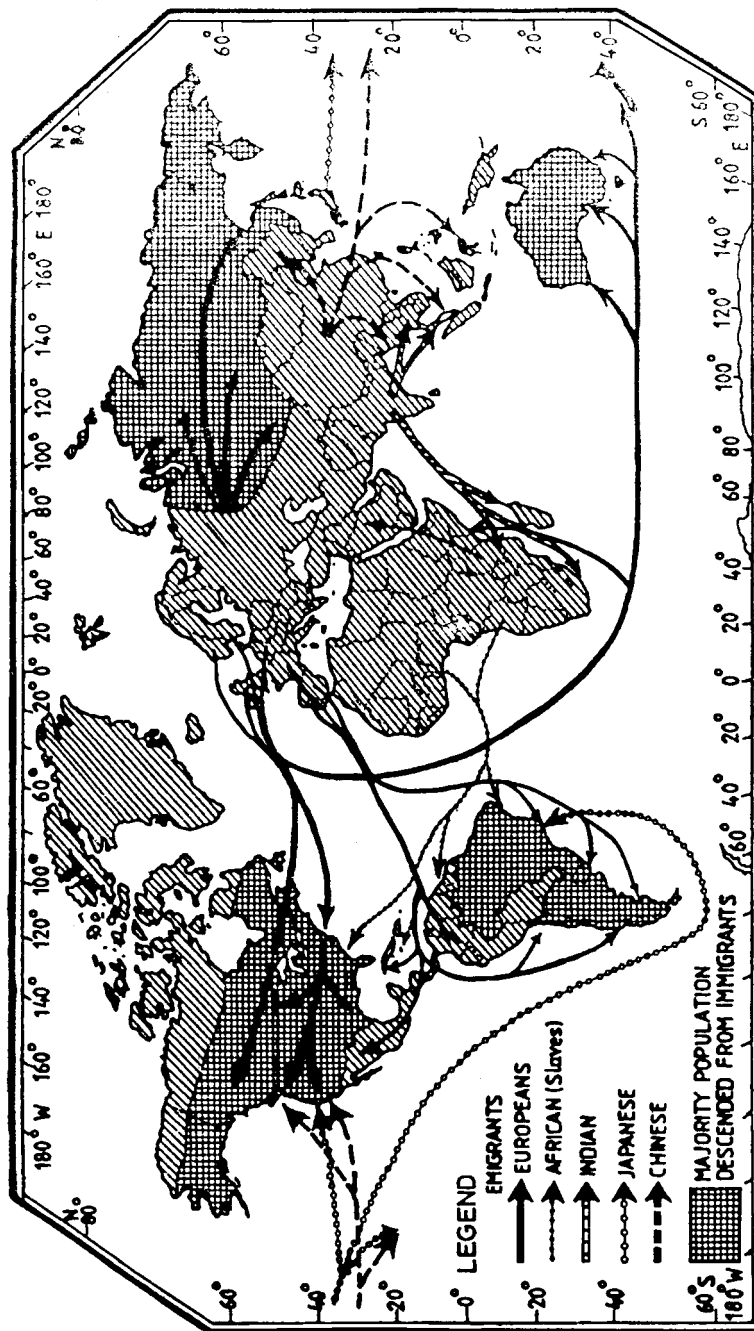
To the west, to the west, to the land of the free
Where mighty Missouri rolls down to the sea ;
Where a man is a man if he's willing to toil.
And the humblest may gather the fruits of the soil.
Where children are blessings and he who hath most
Has aid for his fortune and riches to boast.
Where the young may exult and the aged may rest.
Away, far away, to the land of the west.
Away, far away, let us hope for the best
and build up a home in the land of the west.

Early migrants extolled the virtues of the New World to friends and relatives back in Europe, thus encouraging still others to the United States.

Economic Pull Factors. While U.S. citizens may cherish their personal liberties, the most important pull of the United States for people elsewhere in the world is not political but economic. In the 19th century Europeans were pulled to the U.S.A because they thought the streets were paved with gold. People move to places where jobs are available. The uneven distribution of prosperity is attributable to the location of particular types of economic activities. Economic growth will be found where growing industries are located. Thus, people are now attracted more to countries with such industries as engineering, electronics, and chemicals than to those based on steel, shipbuilding, and textiles.

Physical Environment pull Factors : Physical environment conditions also attract migrants. In an age of improved communications and transportation systems, (i) people can live in relatively remote locations and still not be isolated from others (ii) Areas with high amenity value are attracting new residents, (iii) People are pulled to areas with relatively temperate climates, such as the Mediterranean coast of France and Spain, and the U. S. Southwest (iv) Retired people are especially attracted to temperate climates, (v) Small towns and mountainous areas are also attracting new residents.

Figure 4.3 : Principal Migrations of Recent Centuries



1.13 INTERNATIONAL MIGRATION

International Migrations include all those movements involving the crossing of one or more frontiers, not merely between adjacent states but often from one continent to another. On the basis of volume (number), distance and means of transport use, international migration may be classified into: (i) intercontinental, and (ii) transoceanic. The international migration is quite older, and limited in volume and time. It is caused because of a number of special conditions at the place of origin and place of destination. International migration may be short migration of small groups of people or large groups travelling long distances. Contrary to this, the transoceanic migration has been observed largely in modern times, affecting the chief centres of population in Europe, America, India, China, Japan, Southeast Asia and Southeast Asia.

Reliable date and information on international migration are not available. In ancient time, there had been large-scale exodus of people to various places. The Bactria and Sogdiana were the promised land for the Persians where they immigrated in large numbers. The Mongols migrated to South China and Thailand around 2000 B.C. and the people from Central Asia arrived in waves in the subcontinent of India.

Characteristics of International Migration

Permanent migration

A complete break with the homeland and a plunge into the heart of an entirely new environment are not accomplished without difficulty, for the delicate problems of assimilation are added to the uprooting. Often, the emigrant does not know that he will never see his native land again ; unforeseen circumstances, either good or bad, may keep him away. But in any case, on arrival he faces some very severe tests. There is a wide variety of possible circumstances.

In modern times, the emigrant does not go in complete isolation towards the unknown. Perchance he has friends, from his own village or region, who have preceded him and have given him information ; or may be he is migrating with a whole group, which will create in the new country a little island of the old.

Examples are the villages with German names in southern Brazil and northern Argentina, where German is still spoken and they eat locally-produced sauerkraut and sausage ; or the Italian villages which produce the best wines in Brazil ; or the Swiss dairying communities which are found both in eastern United States and in the temperate lands of South America.

Temporary emigration

Many emigrants cannot make up their minds to abandon completely their native land ; urged by necessity, they go for a more or less prolonged period to a country

that will permit them to earn a living, and if possible accumulate sufficient money for their return, then, with the profits of their labours they go back to their native village, where, by reason of the low standard of living, they become senior citizens of some affluence. In Sicily, in southern Italy, in Greece, and in other parts of south-eastern Europe like Albania or Bulgaria one is shown the houses of these 'Americans' who are ending their days peacefully after their labours on the other side of the Atlantic.

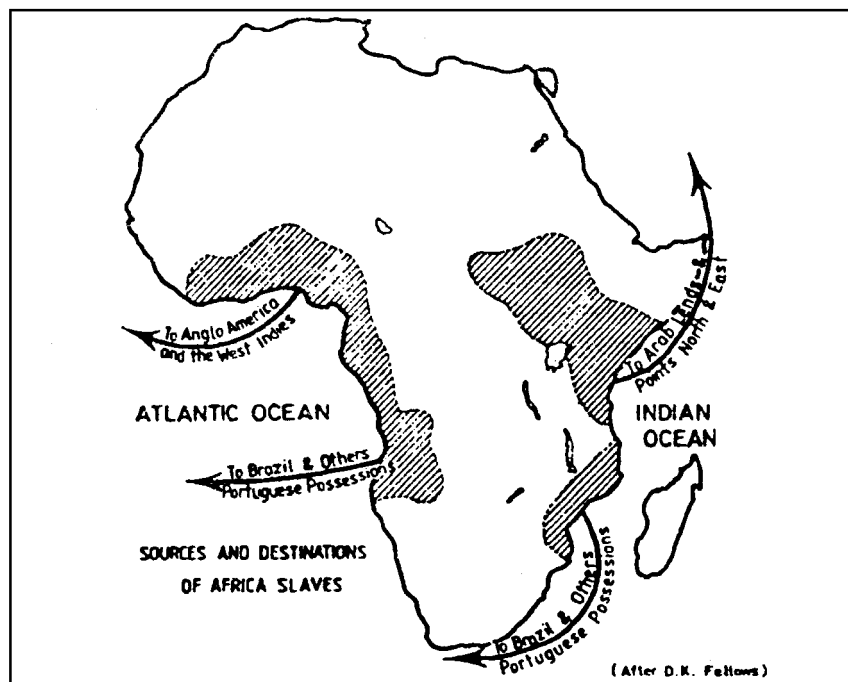


Fig. : Sources of African Slaves

The changing character of international migration

In earlier times, to abandon one's homeland and emigrate to a far-off country was an adventure fraught with grave dangers. The movement of people from the temperate lands to the tropics proved to be particularly illfated : in Brazil in 1873-74, of 1,800 Germans installed in the cacao plantations of Bahia, 100 died almost at once and there were 738 deaths in all; in British West Africa (the 'white man's grave') the deaths rate amongst Europeans at the end of the nineteenth century was 76 per thousand - but as a result of the war against malaria and yellow fever it had dropped to 8 per thousand in 1936-38. Even in Algeria, much closer to the temperate lands, the death rate was 234 per thousand at Marengo in 1849, as a result of malaria, hardships, and epidemics, while at Fondouk half the European population was wiped out in 1845.

As time went on conditions improved, communications became easier, and the transfer of news quicker and more certain. It was possible to know what happened to the emigrants. After the announcement of a successful establishment, whole village populations from the Swiss or Italian Alps would pour out, a few at a time, to the other side of the ocean. The 'penny post' concession, in the early Victorian period, did much to favour emigration, by enabling the departed son to send news cheaply to his family. Moreover, new arrivals would quickly discover small colonies of their compatriots already installed, and so there grew up the Irish, Jewish and Italian quarters of New York, and the German 'colonies' of the Middle West.

Lastly, and more recently, the spontaneous character of these international migrations has tended to disappear ; they have become regulated and sponsored. The policy of the United States, which has made the frontier a barrier, as much against Europeans as against Asiatics, had already given a foretaste of this sort of negative regulation.

Within the category of international migration, a distinction can be drawn between forced and voluntary migration. Voluntary migration implies a choice made by the migrant, whereas forced migration refers to a perception of compulsion on the part of the migrant. People forced to move are usually compelled by political factors; voluntary migration is usually for economic reasons.

The theories about why people move from one place to another imply that a decision is involved. People choose to leave a particular location and settle in a new home for various reasons. However, people sometimes have no choice : They are forcibly moved by others.

Two major types of forced migration can be observed. One is the shipment of slaves, primarily from Africa to the Western Hemisphere. The Second reason for forced migration is political instability resulting from such factors as war, boundary changes, or government policies.

Slaves and International migration

Millions of Africans were uprooted from their home continent by European traders and sent to the Western Hemisphere for sale in the slave market.

The slave trade began in the sixteenth century and continued for three hundred years, with the largest number of slaves supplied during the 100 year period from 1710 to 1810.

Use of Slaves—The Africans were sent to the New World to work on plantations. The early European settlers in the Americas required a large supply of labour, a scarce commodity in the sparsely inhabited Western Hemisphere. Coastal Africans captured people from the interior with superior weapons and equipment and sold

them to Europeans, who placed them on ships and sold them as slaves through consignment or auction in the New World.

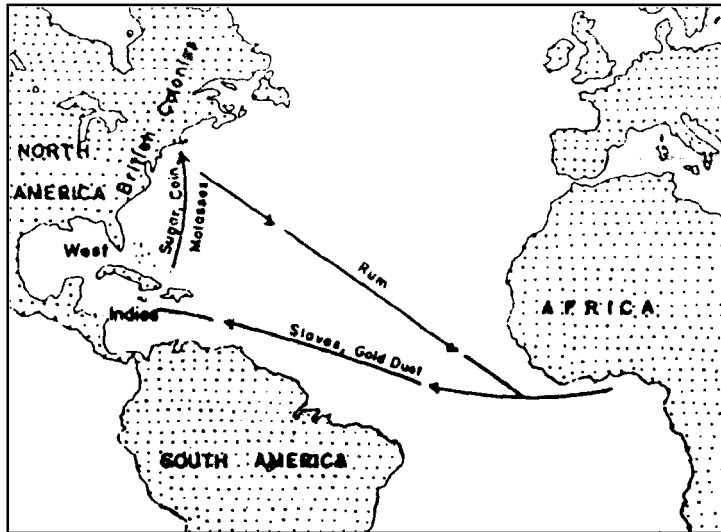


Fig. : Triangular Slave Trade

The slave trade was begun by the Spanish and Portuguese in the early sixteenth century in response to the need for labour on the sugar plantations of South America and the Caribbean islands. The British, Dutch, and French joined the trade in the next century.

The Portuguese shipped slaves primarily from Angola and Mozambique, their major colonies in Africa, to Brazil, their major colony in the Western Hemisphere. The other European powers drew slaves primarily from the West African coast, a Strip 4,000 miles long and 100 miles deep, extending from Liberia to the Congo.

Political Refugees

Large scale forced migration has occurred for political reasons in the 20th century. People are forced to move for three political reasons - war; decolonization, and government ideology.

Forced Migration due to War. The two world wars caused the forced migration of millions of people, for the most part in Europe. Approximately 6 million people were forced to move as a result of World War I. It is estimated that 45 million people were forced to move during the 1930s and 1940s because of World War II.

Between 1939 and 1947, approximately 27 million Europeans were permanently, and involuntarily, resettled. The forced migration was caused first by the German military expansion and later by the Russian army advance.

The largest number of refugees as a result African wars can be found in the Horn of Africa. Ethiopia has been fighting two wars, with military assistance from the Soviet Union. The province of Ogaden is disputed between Ethiopia and Somalia. The Ethiopian army is driving out many of the residents of Ogaden because they are native Somalis who would prefer that the province be part of Somalia. Over 1.6 million refugees from Ogaden are living in Somalia, about half in refugee camps and the remainder wandering from village to village.

On the other side of Ethiopia, the northern province of Eritrea is trying to secede from the country. The Ethiopian army has captured most of the towns, but secessionist guerrillas control the countryside. Nearly half a million people have been forced to escape the fighting by walking several hundred miles to the neighboring country of the Sudan. It is not always possible to distinguish between political refugees and those seeking food and water.

The physical condition of refugees is shocking to Western observers. Many refugees are emaciated and deformed because of inadequate food and water. They have virtually no possessions, in many cases not even clothes. Although much of Africa is underpopulated, with land that could be cultivated if people were available, the refugees are not sufficiently healthy to farm the land; nor do they have the necessary machinery and material.

Forced Migration due to Decolonization : Forced migration also takes place where regions are carved up to provide separate states for different ethnic or ideological groups. A massive involuntary migration of population can result from partition.

The large scale forced migration as a result of boundary changes occurred in the Indian (Subcontinent) When the British ended their colonial rule in India in 1947, the territory was divided into two states, India and Pakistan. Pakistan comprised two noncontiguous areas, West Pakistan and East Pakistan now a separate independent state, Bangladesh separated by India.

The basis for the separation of West and East Pakistan from India was primarily religious. The people living in the two areas of Pakistan were predominantly Muslim, while those in India were predominantly Hindu. The antagonism between the two groups at the time of independence was so great that the British decided to place the Hindus and Muslims in separate states.

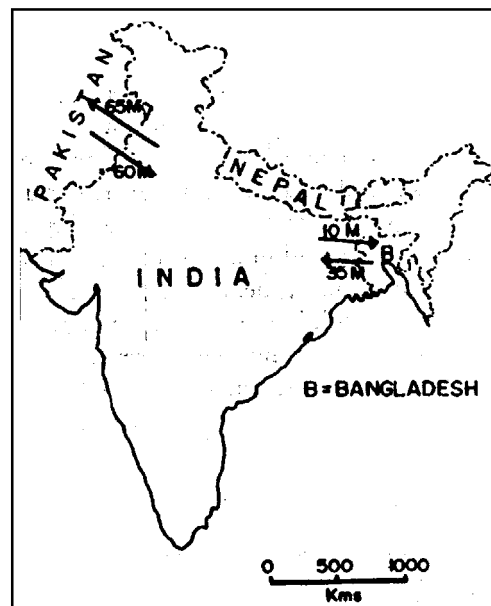
The partition of South Asia into two states resulted in mass migration. A total of approximately 17 million people migrated, including 6.5 million Muslims who moved from India to West Pakistan and 1 million Muslims who moved to East Pakistan. Hindus moved into India, with an estimated 6 million from West Pakistan and 3.5 million from East Pakistan.

Forced Migration Due to Political Ideology : Many people have been forced to move because of disagreement with the system of government in their particular countries. The number of political refugees has increased as a result of the proliferation of totalitarian governments in the world, both right and left wing.

The United Nations estimated in 1981 that there were 13 million refugees in the world. These are people who have given up citizenship in a country but have not received citizenship elsewhere.

The long war in the Southeast Asian countries of Vietnam, Cambodia, and Laos produced a large number of refugees. When the war ended with the 1975 capture of Saigon, the capital of South Vietnam, by the North Vietnamese, U.S. personnel helped evaluate several thousand Vietnamese who had helped U.S.A. during the war.

Nearly 1 million people fled Southeast Asia on their own because of fear for their personal safety and adverse living conditions under the new governments. Several hundred thousand refugees escaped by small boat into the South China Sea. Many of these boats were not capable of sailing in open water and were packed far beyond safe capacity. Despite the obvious danger of trying to leave in such conditions, the so-called boat people drifted into the open sea hoping they would be rescued by a U.S. naval vessel.



While the U.S.A. was willing to rescue the boat people, the problem was that once they were on board U.S. ships, the people could file for admission to the U.S.A. as refugees. In this way, the boat people could jump to the head of a long line of

people seeking admission to the U.S.A. Eventually, U.S.A. admitted approximately half a million refugees from Southeast Asia and convinced other countries, such as France and Canada, to take some as well. Not all boat people were successful. Several thousand reached Malaysia seeking political asylum, but the Malaysians did not want them because they were thought to put a strain on domestic resources and foreign policy. The boats were towed back to sea, where the boat people drowned. (Rubenstim & Bacon)

While most people are not forced to migrate, enough people have been affected by lavery, war, and political ideilogy to demonstrate the seriousness of the problem. Most long-distance moves are made voluntarily, on the basis of personal decision.

1.14 THE CONSEQUENCES OF MIGRATION

The mixing of peoples as a result of migrations has many and varied effects. They may be classified into bellowing groups.

Consequences in space and in numbers

These are the best known and the most striking, and at the same time the most relevant to the geographer. They fall into two complementary series : (i) the reception area absorb people hungrily, the towns expand, the countryside fills up and new lands are opened up ; statistics record the changes in number, and the map shows the modifications in distribution, the increased densities; (ii) conversely, the source areas see their population diminishing, their towns vegetating, their countryside emptying and their fields going to waste.

On the international scale, a striking contrast exists between two extreme cases, those of the United States and Ireland since the first third of the nineteenth century. In 1819 the United States had 5,800,000 inhabitants, at the beginning of the twentieth century 76 million, and between 1880 and 1900, 9 million European settlers arrived, and between 1900 and 1910, the treatest influx of all, no less than 8,800, new arrivals. The role of immigration in the population growth has been evaluated as follows :

Decade	Natural growth (per cent)	Immigration
1870-80	71.5	28.5
1880-90	57.1	42.9
1890-1900	68.5	31.5
1900-10	58.2	41.8
1910-20	64.4	35.6

Decade	Natural growth (per cent)	Immigration
1920-30	77.6	22.4
1930-40	94.1	5.9
1940-50	94.6	5.4

As the United States filled up, so Europe lost part of its population : between 1820 and 1943, 7 percent of the population of Switzerland, 11 percent of that of Italy (but 30 percent of that of Sicily and Campalia and 46 percent of the of Basilicata and the Abruzzis) crossed the Atlantic.

Demographic consequences

These, like the numerical consequences of migration, reveal themselves at once, and are traceable not only in statistics but even in the character of the population, at both ends of the line. The sex ratio may be disturbed to a greater or less extent, and the age pyramid may assume strange shapes.

In general it may be said that men are more prone to migration than women, and it is not uncommon for the departure zones to become depopulated of their menfolk, or at least of the young men, whilst the reception areas have an unfortunate lack of women.

In the United States, during the period of maximum immigration, there was always a great majority of males - 129.2 men to 100 women in 1910; amongst some immigrant groups the disproportion was even higher-189.8 for the Chinese and 296.8 for the Philipinos in 1950, and 392.8 for the Indians in 1940.

Differences are equally distinguishable within a country, between town and countryside. But the anomalies are not the same, varying with the stage of technical and economic evolution. In the least developed countrysides, as in Africa, it is the men who go off, more or less for good, leaving their women in the village. The crops are therefore ill tended, whilst in the towns, the scarcity of the female element puts a price on it and leads to bad habits. Divorces, multiply; prostitution is rampant and becomes a profitable trade.

The greater the importance of a town and the greater, therefore, the change imposed on ways of life, the fewer are the women who migrate to it. In India, in 1931, there were 175 men to 100 women in Calcutta. 163 in Howrah and 130 at Ahmedabad.

In more advanced societies, conditions are generally different: both men and women leave the countryside, and many villages are left people only by those who consider themselves too old to leave. There is thus not the same disequilibrium in the sex ratio between the departure and reception areas.

In Guinea, where a detailed investigation was made in 1955, the same contrasts appear. Conakry is attracting people from the interior, especially men from the overpopulated Futa Djallon highlands, and a comparison of the figures is very striking: there are children, women and old people in the mountains, and adult men in the town.

Biological consequences

The uprooting of rural people breaks up the old communities, favours mixing of the kinds and destroys the risks of consanguinity which are prejudicial to the health of their descendants.

Conversely, adaptation to a new way of life is not always easy; new arrivals from the countryside into the towns suffer from lack of air and space, from noxious fumes and dust, and from changes in diet. The incidence of respiratory diseases amongst the country-folk who migrate to the large industrial cities of the temperate zone, or amongst the Mediterranean people working in the mines of the humid and foggy regions of northern France is much higher than amongst the 'natives' or others already long since acclimatised.

Another cause which may play a part in altering the health of individuals affected by migratory movements is the destruction of the equilibrium of their pathogenic complexes. The contact of the white man with the Fuegians has caused among the latter the spread of pulmonary diseases, hitherto unknown amongst these people, and they have been literally Catholics.

The problems of contact

People differ in many ways, and those who find themselves transplanted into a new environment very different from their homeland may become involved in conflicts of a general and collective kind - racial, linguistic, etc. - or more individually in matters of religion of Catholics.

Racial contacts, in whatever sense one understands the term 'race', are often difficult. In tropical South America, with the most motley collection of peoples in the world, has often been quoted as an example of harmonious relations between diverse races, it is not only because the original contacts were made a very long time ago, but also because crossbreeding has produced every kind of intermediate variety. However, even in such an apparently ideal situation one cannot help noticing the tendency for modern colonists to cling together - like Italians and Germans in the south, and the Japanese - and also the economic segregation which in fact exists, especially in the north-east where the Negro population. The Tamils and Sinhalese in Sri Lanka are confronted with such type of problems.

Linguistic differences also cause difficulties. Even peoples that have lived side by side for a long time, like the French and English in Canada, and the Boers and English in South Africa, jealously preserve their identity, in which the essential element is language.

The people belonging to different religious groups, whenever move and start living with the people professing other religious faiths, it may either mean a healthy spread of all religions in areas of may cause people of one religious faith to flee for fear of suppression and persecution by the others. The immigration of the Catholic, French and British Protestants in Canada and the multitude of Asian religions to U.K. are the examples where a healthy spread of different religious faiths has emerged. Contrary to this, the Jews and Arabs in West Asia provide an example of the latter category where followers of one religion have been suspicious of their persecution and suppression.

The interaction of people of different ethnic and cultural backgrounds when stay together lead to the enrichment of civilization. This may be said as the greatest benefit to human society from migration.

Other aspects of contact

All these great conflicts are the result especially of long-distance international migrations. However, other frictions may develop even within the confines of a single state. Thus, the planned decentralisation of urban population and industry involves the transfer of industrial workers, usually socialist in their politics, into small suburban or provincial towns which are very conservative, and this may change not merely the local atmosphere but the electoral majority, and some residential areas have protested very strongly against such an upsetting invasion.

A final sociological consequence of migrations is that each individual seeks to recreate something of the atmosphere of the place that he has left behind, and it is in this way that civilisation is enriched, by the many contributions from all the various folk who wrimately find themselves living together within the same frontiers.

The dietary habits of people at both the ends and also substantially influenced. For example, the Indians and Chinese who migrated to U. K., U.S.A. and other countries opened the restaurants and hotels in which they serve the dishes of their countries. It is because of this reason that Idli, Dosa, Biryani, Tandoori, Kabab, Samosa, Rasgullah and Barfi are increasingly becoming popular among the British and Europeans. Similarly, the Chinese dishes like Chowmein has gained popularity in the western world. The continental breakfast (bread, butter, toast and eggs) is becoming more popular in urban India, Bangladesh and Pakistan which provides an example of the influence of English rulers on the upper and middle classes of their colonies.

Financial aspects

Movements of people naturally entail movements of capital, and there are other financial repercussions, direct and indirect.

It was estimated in 1879 that each immigrant augmented the value of United States territory by \$400. And to this intrinsic value must be added the actual cash that the immigrants brought with them - averaging \$50 per person in the United States at the end of the nineteenth century, \$138 in Canada between 1900 and 1915.

Italian receipts from emigrants total half as much as the income from tourists (and at the beginning of the century these two sources of income from tourists (and at the beginning of the century these two sources of income, at that time equal, covered half the adverse balance of trade) ; in Greece, the contributions of emigrants amount to almost as much as the combined revenues of the tourist trade and shipping.

In France, it has been calculated that each rural family that moves into a large town costs the State at least 20,000 francs in supplementary urban services such as schools, hospitals, transport, refuse-disposal. Moreover, the cost of public services is 2.2 times as great per inhabitant and per year in the departement of Seine (i.e. Paris) than the average for the whole of France.

Economic repercussions

There is another economic aspect to migrations, other than the financial one, and that is the economic effect on the areas which lie at both ends of the movement. The dispersal areas are unquestionably penalised; they lose their most active elements, the young men and women, or at least the most enterprising among them. And this happens precisely when these young people have been provided with all that was necessary for their growth and education. Such areas thus lose the fruits of their investments and are subject to a relative impoverishment at the same time as they lose part of their potential labour force.

However, such departures may have beneficial consequences. In the countryside, underemployment disappears, and at a later stage the farmers increase the size of their holdings ; in industrial areas, unemployment is abolished.

On the other hand, mass emigration leads to the decay or at least the stagnation of the area affected. Many French villages in the southern Alps and Central Massif have been virtually extinguished by an exodus amounting to between 50 and 70 per cent of the population since the middle of the nineteenth century; only the old folks remain, and neither marriage nor birth is registered; the school has been closed, the houses crumble one by one and the farmlands, dry and poor it is true, are progressively abandoned. In cases where the young men migrate temporarily, the working of the soil is left to the women, children and old people, whose labour is insufficient to

improve it and even to maintain it in good condition. In Nigeria, the valley of the Zangare and other areas are unexploited for lack of manpower.

Thus the economic consequences of spontaneous migration appear to be most favourable (a) in countries with an active and advanced economy, and (b) when the immigrant remembers come from developed countries.

1.15 MIGRATION AND URBANISATION

Migration is one of the chief means whereby a spatial redistribution of the population occurs, even in the Third World where urban populations may be increasing by an excess of births over deaths even more rapidly than are rural populations. Indeed, the problems of Third World cities have often been attributed to the prevalence within them of large number of persons who are only lately acquainted with the demands of urban life. That more than half the residents of Third World cities were not born there should not surprise us, for the cities can only be growing as rapidly as they are by attracting many newcomers. (Third World cities grow at from 5-10 percent per year; since natural increase is at most about 3 percent per year, migration accounts for one-half or even more of the annual growth).

This is the most powerful movement of modern times : it began a century and a half ago, and with the growth of transport media it has reached almost overwhelming proportions during the last hundred years. It has boiled up and swelled, and far from being arrested, it is being amplified as time goes on. Large cities are becoming gigantic, and new centres are being created everywhere.

There seems to be no limit to the rising proportion of town-dwellers ; it has reached 87 percent in Belgium, 86 percent in Australia, 73·5 percent in the United States. In France it rose from 46·4 percent in 1926 to 60 per cent in 1975 ; in South Africa, from 25·1 in 1921 to 48 in 1971, and in Japan from 21·7 in 1925 to 52 per cent in 1970. On the contrary, the growth is relatively insignificant in countries already highly urbanised; in England and Wales the percentage of town-dwellers was already 77 percent in 1901, and it had only risen to 80·7 percent by 1961.

Some of the U.S. cities have always had migrants from other countries as well as from rural areas. Since about 1880, the rapidly developing industrial and commercial cities of the northern Atlantic coast and the Great Lakes received large numbers of foreign migrants, most of whom were from Southern and Eastern Europe. The stream of migrants from this part of the world almost dried up during World War I, and remained very light after the war because of the restrictive legislation enacted by our Congress. During this period these same cities began to experience a large influx of another sort : native-born Americans, both white and Negro, who came almost

exclusively from the South. Hard times in the South and a rapidly expanding need for labour in the North because of the severe and sudden curtailment of European migration were the main reasons for this first large exodus from rural areas in the South to the metropolitan centers of the North. The migration of Southern, and predominantly rural, Negroes to Northern cities began just after the Civil War (although it was a small-scale movement until World War I) and has continued without a falter up to the present. Even through the Depression years of the 1930s this migration to the urban North continued, and as industry expanded explosively after the approach of World War II, the volume of migrants became recordbreaking. Although Negroes began migrating from the South to the far West about 1900, the industrial expansion of the West Coast metropolitan centers just before World War II attracted an increasing volume of Negro migrants.

How migration helps in the process of urbanization. Lenin has described the process. In the volume entitled *The Development of capitalism in Russia*, Lenin shows the manner in which the growth of capitalism led to radical changes in the organization and production of agriculture and industry. And so the diversion of the population from agriculture is expressed in Russia, in the growth of towns, suburbs, factory and commercial and industrial villages and townships, as well as non-agricultural migration. The development of a commodity market for agricultural produce broke down the old precapitalist relationships and set up an economic differentiation among the peasantry which created a basic dislocation force. At the same time the growth of large scale industry offered opportunities for employment in urban areas, as well as producing goods which began to put the domestic producers of the countryside out of operation. This forced another group from the countryside. These developments were associated with a growth in transportation which greatly added the circulation of commodities as well as the mobility of the population. The growth of the non-agricultural population dislocated from the rural areas was clearly shown in the growth of towns.

1.16 THEORIES OF POPULATION

Right from the rise of human civilization, the scholars did not agree on the population growth. While some of them argued a continuous increase in population for the survival of human species, races and nations, the others believed that the fast growth of population had been the cause of disappearance of many civilizations from the earth surface. It is, therefore, quite appropriate to give a historical overview of population growth.

The Chinese Philosopher, Confucius, argued that a numerical balance between population and environment be maintained. It was against the view of unchecked

growth of population. He was the first who put an idea of optimum population level. In ancient Greece, the earliest thinkers favoured the expansion of population, but Plato was a restrictionist who advocated as absolute limit of population. Aristotle and Polybius attributed the fall of Hellenic civilization to the decline in population growth.

Early Rome was characterized by a fertility cult. Growth of population was necessary for military and political expansion. They believed that the primary function of marriage was to provide citizens and soldiers for the state. It was in this background that Augustus introduced legislation to encourage population growth. In spite of these efforts, Rome failed to hold back the barbarian invasions, as it subbed from a lad pancity of soldiera.

Medieval period witnessed invasions, battles and wars, which to the believed that population growth is necessary to survive and to defend. It was a common say at that time who will carry the weapons, if men are lacking ? Man was considered as the best wealth. Most orthodox thinkers in the 18th century were of the opinion that people and beasts must be multiplied. The German scholars also attributed the power of states mainly to population. The first thinker who took the question of population in a formal way was Malthus Thomas, Robart, the English economist and demographer.

Malthus's Principle of population as developed in the first edition of the Essay : As Essay on the Principle of population As It Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Gedwin, M. Condorcet, and Other Writers, is as follows. I think I may fairly make two postulata : First, That food is necessary to the existence of man. Second, That the passion between the sexes is necessary, and will remain nearly in its present state.

Assuming then, my postulata as granted, I say, that the power of population is indefinitely greater than the power in the earth to produce subsistence for man.

Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio. A slight acquaintance with numbers will show the immensity of the first power in comparison of the second.

The ratios Malthus had in mind were :

Population :	1-2-4-8-16-32-64
Subsistence :	1-2-3-4-5-6-7-

Malthus considered the units of time (represented by the hyphens) in which population could double, if it were not impeded by lack of subsistence, to be about 25 years. If these ratios endured, population would increase to 64 times its original size in 150 years, while subsistence would increase to only 7 times its original amount. Clearly, this situation would oe impossible. Malthus intended the ratios to

represent differences in potentials - the difference between the “power of population” to increase and the “power in the earth to produce subsistence for man.” He expressed the consequences of the difference between these two powers in the following short paragraphs :

By that law of our nature which makes food necessary to the life of man, the effects of these two unequal powers must be kept equal.

This implies a strong and constantly operating check on population from the difficulty of subsistence. This difficulty must fall somewhere; and must necessarily be severely felt by a large portion of mankind.

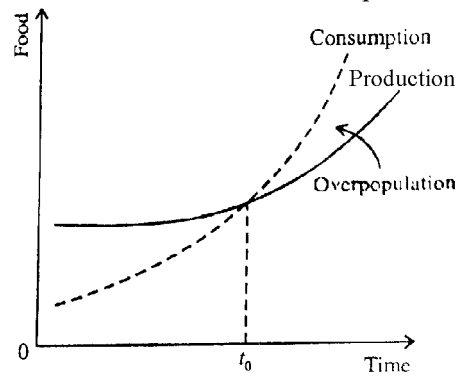


Fig. : Overpopulation in Malthus's theory

Malthus could not accept the views of the Utopians. He believed that two of man's characteristics essential to the maintenance of life were immutable, were natural laws, were antagonistic : (1) the “need for food,” and (2) the “passion between the sexes.” Malthus assumed that latter would always lead most people to marry at a relatively early age and hence would result in such a large number of births that population would double every few years if “unchecked” by “misery” and “vice.” Since population had seldom doubled in a few years, and then only under very unusual conditions, Malthus devoted about one-third of his first Essay to examining the operation of the positive and preventive “checks” that had kept population from growing at a geometrical ratio in every generation.

The Positive Checks. Malthus considered positive checks all factors that operated chiefly as determiners of the death rate, i.e., as destroyers of life “already begun.” He believed that the positive checks on population growth arose basically from the pressure of population on subsistence. According to Malthus, some of these positive checks were “vicious customs with respect to women, great cities, unwholesome manufactures, luxury, pestilence, and war.... All these checks may be fairly resolved into misery and vice.”

The Preventive Checks. The second kind of check to the growth of population Malthus called the preventive or “prudential” check, because it operated to reduce the birth rate; in his opinion, the postponement of marriage was and would remain the chief preventive check.

Malthus believed then that these two checks, the preventive and the positive, “are the true causes of the slow increase of population in all the states of modern Europe....” and that a “comparatively rapid increase has invariably taken place, whenever these causes have been in any considerable degree removed.

Criticism

It is not surprising that the Essay provoked a great deal of controversy, which to some extent has continued up to recent times. Some of his followers regarded the Essay as one of the most important single contribution to population studies, while others have even doubted Malthus's originality and his understanding of the problem of population, and have gone so far as to consider him a plagiarist. Kautsky, one of the bitterest critics of Malthus, commented. "It was as correct to name the new population theory after Malthus as to name America after Amerigo Vespucci.

The charge that the contribution of Malthus was not original can be substantiated by pointing out that Macchiavelli and Botero had earlier stated that population increases faster than the means of subsistence. Besides, many of his arguments had already been put forward by such thinkers as Sir Walter Raleigh, Francis Bacon, John Graunt, William Petty, Sir Matthew Hele, Benjamin Franklin, Saxe, Joseph Townsend, Sussmilch, Sir James Steuart, Hume, Robert Wallace, Arthur Young Archdeacon, Paley and others. Malthus put these ideas in a larger framework and examined the interrelationship between population growth on the one hand and economic and political developments on the other - something which none of his predecessors had attempted.

Kenneth Smith is of the opinion that the success of Malthus may be attributed to the "opportune circumstances" prevailing at that time" and to the political climate which was favourable to the acceptance of his theory. The French Revolution had disillusioned intellectuals, who found the Malthusian theory as one of the reasons for withdrawing their support to it. The political atmosphere prevailing at the time was troubled and uncertain, the fear of the Napoleonic wars had already cast its shadow on England.

That the fear of over-population was very real in understandable enough when we consider that England is only a small island. The argument concerning limited land and unlimited fertility was, therefore, very appealing. The doctrines of Malthus were also convenient for the rulers, who were constantly afraid of "a growing poverty, a growing poor rate and a growing unrest."

One of the reasons for the popularity of the Malthusian doctrine was that he had based his arguments on two ratios - the geometrical and the arithmetical. In the view of many of his critics, however, this was the weakest point in his theory. Consequently, he was heavily attacked on this score. Kenneth Smith pointed out that these ratios concerning population growth and the means of subsistence were based on a very slender foundation and were never really proved. Malthus's conclusion that population would double in a period of twenty-five years was based on the evidence of doubtful American Statistics. He had almost completely ignored the role of immigration of the North American population growth. His arithmetical ratio concerning the growth of

the means of subsistence was also unanimously rejected, though in later years it was strongly reinforced by the law of diminishing returns, a new development in economic theory.

One argument against Malthus was that he did not clearly distinguish between fecundity - the physiological capacity to reproduce and fertility-the actual reproductive performance measured in terms of live births-although the phenomenon of differential fertility had started making its impact about that time.

He placed undue emphasis on the limitation of the supply of land. The agricultural revolution of the nineteenth century, which brought in its wake the system of rotation of crops, chemical fertilisers, plant and animal breeding and improvements in the quality of livestock brought about a tremendous increase in agricultural production. The gloomy predictions of Malthus, therefore, did not come true.

Malthus under-estimated the importance of industrial development, and did not take into consideration the faster and more reliable modes of transport which helped colonial empires to provide additional raw materials, an exploitable land supply and new markets for manufactured products.

His religious beliefs prevented him from grasping the possibility of the widespread use of contraceptives.

The basic assumption of Malthus on passion between the sexes has been questioned on the ground that the desire to have children cannot be mixed up with passion and desire for sex. The desire for sex is biological instinct, whereas the desire to have children is a social instinct.

The span of twenty-five years assumed by Malthus to allow population to double itself also does not seem to be anywhere near reality. The doubling period for a population varies from country to country and scientific and technological advancement. For example, it took only about twenty nine years for the population of Bangladesh, Iran and Mexico to double itself and over 280 years in United Kingdom, 270 years in Japan, 100 years in United States while the doubling period of population in Sweden, Denmark, Finland and Norway may be more than 300 years and it is projected that the population of Russia and Germany at the present rate will not double even during the infinite period of time.

Malthus overemphasized the 'positive' checks and did not visualize the role of 'preventive' checks like contraceptives and family planning.

Moreover, natural calamities have occurred in underpopulated areas also and thus there was no causal relationship between positive checks and over-population.

Malthus has been severely criticized for ignoring the role of changing technology and the consequent transformation in socio-economic set-up of a society.

Malthus also failed to realize even the biological limitations that a population cannot grow beyond a certain limit.

In spite of all these criticisms, Malthusian principle of population has been successful in highlighting the urgency to maintaining a balanced relationship between population and means of subsistence. The critics of Malthus failed to realize that it was because of a large measure of truth in Malthusian principle of population that men of today feel the need of resorting to contraception to keep their families within reasonable limits. Another main contribution of Malthus was to bring the study of population into the fold of social sciences. It gave a new line of thinking whereby the dynamics of population growth were viewed in the context of man's welfare. Above all, the Malthusian principle of population initiated theory building and for this reason, his work is of great value.

1.17 NEO-MALTHUSIANISM

Successors to Malthus

Neo-Malthusians, the successors of Malthus, were keen supporters of family planning movement. According to them Malthus was the first thinker who established that uncontrolled increase of population will lead to poverty and therefore birth control must be popularised. Among the most important Neo-Malthusian thinkers may be mentioned Mary Stopes of Great Britain and Margaret Senger of U.S.A., besides so many supporters in Western Europe. These people popularised chemical and mechanical methods of birth control. The family planning movement gradually extended not only to the entire Western World but also to the countries of Asia and Africa continents.

No distinction between Sex and Child birth

According to Neo-Malthusianism, Malthus did not distinguish between sex desire and desire for children. Both these are fulfilled by the same physical organs. The sex desire also involves desire for reproduction. Neo-Malthusians however, do not accept this view. They reject the Malthusian theory that sex desire is a natural and biological desire. It is the most powerful physical and psychological evils. Desire for children, on the other hand, particularly depends upon social, moral and cultural values. It is not inherent but a product of socio-economic conditions. Fulfillment of sex desire is a must for normal and healthy life. The desire for children however, should be adjusted according to favorable or unfavorable circumstances. Only that woman should reproduce who is physically and mentally fit for the purpose. Males and females should be allowed to satisfy their sex desire without procreation. There is no moral evil in using chemical or mechanical means of birth control to satisfy sex desire.

Leader in Family Planning

Neo-Malthusians acclaim Malthus as their leader in family planning movement. However, the French economists did not agree with this idea. They pointed out that Malthus would have called modern means of birth control, “Unmitigated conjugal fraud”. He would have declared them as antichristian and ungodly. In his Essay on population Malthus has pointed out that artificial means of birth control are much inferior as compared to natural restrictions such as self control. The Neo-Malthusians, on the other hand, maintain that in the second edition of his Essay, Malthus concluded that population cannot be controlled by moral restraint alone. Moral restraint is a means which cannot be expected to be practiced by ordinary people. Therefore in spite of himself Malthus was prepared to allow artificial means of birth control.

Arguments in favour of Artificial Birth Control.

The Neo-Malthusians have advanced the following arguments in favour of their artificial birth control movement:

1. Limitation of family size. Birth control is necessary to limit the family size in the context of available economic means, otherwise the standard of living will fall down considerably. Without limiting the family, it is impossible to bring up children properly and pay attention to their physical, mental and moral development.

2. Limitation of Economic burden. Birth control is equally necessary to limit the burden on world economy. This has already reached its saturation point. Therefore, it has no more capacity to feed the additional growing number of world population.

3. Health and Medical Care. Birth control is necessary on the ground of health and medical care as well.

4. Birth control is not unnatural. Those who oppose the Neo-Malthusian approach maintained that birth control is unnatural. It is an undesirable interference in the working of the natural process. The sexual intercourse aims of marriage. In answer to this objection Neo-Malthusians point out that if birth control is unnatural, the same can be said about wearing clothes since man is born nude and that is his natural condition. Then, why do we wear clothes ? On the same grounds artificial birth control may be supported.

5. Not Immoral. Another argument advanced against birth control is that it is immoral. To this Neo-Malthusians point out that morality is a relative concept. Ethics is man made. Human principles are never categorical and fixed. If a principle is useful from the social viewpoint, it may be accepted from the moral viewpoint as well. Birth control is today a social necessary. It should be accepted as desirable without any immorality.

Spread of Message

History records that in spite of criticism and vehement opposition to the Neo-Malthusian theory of birth control, the message gradually spread in the West and also in the East. When Mary Stopes declared in England that women have a right to enjoy sex without child birth, she was threatened by the English Eords for what they called the misguiding of their women. Mary Stopes however, won her point. The feminist movement started by her not only spread over the entire British Inland but also in Europe. Today, there is no controversy about the use of artificial birth control to check population growth. On the other hand, most of the governments in developing countries like India are doing everything within their means to popularise the methods of artificial birth control.

Marxian Theory of Population Growth

Karl Heinmich Marx (1818 - 1883) was a creative thinker who made a scientific interpretation of human history. His development as a continuous change in the social, cultural and political life of society. Such a change is brought about by changes in the methods of production and in property rights by a class of people in society seeking economic power and prestige.

In Marx's theories economic systems reach higher stages through the strained relations that run between the dynamic forces of production (knowledge and technological change) and slowly-evolving social and political organisation which permits production. The social, psychological and economic forces which are continually at work between the accumulators and owners of capital and their workers generate the evolution from feudalism to capitalism to socialism.

According to Marx there are five stages of capitalist economic development, viz, (i) primitive-communal society, (ii) feudalism, (iii) capitalism, (iv) socialism and (v) communism. The stages of development trace themselves out beginning with the evolution of medieval feudalism into industrial capitalism. The most advanced stages of capitalist which feature international imperialism as their dominant mode of operation, contain international contradictions as do all stages, for that matter, that harbour the seeds of their own destruction. In particular, the sterilisation of increasing amount of output in the form of capical is associated with rising unemployment - an ever-larger 'reserve army of the unemployment'.

Periodic crises wreck the international capitalist system and they grow in serverity and duration. The eventual deoy of capitalism, at once fermenting revolution and simultaneously pushed over the brink by it, leads in turn to the formation of the socialist state.

The class struggle propels this transformation. Workers, one class, are the source

of all value. Capitalist (owners) are automatically exploiters, who fail to make contributions to the production process. As advanced capitalism spreads internationally the domestic class struggle is supplemented by its international counterpart, imperialism. The extension of the colonial system, especially by the European powers during the 19th century in Asia and Africa, is seen by Marx as the logical expansion of local exploitation to world dimensions.

Marxian theory of population is based on as a reaction to the capitalistic mode of production and governance. According to Marx, poverty and misery were not natural inevitabilities but unpleasant fights of capitalism. Misery, poverty, unemployment and fast growth of population can disappear if capitalistic form of social order is replaced by communism.

Marx dated that there could be no one universal law (natural law) of population growth, the growth pattern and dynamics of population change with the change in mode of production.

Marx further goes on to say that each mode of production had its own economic and demographic laws, the growth pattern of population of a nomadic society will be different from that of settled cultivators and the demographic attributes of an industrial urban society will be different from that of an agrarian rural society.

To Marx, economic classes and private property are the principal twin evils which lead to poverty, unemployment and fast growth of population. The private property hurts the general good of the community at large. Marx had full faith in the ability of communist method of production to give full employment and a good living to all able-bodied workers regardless of the rate of increase in their number.

One basic assumption of Marx about the growth of population was that in the capitalistic form of society the supply of labourer increases much faster than the opportunities of employment. This surplus population becomes an industrial reserve army of unemployed hands. The movement of wage levels is determined by the magnitude of working population among this industrial reserve army. The birth and death rates as well as size of family in turn have inverse correlation with the level of wages. Such a class of workers which is more prone to become a part of reserve army or surplus population shall have lower wage level and hence high birth and death rates.

Marx, tried to establish a relationship between capital accumulation, labour demand, surplus population (unemployed and underemployed workers), wage levels, standard of living, poverty and rates of fertility and mortality and growth of population. All these are closely related in the capitalistic form of society in which means of production are owned by a small proportion of population and the rest are the workers who are being exploited by the employers.

Marxian theory has been criticized at several counts, as under:

1. The growth of population in the world is not due to the lower wages, unemployment and underemployment but mainly owing to the extension in the medical facilities and health care services which substantially reduced the death rates without arresting the birth rates.
2. Marx, the increase in the population does not automatically lead to the decline in real wages. There are numerous socio-political and economic factors which determine the wage levels and employment opportunities in a society.
3. Marx according to there is a positive correlation between the levels of wages and the birth rate of population growth, i.e., higher the wages, lower the birth rate. There are numerous examples from affluent ethnic and religious groups of the developed and developing countries where the rate of birth is significantly high.
4. Marx considered private property as the main cause of all evils including poverty, misery, unemployment and fast growth of population. But all of us know that the social norms, education level, technological advancements and attitude towards family are all vital determinants of population growth. So private property alone is not the sole factor for population increase.
5. Marx theory of population growth may be relevant to the capitalistic societies and in all probability would not operate in a feudalistic, socialistic and primitive hunting and food gathering societies.
6. Marx has overemphasised the physical environment (terrain, climate, soil fertility, etc.) as the determinant of birth and death rates in the growth of population. But scholars like Spencer believed that man had no control on his reproduction capacity as the forces of evolution are quite beyond his control.
7. Demographer like Dumont believed in the prevalence of social capillarity where the need for smaller families would be generated by the desire for better economic status.

In spite of these criticisms, it is said that Malthus, Karl Marx attempted to give a scientific explanation of the growth of population which was largely based on the information available from the capitalist countries. Growth of population in a region is, however, controlled by the physical, socio-cultural and economic conditions. It is because of these factors that a universal model of population growth cannot be postulated. The Demographic Transition Theory, developed in the 20th century, gives a more cogent, logical and systematic explanation of population growth.

Malthus and Marx Compared

Theories of both Malthus and Marx, have been proved to be inadequate. Both failed to conceive the possibility that population could grow and that living standards could improve almost continuously over a long period of time.

Labour substitution, unskilled for skilled, children for adults, females for males, does not automatically lead to a general decline in real wage levels as mentioned by Marx. Similarly, the exponential increase in population has not led to diminution in the effective demand for labour. In fact, the major characteristics in the population history of the world during the last century or so is a continuously falling death rate. However, a corresponding fall in birth rate has failed to keep pace with it.

Both good and bad of both Malthus and Marx have lived on. Their writings have had theoretical and practical implications, which have tended to sharpen the views of the scholars on the nature of relationship between population and socio-economic development. The influence of works of Malthus and Marx has been considerable on the scholars of 20th century, though they may not have always been Malthusian or Marxist in the strictest sense.

There are both differences similarities and between the theories Malthus and Marx. Similarities : When Malthus wrote his second essay, he seemed to be aware of the importance of labour demand as a population regulator-at a point Marx also highlighted in his theory. Similarly, both Malthus and Marx seem to have been aware of the negative correlation between wages and birth and death rates. It implied that the rising wage level and falling birth and death rates were inversely correlated.

