

CHAPTER II

REVIEW OF LITERATURE

The theoretical as well as research literature in field of population education has been reviewed with a purpose to develop understanding regarding: (a) curriculum for in-school students; (b) teaching strategies for imparting population education content through formal teaching; (c) audio-visual aids, both projected and non-projected, to make the teaching-learning situation effective; and (d) ways and means to evaluate population education programme. The understanding of all these is aimed at developing an insight to select suitable contents, appropriate teaching strategy, audio-visual aids, effective procedure and tools for evaluation of Population Education Programme (PEP) for secondary school students in order to fulfil the broad objective of the present study i.e. to develop, execute and evaluate a PEP for secondary school students.

The review of literature has been broadly classified under the theoretical and research frameworks.

THE THEORETICAL FRAMEWORK

The theoretical framework reviews the population situation of the world and India. Besides this, measures taken for the control of the alarming population growth have been examined briefly. The development of Population Education Programme (PEP) in terms of its content, teaching

17

strategies, audio-visual aids and evaluation has also been attempted. The nature and status of population education programme in general focussing emphasis on some of the Asian countries in particular is also included in the study. Under the research framework the researches conducted in India as well as abroad in this field are taken stock of.

World Population - Its Growth and Present Situation

An interest in certain population facts seems to exist everywhere, which is not a new speculation as it is found in the early thoughts of men. "The present day interest differs from that of the earlier focus chiefly in emphasis and points of view. Throughout most of the histories of social thought, interest in population has been centered upon the size and increase of the group" (Edward, 1937). In primitive life, the group was always small and the increase in number was very slow. Life was hard and death rate was high. The primitive people were surrounded by enemies and were always exposed to danger, as such their outstanding need appeared to be more people. Dense population, from this point of view, was ideal to provide soldiers, tax payers and workers to advance military and national glory. Whereas the social point of view stresses the welfare of life rather than the amount of life. The basic problem of population is to determine the ideal ratio between the numbers of the people and the area and resources of the land they inhabit. This problem has been commonly conceived to be the whole of the population question these days.

16

The problem of rapid population growth throughout the world is one of the most serious problems confronting mankind, and it has gradually assumed frightening proportions. Some thinkers even regard the problem of explosive population growth as one of the three major obstacles to the progress of the world - the H-bomb, over-population and the gap between the rich and poor (Bhende and Kanitkar, 1978).

The world population, according to the estimates prepared by the United Nations, was slightly more than 3.6 billion in 1970. It was estimated to be around 3.8 billion in 1972 and nearly 4.0 billion in 1975. At present, it has crossed 4.4 billion (World Population Data Sheet, 1980).

An approximate picture of the trend of world population indicates that the rate of population growth was moderate until the present century, and that great acceleration has occurred in the past two decades. The average annual growth rate was only about 0.5 per cent throughout the nineteenth century, 0.8 per cent in the first half of the twentieth century, and it suddenly increased to 1.8 per cent during the decade of the 1950s. The rate of growth of world population rose still higher during the 1960s and is currently estimated to be around 1.8 per cent per annum (UNFPA - Population Facts at Hand, 1980).

It took nearly two million years for the human population to reach one billion. The second billion came in a hundred years, the third in thirty and the fourth in fifteen years. At the present rate of growth, the fifth

billion will be reached in eleven years and the sixth billion in only nine years (Population Reports, 1978). The global population could stabilize at 10.5 billion in the year 2110. Table 1 below shows the number of years required to add one billion people to the world's population.

Table 1 : Years Required to Add One Billion People
to the World's Population

	Years required to add one billion	Years reached
First billion	2,000,000	1830
Second billion	100	1930
Third billion	30	1960
Fourth billion	15	1975
Fifth billion	11	1986
Sixth billion	9	1995

Source: Compiled by L- Brown based on U. N. data.

The Pie Chart (Fig.1) presents the picture of world population, 1980-81.

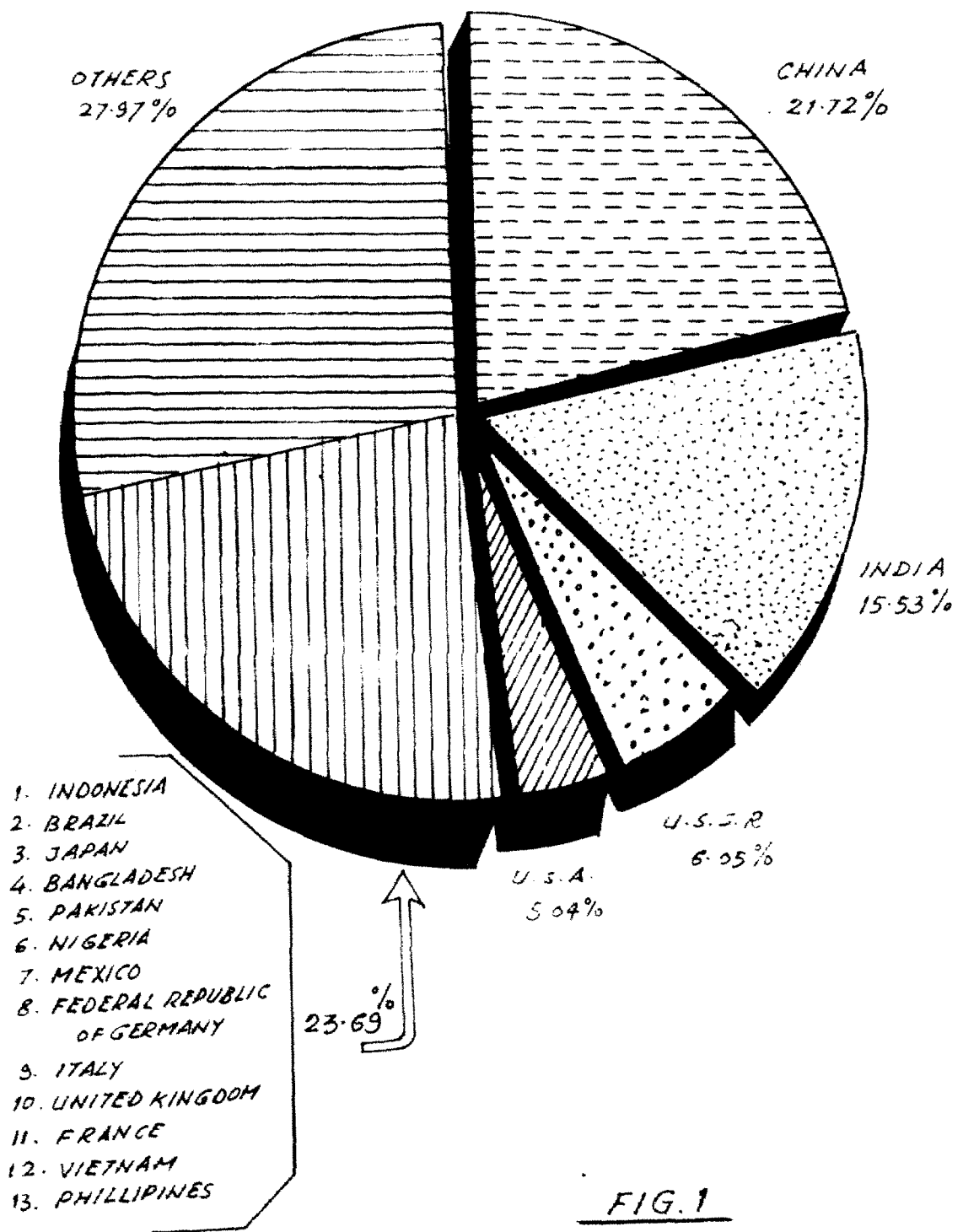


FIG. 1
WORLD POPULATION
1980-81

SOURCE:- DATA DERIVED FROM UN DEMOGRAPHIC Y.B. 1980, INDIA FIG. IS BASED ON 1981 PROVISIONAL CENSUS

It is obvious that only two demographic variables, fertility and mortality, are chiefly responsible for world population growth, for migration is not relevant when the world situation is considered (Bhende and Kanitkar, 1979). Prior to 1800, world population increased very rapidly and the path of growth was marked by ups and downs because of the violent and recurring fluctuations in the death rates associated with natural calamities. In the nineteenth century there began a significant fall in mortality levels in the regions of Europe, North America and Oceania only. The main causes of this were related to the socio-economic development resulting, first from the agricultural revolution and then from the industrial revolution and finally from advances in the medical sciences, public health and environmental sanitation, which may also be attributed to economic development. This resulted in an increase in the growth rate of the population of these regions i.e., Europe, North America and Oceania - the areas of European culture. This growth may, however, be deemed to be modest, though steady, upto 1920. It was only after 1950 that world population increased at an accelerated rate and the increase in numbers was spectacular. This unprecedented rise was mainly due to the accelerated growth rates of the population of developing countries in Asia, Latin America and Africa resulting from declines in the death rates being brought about by technological advances. It is a significant fact/count that developing countries could not bring down their death rates without achieving a certain level of social and economic

development; they realized this as a pre-condition for lowering death rates. This decline in the death rate though rapid and obvious, however, was not accompanied by a corresponding decline in birth rates, which continued to remain high due to social customs and beliefs.

Present Population Situation in the Developed and Developing Countries

It is interesting to note that during 1650-1750, the average annual rates of growth for the developed and developing regions were almost identical, i.e., 0.33 and 0.34 respectively. In later years, they began to increase through upto 1920, this increase was more in the developed regions than in the developing areas, i.e., 0.92 and 0.52 respectively. A high mark in the growth rate was recorded by the developed countries during 1850-1900 i.e. 1.05 per cent - after which it started declining; and from 1920 onwards, the developed regions invariably recorded a lower growth rates in the latter have been consistently rising since 1920, the course followed by the growth rates in the developed regions has been marked by ups and downs.

It is interesting to study the distribution of the world population in the developed and developing regions over the years. In 1920, this percentage reached its peak (nearly 34 per cent). Since 1930, however, world population in the developed countries has almost consistently declined till, in 1975, only 28.53 per cent was found to live in the developed regions, while the remaining 71.47 per

7

cent was found to inhabit the developing regions. In other words if taken by numbers in mid-1975, out of the 4.02 billion inhabitants of the world 2.87 billion live in the world's less developed regions and 15 billion in the world's more developed regions. The present (mid-1975) population of the more developed regions is five and a half times than population two centuries ago; while the population of less developed regions - 2.87 billion increased nearly five times during the same period. At present the population of more developed regions is 1092 million as compared to 2975 million of the less developed regions out of the total world population of 4434 millions (UNFPA,1980).

Table 2 : Estimated Population of More Developed
and Less Developed Regions - 1960-2000

Year	Population (in millions)		
	World	Less developed regions	More developed regions
1960	3026.5	2081.6	944.9
1980	4415.0	3284.3	1130.7
2000	6199.4	4927.1	1272.3

Source: United Nations. Age-Sex Composition of Population by Centuries, 1950-2000, (ESA/P/WP.65), New York, 1979.

However, it is not the rate of growth over the two centuries which is meaningful; it is the size of the population of the less developed countries and its rapid rate of increase since 1950 which is cause for concern. The less developed regions of the world are found in the countries

of Asia, Africa and Latin America. All the countries of Asia excepting Japan are less developed. In the continent of Africa all the countries are classified as less developed. In Latin America all the countries excepting those in temperate South America are less developed. On the other hand, all the countries of Europe, the Soviet Union, North America, Australia, New Zealand, temperate South America and Japan are more developed. By the year 2000 nearly 80 per cent of the world population would be living in the less developed countries of which major part is concentrated in Asia (UNFPA Reports, 1979).

Population Growth in India

The first census was taken in India in 1871, and thereafter once every ten years. It is, therefore, possible to study changes in population size, structure, characteristics etc. during the last one hundred years. The estimates of population size in India during the ancient, medieval and the early modern periods (that is from the beginning of the Christian Era to 1871) have been derived by Kingsley Davis from a careful examination of archaeological evidence, relevant literature and historical records left behind by scholars of history.

History of Population Growth in India

Since the ancient times, India has had the legacy of a thickly settled population. The excavations at Harappa and Mohenjo-daro reveal that, as far as the third and fourth

9 millennium B.C., India had a highly developed civilization and large and densely populated cities. It appears that even three to seven thousand years ago, India possessed adequate technological knowledge to support a dense population. Confirming the estimates of Davis, Pran Nath (1929) estimates that, around 300 B.C., the population of Ancient India was between 100 million and 140 million.

Estimates made by Moreland, the well known historian, reveal that in 1600 A.D. the population of India was around 100 million. It, therefore, appears that from 300 B.C. to 1600 A.D., a period of over two thousand years, India's population was almost stationary. The underlying reason for this near static growth of population was the same as that which checked the growth of world population in the pre-industrial period (Bhende and Kanitkar, 1978).