Differences (i) The ideological perspectives of the two were far apart from each other. Malthusian ideology was more conservative. According to him the self interest at couple's level should be the guiding principle with marriage, family, property, inheritance etc. Marx, on the other hand, was the 'bourgeois ideologist'. He saw the ownership of the private property at the root of most of the evils confronting the society.

(ii) Population was considered as an independent variable in Malthusian system of population-resources nexus. Marx, on the other hand, saw the existence of capitalistic mode of production at the root of the problem of surplus population with all that it entails. Thus, creation of surplus population was dependent upon capitalistic mode of production.

(iii) Marx's theory was related to a particular economic system, which in all probability would not operate in a feudalistic or socialistic system. The Malthusian principle, on the other hand, was conceived to be universal applicable.

Thus Malthus and Marx had both similarities and fundamental differences in their theoretical formulations.

THE DEMOGRAPHIC TRANSITION

The process of change in a society's population is called the demographic transition. This transition has a beginning, middle, and end. Barring a catastrophe, such as a nuclear war, the process is not reversible. Every country is at all times in one of the four stages of the demographic transition.

The demographic transition theory postulates a particular pattern of demographic change from a high fertility and high mortality to a low fertility and low mortality when a society progresses from a largely rural agrarian and illiterate society to a dominantly urban, industrial, literate and modern society. The three very clearly stated hypotheses involved in the process are :

- (i) that the decline in mortality comes before the decline in fertility;
- (ii) that the fertility eventually declines to match mortality; and
- (iii) that socio-economic transformation of a society takes place simultaneously with its demographic transformation.

In the present-day world, as would be true of any point in time, different countries of the world are at different stages of the demographic transition. In the opinion of Trewartha, this is largely due to the dual nature of man. According to him, biologically, man is same everywhere and is engaged in the process of reproduction but culturally man differs from one part of the world to another. It is the cultural diversity of man that gives rise to varying fertility patterns in different areas resulting in different stages of demographic transition.

In **Stage One**, referred to as a primitive demographic regime, fertility and mortality both stand at very high levels, but are subject to considerable short-term fluctuations. Population growth under these circumstances is slow or intermittent. Such a situation is typical of countries with low levels of economic development, low expectation of life, and lack of both birth and death control. It is the type of situation which persisted in Britain until the early eighteenth century, and is still found in a few parts of tropical Africa and South-East Asia, where birth and death rates both remain at high levels.

Stage Two is the expanding or youthful demographic regime. This stage is marked by a sharp decline in mortality rates, while fertility remains high. The result is a very rapid natural increase of population. This is accompanied by an ageing of the population; that is to say, an increasing proportion of old people. This second stage prevailed in Britain until about 1870. Statistics suggest that many countries of

the world are currently in this type of situation, many having acquired these characteristics very suddenly and within the last two decades. Abrupt declines in mortality rates without any corresponding decline in birth rates have produced a number a startlingly high natural increase rates; for example, those of Burma (41.5%), Kenya (41.1%), Syria (37.8%), Botswana (37.3%) and Jordan (36.8%) and many others. To appreciate the significance of these figures it should be noted that a consistent increase rate of 30% will cause a population to double in less than 25 years. Also included in this group are a large number of countries with less spectacular, but nevertheless very high, natural increase rates, such as Uganda (33.5%), Nigeria (33.3%), Ghana (32.3%), Pakistan (32.1%) and Iran (31.0%).

The Third Stage, which may be termed a late expanding demographic regime, is characterised by medium fertility (Birth rates approximately 20%) and low mortality (mortality rates approximately 10%). Population growth is less rapid than in the previous stage, but since many of the countries concerned have by this stage acquired very large populations, the absolute increase in numbers produced by even a modest growth rate is very considerable. Included in Stage Three are a number of countries of southern Europe, such as Spain (6.0%), Yugoslavia (6.8%) and Portugal (5.1%), as well as the USSR (8.8%) and many New World countries such as New Zealand (7.2%), Australia (7.9%) and Canada (8.0%).

Stage Four in the model is referred to as a low fluctuating or mature demographic regime. A number of countries of North-West Europe may be said to have entered this final stage of demographic evolution. They are characterised by low birth rates (Approximately 12%) and low mortality rates (approximately 10%). Natural increase rates are therefore low, as indicated by the figures for Belgium (0.3%), UK (1.5%) and Sweden (0.5%). A few countries even have an excess of deaths over births; for example, West Germany (- 1.9%), Austria (0.3%) and Denmark (- 0.8%).

Countries in Different Stages of the Demographic Transition

The population characteristics of different countries can be compared. The countries presented here reflect different stages of the demographic transition.

Cape Verde Stage 1 countries are characterised by wide fluctuations in the crude birth and death rates from one year to the next, depending on economic and environmental conditions. While no country is still in stage 1 of the demographic transition, Cape Verde, a country which recently moved from Stage 1 to Stage 2, has unusually good historical records.

Cape Verde, a collection of twelve small islands in the Atlantic Ocean of West Africa, was a Portuguese colony until 1974. Until the late 1940s Cape Verde was in Stage 1 of the demographic transition. Between 1900 and 1949 the population of

Cape Verde actually declined, from 147,000 to 137,000. The population increased modestly in most years but declined in others, primarily as a result of famine and drought. Population declined as a result of an increase in the crude death rate, a decrease in the birth rate, and a higher rate of outmigration.

The crude birth rate in Cape Verde in most years was between 40 and 45 per 1,000, with the highest rate (49 per 1,000) in 1937 and the lowest (22 per 1,000) in 1943. The crude death rate was generally between 20 and 30 per 1,000 but rose to 74 in 1941 and 101 in 1942, both times as a result of famine.

In the late 1940s an anti-malaria campaign was launched. The crude death rate declined from 27 per 1,000 in 1949 to 17 in 1950. The death rate has continued to decline; in 1976 it was 10 per 1,000. The last major increase in the death rate came in 1971, when the rate was 15 per 1,000, compared to 11 the previous year, again as a result a drought.

Meanwhile, the crude birth rate increased in the 1950s to a maximum of 53 per 1,000 in 1954. The crude birth and death rates have both declined, while the rate of natural increase has remained high. The population of Cape Verde rose to 300,000 in 1981, an average annual increase of nearly 3 percent since 1951.

Chile An example of a country in Stage 3 of the demographic transition is Chile. While many aspects of its history are unique, Chile is an example of a country outside Europe or North America that has moved through most of the steps of the demographic transition. As in European countries, the transition has been accompanied by a transformation in social and economic patterns. The Chileans have shifted from a predominantly rural agrarian society to an urban industrial one, while the crude birth and death rates have fallen.

The population of Chile did not grow rapidly until the twentieth century. The population increased at approximately 1 percent per year during the nineteenth century, but part of the growth was due to net immigration rather than natural increase.

Chile moved into Stage 2 of the demographic transition after World War II. As in other Latin American countries, Chile's crude death rate was reduced by the infusion of medical technology from developed countries, especially the United States. Diseases such as smallpox, malaria, and dysentery were controlled. During the 1950s and 1960s, Chile's population increased by more than 2 percent per year.

Chile has been in Stage 3 of the demographic transition since the 1970s. The death rate continued to decline somewhat, while the birth rate fell rapidly, from 35 per 1,000 in 1962 to 21 in 1980. The annual rate of natural increase since 1967 has been approximately 1.5 percent.

Most of the people belong to the Roman Catholic church, which opposes the use

DEMOGRAPHIC TRANSITION IN INDIA

Historically patterns of demographic transition vary from country to country. In this context we make a case study of India. India is one of the densely populated countries of the world. It has to support about 17% of the world population, although the land area is merely 2.4% of the world.

Indias census population data, as shown in Table 6.1, indicate the three phases demographic transition. The zero phase consists of 40 years (1881-1921). During this period, the population growth was very insignificant, about 0.5 million a year. The first phase of demographic transition covers the period of next 40 years : 1921 -1961. The sharp acceleration in the growth rate of population was due to continuous decline in the death rate from about 36 per thousand in the 1920s to 19 per thousand in the 1960s and the stability of the birth rate around 40 per thousand.

Table 6.1 : Population Growth in India, 1881-2001

Year	Average annual growth rate per year for the preceding decade
1881	0.10
1891	0.91
1901	0.30
1911	0.57
1921	-0.04
1931	1.06
1941	1.35
1951	1.24
1961	1.98
1971	2.24
1981	2.23
1991	2.16
2001	1.93

The third phase began in 1961. During the period 1961-1991, the birth rate went down sharply from around 41 per thousand to 32 per thousand. Since the death rate also continued to fall sharply, the rate of growth of population remained more or less stable at 2%. Since the death rate has already declined to 9.6 per thousand in 2001 which is comparable to levels achieved in developed countries, no sharp drop in death rate is expected to occur in future. Therefore, the deceleration in population growth is to be achieved by further drop in the birth rate.

In the final diagnosis it appears that the economic destiny of a nation is determined by innumerable forces other than its demographic history. However, the fact remains that the size and structure of a country's population is likely to have a significant effect on its economic growth and general well-being. This point becomes clear if we study the relationship between economic transition and demographic transition.

of what it calls non-natural birth control techniques. Nevertheless, the birth rate was lowered partly as a result of the government's family planning policy, initiated in 1960. Reduced income and high unemployment also caused couples to postpone marriage and delay childbearing. By 1979 the government reversed the policy and renounced support for family planning, the government considered that population increase was again desirable for nature security and economic development reasons.

Denmark an example of a country that has reached stage 4 of the demographic transition is Denmark. Crude birth and death rates are both very low, in 1982 11 per 1,000 for both births and deaths. The history of Denmark is similar to that of England, discussed earlier. The population of Denmark rose rapidly in the nineteenth century as a result of a decline in the death rate. The birth rate began to decline at the end of the nineteenth century. Since the 1970s the birth and death rates have been virtually equal.

The population pyramid of Denmark has a very narrow base and a relatively wide tip. Within a few years the percentage of people over age sixty-five may be virtually the same as those under fifteen. The over age sixty-five may be virtually the same as those under fifteen. The Danish government has increased spending for the needs of older people.

Correlation of demographic transition with economy

The process of demographic transition in the course of economic development, as experienced by today's industrialised countries, may be briefly explained as follows : "All nations in the modern era, which have moved from a traditional, agrarian-based economic system to a largely industrial, urbanised base, have also moved from a condition of high mortality and fertility to low mortality and fertility."

Ansley J. Coale and Edgar M Hoover have studied the changes in the birth and death rates typically associated with economic development. Their explanation is as follows : The agrarian peasant economy is characterised by high death and birth rates. The death rates usually fluctuate in response to the variations in harvests and the incidence of epidemics. They are high because of poor diet, primitive conditions of sanitation and lack of preventive and curative medical and public health programmes. The birth rates in such economics are high and are a functional response to high mortality. The ideals of prolific fertility are, therefore, ingrained in the social systems, customs and beliefs of such societies. These ideals are reinforced by the economic advantages of having a large number of becomes interdependent on other economics, has high levels of production, and becomes highly industrialised, market-oriented and urbanised. When this happens, death rates register striking reductions - a consequence of better and regular supply of food as well as improved medical knowledge and care. At a somewhat later stage, birth rates also begin to fall. The

acceptance of the ideal of a small family size comes about initially in urban groups at the higher end of the socio-economic scale, and then spreads to small cities, lower-income groups and eventually to rural areas. The decline in the birth rate usually occurs after a substantial time lag, as compared to the decline in the death rate. This delayed response of the birth rate to economic change comes about because any decline in fertility results only when changes occur in long-standing pro-natalist attitudes and customs prevalent in society. The birth and the death rates pursue a somewhat parallel downward course though, of course, the decline in the birth rate lags behind. Finally, as further reductions in the death rate become increasingly difficult to achieve, the birth rate again approaches the level of the death rate, and population grows only at a very slow rate. During this stage, death rates are relatively low and unfluctuating, while birth rates may fluctuate from year to year for they are mainly dependent on voluntary decisions of individual couples.

Criticism of the Demographic Transition Theory. The Theory of demographic transition is widely accepted as a useful aid in describing demographic history. Its contribution is, however, considered to be of limited value. Several questions are raised in this context : Can this theory provide a theoretical explanation of the forces that caused demographic changes, specially as they related to fertility ? Does it have any predictive value ? In other words, can it be used for predicting the sequence through which developing countries would pass ? Such questions have inevitably led to a great deal of unfavourable criticism of the theory of demographic transition.

It is to be noted that this theory is based on the actual experience of the changes in the vital rates in Western countries during the various stages of their industrial and economic development. The critics of this theory, however, point out that the experiences of the various European countries were not uniform, in the sense that the sequences of the stages as described in the statement of the theory were not the same. Recent studies reveal that, in Spain and in some countries of Eastern and Southern Europe, fertility decline occurred even when mortality was very high. In some countries like the United States, the growth rate in the post-transition stage was probably higher than in Stage II and Stage III of the demographic transition. Notestein's claim that fertility declined initially in urban areas is found to be untrue for some countries. For instance, countries with predominantly rural populations, such as France, Sweden, Finland, Bulgaria, did experience declines in birth rates to the same extent as did some highly urbanised countries, such as England and Wales. Such exceptions suggest that the theory of demographic transition is only a broad generalisation, which does not encompass the experience of even all the Western countries. This theory also cannot explain the phenomenon of "the baby boom" in Western countries after the economic recovery and the Second World War.

Another criticism of this theory arises out of the fact that it does not provide a

theoretical explanation of an important force, viz., fertility, which brought about the demographic transition. Though it is a fact that fertility did decline, it was diverse. Demographers have recently arrived at the conclusion that the decline in fertility in Europe is a very complex phenomenon which has not yet been fully understood. Devid Glass, the British demographer, despairingly points out that even the English people do not have an adequate knowledge of their own demographic transition.

It has, moreover, been asserted that the theory of demographic transition cannot really be called a “theory,” for it does not fulfil an important criterion of any theory, that is, to extract fundamental processes from a phenomenon and identify crucial variables. This theory does not provide fundamental explanations of fertility decline, nor does it identify the crucial variables involved in the process of the fertility decline. Therefore, it does not have any predictive value.

In all fairness, it must be mentioned at this point that Notestein, who propounded this theory, was aware of its limitations. Nonetheless, he was of the opinion that the principle drawn from the European experience would be applicable to other parts of the world.

The most crucial question to be considered is: “Can the theory of demographic transition be applied to developing countries ?” It is well known that developing countries have recently experienced a phenomenal reduction in death rates, as a result of which there has been a tremendous increase in the rates of population growth.

This rapidly increasing population is an obstacle in the path of development programmes of the developing countries, which are today making concentrated efforts to eliminate poverty and to raise standards of living for the masses by launching large-scale plans for economic development, industrialisation and modernisation. In such a situation, it may be asked : Will these countries have to wait for economic and

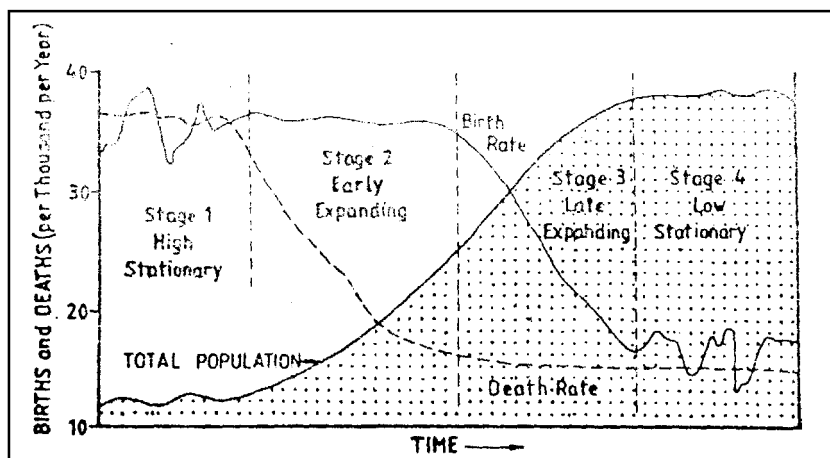


Fig. : Demographic Transition (Raggott, 1975)

social development till they bring down the birth rate and bring about a reduction in the growth rate ? According to the theory of demographic transition, the reduction in the birth rate is a by-product of industrialisation and modernisation. In the possible to wait for industrialisation and modernisation to bring about the required reduction in fertility. Many developing countries have, therefore, adopted family planning programmes directly geared to influence fertility negatively. In such a situation, it is difficult to maintain with any degree of confidence that the theory of demographic transition is also applicable to developing countries and that be duplicated in developing countries.

1.18 THE POPULATION TRAP OR LIMITS TO POPULATION GROWTH

In the 1950s Nelson and Leibenstien presented the theory of population trap or low level equilibrium trap based on the Malthusian theory of population (1098) to

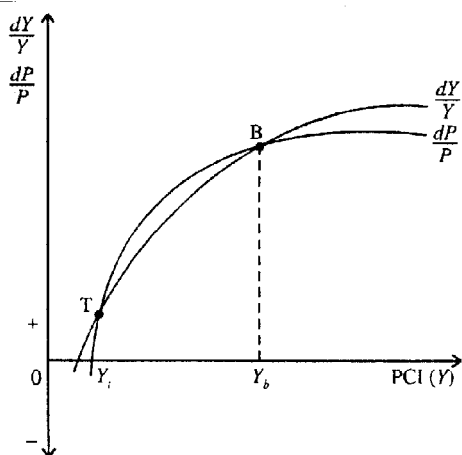


Fig. : The population trap

explain why developing countries seemed to have stagnant per capita incomes. This model assumes that the population growth rate is positively related to levels of PCI; that is, it tends to rise as the level of PCI increases, reaching 3% or more before levelling off (curve P in Fig.).

The rate of growth of income is assumed to accelerate as PCI levels rise, mainly because the savings rate will rise with income, thus permitting a higher rate of investment (curve Y). However, beyond a certain level of very low PCI (Y_l), there is a problem : population growth tends to rise faster than aggregate income (= aggregate output, half or more of which consists of food production). This means that any temporary increase in PCI would be reversed, since $P > Y$. The 'trapped' level of PCI is a stable one, since $Y > P$ to the left of Y_l .

In the absence of measures to reduce the population growth rate, the only way out of the trap is a kind of big push : a massive investment programme - usually requiring foreign assistance - to raise PCI so much that it will permanently grow faster than population. This is shown by point B which is associated with a PCI level of Y_b . Unlike point T, B is unstable equilibrium : to the right, increases in Y will not be reversed, while to the left a decrease in Y will be cumulative, pushing the economy back to T.

The theory of population trap underestimates the degree to which technological change can accelerate the rate of growth of food production (or output generally). In terms of Fig. this would mean an upward shift in curve Y so that it is always above curve P. Although this theory has not got much empirical support, the fact remains that rapid population growth is a serious obstacle to economic growth and development.

FURTHER NOTES ON HUMAN DEVELOPMENT

The traditional economic theory is not quite relevant in analysing the problems of developing countries like India. The problem in such countries is how to develop. Development in the true sense implies human development, not just producing more material goods and services. After all the main objective of economic development is to achieve greater equity along with faster growth.

Alfred Marshall criticised Adam Smith's view income and wealth are not ends in themselves but means for attaining the basic goal of human society, i.e., promoting welfare of people. In this context the following quote from World Bank, which during the 1980s championed economic growth as the goal of development, in its 1991 World Development Report, is relevant:

The challenge of development is to improve the quality of life. Especially in the world's poor countries, a better quality of life calls for higher incomes but it involves much more. It encompasses as ends in themselves better education, higher standards of health and nutrition, less poverty, a cleaner environment, more equality of opportunity, greater individual freedoms and a richer cultural life.

This is why modern development economists like Amartya Sen, M. P. Todaro, and Goulet have suggested that development has to be conceived of as a multi-dimensional process involving major changes in social structures, people's attitudes, and national institutions, in addition to the acceleration of economic growth, alleviation of poverty and reduction of income inequality. As Todaro and Smith comment: "Development, in its essence, must represent the whole gamut of changes by which an entire social system, tuned to the diverse needs and desires of individuals and social groups within that system, moves away from a condition of life widely perceived as unsatisfactory toward a situation or condition of life regarded as materially and spiritually better." It is against this backdrop that we study the human goal : of economic development, in terms of a new approach presented by the 1998 Amartya Sen. This approach is known as Sen's "Capabilities" Approach.

SEN'S "CAPABILITIES" APPROACH

According to Sen, the "capacity to function" is what separates the poor from the nonpoor. It is the dividing line between the two groups of people - the have-nots and

the haves. In his language, “Economic growth cannot be sensibly treated as an end in itself. Development has to be more concerned with enhancing the lives we lead and the freedoms we enjoy”. Sen’s approach is valid for both developed and developing countries.

According to Sen, poverty cannot be measured by using conventional yardsticks such as income or utility. What really matters is not what a person possesses - or the feelings from such possession, but what a person is capable of achieving, i.e., what a person is, what he does, and what he is capable of doing. Economic welfare of an individual does not depend just on the characteristics of commodities consumed, as K. Lancaster has argued in his product characteristics theory of demand, or on utility, as has been assumed by A. Marshall, but the use to which a commodity or various commodities can be put. For example, a packet of foreign cigarettes has no value to a non-smoker. Similarly, a computer with unused characteristics is not preferable to one without these characteristics.

Sen’s basic point is that the concept of human welfare in general and poverty in particular will be meaningful if we think beyond the availability of commodities and take into consideration the uses to which they can be (or, are) put. So we have to address ourselves to that Sen call functionings, that is, what a person does with the commodities of given characteristics that they come to possess or control (or, can do with them). Economic development is not just material progress. It is another name of economic freedom. This means that the true meaning of well-being is freedom of choice, or control of one’s own life. In Sen’s own language, “The concept of ‘functionings’ reflects the various things a person may value doing or being. The valued functionings may vary from elementary ones, such as being adequately nourished and being free from avoidable disease, to very complex activities or personal states, such as being able to take part in the life of the community and having self-respect”.

Sen has identified five sources of disparities between (measured) real income and actual advantages :

(i) personal heterogeneities, such as those connected with disability, illness, age, or gender ;

(ii) environmental diversities such as health and clothing requirements in the cold, infectious diseases in the tropics, or the adverse effect of pollution ;

(iii) variations in social climate, such as the prevalence of crime and violence, and social capital.

(iv) differences in relational perspective meaning that the community require-

ments of established patterns of behaviour may vary between communities, depending on conventions and customs ; and

(v) distribution within the family.

Published data show incomes received in a family. No doubt the family is the basic unit of consumption. But family resources are not always distributed evenly. In general, in most developing countries, especially among the poor and illiterate people, in both rural and urban areas, girls get less educational opportunities and medical care compared to boys.

Thus real income levels (adjusted for purchasing power parity) or the levels of consumption of specific commodities do not serve as a reliable and an adequate measure of well-being. One may have an abundant supply of commodities, but these are of little, if any, value, if they are not the commodities actually desired by the consumers. In some of the former socialist countries like the Soviet Union the consumers used to get certain commodities, not amount of certain essential commodities such as nutritious food. Even when providing the same calorie value, the available staple foods in the country (such as potatoes, rice, bread, commeal, onion, etc.) will differ in nutritional content from staple foods in other countries. Moreover, even some sub-varieties of rice are much more nutritious than others. Finally, even when comparing absolutely identical commodities, one has to frame the consumption of such items in a personal and social context.

Even such a basic factor as nutrition can vary widely among individuals. For this reason it is not correct to measure individual well-being across people by levels of consumption of goods and services. It is because commodities are not ends in themselves but means to an end, i.e., maximisation of well-being.

In case of nutrition, the end is good health, which, in its leads to personal enjoyment and social functioning. In fact, an individual's ability to enjoy depends, not only on his ability to earn income (which depends on his health condition) but also on the capacity to consume those goods and services, which he intends to consume. If economic development is measured by an improved level of consumption and well-being, then the concept of utility, in any of its standard definitions, is not enough for understanding the true meaning of development.

In Sen's view, an individual's own valuation of what kind of life would be worthwhile is not necessarily the same as what gives him (her) pleasure. If we equate utility with happiness then very poor people, who feel happy with whatever little they are able to secure with their modest income, can have very high utility. Even a malnourished person is satisfied by getting a free lunch from a charitable organisation or the opportunity to sleep in a half-finished building on a rainy day. Such people feel

happy by learning to avoid disappointment by striving only for whatever little is attainable.

This attitude of subjective bliss can only simplify matters, but does not solve the basic problem of an economic society, i.e., changing the objective reality of deprivation. The entire effort to achieve economic development will be meaningless unless something is done about a person's does not highly value an opportunity to become free of parasites of provided with basic shelter. Rather than a feeling, the functioning of a person is his real achievement. In Sen's view a person's achievement is what he succeeds in doing with the commodities and characteristics at his (her) command. For example, bicycling has to be distinguished from possessing a bike. It has to be distinguished also from the happiness generated by bicycling. A function is thus different from both (1) possessing goods and its associated characteristics (attributes) to which it is posterior, and (2) having utility (in the form of happiness resulting from that functioning), to which it is, in an important way, prior.

Sen defines capabilities as "the freedom that a person has in terms of the choice of functionings, given his personal features (conversion of characteristics into functionings) and his command over commodities." Income matters because disposition of income yields utility. In a like manner utility is important to the extent that it exhibits an individual's capabilities. And, it is quite obvious that capabilities are determined, at least partly, by income. In spite of the importance of income, some specific problems of developing countries such as social deprivation of girls cannot be properly appreciated and adequately focused by looking at per capita income figures. This is why modern development economists have placed so much emphasis on health and education. In their view, those developing countries which have attained high income levels but poor health and education standards have achieved growth without development. This means that real income is not unimportant. But it has to be supported by health and education if the characteristics of commodities are to be converted into functionings. As M. P. Todaro and S. C. Smith have put it, "The role of health and education ranges from something so basic as the nutritional advantages and greater personal energy that are possible when one leaves free of parasites to the expanded ability to appreciate the richness of human life that comes with a broad and deep education".

Sen's views have been criticised on the ground that fulfillment is more about the quality of social relationships or about following religious values than capabilities. But there is no denying the fact that income or consumption, or purely subjective pleasure or, desire fulfillment, cannot adequately define well-being. Any deep and insightful appraisal of wellbeing leads to a consideration of health and education well as income. Sen's analysis forms accounts for health and education as well as income.

1.19 SELECT READINGS

Bennett, D.Gordan, 1984, **World Population Problems**, Campaign. III Park Press.

Chandana, R.C., 1990 , A Population Geography, New Delhi, Kalyani Press.

Clark, J.I., ed . 1984, Geography and Population: Approaches and Application New York, Pergamon Press.

Demko, G.J. et al., Population Geography: A Reader, New York, Me Graw-Hill.

Du Paquier, J.A., et al., 1983 Malthus: Past and Present, New York, Academic Press.

Fillmann I., etal., 1983 : **Human Geography**, Duluque, W. C. Brown

Findlay, A.el al, 1987, Population and Development in the Third World, London, Methuen.

Grigg, D.B. 1980, 'Migration and Overpopulation in Historical Prospective' in The Geographical Impact of Migration, Paul White and Robert Woods (eds.), London, Longman.

Raj, Felix, et.al, (2006) Contemporary Development Economics, From Adam Smith to Amartya Sen, New Central, Kolkata

Hussain, Majid, 2002, Human Geography, Rawat, Jaipur Genet Abu-Lughod and Richard Hay, in, Third World Urbaniration (1977), Methuen, London.

Jones, H.R., 1990, Population Geography, 2nd edn., London, Paul Chepman, Johnston, R.J., (1997), Geography and Geographer, (Anglo-American Human Geography since 1945), 5th edn Arnold, London

Johnston, R.J. et. al. 1994 : **The Dictionary of Human Geography**, Blackhall, Oxford, U.K.

Kosinski, L.A, and K. Maudood Elahi, 1985, eds. Population Redistribution and Development in South Asia , Reprint, Jaipur, Rawat. Malthus, T., 1926, An Essay on the Principle of population, 1789, Reprint, London.

Lewis, 1982 : **Human Migration**, London.

Lutz, W., ed. 1990 : **Future demographic trends in Europe and North America**, Part-2, Academic Press, London.

Mandal, R.B.,(2000),Urban Geography, A Textbook, concept, New Delhi.

Merrick, T.W., et. al. 1986 : **World Population in Transition**, Population Bulletin 41, No. 2, Washington D.C., Population Reference Bureau.

National Academy of Science, 1986, population Growth and Economic Development policy Questions, Washington, D.C., National Academy Press.

Newman, J.A., et al., 1984, Population Patterns, Dynamics and Prospects, Englewood Cliffs, N.J. Prentice Hall.

Paters, G.L. and Larkin, R.P., Population Geography: Problems, Concepts and Prospects, Dubuque, Iowa, 1979.

Repetto, R., 1987, 'Population, Resources, Environment: An Uncertain Future.' Population Bulletin 42, No. 2 Washington, D.C.

Scientific American, 1974, The , Human Population, San Francisco, W.H. Freeman.

Secombe, W., 1983 : **Marxism and Demography**, New Left Rev. 137, pp 22-47.

Stamp, L.D., 1964, The Geography of Life and Death, Ithaca, Cornell University Press.

Trewartha, Glenn, 1964, The Geography of Population: World Patterns, New York, John Wiley & Sons.

The United Nations Development Programme, World Resources, 1998-99.

United Nations, Population Division, World Population Prospects, 1988, New York.

Woods, R.I., 1979, Population Analysis in Geography, London, Longman.

—, 1982, Theoretical Population Geography, London, Longman.

World Bank, 1984, World Development Report, New York, Oxford University Press.

Zechariah, K.C. (1964), A Historical Study of Internal Migration in Indian Sub-Continent, 1901-1931, Asia Pub. House, Bombay.

Zelinsky, W. 1966, A Prologue to Population Geography, Englewood Cliffs, Prentice Hall.

Zelinsky, W., et al. 1970, Geography and a Crowding World, New York, Oxford University Press.

Unit 2 □ POPULATION PROBLEMS OF THE THIRD WORLD

Structure

- 2.1 Backward classes.**
- 2.2 Women Development**
- 2.3 Poverty**
- 2.4 Gender discrimination**
- 2.5 Population Policies**
- 2.6 Select Readings**
- 2.7 Questions**

2.1 BACKWARD CLASSES

The backward classes form a very important section of Indian society, accounting for more than 30% of the total population of the country. They are, however not homogeneous category but consist of three broad divisions : the scheduled castes, the scheduled tribes and other backward classes. Of the three problems of the other backward classes [OBCs] are in many ways different from the first two. However, the condition of all the three groups is intimately linked with the basic features of traditional Indian society and nature of their problems can be understood only in terms of these features and change and continuity. (D. C. Bhattacharya : **Sociology**)

The term ‘Backward Classes’ broadly refers to the category of the people who have been designed as ‘backward’ by the Government and are entitled to get certain special benefits and privilege conferred by the Government. Andre Beteille observes that the use of the term Backward Classes is not altogether happy one because the word class denotes not only an economic category but also one which is relatively open. In reality, the Backward Classes are not classes at all but an aggregate of closed status groups.

Of the three categories of Backward Classes, the Position of the Scheduled Castes and Scheduled Tribes is defined, more or less specifically, in the Constitution of India but the Position of the OBCs is not clearly mentioned in the Constitution. Their position was not defined in specific terms until recently. The OBCs are now entitled to special facilities in education and employment. But unlike the SCs/STs, they are not given the privilege of political representation through reserved Constituencies.

Officially defined in terms of caste and occupation, the OBCs would comprise intermediate agricultural and functional castes. They are higher than the Scheduled Castes or Dalitas in the caste hierarchy. Andre Beteille considers peasant pastes the core of the OBCs. They are at a lower rung in the caste hierarchy. They have certainly been far behind the upper castes in education, profession and government jobs and white-collar occupations in general. In spite of this, such castes are small landowners and often they include 'dominant castes' who have advanced politically. They now consolidate power against politically weaker sections of the society which may appear threatened their dominance.

Since independence the position of the Backward Classes has improved as a result of the social-economic forces generated by state-sponsored economic development and the process of political democratization. Caste-based segregation is now an offence. The abolition of landlordism and land reforms undertaken in various states have given to the Backward Class people ownership rights to land which they cultivated as tenants. Adult franchise has generated consciousness for political mobilization and participations. All these factors and the Green Revolution have made the OBCs economically and political important in India Society.

WELFARE OF BACKWARD CLASSES

Department of Women and Child Development in the Ministry of Human Resource Development has formulation policies and programmers for women and children beside coordinating, guiding and promoting the activities of both governmental and non-governmental organizations working for the welfare and development of women and children. The major thrust programmes of the department is towards ensuring the well-being of children and women, particularly those of the weaker sections of society and for raising the status of women and bringing them into the mainstream of development. The Department comprises of the Nutrition and Child Development Bureau and the Women's Development Bureau. While the Nutrition and Child Development Bureau is responsible for the overall Development of children, the Women's Bureau works to improve the lot of women. The National Institute of public cooperation and child development (NIPCCD), a society registered under the Societies Registration Act 1860, functions under the department. Its activities include research and evaluation studies, organization and conduct of training programmes for functionaries, organisation of workshops/ seminars and conferences in the area of women and child development. NIPCCD is also responsible for the training of functionaries of the department's most significant programme, the integrated child development service (ICDS). The Central Social Welfare Board (CSWB), which is a registered body under the Indian companies Act of 1956, works as an apex body to promote voluntary action in the field of women and child development by extending financial

support to various non-governmental organisation in the country. It reaches even to the grass root level organization through its state boards.

CHILD DEVELOPMENT

(i) Integrated child development services

Following the adoption of the National policy for children in 1974, the scheme of integrated child development services (ICDS), was initiated in 1975 as a centrally sponsored scheme. The scheme provides a package of services namely : (1) Supplementary nutrition (2) Immunization (3) Health checkup (4) Health referral (5) pre-school non-formal education and (6) Health and nutrition education for mothers. The target group consist of children in the age group 0-6 years and pregnant and lactating mothers.

The number of projects (Centrally sponsored) sanctioned as on 31st march 1995 stood at 3,397 and 194 state sector project (rural/tribal blocks and urban block) 21.6 million (children and mothers) are receiving supplementary nutrition while about 10.1 million children are receiving re-school stimulation under the scheme. The integrated package of services as mentioned above is delivered through focal points of Anganwadis in which sanctioned number is over 3.9 lakhs. Several evaluation studies have brought out that ICDS is currently fulfilling a major National need and there has been a decline in infant mortality rates and birth rates, better health and immunization coverage and larger acceptance of family planning in ICDS areas.

In 1994-95 the financial provision for ICDS was Rs 444.99 crore. This account for all components on projects expenditure except the nutritional components which is funded by the state governments. For nutrition components apart from state government's contribution, food aid is also available from cooperative for American Relief Everywhere (CARE), World Food Programme (WFP) and through the eastwhile centrally sponsored wheat based nutrition programme. A beginning was made to institutionalize a special set of intervention for adolescent girls through ICDS infrastructure these interventions for adolescent girls were sanctioned in 507 ICDS project; The services provided include health and nutrition cover functional literacy and upgradation and improvement of home-base skills.

(ii) World bank assisted ICDS project

The centrally sponsored, world bank assisted ICDS project provides additional inputs for women's income generation. Women's integrated learning of life (WILL), services for adolescent girls, strengthening of health components, experimentation with nutritional rehabilitation centres and therapeutic food, construction a Anganwadi buildings and godowns-cum-CDPO'S offices on a selective bases and enhanced

inputs in the spheres of communications, training, project management, equipment, monitoring, evaluation etc.

(iii) Training of ICDS functionaries :

The effective delivery of the package of services envisaged under the significant programme of ICDS depends on proper training and orientation of the functionaries at all levels. Accordingly a comprehensive programme for the training of ICDS functionaries has been under taken concurrently by this department.

(iv) Balsevika training programme

With the rapid expansion of welfare schemes in the country such as the Integrated Child Development Services Scheme the demand for the grass root level functionaries to the rise. The Balsevika Training Programme was started in 1961 - 62 to meet the requirement of the trained personnel for the institutions implementing welfare programmes for the pre-school children.

(v) Creches/Day-Centers For Children

Under the scheme, the services available to the children include sleeping and day-care facilities, supplementary nutrition, Immunization, Medicines, entertainment and weekly medical check-ups, being implemented by the Central Social Welfare Board.

(vi) Early Childhood Education (ECE)

ECE has been designed to improve the children's communication (language) and cognitive (social, emotional, intellectual, and personality development) skills as preparation for entry into primary schools, implemented in the nine educationally backward states of Andhra Pradesh, Assam, Bihar, Jammu & Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal.

(vii) Special Nutrition Programme (SNP)

(viii) Wheat Based Nutrition Programme (WBNP)

The Wheat based nutrition programme is being implemented in 16 state and three union territories to cover about 31 lakh beneficiaries in ICDS areas.

(ix) Infant Milk Substitutes, Feeding Bottles and Infant Food Act, 1992

(x) National Plan of Action for Children,

(xi) Balwadi Nutrition Programme,

(xii) National Awards For Child Welfare.

(xiii) United Nation's International Children Emergency Fund (UNICEF)

Department of Women and Child Development is the nodal department for UNICEF assistance in the country. UNICEF assistance has been available for the programmes which has focus on children. The programme areas, includes child development services, urban basic services, women development, health, nutrition, education, water supply and sanitation.

2.2 WOMEN DEVELOPMENT

The constitution of India guarantees equal rights and opportunities for both men and women . Towards this , efforts are being made through development planning to raise the status of women besides mainstreaming them into the process of national development on par with men. The programmes for the development of women include employment and income generation programmes , welfare and support services and programmes to create awareness generation. Etc.

(a) Hostels for Working Women

The scheme seeks to provide cheap and safe accommodation for working women belonging to low income group.

(b) Employment and Income Generating Training Production Unit

The NORAD (Norwegian Agency for International Development) assisted programme started during 1982-83 to train women belonging to weaker sections of the society and to provide them employment on a sustained basis.

(c) Condensed Courses of Education and Vocational Training For Women

This programme is implemented by the Central Social Welfare Board (CSWB) through voluntary organizations. Under this programme, women in the age group 18-30 years who have had some schooling, are coached for 2-3 years to enable them to appear at different levels of examinations like middle school/secondary school/matriculation.

(d) Socio-Economic Programme

Under this programme, the Central Social Welfare Board gives financial assistance to voluntary organizations for undertaking wide variety of income generating activities and provides opportunities for work and wages to needy women belonging to the category of poor and the downtrodden, widows, destitutes, disable, etc., particularly from economically backward and underdevelop areas.

(e) Support to Training-cum-Employment Programme

This programme of support to Training -cum-employment for women (STEP)

living below poverty line, was launched in 1987 to strengthen and improve the skill and employment opportunities in traditional sectors where majority of women are already working. The sectors include agriculture animal husbandary, dairying, fisheries, handlooms, handicraft, cottage and village industries and sericulture.

(f) Women Development Corporations

The Scheme for setting up of women Development Corporation (WDCs) was formulated in 1986-87. These corporation are expected to play a catalytic role in identifying the women entrepreneurs; provide technical consultancy services; facilities availability of credit, promote marketing of product; promote and strengthen women's cooperatives; arrange technical facilities, etc.

(g) Short Stay Homes for Women and Girls

Governments give grant-in-aid to voluntary organizations/institutes to assest/run short stay homes for women and girls. The scheme was started with the object of providing temporary shelter and rehabilitation to those women and girls who are in social and moral danger due to family problem., mental strain, social ostracism, exploitation or other causes.

(h) Awareness Generation Projects for Rural and Poor Women

(i) Education Work for Prevention of Atrocities Against Women

(j) Information and Mass Education

Problem awareness about social problem and consequent effort to bring the desired behavioural changes are envisaged to be achieved through the use of mass-media including electronic, print, traditional media and outdoor publicity, utilizing the outlets of Information and Broadcasting Ministry AIR, Doordarshan, Field Publicity, DAVP, Song and Drama etc.

(k) Rehabilitation of Women in Distress

The major object of the scheme is to rehabilitates destitute women and their dependent children through vocational training and residential care and make them economically independent.

(1) National Commission for Women (NCW)

A National Commission for Women was set up on 31st January 1992 to monitor the matters relating to constitutional and legal safeguards provided for women to monitor the implementation of legislations made to protect the rights of womens, review the existing legislations concerning women and suggest amendments.

WELFARE OF THE DISABLED

According to the estimates of the world Health Organisation (WHO), 10 percent of the population in the world has one or more physical or mental disabilities. In a sample survey conducted in 1981 by the National Sample Survey Organisation of India, the total number of disabled persons in the country may be about 120 lakh who suffer from speech, hearing and visual disabilities.

Rehabilitation Council

Rehabilitation Council has been set up as an autonomous body during 1992-93. the council prescribes minimum standard of education and training of professionals; recognizes or diplomas. The council also recognizes foreign degree or diplomas or certificates on reciprocal basis and maintain Central Rehabilitation Register of persons who are allow to practice or seek employment in rehabilitation services for the handicapped.

Prohibition and Drug Abuse

In keeping with its responsibility for drug abuse prevention, the Ministry of Welfare has been sponsoring a variety of research studies on the subject through major academic and research institutes. Recently, a nationwide project covering 33 cities and drug prone areas was commissioned by the Ministry to ascertain the nature and extent of the problem, to delineate the major socio-economic factors contributing to it, to identify areas and populationgroup afforts or susceptible to it, and to assess adequacy or otherwise of the available services.

Department of Pension and Pensioner's Welfare

The Department of Pension and Pensioner's Welfare was set up in March 1985. Its responsibilities include formulation of policy and coordination of matters relating to the retirement benefits of all Central Government employees. The department has also provided an integrated approach to matter relating to post-retirement benefits.

2.3 POVERTY

Man is the superior from of life and has special capacity and potential for reflection. Man through his actions has brought radical changes over the earthy surface. Despite tremendous development in the field of science, education and technology , there are glaring inter-regional disparities in the social, economic, cultural and political empowerment of men and women. These disparities are the main causes of insecurity in life of people and have led to many wars and conflicts.

It is a fact that the world can never be at peace unless people have security in their daily lives. Future conflicts may often be within nation rather than between them - with their origins buried deep in growing socio-economic deprivation and disparities. The search for securities in such a milieu lies in development, not in arms.

Human Development Index

The Human Development Index (HDI), developed and applied, for the first time in 1990, is a device to measure a country's or region's achievements in the enhancement of human capabilities. This index helps in ascertaining the impact of planning on the quality of life of people of a country. It was realized by the various development agencies of the UNO that there is a silent crisis in the world - a crisis of underdevelopment, of disparity in development, of global poverty, of ever mounting population pressure, of over consumerism, and thoughtless degradation of resources. To overcome this crisis, it is imperative to have a long, quiet process of sustainable development.. In fact, the world can never be at peace unless people have security in their daily lives. It will therefore, not be possible for the community of nation to achieve any of its major goal - not peace, not environmental protection, not human right or democratization, not fertility reduction, not social integration - except in the context of sustainable development.

What does the HDI include?

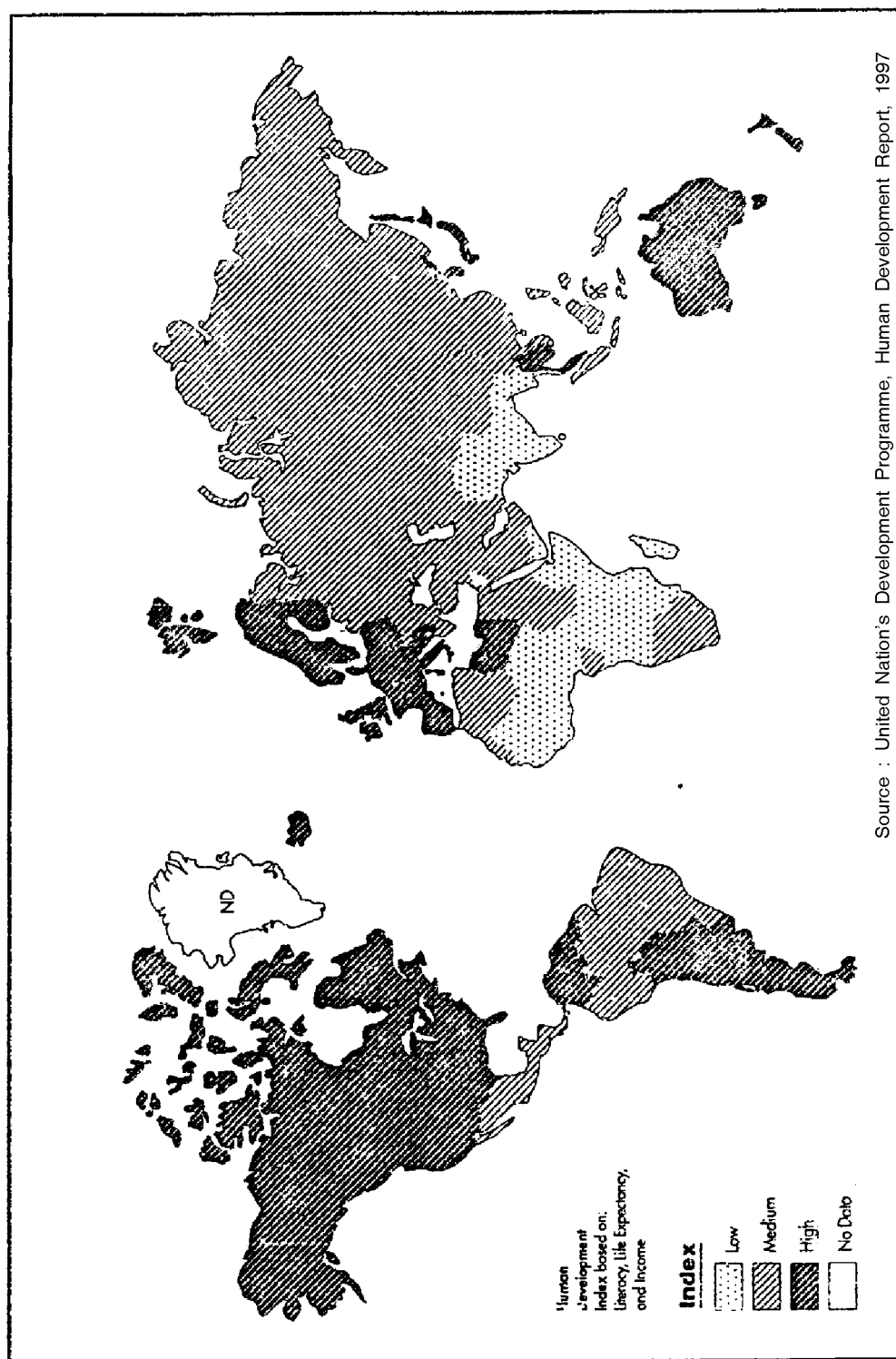
The HDI is a composite of three basic components of human development: (i) longevity, (ii) knowledge, and (iii) standard of living. Longevity is measured by life expectancy. Knowledge is measured by the combination of adult literacy (2/3 weight). Standard of living is measured by purchasing power based on real GDP per capita as adjusted for the local cost of living (purchasing power parity, or PPP).

The 1995 HDI is based on the following indicators:

- (1) Life expectancy at birth
- (2) Measurement of the health status and longevity.
- (3) Educational attainment to represent the level of knowledge and skills
- (4) An appropriately adjusted real GDP per capita (in PPP \$), to serve as asurrogate for command over resources

The latest Human Development Report, 2005, has however included the following criteria :—

- (1) Life expectances at birth year, 2003
- (2) Adult literacy rate (% ages 15 and above), 2003
- (3) Combined gross enrolment ratio for primary, secondary and tertiary schools (%), 2002-03.



Source : United Nation's Development Programme, Human Development Report, 1997

(4) GDP year capita (in ppp US \$)

by applying data, UNDP has calculated the following indices :—

(a) Life expectancy index.

(b) Educational Index.

(c) GDP index.

POVERTY IN DEVELOPING COUNTRIES

A substantial proportion of population in each of the developing countries is below the poverty line. The population below the poverty line is unable to meet minimum human needs, such as adequate food, clothing, shelter, health, care and education, even by developing world standard.

In spite of its widespread existence, estimates of absolute poverty are difficult to obtain for a number of reasons. It is not only that reliable and comparable data is not available, the indicators like lack of security, lack of political freedom, inability to participate freely in the life of a community and threats to sustainability cannot be measured and quantified. Moreover, a major difficulty also stems from the arbitrary nature of the definition of poverty line itself.

The question is: What is the standard poverty line below which absolute poverty exists? This is a problematic question in the context of the Third World, where the level of tolerance of poverty and survivability under difficult circumstances is considered to be remarkably high.

The main importance of Human Poverty Index (HPI) lies in the fact that it draws attention to deprivations in three essential elements of human life, i.e., longevity, knowledge and decent living standard.

The main difference between the HDI and HPI is that the former measures progress in a community or country as a whole, while the later HPI measures the extent of deprivation of the proportion of people in community/country who are left out of progress.

The Population Divisions of the UNO and the UNDP have estimated the HPI for 77 developing countries with comparable data and the results have been presented in Table 7.11. The HPI value reflects the proportion of people affected by the three key deprivations-providing a comparative measure of the prevalence of human poverty.

Focus on Terminology : Human Poverty Index and Human Development Index

To overcome the limitation of taking a single measure of per capita income (PCI) as an index of development and the problem of using *PCI* as a measure of living standards, the United Nations Development Programme (UNDP) has developed two alternative indices by which to compare the level of development and the progress of countries : the human poverty index (HPI) and the human development index (HDI). These indices give alternative measures of the economic well-being of nations that do not necessarily accord with the level of PCI. As the UNDP says in its *Human Development Report* (1997) 'although GNP growth is absolutely necessary to meet all essential human objectives, countries differ in the way that they translate growth into human development'. The UNDP defines human development as 'a process of enlarging people's choice'. This depends not only on income but also on other social indicators such as life expectancy, education, literacy and health provision.

The human poverty index is based on three main indices :

- (i) The percentage of the population not expected to survive to the age 40 (P_1);
- (ii) The adult illiteracy rate (P_2) ; and
- (iii) A deprivation index based on an average of three variables : (a) the percentage of the population without access to safe water; (b) the percentage of the population without access to health services and (c) the percentage of under-weight children under five years of age (P_3).

The formula for the HPI is given by :

$$HPI = [(P_1^3 + P_2^3 + P_3^3) - 3]^{1/3} \quad \dots (1)$$

The human development index is based on three variables :

- (i) Life expectancy at birth
- (ii) Educational attainment, measured by a combination of adult literacy (two-thirds weight) and combined primary, secondary and tertiary school enrolment ratios (one-third weight)
- (iii) Standard of living measured by real PCI in terms of a common currency (such as the US dollar).