It is unfortunate that very little documentary evidence is available on the basis of which estimates of population size for the period 1600-1870 may be made. Heavy reliance has, therefore, to be placed on the impressions of the Europeans who, during this period, visited India or stayed in India for differing periods of time for either trade or military purposes. Davis (1968) concluded while reviewing the available evidences that:

.....the best policy is to revise Moreland's figure for 1600 upwards to 125 million, and to assume that the population remained at this point for one and half centuries more, after which a gradual enhancement of growth began, accelerating as 1870 approached.

From 1871 onwards, the base for the study of the population of India is more firm, for actual counts rather than only estimates, are available. These actual counts also are not so reliable, as with each census, additional territories were covered and improvements effected in the methodology of conducting a census.

The population count for 1867-1871 was 203.4 million, while adjusted figure was 255.2 million (Davis, 1968). The growth rate of India's population computed on the basis of adjusted figures, indicates that between 1867-71 and 1881, population increased at the rate of 0.9 per cent, while during 1881-1891 it increased by 9.4 per cent. In the next decade (1891-1901), however, the growth rate went down to 1.00 per cent (Davis, 1968).

Population Growth of India in the Twentieth Century

Table 3

Table 3 : Population Growth of India in the Twentieth Century

Year	Population in thou- sands	Net change from previous decade in thousands	Per cent	
			Change from previous decade	Growth per year (com- pounded annually)
1901	2,38,337	-	-	-
1911	2,52,005	13,668	5.73	0.56
1921	2,51,239	- 766	-6.30	-0.01
1931	2,78,867	27,628	11.00	1.01
1941	3,18,539	39,627	14.23	1.33
1951	3,60,950	42,411	13.31	1.25
1961	4,39,073	78,123	21.64	1.99
1971	5,47,950	1,08,924	24.80	2.22
1981	6,83,810	1,35,650	24.75	2.40

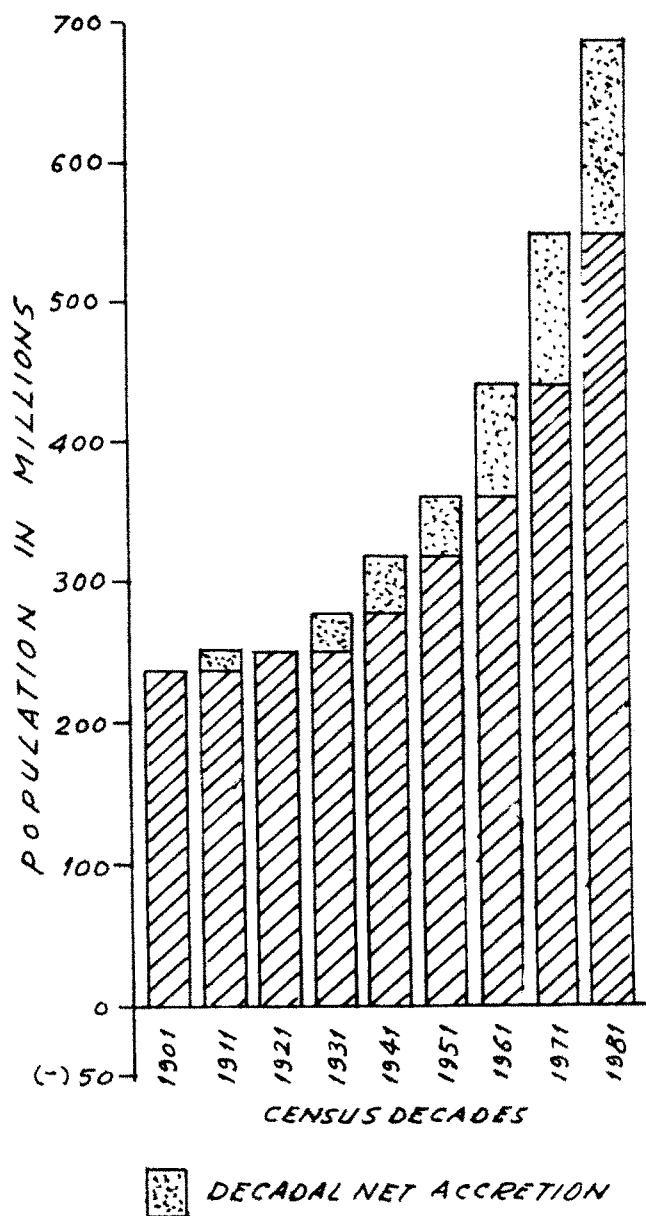
Source: Registrar General & Census Commissioner, Pocket Book of Population Statistics, Census 1972, pp. 18-19, and Census of India, 1981.

The Table 3 presents the growth of India's population from 1901 to 1981. It may be noted that the figures have been adjusted for the territorial changes which occurred because of the partition of the Indian Sub-Continent into two countries, India and Pakistan.

The Table 3 shows that the course of population growth upto 1921 was undulating. The decades of marked increase regularly alternated with decades of small increase, while during 1911-21, a negative growth was experienced.

The absolute number of the people added to the

population during each decade has been on the increase since 1921. The decennial rate of growth has also increased from 1921 onwards. From 1951 onwards India's population has been growing at a phenomenal rate while during 1941-1951, the average decennial growth rate was around 13.31 per cent, after 1951 it increased rapidly to 21.51 per cent and during 1961-71, 24.8 per cent and during 1971-81 it was 24.75 per cent. This decrease is almost negligible. From 1921 to 1981 there has been so much of increase, which is more than double in 60 years. The bar diagram (Fig. 2) shows the growth of population 1901-1981 (Census of India, 1981).



IN 1921 POPULATION DECLINED BY 772,177

FIG. 2
INDIA
GROWTH OF POPULATION
(1901-1981)

Current Population Situation in India

The latest count reveals that India is the second largest populated country in the world which is next to that of the population of China, accounting for 15 per cent of the world population of 4.4 billion, but India accounts for only 3.28 million sq. km. area out of the total world area of 135.89 million sq. km. (Census of India, 1981).

The population of India is now 683,810,051 according to the Census of India Report, 1981. The density of population in India was 178 persons per square kilometre according to 1971 census which has increased to 221 persons per square kilometre according to 1981 census.

The current picture, however, indicates that birth rates and death rates are both declining in India, resulting in a slower growth rate. Birth rate in 1971 was 36.9 and the death rate was 14.9 per thousand population, resulting in a growth rate of 22.0 per thousand population or 2.2 per cent per annum; for 1974, however, the birth rate and death rate are reported to have been 34.5 and 14.5 per thousand respectively, resulting in a growth rate of 20.0 per thousand or 2.0 per cent. It must be borne in mind that the base population of India is very large, and therefore, even a low growth rate leads to substantial additions to the population in terms of absolute numbers.

32

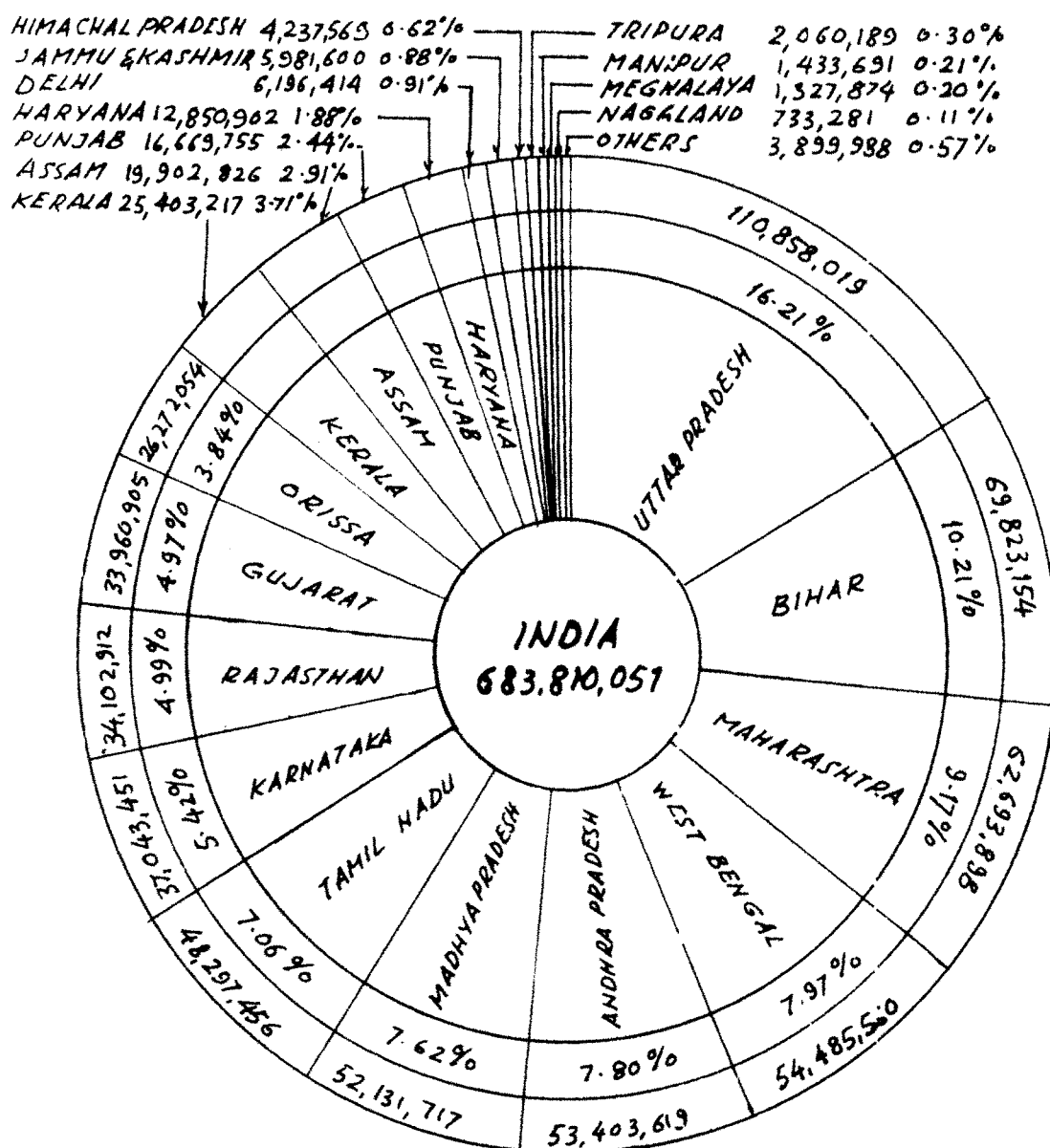
**The Current Population Situation
in the States and Union Territories**

About 98.8 per cent of India's population lives in 22 states and the remaining 1.2 per cent in 9 union territories. Individual states and union territories differ from each other greatly with respect to land, area and population. Details regarding the size of the population area and density per square kilometre according to the 1981 census and the growth rates during 1961-71 and 1971-81 for the different Indian states and union territories are given in Table 4 as well as in Fig. 3.

**Table 4 : Absolute Increase and Per Cent Growth Rate of
Population of States/Union Territories 1961-71
and 1971-81**

Sl. No.	India/State/ Union Terri- tory	Decadal Growth of Population		Percentage de- cadal Growth Rate	
		1961-71	1971-81	1961-71	1971-81
1	2	3	4	5	6
	India	108,924,881	135,050,399	+24.80	+24.75
	<u>States</u>				
1.	Andhra Pradesh	7,519,261	9,900,911	+20.90	+22.76
2.	Assam	3,787,823	5,277,674	+34.95	+38.09
3.	Bihar	9,905,912	13,469,785	+21.33	+23.90
4.	Gujarat	6,064,125	7,263,430	+29.39	+27.21
5.	Haryana	2,446,265	2,814,094	+32.23	+28.04
6.	Himachal Pradesh	647,971	777,135	+23.04	+22.48
7.	Jammu and Kashmir	1,055,856	1,364,968	+29.65	+29.57
8.	Karnataka	5,712,242	7,744,437	+24.22	+28.43