To construct the index, fixed minimum and maximum values are taken for each of the variables. For life expectancy at birth the range is 25-28 years. For

adult literacy the rent is 0- 100 percent For real per capita income the range is \$100 - 10000. For any component of the *HDI*, the individual indices can be computed according to the general formula :

$$\text{Index} = \frac{\text{Actual value} - \text{Minimum value}}{\text{Maximum value} - \text{Minimum value}} \quad \dots (2)$$

The index thus ranges from 0 to 1. If the actual value of the variable is **the minimum, the index** is zero. If the actual value is equal to the maximum value, the index is one. **Let us take the example** of the expectancy in India. The life expectancy is 61.3 years and if we put **this value into equation** (1), we get $(61.3 - 25) / (85 - 25) = 36.3 / 60 = 0.60$. Among the developing **countries, some** have much higher HDIs than PCI, and *vice versa*.

NO. Rankings of countries according to their HDI and PQLI values correlate fairly well with the per capital income rankings. The largest deviations are found in case of the oil-exporting countries, which have higher per capita income but low values on the social development indexes. In spite of all these, the HDI is one way to combine important development indicators.

(Source : **Contemporary Development Economics** : Felix Raj et. al., Central, Kolkata)

Salient Features of Human Poverty Index for Developing Countries

1. The HPI ranges from 3 percent in Trinidad and Tobago to 62 percent in Niger.
2. The other countries in which the HPI is 1 or less than 10 percent are Chile, Uruguay, Singapore and Costa Rica.
3. HPI exceeds 50 per cent in Mali, Ethiopia, Sierra Leone, Burkina Faso and Niger.
4. The HPI exceeds 33 percent in 32 countries, implying that an average of at least a third of people in these countries suffer from human poverty.

Table—1

Human Poverty Indices (HPI-1) for Developing Countries, 1998

<i>Country</i>	<i>HPI-1 value (%)</i>	<i>HPI-1 rank</i>	<i>HPI-1 Rank minus HDI rank</i>	<i>HPI-1 rank minus \$1-a- day poverty rank</i>
Trinidad and Tobago	3.3	1	-4	—
Chile	4.1	2	0	-13
Uruguay	4.1	3	-1	—
Singapore	6.5	4	3	—
Costa Rica	6.6	5	2	-15
Jordan	10.0	6	-15	-1
Mexico	10.7	7	-1	-9
Colombia	11.1	8	-1	-4
Panama	11.1	9	3	-13
Jamaica	11.8	10	-9	0
Thailand	11.9	11	1	7
Mauritius	12.1	12	1	—
Mongolia	14.0	13	-15	—
United Arab Emirates	14.5	14	7	—
Ecuador	15.3	15	1	-16
China	17.1	16	-13	-14
Libyan Arab Jamaliiriya	17.4	17	5	—
Dominican Rep.	17.4	18	-4	-7
Philippines	17.7	19	-8	-9
Paraguay	19.1	20	-4	—
Indonesia	20.2	21	-4	1
Sri Lanka	20.6	22	-1	8
Syrian Arab Rep.	20.9	23	7	—
Bolivia	21.6	24	-10	7
Honduras	21.8	25	-10	-16
Iran, Islamic Rep. of	22.2	26	11	—

<i>Country</i>	<i>HPI-1 value (%)</i>	<i>HPI-1 rank</i>	<i>HPI-1 Rank minus HDI rank</i>	<i>HPI-1 rank minus \$1-a- day poverty rank</i>
Peru	23.1	27	7	-16
Tunisia	23.3	28	10	13
Zimbabwe	25.2	29	-13	-10
Lesotho	25.7	30	-16	-16
Vietnam	26.1	31	-5	—
Nicaragua	26.2	32	-6	-10
Botswana	27.0	33	7	-6
Algeria	27.1	34	17	20
Kenya	27.1	35	-13	-11
Myanmar	27.5	36	-7	—
El Salvador	27.8	37	4	—
Oman	28.9	38	25	—
Guatemala	29.3	39	8	-12
Papua New Guinea	29.8	40	-1	—
Namibia	30.0	41	11	—
Iraq	30.1	42	3	—
Cameroon	30.9	43	-1	—
Congo	31.5	44	4	—
Ghana	31.8	45	0	—
Egypt	34.0	46	14	16
India	35.9	47	-3	-11
Zambia	36.9	48	-7	-14
Laos, People's Dem. Rep.	39.4	49	2	—
Togo	39.8	50	-4	—
Tanzania, U. Rep, of	39.8	51	-8	14
Cambodia	39.9	52	1	—
Morocco	40.2	53	16	28
Nigeria	40.5	54	2	8

<i>Country</i>	<i>HPI-1 value (%)</i>	<i>HPI-1 rank</i>	<i>HPI-1 Rank minus HDI rank</i>	<i>HPI-1 rank minus \$1-a- day poverty rank</i>
Central African Rep.	40.7	55	-7	—
Congo, Dem. Rep. of	41.1	56	3	—
Uganda	42.1	57	-10	-2
Sudan	42.5	58	-6	—
Guinea-Bissau	42.9	59	-10	-10
Haiti	44.5	60	-6	—
Bhutan	44.9	61	-2	—
Mauritania	45.9	62	4	8
Pakistan	46.0	63	14	24
Cote d'Ivoire	46.4	64	7	20
Bangladesh	46.5	65	9	15
Madagascar	47.7	66	5	-3
Malawi	47.7	67	-1	9
Mozambique	48.5	68	-2	—
Senegal	48.6	69	4	1
Yemen	48.9	70	10	—
Guinea	49.1	71	0	21
Burundi	49.5	72	-1	—
Mali	52.8	73	-1	—
Ethiopia	55.5	74	2	15
Sierra Leone	55.2	75	-2	—
Burkina Faso	55.2	76	1	—
Niger	62.1	77	1	3

Notes: (1) HDI and \$1-a-day poverty ranks have been recalculated for the universe of 77 countries.

(2) A negative figure indicates that the HPI-1 rank is better than the other, a positive the opposite.

Source: (1) UNDP Human Development Report, 1998

(2) UNO, Population Division, 1998, World Resources : A Guide to the global Environment, 1998-99, Oxford University Press, New York.

HUMAN POVERTY IN INDUSTRIAL COUNTRIES

Poverty and deprivation are not only a problem of developing countries, but also in industrial countries. The following points substantiate this statement:

1. On the basis of an income poverty line of 50 percent of the median personal disposable income, more than 100 million people are income-poor in OECD (Organization of Economic Cooperation and Development) countries.
2. At least 37 million people are without jobs in the industrial countries, often deprived of adequate income and left with a sense of social exclusion from not participating in the life of their communities.
3. Unemployment among youth (15-24 years) has reached staggering heights, with 32 percent of young women and 22 percent of young men in France unemployed, 39 percent and 30 percent in Italy and 49 percent and 36 percent in Spain.
4. About 8 percent of the children in the developed-industrial countries, including half or more of children of single parents in Australia, Canada, U.K., and U.S.A., live the income poverty line of 50 percent of median disposable personal income.
5. Nearly 200 million people are not expected to survive to age 60.
6. More than 100 million are homeless, a shocking high number amid the affluence.
7. Among 17 industrial countries Sweden has the lowest incidence of human poverty, with 6.8 per cent, followed by the Netherlands and Germany. The countries with the most poverty are the U.S. A, with 16.5 percent, followed by Ireland and the U.K. at 15.2 percent and 15 percent.
8. The extent of human poverty has little to do with the average level of income. For example, the U.S.A., with the highest per capita income measured in purchasing power parity (PPP) among the 17 countries, also has the highest human poverty.
9. All the 17 industrial countries have reached high levels of human development.
10. The first and second ranking countries in respect of human development, viz., Canada and France with HDI value of more than 0.900, have significant problems of poverty, and their progress in human development has

been poorly distributed. About 17 percent of Canada's people lack adequate literacy skills, more than the proportion in Sweden.

INCOME DISPARITIES

Disparities in income are quite significant among the different nations and there are also striking intra-national inequalities in income. For example, in 1960, 20 per cent of the world's people, who live in the richest countries, had 30 times the income of the poorest 20 percent by 1995; about 82 times as much income.

Income distribution in industrial countries also shows wide disparities between rich and poor. In the worst case, Russia, the income share of the richest is 11 times that of the poorest. In Australia and the U.K., it is nearly 10 times. The U.K. stands out for its particularly sharp rise in income inequality over the 1980s.

The Ultra-Rich

The estimates made by the UNDP and the World Bank show that the world's 225 richest people have a combined wealth of over US\$ 1 million, equal to the 2.5 billion world's people.

The enormity of the wealth of the ultra-rich is a mind-boggling contrast with low incomes in the developing world. A few examples, revealing the glaring disparities in the wealth of the ultra-rich and the poor nations, have been cited as under:

1. The three richest people have assets the combined GDP of the 48 least developed countries.
2. The 15 richest have assets that exceed the total GDP of the sub-Saharan Africa.
3. The wealth of 32 richest people exceeds the total GDP of South Asia.
4. The assets of 82 richest people exceed the total GDP of China, the most populous country, with 1.2 billion inhabitants.

Poverty Definition

According to Gillin and Gillin, "Poverty is that condition in which a person either because of inadequate income or unwise expenditure, does not maintain a scale of living high enough to provide for his physical and mental efficiency and to enable and his natural dependents to function usually according to the standards of society of which he is member." Poverty then, is a condition of extremely lower standard of living. As Goddard puts it, "Poverty is insufficient supply of those things which are requisite for an individual to maintain himself and those dependent upon in health

and vigour.” Therefore, a man is called poor when he is unable to gather the means to keep himself and his family in health. The criterion of poverty differs in different countries. In U.S.A. a person earning Rs.50 a month will be called poor. But in fact a condition the absence of the fulfillment of the minimum necessities of life should be called poverty everywhere. The form of these minimum necessities, however, changes according to place and time.

Causes of Poverty :

Social workers point out different causes of poverty. According to Henry George, the main cause of poverty is the personal ownership and the monopoly of the individual on the land. “In the great cities where land is so valuable that it is measured by the foot, you will find the extremes of the poverty and of luxury. And this disparity in condition between the two extremes of the social scale may always be measured by the price of the land.” (George 1936). To Marx, the main cause is the exploitation of the labourers by the capitalists. In his words, “He creates surplus value which for the capitalist has all the charms of a creation out of nothing.” According to Malthus, poverty increases because while the food production increases in arithmetical progression, population increases in geometrical progression. In the words of Landis and Landis, “In a world where economic hazards are so numerous, the individual cannot always be blamed for poverty.” Hence, besides the personal causes there are geographical, economic and social causes of poverty.

Personal causes:

The important personal causes of poverty are as follows:

- (i) *Sickness*: Hunter has written, “Poverty and sickness form a vicious partnership each helping the other to add to the miseries of the most unfortunate of mankind.” Due to sickness while a man is unable to work and his income decreases a major portion of his income is also spent on the cure of the disease,
- (ii) *Mental Diseases*: Due to mental diseases a person becomes incapable of doing anything. This decreases his income and increases poverty,
- (iii) *Accidents*: Accidents make a person entirely incapable of work or considerably reduce his capacity for it.
- (iv) *Illiteracy*: Poverty and illiteracy are mutually related. Illiteracy increases poverty since the capacity to earn of an illiterate person is very low.
- (v) *Idleness*: In spite of sufficient opportunity to work, do not work because of idleness and hence remain poor,

- (vi) *Extravagance*: It is well known that an extravagant person can waste any amount in no time. In fact the cause of poverty is not a lower income but excess of expenditure over income,
- (vii) *Demoralization*: The lowering of character and morale leads to personal disorganization and finally to poverty,
- (viii) *Other personal causes*: Besides the above-mentioned personal causes of poverty there are some other important personal causes. If a man has too many children to bring up, his standard of living is definitely lowered and he becomes relatively poor.

Geographical causes:

Besides the above-mentioned personal causes, the following geographical factors are also responsible for increasing poverty:

- (i) *Unfavourable climate and weather*: In the extremely cold climates and weathers the amount of work and production is considerably lowered. This increases poverty.
- (ii) *Absence of natural resources*: In the absence of natural resources the inhabitants of the deserts, high mountains and extremely hot and extremely cold countries generally remains poor.
- (iii) *Natural calamities*: Natural calamities such as the eruptions of volcanoes, typhoons, floods, earthquakes and lightning cause serious damage to poverty and agriculture. In India the absence of timely rains, excessive or deficient rains cause serious damage to agriculture. This increases poverty everywhere.
- (iv) *Pests*: Pests are a major cause of damage to agriculture and movable property such as books, furniture, etc.

Economic causes:

Besides the geographical causes the main causes of poverty are economic of these the important ones are as follows:

- (i) *Agricultural causes*: Absence of sufficient manure, improved tools, implements and machines, means of irrigation and cattle of high breed, exploitation of farmers by the landlords and constant fragmentation of land are some important agricultural causes which increase the poverty among people of the agriculture class.

- (ii) *Unequal distribution*: Even if production is sufficient, millions of laborers remain poor in the country where distribution of wealth is unequal.
- (iii) *Economic depression*: Economic depression cause decrease in trade and commerce, lockout of mills and factories and unemployment of millions of laborers and traders.
- (iv) *Unemployment*: Unemployment is the most serious economic cause of poverty. In India it is a major cause of the lower standards of living of the people both in urban and rural areas.
- (v) *Unproductive hoarding*: If a major portion of the wealth of the country is hoarded in unproductive forms such as jewellery, etc, the economic development of the country is seriously handicapped. This is a serious cause of poverty in India.
- (vi) *Unwise economic policy*: Sometimes inspite of the presence of sufficient resources and manpower in a country, the people remain poor because of the unwise economic policy of the government.

Social causes:

Beside the above - mentioned economic causes the following social causes also increase poverty:

- (i) *faulty educational system*: An important social cause of poverty is faulty educational system. It is because of this that is in India thousands of educated persons are unemployed and leading a life of poverty.
- (ii) Faulty and insufficient housing.
- (iii) Absence of training in home science.
- (iv) Evil customs and traditions.
- (v) Insufficient provision of medical aid.
- (vi) War: War devastates prospering lands and rich countries. It leads to heavy loss of property and manpower. It upsets the balance of society by disrupting the moral standard and socio- economic system. It gives a serious blow to trade and commerce both national and international. Epidemics spread after war thus adding to the misery of the people. All this lead to poverty.

The above mentioned personal, geographical, economic and social causes do not exhaust all the causes of poverty. In fact, they differ from man to man and society to society. But the above-mentioned are the important causes of poverty everywhere.

Eradication of poverty requires removal of all these causes. This requires efforts from the government as well as from the people.

Poverty in India:

India represents a dichotomy in development. It ranks in nineteenth in worlds industrial production and twelvth in total gross national production (GNP), yet it has a large population that is extremely poor. The United National Human Development Index based on three indicators -life expectancy, educational attainment, and real GDP in purchasing power parity terms-ranks India 134th among 174 countries. In terms of real GDP per capita, it is ranked 141th. Pakistan is 100th and China is 123th (Outlook, February 14, 1996). Although since independence, the country has registered a significant overall growth rate, and there has been a progressive increase in the per capita income- from Rs. 1,630 in 1980-81 to Rs. 3,269 in 1987-88, Rs.4, 974 in 1990-91, Rs.6, 234 in 1993-94 and Rs.16,929 in 1994-95. The per capita income at constant prices (1980-81) was estimated to be Rs. 2,226 in 1992-93, Rs.2, 282 in 1993-94, and Rs.2, 362 in 1994-95, The Hindustan Times, August 22,1995, yet there has been a deterioration in the living standards of a large section of the population.

The 1995 figures (which actually pertain to the year 1987-88) point out that the highest number of persons below the poverty line existed in Orissa(44.7%), followed by Bihar (40.8%), Madhya Pradesh(36.7%), Uttar Pradesh(35.1%), Tamil Nadu (32.8%), Karnataka(32.1 %), Andhra Pradesh (31.7%), Maharashtra(29.2%), West Bengal (27.6%), Rajasthan (26.4%), Assam (22.8%), Gujarat (18.4%), Kerala (17.0%), Jammu and Kashmir (13.9%), Haryana (11.6%), Himachal Pradesh (9.2%), Punjab (7.2%) and small states and UTs (7.7%) (The Hindustan Times, May 9, 1995) of about 320 million poor persons in India (according to now estimates of the Planning Commission), the absolute destitutes - which are the bottom 10 percent of the society are around 50-60 million. These are the old, the sick, and the disabled people, for whom it is not employment and the opportunity of earning of income that has to be provided, but some kind of social security, involving regular monthly payment. This leaves some 260 million (according to official figures) to 350 million (according to economists) people living at various levels of poverty for whom employment opportunities have to be provided. In the rural areas, these poor are the landless agricultural laborers, casual non-agricultural laborers, the marginal farmers, and the displaced village artisans such as the blacksmiths, the carpenters and the learner workers, while in the urban areas, these poor are the non- unionized industrial workers, vegetable, fruits and flower vendors, servants in tea shop domestic servants and daily wages earners.

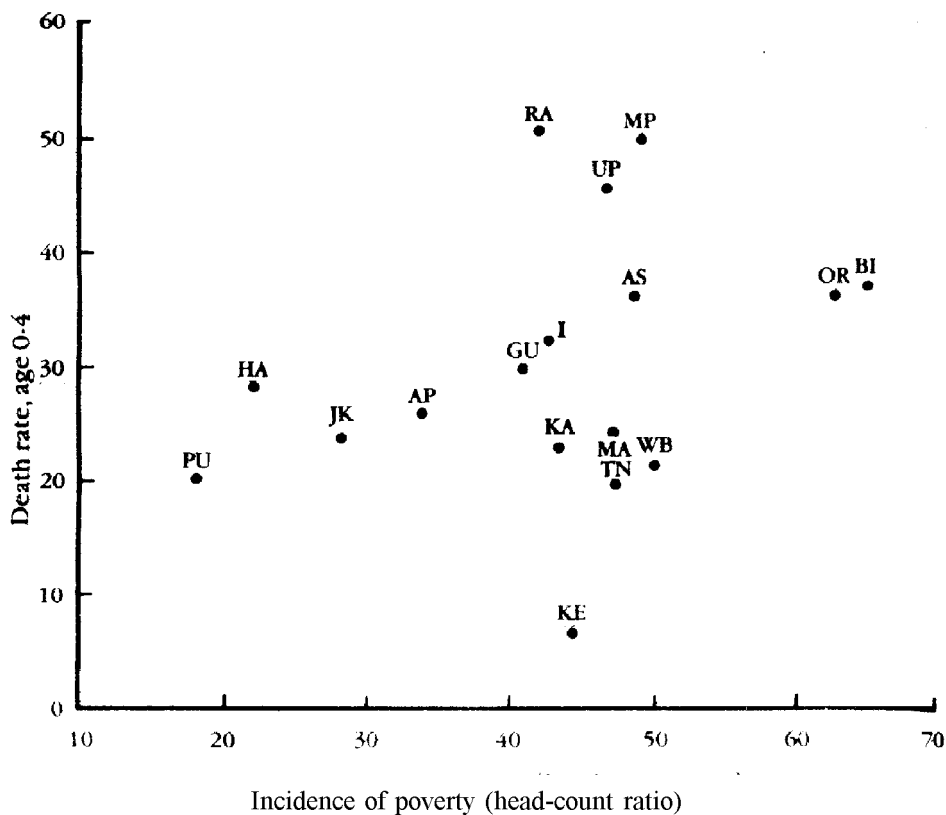


FIG. *Indian States : Poverty and Child Mortality, 1987 – 8*

Source Minhas et al. (1991); *Sample Registration System 1988, Statement*

I = India

AP = Andhra Pradesh

BI = Bihar

GI = Gujarat

KA = Karnataka

MA = Maharashtra

OR = Orissa

RA = Rajasthan

UP = Uttar Pradesh

AS = Assam

HA = Haryana

JK = Jammu & Kashmir

KE = Kerala

MP = Madhya Pradesh

PU = Punjab

TN = Tamil Nadu

WB = West Bengal

Despite the slowdown in economic growth over the past few years, the number of people in the upper, upper middle, and middle income segments has been decreasing according to the surveys by the National Council of Economic Research (NCAER).

National income is a comprehensive index of the state of an economy and measure of its growth over time. The figures of national income in India available for the last four decades do record some rise. National income in 1950-51 increased by 1.47 percent in 1980-88, and by 5.1 percent in 1995-96. But the increase in the growth rate in comparison to other developing countries is very low. When the annual growth rate of per capita GNP of India between 1984-91 was 2.3 percent, it was 6.5 percent in the case of China, 12.4 per cent in the case of Japan, and 13.8 percent in the case of Korea (India Today, November 15, 1994:159).

Disparity in the rural and urban per capita incomes is also glaring (it being one for rural to 2.4 for urban areas). The income distribution in rural and urban areas in 1983 shows that 11 percent families in the urban areas and 3 percent families in the rural areas belonged to the 'upper class' (with an income of more than Rs.3,000 per year at the 1970-71 price level).

About 74 percent of India's population lives in villages. The incidence of poverty is much higher in villages- roughly 39 percent of the rural population. Agriculture is a source of livelihood for 70 percent of the population but agriculture accounts for less than 40 percent of the national income. One of the reasons for this is the unequal distribution of land. 10 to 20 percent of landholders hold 70 per cent of the total land and 50 percent of landholders are marginal farmers with less than one hectare (2.471 acres) of the land.

According to the Integrated Rural Development Programme (IRDP) definition, approved by the Ministry of Rural Development, as revised in May 1991, a rural household with an annual income of less than Rs.11,000 is described as a poor household. These 'poor-households' have been further classified into four groups: the destitutes (with an income of less than Rs.4,000 per annum at 1991-92 price level), extremely poor (with an income between Rs.4, 001 and Rs.6, 000 per annum), very poor (with an income between Rs.6,00 land Rs.8,500 per annum), and poor (with income between Rs.8, 501 and Rs. 11.000 per annum).

A staggering 55 percent of the rural population of the country still live in Kutcha houses. Further, in most backward states (like West Bengal, Bihar, Orissa, Uttar Pradesh, and Madhya Pradesh), 15 to 19 percent rural homes electricity,⁹ 11 percent have pipe water and 11 to 16 percent have access to public distribution system.

Steps taken to check poverty

- (i) *20- Point programme:* Indira Gandhi propounded this programme in July, 1975 for reducing poverty and economic exploitation, and for the upliftment of the weaker section of the society. The five important goals of this programme were: (a) controlling inflation, (b) giving incentive production, (c) welfare of the rural population, (d) lending help to the urban middle classes, and (e) controlling economic and social crimes.
- (ii) *State poverty Alleviation Programmes:* Several poverty alleviation programmes have been launched by the government for the rural poor, comprising the small and marginal farmers, landless labourers and rural artisans supportive land- based activities like irrigation, animal husbandry, etc, TRYSEM (Training Rural Youth Skills for Self- Employment), Jawahar Rozgar Yojna (generates additional gainful employment for the rural unemployed, and underemployed, and provides employment for 50 to 100 days in a year to at least one member in poor family, NREP (wage employment in slack season), RLEGP (80 to 100) days of wage employment to every landless household), DPAP (area development of droughtprone areas), and DDP (area development of hot and cold deserts). We will discuss each of these programmes separately.
- (iii) *IRDP:* The integrated Rural Development Programme (IRDP) is a major instrument of the government to alleviate poverty. Its objective is to enable selected families to cross the poverty line by taking up self employment ventures in a variety of activities like agriculture, horticulture and animal husbandry in the primary sector; weaving and handicraft in the secondary sector; and service and business activities in the tertiary sector.
- (IV) *TRYSEM:* The scheme of training rural Youth for self employment was started on Aug 15, 1979 to provide technical skill to the rural youth in the age group of 18-35, and belonging to families below the poverty line.
- (V) *NREP:* The National Rural Employment Programme (NREP) was planned for creating additional employment opportunities in the rural areas with the help of surplus foodgrain.
- (VI) *RLEGP:* The Rural Landless Employment Guarantee Programme (RLEGP) aimed at providing supplemental employment to the poor on public works at a very low wage of Rs. 3 per day revenue, sales tax, motor vehicles tax, irrigated holdings, and on professionals. The amounts so collected, with

matching contributions from the state government, were credited to an EGS fund for taking up employment works. This programme has now been merged (along with NREP) into the JRY.

- (VII) **Jawahar Rozgar Yojna:** Under the scheme, it is expected that at least one member of each poor family would be provided with employment for 50 to 100 days in a year at a work place near his or her residence. About 30% of the jobs under this scheme are reserved for women. Both the rural wage employment programmes in (i.e. the REP, and the RLEGP) were merged in this scheme. Central assistance to the scheme is 80%. The scheme is implemented through the village panchayats. The central government claims that 3121.33 million mandays of employment were generated in various states between 1992 to 1993 and 1995 to 1996 under this JRY at an outlay of Rs 13,248 crore (Rajasthan Patrika, June 16, 1996). The scheme covers 46% of the population.
- (VIII) **Antyodaya Programme:** ‘Antyodaya’ means development (Udaya) of the people at the bottom level (ant), that is, the poorest of the poor. The idea was to select five of the poorest families from each village (out of 27,000 inhabited villages) every year and to help them in their economic betterment.
- (IX) **Garibi Hatao and Bekari Hatao Programme:** The Garibi Hatao slogan was given by Indira Gandhi in March 1971 at the time of National election while the Bekari Hatao slogan was given by the All India Congress Committee (AICC) at its annual session in April 1988.

Poverty and Famine in Ethiopia:

Ethiopia is located in the eastern Africa, this country extends from the east coast to the Abyssinian Highland. In spite of the proximity of the equator the central part of the country, i.e. Abyssinian Highland enjoy equable climate due to its Altitude. Average July temperatures are above 30° c except in the said Highland (200° c). The rainfall varies from less than 25 cm (coastal East) to 50cm in the interior. More over, this rainfall is erratic and sometimes drought condition prevails for 5 or 6 consecutive years. Wheat and maize are the staple crops of the region. Sometimes, the standing crops wither due to poverty of rainfall and a famine condition prevails there. Famines occur at regular intervals so that many high rates from villages to towns leaving their families in the villages forever. Due to proper care of the land, agriculture suffers. It is at this background that we will discuss poverty and famine of Ethiopia.

Ethiopia least developed countries in the Worlds 210th in terms of GNP per capita terms. Measured by per capita GDP, Human Development Index, help status as well as other Macro Economic indicators show that the level of poverty is execute. Its per capita income, although varies slightly from one source to another, is one of the lowest in the world, only about \$100 per annum.

According to the house hold income -expenditure survey, almost half of the country's population can hardly afford the minimum basic food requirements. According to various sources, it has been estimated that about 54% of the population lives under a \$2, and 46% of the population of Ethiopia lived under a 2\$ a day. Two small land holdings, poor agricultural practices, lack of portable water, and other factors contribute to a vicious cycle of deteriorating health and environments - and to increasing poverty. Agriculture is still the mainstay of the economy accounting for about 50% of GDP, 85% of the labour force and 90% of export earnings. The industrial sectors, an average contributes only 10 to 12% of GDP. The service sector grew moderately with large variations in the performance of the sub- sector. During the period of the Marxist regime the share of Agriculture was 53% in GDP which is now 51%. The highest rate of growth in Agriculture during the Marxist regime under consideration was achieved during the drought year of 1984 to 1985 when it decline by 21%. The average growth rate in Agriculture during the last ten years of the Marxist regime was a mere 2% which is significantly lower than the rate growth of population. Despite massive efforts by the present EPRDF govt. to improve the sectors performance, agricultural production did not show a significant improvement over the Marxist regime.

Industrial sector's contribution to the country's GDP on the average between 1980 to 1981 was 12.2% and it remained static over the period 1992/93 to 2004-05 with average 10.6% of GDP.

Trade structure of Ethiopia:

The tragedy of the Ethiopian economy of the past half century is revealed in its trade structure.

The country continuous to export the same primary commodities, dominated by coffee and imports manufactured goods as it did half a century ago, a conspicuous revelation of the absence of structure transformation. The consequence of the absence of structure transformation is that the capacity of exports is declining, leading to higher debt levels. While imports as percent of GDP have been increasing at a faster rate, exports have failed to match the increasing in imports, resulting in a widening gap between the two.

Dependence on foreign aid:

The structure and performance of the Ethiopian economic has made the country to be increasingly dependent on foreign aid during the last four decades. This poor performance of the economic adversely affected the mobilization in International financial resources and low capacity of foreign exchange earning coupled with the growing resources requirements for the implementation of development project. Thus foreign aid has been a prominent and enduring feature of the Ethiopian economy.

Aid flows to Ethiopian has fallen from \$1089 million in 1993 to \$668 million in 1998. In others words; aid as % of central government expenditure fell from 9.2% to 5.3% in 1998.

An Assessment of Rural Poverty

It has been estimated that of the 6.9 million people living in urban areas, about 4 million (58 percent) live below the poverty line; half of these people are desperately poor. An assessment of rural poverty was based on estimates of farmers' assets (farm area, the number of oxen per farm), their location, and their vulnerability to poverty. On this basis, it was estimated that 30% of farm households are chronically poor. Assuming a household size of five, this amounts to about 12.6 million rural people. If those who are vulnerable to poverty (17%) are added, then there are an additional 7.4 million, giving a total of about 20 million rural poor.

The increase in calorie in take in rural areas is not inconsistent with the level of real per capita spending on consumption.

- (i) Rural people spend more on food than on non-food items. In fact a considerable proportion of total consumption is accounted for by one's own production.
- (ii) The survey results indicate that the food share in rural area has increased from 60% in 1995/96 to 67% in 2004/05. While on the other hand, food share in urban areas declined from 56% to 53% during the same period.
- (iii) It must also be underlined that an increase in the calorie content of the consumption basket doesn't necessarily indicate an increase in food quality.

CHILD LABOUR: Girls and boys are significantly engaged in income earning and domestic work. In Delanta boys and girls collect firewood on steep ravines to sell 15km away. In Addis Ababa and Metta, children are engaged in street hawking and petty trading, girls alongside their mothers; this is a main reason for boys from the

poorest families to stop attending school. Children in urban areas become vagrants: 'Our *children sometimes beg or steal money for food*'. (Mothers, Addis Ababa). Girls in Addis Ababa and Delanta Dawunt worked in the sex trade and in bars.

We have used the main indicators of poverty at consumption levels. Ethiopia, the major barriers to development and the main indicators of poverty include the following:

- the low status and under-representation of women;
- the fact that coping strategies have become main sources of livelihoods;
- the low educational status of adults and children;
- the increased burden of labour on women and children, who must work to earn income for daily food;
- widespread indicators of malnutrition and high mortality rates among infants and children;
- miscarriage and anemia among pregnant girls and women, and high maternal mortality rates;
- widespread dependence on traditional structures and practices for governance, healing, and childbirth;
- the persistence of harmful traditional practices such as Female Genital Mutilation (FGM);
- only 45% of households consume the World Health Organization's minimum standard of 2200 kilocalories of food per adult per day;
- 42% of the children under 5 years of age are underweight;
- 75% of poor families share their sleeping quarters with livestock overnight; and
- 40% of children sleep on the floor.

CONCLUSION: (Measures taken by the government).

The Economic Reform Programme : The economic reform programme introduced by the Ethiopia Government in October 1992, the key features of the policy reform are a shift to a market economy, agricultural-development-led industrialization (ADLI) as the long-term development strategy, and the adoption of macro-economic stabilization and structural adjustment programme. The main elements of the macro-economic stabilization and structural adjustment programme in Ethiopia are the following :

- tax-regime, mainly by broadening the tax base and reducing income taxes and taxes on foreign trade;
- controlling and prioritising government expenditure in favour of social and economic infrastructure;
- restructuring public enterprises for management autonomy and eventually privatizing;
- liberalising the factor and product markets and removing subsidies, so that resource allocation is led by market forces;
- devaluing the exchange rate and determining it by open auction;
- changing the investment climate to encourage private investment;
- Liberalising the interest rate.

The EPRDF is an unpopular minority govt. Student and youth of Ethiopia particularly Students of Addis Ababa University, have agitated against the EPRDF's policy. In May, 2005, almost 48 peoples have died and hundreds injured during an agitation against the EPRDF govt. But there are no any left parties or groups. Without democratic institutions and organisation, mass movements can not buildup. It will be necessary to strengthen the workers, peasants, youth, students, and women's movement against the corrupt and anti-people EPRDF govt. that running as supported by America.

CHINA

Location : Eastern Asia, bordeing the East China sea, Korea Bay, Yellow sea and South China sea, between North Korea and Vietnam.

Area : Total 9,596,960 sq.km.

Terrain : The terrain of China consists mostly of mountains and high plateaus. There are deserts in the West and Plains, deltas and hills in the east.

Natural Resources : Coal, iron ore, petroleum, natural gas, mercury, tin, tungsten, antimony, maganese, molybdenom, vanadium, magnetite, aluminium, lead, zinc, uranium, hydropower potential.

Climate : The vast expanse of China means that the country climate is extremely diverse. China has a tropical climate in south but is subarctic in the north.

PEOPLE

Population : 1,313,973,713 (July, 2006 est.)

Population Growth rate : 0.59% (2006 est.)

Sex ratio : 1,06 male (s) / female (2006 est.)

Literacy rate : Total 90.9% Male 95.1% Female 86.5% (2002 est.)

Infant Mortality rate : 2323.12 deaths / 1,000 live births (2006 est.)

Life expectancy : Total 72.58 years, Male 70.89 years, Female 74.46 years (2006 est.)

ECONOMY

China is a essentially an agricultural country. The main crops are rice, tea, tobacco, sugarcane, jute, soya, ground nut and mempo. The main forest products are teak and tung oil. Among the principle industries are cotton and woollen mills, iron, leather and electrical equipments. The chief minerals are coal, manganese, iron ore, gold, copper, lead, zinc, silver, tungsten, mercury, antimony and tin. Petroleum industry is steadily growing.

Measured on a purchasing power parity (PPP) basis, China in 2005 stood as the second largest economy in the world after the US, although in per capita terms the country is still lower middle income and 150 millions Chinese fall below international poverty lines. Economic development has generally been more rapid in coastal provinces than in the interior and there are large disparities in per capita incomes between regions. The Government has struggle to (a) sustain adequate job growth for tens of millions of workers laid off from state-owned enterprises, migrants and new entrants to the work force; (b) reduce corruption and others economic crimes, and (c) contain environmental damage and social strike related to the economy's rapid transformation. Between 100 to 150 million surplus rural workers and adrift between the villages and the cities many subsisting on part time, low-paying jobs. One demographic consequence of the 'one-child policy' is that China is now one of the most rapidly aging countries in the world. Another long-term threat to growth is the deterioration in the environment, notably in pollution, soil erosion, and the steady fall of the water table especially in the North China countries to lose arable land because of erosion and economic development.

POVERTY

This Country Assistance Strategy (CAS) for China is the first since it ceased borrowing on concessional terms from the International Development Association (IDA), and the country is now in a very different context from that of the previous 1997 CAS. In particular, this CAS coincides with a shift in China's reforms: from the liberalization phase, to the more difficult structural, and institution building

phase a dynamic growth in the private sector and a continuing need , though reduced, for availability of concessional external financing. Since 1997, China has managed macro economic conditions well, with a sustained growth, but the medium-term financial position needs to be strengthened .Moreover, the pace of policy, and institutional reform accelerated in the mind-1990s, magnifying difficulties while improving longer-term prospects, and yet, despite substantial progress on poverty reduction over the last decade, poverty remains a predominantly rural issue, although urban poverty is a growing concern. The Bank's assistance strategy is designed to help China : (a) improve the business environment, and help accelerate the transition to a market economy, mostly through an array of knowledge transfer activities b) address the needs of the poorer, disadvantaged people, and lagging regions, through investment lending in rural development, infrastructure, and social sectors and, c) facilitate an environmentally sustainable development process through investment lending in natural resource management , watershed rehabilitation , and wastewater treatment, in addition to energy , and global environment projects, The International Finance Corporation's strategic priorities for this CAS period include: targeted technical assistance to improve financial markets, private participation in infrastructure, and small and medium scale enterprises, which includes capacity building , and support to private banking, and financial institutions (Source :World Bank Report:2004).

PAKISTAN

GEOGRAPHY

Location : Pakistan lies in Southern Asia, bordering the Arabian sea, between India on the east, Iran and Afghanistan on the west.

Area : 803,940 sq.km.

Terrain : The flat Indus lies in the east. There are mountains in the north and north-west while the Baluchistan plateau lies in the west.

Natural resources : Land, extensive natural gas reserves, limited petroleum, poor quality coal, iron ore, copper, salt, lime stone.

Climate : Hot, dry desert type of climate in most parts of the temperate type in north-west.

PEOPLE

Population : 165,803,560 (July, 2006 est.)

Population growth rate : 2.09% (2006 est.)

Sex ratio : 1.05 male(s) / female (2006 est.)

Literacy rate : Total 48.7%, male 61.7%, Female 35.2% (2004 est)

Infant mortality rate : 70.45 deaths / 1,000 live births (2006 est)

Life expectancy : Total 63.39 years, Male 62.4 years, Female 64.44 years (2006est.)

ECONOMY

Agriculture (including forestry and fishing) is the mainstay of Pakistan's economy, employing about 50% of the working population and providing about 26% of the country's gross domestic product (GDP).

The entire area in the and west is covered by great mountain ranges. The rest of the country consists of fertile plain watered by five big rivers and their tributaries. Agriculture is dependent almost entirely on the irrigation system based on these rivers. The main crops are wheat, cotton, maize, sugarcane and rice, while the delta and kalat divisions (Baluchistan) are known for their fruits and dates.

Pakistan is self-sufficient in wheat, rice and sugar.

Industries employs about 10% of the population manufacturing (refined sugar, vegetable product, jute textiles, soda ash, sulphuric acid, caustic soda, clip board and paper board, bicycles, cotton cloth, cotton yarn cement and steel) contributes about 20% to GNP. Main exports are cotton cloth, cotton yarn, rice, leather carpets and tapestries. There are international airports at Karachi, Islamabad, Lahore, Peshawar and Quetta.

Poverty in Pakistan : Poverty is multidimensional. One key dimension is consumption poverty extent to which actual levels of private consumption of household or individuals fall below a poverty line that society believes represents a minimum acceptable standard of private consumption .This report World Bank,2002 finds that the incidence of consumption poverty decline by 12 percent in six years in Pakistan. Poverty,however, encompasses other dimension , such as early mortality high rate of disease, and illiteracy, which relate to the extent to which the population has a generally good record on growth and economic policy , it has been progressing very slowly in these areas. A new consensus has emerged in recent years that Pakistan must step up its human development, since it is in itself a key objective to a country's development. The analysis of the reports indicates that Pakistan needs to improve its public education, health and family planning services. The centerpiece of Pakistan's human development strategy is the Social Action Programme. The report shows that considerable progress has been achieved under the programme, but the achievements are fragile and are not yet fully institutionalized. In addition strategy should consist of three other components :1)deepen the process of economic stabilization and adjust-

ment started in the late 1970s 2) complement the general economic reforms in the stabilization and adjustment programme with a set of sectoral reforms, especially in agriculture and 3) strengthen the social safety net.

Table A-1 : Economic and Social Indicators in India and Selected Asian Countries									
	<i>India</i>	<i>Bangladesh</i>	<i>Nepal</i>	<i>Pakistan</i>	<i>Sri Lanka</i>	<i>China</i>	<i>South Korea</i>	<i>Indonesia</i>	<i>Thailand</i>
POPULATION, mid-1992 (millions)	883.6	114.4	19.9	119.3	12.4	1162.2	43.7	184.3	58.0
PER-CAPITA INCOME AND RELATED INDICATORS									
GNP per capita, 1992 (US\$)	310	220	170	420	540	470	6,790	670	1840
PPP estimates of GNP per capita, 1992 (1992 international dollars)	1210	1230	1100	2130	2810	1910	8950	2970	5890
PPP estimates of GNP per capita, 1992 (USA = 100)	5.2	5.3	4.8	9.2	12.2	9.1	38.7	12.8	25.5
Average annual growth rate of per-capita GNP, 1980-92 (%)	3.1	1.8	2	3.1	2.6	7.6	8.5	4	6
LONGEVITY, MORTALITY AND FERTILITY									
Life expectancy at birth, 1992 ^b (years)									
Female	59	56	53	59	74	71	75	62	72
Male	59	55	54	59	70	68	67	59	67
Persons	59	55	54	59	72	69	71	60	69
Crude death rate, 1992 (per 1,000)	10	11	13	10	6	8	6	10	6
Infant mortality rate, 1992 (per 1,000 live births)	79	91	99 ^a	95	18	31	13	66	26
Proportion of low-birthweight babies, 1990 (%)	33	50	n/a	25	25	9	9	14	13
Crude birth rate, 1992 (per 1,000)	29	31	38	40	21	19	16	25	20
Total fertility rate, 1992	3.7	4.0	5.5 ^a	5.6	2.5	2.0	1.8	2.9	2.2 ^a
LITERACY AND EDUCATION									
Adult literacy rate (age 15+) ^c , 1992 (%)									
Female	39	23	14	22	85	68	95	77	92
Male	64	49	39	49	94	87	99	91	96
Persons	52	37	27	36	89	78	97	84	94

Mean years of schooling (age 25+), 1992	2.4	2	2.1	1.9	7.2	5	9.3	4.1	3.9
Proportion of first-grade entrants who complete the primary cycle of school education (%)	62	47	n/a	48	97	85	99	77	87
OTHER GENDER-RELATED INDICATORS									
Female-male ratio (ratio of females to males in the population), 1992 (%)	93	94	95	92	99	94	100	101	99
Female share of the labour force, 1990-2 (%)	29	41	34	14	33	43	40	40	47
SAVINGS, INVESTMENT AND TRADE									
Gross domestic savings as proportion of GDP, 1992 ^d (%)	22	6	12	14	15	43	37	37	35
Gross domestic investment as Proportion of GDP, 1992 ^d (%)	23	12	22	21	23	39	37	35	40
Exports of goods and non-factor services as proportion of GDP, 1992 ^d (%)	10	10	19	12	32	18	32	29	36
Average annual growth rate of exports, 1980-92 (%)	5.9	7.6	9.7	11.1	6.5	11.9	11.9	5.6	14.7
Net present value of total external debt as proportion of GNP, 1992 (%)	26	29	29	37	41	13	14	62	35
Total debt service as proportion of exports, 1992 (%)	25	17	12	24	14	10	7	32	14
Notes : ^a Subject to more than the usual margin or error. ^b 1991 for India, 1990 for China. ^c Age 7+, in the case of India (see Explanatory Note), ^d 1990 for China and South Korea.									
Source : Dreze, Jean and Amartya Sen, 1996, India : Economic Development and Social Opportunity , Oxford University Press.									

2.4 GENDER DISCRIMINATION

The word gender was for the first time used by Oakley in 1971 to refer difference between men and women. Like class, race ethnicity gender is also an important dimension of social stratification in developing societies. Thus, gender became a source of inequality in society. Traditionally women were expected to take up biologically assigned functions only while men assumed social, economic, political roles. Thus, inequalities were constructed within the society and became part of

socio-cultural, religious norms and produced through socio-cultural, religious, political and economic factors. Empowerment of women is a conscious effort towards equitable distribution of power, status and control over resources between men and women. Rowlands points out that empowerment is a process towards increased power of women in social, economic and political realm. (Mohinder Singh "When Home is Hall", The Sunday Tribune, Jan. 14, 2005) Thus, empowerment of women is an attempt to minimize gender disparity and ensure gender equity.

Gender discrimination : Women empowerment, A Perspective

Bhat rightly utters

I am the woman who holds up the sky
The rainbow runs through my eyes
The sun makes a path through my womb
My thoughts are in the shape of clouds
But my words are yet to come.

(J. N. Bhat, "Gender Equality : Turmoil or Triumph",
AIR Journal, Vol. 16, 1998)

It is sad, distressing and unfortunate that between the two one who is creative, positively constructive and highly beautiful is called weaker, inferior and the second sex; is sexually harassed, victimized and traumatized; is subject to discrimination, violence, exploitation, oppression and injustice; and is treated as a commodity for sale and purchase. She is marginalized. Perhaps the biggest irony of the world is that the girl child is not safest place, i.e. in her she is killed by sheer neglect. The most inhuman is the trade of prostitution where a female is trapped, branded, mutilated, tortured and moulded to be shaped to suit the lust of sex exploiters; and the most heinous crime is rape which according to Susan Brown Miller is a conscious process of intimidation by which men keep women in a state of fear.

Gender disparity in South Asia

The South Asian region providing home to 1326 million world population one of the poorest region is well having 515 million people below poverty line. The region is characterized by high population growth rate, high level of illiteracy, poor health attainments, poverty, low growth rate, and inequitable distribution of income and resources.⁶ These countries of the region. Most of the countries of south Asia lack a balance between economic and social development policies. Hence, the integration of the two has not been possible. The south Asian region provide home to 21 percent of world's female population. On the other hand 44 percent of the world's

illiterate women lives in South Asian region (Table). The South Asian women is characterized by:

1. Low literacy rate;
2. Poor access to health and related services;
3. Denial or poor basic human rights;
4. Social and religion-based discrimination against women;

Table : Illiteracy in South Asian Countries

	Percentage of Illiterate	
	Female	Male
Bangladesh	74	70
Bhutan	51	42
India	62	35
Maldives	4	4
Nepal	81	76
Pakistan	47	46
Sri Lanka	76	46
South Asia	62.8	35.9

(After **Human Development in South Asia, 2000**,
The Gender Question, Oxford, Karachi).

5. Lowest per capita women's CDP at U.S. \$874;
6. Invisibility of women in economy; and
7. Discrimination in legal and governmental sectors.

Dimensions of Disparity

The gender disparity has many dimensions and manifestation in South Asia. Some of them may be discussed here briefly.

1. Forms of Social Identity and structures

Socially, women have been denied equitable treatment constructed by various forms of social identity and social structure in South Asia, The socially constructed disparities may be underlined as follows :

1. Family has been considered highest priority of women and they were expected to remain confined to that.
2. The concept of purdah particularly in Islam, forged gender relationship within society and contained mobility of women.
3. The role of women was valued in terms of:
 - (I) Provider of labour useful for property acquisition.
 - (II) produce of children especially sons and
 - (III) source of a divine energy

(Michael Allen *et al* (eds) 1990 :
Women in India and Nepal, Sterling, New Delhi)

4. The notion of relative purity particularly during menstruation and childbirth created social hierarchies and had an unfortunate impact on the lives of women particularly in India and Nepal.
5. The notions of widowhood, Sati, trafficking of women resulted in lower status and miserable conditions of women.
6. In India and Nepal the traditional concept of Devadasi degraded the status and role of women
- 7 Family laws in various countries of the region does not allow gender equality.
8. Except among some communities in Bhutan and South India where matrilinearity fostered equalitarianism to some extent, Patriarchy has dominated the South Asian societies .Patriarchy is a system through which women are kept subordinate .It signifies a male dominated society . The subordinate of women in patriarchally dominated societies in South Asia has been defined in terms of child marriage, polygyny and polyandry, denial of share in parental property, dissolution of marriage, guardianship, dowry and violence against women.

(Bhasien, K., 1993 : **What is Patriarchy?** New Delhi)

It may be said here that in South Asia women are subordinated within a highly hierarchical system of gender relations.

2. Economic Inequalities:

The gender-related inequalities can be observed in the economic sector as well some points may be raised here on the basis of that :

1. Women contribute significantly to agriculture labour in all the South Asian countries. In Nepal, India and Pakistan it is the highest.
2. Most of the economically active women work in the informal sector.
3. Women are generally involved in lower jobs.
4. Their ways differ between urban educated women and rural women on the one hand and between men and women in the informal sectors.
5. Women employment rate is lower in comparison to men.
6. Women do not have control over means of production, landownership and income earned .
7. Women have lower level of security in jobs.
8. In many cases men in the family do not work or do not share their income to fulfil familiar needs. It, therefore, becomes burden for women.

TABLE : Female Labour (1997)

	(Percent of total)
India	32
Pakistan	27
Bangladesh	42
Nepal	40
Sri Lanka	36
Bhutan(1994)	32
Maldivers(1994)	32

(Source: World Bank UNDP 1999 and 1994)

9. Women workers are subject to harassment at the workplace.
10. Many studies have shown that women labour is subject to discrimination in many ways.

3 Disparities in Development:

There are vast gender disparities in terms of seeking benefits of modernization and development. While all the South Asian countries have initiated process of modernization and development its benefits have not percolated down to women at par with men. In terms of education there are serious difference . It may be noted

here that education is the key to breaking the gender bias and empowerment of women. However, despite significant achievements over the years, there are gaps in the educational attainments of men and women.

1. More than half of South Asian adult literates in South Asia are women.
2. Two-third South Asian out of primary school children are girls.
3. Two-fifths of girl students drop out before fifth standard.

(Human Development Report in South Asia, 2000)

4. The gender gap increases in higher educational and technical education. In terms of educational attainments of women, situation is highly satisfactory in Maldives and Sri Lanka, but it is worst in Nepal, Bhutan and Pakistan.

The gender disparities and discrimination in the areas of health, nutrition and nourishment can be observed in following areas:

1. Women face birth related complications in terms of early marriage, more children, pregnancy damages and abortion.
2. Women suffer much in comparison to men in terms of energy deficiency, chronic diseases, etc.
3. Higher mortality rate is among women.
4. Inequitable feeding practices for boys and girls, except in Sri Lanka and Maldives.
5. Strong preference for son which is indeed an alteration of patriarchal society has resulted in female foeticide.
6. Female infanticide takes place in some countries. It was an accepted practice in some of the tribal communities of South Asia.

(Kapur, Pramila, 1993, **Girl child and Family Violence**, New Delhi)

7. Female children are more prone to communicable diseases.
8. Women face maternal mortality risk. Maternal mortality cases are high in Nepal, Bangladesh and Pakistan.
9. Lack of Pre- and post-natal care leading to maternal morbidity is high particularly in Bangladesh and India.

4 Discriminatory Laws

The South Asia women ,to a large ,face unequal access to property protection decision -making and justice.

In all the South Asian countries women are subject level to gender specific violence which includes physical violence, sexual,psychological and emotional abuses of various types. Domestic violence to women in term of burning, harassment,tortures,beatings, etc. none of the South Asian countries has specific legislation related to domestic violence. There are countries like Nepal which does not have adequate domestic violence provisions in its panel code.