1	2	3	4	5	6
9.	Kerala	4,443,660	4,055,842	+26.29	+19.00
10.	Madhya Pradesh	9,281,711	10,477,598	+28.67	+25.15
11.	Maharashtra	10,858,517	12,281,863	+27.45	+24.36
12.	Manipur	292,716	360,938	+37.53	+33.65
13.	Meghalaya	242,319	316,175	+31.50	+31.25
14.	Nagaland	147,249	256,832	+39.88	+49.73
15.	Orissa	4,395,739	4,327,439	+25.05	+19.72
16.	Punjab	2,415,991	3,118,695	+21.70	+23.01
17.	Rajasthan	5,610,204	8,337,106	+27.83	+32.36
18.	Sikkim	47,654	105,839	+29.38	+50.44
19.	Tamil Nadu	7,512,215	7,098,288	+22.30	+17.23
20.	Tripura	414,337	503,847	+36.28	+32.37
21.	Uttar Pradesh	14,586,590	22,516,875	+19.78	+25.49
22.	West Bengal	9,385,732	10,173,549	+26.87	+22.96
<u>Union Territories</u>					
1.	Andaman and Nicobar Islands	61,585	73,121	+81.17	+63.51
2.	Arunachal Pradesh	130,953	160,539	+38.91	+34.34
3.	Chandigarh	137,370	192,810	+114.69	+74.95
4.	Dadra & Nagar Haveli	16,207	29,507	+27.96	+39.78
5.	Delhi	1,407,086	2,130,716	+52.93	+52.41
6.	Goa, Daman & Diu	231,104	224,346	+36.88	+26.15
7.	Lakshadweep	7,702	8,427	+31.95	+26.49
8.	Mizoram	66,327	155,384	+24.93	+46.75
9.	Pondicherry	102,628	132,429	+27.81	+28.07



OTHERS:-

STATES - SIKKIM 315,682 0.04%

UNION TERRITORIES - GOA, DAMAN & DIU 1,082,117 0.16%

ARUNACHAL PRADESH 628,050 0.09% PONDICHERRY 604,136 0.09%

MIZORAM 487,774 0.07%, CHANDI GARH 450,061 0.06%

ANDAMAN & NICOBAR ISLANDS 188,254 0.03%

DADRA & NAGAR HAVELI 103,677 0.02% LAKSHADWEEP 40,237 0.01%

FIG. 3

INDIA

COMPARATIVE SIZE OF POPULATION
(STATES/UNION TERRITORIES)

1981

SOURCE: CENSUS OF INDIA, 1981 (SERIES I - INDIA) PAPER I OF 1981 (PROVISIONAL POPULATION TOTALS)

It may be observed that U.P. with a population of 110,858 thousand in 1981, is the most populous state in India, while Sikkim, is the least populous. Kerala with 654 persons per square kilometre is the most densely populated state, followed by West Bengal with 614 persons per square kilometre. The Table 5 and Fig. 4 show the trends in population growth rates by major states/areas in India.

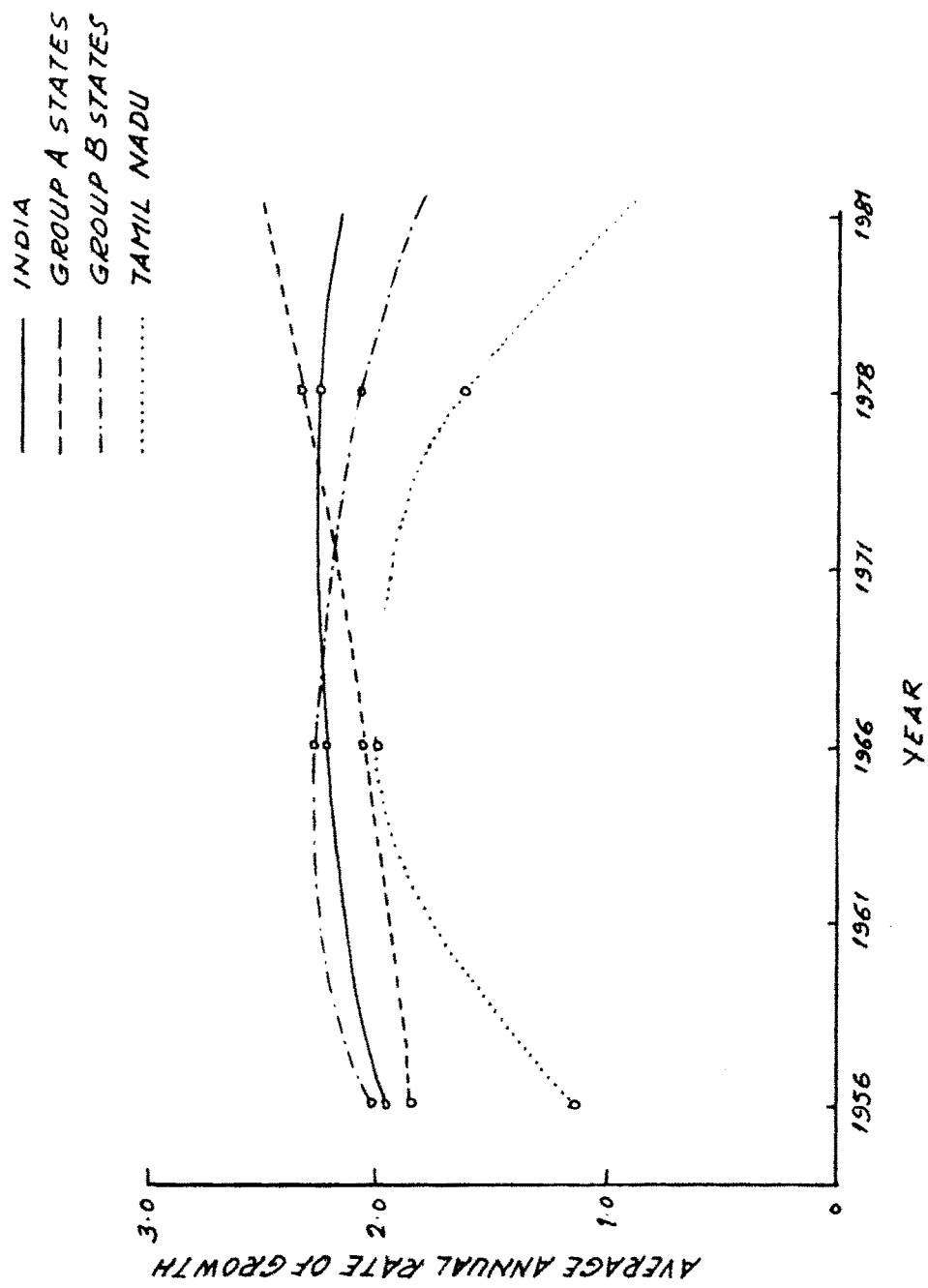


FIG. 4 TRENDS OF POPULATION GROWTH RATES BY REGIONS
IN INDIA

Determinants and Consequences of Population Growth in India

The population situation is greatly influenced by the inter-relationship of the demographic processes namely birth rate, death rate and migration. Prior to 1911 the population growth was negligible because of the balance that was maintained due to the high death rate and high birth rate. During the decade 1911-21 the population of India declined. This is a very striking phenomenon. During this period the major reasons for the decline of population growth were epidemics of plague and worldwide influenza and I World War. In this disastrous year of 1918, the official death rate rose to 63 per thousand population, whereas it was 33 in 1917 and 36 in 1919. J. T. Marten reported in the census report of 1921 that rural areas were severely affected by this epidemic. Mortality was particularly high among adults between the ages of 20 and 40. Women were the worst affected.

After 1921, the Indian population started increasing. The year 1921 is designated as "the great divide" in the sense that it is the turning point which marks the beginning of a regular growth in India's population and also the beginning of a rapid and massive population growth in India. The major reason for this is the substantial decline in mortality levels specially after 1921, and a virtual maintenance of the fertility levels. "Communicable diseases have been brought under control by a wide spread use of sulpha and antibiotic drugs. Besides this, vaccination and other health measures have also contributed to the increase

in the population growth" (Mehta, 1972). Mortality rate has fallen down and as a result life expectancy has increased. For India migration has not played an important role to affect the population situation except the internal migration which is resulted due to rapid urbanisation. Marriage at an early age, low status of women and poor husband-wife communication also contributed to this problem and lead to a high birth rate.

The determinants of population growth are varied. Some of them are due to deep-rooted traditions, customs and age old culture of a place. Some have their origin in the economic conditions. The economic value of the children also motivates the couples to have more children. Some of the causes of high fertility are deeply rooted due to the faith in the religion or superstitions and beliefs (Mehta, 1972). In our country, the traditional blessing to the newly weds is to have many sons and grandsons. People continue to express their preference to have large families. In order to have security in old age people prefer to have large families. They want to have sons because they believe that sons only can perform the final rites thus paving the parents' way to heaven (Poffenberger, 1976). The attitudes of parents to additional children greatly motivate the parents to decide about the family size (Chatterjee, 1977). Sometimes in the families in which the infant mortality is very high they prefer large families to compensate for the children they tend to lose due to mortality. Therefore, there have been varied reasons to create the problem of population

explosion in our country.

The rapid population increase poses a serious threat to development efforts of the country. The task of providing food, school, employment, health facilities, housing, etc. for the increasing numbers is staggering. The population question is not merely quantitative but also qualitative in nature as the implications of population growth upon the quality of life and the well-being of the people are vitally important.

Population Growth and Health: Persistent high fertility causes important health problems not only because economic improvements which are essential for good health get restricted, but also because it poses an immediate health problem for the mother and the child. In most of the developing countries married women aged 17-37 are characterized by continuous nutritional drain from repeated pregnancies and lactation resulting in maternal depletion and increased risk of maternal mortality which increases with every pregnancy beyond the third (Agarwala, 1977). Preventive curtailment of breast feeding and of infant care by an intervening pregnancy are important factors contributing to high infant mortality. Again, children who survive in families where there are too many children arriving too fast are likely to be stunted prematurely in their growth and underdeveloped due to lack of nutritive food. To meet the growing need for health care we will need many hospitals and trained doctors, if the population continues to grow at this speed.

Population Growth and Food Supply: In recent years

there has been a growing concern about the widening gap between population growth and food supply in developing countries because availability of food supplies are inadequate in nutritive quantity for a healthy and active life. Growth retardation, with children often lagging behind in physical and mental development for an average of three to four years, and persisting high mortality rates from malnutrition and infections indicate that the problem of nutritive food availability in adequate quantity requires immediate solution. Retarded development and poor health are responsible for low stamina and low physical activity. Low physical activity results in low productivity, which, in turn, causes more poverty and more inadequate food supply. Unless this vicious circle is broken, future generations will have reduced stature, lower body weights, lower level of physical capacity and consequently reduced working efficiency.

During the last two decades, developing countries have made praise-worthy efforts to increase food production. But any gains have largely been offset by increase in population and therefore, per capita food consumption has increased at a very moderate pace as compared ^{with} the more developed countries.

Population Growth and Employment: Employment is another area of serious concern on account of rapid population growth. About two-thirds of the world's manpower resources are presently located in less developed countries.

The working population in these areas will grow rapidly in the years to come; it is likely to double itself before the end of the century (Agarwala, 1977).

The need for expanding employment opportunities for the growing numbers of young people will become even more urgent in the future. The number of job-seekers will continue to increase in the future, and the effect of a decline in birth rate will be felt only after a lapse of fifteen years.

Population Growth and Education: Another major problem is that of providing schooling to the growing school-going children in less developed countries than in developed countries.

The educational problems are not confined to the young population only. More than one-third of all the adults are illiterate. In spite of vigorous literacy campaigns for adults decline in the percentage of illiterate adults is very low.

One of the consequences of high fertility is that the proportion of the population in school-going age group (5-14) is as much as 40 per cent in educationally less developed countries.

Population Growth and Housing: The demand for housing is affected by various demographic factors, like the size of the population and changes in fertility, mortality, migration and family formation. Changes in all above

3

demographic variables have created a housing demand of enormous proportions.

In Indian cities with a population of \pm 500,000 and above, nearly 30 per cent of population live in slums. In the rural areas, it is estimated that nearly 50 million houses have to be reconditioned and/or rebuilt (Agarwala, 1977).

Population Growth and Social Crimes: Countries throughout the world have expressed growing concern with the dilemma of crime and delinquency. Many researches in different countries have proved that acceleration in crime and juvenile delinquency goes hand in hand with urbanization and industrialization. Countries with high rate of urbanisation seem to be plagued by high crime and delinquency rates. Advanced countries like U.S.A. and Japan are facing the acute problems of juvenile delinquency and crime. Countries like Iran and Turkey with 80 per cent rural population and low rate of urbanisation, also have low rate of crime and delinquency. There has been an almost 50 per cent increase in the number of juvenile apprehended between 1973 and 1974; the highest number was in 1970 (Bhende, 1979). When the sex composition of the apprehended juveniles was studied, it was found that there were 11 boys to each girl apprehended. While in the 7-11 age group, there were nine boys to each girl apprehended, in the 12-15 age group this ratio was 12. In the Indian cultural setting, girls lead a very sheltered life and are, therefore, less likely to

come in conflict with the law than boys (Bhende, 1979).