5 Gender Disparities in Governance

Equal access to men and women at various level and sectors of governance is an indication of balanced development of a society. However, in South Asian countries vast disparities can be observed in this sector as well. If we take the whole region into consideration it may be noted that the women occupy 7 percent of parliamentary seat, 9 percent of the women are in the administration. However, the Involvement of women in local bodies seems to be slightly better as it is 20 percent. There are vast differences relating to female representation in administrative and managerial positions, professional and technical services: women representation in administrative in parliament, cabinet, women in judiciary civil services, various decision-making bodies etc, in all the countries of the region.

Gender disparity in Ethiopia

The National policy on Ethiopian Women (1993) and the national Population Policy of Ethiopia (1993) throws light on the low status of the women. Women are ill under represented in local government, on school commities, and in traditional governing institutions. Their reproductive health status gives cause of extreme concern. They experience early marriage and early pregnancy, high fertility rates, and life - threatening abortions. They receive almost no medical attention throughout their, reproductive cycle. In all rural sites, men dominate women and their children suffer more from poverty and hunger, but the women and girls are to carry heavy burdens regularly. Before the drought, women in all sites were better off. But after devastating drought in early 1990s, households food security had diminished to unsustainable levels, and the dependence on women's low - income petty trading had increased.

‘Worst-off’ households are those with a family of 10 or more, or with at least three small children. These households cannot feed, clothe, or wash their children, nor send their all children to school or treat them effectively when they are sick.

There are households where the husband has died, or which have no reliable (male) employment and survive on intermittent daily labour (by men) or on the proceeds of women's trading.

About 30 per cent of households were headed by women in Addis Ababa, Delanta Dawunt, and Jijiga; they ranked among the poorest of all. Worst-off households have no livestock and have no land at all, where either or both adults are too weak to work, children contribute their labour to domestic, agricultural and incoming tasks.

Given these realities, no doubt, women will be certainly empowered and in India more Mother Teresas, Indira Gandhi, Kalpana Chawla, Lata and P.T. Usha-s will emerge and every woman will be assertive and have the similar feelings which have been expressed by Madhu Kishwar in the following poem:

I too have given Agnipariksha
Not One but many
Everyday, a new one
However, this Agnipariksha
Is not to prove myself of this or that Ram
But to make myself
Worthy of freedom
Everyday your envious, dirty looks
Reduced me to ashes
And everyday, like a phoenix I arose again
Out of my own ashes....
Who is Ram to reject me ?
I have rejected that entry society
Which has converted
Homes into prisons

(Madhu Kishwar, 1999 :*Off the Beaten Track : Rethinking Gender Justice for Indian Women*, Oxford, New Delhi)

2.5 POPULATION POLICIES

Population policy means, measures and programmes designed to contribute to the achievement of economic, social, demographic, political and other collective goals, through affecting critical demographic variables, namely the size and growth of population, its geographic distribution (national and international) and its demographic characteristics. It also includes measures and programmes likely to affect critical demographic variables as well as those specifically designed to do so. In

defining population policy Berelson has outlined the following three principal characteristics:

1. It includes the active taken by government in the form of a statement of position, laws, decrees or administrative programmes.
2. It covers population events.
3. It refers to both the intentions and consequences designed to alter population events.

Policies regarding Components of Population changes

Thus population policy is characterized by the three components of population change ,viz., fertility mortality and migration. Thus population policy of a country refers to the governmental measures with reference to population change. It decides the goals to be achieved in the fields of fertility, mortality and migration. This may be to understood in more details as follows:

1. Policies influencing Mortality.

Mortality is an undesirable characteristic of population. Therefore population policies aim at reduction of mortality .This has been done particularly through the concept of public health and the national programmes of eradication of ‘mass killers’, the epidemics Small pox, Malaria, Cholera, etc. The World Health Organisation has defined health as, “A state of complete physical ,mental and social wellbeing and not merely the absence of disease or immunity” This definition of health has decided the goal of public health in different countries. The public health campaigns have led to unprecedented decline in mortality. It has been pointed out by a United Nations Public Health report that not a single pandemic has occurred since 1918 when influence caused 25 million deaths in the world. According to the United Nations Secretariat, “As might be expected all Governments have formulated policies designed to reduce morbidity and mortality, and none has considered acceptable a policy of permitting survival rates to remain low in order to prevent further increase in rates of National Population Growth.” In 1974 the United National World Population Conference in Bucharest adopted checking of mortality level as the goal of World Population Plan of Action. It was resolved that, “Countries with the highest mortality levels should aim, by 1985, to have expectation of life at birth of at least 50 years and an infant mortality rate of less than 120 per thousand live births.”

2. Policies Influencing Migration.

These are concerned both with internal and international migration. Internal migration is a constitutional privilege in most of the countries. The policy towards

internal migration seeks to relieve population pressures. In most of the countries today metropolitan regions have very high population growth rates. Therefore, the Governments aim at reducing this pressures. However, it has been reported by the United Nations that most of the developed countries do not have any policy to discourage migration to urban centres. The less developed countries also generally do not depict such policies. Therefore, it has been pointed out that such population policy must be adopted.

Most of the countries today have well defined policies concerning International Rules for entry and exit from the countries are becoming more and more elaborate. Governments are imposing increasing restrictions on international migration. An example of such restriction may be seen in Great Britain at present, particularly concerning immigration of Asians. An Immigration Act adopted in 1971 was enforced in January 1973 to introduce a uniform system of migration control for all the countries. This Act aimed at discouraging immigration. Similar population policy concerning immigration may be observed in Australia. Again, sometimes restriction on emigration are imposed to control 'brain', such as found in India these days.

3. Population policies influencing Fertility.

These may be classified as pro-natalist and anti-natalist.

(i) Pro-natalist policies. Thomlinson has described three approaches to an effective pro-natalist policy:

(a) to accept existing values and attitudes and eliminate or diminish the economic liability of having children.

(b) To modify the norms by glorifying values concerning reproduction. This includes such legal measures as lowering the minimum age for marriage and reinstating the old custom of divorce on the basis of infertility.

(c) To relax the taboos on illegitimacy.

All the above mentioned three approaches were adopted by Hitler in Nazi Germany. Pro-natalist policies have existed since ancient times in one form or the other. They could be seen in Germany, Italy and Japan between the two World Wars period. Sweden has had a highly developed population policy maintaining lowest birth rate in the world. In France, various measures were adopted in pursuance of the pro-natalist policy in the Code de la Famille of 1939. In 1962 a natality committee was appointed in Israel, which in its report in 1966, recommended the Grant of Financial Aid to large families and restriction on induced abortions. Japan reversed anti-natalist policy by implementing several programmes having demographic

implications such as the Eugenics protection Law of 1949 which made abortion available.

(ii) Anti-Natalist policies aim at limiting the growth of population. This aim is as old as the ancient Greek State. Both Plato and Aristotle emphasized the value of the quality of population and sanctioned anti-natalist policy. This was again emphasized by the famous Essay of Malthus published in 1798. It was further accepted by John Stuart Mill when he declared in 1821 that, "The great problem is thus to find out how to limit the number of births." Margaret Sanger championed the cause of birth control in more recent years. Anti-natalist policies may be both direct and indirect, short term and long term.

SWEDEN

Sweden, at a times, has proved to be a trend-setter in the field of demographic transformation. It has small population and large territory. It had a population of only about 9 million people spread over an area of over 450 thousand square kilometers. Its average annual growth rate was only 0.3 percent during 1980-90. It had declined from 0.5 percent during 1965-80. Its fertility rate was 11.7 per thousand, while its mortality was 11 per thousand, and its total fertility rate was 2.1 children per woman. The country had fairly high expectancy of 78.3 years with female life expectancy being over 81.2 years and male life expectancy being 75 years only. About 90 percent women in the reproductive age group in Sweden use contraceptives.

Sweden was fortunate in having an efficient health care system, as its infant mortality rate was one of the lowest in the world being only 3.7 per thousand. There was one physician for every 395 persons in the country. The average per capita daily calorie supply in Sweden was 2960 in 1990. All these indicators speak of an efficient health system in the country, however, there was disparity in the average family size of the relatively low income group and high income group or well-off people; of course this disparity was not as wide as found in the less developed countries.

About 30 years ago Sweden undertook to examine with care the relation of her population growth to the welfare of her people. Since Sweden already possessed highly efficient health services, a good educational system, an efficient economy, a low birth rate and a very low death rate, the question of most interest to the country was: Does Sweden need a population policy to enhance further the welfare of its people? If it does, what form should it take? In the first place, there appears to have been comparatively little difference of opinion between thoughtful people as regards what was desirable in the way of population growth. The population was already growing but slowly, and a continuance of this slow growth did not seem likely to

have any harmful effect on the welfare of the people . Sweden did not have to face the problem of a probable growth of population at a faster rate than could be provided for by the expansion of her economy that could reasonably be expected. Indeed , there was good reason to believe that the steadily increasing efficiency of the national economy could provide a substantially better level of living for the poorer portion of her population if the distribution of the national income were improved while the volume of the out put was being expanded.

In Sweden as in most other Western countries, but probably to a lesser extent than in most of them, the poorer families were frequently above average size and could not provide for themselves under existing conditions all the essential of that was generally regarded in Sweden as a decent living. It would, therefore, be necessary for the state to come to their aid to a limited extent if they were to attain a desirable of living and their children were to be given good opportunity to prepare themselves to contribute more efficiency to the national Life.

Many of these large families had more children than the parents desired. It seemed reasonable therefore , as a matter of public policy, to make certain that every couple had easy access to the information and the means necessary to and if the size of the family. It was believed that if control were thus facilities to and if the size general level of living were reasonable good, the government would not need to place much emphases upon the restriction of the size of the family, that must couple, would, of their own accord, decide to have relatively small families. For mentally normal families having more children than could be provided with a good home environment and good opportunities to secure more education where desired, some aid would be provided. In addition, measures were taken to discourage, some aid to prevent the subnormal couples (mentally) from having children when it appeared reasonably certain that these children, would be a life-time burden to the community.

Actually, as far as the direct control of population growth was concerned, only two measures were then activated in the Swedish programme : (1) making contraceptive information more readily available to all couples; and (2) discouraging the reproduction of the mentally subnormal. The other measures were only indirectly related to population growth. The assistance given to normal families unable to provides for their children in a satisfactory manner may be classed as a welfare measure, a redistribution of the national product under taken any significant effects on the growth of population. Altogether , then, the Swedish population policy seems to be aimed chiefly at improving the quality of the population by improving the living condition and the opportunities of the poorer classes and by reducing the size of the genetically subnormal population. The expectation was that when good living con-

ditions for all the people were reasonably well assured, the average normal couple would so adjust its numbers of childrens to its economic status that there would be on need to campaign actively for either larger or smaller families.

UNITED STATES OF AMERICA

U.S.A. with 258 million (1993) people and a density of only persons per sq.km. is one of those fortunate countries of the world pressure. Its territory is not only vast but also is endowed with rich resaources . Since it constituties one of recently settled countries of the world, it has little demographic problems. Its population was small, its growthy rate was low with a fertility rate of 15.3 per thousand and a mortality rate of 8.8 per thousand only (1993). Its infant mortality rate was only 7.9 per thousand and its life expectancy was more than 76.1 years. More than 76 percent of the country's population lived in urban areas.

The United States does not have a specific population policy, although there are various laws that regulate immigration and as such have demographic consequences. Until 1960s the population policies, if any in the United States, were implicitly pronatalist. It was in 1970 that the family planning services and population services and population research act was passed with an objective of extending family planning services to all those who needed them. In 1972, the United States Commission on Population Growth and the American Future concluded that there were no substantial benefits to be gained from continued population growth and that indeed there were many serious disadvantages. This Commission recommended liberalization of abortion laws and other population related policies. It strongly recommended that the contraceptives be made available, to all, including minors; that hospital restrictions on sterilization be relaxed; that sex education be made universally available; and that health services related to fertility be covered by health insurance the most important recommendation of this commission was that the country should plan for a stabilized population. Unfortunately, nothing much has been done at official level to implement these recommendations. It is interesting to not that although the United States has not hesitated to advocate anti-natalist policies in less developed countries, yet it has not established one for itself.

CHINA

In the 1970s, the Chinese leaders declared that, inspite of standard Marxist doctrine relating economic power to large labour force, the huge annual increase in population was a major handicap to economic development. The government adopted a more rigid policy and commenced a vigorous programme to reduce family size to two children. By 1980, the goal was changed to only one child per family(except for unusual circumstances and for some minority groups). This goal is being achieved

through numerous policies. One policy is to postpone the age of sexual activity. The marriage age is generally over 24 for women and 26 for men, and pre-marital sexual relations are uncommon.

In China, free contraceptives and abortions are available in clinics throughout the country. From the highest government level down to the smallest rural community, an organizational network exists for implementing the family planning programme. Privacy is limited; women's contraceptive and fertility records are pasted at the local health centres so that any deviation from the norm is noticed. Friends and neighbours may strongly, and repeatedly, urge compliance with the one-child policy.

Social and institutional changes have speeded up the decline in fertility. For instance, better health services reduced infant mortality. More available schooling and the accompanying higher literacy of females were instrumental in reducing birth rates. Also, with the role of women expanding from that of a traditional housewife to include work in a factory or profession, fertility rate declined.

Moreover, the necessity to raise sons for old-age security has diminished. In urban areas there are retirement pensions for workers. In rural areas, until the early 1980s, the commune guaranteed food, clothing, shelter, medical care and burial.

Under the one-child policy, penalties are assessed against families who have more than one child. These penalties vary with local conditions, but they may include ineligibility for better housing, reduced educational opportunities, delayed food rations, fines, and other economic and social sacrifices.

Despite all these policies and steps, opposition to the one-child campaign does exist, especially in relatively poor rural areas. Dissatisfaction is reflected in the fact that many couples have more than one child.

Owing to the one-child policy, China is rapidly moving into the fourth stage of the demographic transition. In contrast to the European experience, this shift is being achieved while still remaining largely rural and agrarian. China has accomplished this by creating a social climate where people do not see themselves as independent individuals but instead identify with the state. In effect, the Chinese are practicing birth control for the country. A high degree of political organization, as well as social control, economic incentives and public motivation, is a prerequisite for this kind of programme.

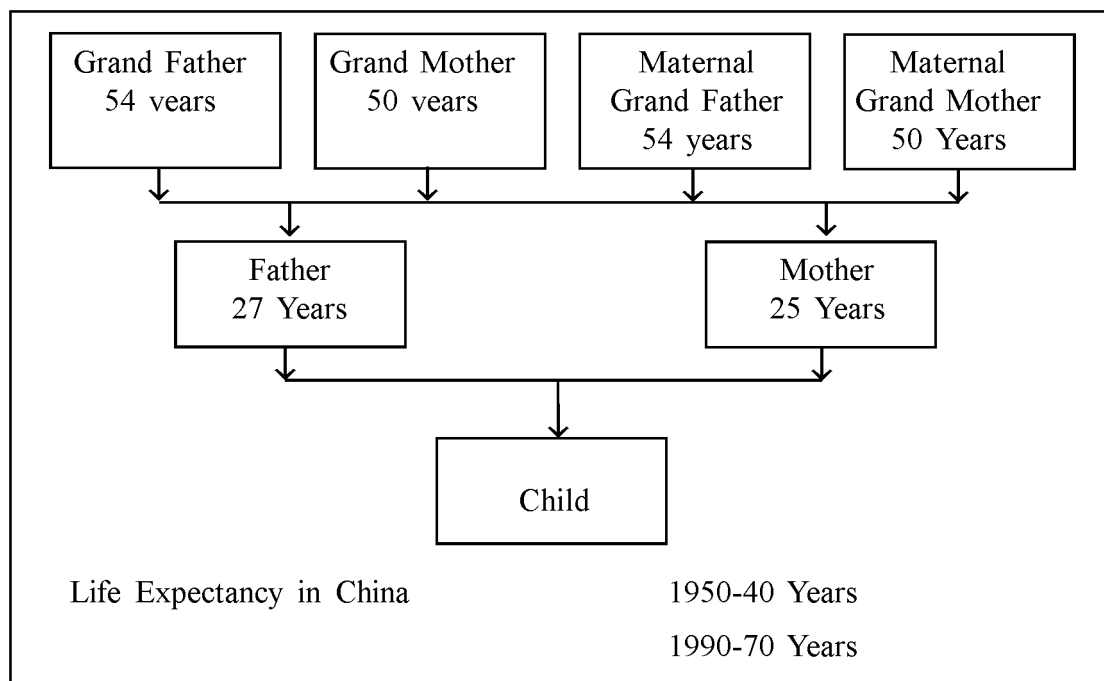
The one-child policy of China has its own merits and demerits. It has been appreciated and criticized by some of the leading experts in the field of population studies. The policy is usually justified because of the potentially dire consequences of an increasingly large population. Although the Chinese agriculture produces high

yields per unit area and the standard of living and longevity have improved throughout the country and recent decades, there are worries about the future. Those who support the one child policy are of the opinion that continued improvement in standard of living can only be achieved by limiting the size of future population. The supporters of the policy also argue that since China is having over one -fifth of the world population, the well being of future of population throughout the world will be affected by the decision made today about the size of the Chinese families.

The supporter of the policy insist that it is flexible enough to allow exception, such as in areas where manual labour is important and in reason of minorities (e.g., the Tibetans sinking, Inner Mongolia and Uiggurs).

Despite all these merits, there are many experts, even within China, who disagree with any policy that will greatly diminish the number of adults in the next generation. According to them, continuous population growth is the key to economic development which lead to better standard of living, happiness, leisure and increases the life span of the people. In case of low growth of population, the country will suffer from a shortage of worker and military personnel.

China's One - Child Family Model



The one-child policy has also been criticized because of the long-range effect of a 1-2-4 (age structure one child , Tow parents and four grand parents). In such and age structure there will more pampering of child. There are complaints about the excessive amount of pampering that single child receive from parents and doting grandparents. Sociologists speculate that these pampered children, when they become adults, will alter the Chinese society unfavourably. Moreover, a continuation of the policy will alter the mean that in future the higher percentage of elderly people will depend on a smaller portion of working adults. This will lead to high dependency ration which the pampered child may not bear.

The policy has also been ctiticized on the ground of individual freedom. Birth statistics by gender in China indicate that female infanticides have occurred in some areas. These statistics seem to reflect a reluctance by some families to abandon the tradition of having several children, especially sons. An increase in the the proportion of elderly persons can affect the future market for various kinds of goods and services, both those sold to young people and those sold to elderly persons. An aging population also enlarges the dependency ration which, in turn, can affect financial systems, such as social security programme.

Most countries concerned about population growth are attempting to combine economic development with the provision of family planning services. The economic development and social change provide the motivation to have small families. Reducing infant mortality, expanding education systems, broadening the role of women, and achieving economic growth—all have been important catalysts in changing traditional attitudes towards the family. Once the motivation is there, family planning services provide the means for bringing the birth rate down.

INDIA

The Indian policy -makers realized the importance of population control as early as 1951-52, but a ridig policy was not adopted to arrest the fast growth of population. In 1961-71, the population growth rate was 2.25 which was the highest at any decade after independence . At present, the population growth rate has declined to 1.6 per cent. During the post -independence period , the death rate has been controlled and medical facilities have been extended to the far-flung villages of the country, yet the explosion of population may be attributed to numerous physiological socio-economic and cultural factors.

When the population policy was designed in the First Five-Year Plan of India, it was realized that the base of population is already very large and the trend of population growth cannot be altered easily and quickly. The plan enunciated that the programme for family limitation and population control should: (a) present an accu-

rate picture of the factors contributing to the rapid increase of population;(b) discover suitable techniques of family planning and devise methods by which knowledge of these techniques could be widely disseminated ; and (c) give advice on family planning as an integral part of the service of government hospitals and public agencies. The meager Five Plan provision of Rs.65 lakh for the family planning programme was too little to yield any far-reaching results.

In the Second Five-Year Plan, the voluntary sterilization population policy was introduced .The family planning programme was provided an amount of Rs.5 crore and it was during this period that 1,650 family planning centres were established in the different parts of the country.Consequently, the family planning programme made an appreciable progress during the Second Plan.

The striking growth rate of population compelled the government to adopt a relatively more clear and less flexible policy of population.It was in this plan that the programme of family planning, involved intensive education, provisions of facilities and advice on the largest scale and widespread popular effect in every rural and urban community. Further, the clinical approach of the first two plans was replaced by an extension education approach aimed at bring the messages and services to the people in the far off areas of the country through a network of family planning centres. The masses were educated about the merits of small family and the eligible couples were motivated to adopt the preventive methods of population growth. Moreover, there was more emphasis on education and employment of women. In the Third Five-Year plan Logistics were provided for family planning which motivated about which one million people to accept sterilization.

More emphasis was laid on the family planning programme in the Fourth Five-Year plan. The most distinctive feature of the Fourth Plan was that it set a time-bound target of reducing the birth rate from 39 per thousand to 23 per 1,000 by 1979. The outlay for the Fourth plan was raised to Rs.286,crore. Consequently, by the end of the plan , about 9million couples were covered under sterilization and about 6 million couples were covered by other family planning methods. About 7 million births were estimated to have been averted during the plan period.

In the Fifth Five -Year plan,Rs.500 crore were provided for the family planning programme. The programme sought to integrate most of the basic social services, including education and public health services with family planning and nutrition of children, expectant and nursing mothers. A more rigid policy with an element of compulsion, monetary incentives, penalties and legalization of abortion during the Fifth plan made the Indian population policy more effective.

High priority was given to the family planning programme in the Sixth Five-Year Plan. The strategy during the plan was to integrate health, family welfare and nutrition services at all levels. Monetary incentives and full rebate in income tax for specified donations for welfare purposes were given by the government. The birth rate was to be reduced to 30 per thousand by the end of 1982-83. The vigorous population policy, followed by the Indira government in the late seventies, was opposed by the masses.

In the Seventh and Eighth Plans, a more pragmatic policy was adopted. There is more emphasis now on persuasion, publicity and family and individual well-being.

Despite all these plans and policies, the population of India is growing at a faster pace and taking the space of population explosion. The economic development and rising standard of living of some of the people are not adequate to bring down the population growth rate. The time factor is soof the vicious circle through a direct assault on this problem. In the middle of the last decade, an attempt has been made to rejuvenate the National Family Welfare Programme. The Ministry of Health and Family Welfare has set up three market research organizations to conduct independent evaluation of the family planning programme and to make a diagnostic study on the perception, attitudes and practices of the people towards family planning and use of contraceptives.

The revised strategy seeks to broaden the area of family planning by including areas beyond the health sector, such as child survival, women's status and employment, literacy and education and socio-economic development including anti-poverty programmes. It also stresses to make family welfare a multidisciplinary and integrated effort of all relevant departmental agencies and to make the programme a genuine voluntary people's movement. It is with this objective that age of marriage is being raised for women from eighteen to twenty years. For raising the status of women, female education is getting adequate emphasis. Effects are also being made to involve the voluntary organization to promote family planning. Committees have been set up at the state, district, block and panchayat levels to discuss population growth and family welfare projects. None of these steps individually can bring the growth rate low, their package application is essential to achieve the goal of slow growth of population without affecting the declining death rate. The government has to be more serious about the population policy and in case population growth is not checked, all the economic gains through planning will be diluted and India will remain a country of poor and illiterate people.

NATIONAL POPULATION POLICY, 2000

The National Population Policy, 2000 (NPP, 2000) affirms the commitment of Government of India towards voluntary and informed choice and consent of citizens while availing of reproductive health care services, and continuation of the target-free approach in administering family service. The NPP, 2000 provides a policy frameworks of advancing goals and prioritizing strategies during the next decade to meet the reproductive and child health needs of the people of India, and to achieve net replacement levels (Total Fertility Rate) by government, industry and voluntary non-government sector working partnership.

Objectives

The immediate objective of the NPP, 2000 is to address the unmet needs for contraception, health care infrastructure, and health personnel, and to provide integrated service for basic reproductive and child health care. The medium-term objective is to bring the TFR to replacement levels by 2010, through vigorous implementation of intersectional strategies. The long-term objective is to achieve a stable population by 2045, at a level consistent with the requirements of sustainable economic growth, social development and environmental protection.

In pursuance of these objectives, the following national socio-demographic goals to be achieved in each case by 2010 are formulated:

1. Address the unmet needs for basic reproductive and child health services, supplies and infrastructure.
2. Make school education up to age 14 free and compulsory and reduce dropouts at primary and secondary school levels to below 20 percent for both boys and girls.
3. Reduce infant mortality rate to below 30 per 1000 live births.
4. Reduce maternal mortality rate to below 100 per 100,000 live births.
5. Achieve universal immunization of children against all vaccine preventable diseases.
6. Promote delayed marriage for girls, not earlier than age 18 and preferably after 20 years of age.
7. Achieve 80 percent institutional deliveries and 100 percent deliveries by trained persons.
8. Achieve universal access to information/counseling, and services for fertility regulation and contraception with a wide basket of choices.

9. Achieve 100 percent registration of births, deaths, marriages and pregnancies.
10. Contain the spread of reproductive tract infections (RTIs) and sexually transmitted infections (STIs) and the National Aids Control Organization.
11. Prevent and control communicable diseases. 12. Integrate Indian System of Medicine (ISM) in the provision of reproductive and child health services.
13. Promote vigorously the small family norm to achieve replacement level of TFR.
14. Bring about convergence in implementation of related social sector programmes so that welfare becomes a people-centered programme.

2.6 SELECT READINGS

- Ahuja, Ram (1997), **Social Problems in India**, 2nd ed. Rawat, Jaipur
- Bhattacharya, D.C., (2005), **Sociology**, 7th ed., Vijaya pub house, Kolkata.
- Chattarjee, Rakhaharie (2004, **Politic India — The State Society Intereface**, South Asia pub, New Delhi.
- Ghai, K.K (2002), **Indian Government and Politics**, Kalyani, New Delhi.
- Hans Raj (2005), **Fundamentals of Demography**, Subject Pub, Delhi
- Hussain, Majid (2002), *Human Geography*, 3rd *edn.* Rawat, Jaipur.
- Haq, M.U., 1992, *Human Development in Changing World*, New York.
- , 1998, *New Perspective on Human Development*, New York.
- Hartshorn, T.A. and J.W. Alexander, 1988, *Economic Geography*, 3rd edn., London, Prentice Hall.
- Rily, N.E., *Population Bulletin*, Vol. 52, No.1, May 1997.
- Streeten, P., 1992, *Global Governance for Human Development*, New York.
- The World Bank, *World Development Indicators 1997* (The World Bank, Washington D.C., 1997).
- The World Bank, *Expanding the Measure of Wealth; Indicators of Sustainable Development* C.S.D. edn. Washington, D.C.

- UNDP, *Human Development Report, 1994*, New Delhi, Oxford University Press.
- UNDP, *Human Development Report, 1995*, New Delhi, Oxford University Press.
- UNDP, *Human Development Report, 1996*, New Delhi, Oxford University Press.
- UNDP, *Human Development Report, 1997*, New Delhi, Oxford University Press.
- UNDP, *Human Development Report, 1998*, New Delhi, Oxford University Press.
- UNDP, *Human Development Report, 1998*, Highlights on India and South Asia, New Delhi.
- UNDP, *Human Development Report, 2000*, New Delhi, Oxford University Press.
- UNESCO, *Statistical Year Book 1996*, Paris.
- UNESCO, *The Progress of Nations 1997*, New York.
- UNO, Population Division, 1998, *1998-99 World Resources: A Guide to the Global Environment*, New York, Oxford University Press.
- UNO, Department of Public Information, *The World Programme of Action for Youth to the Year 2000 and Beyond*, pp. 1-7.
- UNO, 1999, Department of Public Information, *Environment and Development*, New York.
- World Bank, 1992, *The World Bank Annual Report*, Washington D.C.
- World Commission on Environment and Development, 1987, *Our Common Future* (The Brundtland Report), Oxford University Press, New York.
- World Resources Institute in collaboration with the UNDP United Nations Development Programme, and the World Bank, *World Resources Report 1996-97, 1997-98, 1998-99*, New York.
- Zhizhou, Cai, 1993, 'Human Development of China', Background paper for *Human Development Report 1994*, UNDP, New York.

2.7 QUESTIONS

Long Answer type of Question :

1. In what way do the population problems of developed countries differ from those of developing Countries ?
2. 'Two many people, in two little land'. To that extent is this a satisfactory statement about over population ?

3. Assess the impact of population explosion on resources.
4. What is fertility rate ? Discuss the social and economic determinants of fertility. Give an account of the population policy of India.
5. How fertility is measured ? Give an account of the differential fertility of two world.
6. Define mortality. What are the different methods of measuring mortality ? Discuss the rural- urban differential of mortality.
7. What is migration ? Analysis different kinds of migration with suitable example.
8. Explain Ravenstein's and let's laws of migration.
9. What are the different types of internal migration ? Discuss their causes in details.
10. Write a note on the social and economic determinants of migration.
11. Discuss the problems associated with migration movements (a) in the rural areas from which migrant originate and (b) in the towns to which they go.
12. Discuss different determinants of migration. Assess the consequences of migration with suitable example.
13. Write an account on the globe pattern of migration since second world war.
14. Discuss the reasons for international inigration of population.
15. Discuss the consequences of international migration with example.
16. Why do large-scale international migration of population occur ? What problem take place as a result of such international migration ?
17. Critically analysis the demographic transition theory. Discuss the causes of differential stages of demographic transition in various parts of the world.
18. What is meant by the population trao or limits to population growth ? Discuss Amartya Sen's approach in this respect.
19. What are the causes of poverty in India. What steps have been taken by the Govt. of India to reduce poverty.
20. What is poverty ? Explain causes of poverty in cities.
21. What are the reasons behinds poverty in Ethiopia.
22. Suggest some resources to reduce poverty in that country.

23. Discuss Govt. of India's efforts for the welfare of the backwards classes.
24. What is meant by gender discrimination? What are the various forms of gender discrimination ? How this problem can be solved ?

Short type of questions :

- (1) What is the relationship between over population and population explosion?
- (2) How population explosion can be checked? Describe the migration pattern in Europe since second world war ?
- (3) Explain the different measures of fertility ?
- (4) Assess the fertility status in developed countries of the world ?
- (5) Discuss sources of fertility data.
- (6) Discuss the factors associated with long term decline in fertility in developed countries.?
- (7) Discuss the mortality feature of India. Discuss the Marxian theory of population growth.
- (8) Explain the different measures of mortality.
- (9) Write a short note in the various determinants of mortality.
- (10) Explain the terms immigration and emmigration.
- (11) Explain the seasonal migration pattern in India.
- (12) Explain the causes and effects of seasonal migration.
- (13) What do you know by internal migration.
- (14) Explain the causes and consequences of forced migration.
- (15) What are the sources of data of internal migration?
- (16) What are the methods of measuring internal migration ?
- (17) What are the basic determinants of immigration in U.S.A ?
- (18) Analyses the consequences of population migration in India during post independence period.
- (19) Discuss how migration helps in urbanisation.
- (20) Illustrate the essence of demographic transition theory.

- (21) Explain Malthus' theory of population growth.
- (22) Write an account on the population policy of India.
- (23) Write an account on the population policy of Sweden.
- (24) Write an account on the population policy of USA
- (25) Discuss Marxian theory of population growth.

Write short notes on :

Fertility measures

Economic determinants of fertility

Mortality measures

Morbidity

Population problems of developing countries.

Population problems of India.

Demographic Transition in the Third world.

Impact of population on development in India.

Social & Religions causes of migration .

Wars and migration

Forced migration

Rural to urban migration

Urban to rural migration.

Rural to rural migration.

Lee's model of migration.

Zelinsky's mobility transition model.

Gender discrimination in Ethiopia.

Gender deiscrimination in India.

Poverty in Pakistan.

Poverty in China.

Model objective types Question :

What do the following terms mean

Death rate.

Birth rate.

Infant mortality rate.

Life expectancy at birth.

Demographic transition.

Seasonal migration.

Fertility.

Zero population growth.

Illegal immigrant.

Push factors.

Gender discrimination.

Backwardness.

Poverty.

Famine.

Unit 3 □ THE ORIGIN AND GROWTH OF SETTLEMENTS

Structure

- 3.0 Introduction**
- 3.1 Evolution of Rural settlement**
- 3.2 Evolution of urban settlement**
- 3.3 Hierarchy of rural settlement**
- 3.4 Metro Polization**
- 3.5 World distribution of rural settlements.**
- 3.6 Select Readings**

3.0 INTRODUCTION

Early Settlement

No one knows which were exactly the first settlements or when they began to grow. Archaeological evidence in the Indus Valley, Egypt and other sites of early civilization bear testimony to the existence of cities. But even before man built walls of stone and mortar, he must have used simpler objects such as leaves and thatch. It is presumed that these materials could not withstand the assault of time and therefore not left much trace had behind. Historically the first settlements began to form in the Neolithic period. Agricultural activity also began then. Burial sites of this age such as Stonehenge at Salisbury Plain in England, seem to indicate that there might have been settlements nearby.

Settlements come into existence mainly because of the gregarious nature of man; they are also expressions of their response to the environment. When man alienated himself from nature, he gradually created a lifestyle that depended to a large extent on family, community and kinship. This interaction between individual and individual, group and group, individual and group, needed a concrete medium - the settlement. In fact, it makes sense to think that the first settlements were a system of villages which had some degree of interaction, rather than just isolated groups of houses having no contact with each other. If not in any other manner, gravitation around the chief of the different groups would result in different clusters that interacted either in war or in friendship.

Village life can be sustained only when sedentary agriculture, bring a more assured reward from the land, is adopted. Hence the earliest villages - first established in the alluvial valleys of the Near East - date from the dawn of cultivation in

Neolithic times. Co-operation in tilling the soil, in controlling the rivers and organising irrigation and drainage systems, and in distributing the harvest, all favoured the compact settlement. Protection against wild animals and human raiders was also more easily ground when communities gathered together in a fixed group of houses. What is true of a farm village is equally true of a fishing village, for the maintenance and handling of boats and nets, the preparation of the catch, and - along salmon rivers, for example - the management of weirs and traps, all call for a co-operative effort.

Perpillou says that a compact settlement such as a village is always evolved due to some form of constraint : physical constraint when people are ill equipped to deal with the environment and can succeed only by forming a group : technical constraint when the nature of the equipment demands group activity, e.g. for maintaining dykes and large mechanical appliances; agrarian constraint when the crop rotation system and the work calendar demand a set course for using the soil, and social or political constraint which may be imposed either by a powerful landowner or by the government. The latter is well illustrated by the Israeli collective or kbbutz and the Russian collective or kolkhoz. (Ghosh, 1998)

Once established, a village may occupy the same site for hundreds, even thousands, of years. In the Nile valley, for example, most Egyptian villages, including some probably 6,000 years old, stand on low eminences artificially raised above the flood-level by the superimposed layers of old buildings and their rubbish dumps. Many village in China are undoubtedly 4,000 years old. In southern Italy there has been continuous village occupation since the Bronze Age, in southern France since the days of the Romans and in England at least from Anglo-Saxon and days of the Romans and in England at least from Anglo-Saxon and Scandinavian times. (Ghosh, 1998)

3.1 EVOLUTION OF RURAL SETTLEMENT

Introduction

The alteration of the physical condition of a region through natural processes forces men to give up their age-old occupations and to take up new ones. This is followed by a corresponding redistribution of population. The latter phenomenon is also motivated by a change in the economy of the region, through a change in the mode of production. (Sen and Sen, 1989)

It is needless to say that rivers are of vital importance in a deltaic land of their own creation. The rivers of the Bengal delta were responsible for a particular form of economy of her people who concentrated along the banks of

the rivers. But deterioration of the river channels coupled with human interference brought in a number of problems including agricultural decline, beginning of malarial fever, periodic growth and decay of population and tendency of clustering of population away from river banks to sites along railways and roads.

The moribund Ganga delta has been selected here for the study due to its very special settlement problems. In this moribund Ganga delta when the land-building activity of the rivers ceased, there set in a period of physical stagnation, a period of transition to a more stable physical environment. This transition witnessed the worsening of the salubrious climate with consequent downward trend in population density and decline in agriculture in comparison to earlier periods (pre- 1850s). After the lapse of a century, the study area suddenly experienced a cataclysmic increase of population which are not due to any improvement in ecological situation, but owing to mass immigration from the then East Pakistan (Bangladesh), which was followed by a larger cropped area and other manifestations of economic development in post-independence period.

STAGES AND FACTORS OF SETTLEMENT EVOLUTION

Moribund Ganga Delta : A Case Study in General

Three distinct phase in the evolution of rural settlements can be discerned from the above study. They are : (a) pre-1850 period, (b) 1850 – 1945 and (c) 1945 to 1985.

The first period may be called a period of prosperity when the growth of population was unabated.

The second period witnessed decreasing population due to malarial fever and emigration of population from this decadent area.

The third one is a period of revitalization from depression. Attempts were made to overcome or to adjust with the existing ecological conditions in the wake of huge immigration of population from the erstwhile East Pakistan. The last period can be subdivided into four sub-periods :- (i) 1946-47, (ii) 1950, (iii) 1964 and (iv) 1970-71. All these sub-periods witnessed immigration of Hindu population, from the then East Pakistan and emigration of Muslim populations in the reversed direction, the first one (immigration) exceeding emigration in numbers.

In the case of the above two first sub-periods, it is noticed that the government attempted for rehabilitation of the displaced Hindu population during the period 1946-50. Many of those who immigrated in West Bengal in 1964 forcibly occupied

vested land all on sudden (within one night). Many such colonies are coined *Hathat* (suddenly developed) Colony. Some of those who took shelter in India in 1970-71 during the liberation War in Bangladesh returned there, but the majority of them settled here. Many of them took shelter along the roads and railways and linear settlement is the characteristic since them.

The study analyses the operation of the triangle of forces representing physical environment, social processes and economic structure on the settlement pattern and identifies the nature of change registered during the period 1850-1985 in this part of Bengal. It explores the whole gamut of questions related to man-nature interaction in an ecologically sensitive area where every natural cause is likely to produce an effect on the human sphere in proportionately the same order of magnitude and eventually forces man to reorganise his activities in space.

(i) Physical Factors

The physiography of the region put limitations on the growth and distribution of population. The extreme northern part of the region experience swinging behaviour of the river Padma and as such, there are many uninhabited villages here. Immigration of displaced persons from Bangladesh is also very low here. Kalanter, a low-lying saucer-shaped area, also restricts infiltration of population in this region.

However, of all the factors, the role of rivers was the most important, for the deterioration of the rivers gave rise to a chain reaction. In the early stage of settlement development, the marshy environment of the tract provided ideal condition for livelihood of fisherman and hunter. In the 16th century, the fertility of the region attracted European settlers for the production of silk, for which they built trade houses (*kuthis*) along river banks. Recurrent deposits of silk enriched the soil to grow some special crops like mulberry, indigo, cotton, tobacco, sugar, millet and barley in the early- 19th century. Thus, in the pre-railway era, majority of the settlements as well as some notable *ganjs* developed along river banks. As far as records are concerned, the rivers were witnessing human interference from the early- 19th century, thus modifying their courses as well as misusing their beds. Following the construction of railways in the mid- 19th century, the region had to face severe catastrophies, as it became necessary to strengthen the existing embankments. This operation prevented the flow of flood- flushing water and silt. Consequently, malarial fever broke out and the area under study became impoverished. Misuse of drainage channels led to such scarcity of water that people were forced to take dirty and unhygienic water. Sometimes, this led to cholera in an epidemic form.

The deterioration of the rivers had far-reaching effects. With the gradual decay of the rivers and consequent closure of river traffic for the major part of the year and

subsequent development of roads and railways, a realignment of settlements from river banks to road sides took place. This fostered the decay of village economy, because those village were dependent on rivers.

(*Sen & Sen, 1989 : Evalution of Rural Settlements in West Bengal, 1850-1985*)

(ii) Social Factors

Unhygienic condition of the villagers contributed largely to the spread of malarial fever and habits and superstitions of people aggravated the problem. One homestead was very close to another. The houses were devoid of windows and latrines. Use of mosquito nets was not in vogue. People were superstitions about medicines. Moreover, segregation of cholera patients was impossible. The clothes they used to wear washed in pool from which surrounding house-holders drew their water. Cholera, which usually broke out at the beginning of the summer, was due to use of unclean water from dirty and weed-grown tanks. The same tanks were also used for washing and other domestic purposes. Due to these habits, fever of any form broke out and it spread like wild fire.

(iii) Economic Factors

Agriculture was the occupation of the majority of people, but agricultural performance was very poor, mainly due to peculiar land tenure system, known as *utbandi* and partly, due to the oppressive attitudes of the zamindars aimed at extracting maximum money from the tenants. Under the *utbandi* system, the tenant paid rent only for the land which he cultivated each year and he could not acquire occupancy rights, unless he tilled the same land for twelve consecutive years which in fact, he rarely did. Meanwhile, the landlord could raise the rent at his pleasure and if the tenant refused to pay, he would be rejected. Naturally this tenure deprived the tenant of any incentive to improve the land and simultaneously encouraged rack-renting. The high rent of land in *utbandi* system forced the cultivators either to sell or transfer their land to the owners through the *gomasia* and they were turned into agricultural labourers. Under the British administration, land revenue rate increased at an alarming rate. The administration was creating pressure on the zamindars. This resulted in a gradual increase of sub-tenancy of land. Thus, as the new zamindars were city-capitalists and therefore absentees, they had least interest in agriculture, philanthropic works as well as economic development of the villages. The meet their monetary requirements, they exerted different types of oppressions. Thus, while land taxes were high, prices of agricultural commodities were low and a farmer had to depend on mahajan for loan.

Like agriculture, the decay of trade was brought about by indifferent attitude of the government. There was no incentive to cottage industries like world renowned ivory carving industry. Murshidabad silk known as *Baluchari* silk cotton weaving of Santipur known as Santipuri Muslin, brass metal industry known as Khagrai Basan (utensils) conch shell, shola and so on. No doubt, the decline in local cotton and silk products was due to new trade policy of the British administrators who patronised their own home products at the cost of native products. While this was the state of affairs, the British raj introduced indigo cultivation at the cost of food crops, which ultimately led to clashes between the planters and *raiya*s, resulting in a sharp decline in cultivation. In case of navigation, it is clear that the government attempted very casually to keep the mouths of the rivers open throughout the year for riverine traffic. Steps were not taken to maintain the rivers in proper regime by constructing sluices and regulator at the heads of the canals which were possibly considered expensive and redundant measures. Government records, show that water crisis of this region was altogether an imaginary one. The country everywhere was intersected with canals and if the mouths of these canals were supplied with flood gates and closed when the rivers began to fall, an ample supply of water could be retained for the whole year. In fact, the British government generally saw water provision as short term famine make work projects and invested in large-seals irrigation facilities only when it believed that it would receive an acceptable cash return on its investment as in the case of the medinipur High Level Canal.

This disparity is due to the fact that “Indian administration was very considerably influenced by the trend of public opinion in England and not by the opinion of the people of India. Englishmen understand railways and do not understand the importance of irrigation for India, wrote R. C. Dutt. The attitude of the administration on the resettlement question is clear from the following letter.*’ it appears, however, that no systematic steps are being taken to raise the sites of the houses above flood level and it is obvious that the amount of Rs. 3,600 will go a very little way towards raising the sites of the 4,142 houses with mat walls. Even this expenditure would have to be repaid.” That is why the public prefer rebuilding their houses on lod embankments, as they were” unable to repay advances.”

(Dutta, R.C. 1903, *The Economic History of British India under Early British Rule*)

The factors discussed so far created such an environment that forced the people to emigrate from this decadent area and the Census Report of 1921 maintained : “This stream of migration began to flow more than 40 years ago but has increased very much in volume since 1891 and appears still to be increasing”.

The effect of emigration and mortality was felt in “Shortage of labour” and deficiency of food crops. Land remained untilled and did not yield full crops. Moreover, some portions of cultivable areas as well as settlement sites were converted into jungles. Again Mukherjee noted that there was a close relation between depopulation and agriculture, because to meet the labour requirement, the agricultural tribes moved into these decadent areas. It is to note that the agricultural proficiency of the aboriginal tribes was of a low order and though fallow land was brought under tillage, agricultural decline could not be checked at all with the result that in some of the more decadent areas, land fit for cultivation often remained untilled and tended to be covered with jungle and there were more land than there were cultivators. Thus stagnancy was created in the agricultural sphere of the area where the soil was gradually becoming infertile on account of the gradual silting up of the river channels.

*(Mukherjee, R.K., 1938 : **Changing Face of Bengal**)*

The scene changed rapidly after the partition of the country. Because of its situation near the international boundary, the study area experienced huge influx of population from the East Pakistan. This movement became pronounced after the riots of 1950 and 1964 and genocide in 1970.

The study area experienced huge immigration of population in the years 1946-51. However the year 1950 experienced the maximum immigration and Nadia witnessed the highest immigrants in comparison to other districts.

In the demographic scene, it is obvious from census reports of 1951 and 1961 that there had been a fall in the death rate and infant mortality and an increase in the number of bachelors in the later period (1961).

It is now pertinent to discuss the effects of this huge growth of population of post-1947 period on the rural settlements which were manifested in (a) siting of settlements, (b) spatial distribution of population, (c) morphological changes of the villages, (d) caste system and (e) agricultural improvement.

(a) Siting of Settlements

A comparative study of Survey of India's topographical sheets surveyed in the sessions 1961-17, 1950-51 and 1968-69 shows higher concentration of settlements along roads and railways in 1950-51 than in 1961-17. This is due to the fact that slow-moving river transport was increasingly replaced by fastmoving surface transport. Moreover, because of lean discharge, the river traffic remained closed for the greater part of the year.

Thus ribbon-like spread of settlements along roads and railways is characteristic of many areas. For instance, almost the whole stretch along the Dum Dum - Bangaon rail route (North Twentyfour Parganas) of E.R. contains ribbon-like settlements. This type of linear settlement is also found near Palpara, Birnagar, Taherpur, Krishnanagar and Bethuadahari R.S. of Ranaghat-Lalgola section. A comparative study of 1950-51 edition and 1968-69 edition of topographical sheet No. 79 A/2 shows high concentration of settlement along roads, railways and thin concentration along the char area of the river Bhagirathi in 1968-69 edition than in 1950-51 edition. Instances of new settlements along roads are Chunakhali (Type 3, case study i), Sibpur (Baharampur P.S.), Debagram (kaliganj P.S.), Kamgachhi, Bera Kamgachhi and Sim Aistala (Ranaghat P.S.). A comparative analysis of 1950-51 edition and 1968-69 edition of topographical sheet no. 79 A/6 shows that new settlements along new roads have developed in the fringe area of Kalantar, viz. Nutan Arbetai, Barea Nutanpara, Berea Mathpara, Abhayanagar, Nutanpara, Nutan Bilkumari, Nutan Betai under Tehatta P.S. All the above settlements have been built by the economically weaker people of the East Pakistan. The choice of sites along roads and railways is due to the fact that those places are public property and as such, they could avoid clashes with private landowners. So, they illegally occupied such vested land for building huts.

However, in some cases, the local inhabitants have also built new homesteads along the roads. The growth of settlements in the Muslim dominated Beldanga and its neighbourhood is due to the growth of family members of that community. The interesting point to study is that certain areas, such as kalantar locality and Kaliganj P.S. remained free from Immigration of displaced persons and therefore, the changes in the settlement character is negligible,

(b) Density distribution : Factors

(i) Physical and economic factors

Irrespective of soil character, density distribution tends to be equal in almost all the P.S. at present. However, in the *char* area of the river Padma and kalantar locality, density still remains low. Nevertheless, there are some pockets of high concentration of population and these are due to following factors : (i) Suburban locations of Ranaghat, Chakdaha, Bangaon Gaighata and Habra P.S. where there are ample scope for various occupations, (ii) One section of the displaced population, driven by despair, forcibly occupied large masses of land which remained in jungly, water-logged areas. Because of this, some villages with high growth rate of population are observed in this region, (iii) During resettlement, particular castes chose specific sites which were

conducive for carrying on their trades. For instance, the immigrant *Jelias* (fisherman) settle along the riverin villages, viz. Coalsalua, Anulia, Raghunathpur (Ranaght P.S.), sibnibas. The displaced Tanti caste settled in the *char* area of Nabadwip P.S. as well as Santipur, Phulia, Nabadwip, Ranaghat towns and their heighbourhoods. The *Goalas* (milkman) supply milk to the towns, particularly the Calcutta Metropolitan District (CMD) area and as such, they also settled in or near the towns. Agricultural population settled in the village. But those who follow different professions like cottage industry, trade and commerce and miscellaneous secondary activities settled near the communication lines.

(ii) Cultural factors

Specific cultural background is responsible for unequal distribution of two religious groups. In Murshidabad, percentage of Muslim population in the total population is high, while in the other two districts, Hindu population constitutes the majority percentage. Following partition of the country, the region had to face both immigration of the Hindus and emigration of the Muslims. Exodus of the Muslims has been negligible were they are majority in numbers. Similarly, where they are minority, they have moved away from those villages and have settled later in one where they are majority For instance, the Muslims who were minority at Sibpur, Madapur left those villages and settled at Muslim - dominated Hekampur village, all the three villaves are under Baharampur P.S. In Nadia, influx of Hindu population has been highest among the districts of West Bengal. It is because Nadia comprised five subdivisions in the pre-partition days, but only two in post-partition days. Many of the Hindus of the then East Pakistan immigrated to the Indian portion of Nadia for psychological reason, (ii) Hindu population settled in villages. The high castes, especially the middle-income group, settled in towns and their suburbs, mainly due to the advantages of higher education and employment in towns and party due to their sophisticated culture.

Since 1977, some new settlements have come into being due to repeated robbery. For reasons of safety, the inhabitants are taking shelter in big villages or towns. This causes a decay of a hamleted settlement.

(c) Morphological changes of Villages

The study area witnesses depopulation and overpopulation. In some cases, a village experienced both the phases. It so happened in pre-independence days that when a village site became jungly and therefore unfit for habitaion, the residents chose a new site. Instances are Paraspur Chhatai (J. L. No. 123) and Dakshin Sahar (J.L. No. 124) of Murshidabad P. S., Dolaimolla (J.L. No. 35, Knshnanagar P.S.).

Some of the residents of Chhatai established Hanrampur Chhatai, a hamleted village on the bank of the river Bhairab. Similar instances are Dihipara and Diarapara which sprang up from the disintegration of Dakshin Sahar.