The overcrowding in the cities, extensive slums, broken homes, the frustration and despair of poverty, unfavourable conditions in home and neighbourhood, the large number of migrants, the high rates of unemployment, low social cohesion, low socio-economic status, and physical deterioration, are generally the characteristics of the cities these days and all these have combined to create a situation in the cities, in which new inducement for crime and delinquency have arisen. Migration, urbanisation, industrialization are the important crimeogenic factors. Unless there is planned development of the cities and towns, adequate provision of the housing for the increasing number of migrants and an effort to provide economic and job opportunities to people from urban slums and poverty stricken areas, the city life will be facing an unending crime problem (Attar, 1975).

Measures Taken by the Governmental and Non-Governmental Agencies to Control the Growing Population in India

Since India has the distinction of being the first country in the world to launch a Government sponsored nation-wide family planning programme, it is of interest to study the historical evolution of her anti-natalist policy and to critically assess the programmes undertaken in pursuance of this policy in the light of her achievement over the years.

While studying India's population policy, four periods have to be considered separately: These are the pre-independence period; the period from 1951-75, the period of the emergency 1975-77; and the period following the lifting of the emergency.

The Pre-Independence Period

The British rulers of the country were not interested in formulating any population policy for India, nor were they in favour of the birth control movement, which had started making its presence felt.

A section of the intellectual elite among the Indians showed some concern about the population issue during the period between the two world wars, despite the fact that the pre-occupation of the general population was primarily with the independence movement. Initially, the cause of concern was the density of population rather than the rate of growth, for high rates of mortality as well as of fertility did not result in alarmingly high growth rates. The 1931 census indicated that the intercensal increase was much higher than during the earlier decade. Several important developments took place between 1916 and the attainment of independence in 1947. In 1916, P.K.Wattal published his book, the population problem in India, in which he advocated family planning. In 1925, Prof. R. D. Karve opened the first birth control centre in Bombay. In 1930, the Government of Mysore opened the first Government Birth Control Clinic in the world. After 1931, there were other state Governments

to initiate the programmes of birth control in some or the other ways. In 1935, the Indian National Congress set up a National Planning Committee which recommended that, "in the interest of social economy, family happiness and national planning, family planning and limitations of children are essential". Raising of the marriage age was also considered by the Committee as a favourable step to limit the family size. 1935 onwards the training courses in birth control were conducted in some parts of the country and 1939 onwards few of the state Governments had started opening the birth control clinics. In 1945 Health Survey and Development Committee was set up by the Government of India which recommended that birth control services should be provided for the promotion of the health of mothers and children.

The impact of Gandhiji's views on birth control also need to be taken into account because he exercised a strong influence over the Indian masses both in political field as well as in all areas of human life. On the ethical and moral grounds he was against any artificial means of contraception; but he lent his full support to 'brahmacharya' or abstinence.

~~The~~ The Period from 1951 to 1975

Beginning with the first five-year plan in 1951 the need was recognized to undertake measures to control the growing population in the country. With successive five-year plan more and more budget was allocated to family planning and mother and child welfare activities.

A nation-wide family planning programme was launched in 1952 and under the programme activities various measures and approaches were undertaken to control the rapid growth of population in the country. This nation-wide family planning programme was the responsibility of the Central Ministry of Health with cent per cent financial assistance to the state Government for its implementation.

Since its inception in 1952, the family planning programme has undergone several revisions. In India, it started with a very cautious approach. The first five year plan emphasised field research with a view to identifying values, norms, customs and beliefs concerning child bearing. The natural method (rhythm method) of family planning was also considered to be the most appropriate for the Indian masses and hence this was propagated. Several clinical trials were conducted to test the acceptability and efficacy of the various birth control methods. Among them were foam tablets, the Condom (Nirodh), diaphragm and jelly. By and large, the method was accepted by a small segment of the population since the services were available only in the clinics named as family planning clinics. Due to shyness, and also due to the fear of society, very few people used to visit the clinics for the services and hence these needed to replace the clinical approach. Due thought was given in this regard and it was realized that this approach had to be replaced by the extension approach. This involved the adoption of an educational approach to bring about changes in the knowledge, attitudes and behaviour of the people in regard to family

planning. In 1963, it was felt by the people in the field that this approach needed to be strengthened and so efforts were made in this direction. The reorganization of family planning programmes was given a serious consideration since the family planning programme could work in isolation as it revolved around the mother and the child. This family planning programme was integrated with maternal and child health services of an integrated approach in the entire country. Further, the integrated approach was strengthened by the All India Post Partum Programme in the year 1967.

Mass sterilization camps were the order the day since 1971-72 and the first vasectomy camp was conducted in the Satara District of Maharashtra followed by the first mass tubectomy camp at Gennavaram, Krishna District of Andhra Pradesh in 1968. One of the significant aspects of the sterilization programme was the huge vasectomy camp conducted at Arumakulam District, Kerala, in the year 1971 accounting over 60 thousand vasectomy operations. Though the sterilization was emphasized the main approach adopted was the Cafeteria approach which is still in currency. In Cafeteria approach during the year 1965 Lippe's loop was introduced and there was a tremendous response towards the acceptance of this device. But the same trend could not be continued owing to the lack of follow-up and associated complications. Normally, in a family planning programme, the oral pills were introduced during the year 1968 on a pilot basis and after the clinical trials it was recognized as one of the approved methods.

Though abortion is not considered by the Government of India as a family planning measure, it is important to note that in 1971 Medical Termination of Pregnancy Act was framed. The law was effective from 1972. It was considered as a piece of social legislation for the emancipation of the woman.

The Period of the National Emergency (1975-77)

The most striking feature of this period is the declaration of the National Population Policy on 16th April, 1976, the upsurge in the implementation of the family planning programme, the proposed legislation for compulsion to bring about family planning acceptance and the role of excesses in free enforcement of the family planning programme in bringing about the down fall of the Government. Since the targets were fixed for vasectomy and tubectomy the growth rate declined but this is negligible. Due to the excesses practised without imparting the 'why' of adopting the small family norm, people considered it to be a Government programme and hence the achievements were not ~~also~~ remarkable from the long term point of view.

National Population Policy

In 1974, India had played an important role at the U.N. World Population Conference at Bucharest. As a result of this conference Indian Government declared the National Population Policy of India on 15th April, 1976, till then, the population policy of India was generally equated with

the family planning policy. The statement on the population policy took into account some of the complex relationships between the social economic and political aspects of the population problem and included appropriate measures to tackle the population problem. The policy statement included certain long-term measures such as raising the age at marriage to 18 for girls and 21 for boys, and improving the levels of female education specially above the middle level.