(d) Effect on Caste System

The huge influx of population affected (i) caste-based economy, (ii) spatial distribution of caste pattern and (iii) rigidity of caste system.

(i) “Function and function only was the foundation upon which the whole caste system of India built up. It is only in the course of the last eighty years, with the rapid destruction of traditional skills, designs, techniques, markets and patrons, with nothing in their place to offer to castes so long employed in them who suddenly found themselves cast off their moorings, obliged to take to vocations other than their own, that caste lost whatever significance it had in the organisation of production. Caste system based on occupations has lost much of its importance due to poor remuneration from caste-based products. Because of this, people emigrated to distant places in search of employment. For example, movement of population in the Hugli Industrial Belt of Calcutta and its suburb in the pre-independence days. Presently, improvement in agriculture has brought some stability in the economy of the village and the people, irrespective of their caste belongings have adopted it as their main profession. Nevertheless, caste-based occupations are primarily followed by few caste, viz. *Tanti, Goala, Barui, Jelai and Muchi*. Occupations followed by the first three castes are still remunerative.

(ii) Caste segregation has largely been abolished. During rehabilitation of the displaced persons, it was particularly observed that all the castes were living together, because of necessity of security from dacoities, common follow-feelings among the refugee people who formerly belonged to the same district.

(iii) During field work, it was reported that some people prefer to belong to higher caste. For example, the villagers who previously belonged to *Chasa dhopa* caste, a section of Scheduled Castes, and farmers by profession, identify themselves as *Satchasi* caste which is higher in caste hierarchy than the former. The same incident was noted in Chunakhali village (-Type 3, case study i) where the people belonging to *Chasa-dhopa* caste had abandoned it in favour of *Moyra* (confectioner) caste, although most of them are cultivators by profession. An interesting case was noted in Phulia village where the Scheduled Tribes population had adopted ‘Sen’ title, a title used by *Vaidya, Kayastha*, and *Swarnakar* in Bengal, for some economic gains.

(e) Agricultural Improvement

In the pre-independence days emigration, high rent of land and physical disadvantages like low productivity of soil, uncertain rainfall adversely affected agriculture. After the independence, the situation changed gradually. Both natural growth and immigration from the then East Pakistan caused high pressure of population and this induced the farmers to cultivate land more intensively. Implementation of the zamindari abolition act in 1954-55 gave the farmer a permanent possession over land. In the 1960s, agricultural infrastructures like fertilizers, high yielding seeds and irrigation were available through the Block Development Offices. In the 1970s, agricultural institutions like C.A.D.C., S.F.D.A. AND co-operative land development banks came to help the farmers. All these efforts had their impact on the improvement of production, assurance of agricultural output and high intensity of cropping. Due to the practise of multiple cropping, farmers remain engaged in employment more or less through out the year and because of this, emigration from the villages sharply dropped.

In the economy of the country, mulberry (silk) played an important role since early times. Since independence, mulberry production has been some revival. Jute now occupies the status of an important cash crop. Wheat as a food crop has gained popularity. The establishment of some sugar mills and collection centres introduces a new element in the economy. High profit are responsible for an expansion of its (sugarcane) acreages. Settlement geography of the study area reflects these changes.

The aspiration for higher learning and the desire to acquire new skills has led to an expansion of educational institutions which are playing a vital role in the cultural field by providing an atmosphere for the exchange of pure drinking water are some of the new elements of the cultural landscape.

The only way to understand settlements is to study the region in the totality of its physical and cultural environment. A regional approach is therefore needed. Settlements respond very closely to regional physiography, to the interplay of social and economic forces of the region. The moribund Ganga delta is an instance to this response.

3.2 EVOLUTION OF URBAN SETTLEMENT

Introduction

Griffith Taylor while examining the urban settlements of Canada recognized four stages of urban growth which are as follows :

The Infantile Stage :

The smaller town has been considered in this stage where the separation of commercial and residential areas could not be separated and the buildings and lanes are haphazardly distributed. Teghra in Begusarai district is an example of this stage.

The Juvenile Stage :

In this stage the skyline of the houses rise and the factories are also established at places. Munger is an example of this stage.

The Mature Stage :

This stage is marked by well separated residential and commercial area. The rise of new colonies on the fringe and vertical expansion is the rule. The urban centres of Ontario, Delhi, Patna, London, Dar'es Salaam and Cairo come in this stage.

Senility :

This stage is marked by cease of growth, decay of some areas and decline in economic development. In Britain, the industrial towns of Lancashire, Yorkshire and Durnam are some of the examples. In Uttar Pradesh, Agra, Fatehpur Sikri, Mathura and Muzaffarnagar are towns of senile stage. (Mondal, 2000)

Mumford's Classification of the stages of Towns

As a physical entity, social phenomena, technological advancement, cultural ties and historical evolution Lewis Mumford (1938) considered the stages of growth of towns as follows.

Eopolis : It is a small town of village origin-which are based on agriculture, mining and fishing.

Polis : It is a sort of market town with wholesale grain market and retail market. Some industries may also be found at this stage.

Metropolis : It is a large city with at least 10 lakhs of population. It has dominating position on neighbourhood towns and cities, along with number of industries and outlying residential in its suburb. At this stage, the integration of culture, retail business and bankers are found along with the university level education.

Megalopolis : When several cities and metropolises with each other forming a giant urban centre over a greater part of a nation than it is known as megalopolis. This is an urban area of material wealth, original art, varieties of business, industrial development and poly-nuclear city centres. New York, Boston, Philadelphia and Morrisville form a megalopolis on the eastern Atlantic sea coast of U.S.A.

Tyranopolis : In tyranopolis city countryside urbanization pre-dominates the scene. Here the display and expense become the measurement of culture, standard of living and the expansion of trade and commerce of both national and international levels. Great Britain may attain this stage where about 90 per cent people are living in urban areas.

Nekropolis : It is known as ghost city or dead city. This stage may attained due to war, famine and diseases and the decline of municipal services, decay of cultural institutions and the relict features of towns give deserted look like the ancient Babylon. Nineveh. Vaishah, Mohanjodaro and Harappa. This is the last stage of the decline of urbanization.

In contrast, we have the invisible city, the product of revolution in communication and electric transmission. This has helped even the remote villages to have the urban component of life and hence we avoid the city where the degeneration of urban environment by slums and squattars and heaps of garbage disfavour sound human living. (Mondal, 2000) Doxiades has favoured the term *dynopolis* a city not for man but meant for cars, areroplanes, helicopters and rocket.

Development of Urban-Settlements

The oldest well-documented urban settlement is Ur in Mesopotamia (present-day Iraq). Ur, which means fire, was the settlement inhabited by Abroaham prior to his journey to Canaan, approximately 1900 B.C. (Rubenstein & Bacon, 1998)

Archeological expeditions have unearthed ruins in Ur that date from approximately 3000 B.C. The settlement was compact, perhaps one square mile, surrounded by a wall, and had a dense network of narrow winding streets and courtyards. The center of the settlement comprised a temple, royal palace, and cemetery. Residential areas, which surrounded the center, each had a temple.

Settlements can be found from the beginning of documented hisroty in at least four dirrerent locations - Mesopotamia, Egypt, the Indus Valley, and China. Settlements may have originated independently in each of the four areas, or they have dirrused from Mesopotamia. In the absence precise information, neither argument can be proved. From these four centers, the concept of urban settlement diffused to the rest of the world.

Europe : Urban settlements first reached Europe around 2500 B.C. The oldest settlements in Europe are in the eastern Mediterranean, including Knossos on the island of Crete, Troy in Asia Minor, and Mycenae in Greece. The settlements were trading centers for the thousands of islands dotting the Aegean Sea and the eastern Mediterranean.

The number of urban settlements grew rapidly during the eighth and seventh centuries B.C., when hundreds of new towns were founded throughout the Mediterranean. The residents of one settlement would establish a new settlement elsewhere in the region. These new settlements filled gaps in trading routes and helped open new markets for goods. The settlements were organized into city-states- independent self-governing communities that included the settlement and surrounding places.

The diffusion of settlements through the Mediterranean can be documented. Greek city-states, including the cities of Comae and Syracuse, colonized Italy and Sicily between 750 and 700 B.C. Syracuse, in turn, colonized Massilia (Marseilles), France, about 600 B.C. During the sixth century, people from Massilia founded settlements along the Spanish coast. (Rubenstein & Bacon, 1990)

Athens : The largest city-state of the ancient Greek world was Athens, probably the first city in history to attain a population of 100,000. The contribution of ancient Athens to Western civilization is substantial, especially in the arts and philosophy. Ancient Athens demonstrates that urban settlements have traditionally been distinguished from rural life not only by economic differences but by a relative concentration of cultural activities.

Rome : The rise of the Roman Empire provided a further boon to urban settlement. With much of Europe, North Africa, and Southwest Asia brought under Roman rule, settlements were established to serve as military and administrative centers. Trade was encouraged by the construction of new roads and the security provided by the Roman army.

The center of the Empire, Rome had the largest concentration of administrative, commercial, and cultural activities and grew to a population of at least 250,000 inhabitants, although some observers claim that the population could have been as high as 1 million. Its centrality was encouraged by the communications pattern in the Empire : ‘All roads lead to Rome,’ according to the old saying.

Medieval Europe : The fall of the Roman Empire in the fifth century A.D. caused a decline in urban life. The Romans had provided stability and security for trade, permitting urban settlements to flourish. With the fragmentation of the Empire into the control of hundreds of different rulers, trade decreased, and the need for urban settlements diminished. Many Roman settlements were greatly reduced in population or abandoned altogether, and culture activities were transferred to monasteries and other rural retreats. (Rubenstein & Bacon, 1990)

Urban life revived in Europe beginning in the eleventh century. Settlements,

established by feudal lords for military reasons, contained residents who had agreed to fight for the lord in exchange for certain rights. The lord acquired defenders of his territory for less cost than the maintenance of a standing army; and the town residents escaped from the burden of rural serfs, who had to farm the lords land. The lord gave a charter of rights establishing the settlement as in independent city.

With their newfound freedom from rural serfs, the urban dwellers set about expanding trade. The surplus from the countryside was brought into the city for sale or exchange, and markets were expanded through trade with other free cities. By the fourteenth century Europe was covered by a dense network of small market towns serving the needs of particular lords connected to each other by other by roads and rivers.

Medieval City Patterns : The medieval town was a dense compact settlement, frequently surrounded by a wall. At the center was a public square for the market, surrounded by important public buildings, palaces, and churches.

The tallest and most elaborate structure was usually the church, and many of these medieval churches still dominate the landscape of smaller European towns. Because of the lack of space for construction within the walled settlement, ordinary shops and houses were erected against the side of the church. In modern times many of these modest buildings have been demolished, allowing people to appreciate the architectural beauty of the church. But this change does not afford an accurate image of the densely built medieval town.

Rapid Urban Growth

While permanent settlements have existed for thousands of years, rapid urban growth is very recent. Until modern times few settlements reached a population of more than a few thousand inhabitants. The largest settlements of the ancient world, Rome, probably had a maximum population of 250,000, or about the size of Des Moines, Iowa; St. Petersburg, Florida; or Albuquerque, New Mexico. Both Indianapolis and San Francisco are about triple the size of the seat of the vast culture of the Roman Empire.

The first urban settlement to reach a population of 1 million was London, around 1810. By 1982 approximately 175 cities in the world numbered 1 million. Approximately 40 percent of the world's people now live in urban settlements, compared to only 3 percent in 1800.

Nature and Dispersion of Rural Settlement

The distribution of settlements must not be confused with the pattern of

settlements. The former, is concerned with the spread of settlements while the latter deals with the spatial relations between one dwelling and another. (Hudson, 1976)

The major patterns in rural areas, are (a) nucleated, composed of villages, (each more or less compact) and (b) dispersed consisting of single homesteads at some distance from each other.

An intermediate pattern, generally regarded as a kind of dispersal, is made up of scattered hamlets. The pattern may be complicated by the occurrence of both nucleated villages and scattered homesteads. Also, as times change, e.g. with improvements in technical efficiency or with the replacement of one agrarian regime by another, patterns are modified. In seeking to explain a pattern as it exists today, therefore, it is often necessary to recall the history of the area concerned. In general, a particular pattern may be related to local variations in relief, climate and soil fertility, to different methods of working the land, climate and soil fertility, to different methods of working the land, to diverse ethnic customs and traditions, to regional changes in the availability of water, and to the varying needs of defence. (Hudson, 1976)

In 1895, August Meitzen argued that the above two settlement patterns were early recognisable in western Europe” : the nucleated type, characteristic of which was the agglomerated village, and the dispersed type or Einzelhof, i.e. the isolated dwelling. He believed that each could be attributed to a particular agrarian regime : the nucleated village to communal cultivation as practised under the open-field system, and the dispersed homestead to individual cultivation. While this generalisation has some validity, Meitzen begged the question as to the motives which prompted farmers in some area (he instances most of Germany) to undertake communal agriculture while in others (notably France) they favoured a more individual approach to farming. He went on to aver that dispersion goes back to the Celtic mode of land occupation, nucleation to the spread of Germanic people (e.g. the Anglo-Saxons to England). Whatever the original pattern in Germany, France, England and other old countries was, it must be remembered that as land holdings have become consolidated into individual ownership there has been, at least in some areas; a measure of secondary dispersion or of intermediate (or intercalated) dispersion. (Hudson, 1976).

It has been claimed by some economic historians, in opposition to Meitzen, the the original unit of even Celtic settlement was the compact village; the isolated farmstead or hamlet resulted, albeit at an early period, from the break-up of nucleated settlements largely through the operation of inheritance laws. They agree, however, that primary dispersion is characteristic of most of the new, extensively farmed areas of the North American Prairies, Australian grass lands and Argentinian Pampas.

FACTORS FAVOURING NUCLEATION

Man is a gregarious animal and to achieve very close social contiguity he may, prefer to inhabit a large communal dwelling. More usually, he chooses to live in a compact village or a town. In densely populated urban areas, nucleation takes an extreme form, and even in some rural areas people may live cheek by jowl, e.g. in the valleys of the Hanhramaut (southern Arabia), where dwellings often tower six to eight storeys high above the cultivated plots of the valley floor or in China, where as much as half the area of a village may be roofed over. (Hudson, 1976)

The practice of living in compact settlements was fostered among newly settled communities (e.g. the Neolithic cultivators of ancient Egypt and China, and the early Anglo-Saxon immigrants into Roman Britain) by the necessity of dealing effectively with a somewhat hostile environment, e.g. a forested or marshy landscape, and by the advantages of organising a permanent system of cultivation. In areas of fertile soil, such people could be in close touch with the fields which they worked and could also enjoy the social benefits of village life. Social advantages still exist : it is easier to obtain education and medical care, and easier to organise clubs and societies, in a nucleated village than in an area of dispersed settlement.

Certain land tenure systems and methods of organising labour lend themselves more than others to a nucleated pattern. The medieval open field system of farming, with its emphasis on communal field labour, clearly favoured nucleation just as much as certain modern systems, e.g. those established for ideological reasons in the Soviet Union, China and Israel. In the U.S.S.R., successive communist governments have aimed at maintaining full political control over the peasantry and at ensuring the prompt delivery of full agricultural quotas to the State. Their trust in the collective farming system as a means of fulfilling these purposes, boosted by the extensive use of motorised machinery, has perpetuated and emphasised the nucleated pattern of rural settlement already characteristic of Russia before 1917. Some Soviet villages, however, have smaller satellite settlements around them, chiefly devoted to pastoral farming. The people have no private possessions, and they live, eat and form communally, and share the total income. Many of these Jewish settlements are based on earlier defensive villages appropriate to a strongly united people clustering together for protection against external aggression. (Hudson, 1976).

Nucleation, of course, has always had a defensive value, as is shown, for example, by the walled villages of the Hausa tribes in northern Nigeria, and the "acropolis" villages perched on hill summits in the Mediterranean coastlands, e.g. in Roussillon, at the eastern end of the Pyrenees.

Figure : Compact Settlements (District Muzaffarnagar, U.P.)

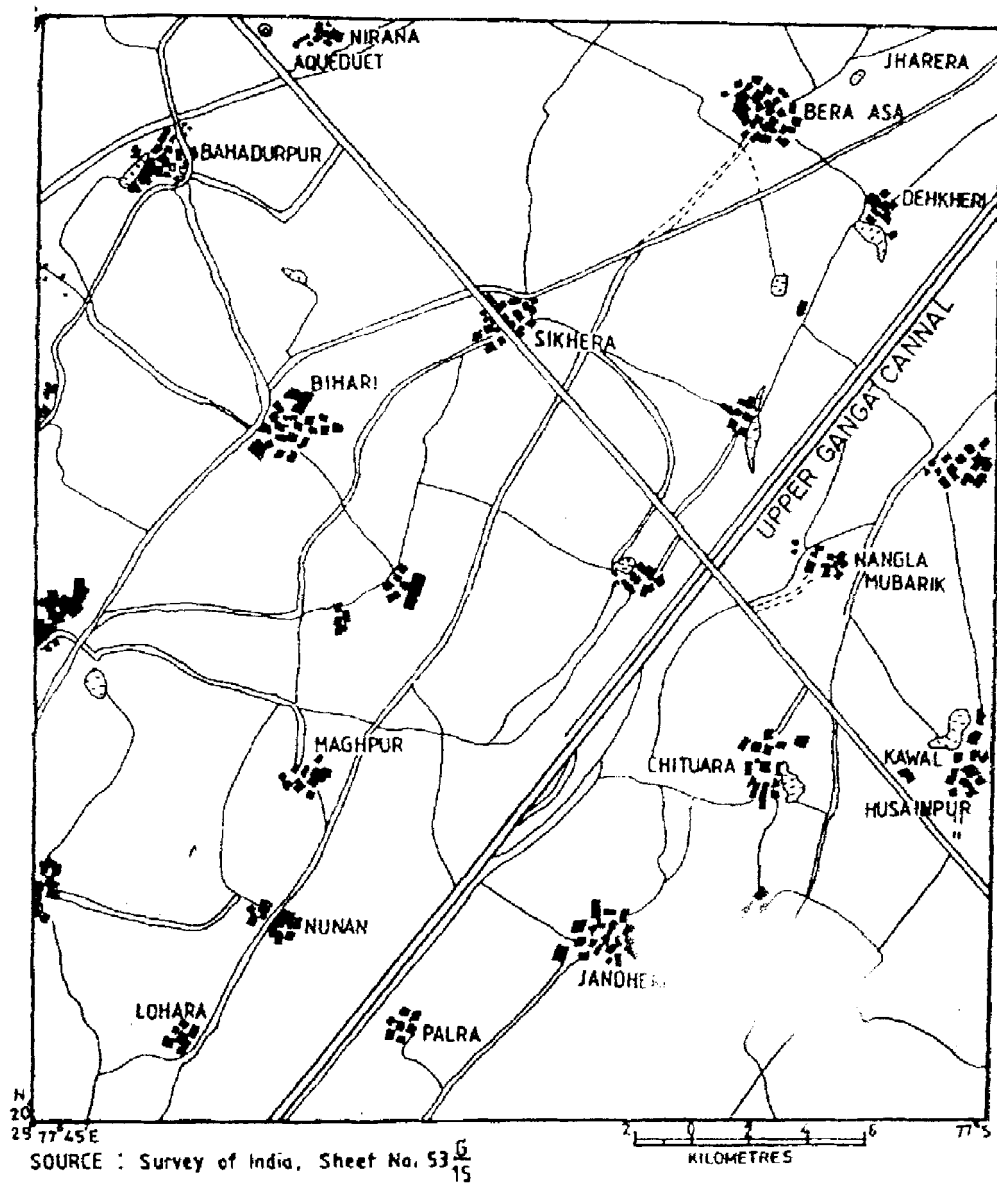
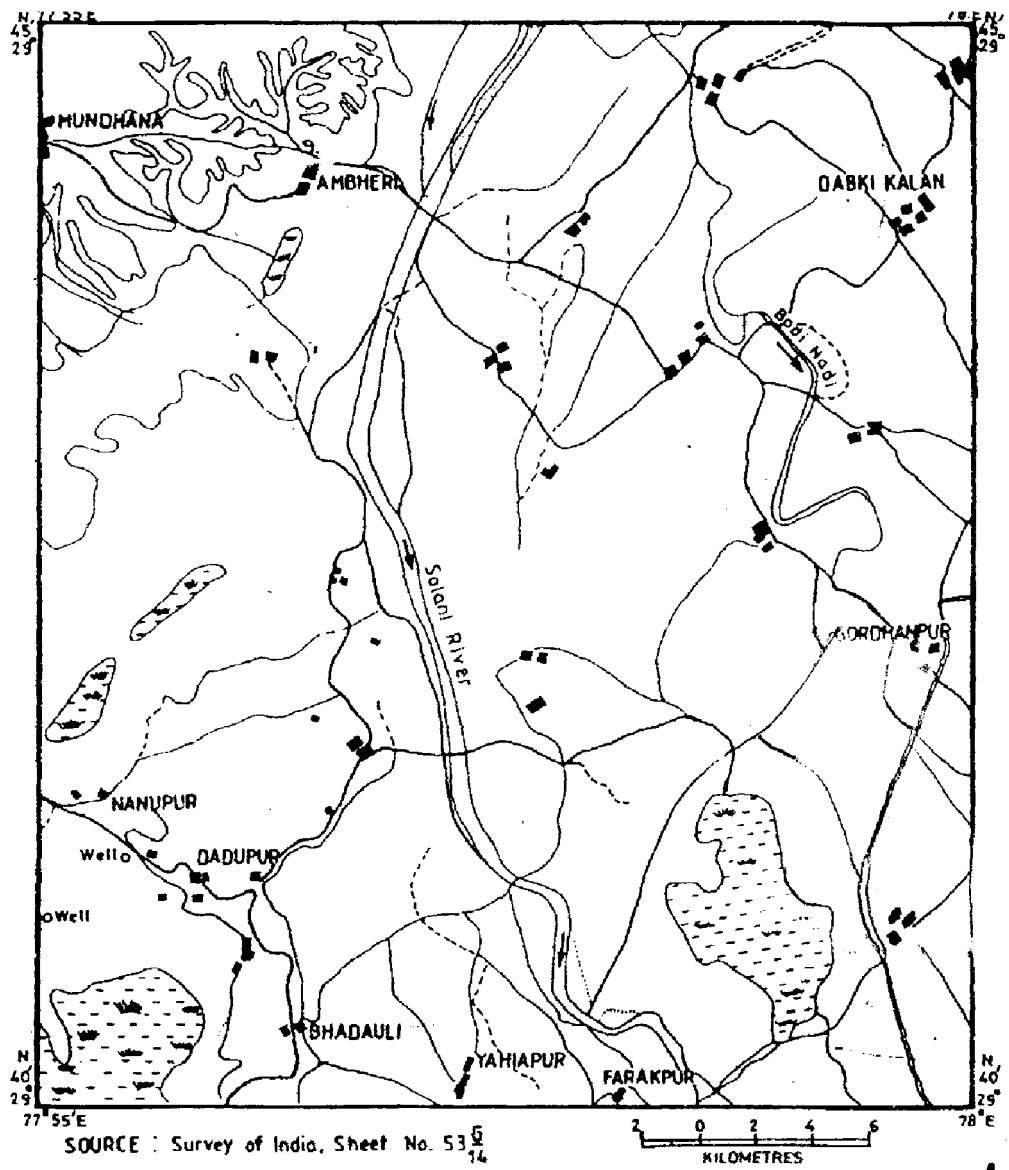


Figure : Semi-Compact Settlements in the Khadar of Ganga River
(District Hardwar, Uttranchal)



Largely for protection against Indian attacks, the early New England colonists established themselves in large compact villages. During the Mau Mau uprising in Kenya in the 1950s, and at about the same time in Malaya (when Communist guerrilla activity was rife) and in Algeria (during the independence struggle), many people who had previously inhabited isolated farms and scattered hamlets sought out the sanctuary of villages. (Hudson, 1976)

A nucleated settlement pattern is also the obvious response to certain types of physical environment. Where water is scarce and hard to get, for example in deserts where deep wells may have to dug for drinking water and cultivation, compact villages generally result.

Trends from dispersion to nucleation are becoming evident near large cities and conurbations and along much-used motor roads where urban sprawl is devouring agricultural land and traffic growth is promoting ribbon settlement. Thus many erstwhile farmsteads and country hamlets are being incorporated into dormitory villages or else becoming part of the expanding township.

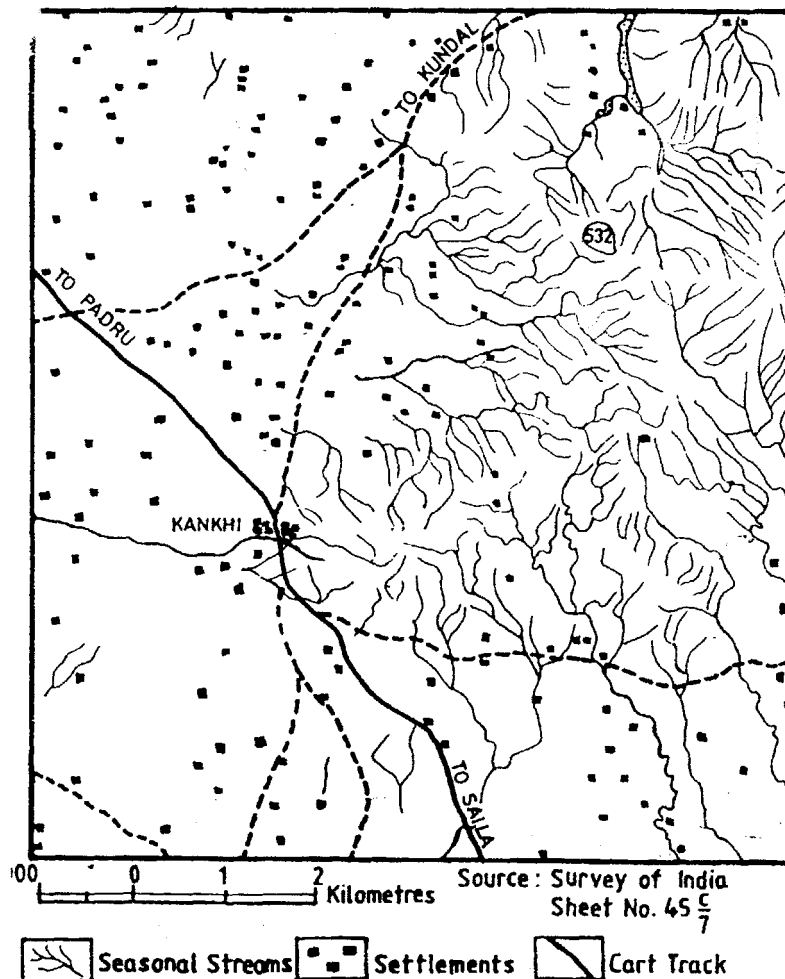
FACTORS FAVOURING DISPERSION

Dispersed settlements are normal in many unrewarding highland and forested areas, such as the Vosges, Black Forest, where agricultural opportunities are limited by a difficult terrain, a harsh climate and sterile soils. Uplands suited to little but sheep-rearing or extensive cattle-raising usually fall into this category : some of the flocks and herds would be too far from the stockman's home if it were in a village, and the value of the agricultural product is not enough to support a large community. In such areas, the Pennines and Welsh Highlands and in parts of Norway dispersed settlement-where any settlement exists at all - is a common feature.

An area where water supplies are virtually ubiquitous, may show a dispersed pattern. This is certainly the case in West Bengal, where there is a very high population density and the pattern, though dispersed, is very close. It is also true of parts of south-west Aquitaine and Kent (where some historians have attributed dispersion primarily to the land-holding system), off most of northern Belgium, and of many irrigated areas. But in Hungary, where water is also abundant, nucleation in the form of very large villages is characteristic. (Hudson, 1976)

Fertile lowlands in many of the newer parts of the world are marked by a dispersed settlement pattern, especially where they are devoted to extensive farming. In these regions, mainly temperate grassland, the use of barbed wire and wind-pumps has allowed farmers to live in isolation. Individual initiative has long been a powerful motive for dispersion, for example the desire of most pioneers to "get away from it

all”, whether “it” is religious or ethnic persecution, the law or social incompatibility. There exists also the chance of improving one’s living standards by raising crop yields and introducing new crops and new methods.



Much human initiative was released in older countries when serfdom disappeared and when there was still plenty of forest to be cleared and commons to enclose. In England, under the Tudors, many small holders began to erect their own isolated farms in the centre of the lands newly consolidated following the break-up of the open-field system and its scattered strip-holdings. The same happened at about the same time or later in parts of Germany, Sweden and Denmark.

The advent of settled, peaceful conditions, and their continuance over a comparatively long period, allows people to disperse more safely over the countryside, especially if communications are improved at the same time and the marketing of

surpluses is thereby facilitated. There is, in fact, a growing tendency in many widely separated parts of the world for farmers to scatter over the rural landscape at the same time as more and more rural dwellers are flocking into the large centres of nucleation (i.e. the towns and cities), even though dispersal entails sacrificing the social amenities of a village and paying more for the provision of roads, electricity and water. Thus, in an attempt to raise peasant living standards in the parched, poverty-stricken southern parts of Italy, the Italian Government has shouldered the task of establishing smallholdings which poor families are now working intensively without hired help. In these newly planned areas, irrigation facility have been extended and the scourge of malaria, which was a main cause of previous neglect, has been eradicated. Moreover, it is to be hoped that the need for nucleation on defensive grounds has now gone. (Hudson, 1976)

In Egypt, the old “basin” form of irrigation has largely given way to a perennial system, and the peasants (fellahin) have now been given the right to own land. Therefore in this country, too, more dispersed farm steads are being established. In Mexico and many other parts of Latin America, likewise, the break-up of large estates and the promulgation of agrarian reform laws are encouraging dispersion.

THE MEASUREMENT OF DISPERSION

The words “dispersion” and “nucleation”, like the words “village” and “hamlet”, have no precise connotation, though several statistical methods of measuring the degree of dispersion or concentration have been suggested. B. M. Swainson, for example “Dispersion and Agglomeration of Rural Settlement in Somerset,” (Geography), has computed the percentage of the population of Somerset living in the following house groupings : 1, 2-5, 6-10, 11-20, 21-50, 51-100, 101-200 and over 200. He is able to say how dominant each group is in each part of the county. In France, it is possible to adopt as a basis for calculation not the number of houses, nor the varying density of settlements, but, more satisfactorily, the number of people inhabiting each unit. The French census distinguishes for each commune the population of both the chef-lieu and the rest of the commune. Demangeon was therefore able to suggest the following co-efficient of dispersion :

$$C = \frac{E \times N}{T}$$

where C is the co-efficient, E is the population of the settlements outside the commune centre, N is the number of settlements excluding the chief one, and T the total commune population. Unfortunately, this formula is not very helpful outside France, and is useless in England.

3.3 HIERARCHY OF RURAL SETTLEMENTS

Rural settlements are characterised by primary occupation, extensive land use pattern, low density of population, slow and old means of transport and communication, poor economic development, traditional way of life, greater spirit of co-operation and less polluted environment. These settlements are smaller in size. They are sub-divided into (i) farm steads, (ii) hamlets, and (iii) villages on the basis of their size, morphology and function.

Of these farm stead is the smallest unit of rural settlement consisting of a small building of one or two rooms in agricultural lands.

Hamlet is a small village which may be an outgrowth of the main village to shelter new immigrants within the boundary of the revenue village. It has strong socio-economic link with the main village.

A village is an ideal and well-knit unit of rural settlement which has a definite social entity. It is characterised by relative homogeneity, informality, prominence of primary groups, lesser density of population and agriculture as the main occupation.

CLASSIFICATION OF VILLAGES

Although there are several ways of classification based on size, population and area of land is the most popular and accepted classification of villages. On the basis of this criteria, following classes of villages are recognised. (Khuller, D.R., 2006, India).

1. Pura : The place where a habitat had been in ancient days and where chief habitats are all around or nearby areas is called *pura*. This habitat can thus be called the nucleus of the area. In agricultural areas solitary habitats generally became “puravas” which under favourable circumstances grow into villages.

2. Khas : The word *khas* is used for the main village or sadar. Sometimes people of the main village settle at some distance and call this new village after their main village. When the population increases, the word *khas* is used for the village from where people spread around.

3. Kalan : The word *kalan* is used for large villages and used at the end of the name of the village i.e. Bound Kalan. People of several classes and castes live in such villages.

4. Khurd : The word *khurd* is a degraded form of the urdu word *barkhurdar* (meaning son or small). Therefore this word is used for small villages i.e. Dumarkha Khurd.

5. Khera : This work is used for small colonies and also for the higher land of the village. *Khera* has great social value for the village community because almost all the shows such as Ramlila, Nautanki, etc. take place here. In some areas the word *khera* is used places where the ruins of an ancient fort are found.

6. Nanglay : It comprises a group of small villages where one village is surrounded by several satellite villages. (Khuller, 2006)

(Cycle of Urban Development and Urban Hierarchy)

The origin, growth and stage of an urban settlement favours its cyclic character. Whether it is a hamlet or a village, the availability of tertiary activities adds an urban character in it. Hence, the size of service centres ranges from roadside to ecumenopolis, a stage of world urbanization. Some of these terminologies are very loosely defined but some are very precise.

Roadside

A roadside is an isolated housing unit of gasoline station, petrol pump, betel shop or tea stall etc. situated along a highway. The owners of such units either reside in the same house or on the first story, as the situation may favour. Roadside settlements are found especially in India, U.S.A., Canada and European countries along the lines of high traffic. This is the initial stage of urban settlement growth.

Hamlet

A hamlet is larger in population size than a roadside and consists of a few buildings some of which are residential and some commercial. One of the major factors in the origin of a hamlet is the presence of a motel and few permanent residences of businessmen.

Village

A village is still larger in population size (150 to 10,000) and acquires a variety of functions such as daily retail market, high school, dispensary, post office, electricity and nodal point for different modes of local transport. It comes under the primary and secondary service centres.

Town

A town is a place having a municipality or an administration of a notified area committee. The population may range from 2,000 to 20,000 and it may have predominance of tertiary functions, e.g., shopping, transport, house renting and store house of various items along with a wholesale grain market. It may be a centre for Anchal Headquarter, telephone exchange, college and railway station as well.

City

In case an urban centre acquires a population of more than 1,00,000 than it is known as a city. This criteria has been adopted by the census of India. It acquires diversified functions such as administrative, business, education, transport, industrial and religious, etc. and different nodes of business area may be identified and it must be a railway junction or perform a university level service.

Conurbation

In a conurbation cities coalesce with each other due to expansion of industries and grow together economically. Politically it may be independent, viz, Mumbai and Thana constitute an urbanized cluster but they are independent from the point of view of administration.

Metropolis

According to the census of India an urban centre having 1,000,000 of population is known as metropolis. Hence, the term millionaire city is self-evident. The 2001 census of India showed that there were 35 metropolis in the country and about 150 in the entire world. It is known as a cosmopolitan city.

Megalopolis

This term has been used for the most massive concentration of urbanized settlement on the Atlantic Sea Board of North America over a stretch of 900 kilometres from Boston in the North upto Florida in the South. It resulted obviously from the coalesce of chain of metropolitan areas, each of which grew around a substantial urban nucleus. The super metropolitan character of this area and its urban growth ever observed earned it a special name megalopolis given by Jean Gottmann.

Tyranopolis

When the whole country is urbanized than it any be called tyranopolis. Until now this situation of urban development has not aroused throughout the world but the increase of urban population of Great Britain, Germany and U.S.A the spread of tyranopolis by 100 per cent urban development is not very far.

Ecumenopolis

This is the stage of world urbanization. Near about A. D. 2050 the world may pass through this last stage of urban development and people will get food from ocean which covers about 78 per cent area of the globe.

Classification of Towns by Population

In terms of population, towns have been classified into : Small towns, major

towns city and metropolis, as shown in table below. These classifications are made on the basis of number of inhabitants in an urban centre and their density per square kilometre. Towns having a population below 50,000 are called small towns; and

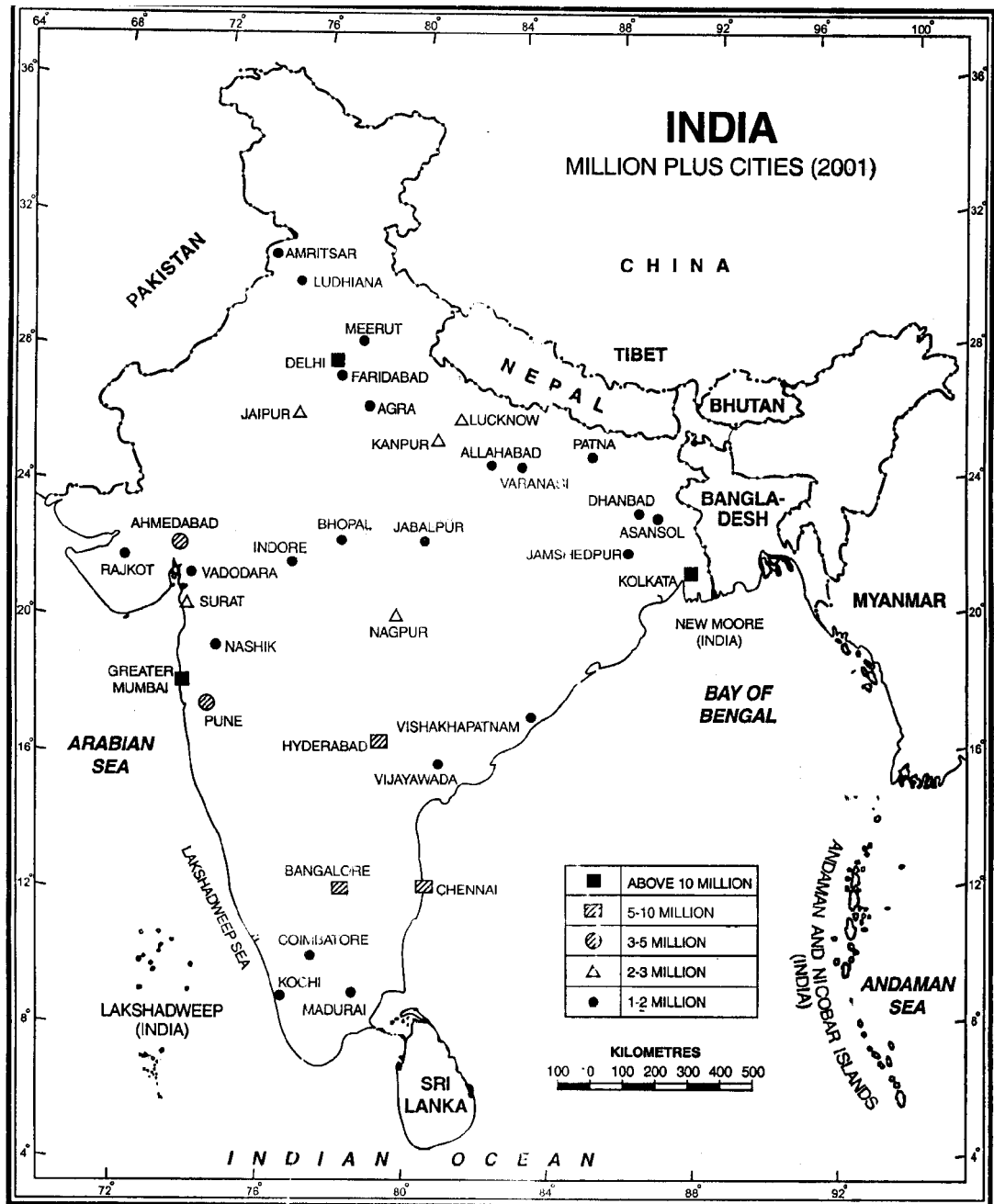


FIG. India : Million plus cities

those whose population ranges from 50,000 to 99,999 are called major towns. A city has above 100,000 inhabitants, and a metropolis has a population of 1,000,000.

3.4 METROPOLIZATION (OR METROPOLITANIZATION)

A metropolis is a distinct form of settlement, characteristically with sprawling of its built-up area and includes its inter-dependent nearby villages and even towns. The metropolitan centres are a class by themselves, characterized by large scale consumption and a large quantum of flows of people, goods, services and information (Prakasa Rao, 1983, Unbanization in India : Spatial Dimensions).

When does a city qualify for the title of metropolis ? The population aggregates employed by statisticians and others are of limited use to designate city character generally, and the status of a city as a regional capital cannot be measured from the number of its inhabitants. The 100,000 and million figures and often used to indicate respectively 'large cities' and 'super-cities', or what have been facetiously called 'millionaire cities'. It is normally a political capital, though New York is a great exception, far larger in population than any other city in the country. Apart from mere size, one must look for independent institutions for art and education, and for leadership in ideas. There is a grading in the importance of cities as regional centres of this kind and only a few come into the top category as full-fledged metropolitan centres. On the other hand, the larger the city agglomeration and the greater the density of population in its environs the more effective will be its impact on the surrounding area and the closer the integration of the city and its environs. (Dickinson, R.E., 1964)

American economic historian N. S. B. Cras has nicely pointed the economic base of the metropolitan city. In his words the highest grade of city which serves as an outstanding centre of human affairs is termed an economic metropolis ; the area which is dependent on it, metropolitan economy. According Cras, metropolitan economy is 'the organization of producers and consumers mutual dependent for goods and service wherein their wants are supplied by asystem of exchange concentrated in a large city, which is the focus of local trade and the centre through which normal economic relations with the outside are established and maintained' Cras further goes on to say that. A city becomes metropolitan 'when most kinds of products of the district concentrate in it for trade as well as transit; and when the necessary financial transactions involved in this exchange are provided by it'. Such a city will have a population considerably larger than that of surrounding towns; it will be an independent

centre of trade, with a large variety of regional industries and a large wholesale business; it will be a financial centre; and finally, a cultural and administrative centre. (Quoted from Dickinson, 1964)

According to R. Ramchandran (1995), "Metropolization is essentially a product of the centralization of administrative, political and economic forces in the country at the national and state capitals. Metropolization is also a product of intense interaction between cities and the integration of national economy and urban centres into a viable interdependent system". The pace of metropolization depends upon the rate of direct migration of rural folk to metropolitan cities as well as from the smaller towns.

How metropolization spreads ? Dickinson (1964) mentions that the dominance of the economic metropolis is a basic feature of the organization of modern society, since it arises from that geographical specialization function which is rooted in cheap and rapid transport. Moreover, the great complexity of our modern civilization brings to the city a further variety of functions which it performs for farms, factories, and people around it. Metropolitan economy is a universal feature of modern civilization. It is modern civilization. In the past, metropolitanism was confined to a few cities. Today many cities formerly tributary to the older metropolises are becoming increasingly independent of them.

American sociologist, R. D. McKenzie has succinctly summarised metropolization in the following lines. In his words "The metropolitan (or city) region thus considered is primarily a functional entity. Geographically it extends as far as the city exerts a dominant influence. It is essentially an extended pattern of local communal life based upon motor transportation. Structurally, this new metropolitan regionalism is axiatic in form. The basic elements of its patterns are centres, routes and rims. The metropolitan region represents a constellation of centres, the interrelations of which are characterized by dominance and subordination. Every region is organized around a central city or focal point of dominance in which are located the institutions and services that cater to the region as a whole and integrate it with other regions. (Quoted from Dickinson, 1964)

Megalopolis

Originally designating the seaboard of the USA from Boston to Washington, this is now any many-centred, multi-city, urban area of more than ten million inhabitants, generally dominated by low-density settlement and complex networks

of economic specialization. It is usually formed by the coalescence of conurbations (*Oxford Dictionary of Geography*). "A Megalopolis is only a conurbation which has grown to giant proportions" Beaujeu Garner.

The phenomenal expansion of urban land uses around and between the central cities writes Dickinson, has not merely resulted in the growth of conurbations, but also in the coalescence of such areas to form predominantly urban regions in which cities compete with each other in the extension of their functional orbits. This is particularly true in case of eastern U.S.A.

The great cities, continues Dickinson, are expanding on their peripheries

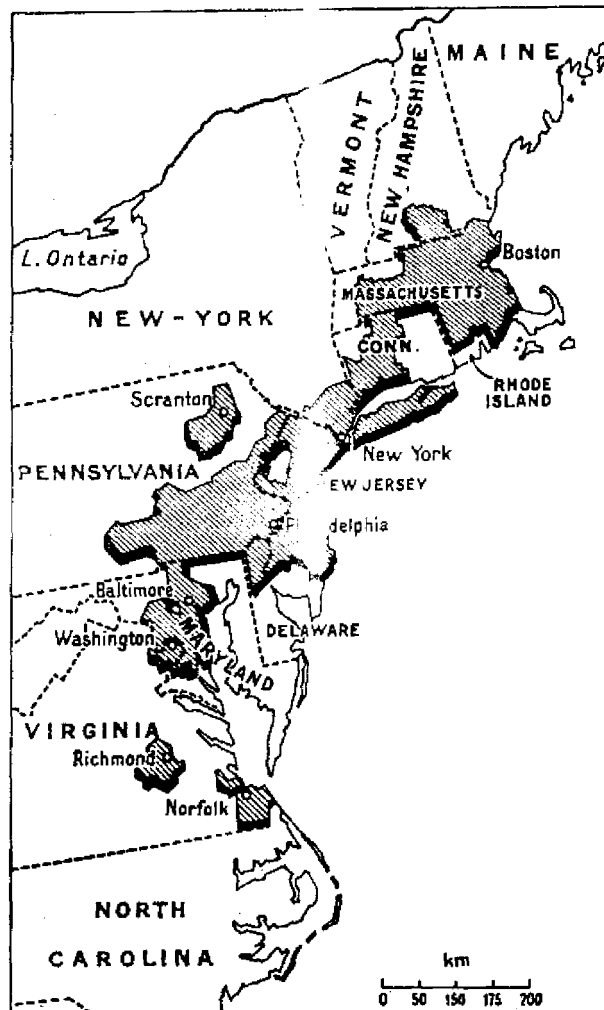


Fig. Megalopolis in North Eastern Seaboard in U.S.A.

at a phenomenally rapid rate. The urbanized areas are spreading to the boundaries of the S.M.A.s and even beyond them.

The most obvious feature of the distribution of these metropolitan areas is the great stretch of almost continuously urbanized land which extends a distance of over 600 miles from Portland in Maine to Norfolk-Newport News in Virginia.

There are open spaces, of course, but they are rapidly being filled up, and all parts are drawn closely into the functional orbits of the major places of work. The farmsteads in the rural islands are lived in today by professional people, factory workers, and others who travel daily to their plants and offices. For here and elsewhere, growth takes place most rapidly along the highways. Miles of ribbon development - bill-boards, cafes, hot-dog stands, drive-in theatres, amusement parks, petrol stations, and even specialized stores - herald the approaches to every city. (Dickinson, 1964)

Now, let us see what were the causes behind such extensive urbanization in this part of U.S.A. Beaujeu Garneer writes that the urbanisation developed here under very special, exceptionally favourable conditions. Many of the towns are ports. They have benefited from a massive influx of immigrants from another continent ; but they did not tie these people to the immediate vicinity ; on the contrary they populated the surrounding countryside, and through them the entire country became colonised. Megalopolis arose from the conquest of the American continent, which developed under its direction. The power of America is concentrated there. The development of the whole country has benefited Megalopolis, in the course of 150 years of industrialisation, general prosperity and continuous expansion.

MEGALOPOLIS IN OTHER PARTS OF THE WORLD

Even without such exceptional conditions, other conglomerations like Megalopolis seem already to be forming. They were not caused in the same way as the megalopolis of America. (Beaujeu Garneers) In the Rhenish-Westphalian region it was the presence of coal which allowed the parallel development of several towns with populations of over 100,000 and with an uninterrupted series of towns from Krefeld to Hamm, north of the river Ruhr. Round the Pennine uplands, with Manchester, Birmingham and Leeds, there is a similar U-shaped cluster of towns, developed from the outer fringe of the Birmingham conurbation to the agglomeration of London and which was formed under very different circumstances.

Commerce on the one hand and industry founded on coal on the other have given rise, from Flanders to the Netherlands, to groups of towns which are showing a tendency to join across frontiers and which are already extending tentacles towards the Ruhr and the agglomeration of Paris.

A similar group is taking shape round the Japanese Mediterranean in the Hanshin region from Osaka to Kobe where about thirty cities are grouped around the Bay of Osaka.

Almost everywhere towns are expanding and multiplying. They concentrate in places where they can take advantage of the same favourable conditions and the area becomes organised as a polynuclear conurbation. (Beaujeu-Garner, 1967)

3.5 WORLD DISTRIBUTION OF RURAL SETTLEMENTS

Asia

Rural settlements around farms is the characteristic feature of the greater part of Asia. Except small areas, such as Hokkaido, the northern island of the Japanese group, isolated farm steads are rare. Throughout the southern islands of Japan, and Pakistan, close-set compact hamlets arid villages are found throughout the intensively cultivated plain lands,

On through the near East, as in the lowland of the Tigris and Euphrates rivers, and into Africa as in the valley of Nile, the rural agglomeration persists almost exclusively.

Israel shows a Strong preferenece for cooperative organization in its rural Areas. Various forms of such organization constitute the basis of the four types of rural settlements found in the country namely the Kibbutz, the Moshav, Shitufi and the Moshava (Mandal, R. B., 1989 : **Systems of Rural Settlements in Developing Countries**).

In the **Kibbutz** everything is collectively owned by their members except the land, which is the national property. The basic principle is that every member should give to the community to the best of his abilities, and take the share from it according to his needs.

Genera! by the largest Kibbutzim have been attained in settlements having a population of 1500 to 2000.

The **Moshav** is a small holder's settlement in which, although each settler works on his separate plot of land, lives in his own household and draws income from his farm's produce. Moshav villages range in population from 150 to 900.

The **Moshav Shituji** is a co-operative small holders village where production is carried out communally (as in the Kibbutz). Here family life is self contained population not exceeding 400 inhabitants

The **Moshava** is a village of the regular European type where land, buildings fanning installation and so on are all privately owned and the co-operative organizations are relatively weak. The moshavot (plural of moshava). Contain 20,000 to 70,000 people.

Africa

The majority of people (85%) in the continent of Africa live in rural settlements of small hamlet and permanent nucleated villages. A collection of number of households constitute a village which may be of various sizes. There are some tribes such as tuareg. Futani and Masai who lead a nomadic life in temporary settlements.

The compact rural settlement is found throughout Africa from forests and hill slopes to grassland because it helps in traditional block - farming system. Sometimes villages are surrounded by walls of clay for the purpose of deference from wild beasts and enemy. In the marshy areas of the Niger delta, the shores of lake Chad and in the inland delta region of Mail compact rural settlements are found in areas above seasonal flood margin (Mandal, R. B., **Systems of Rural Settlements in Developing Countries**).

In Africa dispersed rural settlements are associated with the Tonga people of Zimbabwe, the Tiv people or Middle Benue valley in Nigeria, the Ibo people of Iboland, Nigeria; the Mossi of Upper Volta and Wolof of Senegal. The available evidence suggests that in all these areas dispersal is a secondary form of settlement resulting from disintegration of nucleated rural settlements. In areas of scarcely available farmland a meausre of security is found in individual land ownership, the people have tended to move out to build on one of their farm piots. Further, the stabilization of village boundary and the creation of forest reserves resulted in land shortage, and this accelerated the emergence of individual iand tenure and the dispersal of rural settlements. In this process even nucleated walled villages were relocated on more accessible sites on the nearby plains as in Shemdam Division of Nigeria.

In Ghana compounds are circular, built of locally obtained clay, usually in the form of several round hutments joined by an encircling wall, and vary in size according to members in a family. The mud and wattle buildings, can be permanent; they are abandoned only when there is more trouble to repair that to re-build. New compounds are usually built in the vicinity of old and the same area of land being subject to cultivation. (Mandal, R. B., **Systems of Rural Settlements in Developing Countries**).

In Ghana, all permanent rural settlements are nucleated, but vary in type in

different parts of the country. Settlements associated with shifting cultivation are, of course, temporary, being constructed of wattle mud and thatch.

Europe

The hamlet or village is the characteristic settlement unit throughout most of the southern and eastern Europe. Even into the western part of Europe it continues as a prominent form, but the disseminated pattern becoming more and more prominent as one proceeds north westward. Yet even in north western Europe a thin scattering of rural population fails to cover up the basic nucleated pattern.

South and United America

The whole of South and Middle America's into Mexico, agglomeration is the rule, but in North America, and especially in the United States, it is virtually absent in favour of isolated rural settlements.

North America

In Colonial days, the United States followed the European tradition of rural agglomeration but the need for protection in a wilderness also lent strength to the tradition.

In United States a land survey system was established for the public lands in the interior and later the same extended throughout the west. This system provided a framework within which a disseminated rural settlement pattern developed. In this regard large farms and roadways helped to bring about a settlement pattern in USA where farm houses and buildings are disseminated rather than agglomerated. As settlement spread into the drier west, larger acreages were allowed for homesteading, so that farms came to be spaced more widely. Mechanization of agriculture and advancement in transportation have likewise tended to increase dispersion.

Canada in an area of scattered rather than clustered rural population. So also are most of Holland, Australia and New Zealand, the areas of European colonization in South and East Africa, and some parts of South America. The pattern of agglomeration has been lost in these areas. (Mandel, R. B., **Systems of Rural Settlements in Developing Countries**).

RURAL SETTLEMENTS IN INDIA

India is a country dominated by rural settlements. Its 74.3 per cent of total population (1991 Census) lives in 5,80,781 villages. These settlements occupy flood plains, river banks, natural levees, hill slopes, valley bottoms, piedmont areas, water points, flat hill tops and spurs and coastal lands. In India the average areal size of a village is 5.71 sq. km which inhabits an average population of 1082 (1991 Census).

Pondicherry (1.9 sq.km). West Bengal (2.31 sq. km), Uttar Pradesh and Bihar (2.6 sq. km) are characterised by small areal size of villages. On the other hand Jammu and Kashmir (34.2 sq. km), Mizoram (30.2 sq. km), Kerala (28.1 sq. km), Arunachal Pradesh (22.9 sq. km), Andaman-Nicobar islands (16.4 sq. km), Sikkim (15.9 sq. km) and Nagaland (13 sq. km) house large areal size of villages. Looking from the point of view of population-size of less than 1,000. On the other hand there are only 23 per cent of the villages in the country whose population-size is more than 5,000. Kerala, Tripura, Tamil Nadu, Goa, Haryana and Andhra Pradesh generally have large population-size of villages. (Tiwari, R. C., 2004, Geography of India)

The average village-density is 18 villages per 100 sq. km of area for the country which varies from a minimum of 3 in Mizoram and Jammu and Kashmir to a maximum of 53 in Pondicherry and 43 in West Bengal. There are 8 states (West Bengal, Bihar, Uttar Pradesh, Assam, Orissa, Himachal Pradesh, Punjab and Meghalaya) and 4 union territories (Pondicherry, Lakshadweep, Chandigarh, Daman and Diu) in which the density value is more than 20 villages per 100 sq. km of area. On the other hand in equal number of states (Mizoram, Jammu and Kashmir, Kerala, Arunachal Pradesh, Sikkim, Nagaland, Tripura and Gujarat) the density value of villages is less than 10 villages per 100 sq. km of area.

The rural population density (average 191 persons/sq. km) also exhibits great variation at statelevel, its value fluctuating from a minimum of 9 in Arunachal Pradesh to a maximum of 706 in Lakshadweep. There are nine states (West Bengal, Kerala, Bihar, Uttar Pradesh, Punjab, Tamil Nadu, Haryana, Assam and Tripura) and all the union territories (except Andaman-Nicobar islands) which indicate higher value than the national average (191). In equal number of states and one union territory the rural population density averages are less than 100 persons per sq. kilometre. These are mainly characterised by hilly terrain, plateau topography and arid climatic conditions. High density areas of rural population mainly occupy the alluvial lands of the Ganga plain and coastal areas.

(1) Rural Settlement in the Himalayas

Three types of settlements are found in the Himalayan region : (i) hamleted or semi-sprinkled, (ii) dispersed or sprinkled, and (iii) isolated homesteads. The first type mainly occupies low lying valleys with regular stretch of fairly level land. Similarly the second type is found in patches while the last type occurs on high elevations. Such settlements are generally found in Himachal Pradesh and Jammu and Kashmir. In Jammu and Kashmir the smaller villages are generally nucleated, while the larger ones are dispersed. A special feature of Kashmir valley is the spring settlements. In the Kashmir Himalayas of Uttaranchal undulating relief, cold climate,

paucity of agricultural land, subsistence farming, horticulture and cattle grazing have favoured the growth of small dispersed settlements. These are divided into permanent, seasonal and mobile settlements. With terraced fields above and below spurs provide the most common sites for village settlement. Others are located in valley bottoms near the perennial springs and water bodies. Some localities like the valleys of Mana, Niti and Janhavi rivers have developed twin village settlements : (i) summer settlements (Malla gram) at a height of 2700-5000 metres, and (ii) winter settlements (Talla gram) at low altitudes (below 1800 meters).

In the eastern Himalayas the settlements are small and widely dispersed due to steep slope, undulating topography, heavy rain fall, dense forest cover and multiplicity of tribes with different dialects and rituals. Here compact and well organised villages are found in the northern zone of Indo-Tibetan culture ; the lower zone exhibiting Assamese impact ; and the middle zone characterised by dispersed settlements. In Meghalaya, Khasi villages are located along the hill slopes near the water bodies which range from isolated homestead to dispersed and composite settlements. In Nagaland villages generally occupy flat tops of the hills, spurs and gentle hill slopes between 1200-2100 m of height and consist of 20-100 houses. In Hanipur Kukis practising shifting farming build their temporary houses on flat topped ridges. Lushai tribes of Mizoram build their linear settlements in valleys and on the flat-topped hills. (Tiwari, 2004).

(2) Rural Settlements in the Northern Great Plains

Northern Great Plains of India present a mixture of settlement types and pattern. Rural settlements in the Rajasthan plain are small, compact and sparsely distributed owing to the limited water supply distributed owing to the limited water supply and cultivable land and problem of security. In excessive arid areas of Banner, Jaisalmer and Bikaner, where there is predominance of sanddunes, hamleted settlements are noticed near the water-points. But in the eastern and north-western parts of Rajasthan large compact villages are common sight. India canal is encouraging compact and permanent villages similar to the Punjab plains. In the canal irrigated areas of Punjab plains the villages are uniformly spaced, compact and generally circular in form. But in the flood prone areas of the Ravi river we find widely spaced small sized rural settlements.

Over the Upper Ganga Plain almost 55 per cent of the population lives in medium-sized villages. In the Rohikhand Tarai areas settlements are unevenly distributed due to high percentage of forests, marshy lands and seasonal floods. Here villages are mostly hamleted located at river bluffs and river embankments. In the areas of older alluvium (Bhangar) the settlements are compact and closely packed. (Tiwari, 2004)

On the Middle Ganga Plain the distribution and pattern of rural settlements are

largely influenced by alluvial morphology. Areas of east Uttar Pradesh and west Bihar are marked by small sized but closely spaced villages. Hamletted settlements are typical of the Ganga-Ghaghara doab. The Mithila plain exhibits wide variation in settlement pattern and types : linear in the lower Gandak valley, dispersed in the sub-montane tract of Champaran, relatively dispersed in the Ganga-Burhi Gandak doab, and irregularly scattered or linearly oriented along the levees of dead channels or ox-box lakes in Purnea. The south Bihar plain has more compact settlements than its northern counterpart.

In the Lower Ganga plains hydrological characteristics have dominant role in determining their types and patterns. Here scattered villages are very common in the Rahr plain, Duars and Sundarbans ; compact settlements abound in the Ajay-Damodar Brahmani interfluvies and hamletted ones dominate in the Bhagirathi-Dwarka interfluvie. Linear pattern is apparent along the coast.

In the Brahmaputra valley villages are generally agglomerated, aligned along the river levees and transport arteries. Here villages are smaller in size in which houses are separated by bamboo fences. Machan type of houses on wooden pillars are constructed in low-lying and flood-prone areas where boat is the only means of transport during rainy season. (Tiwari, 2004)

(3) Rural Settlements in the Peninsular India

Rural settlements in the Peninsular part of the country exhibit mixed types depending upon the economic development. Throughout the hilly tract of the Aravalli region huts are widely dispersed within the revenue village lands. In the dissected hills of Mewar, Marwar and Alwar isolated farmsteads are dotted in the long narrow valleys. Tonk, Sawai Madhopur, Bundi, Jaipur districts and the Banas valley region are characterised by compact to semi-compact settlements. Sirohi district and plateau area around Udaipur are abound with isolated, dispersed and widely apart settlements.

In the highly dissected and riverine tracts of Bundelkhand large compact villages occupy the favourable and protected sites, while badlands are marked with semi-compact and dispersed settlements. Malwa region, owing to its fertile soils, has helped in the growth of large clustered settlements. But rough terrain around Sagar has favoured the growth of semi-dispersed and dispersed settlements.

The Chotanagpur plateau region shows great variation in the types and patterns of rural settlements. Here Rajmahal highland, Ranch Pargana and Dal bhumis are characterised with clustered type ; Ranchi plateau, Hazaribagh plateau, south-eastern Damodar basin and Panch Pargana with semi-clustered type; the Kolhahi highland, outer eastern part of the Ranchi plateau, Pat area, northern Koel basin, southern part of Hazaribagh plateau and south-eastern part of Rajmahal highlands with hamletted type; the Porhat-Dalma highland and Sigdega with semi dispersed; and the Kolhan highland area by dispersed type of settlements (Sinha, V.N.P., 1976, p. 72).

Compact and clustered settlements have been developed in the fertile and level areas of the Baghelkhand plateau and Chhattisgarh plain which have yielded place to semi-compact type in the undulating plateau areas. The Lava plateau region of Maharashtra owing to its rich soils, good water supply and developed agriculture has favoured the growth of clustered settlements. But semi-dispersed and dispersed settlements are also seen in the plateau region south-west of Solapur and near Pune because of its rough and undulating terrain.

In south India, large compact and widely spaced villages are the characteristic feature of the northern Maidan of Karnataka and Rayalaseema area of Andhra Pradesh. The tract between the Kaveri and the Tungabhadra, studded with numerous tanks, exhibits close relationship with compact settlements. In Malnad area semi-dispersed to scattered hamlets are common features. The same features are replicated in the Tamil Nadu Uplands also. The forested areas along the Sahyadris have the predominance of isolated dwellings. (Tiwari, 2004)

(4) Rural Settlements in the Coastal Plains

The eastern and western coasts are dotted with several fishing villages of different

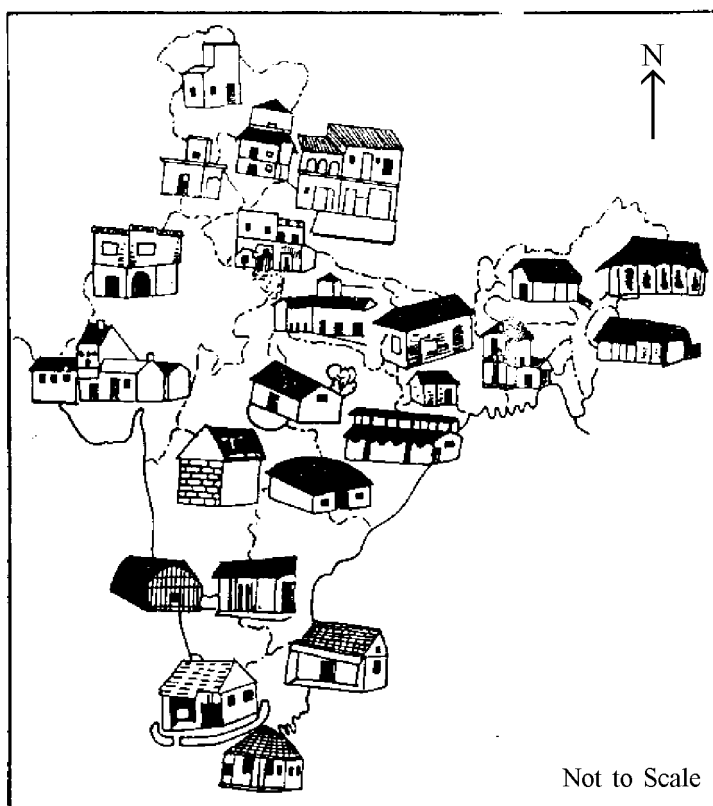


Fig. Rural Houses Types of India

shape and size. In the Mahanadi delta area high escarpments provide ideal location for settlement to safeguard against floods. In the Godavari, Krishna and Kaveri deltas organised farming activity has promoted the tendency of nucleation among settlements which are generally located along the canals and on high ground or levees. The Malabar coast is dominated by large compact villages but coconut and cashew plantations have encouraged the growth of isolated dwellings. Coastal plains of Gujarat are marked by nucleated settlements of medium to large size. Saurashtra is a region of small villages with long inter-village spacing. The isolated farmsteads in the plantation gardens of coconut and banana along the coast from Dwarka to Bhavnagar add to the scenic beauty of the land. The semi-arid lands of the Kutch and the Rann have a few hamlets at long intervals hardly containing a room or two.

ENVIRONMENT AND RURAL HOUSE TYPES OF INDIA

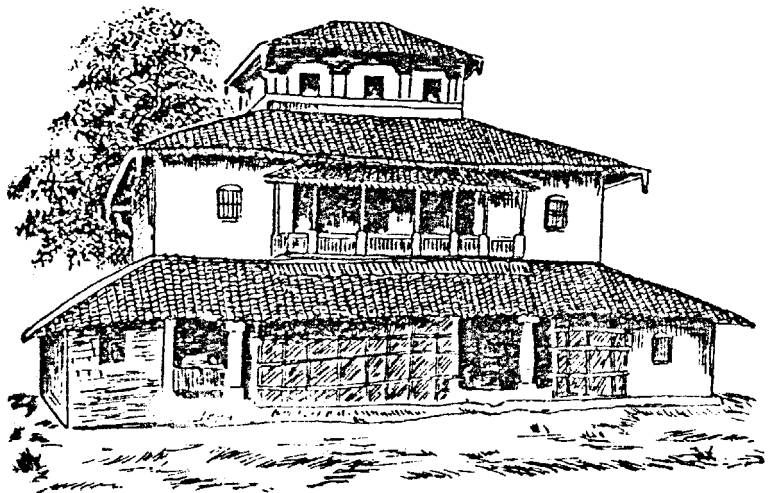
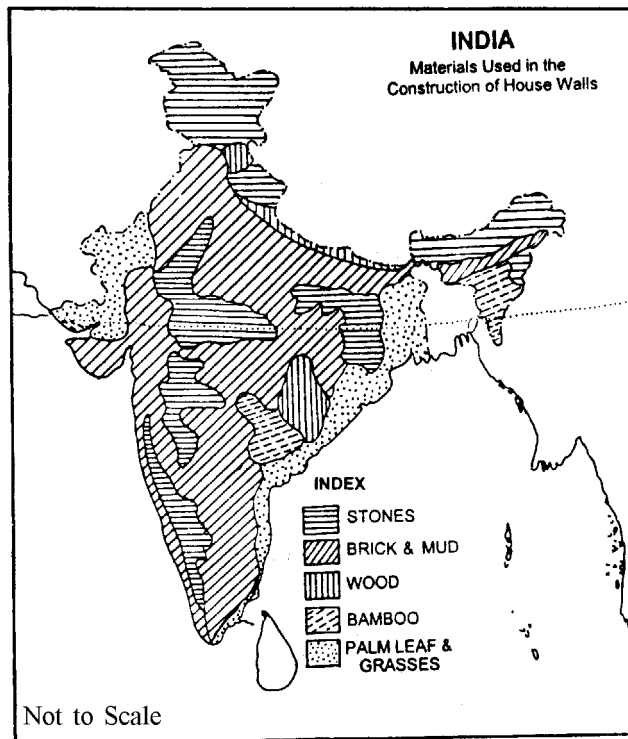
In the rural landscape of any country, the traditional house forms an outstanding element as an expression of the complex relations between man and his physical milieu. Indeed, the house is the symbol of its regional character, expressing the distinctive social organization of its inhabitants, their status and rural economy. So Houston goes on to say landscape, is an expression of both the physical conditions of a region and the conservatism of its inhabitants.

WEST BENGAL

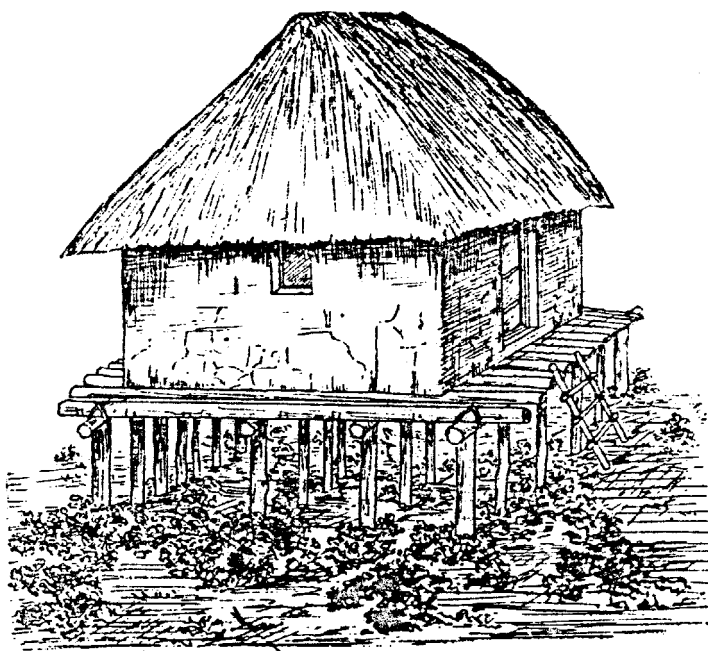
In West Bengal, a homestead consists of four huts, built around a central courtyard detached cattle-sheds outside the houses. Two of huts forming the living rooms, one for the male and the other for the female members of the house, another is a kitchen and the third is baithank khana or drawing room, where visitors are welcomed and the men sit and smoke. They are usually built on raised plains, and the walls consist of bamboos or reeds plastered with mud. The earth required for the plinth and walls is taken from ponds in the neighbourhood, which are filled with water in rainy season and afford congenial breeding grounds for mosquitoes. The roofs are covered with thatch of considerable thickness and have a curved hog backed ridge, especially designed for withstanding the heavy rainfall. Sometimes the roofs are tiled, and those who can afford they build their roofs by iron and cement. Fig shows that rural house types of India. (Sen, 1998)

BIHAR

In Bihar the rural houses of the cultivators are, as a rule, mud wall huts, built of clay, with which broken pottery is made. The roof is, as a rule made of thatch a frequent source of fire, only the well-to-do can afford tiled roofs. There is no provision for ventilation, but there is no great difficulty to peasants who regard their houses



A Sketch of a multi-storied building in north-western districts of Orissa. Foundation is not deep because the soil is rocky but stability is obtained by building upper storeys in successive smaller sections, by cutting off from all the four sides. The ground-floor keeps cool in summer which season is generally oppressive in these districts while the uppermost storey is good for sunning in the extreme winter weather.



A sketch of a house in a flooded area in the coastal region. The plinth is high above the ground level, erected by a number of wooden posts or timber planted on the ground. The floor of the house is built at a height varying from 3 to 5 feet according to the usual flood level in the locality. The walls are light and thin, locally called 'jhati walls', made of twigs with earthen plaster on other side. The thatch is also light being made of a thin layer of straw on bamboo frame.

merely as places for cooking and sleeping in. In river in tracts, mostly liable to floods, the cultivators live in huts with wattled walls and theatched roofs, for the soil is often so sandy that mud for the walls cannot be obtained, while the risk of their houses being washed away makes the use of other materials a piece of useless extravagance.

The name of the headquarters, station of the Saran district, viz. Chhapra, is believed to be derived from Chhapar, meaning a thatched roof, and is evidence of liability to inundation in early times. The houses are erected above the level of flood water and are constructed by bamboo frame work, thickly plastered over, and, thatched with straw. Some of the poorer classes have only huts made of reeds which scarcely support thatches. The rich people live in brick built houses.

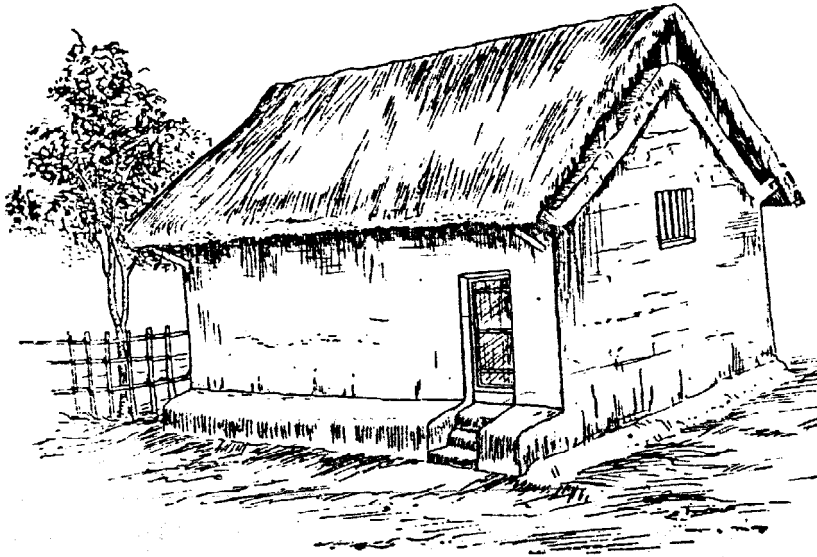
The ordinary cultivator either cannot get or afford bricks and, besides this, there is some that brick-built walls attract the evil spirits. There is also a prejudice in some parts against square houses, should be along, and the two longer sides should run north and south.

JHARKHAND

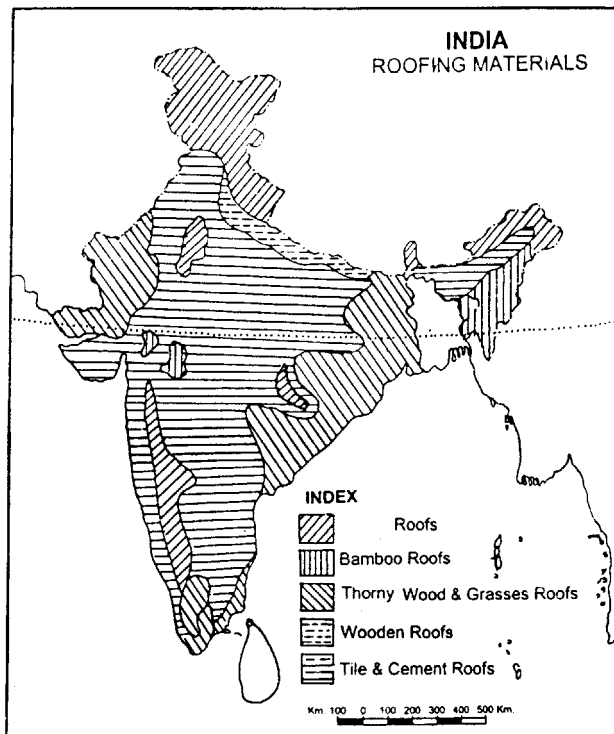
Well-to-do people mainly in Jharkhand often have their houses on built by mud terraces, closely packed and fixed on jungle-wood plants or bamboos and cross beams resting on the walls. Santhal parganas is the home of the Santhals, the second largest tribe of India, they settled in villages on the higher and drier spots of Chhota

Nagpur, where small and have two rooms roofed with red tiles or thatched with grass. On both sides there is a raised but hollow Veranda.

Oraon family lives very promiscuously in small indifferently constructed and unitedly looking huts, and their villages consist of a street or courtyard of such huts.



A sketch of a typical house in localities suffering from accidental fire. Protection from fire is obtained by making double roof over the house, the lower one being thickly plastered with mud and the upper one being the usual straw and bamboo combination thatch. The upper roof protects the house from rain and the lower roof from fire.



In their entire area domestic life they are less susceptible to improvement than the other tribes. They have no gardens attached to individual houses, but the groves of fruit-trees that they plant outside the village form a beautiful feature in the scenery of Chhota Nagpur, and they have generally, in and about the village, some fine trees which are common property. In every Oraon village, of old standing there is house called the Dhumkuria or bachelor's house, in which all unmarried men and boys of the tribe sleep. Any one absenting himself and spending the night elsewhere in the village is fined. (Negi, B. S., 1994)

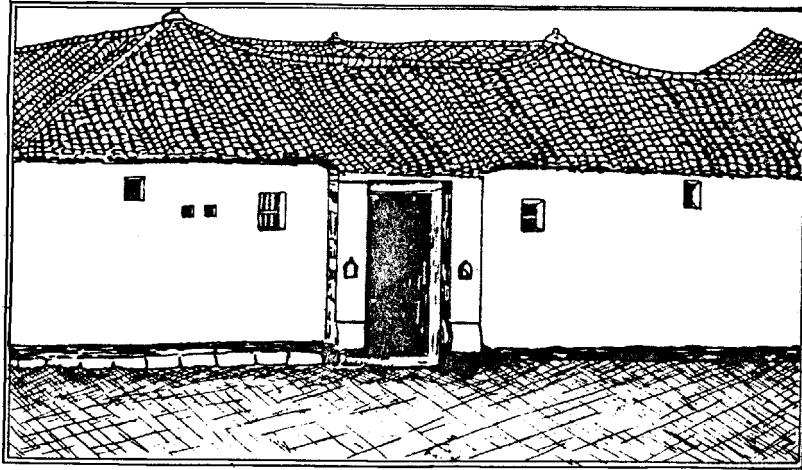
ORISSA

In Orissa a rural house consists of three mud-wall rooms, and thatched roofs one of which is the sleeping apartment second a kitchen and third is a cattle-shed. They are arranged on three sides of a quadrangle on the fourth or open side in a plot of land, on which are grown various vegetables for domestic consumption. Behind one of the three huts is another plot usually enclosed by mud-walls, in which food grains are threshed and fodder and manures are stored. The site has to be carefully selected. A priest is consulted as to whether the site is ideal one and what is an auspicious day for constructing house. Some of the tribes place 21 grains of paddy on the spot selected over-night and return in the morning to ascertain the result. If the grain has been disturbed or attacked by white ants during the night, the spot is abandoned; if it is untouched, the house is constructed. In Orissa better houses have sloping roofs constructed almost on the same way. Windows, if there are any, are raised above the height of man and are so small that scarcely any light can penetrate into the room. The rich people live in houses either built of mud or wattle and grass; the poor and landless labours have only a single hut, in front of which the edges of the roof are generally elongated and form a kind of veranda.

The houses of aboriginal are of a very primitive type. The huts of the Juangs are very small. The habitats of the Juangs consist of wooden and grass thatched huts measuring 3 m. in length and 2 m. in breadth. Every wooden house has two apartments for separate purposes. In one apartment they keep their utensils and other articles, and the second apartment is occupied by husbands and wives. The youth, are admitted into the Gotul or youth clubs. These youth clubs are generally built at the end of the village, where the youths of the village keep a watch over the whole village and protect it from outside attack or wild animals. Sometimes the Juangs build their huts on the trees to seek protection from the wild animals.

ANDHRA PRADESH

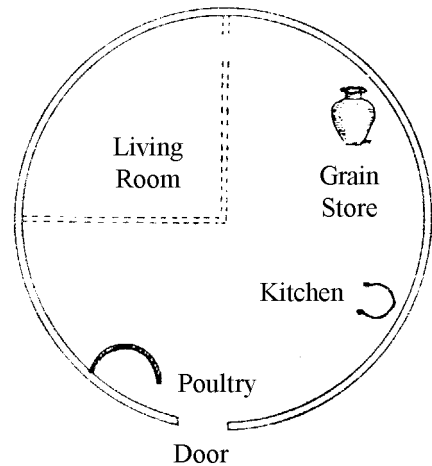
In Andhra Pradesh the southern part of Orissa and the houses are arranged in two continuous parallel rows. It is the fashion to build the houses in a line, the roofs



A typical tile roofed rural house of Telangana (Nizamabad Dt.)
of Andhra Pradesh (After census of India, 1968)



A typical conical hut of Visakhapatnam dt.



Interior part of the conical hut (Source :
Same as above)

are hatched with cholam straw or grass and they are all of the same height and pitch, the ridges constitute a continuous line, so made, that the whole side of a street-like place looks one long house. They have a loft under the rafters, like the shelf in the circular huts. The walls of the houses are frequently decorated with neat devices in dots done in white Chunam with the forefinger and thumb, they are renewed annually by the inhabitants themselves. Alongside their houses, there are verandas for the reception visitors. The houses are usually divided into two atartments, one for women and the other for men. Granary everywhere-is a distinctive feature, they are circular and wattle thatched quite separate from the houses. In the coastal districts of Andhra Pradesh, the linear settlements are prevailing except in the deltas these are not crowded. There is plenty space between the houses which are built along both sides of a road from which side of a road ftom which side lanes often radiate. Behind the main road are the dwellings of the lower castes. This linear pattern is also be found in south India. This extends westwards into a large portion of Telugu-speaking area of Andhra Pradesh.

Gujarat also shows the same type in large villages and even smaller ones are formed of parallel rows separated by broad streets. This is true of Kutch and Saurashtra as well as of districts stretching from the south of Rajasthan to Surat. At one proceeds southwards to Tamil Nadu the pattern remains the same, but the houses become separate. The roofing materials used in various parts of the country. (Census of India, 1968)

TAMIL NADU

The development of linear pattern extends over a major portion of Tamil Nadu and Andhra Pradesh including both the dry Rayalaseema district as well as the prosperous agricultural districts of the eastern coastal plain. The villages on the East coastal region or more or less compact and uniform. The villages possess tanks or they are situated on the river banks and the houses cluster on waterside.

The Reddy Villages are found between the Godavari and the Penganga in North-Western Andhra-Pradesh. These have many unique features. They have settled in smell hamlets of semi-permanent character, sometimes not exceeding three houses. This type is prevalent in the mountainous area, or they live in larger villages of about a dozen to fifty houses in the valleys. The settlements mostly are hidden under the jungle.

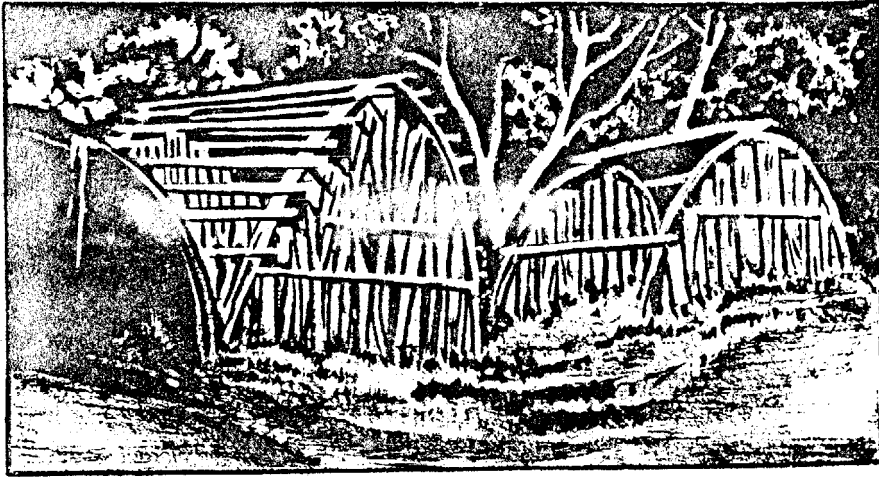
The Badagas of Nilgiri are not nomadic people. They live in big huts, thatched with leaves and their sides are covered with logs of bamboo.

Kadar settlement consists of huts, of bamboo, with a bill-hook in their long axis thatched with leaves of the teak and bamboo, and divided off into Varandah and

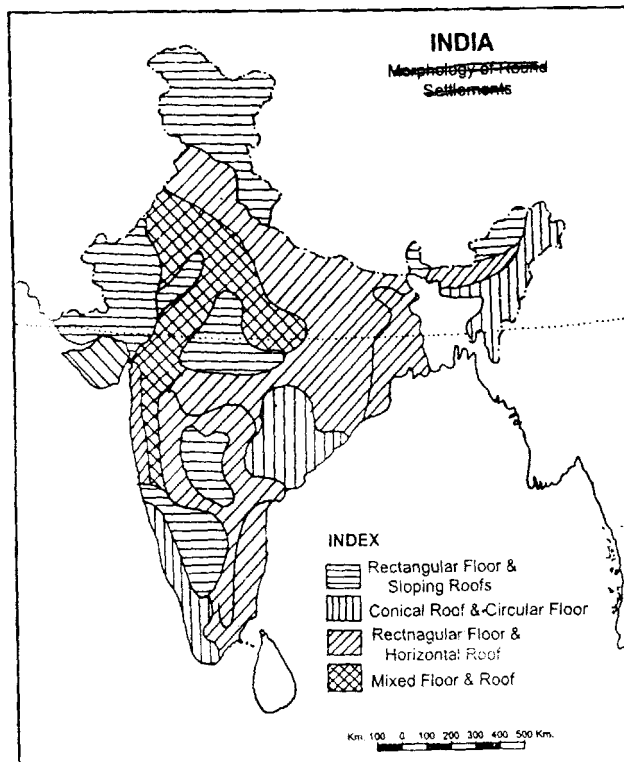
compartments by bamboo sticks. But the Kadars are nomadic people living in small communities, and shifting from place to place in forests, where they suddenly appear as causally as if they had only returned from a morning stroll instead of a long camping expedition. When wandering in the jungle, the Kadars make a rough shed covered with leaves and keep fire burning throughout the night, to protect themselves from bears, elephants, tigers and leopards. They domesticate dogs as soldiers against wild beasts at night.

The above of the Todas is called a mand, which is composed of huts, dairy temple, and cattle-pen and has been so well described by Shorff, that I cannot do better than quote his account. "Each mand", he says, "usually comprises of five huts, three of which are used as dwelling's one as a dairy hut and the others for sheltering calves at night. These huts from a peculiar kind of oval shaped construction usually 3 1/2 metre high, 6 metre long and 3 metre broad. The entrance of doorway measures 100 cm. in height and 75 cm. in width and is not provided in any door or gate, but is closed by means of a solid slab or plank of wood from 10 to 15 cm. thick and of sufficient dimensions to entirely block up the entrance. This sliding door is inside the hut, and is so arranged and fixed on two stout stakes buried in the earth, and standing to the height of 1.2 to 1 metre, as to be easily moved to and fro. There are no other openings or outlet of any kind, either for the escape of smoke, or for the free entry of air.

The doorway itself is of such a small dimension that to effect the entrance, one has to go down on all fours and even then much wriggling is necessary before an entrance is effected. The houses are neat in appearance and are built of bamboos closely laid together fastened with rattan and covered with thatch, which renders them water-tight. Each house has an end walling before and behind composed of solid blocks of wood, and the sides are covered by the pent-roofing, which slopes down to the ground (Sen, 1998). The form of wall or plank contains the entrance or doorway. The inside of hut forms 2 to 5 metre square space, and is sufficiently high in the middle to admit of a tall man moving about with comfort; on one side there is a raised platform of clay, about two feet high and covered with Sambar (deer) or buffalo skin, or sometimes with a mat. The platform is used as a sleeping place. On the opposite side is the lire place, and a slight elevation, on which cooking utensils are kept. In this part of the house bundles of firewood are seen piled up from floor to roof, and secured in their place by loops of rattan. Here also the rice pounder or pestle is fixed. Each hut is surrounded by an enclosure of wall formed of loose stones piled up two or three feet high (with openings too narrow to permit of a buffalo entering through it). The dairy shed is sometimes a building slightly larger than the others, and usually contains two compartments separated by a centreplanking. The outer compartment is the living place of the dairy priest. The dairy is usually situated



Semi-circular hut of the Todas, Nilgiri Hills.



Morphological Classification of Houses in India.

at some little distance from the habitation. The hut where calves are kept is simple shed like the dwelling hut. In the vicinity of the mands are the cattlepens or tuel (tu), which are circular enclosures surrounded by a loose stone wall, with a single entrance guarded by powerful stakes. In these, herds of buffaloes wall, with a single entrance guarded by powerful stakes. In these, herds of buffaloes are kept at night. Each mand possesses a herd of these animals. (Census of India, 1961)

KERALA

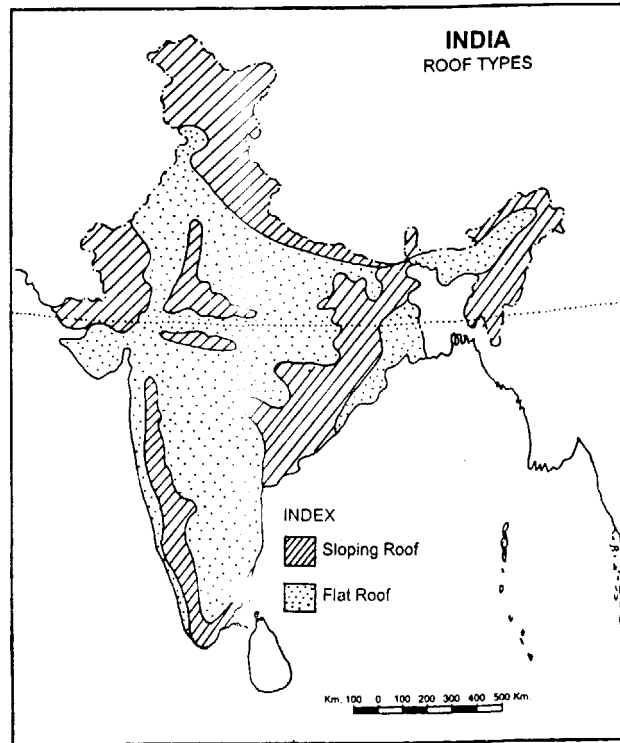
The major portion of rural house in Kerala is built by teak wood. In Malabar coast several houses are more than 400 years old. These had suffered little or no decay. They are covered with palm leaves and the teak wood. Hence it happens that these houses are much healthier than those of stones and bricks. They have been built with many calcareous and highly pernicious particles. The more less isolated home-steads into four parts, the arappura or the main building, the purippura or the gatehouses, the Takketu or the southern portion, arid the Vataketu or the northern, which is the kitchen. Inside the house-garden, one meets with various kinds of useful plants and trees such as the shady jack, the graceful areca, the straight coconut plant the luxuriant plantain, the solid tamarind, the mighty mango and useful talipot. On the south-western corner is the usual serpent Cavu or grove and by its side a tank. The houses of the well-to-do classes have often beautiful structures, they are generally quadrangular and built of stone, granite where obtainable, brick and mud, laterite and wood. Often laterite pillars are built and the walls are of mud. All walls generally are smooth plastered with Chunam and white-washed or coloured red and sometimes covered with bright-coloured paintings of Gods and animals.

Two or three-storeyed houses are very common around Mumbai. The lowest classes, however live in small windowless single room mud huts, chalas. These mud walls are of only about 2-metre high arid palmayra-thatched roofs. (Negi, 1994)

MAHARASTRA

The Maharashtra live in ventilated and lighted houses, having two or three storeys with stone and burnt brick walls and tiled roofs. The entrance door, which is often spacious and imposing and furnished with a small room called deori for guard or watchman, opens in a yard in which cattle are kept. One or two rooms in the upper storey and one or two in the ground floor are whitewashed and well painted and decorated with pictures of Ganpati and Shiv, and fancy pictures of gymnasts or two tigers and a hunter. These room are used by visitors and business men. Other rooms are set a side for dining, sleeping, and cooking, and at the back of the house is a sweet basil or tulas pillar. Except or few special apartments the house is seldom clean or tidy.

The houses of poor Maharashtrians are smaller and have few rooms. All eat flesh and fish. The well-to-do eat meat or fowls daily. Middle-class families use them about once a week, while the poor use them only occasionally on Dusshehra in September, October and March, and during marriage.



Types of Roofs

Brahmins live in better house. The better class generally have two storey houses with high brick walls and tiled roofs. As a rule their houses are dark and badly ventilated. The rooms are small and the staircases steep and narrow. The houses of the rich are large and comfortable, but the poor have bad houses and behind the house dirty water is allowed to stagnant. They are strict vegetarians and good cooks. Their food is millet bread, pulse, butter, curd, milk and condiments.

Except for the more palatial family houses tiled roofs are rare. The major portion of the ordinary peasant house is thatched with coconut leaves, reeds, rice straw and grass, but it is not due to poverty, but from the ancient custom of using tiles in temples and the habitations of the Brahmins and the ruling classes. No flat roof houses are to be found in these parts, where monsoon rains pour down with full force. The figures shows the types of roof in various part of India.

The distribution of rural settlements on the uplands of Deccan Trap is very much

influenced by slope. The irregular edge of the upland is occupied by highly sloping land and is covered by forests. The uplands is highly dissected and hence does not furnish favourable sites for villages. Subsequently, remarkably sparse settlements are observed in the rim zone of the upland. The valleys represent continuous arable land admitting uniform resource exploitation. Here the settlements have reached at saturation level. The houses of the agricultural classes are small mud dwellings. Tile houses are very common wherever clay is obtainable and frequent. Most of the cultivators have a small garden behind the house in which they grow maize, tobacco and vegetables. (Census of India, 1994)

GUJARAT

In Gujarat the houses are mostly adjacent to each other with a common wall between two houses and plainths not much raised above the surface level. Thus walls are made with burnt bricks, mortar, mud and timber. The roof is tiled and in some cases there is an upper storey.

Passing through the central door, the first apartment of the house is the parsal or entrance room where the head of the family receives visitors and transacts business. In the inner wall of the parsal and opposite the opening of the street is a second door leading to the interior of the house, which consists of central space, walled off on one side and the other opening into a Kohodiu there being only a bar of timber is drawn across the front of the Kohodiu about one metre above ground, to separate it from the central space. The wall of the central space at right angle to the parsal opens into three doors leading into separate rooms about 3.5 metre square. Of three rooms that next of the front of the houses is used as store room for clothes, room and the next to the back of the house the water room. In the central place the family take their meals, and in the rainy months some sleep there; others sleep in the upper storey if it exists.

In Gujarat the houses of the scheduled castes are generally situated on the outskirts of the village. They are small huts thatched with grass or palm leaves the walls of adobe or of bamboo smeared with mud and enclosing a space of about 4 metre square, divided in some cases into two rooms by a partition consisting of bamboo stalks, the inner being used for cooking and outer for sleeping though in many cases the whole of the interior forms but one chamber. (Negi, 1994)

MADHYA PRADESH

The Bhils are the third largest group among the tribes of India and they are the largest hill tribe. Their habitat is Rajasthan and Madhya Pradesh. Their real home is Vindhyan and Satpura Hills. The houses of the Bhils - (koo) are made entirely of wood without a single nail being used. Bhil builds his house himself, with his tools.

With these he cuts logs of tree, and erects grooved posts to form the framework of his house. Planks are placed into the grooves and bound together by cross stays, which are fixed by wooden pins and keys. The doors are made to revolving fixed frame. The roof is slanting and consists of thin rafters with a thatch of straw, and the only repair it requires is the addition of a layer of fresh straw every year. The interior generally consists of two rooms partitioned by the sod. One is used for cooking and sleeping, the other serves as a cattle pen, where the stock of grain is stored.

In Bhilware and Khandesh two storeyed houses get more common with sloping roof of sod, grass thatch, and corrugated iron.

PUNJAB & KASHMIR

In Punjab and parts of Kashmir, the villages are raised on the high ground above the surrounding countryside due to the convenience of water supply. The houses which are generally long in shape are, built close together. They consist of a covered gateway with side rooms or paoli or deorhi with opens on the lane or street; with in this entrance is an open square or courtyard called variously angan, Sahan or bisala; at the rear of this or on either side is a verandah called dallan or bichala, and behind this again are the inner rooms for sleeping and living, called Kotha or sufa. This is perhaps a fairly accurate description of the standard plan of a Jat house, but the variations are innumerable. Frequently two of three minor enclosures will be found inside the main enclosure and subdivided there from by walls (bhits). Within the enclosures are the chulahas or hearths at which the breads are baked, and each distinct confocal group living within the one enclosure has a separate chulaha. The ahara or even, in which the daily porridge or dalia is cooked and the milk warmed, is generally outside the entrance and built against the outer wall of the house in the gali or lane.

The household cattle are generally penned at night either in the angan or in the paoli. Fooder is often stored on the flat mud roofs. In some cases the household consists of a large enclosure sub-divided into minor ones which contain one, or more chulahas the outward and visible sign of a separate and distinct confocal group. Such groups are generally related more or less closely, but in some cases the family tenants and Kamins are also allowed to live in the household enclosure.

In crowded villages, the flat mud roofs of the houses are used for sleeping in the summer season. Occasionally grain is kept on the roof in small conical baskets made of twigs. The houses are usually made of rough stones and mud. They are generally one storeyed- A cattle-shed also often is built on. There is a large extent a singular unanimity in the pattern of dwellings. (Census of India, 1961)

RAJASTHAN & HARYANA

The type of house is common in the Bagar of Rajasthan and Haryana. It shows a

standard of comfort distinctly inferior to that prevailing on the north-eastern portion of the two states. As a general rule, the soil is not used for the construction of mud roofs, as it is too light to withstand the rain; roofs are in consequence made of the thatch of bajra (karbi), the walls being made of mud. Such a house is called Chhappar or kudi, and several of them are arranged around the angan or enclosures, which, if the inmates are fairly prosperous, will be provided with a mud entrance thatched with straw. Another still poorer class of Bagri dwelling is the Jhopari which consists of a circular hut, the sides of which are made by interweaving

the branches of various bushes and putting on a thatch of Bajra straw. In the better or more prosperous Bagari villages the type of house is similar to that of Jat villages, but is inferior in building material and comfort point of view.

The inferior type of houses are found in Ghaggar tract of Haryana. The villages are very small and the houses for more scattered. The typical house consists of a room hut called Kudi or Kotha, standing in the middle of a angan or sath. There is generally a smaller inner enclosure for the cattle called behra, the angan (courtyard) also contains a thatch but supported by poles called chan, which is used of living in day time and for sleeping in the hot weather. This type of dwelling houses are found in the south of the Ghaggar tract approximates more closely to the type prevalent elsewhere in the state as described above.



‘Jhonpa’—The typical cottages of Rajasthan desert

The type of houses in Uttar Pradesh vary with the stages of development and culture of the people who inhabit them. The houses of Ganga-Yamuna Doab are closely packed together in a small space, quite often of rising ground. The houses are of adobe or of minor brick structures. The building material usually consists of mud and Kans. Stones or bricks are also used in rare cases and is meant for the construction of a raised

platform in front of some houses. Walls are mud-plastered and roofs are thatched and tiled. The floors of the houses are incredibly smooth and clean. Even the courtyard is clean and can be readily used for spreading any crop without spoiling them. Generally compact, semi-compact and linear types of settlements are found in this region.

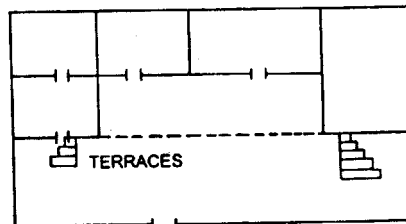
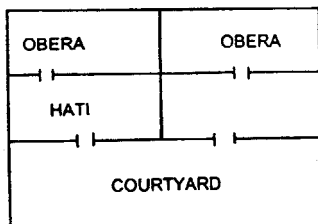
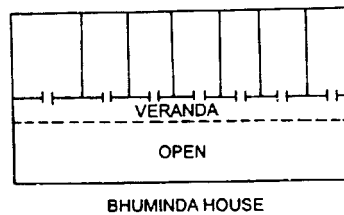
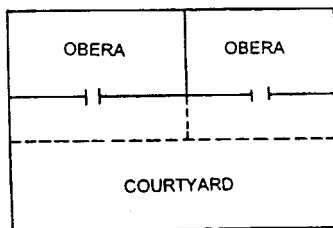
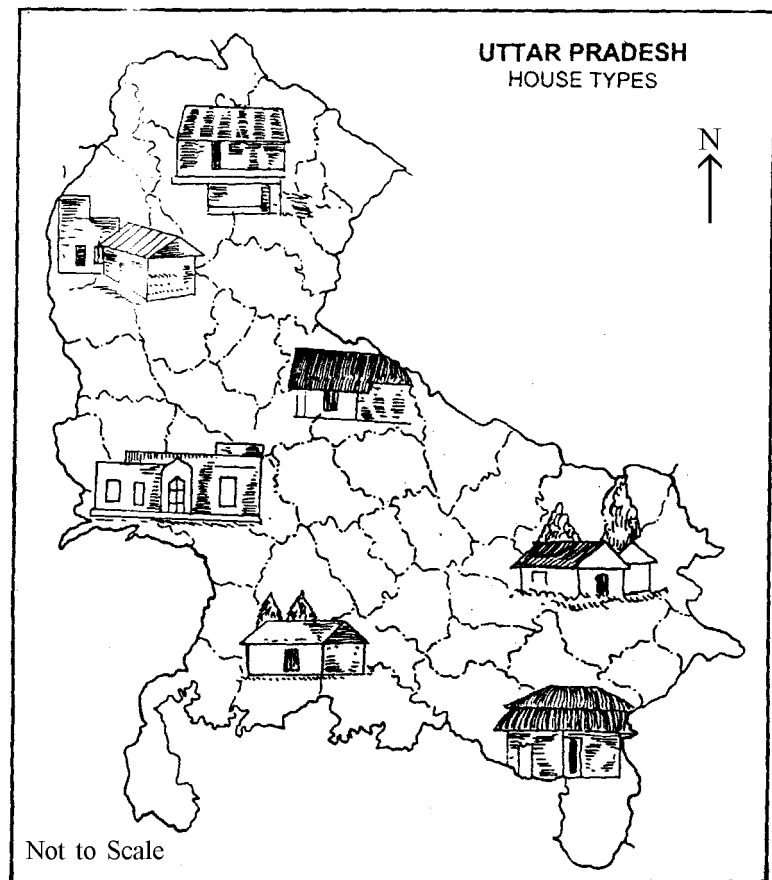
In irrigated and central parts of the Ganga-Yamuna Doab the rural settlements are often situated along the ravines and are fort-like in structure. The dwellings of the better class, have flat roofs of mud, supported by rafters of timber while the others are roofed with ordinary tiles. The houses of the poor are simple made of mud tile and thatched roofs and a single door, occasionally there is some sort of enclosure in front of it.

The majority of the rural population of U.P. lives in ordinary adobe built houses with thatched or tiled roofs. Throughout most of the eastern part of Ganga-Yamuna Doab the sedentary form of rural population lives in agglomerated settlements. Dispersed settlement is found only in a few localities, particularly in the Diara or Tarai (lowlying, flood lands).

In Eastern U. P. the village is not single collection of houses. The number of hamlets in any particular village varies with its area and the convenience of land which offers building material to, as many as fifty houses. Their simple huts can be built in a few weeks on any spot which is sufficiently elevated above the flood water and their almost only object is to be as near as possible to the fields they cultivate. In Ballia, Deoria, Azamgarh, Ghazipur and some other districts of the Eastern Uttar Pradesh and Bihar people go on living in the diara and other areas inundated with flood water every year. They are vacated when the rivers are in spate and the danger to life and property is imminent, but are reoccupied when the flood recedes, though the land is fertile and it is affected by floods villages do not exist; and the cultivators live in thatched huts with walls of wattle they can be removed easily by inundation. These settlements may be called as *chhopras*. Compact, occasionally very large villages are found, but sometimes the tendency of hamlets is to scatter in whole of village territory. This depends on the nature of the soil, and partly on the other causes. In Ganga plain where the soil is rich compact large villages are common, and the population is found concentrated in a single site. The basic cause of the growth of compact villages in these areas is the favourable climate, smooth surface and fertile agricultural land around the sufficient water supply at the settlement sites. The physical factors have encouraged continuous intensive agriculture over a long period. So every village looks like a distinct and separate organism with its own individual independent life.

The Tarai and Bhavar belts of U. P. are sparsely populated for a long time due to its damp and malarial climate. In Tarai, Villages houses are built of materials such as straw, grass, reed and wood which are liable to catch fire easily. Such houses are, there-

House Types in U.P.



TWO STOREY

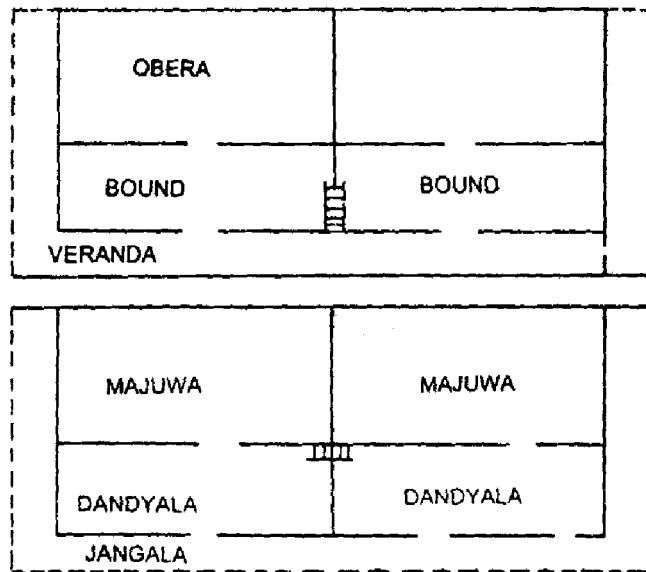
Fig. Bhuminda House Type of Uttaranchal

fore, situated at a distance from each other, so that, if fire breaks out, it might not spread to other houses.

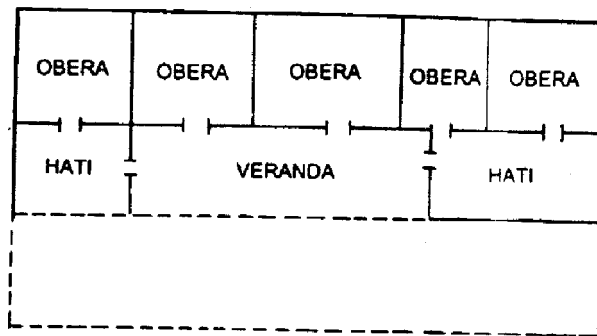
UTTARANCHAL

In Uttaranchal, the variations of climate and local situations produce corresponding differences in house-building have their own style of houses. The houses are of various shape and size, known by different names,. The 'Bhuminda' house or one storeyed thatch house is almost extinct as a dwelling place. In the southern Uttaranchal it is not even usually dignified by the name of a house, but is termed a hut or Jhopra. It is a poor lodging place used for men and cattle. Single storeyed houses roofed with slates are, however, still built. Where the dwellers are poor, is or the astrologers have declared that the construction of two storeyed house is unlucky to the village on the opposite hill. The two storeyed house of Dopura House as it is sometimes called, has usually four rooms, two on ground floor or Obkra and two on the upper storey or Majuwa or Pan. Fig shows Double Storeyed Dopura Houses. Each room has a separate door in the front side of the house, and the upper doors are reached by a stone staircase built up outside. The Dandyala or Bound is the front room of storeyed houses. Its characteristics is a jangala in the face of upper storey, with a number of wooden poles (khamba) supporting the roof. The staircases leading upto the upper storey are approached by a door or Kholi in the front of the house and lies inside the house. The advantage of Jangala which serves as a sitting room, and on hot summer nights as a sleeping room, are so great that in many cases houses have been turned into a Dandyala by building up a Jangala on pillars placed in front of the lower storey. The roof is then brought forward over the Jangala, the space below which is called Verandah. The Hati below Dandyala is of the same dimensions on the ground floor. The Tibari as its name implies is essentially a building with a treble window. This is done by tilling up a small open Verandah such as exists in Hati with four pillars or Khamba of highly ornamental carved woodwork, two being at either end the remaining into trisecting the space between them. Circular arches of similar curved woodwork spring from the tops of the pillar over the three windows thus formed. The pillars are made of tun and other dark coloured timber and the carving evinces considerable skill and ingenuity in the workman.

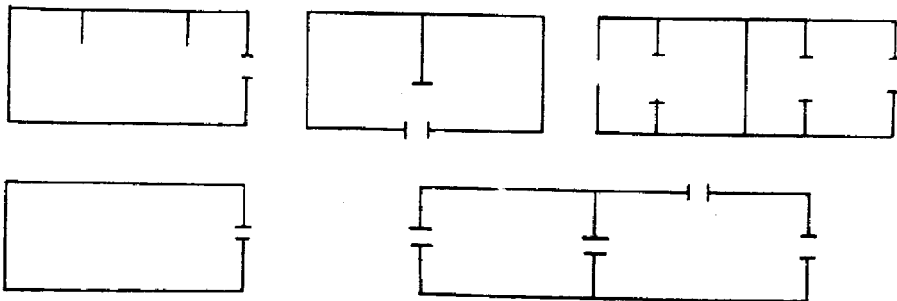
In the Bhotiya valleys of Uttaranchal there are a variety of houses related to the local traditions of each valley unit. The Bhotiya houses are built of stone. The summer residences of Bhotiyas are made of stones and are comparatively more comfortable than the winter residences of Bhotiyas consist to four or five rooms and a kitchen. In fact the real residences are the summer houses whereis some of their cattle dwell and where they do a bit of agriculture. (Negi, 1994)



Double Storeyed Dopura House



ANATOMY OF HOUSES



HIMACHAL PRADESH

In Northern Himachal Pradesh log house is a prevailing house type. Houses are divided into three or four rooms mostly according to the size of their family. Many houses have two storeys. The lower portion of the house, is generally used by livestock and upper floor is inhabited by the family. Wood and stone are the universally employed building materials in Himachal Pradesh, and the roofs are covered with split slabs of wood, or, if available, great rough slates. The hill district of Kangra and Kulu lie more towards the centre of the outer Himalayan range; they show very much the same feature as have been noticed in U.P. Himalaya. The villages of the plain are replaced by detached hamlets scattered along the hill sides and foothills of the mountains wherever facilities of cultivation and other amenities are available. (Negi, 1994)

3.6 SELECT READINGS

Baki Abdul (1994), Gramin Basati (Bengali), Kashban, Dhaka, Bangladesh

Bose, N.K. (1961) Peasant Life in India : A study in India and Diversity in Anthropological survey of India, Memoir No. 8, 1961.

Carter, Harold (1983), An Introduction to urban Historical Geography, Edward Arnold. London

Census of India (1964) Report on House types and Village Settlement patterns in India, Part (V -A (III) vol I, ed by A. Mitra, Govt of India, new Delhi.

Childe, V. Gordon, (1950), "The Urban Revolution", in town planning Review, Vol 21.

Dasgupta, Sukla (1983), Analysis of the processes of the evolution of Rural settlements in the moribund (Ganga Delta, 1921-71, unpublished Ph.D. thesis, Calcutta University, Calcutta.

Davis, K., 1973, Cities, Their Origin, Growth and human impact, San Francisco, W.H. Freeman.

Hall, P., 1984, The World Cities, 3rd ed, new York, Martin Press.

Hudson, F.S (1970), A Geography of Settlement, Macdonald and Evans, Plymouth.

Leong, Goh Cheng and G.C.Morgon, 1982, Human and economic geography, Oxford University press, Oxford.

Mitra, Ashok (1965), 'Village Settlement patterns in India' in Now, October 1, 1965, pp. 23-27.

Mumford. Lewis (1934), Techni and civilization, Seeker and Warburg, London

Mumford, lewis (1961), The city in History, seeker and Warburg, London.

Mandal, R.B, (1988), Systems of rural settlements in Developing Countries Concept, New Delhi.

Negi, B.S, 1994, Human Geography And Ecological Approach, Nath RamNath, Meerut,

Sen, S., and Sen, J. (1989), Evolution of Rural Settlements in West Bengal, 1850-1985, flaya publishing House, Delhi.

Ucko, Peter 4k, etal.ed, (1972), Man, settlement and urbanism, Duckworth, Gloucester, cnescent, England,

Wirth, Louis (1938). Urbanism as a Way of life in the American journal of Sociology, vol 44, M

Unit 4 □ HIERARCHY OF SETTLEMENTS

Structure

- 4.1 Central Place Theory
- 4.2 Rank Size Rule
- 4.3 Urban Housing Policies
- 4.4 Problems of Slum and Squatter
- 4.5 Satellite Town
- 4.6 Rural Urban Continuum
- 4.7 Select Readings
- 4.8 Questions

4.1 CENTRAL PLACE THEORY

The concept of a central place was propounded by Walter Christaller in 1933 which implies in itself the importance of a centre as a focal point. This importance is generated by the offering of goods and services, the size of the complementary area, and the number of people coming to the central place. All three are interrelated and each exists because of the others. The importance of a place would increase with the number and hierarchical order of the goods offered. It would also vary with the size of the complementary area. Central places serve the people living within the central place as well as those living outside it but within the complementary area. Establishments and goods offered exclusively for the people of central place will not, in theory contribute to the centrality of the place. Every central place, by definition, has a surplus of goods and services that are offered to the people of the complementary area. It is this 'surplus' that constitutes the centrality of a place.

The propositions of the Theory.

The substantive part of the central theory consists of a set of propositions that explain the nature of relationships between central places, their complementary areas, and the hierarchical systems of settlements. The propositions are normative in nature and are based on a number of efficiency and optimality criteria. These propositions are discussed below.

(a) The Uniformity of the settlement Landscape.

The central place theory assumes that the landscape of settlements is uniform with respect to terrain, resources, distribution of population, and income levels of people. In other words, the landscape is assumed to be an isotropic plane. It must be remembered that the theory is dealing with an ideal situation.

(b) *The shape of the Complementary Area.*

The entire landscape of settlements is to be fully served by a set of uniformly spaced central places, wherein no part of the area is left unserved by a centre and no area is served by more than one centre. Hexagonal complementary areas satisfy the Optimality conditions specified above. In addition, the hexagonal shape corresponds closely to that of a circular area around a centre.

(c) *Number of Central Places.*

The optimality of central places is seen from the point of view of efficient distribution of goods and services to the population of the region. The cost of distribution is minimized in this system by having a minimum number of central places; hexagonal complementary areas ensure a minimization of centres.

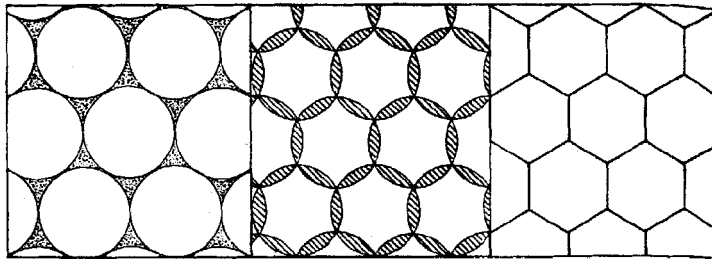


Figure Circular and Hexagonal Complementary Areas

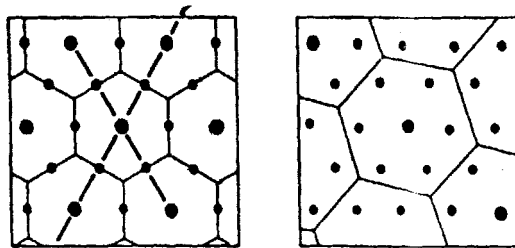


Fig. The central place system when $k = 4$ and $k = 7$ (based on Hagget, P., *Locational Analysis in Human Geography*)

(d) *Hierarchical Levels.*

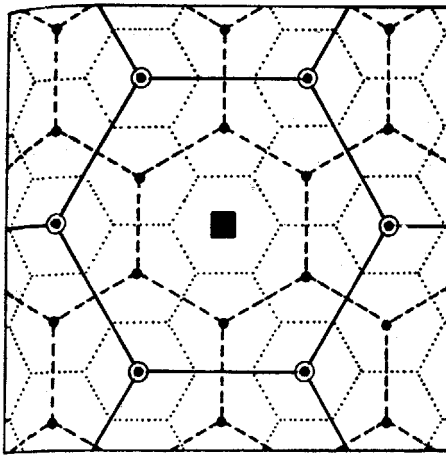
The great variety of goods and services required by people necessitates their availability at a number of hierarchical levels of central places. Again, from the point of view of minimization of the number of central places, the number of hierarchical levels also has to be a minimum, to make the system fully efficient. The number of hierarchical levels of central is minimized by accommodating the maximum number of functions at each hierarchical level.

(e) *The Pattern of Nesting.*

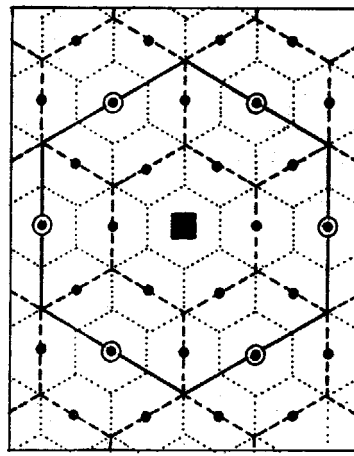
For each hierarchical level of central places, there is a corresponding network of hex-

agonal complementary areas. The lower order hexagonal networks nest within the higher order network, since they all cover the same territory. The geometrical pattern of nesting is again determined by certain optimality considerations. Christaller envisages three such criteria. They are: (a) **the marketing principle**, (b) **the transportation principle**, and (c) **the administrative principle**.

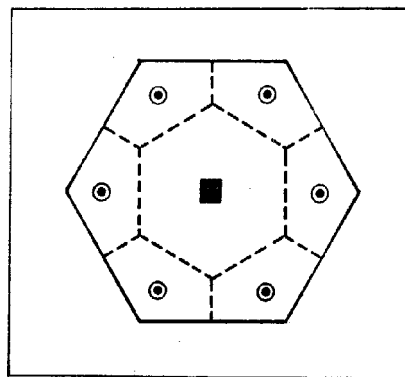
(a) **The marketing principle** assumes that the number of central places of lower order would be the minimum required in relation to the number of place of immediate higher order. This arises from the dynamics of central places, with the growth of population or incomes, goods earlier offered only



A Marketing Principle



B. Transport Principle



C Administrative Principle

in higher order places will now be offered in the next lower order centres as well. In such a situation, if the number of lower order centres within each higher order centre is the minimum, then it would add to the efficiency or

optimality of the system. The exact geometry of nesting on the basis of the marketing principle follows the rule of three. The k factor, which in the marketing principle is equal to 3, determines the relative spacing of centres of lower order and immediate higher orders, as also the relative number of lower and higher order centres, and the geometrical system in which the hexagons of different hierarchical levels fit into one another.

Under the principle, lower order centres are located at the vertices of the hexagonal complementary area of the next higher order centre. Thus, the areas farthest away from a higher order central place are served by a lower central places, thus compensating for the disadvantage of their location. This factor contributes to the greater accessibility of the system of central places to the general population.

(b) The transportation principle involves the minimization of the length of roads connecting central places at all hierarchical levels. In this system of nesting, the lower order centres are all located along the roads linking the higher order centres. This alignment of places along a road leads to minimization of road length. However, for each higher order centre, as opposed to three centres under the marketing principle.

(c) The administrative principle emphasizes the notion that complementary areas of lower order centres should lie entirely within the limits of the complementary areas of the next higher order centre. Such a principle is inherent in any administrative territorial system. In India, all outer tehsil boundaries coincide with the district boundary; likewise, all district boundaries are enclosed by the state boundary. This is an administrative necessity. A hexagonal system of complementary areas with a K factor of 7 gives a network that approximates to this principle. However, the geometrical fit here is not exact and the shapes of the complementary areas need to be modified to give an exact fit.

Measurement of centrality

In order to measure the centrality of a place he suggests that the number of telephone and its relation to population density be taken as a criteria.

$$C_t = \frac{T_t}{E_t} \quad \text{Where } C_t = \text{Centrality of tower } t$$

(or centrality index)

$$T_t = \text{number of telephones}$$

in town

$$E_t = \text{population of town } t$$

T_r = number of telephones
In the region

E_r = population of the
Region

A town of 100,000 population with 15,000 telephones, is situated in a region where there is a total number of 25,000 telephones and 250,000 population, The centrality of that town would be

$$C_r = 15,000 \quad 100,000 * 25,000 / 250,000$$

$$C_t = 5,000$$

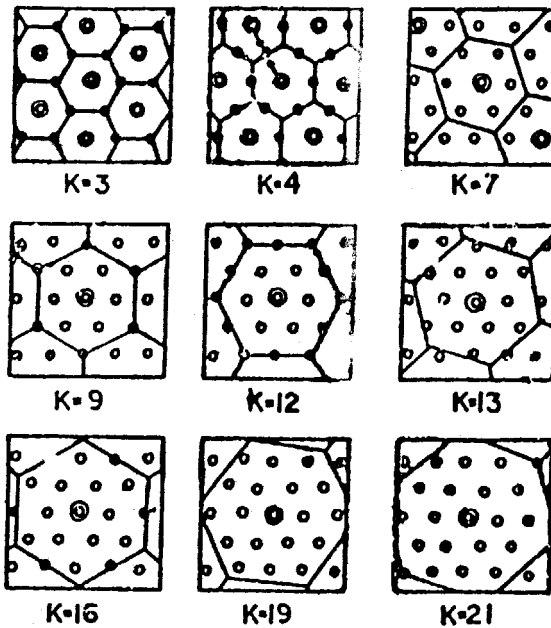
Christaller's examples from South Germany serve to verify his theory as we as provide tests for the practical methods suggested by him.

Since its publication Christaller's theory central places it has been criticized by many geographers prominent them German economic August Losch (The Economics of London, 1954). Like Christaller, Losch used concepts similar threshold and range. According to Losch, single supply point (central place) does not necessarily have only a single market area. Rather, the size and alignment of the market areas of different functions vary around the same central point. For example, a central place draws customers from a much larger area for its jewellery shop than it does for a grocery or a dispensary the tributary area for the two will not coincide. Naturally Losch's model is a superimposition of these different hexagonal market areas around the central places. Since the number and nature of functions vary from one centre to another, the simple ordering system of Christaller's model is absent. The number of centres do not increase by affixed ratio from one level to another, so that the k value is not constant. There is flexible k value rather than a fixed one. Even though the Loschian model appears more complicated than that of Christaller, it is perhaps more realistic.

Variable K Hierarchy of Losch

In 1954, Losch used the same hexagonal lattices for his theoretical landscape, but he did not consider fixed K system ($K=3, K=4$, and $K=7$) as Christaller. He developed a more sophisticated form of economic landscape by super imposing all the various hexagonal systems. By super imposing all the lattices on one point, and rotating them he achieved six sectors with many relatively higher order central places as city rich sectors, and six sectors where relatively poor sectors are found, he considered them as city poor sectors.

Thus the contributions of Losch is mainly regarding the market areas, because his K values are variable. In marking the central place hierarchy he considered the bottom top approach. Losch also hypothesized that individual demand decreases as the distance of the consumer increases from the point where the goods are offered.



Christaller and Losch Compared

Christaller's Idea	Losch's Idea
1. Region-South West Germany	1. Iowa.
2. Isotropic Plain Surface	2. Isotropic Plain Surface
3. Begins with city level Centres	3. Begins with village level least specialized centres.
4. Suggested Hierarchy from higher order goods to the lowest	4. Suggested Hierarchy from village level goods upward.
5. Considered triangular arrangement of production sites, retail stores and hexagonal market areas, having uniform population density, unbounded plain and equal access in all directions ,	5. Considered triangular arrangement of production site, retail stores and hexagonal market areas, having uniform population density, unbounded plain and equal access in all directions.

Christaller's Idea	Losch's Idea
<ol style="list-style-type: none"> 6. Christaller required that all lower - level centres location take into account location of larger centres. 7. Fixed-K values of $K = 3$, $K = 4$, and $K = 7$. 8. Location and functions of central places obtained for one 60° sector radiating sector from metropolis. 9. Christaller produces central place hierarchy in which there are four levels of centres and goods. 10. Relevant for analyzing wholesale and retail business 11. Christaller's agglomerative requirement is for travel cost minimization by rational consumers on multipurpose trips. 12. In Germany smaller central places are larger in number in comparison with higher order centres 13. All places in a particular tier are the same size & have the same function. 14. Number of central places be minimized. 15. All higher order centres contain functions of the smaller central places 16. Different hierarchical levels have differential supply of goods. 17. Model developed by the market areas of consumer behaviour pattern. 	<ol style="list-style-type: none"> 6. Losch derived a variety of and tried to assemble those overall pattern. 7. No fixed K value. 8. Location and functions of central places obtained for one 60° radiating from village level enters. 9. Losch derived a more diversified economic landscape in which centres specialize. 10. Provides a framework for the spatial distribution of market oriented manufacturing. 11. Not necessary for hierarchy of Losch 12. Such a condition is not found in 13. The same size central places need not have the same function. 14. All excess profits be eliminated. 15. Larger centres need not have the function of lower order. 16. One centre may be a supply centre for all goods. 17. Model developed by consumer behaviour pattern Imposition of fishnets demand comes of different goods threshold range.

Criticism of Central Place Theory

1. Christaller's central place theory is concerned with central place activity, and central functions for the hinterland. Other aspects such as places of residence or industrial centres are not considered besides the sites of:

- availability of mineral resources;
- favourable climate;
- strategic position;
- growth of a port;
- railway expansion; and
- urban overspill requirements

2. Central place theory may have played a significant role in the development of settlement in an agricultural area, but does not work well in industrial areas.

3. There may be planned delay in establishing full services in 'new town' until they increased their population.

4. The theory does not work in areas where the industries are expanding or retarding.

Central Place systems in India

The key elements of the central place system of settlements are: (a) The hierarchical ordering of settlements and (b) the even spacing of settlements of different levels under ideal conditions of near homogeneity. The theory, it must again be emphasized, is normative in character and as such it is not correct to ask whether the theory empirically valid at the national or regional level in India. On the other hand, it is pertinent to ask whether the settlement system in India, at the national or regional level, approximate to the ideal central place system. No real ward settlement system can be expected to conform to all reposition of the central place theory. There are bound to be deviations. Nevertheless, comparisons are possible and can give us newer insights into our national and regional settlement system. India has a six-level hierarchy of settlements from the point of view of administration. This hierarchy of places and areas has practical relevance and meaning in the every day life of people in India. Thus, we have the national capitals, 24 about 400 district headquarter cities, over 2,500 tehsil towns, and finally slightly over 5,000 block development centers.

In addition, there are nearly 2,00,000 gram panchayat center, which provide some services to the adjoining clusters of hamlets and smaller villages. The national

and state capitals are in reality important metropolitan cities; most, if not all, headquarterters of districts and even tehsils are recognized urban place. At the block level, however, though a majority of the block headquarters are large villages, sometimes with a population of 5,000 persons or more, most of them are not recognized urban place. Gram panchayats are, by definition, rural in character; but as they also provide a variety of services to the neighbouring hamlets, they are central place of the lowest order.

The administrative hierarchy of settlements in India, however, appears to differ considerably from the central place system under the administrative principle as postulated by Christaller.

Theoretically, one would expect a ratio of 1:7 between the number of settlements of higher and lower orders. In India, the ratio of districts to states is almost 1:19, while there are as many as 40 gram panchayats per community development block. The number of tehsils per district is slightly over six and this corresponds to the administrative principle fairly closely. Again, from the theoretical point of view, the spacing between settlements of lower and higher orders should increase by a factor of 2.6; in most cases, on India, this ratio is much larger. Here again, the spacing of tehsil and district level centres conforms to the theory. Thus, the limited.

Administrative Hierarchy of Settlements in India

Hierarchical Level	Number of Settlements	Spacing between Settlements (km)	Population Served (in lakhs)	Area Served (sq km)
National capital	1	—	6840	32,80,543
State capital	25	428	311	1,49,116
District headquarters	412	100	17	7962
Tehsil headquarters	2,500	40	2.8	1,250
Block headquarters	5,026	30	1.4	652
Gram panchayats	2,00,000	5	0.04	20

Note: A gram panchayat may include one or more revenue villages. In some cases, tehsils and blocks are one and the same unit. However, in a majority of cases, there are two or three blocks in a tehsil. The data on number of tehsils and gram panchayats is approximate.

Evidence available to us provides a mixed bag of agreements and disagreements between theory and reality. Nevertheless, an administrative hierarchy of places does exist, though the number and spacing of the different hierarchical levels of places is far from the ideal.

The administrative hierarchy of settlements is, however, only one aspect of the settlement system. We could also look at the hierarchy of places from other angles. A system of hierarchy of places commonly recognized in India is based on the Census of population. The Census organization has, for the past several decades, consistently recognized ten categories of settlements. These range from the million cities to revenue villages with a population less than 500, which in India are in fact hamlets. This categorization of settlements is based only on population size and has an element of arbitrariness in that population limits of various categories are not based on any specific rationale. Nevertheless, categories of places, such as million cities, one-lakh cities, medium towns, small towns and so on are fairly widely accepted and have some significance in reality. In other words, the population size of a settlement bears some relation, even if approximately, to the centrality of a place. It is remarkable that, in spite of the various constraints noted above, the settlements in India bear a close similarity to the theoretical central places system based on the marketing

$$P_R \times R = P_1 \quad \text{where} \quad P_1 = \text{Population of the largest city}$$

R = Rank of any city

$$\text{Or, } P_R = P_1 / R \quad P_R = \text{population of the city with rank } (R)$$

If the population of the largest city is 50,000, the population of 5th ranking city (P_5) = $50,000 / 5 = 10,000$.

If this relationship is valid, plotting population against rank on a normal graph would produce an inverted J shape (the reverse J frequency distribution). If the graph is plotted with logarithmic values on both scales ($\log p_r = \log P_1 - \log R$), the variables assume a linear relationship. However, the study of rank-size relationship becomes a mere statistical exercise, unless a theoretical base is also established together with its empirical validity. (Ghosh, 1998)

Already told that the credit for the formalization of this rules goes to G. K. Zipf. In his study of the 100 largest metropolitan districts of USA in 1940. Zipf argued that when this relationship held throughout a country, it indicated that national unity is maintained through an integrated urban system. A country then is expected to have a settlement system with rank hierarchy, based on population and decreasing number of units with higher rank.

Factors Affecting Rank - Size Rule

Now let us discuss what are the factors which affect rank - size rule. In a case study of Tanzania, Mandal (2000) states that the factors like administrative organization, transportation linkage, industrial development and commercial spread have played a multiple role in changing the rank-size relationship of urban place/ of that country. He further goes on to say that, the diamond mining and industrial centre strong centripetal force attracting people to exploit natural resources. Moreover, all the ports such as Dar as Salaam, Tonga, lindy and Zanzibar have strong force of transport, commercial development, center of break -ofbulk and favorable coastal-cum-administrative position which have helped these centers to obtain leading position in Tanzanian urban rank-size hierarchy.

The population change in any centre within a certain time interval change the rank of a centre. The rank of a centre depends upon the hierarchical arrangement of the nodality value which is population size or an index based on different function available at a place. The latter may depend upon the provision of administrative and transport facilities and the developments of commerce and industry. The disproportionate development of these facilities causes variation in the centripetal forces involved in the growth of urban with their greater force of attraction, the large centers developed at greater distance, while the towns and villages a close proximity to each other. Now a days; this concept of close proximity system changed with the introduction of quick, transport; people now generally move from one village to another on foot which involves a certain amount of time. The smaller enjoys the facility of buses so that the inhabitants can also move from one certain to another more quickly. The bigger towns have train facility for travels between them. The development of airways has connected one city centre to another. Hence, a travel by the above means does not consume much more time than the movement from one village to another on foot. This show the expansion in the zone of influence and spatial pattern of an urban centre based on transports facilities, which also control the rank and number of different order of urban places. The large centers are more widely spaced and, therefore, fewer in number while the small towns are larger in number and more closely spaced. This regularity proved that as the centrality of places increases, the number of urban places decrease depending rank-size rule. Rank-size on the Basis of Metropolis in India'1981 census has recorded 12 metropolitan cities in India. They are Calcutta (91.65), Mumbai(82.27), Nagpur(12.

97), Lucknow (10.06), and Jaipur (10.04), besides seven others, fig show that in the metropolises of India the rank-size rule cannot be applied as the metropolis of Mumbai & Calcutta both act as primate cities. Both of these are industrial, commercial and transport centers according to rank size rule as the population of Calcutta 91.66 lakh then the second rank metropolis Mumbai should have a population of about 46 lakhs but in reality it has a population of 82.27 lakhs. This shows that they are the growth poles of separate physiographic units and their economic, political, physical and social development are quite different from each other.

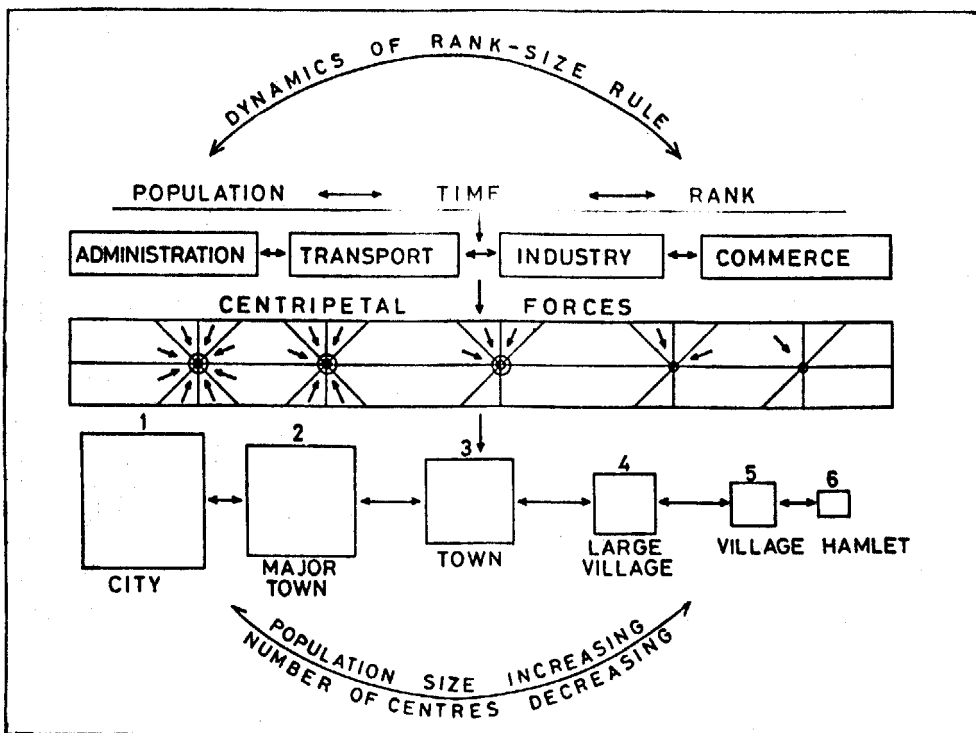


Fig. Model of Rank-Size Rule

TABLE; Rank-size Rule of Metropolis in India, 1981

Metropolis	Population	Rank	Estimated Population From Calcutta	Estimated population from Jaipur
1. Calcutta	91.66	I	91.66	120.48
2. Mumbai	82.02	II	45.83	110.44
3. Delhi	52.27	III	30.85	100.40
4. Chennai	42.76	IV	22.91	90.36
5. Bangalore	29.13	V	18.33	80.32
6. Hyderabad	25.65	VI	15.27	70.28
7. Ahmedabad	25.15	VII	13.09	60.24
8. Kanpur	16.85	VIII	11.45	50.20
9. Puna	16.85	IX	10.18	40.16
10. Nagpur	12.98	X	9.16	30.12
11. Lucknow	10.06	XI	8.33	20.08
12. Jaipur	10.04	XII	7.63	10.04

The rank- size rule fails almost totally in the Indian context. Mumbai and Calcutta, the first and second ranking cities have nearly the same population today. In fact, all class I cities have much higher populations than would be justified under the rank-size rule. On the state level, according to Ramachandran, 1981 Census data shows that the rank-size relationship holds good only in the three states of Rajasthan, Haryana and Uttar Pradesh. In its rigid form then, the rank- size rule is rather difficult to accept. However, it is true that the sizes of settlement do decrease with rank and near rank-size relationships occur often enough to merit an explanation.

The rank size- rule shows that there is a gradual change in city size while the primate city model introduces the idea of a first city which is several times larger than the second. In fact, the concentration of people services in that city is such that it dwarfs all other settlements, Large-scale in migration results in a steady rise of population, which are a cause for, as well as the effect of the concentration of functions within this city. With the initiation of the process, such a settlement continues to attract people, materials and

functions, Hence, this settlement grows fast often at the cost of other settlement, to become the dominant settlement, i.e. the primate city. The cities of the next rank fall short both in population, as well as complexity of functions.

The idea of primacy was formulated by Mark Jefferson in 1939 in a paper entitled 'Law of the primate city'. He noted that the population of the first ranking city was often more than double that of the second city and five times that of the third. According to Jefferson, the largest city will be super city not merely in size but in national influence. Such a city dominates the cultural, economic and political scene of the entire region. So this law is a direct contrast to the rank-size rule suggested two years later by G.K. Zipf. (Ghosh, 1998)

Jefferson's statement was propounded from an inductive and empirical base and there are many examples to justify the idea of primacy. The old saying 'all roads lead to Rome' suggests the primacy of Rome in ancient times when it dominated the political and cultural scene of the whole of Western Europe. At different periods of history, Stockholm, Oslo, Paris and Brussels were primate cities in their regional context. In ancient India, Pataliputra of Magadha could be called a primate city. In India today, primacy is found in certain states (e.g., Kolkata, W.B.) although it is not found applicable for the entire country's urban system.

The empirical validity of a primate city concept is easy to establish. The emergence of the primate city can also be deduced from the sequential growth of an urban system allowing for certain pre-conditions. It is possible to visualize the first cities as dispersed centers of equal status, each surrounded by many villages. As the urbanization process continues, it leads to an increase in the number and size of cities, each with its links to specific villages and other cities. Such uniform system would be disturbed if any one city acquired additional advantage through greater interaction and thus will grow faster than the others and ultimately becomes the primate city.

In fact, Primacy represents a pattern of urbanization especially found in developing countries where there is one city having a population in excess of those next in size. Such primate, 'super eminent' cities dominate the urban system. Often primate city grows at fast rate than the rest of the urban centers, reinforcing its primacy in many ways. One benefit of primate cities is rapid industrial progress, and some scientists believe that primacy in underdeveloped countries is a necessary stage in economic development.

Britzkas (1973) discussed the following eight basic factors which are generally found in primate cities like Dar es Salaam in the developing countries of the world:

1. Agglomeration of manufacturing and territory sectors.
2. Harbour for sea-port and airport facilities of international standing as well as commendable site and situation for originating transport and communication lines to the country's interior.
3. Presence of technical infrastructure and services.
4. Banking facilities and proximity to government offices.
5. Relatively large local markets with substantial purchasing power as well as a commanding location in relation to national markets.
6. Availability of a large pool of labour including specialized skills.
7. Superiority in educational, cultural and entertainment facilities.
8. A social environment attractive to foreign investors, entrepreneurs and specialists. (Quoted from fflandal, 2000).

A primate city always grows out of a settlement which has a situational advantage that allows for greater interaction, often with foreign economics. These cities are also the seats of power. Historically, these were the capital cities of empires (such as Rome and Pataliputra). Later examples such as Calcutta or Bangkok can also be identified with political power. The primacy of these cities was initially due to particular historical processes. This happened to be colonization and the greater degree of activity in case of Calcutta while it was the concentration of monarchical power and accessibility in case of Bangkok. Once a primate city system is initiated, it normally sustains itself. It continues to grow even when other cities of the region either stagnate or decline. The growth of Calcutta in the last three hundred years has been accompanied by the decline of other urban centers of Bengal such as Murshidabad and Baharampur. There have been several studies to establish a theory that can explain primacy. Berry and Horton in **Geographic Perspectives in Urban Systems**, made a country-wise analysis. They found that primacy occurs mostly in: (a) small countries engaged in the production of a relatively few commodities (such as Austria, Sweden, Netherlands and Denmark); (b) countries with commercialization superimposed on a subsistence level peasant, agricultural system (such as Sri Lanka and Mexico); (c) small countries with simple subsistence economies such as Thailand and (d) countries which traditionally have been empires such as Portugal. Although the examples given by the

authors are valid, they are not sufficient to explain every case. The trend towards primacy seems to be the characteristic feature of the third world urbanization principle. In this system, the ratio of spacing of higher order centers to the immediate lower order centers is 1:1.72. The actual ratios of spacing of settlements in India vary from 1.41 to 1.83, barring two exceptions. The major exception relates to the million cities, which appear to stand apart as primate cities. A second exception distinguishes between the level of settlements with a population of 5,000 or more and the level below it. This is in the nature of a rural-urban demographic divide. It does appear from the foregoing that a rough approximation to the central place settlement system does obtain at the lower levels of the settlement hierarchy in India.

The evidence that we have examined here cannot be taken as conclusive proof of the existence of an ideal central place system of settlements in India. In fact, this is far from the truth. However, the usefulness of central place theory will become more apparent when we take up the study of settlement systems at the empirical level. Since this involves a wide range of uses it will be considered in depth in the following chapter. The central place theory it may again be emphasized, cannot be rejected entirely on the basis of empirical evidence, nor can it be accepted without any reservation.

4.2 THE RANK-SIZE RULE

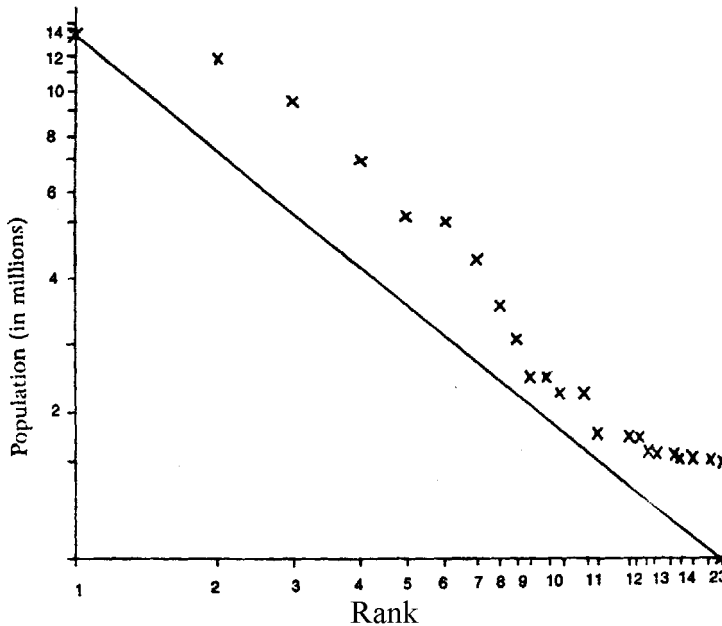
Geographers are interested in the relationships between towns and cities of different sizes and their spacing in the landscape. They observe that there is some sort of order or logic underlying the size relationships and spatial distribution of towns. It is a fact that the settlements do not grow up in a haphazard or random manner, rather there is a measurable degree of order found in their size and spacing.

Every one of us knows that in any large region there are many small towns, a smaller number of medium size towns and relatively few large cities. This holds true for all regions of the globe irrespective of the stage reached the degree of urbanization. This regularity is vivid when relationship between city rank and any population size are examined.

The cities in any region may be ranked from largest to smallest according to their population size. So the largest city rank (No) 1, the second largest (No) 2, continuing in this way down to the lowest ranking towns. It was first noticed by F. Auerbach in (1913) that when the rank numbers are plotted against their respective populations a regular relationship generally emerges. The rank-size rule, proposed by G.K. Zipf in 1949, attempts to express this relationship in more precise mathematical terms and states that 'if all the urban settlements in an area are ranked in descending order of population, the population of the n th town will be $1/n$ th that of the largest town'. In other words, the population of urban settlements in a region can be arranged in the series $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \dots, \frac{1}{n}$. In other

words, the population of a city of rank R (P_1) can be calculated by dividing the population of the largest city (P_1) by the rank R .

This can be stated symbolically as :



The straight line denotes the hypothetical or ideal condition under the rank-size rule. The distribution points show the random growth of Indian cities with both binary and primate trends

Rank-size relationship for 23 metropolises in India (1991).

Census Classification of Indian Cities

India's cities were first classified in terms of functional categories by Amrit Lal using the 1951 Census data. This study included 67 one-lakh cities. However, the classification suffers from a number of methodological deficiencies, and in fact does not even list the 67 cities according to the functional groups into which they have been divided. Asok Mitra has attempted a classification of all towns and cities common to the 1961 and 1971 Censuses. Of the two methods employed by Ashok Mitra, the earlier method is more satisfactory. His second classification employs a rather complicated quantitative procedure of factor and cluster analysis. Various grouping procedures of Mitra were also adopted by Qazi Ahmed for classifying the one-lakh cities in 1961. The defect in Ahmed's classification is that he uses in all 63 variable, most of which are neither relevant or meaningful to the classification of Indian cities. Ashok Mitra's application of the factor method is more judicious; but given only six functional categories, there is hardly any justification for the use of factor analysis.

The 1964 Classification by Ashok Mitra

A composite classification system based on predominant function was done in 1964 by Ashok Mitra. This study was based on the 'industrial' classification of all workers in to nine different categories adopted in the 1961 and 1971 census. These are stated below.

Table : Composite classification based on predominant function

Census industrial category	Description
I	Cultivation
II	Agricultural labour
III	Forestry, fishing Plantation, mining quarrying etc.
IV	Household industry
V	Manufacturing and other than household industry
VI	Construction
VII	Trade and commerce
VIII	Transport, storage and communication services

The first two categories are totally non-urban activities, so they have not been taken into consideration for this classification system.

Table : Three functional types and their categories

Functional type	Census industrial categories
A Manufacture	III, IV, V & VI
B Trade and Transport	VII & VIII
C Services	IX

The third category falls under both urban and non-urban activity. While mining and plantations can bring about the establishment of urban centre, forestry and fishing generally fail in this direction. The rest of the categories were then grouped under the three broad functional types of manufacture, trade and transport and services. The total number of works out in these census categories was taken to be 100% and the percentage for each single category was worked out for a city accordingly. The next step was to place towns under the following broad functional types. These were manufacturing towns, trade and transport towns and service towns. The first two were further subdivided into three and two classes respectively, so that there were six classes in all. The criteria for each class were clearly indicated.

Table : Subclass and criteria for three functional classes

Class	Subclass	Criteria
1. Manufacturing town		Percentage of workers in A greater than in B or in C by 20%
	a. Mining	Percentage of workers in III greater than IV or VI considered individually, by 10% or more.

Class	Subclass	Criteria
B. Trade and Transport town	b. Antisan town	Percentage of workers in IV greater than that in III, V or VI by 10% or more.
	c. Manufacturing town	Percentage of workers in V greater than that in III, IV or VI by 1% or more.
		Sum of the percentage of workers in VII and VIII together more than the sum of A or in C by 20%
C. Service Town	a. Trade town	Percentage of workers in VIII greater than in VII by 10%
	b. Transport town	Percentage of workers in VIII is greater than VII By 10%.
		Percentage of workers in IX greater than in III, IV, V and VI together or, VII, & VIII. together, by 20%.

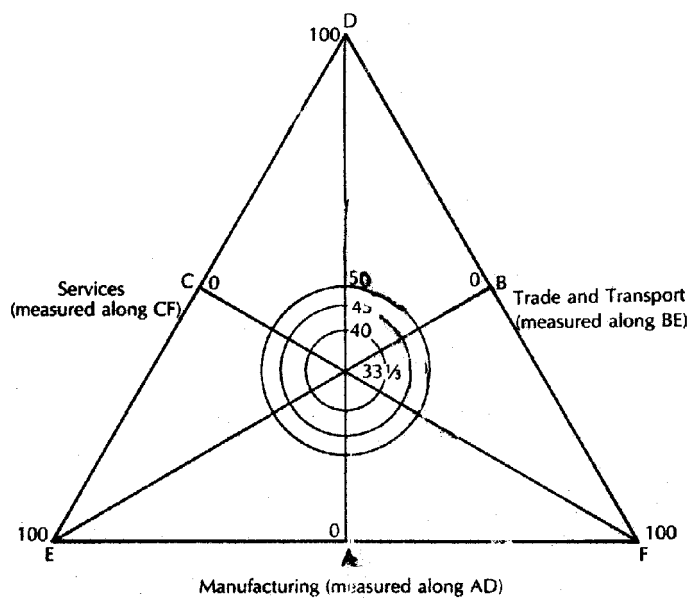


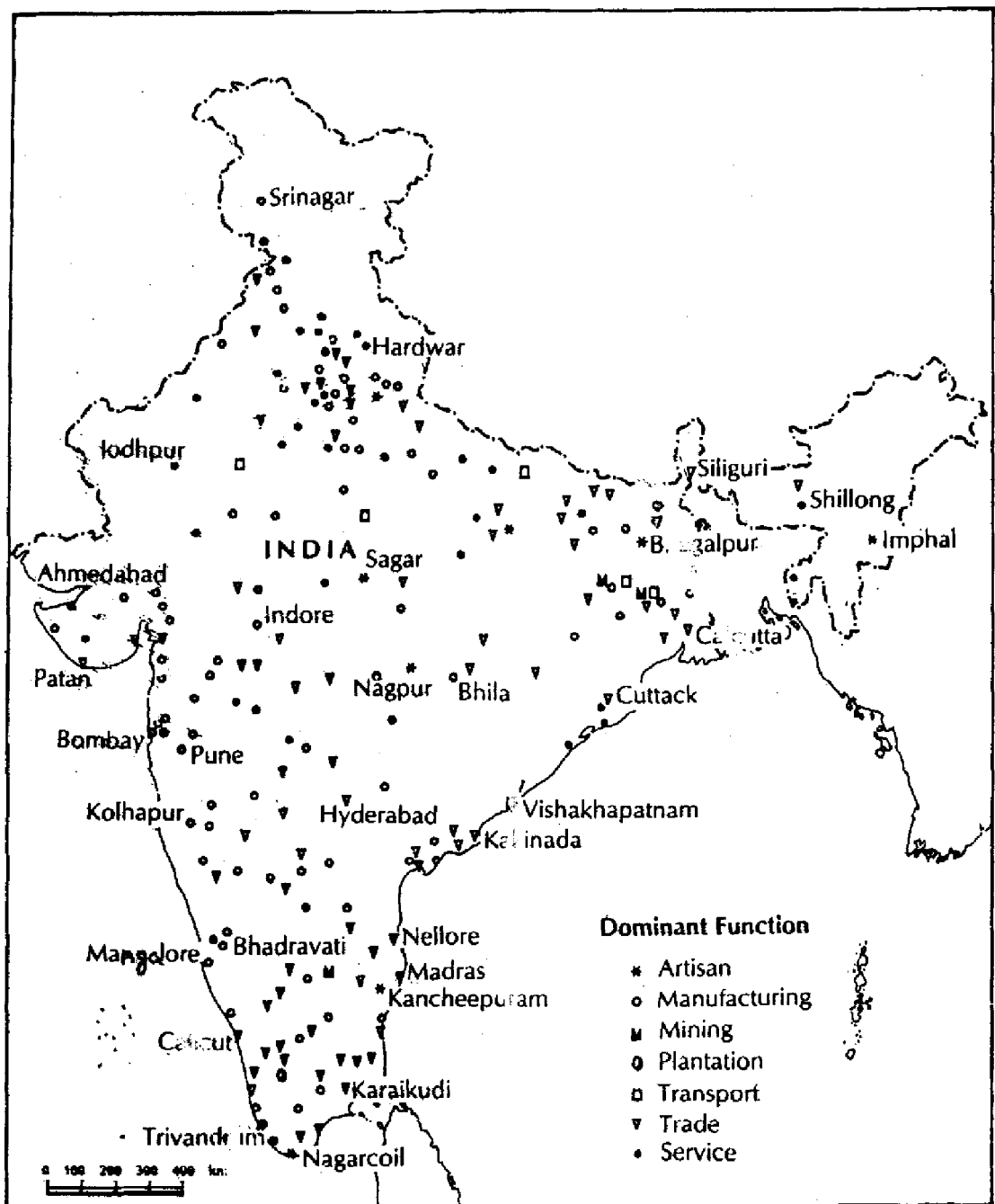
Figure : Ashok Mitra's Triangular Method for Measurement of Degree of Specialization in Functions.

A triangular graph was used to visually represent this classification method. The three medians of an equilateral triangle, graduated from 0 to 100 formed the axes representing the three major group A, B, and C. For any town, the number of workers in these three groups could be plotted as a percentage of the total number of workers, along the three axes. The in-centre of this triangle represents the maximum diversification of function i.e. where each type has 33.33 percent workers. Away from this point specializations increases. Three concentric circles are drawn now from in-centre with radii $62/3$, $112/3$, $162/3$, Units. These intersect the axes at 40 percent and 50 percent marks respectively on the higher side.

A city which falls within the first circle has higher balance of functions with no group having more than 40 percent of the total workers. Cities which fall between the first and second circles will have moderately balanced functions with each group having 40 percent to 45 percent of the total workers. Cities which fall between the second and third circles will have one group dominant, with 45 percent to 50 percent of the total workers under the category. *Lastly , cities falling outside the third circle have one group highly dominant with more than 50 percent of the total workforce. This is labelled a specialized town*

<i>Degree of Specialization</i>		<i>Code</i>	<i>Location in triangle</i>
I	Predominant function highly accentuated	PEHA	Outside the outer circle (third circle)
II	Predominant function accentuated	PFA	Between the second and third circles
III	Functions moderately diversified	FMD	Between the first and the second circles
IV	Functions highly diversified	FHD	Within the first circle

Ashok Mitra classified 2,528 towns and cities in India which were included in both the 1961 and 1971 censuses . All of these were classified on the basis of their non-primary industry categories of workers in the manner described above. However, of the 2528 towns, as many as 736 agriculture town, in the sense that the total number of workers in categories I, II and III exceeded the number of workes in the three basic non-agricultural groups. Of 1,792 non-agricultural towns, 655 were classified as manufacturing towns, 708 as trade and transport towns and 429 as service towns.



Functional Classification of Indian Cities (based on Asok Mitra's 1971 classification).

The artisan cities are few in number, eight in all. Of these, Kancheepuram in Tamil Nadu and Sagar in Madhya Pradesh have a high degree of specialization. Other cities in these category are Varanasi, Bhagalpur, Nagarcoil, Imphal, Sambal Gondia. Transportation is a major specialization of the cities of the coal mining area, namely, Dhanbad, Assansol, and Ondal. The railway cities of Kharagpur and Bhusawal also have a specialization in transportation. Valparai in the Anamalai Hills of Tamil Nadu is the only city with a specialization in plantation (tea) industry, while Kolar Gold Fields in Karnataka and Bermo in Bihar have a specialization in mining activities. (Ramchandran, 1989)

To conclude, it may be said that specialization in trade, service, mining or transport occurs only in a handful of cities. Though these are important deviant or exceptional cases, their numbers are too insignificant. The diversified city with multiple functions including manufacturing, trade and service constitutes the most common and representative type of city. The Indian urban system is indeed basically a system of diversified cities.

The 1981 classification by Mitra, Mukherjee and others

The 1981 classification is largely based on Shekhar Mukherji's techniques devised for the study of migration and circulation. Together with classification, it worked out the hierarchy of towns, based on functions. The methodology involved factor analysis -cum - distance analysis-cum -hierarchical cluster analysis. Working with a data matrix of 1466 (number of towns) X⁹ (category of workers), computer assistance was imperative. Both the 1961 and 1971 census data was analysed and the changes between the two decades were taken into account. The result showed twentyfour cluster types for classes into which towns were to be categorized. This operation was done separately for 1961 and 1971 data, and the classes listed for the two did not always have the same criteria for the same cluster number. For example, cluster number in the 1961 list was very high in transport (above 60%) but very low in other functions, while cluster in the 1971 list was high in trade (60%) and low in others.

The complicated process of analysis and the large number of classes make the application of this method difficult. In comparison, the brief and simple 1964 method is a better form of classification. Moreover, with so much mathematical manipulation, the ultimate classification of a city does not vary much between the two methods of classification. That is, for all three, Calcutta appears to be a city with diversified functions. (Ghosh, 1998)

Classification of Cities : The one-lakh cities, classified by Ashok Mitra along with the smaller towns are easier to examine in terms of the range of specialization and spatial patterns. The 219 cities (1981) fall into seven categories among which cities specializing

in manufacturing ,trade or service are by far the most numerous. There are 80 manufacturing cities ,78 trading cities and 41 services cities .The manufacturing cities have a greater tendency for specializations ,with as many as 26 cities with a high degree of specialization . Only 3 trading cities and 6 service cities show such a high level of specialization (table)

The leading manufacturing cities which show clear specialization are Ahmedabad, Jamshedpur, Ulhasnagar, Ludhiana, Salem and Solapur. Manufacturing cities are distributed widely all over the country from Tamil Nadu in the south to Bihar and Uttar Pradesh in the north and Maharashtra and Gujrat in the west. Kerala and Assam, however are not represented. The three cities which have a high degree of specialization in trade are Vijayawada in Andhra Pradesh, Siliguri in West Bengal and Katiha. The trade cities show a lower level of specialization and are distributed widely over all the states in India. The service cities like the trading cities are also ubiquitous in terms of spatial distribution Chandigarh, Dera Dun, Bhubaneswer, Shillong and Agartala are the only cities that have a high degree of specialization in services.

Functional Classification of Indian cities (based on Ashok Mitra)

City type of cities	Code	Degree of specialization				Total Number
		FHD	FMD	PFA	PFHA	
		Number of cities				
1. Manufacturing	MMt	17	28	9	26	80
2. Artisan	MA	2	2	2	2	8
3. Mining	MMg	-	-	1	1	2
4. Plantation	Mp	-	-	-	1	1
5. Trading	TTg	22	35	18	3	78
6. Transport	TTg	-	1	3	5	9
7. service	SS	8	15	12	6	41
Total		49	81	45	44	219

Functional Classification Based on 1991 Census

Table : The functional classification of Calcutta

1964 method (1961 census)	Function highly balanced, main function trade and transport, sub type trade, low industry, moderate service
1981 method (1961 census)	Cluster 22; moderate manufacturing (around 33%) moderately low (25%) moderately low service (25%)
1981 method (1971 census)	Cluster 4 moderately low trade (25%) low service (20%) low others.

M. K. Jain has attempted a function classification of Indian cities following Mitra's (1971) methodology. Apart from identifying classes by type of activity, three other classes (mono, bi and multi-functional categories) were also recognized. The methods adopted here are as follows:

- (1) The nine industrial categories of workers in the Census, are first grouped into the following five sectors.

Sector	Census industrial Categories
1. Primary Activity	III and IV
2. Industry	V and VI
3. Trade	VII
4. Transport	VIII
5. Services	IX

- (2) For each Urban Agglomeration or UA/town the percentage of total main workers in each of the five sectors was worked out.
- (3) The functional category of the UA/town was then determined as follows:
 - (i) If workers in one sector constituted 40 percent or more, the UA/town was classified in the relevant mono-functional category.

- (ii) If the percentage in one sector was more than 40 percent two sectors having the largest percentage were combined to see if they together constituted 60 percent or more. If so, the UA/town was classified in the relevant bi-functional category.
- (iii) If no two sectors added up to 60 percent or more largest sectors were combined and the unit was classed as multi-functional.
- (4) In addition to the determination of the functional category of each UA/ town, in certain cases where at least one of the workers were engaged in one of the four activities, viz. (a) forestry / fishing, (b) mining / quarrying, (c) Manufacturing household industry, (d) Construction, the respective UA / town have been classified in the relevant-sub-functional categories, provided such activity happens to be the first or second leading function of those UA/towns.

**Table : Functional classification of the million cities of India,
by Dr. M.K. Jain (1991 Census)**

Urban Agglomeration	Population	Functional Category
1. Bombay	12,596,243	IND
2. Calcutta	11,021,918	IND-cum-TR and COM
3. Madras	5,421,985	Ind- cum-Services
4. Bangalore	4,130,288	IND
5. Hyderabad	4,344,437	IND-Cum-Services
6. Vizag	1,057,118	Service-cum-IND
7. Delhi	8,419,084	Services-cum-IND
8. Patna	1,099,647	Services
9. Ahmedabad	3,312,216	IND
10. Surat	1,518,950	IND
11. Vadodara	1,126,824	IND-Cum-Services
12. Kochi	1,140,605	IND-Cum-Services
13. Indore	1,109,056	IND-cum-Services
14. Bhopal (Mc)	1,062,771	Services-Cum-IND

Urban Agglomeration	Population	Functional Category
15. Pune	2,493,987	IND
16. Nagpur	1,664,006	IND-Cum-Services
17. Ludhiana	1,042,740	IND
18. Jaipur	1,518,235	IND-Cum-Services
19. Coimbatore	1,100,746	IND
20. Madurai	1,085,914	IND-Cum TR and COM
21. Kanpur	2,029,889	Services-Cum-IND
22. Lucknow	1,669,204	Services
23. Varanasi	1,030,863	IND

(Source : Ramchandran, 1989)

4.3 URBAN HOUSING POLICIES

The housing condition of poor class people in urban areas is really pitiable. The characteristics are closed houses in the neighbourhoods, the high price of land and the labourers remaining near industries have highly increased the occupancy rate of houses. The houses are made very close to each other so that the full utilization of land could be made. There is lack of fresh air in many houses. There is utter lack of windows, the presence of only one door and privacy is the first priority of such houses.

The houses of industrial workers are made of mud well in which there is a dark kitchen room, followed by unhygienic living and sleeping room. Actually the housing problem has been of recent origin because the construction of houses does not cope with the increases of population.

In Mumbai, for low income group people, one room flat of three storeys have been constructed and their condition is so pitiable that their disrepair has been suggested instead of improving their lot, these flats are called chawls, the same poor condition is of the houses in Kanpur, which are labourers' houses known as Ahata. Almost the same condition prevails in almost all urban centres in India. Although in some sectors the houses are constructed but no care is paid to the health and efficiency of the people and their residents.

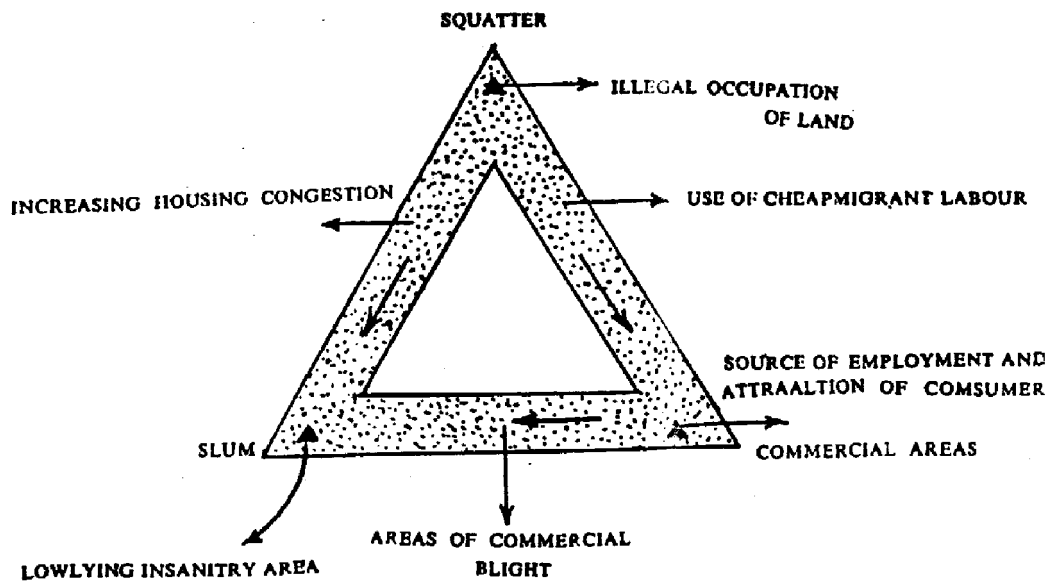


Fig. : Dimensions of Slum and Squatter Settlements

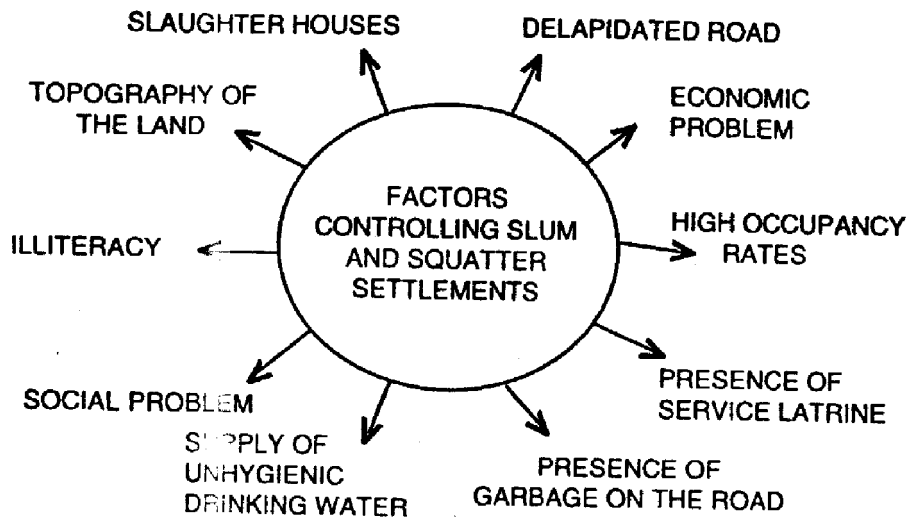


Fig. : Old Remnant of Broken Houses (After Mandal, 2000)

TABLE : Demand-Supply and shortage of Houses in Urban India

Year	Demand	Supply	Shortage of Houses
1951	12,500	10,305	2,195
1961	15,780	14,063	1,717
1971	21,640	18,413	3,227
1981	28,732	25,542	3,290
1991	34,500	34,569	4,922

The above shows an acute shortage of houses in urban areas. The progress in house construction is slow housing and housing shortage seems to be an unending problem with the current rate of population with the current rate of population growth.

STEPS TAKEN BY THE GOVERNMENT TO SOLVE THE PROBLEM

The Government of India and local bodies have been given the task to solve the housing problems. Some of the steps taken by the government are as follows :

The Subsidized Industrial Housing Scheme

This scheme has been started in 1952. The aim was to provide houses to the labourers. Under this Scheme the Government has given loan to the extent of 65 per cent to the industries along with the state Government, Legal housing Construction Societies and Cooperative Societies for the Construction of houses to the Laborers. The laborers may purchase these houses according to rules framed by the Government. These houses could not be sold or changed without prior permission of the Government. In the Third Five Year Plan, it was made obligatory for mill owners to provide housing facilities to their laborers. The Central and State Government have also formed various Housing Boards and Societies to provide houses to the need families.

Low Income Group Housing Scheme

This Scheme has been started in 1954. The persons Constructing houses could get a loan Up to 80 percent who have no house of their own and have income less than Rs.6, 000 Annually. Even on this basis the local bodies and Cooperative Societies are given loans.

The Slum Clearance and Improvement Scheme

This Scheme has been started in the Year 1956. The aim of this Scheme was to give financial assistance to the State Government and local bodies for improvement of slum areas. It has been estimated that about 12 lakh houses are not fit for human living. Hence the long-term and short-term housing schemes have been started. But as it could not be possible to provide houses to all the people living in Slum Areas, this scheme could not succeed well. (Mandal, 2000)

The Middle Income Group Housing Scheme

There is a provision for middle income group people to have loans for the construction of houses in urban areas. The Life Insurance Corporation of India and the State Government also give loan under this Scheme .

The Rental Housing Scheme

This scheme was started in 1959. The aim was to provide house on rent to the State Government employees. The Life Insurance Corporation of India also gives loan on. This scheme which could be paid in 20 years.

Land Acquisition and Development Scheme

It has been felt by government that low income and middle income group people could construct the house if land on reasonable price was made available to them. With this view a plan was set up so that the state Government acquire land, develop them and give the same to the people who are in urgent need of it.

4.4 PROBLEMS OF SLUM AND SQUATTER

With the growth of urban population now-a-days slums have created a panic for cities development. It has been a serious issue for the town planning not only in India but in Europe and North America as well. Slums are the marginal areas of cities where the service facilities are poor, people are illiterate, drinking water supply is miserably on the lowest ebb and the vice of underworld's predominate the scene. The study of slums and squatters is meaningful for the environmental modification and ameliorating the problems of urban areas for providing more amenities to the elling masses.

The concept of slum

Slum dwelling signifies as a common phenomenon of degraded life of urban dwelling itself. In most of the Third World countries, the rapid urban growth occurs

through squatter settlements. These uncontrolled settlements often lie around the periphery of the built up area, and are made up of temporary buildings with few public services. The names of squatter vary from country to country. In Latin America they are called ranchos or favelas ; in Asia bustees or kampongs and in Africa bidonvilles or shanty towns.

According to an estimate of United Nations agencies squatter settlements cover from 10 to 80 percent of the city population. For example, about 25 percent of Rio de Janeiro's population live in squatters. Most urban centres of the world, irrespective of location and size, have invariably developed as slum. Slum emerges within a relatively big urban centre and always tends to grow and multiply.

Due to extreme conditions of overcrowding slums and squatter settlements have proliferated in non-western cities, occupying about 10 to 80 percent of any available space illegally. Such factor settlements are built with can in Algeria, and Baghdad and midandstraw in India, Kenya and Tanzania. The slums and squatters lack basic services and pose enormous risks of disease, fire and range of social problems.

Slums exists because they serve the interests of the political and business elites . According to McAuslan, "It is the land oweners and entrepreneurs who sub-divide the land illegally including businessman who use shanty town population for cheap labour, officials who use this illegality to extract bribes and politicians who exchange promises of improvements for votes and who benefit by the system." The people from rural areas often move to towns looking for jobs and then squat illegally on unoccupied land near railway station, bus stand, court compound and factories, Governments are finding themselves in a difficult position financially to eradicate slums because Turner has written in scathing terms of— 'tin can cities' infect metropolitan centers of every developing country from Cairo to Manila, and their inhabitants live as....."displaced persons". In Calcutta, the migration of working age males squatters create an absentee house owner. This form of tenure is also important in case of the squatter yards of Kingston, Jamaica, where the Government control is assured. (Mandal, 2000)

In Cairo one million people squat illegally in a country .In Mumbai the only home for upto half a million is the pavement and in Lagos more than a million live in illegally developed shanty town . The city of Cairo has been considered as the "city of the dead" By McAuslan, 6 where the city is garbage collectors live in country amid food scraps and rubbish.

Governments have turned to oppose squatter settlements. Priorities in India, for example, have been to preserve the standards of building and thus shanties and inevitability

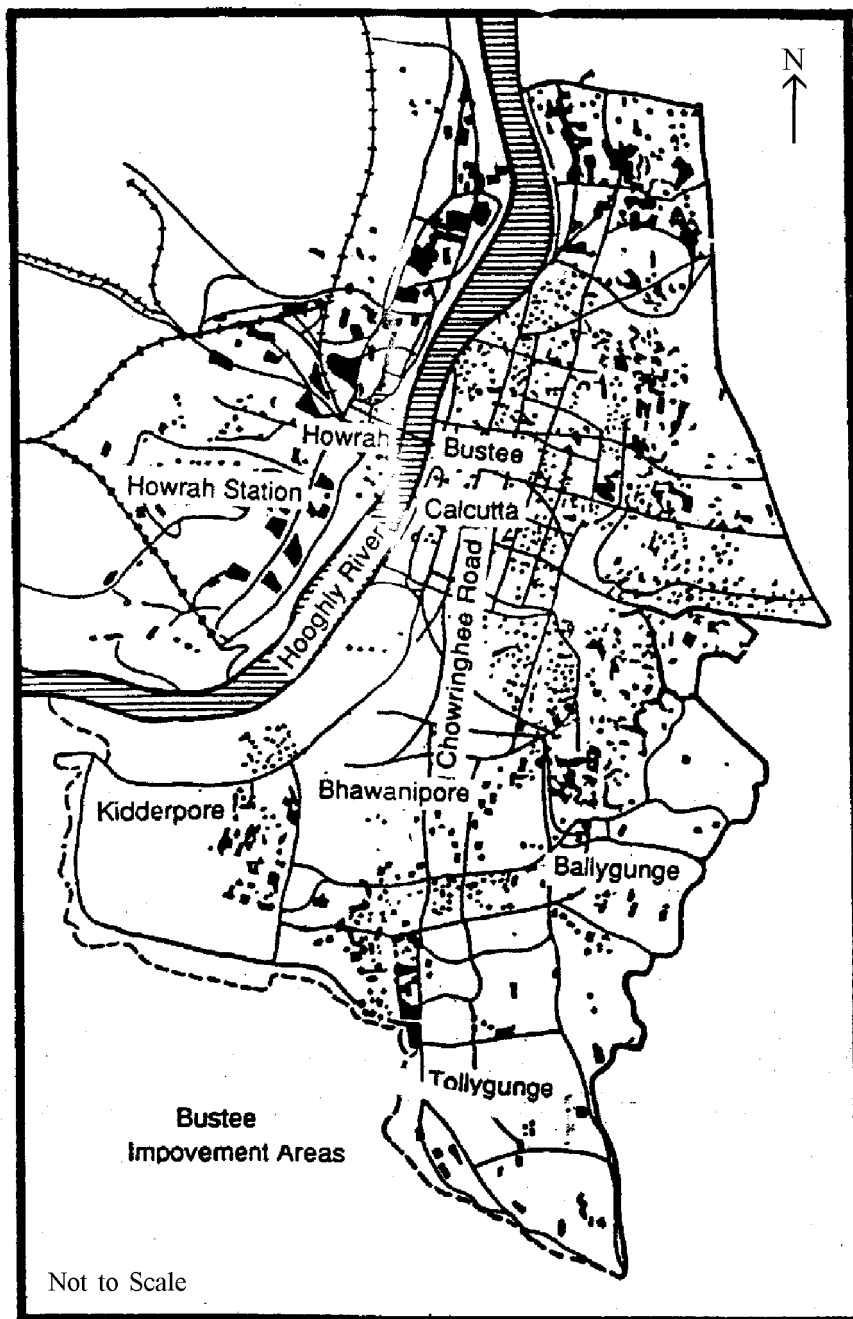


Fig. : Bustee Improvement Areas of Calcutta, KMDA

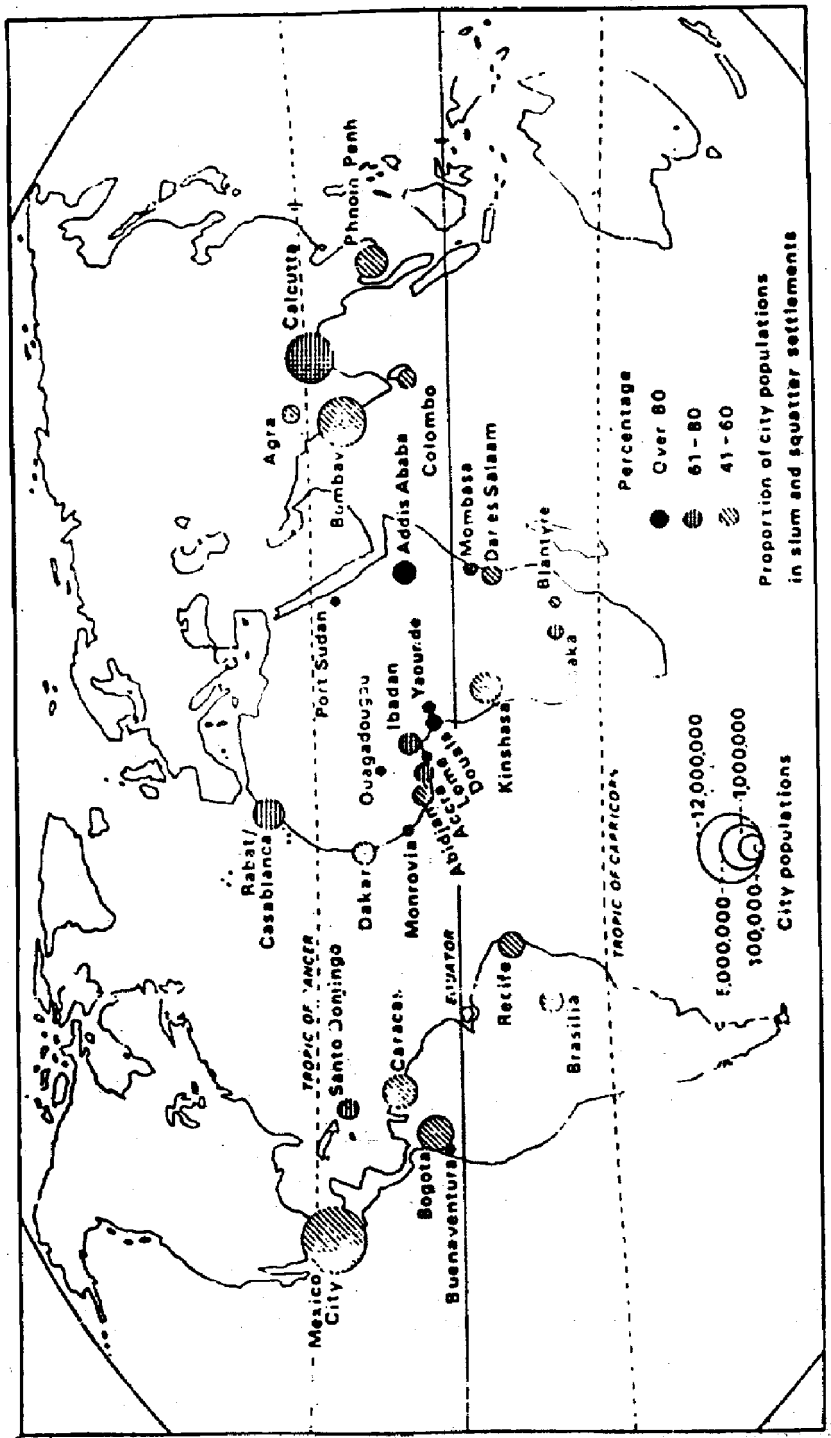


Fig. : Distribution of Slum Areas in the World (After Mandal, 2000)

condemned . Kuala Lumpur has squatter clearance schemes. Manila has a relocation policy, and in some Latin American countries, there erupt violence between police and intending squatters. More recently, however, the agreement has been advanced that argued, are the only real form of urban growth in the non-western world. In Latin American especially, shanty towns result formed a frustrated demand for housing rather than form poverty. Their occupants include professional people and the emergent middle-class many shanties are improving in site as material possessions increase and better building materials become available.

Calcutta's bustees existed because the need for low cost housing could not be met else where and housing programmes with idealistic objective were futile. Besides providing cheap housing, bustees served as reception areas for new migrants, provided cottage industries and catered for mobility. The planned programme for a Calcutta is a massive bustee improvement scheme, new experimental building techniques, and the construction of 'model bustees' to house on million people in ten years.

Fig. show that in some cities of the world more than 80 percent people are living in squatter houses, i.e., in Addis Ababa, Yeounde and Duuala, in the continent of Africa whereas in Calcutta, Rabat, Ibadan, Accra, Lusaka and Santo- Domingo (West Indies) about 60 to 80 percent people are living in squatter houses. The cities where 50 percent people live in slums and squatters are Mexico City, Mumbai, Bogota, Caracas and Kinshasa. The upgradation of living conditions of such a vast majority of inhabitants is problematic as they live illegally at a place, besides they are illiterate, unhealthy and leading a life of menials, thieves, factory workers and prostitutes. Even then the upgradation of slum and squatter settlements is desirable for the emancipation of people from economic ills, ill health and illiteracy.

SLUMS AND SQUATTER POPULATION FOR SELECTED THIRD WORLD CITIES (MILLIONS)

SI No	City	Total population	Squatter and Slum population
1.	Manila	4.4	1.5
2.	Jakarta	4.6	1.2
3.	Seoul	5.5	1.2
4.	Karachi	3.4	0.6

SI No	City	Total population	Squatter and Slum population
5.	Mumbai	13.0	2.5
6.	Calcutta	11.0	5.3
7.	Lima	2.9	1.2
8.	Caracas	2.4	1.0
9.	Rio de jenerio	4.9	1.5
10.	Bogota	2.3	1.4
11.	.Kinshasa	2.0	1.1
12.	Ibadan	0.8	0.6

Source: M. Morrisch, Development in the Third World, Oxford, 1983,p.l35.

Table 32.1 shows that in most of the Third World countries the urban places are the centres of low income group people who are living in slums and squatter dwellings. Throughout the world the highest number of slum dwellers are found in the city of Calcutta. Instead of uprooting or demolishing squatters, people should give an alternative thought about their permanent settlement.

Measures for Squatter Upgrading

Governments could provide squatters with land titles and small loans to improve homes. Taxes must be assessed on people's ability to pay and the poor must joined in planning. The basic need of slum families such as sanitation, safe water supply, garbage disposal and health and transport facilities must be met. Governments should provide realistic alternatives, i.e., land and basic services with good employment opportunities, but no next door to potentially dangerous industrial sites. The most critical thing is that if the government can provide low income people a plot of land for houses along with basic services of transport, cheap building materials and technical assistance, the community can organize the housing structure themselves.

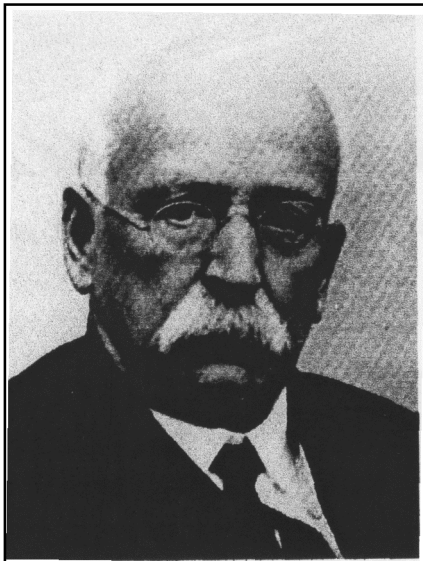
4.5 SATELLITE TOWN

A satellite town or satellite city is a concept of urban planning, although many satellite cities and towns appeared spontaneously near many metropoleis. Satellite towns are smaller municipalities that are adjacent to a major city which is the core of a metropolitan area. They differ from mere suburbs, subdivisions and especially bedroom

communities in that they have municipal governments distinct from that of the core metropolis and employment bases sufficient to support their residential populations. Conceptually, satellite cities could be self-sufficient communities outside of their larger metropolitan areas. However, functioning as part of a metropolis, a satellite city experiences cross-commuting (that is, residents commuting out of and employees commuting into the city). It may involve consciously planned cities to act as spillover or dormitory towns. Satellite cities are involved in the urbanism plans of Brasilia, Singapore and Canberra.

● Concept of New Towns.

A new town, planned community or planned city is a city, town, or community that was designed from scratch, and grew up more or less following the plan. Several of the world's capital cities are planned cities, notably Washington, D.C. in the United States, Canberra in Australia, Brasilia in Brazil, and Islamabad in Pakistan; It was also common



Ebenezer Howard

*(From Greenbelt : History of a
New Town 1937-1987)*

in the European colonization of the Americas to build according to a plan either on fresh ground or on the ruins of earlier Amerindian cities.

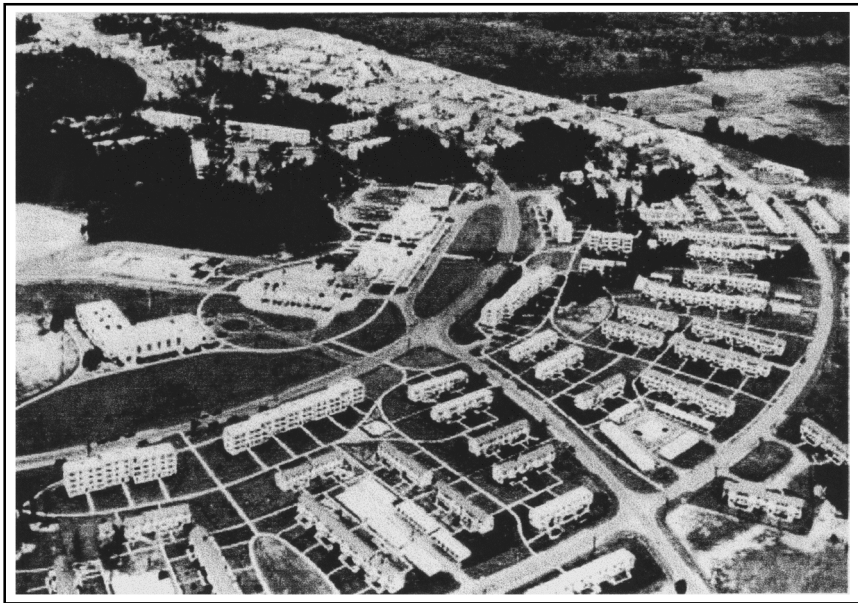
Planned Communities, or New Towns or Garden Cities or Greenbelt Towns as they are known, are cities in which all aspects of development are determined before construction begins. The idea of planning a community is not new. One of the earliest on record is Miletus, Greece, which was begun in the fourth century B.C. The Middle Ages saw the creation of several planned cities in Europe. In the early twentieth century, the British "Garden City" movement, which was the genesis of modern-day planned communities, was started by Ebenezer Howard. This movement was a reaction against the dirty, crowded cities associated with the Industrial Revolution. Garden Cities were located well away from the urban centers, contained open land, and limited commercial and industrial activities.

In the early history of America, Planned Communities were quite common. Jamestowne, Philadelphia, Williamsburg, Annapolis and Washington, D.C., are examples of this trend. The subsequent development of the United States, however, made planned cities both impractical and unpopular. It was not until the twentieth century that the New Town idea was revived. Following the example of British Garden Cities, Radburn, New Jersey, was begun in 1929. It was followed by government sponsored "greenbelt" towns: Greenhills, Ohio; Greendale, Wisconsin; and Greenbelt, Maryland. After World War II, Park Forest, Illinois joined the list of American New Towns.

The current era of New Town development began in 1962 with the creation of Reston, Virginia. Today's Reston is the product of the vision of Robert E. Simon, Jr. It is



Radburn, New Jersey, 1929 (*From Greenbelt : History of a New Town 1937-1987*)



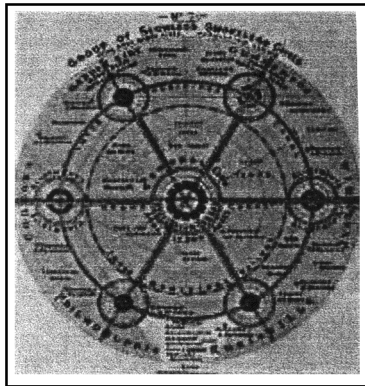
Greenbelt, Maryland, ca. 1938 (*From Toward New Towns for America*)

the nation's best known and most successful Planned Community. In common with other modern New Towns, Reston, integrates not only the physical aspect of roads, utilities and housing; but also the social, including education, health care, recreation, religion and civic

organizations; and economic aspects of industry and commercial centers. In addition, modern Planned Communities provide housing for a variety of income levels and allow the residents to participate in the governance of the city. It was the failure to provide a sound economic base which hurt many of the earlier New Towns but which has enabled Reston to flourish.

● The Concept of the New Town Movement

The idea of the British New Town movement was first proposed by the Victorian Ebenezer Howard, whose book *Garden Cities of Tomorrow* provided inspiration for post war planners...



The vast destruction inflicted by the Second World War created a need, especially in London for both houses and jobs. In 1944 the Greater London Plan recommended the establishment of 10 satellite towns to meet the housing shortage. In 1945 the New Towns Committee created government-sponsored corporations financed by the Exchequer. They were given power to acquire land within a defined, designated area, to establish new towns. The New Towns Act 1946 provided the government with the

power to implement these plans.

The New Towns were not intended as either industrial estates or dormitory suburbs. The principle was that they would become self contained communities combining the convenience of town life with the advantages of the country. Local industry, shops, housing and cultural facilities would be provided to meet the needs of the local inhabitants. However, of the 11 New Towns designated in Britain between 1946 and 1955, eight were London 'overspill' or satellite towns.

In 1948 Bracknell was put forward as one of the New Towns to help alleviate the housing crisis in West London with new houses being offered to people from Brentwood and Chiswick.

● India/Pakistan

Indus Valley Civilization

A sophisticated and technologically advanced urban culture is evident in the Indus Valley civilization of ancient India and Pakistan from around 2600 BC. The quality of municipal city planning suggests knowledge of urban planning and efficient municipal governments which placed a high priority on hygiene. The streets of major cities such as Mohenjo-daro and Harappa, the world's earliest planned cities, were laid out in a perfect grid pattern, comparable to that of present day New York City. The houses were protected

from noise, odors, and thieves.

As seen in Harappa, Mohenjo-daro, and the recently discovered Rakhigarhi, this urban plan included the world's first urban sanitation systems. Within the city, individual homes or groups of homes obtained water from wells. From a room that appears to have been set aside for bathing, waste water was directed to covered drains, which lined the major streets. Houses opened only to inner courtyards and smaller lanes.

The ancient Indus systems of sewage and drainage that were developed and used in cities throughout the Indus Empire were far more advanced than any found in contemporary urban sites in the Middle East and even more efficient than those in some areas of modern Pakistan and India today. The advanced architecture of the Harappans is shown by their impressive dockyards, granaries, warehouses, brick platforms, and protective walls.

● Medieval India

A number of medieval Indian cities were planned including:

- Udaipur in Rajasthan. It was the historic capital of the former kingdom of Mewar.
- Fatehpur Sikri in Agra. Its planning was done by the Mughal emperor Akbar the Great.
- Hampi in Karnataka. It was the former capital of the Vijayanagara Empire prior to the city of Vijayanagar.
- Vijayanagar in Karnataka. It became the former capital of the Vijayanagara Empire.

● Republic of India

The period following independence saw India being defined into smaller geographical regions. New states such as Gujarat were formed with planned capital cities including:

- New Delhi is a planned city.
- NOIDA is a planned city
- Chandigarh is a planned city. Its planning was done by Le Corbusier.
- Bhubaneshwar -the capital of Orissa is also a planned city.
- Gandhinagar is also a planned city, with a city plan different from that of Chandigarh.
- Dispur
- NaviMumbai

4.6 RURAL-URBAN CONTINUUM

BACKGROUND OF LINKAGE

Rural and urban living are continuum and with the universal availability of radio, newspaper and automobiles, the two rural and urban settlements (Aurore, 1921) have become closely linked other than a dichotomy. Further, the distinction between the two is not often clear-cut, in respect of housing, facilities of shopping, manufacturing, transport, education and the manner of living. The functions of the urban settlements constitute the main unifying bond between the people of the town and the zone of influence. (a) By (Smailes, 1966) virtue of such a distinct location and layout, the urban centers form a socio-economic hub for the umland, disseminating cultural influence, and acting as collecting and distributing centers of regional produce. (b) The commuter relations between the urban place as centers of employment and the rural areas as a residence of the employees is another link between urban center and their hinterland. (c) A third form of inter-relation is provided by outdoor recreation. This has really established a community of interest among the people of urban center and its zone of influence. (Hans Carol, quoted from Mandal, 2000) (d) Everyone knows that the functions of rural are accommodated in agricultural lands and villages and connected with primary and secondary occupation, whereas urban activities are accommodated in shops, workshops, offices. Warehouses and public buildings. The link between the two rural and urban provided by transport routes. (e) The close relationship between rural and urban areas is vivid in the daily quick delivery of perishable goods like milk and vegetable to the town dwellers. Such close tie-up depends upon the facilities of transport cities Kolkata. On the other hand, the smaller towns with very poor accessibility have very small hinterlands. (f) Urban centre as regional administrative headquarters constitute another reason for the between the town and the country. The urban centre have a strong impact upon the rural settlements of the surrounding city region due to the expansion of urban built up land for residence. Commerce, industry, transport, recreation and market gardening. Thus they affect both the character and structure of rural settlements, especially placing of rural dwelling and changing dress material of rural folk. Urban centres have grossly eroded the moral values of rural people.

It is, therefore apparent that both towns and village are interdependent and cannot be studied in isolation.

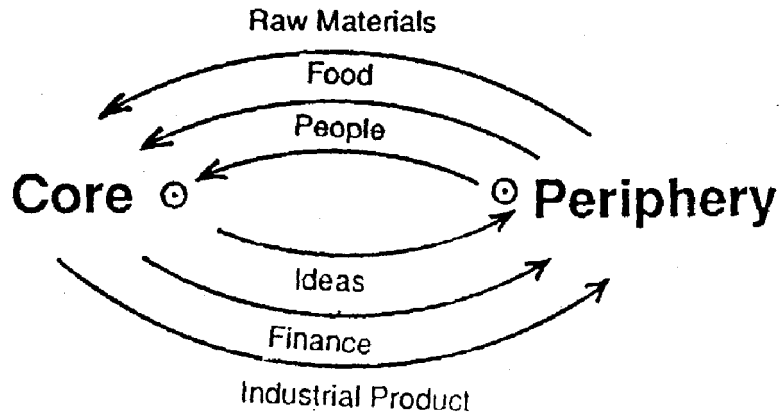


Fig. Core (Urban centre) Periphery (rural) relationship model (After Mandal, 2000)

Identification of Rural-Urban Relation

Let us now classify the types of relationship

- (a) Agricultural relation;
- (b) Trade and financial;
- (c) Commuter's relations;
- (d) Educational and cultural relations;
- (e) Transport and communication relations;
- (f) Administrative and political relatives;
- (g) Social and cultural relations; (h) Industrial relations;

(a) Agricultural relations

Near the urban centers the intensity of agricultural activities is generally high, and this tendency is decreasing towards the increasing distance in peripheral areas. Besides this, the trade of agricultural commodities and urban center as the consumption points of regional produce contribute a lot in regional economic development.

(b) Trade and financial relations

Retail trade, wholesale trade and breaking services located in urban centers provide a wide range of services to the surrounding tributary area by selling jewelaries, clothes, medicine, sweets, sport goods and educational items. These services have a great impact in regional economic development.

(c) Commuter's Relations

In Jamalpur railway workshop commuters train, carries labourers three times daily from Sultanganj in the east, Kajra in the west and Munger in the north. In India other active areas of commuter's movement can be observed near Delhi, Calcutta, Chennai, Kanpur and Jamshedpur.

(d) Educational and Health Relations

The urban centres provide university level education in different Post-Graduate departments, training institutes and colleges. The students from rural areas also come to these colleges and institutes located in Urban areas. In areas of dense population the rush of students in colleges located in urban areas is too much whereas in sparsely populated rural areas the rush is very poor.

(e) Transport and Communication Relations

Urban centre acts as convergence point for different modes of transport routes. Without transport and communication relations with the Neighbouring towns and villages one cannot think of urban development because these are the nerve centres from where transportation lines radiate like spoke in different directions and they are lifeline for the movement of people and sustenance of urban scenario.

(f) Administrative and Political Relations

Urban centres act as place of state capital, district headquarter, subdivisional headquarter along with anchal headquarter. On these centres the provision for dakbungalow, the establishment of courts, police station and Government offices favour the movement of people each and every day from the demarcated administrative indicator of rural-urban relations within a well defined zone of influence.

(H) Industrial Relations

Industries are located in urban centres but they are receiving raw materials and labourers from rurals. This also leads to develop other Infra-structure facilities in the regional economic preferment which has taken place, in the region concerned.

Core urban and periphery minal model

Impact of urban centres on countryside

Impact of Urban Centres on (rural) Countryside :

The Variety and amount of nodal services are increasing and becoming more complex. The processing and manufacturing activities are being added to rural areas where they had already been in existence. All these changes are not confined to cities only. The impulses

which these changes generate are not only restricted to town only, but carried into the countryside as well.

4.7 SELECT READINGS

Baskin, C.w. (1966), **Central Place in Southern Germany**, translated from Christaller, W.Die Zentralen Orte in Sudd Suddeutschland, Prentice-Hall, New Jersey.

Beaujeu-GarnerJ., and Chabot,.G (1967), **Urban Geography**, Longmans Green and Co. Ltd., London, p 247.

Berry. B.J.L. and Garrison, L. (1958), Alternate Explanations of Urban Rank-Size Relationships in Myer, H.M.and Kohn, C.R(1959) ed. **Readings in Urban Geography**. The University of Chicago Press, Chicago.

Berry, B.J.L., and Garrison, L (1958), The Functional Bases of central Places, in Ambrose, Peter' in **Analytical Human Geography**, Longmans Green & Co. Ltd., London.

Berry, B. J. L., and Horton, F.E. (1970), **Geographic Perspective on Urban Systems**, Prentic Hall Inc., New Jersey.

Brush, J.E.(1953), The Hierachy of Central Places in South western Wisconsin', in **Geographical Review**, XLL.

Carter, Harold (1975), **The Study of Urban Geography**, Edward Arnold (Pub.) Ltd. London.

Dickinson, R. E. (1947), **City Region and Regionalism**, Routledge and Kegan Paul Ltd., London.

Dickinson, R.E. (1968), **City and Region : A Geographical Interpretation**, Routledge and Kegan Paul Ltd., London.

Gottman, Jean (1961), **Megalopolis**, The MIT Press, Cambridge, massachusetts.

Ghosh, Sumita (1998), **Introduction to Settlement Geography**, Sangam Book, Kolkata.

Hagget, Peter (1972), **Geography: A Modern Synthesis**, Harper and Row Publishers, New York.

Hudson, F.S., (1970), **Geography of Settlements**, Meldonald & Events Plymouths.

Jefferson, Mark (1939), 'The Law of Primate Cities' in **Geographical Review** 29 (April 1939).

Kar, N.R. (1960), 'Urban Hierarchy and Central Functions around Calcutta in Lower West Bengal, India, and their significance' in Norborg, Knut (1960) Ed. in **Proceedings of the IGU symposium in Urban Geography**, C. W. K. Gleesup Publishers, Lund.

Khuller, D. R. (2006), India, **A comprehensive Geography**, Kalyani, New Delhi

Losch, August (1954), **The Economics of Location**, Yale University Press, New Haven.

Mandal, R. B. (2000), **Urban Geography, A Textbook**, Concept, New Delhi.

Ramachandran, R. (1989), **Urbanisation and Urban Systems in India**, Oxford University Press, Delhi.

Rao, V. L. Prakash and Ramachandran, R. (1983), **Urbanisation in India : Spatial Dimensions**. Concept Publishing Co., New Delhi, p. 106.

Shivaramakrishnan, K.C. (1978), **Indian Urban Scene**, Indian Institute of Advanced Studies. Shimla.

Smailes, A.E. (1944), 'The Urban Hierarchy of England and Wales', in **Geography** 29.

Wikipedia

Zipf, G. K. (1941), **National Unity and Disunity**, principia press bicomington, Illinois.

4.8 QUESTIONS

Long Answer type of Question :

1. How physical and cultural environment govern the location of settlement?
2. Critically analyze the factors affecting origin and growth of rural settlement. Illustrate with suitable example.
3. What are the chief factors leading to the development of (a) nucleated and (b) dispersed rural settlement patterns ?
4. Write an account on the characteristic of rural settlement with examples.
5. Discuss the different types of rural settlements in India mention the basis of such division.

6. Patterns of rural settlements may frequently be seen as the result of a balance between economic and social factors tending towards nucleation or dispersion. Discuss and illustrate this statement.
7. Compare the factors which have affected the siting of urban and rural settlements.
8. Trace the origin of the urban centres in the World. Briefly describe the history of urbanization in the world.
9. Describe what is meant by (a) a hierarchy of urban settlements, and (b) the sphere of influence of a town.
10. Under what circumstances the extraordinary stability of some rural settlement patterns persist over long periods of time ?
11. What do you mean by the term urban hierarchy ? Discuss the central place theory.
12. Discuss the Central Place Systems in India.
13. What do you know by urban agglomeration ? Discuss the characteristics of urban agglomeration.
14. What is meant by the distribution of urban settlements? Rank-size useful in the study of settlement geography of a country ?
15. Discuss the factors which results in (a) changes and (b) stability in the pattern of rural settlement.
16. Discuss the evolution of a rural settlement you have studies.
17. Discuss the interaction between town and countryside in a small area you have studied in details.
18. With reference to example, comment on the characteristic features of rural urban interaction. To what extent do they give rise to urban 'spheres of influence' which can be clearly identified ?
19. Squatter settlements are a feature of many rapidly growing cities of the developing world (Third World). Describe the characteristic features and locations of squatter settlements and attempt to explain why they have arised.
20. Discuss the central place theory as proposed by Walter Christaller. How far this theory can be applied to Indian scene? How does it differ from Losch?
21. What are the problem of housing an urban areas ? How these problem can be solved?

Short type of Questions :

1. Discuss the various stages in the evolution of Urban settlements.
 2. Discuss hierarchy of rural settlements.
 3. What is meant by metropolization? Name million plus cities of India (2001 Census).
 4. What is megalopolis? How it evolves?
 5. Discuss rural settlement types of the Himalayas.
 6. Discuss the rural house types of India.
 7. Why the materials used in making roofs of rural India differ? Draw sketch map to illustrate your answer.
 9. What is Transport Principle of Christaller.
 10. Compare Christaller and Losch theories.
 11. Criticise Central Place Theory of Christaller.
 12. Discuss Census classification of Indian cities as proposed by Asok Mitra.
 13. Name the steps taken by the Government to upgrade slum settlements. Why it is necessary?
 14. What is meant by squatter settlement?
 15. What is meant by show town? What is the concept behind the growth of such town?
 16. Prepare a model plan for satellite (new) town.
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