To bring about the greater acceptance of family planning, several measures were mentioned in the policy statement. These included a system of graded monetary compensations based on the number of living children the couple has at the time of sterilization. The policy statement also outlined a multi-media motivational strategy, which involved the utilization of all the available media channels as well as traditional folk media to encourage and sustain interest in family planning.

The policy statement recognized the family planning was a multi-faceted problem and emphasized the contribution of all other Ministries to the implementation of the programme.

As a long-term programme, population education for the younger generation was accepted as a supportive measure, so that the young might grow up with a greater awareness of the population problem and realization of their national responsibility. The research was also emphasized in the

statement.

The most controversial part of the policy statement was the proposed legislation for compulsory sterilization of a couple after they had a certain number of children. In different states the targets were met for compulsory sterilization of the couples with graded incentives.

It was also decided that the representation in the Lok Sabha/and the State Legislatures will be frozen on the basis of the 1971 census until the year 2001. This means in effect that the census counts of 1981 and 1991 will not be considered for purposes of adjustment of Lok Sabha legislative seats.

The performance of family planning on the National scene had serious effects during the post-emergency (i.e. 1977-78), especially, in North India and Central India where excesses were alleged to be too high. A leading Economist and Demographer of our country Dr. Ashish Bose, termed this programme as a combination of coercion, cruelty, corruption and cooked up figures. This over zealous programme had a booming effect on the political situation of the country and thus the Indian experience will certainly be looked upon as a lesson for years to come and the effect of which will be reflected ^{to} a great measure on the future policies of the new Government (People, 1978).

The word "Family Planning" has almost become a taboo in many of these states. The extent of damage that

was done to the programme may be assessed by looking into the dismal performance of 8 lakhs operations during 1977-78 as against 8.3 million sterilization in the corresponding period of 1976-77 and less than 1/3rd of the total performance of 1975-76, the period in which the emergency was proclaimed (Department of Family Welfare, 1979).

The New Approach (Post-Emergency Period)

Soon after assuming power, the Janata Government announced that coercion would not be used to implement the population control programme. The family planning programme was renamed as the family welfare programme to make it more acceptable and to denote that it had a wider base, so that it could comprise various measures of family welfare for the improvement of the quality of human life. The wider policy of family welfare covered health, maternity and child care, family planning and nutrition services. The emphasis was also laid down on preventive health services, provision of safe drinking water, programmes to ensure sanitation in rural areas and the production of inexpensive drugs and medicines.

An important functionary in this modified policy is the community health worker to provide health services at the door step and to provide simple medical aid to the rural community. The reduction in the birth rate as the ultimate objective of the population control programme was not lost sight of and it aims to bring down the birth rate from the

present 34.5 per thousand population to 30 by the end of the Fifth Plan and to 25 by 1984.

As equal emphasis was given to all family planning methods and sterilization alone was not given any stress. Sterilization is now being done on an voluntary basis and the term 'expectation' is used instead of 'targets'.

It is too early to predict with any degree of confidence, the future of the population control programme in India. Since it is viewed from the various angles and the multi-facet approaches are being used to reduce the birth rate ultimately and improve the quality of life of the individuals. Educational approach has been given greater and greater stress and considerable efforts are being made to introduce population education in the schools and colleges for the younger generation. The centre has approved a programme designed to ensure that the younger generation grows up with adequate awareness of the population problem and its responsibility. The programme estimated to cost 4.26 crores in the coming three years (Indian Express, 16.6.1980) involves the preparation of curriculum and material at the national and state levels and the training of teachers and the field workers. Ten states and union territories of the country have already initiated action on the programme. This programme has been prepared in collaboration with the United Nations Funds for Population Activities with the Ministry of Health and Family Planning.

54

Concept of Population Education:
Different Definitions

The expression "Population Education" defines definition. Several experts have tried to define it with their own biases and purposes. Population education was first used by Wayland of Teachers' College, Columbia University in 1969. Initially the concern for population education was to supplement the family planning programmes through the formal educational systems.

A comprehensive concept of population education should include a knowledge of both the quantity and quality of population dynamics and the need to control both for happy human existence. Broadly speaking, four approaches can be readily identified in the literature on the subject. They are:

- (a) Sex Education
- (b) Education for Family Living
- (c) Population Awareness, and
- (d) Education for basic value-attention with the focus on planning for the future.

These approaches are not necessarily mutually exclusive. Consequently, there exists much vagueness about the concept of population education.

Writing in 'Science' (1969) Burleson, the then President of Population Council, points out that in a democratic society where the important choices are made by the people, population education is the most realistic long-term

approach to limiting population growth.

Viederman (1970) emphasizes the moral and ethical purpose of population education and define it as:

The process by which the student investigates and explores the nature and meaning of population processes, population characteristics, the causes of population change and the consequences of these processes, characteristics and chances for himself, his family, for society and for the world.

Thus, population education helps to develop an understanding of the consequences of individual's decisions in the important area of reproductive behaviour.

Wayland (1969) was interested in the introduction of population studies into school curriculum. He noted that terms, "Sex Education" and "Family Life Education" which were used in the West, there was no concern about population studies. Therefore, he was not in favour of the use of these terms, as the substantive content and focus in the new field were different. Furthermore, he thought that it was best to use a term which did not evoke "negative responses from the educators and the public". For these reasons, he suggested the term, "Population Education", including in its content only such elements of family education and sex or reproduction education, as are logically related to population issues.

On the other hand, Burleson (1969) considered it relevant to include both sex education and family life

6 education within the scope of population education. He stated, "Population Education" is an exploration of knowledge and attitudes about population, the family and sex. It includes population awareness, family living, reproduction education and basic values. Hence, he used another term "Population Awareness". This term "Population Awareness" refers to factual knowledge about population dynamics required to understand the nature and magnitude of the burden imposed by population growth. With such a broad connotation, education for population awareness encompass within its scope, all efforts to inform the public about the population problems.

Peffenberger (1968) defines population awareness as the "communication of those aspects of population dynamics which indicate the significance of population growth in terms of its social, economic and political consequences for a given area". Rao (1974) defines population education as an "Education programme which provides for a study of the population phenomenon as well as to enable the students to take rational decisions towards problems arising out of rapid population growth". He states that population education is concerned with more than knowledge; it involves both cognition and values.

Rao (1969) states:

Population should not be treated merely as a quantitative phenomenon or just as essay in numbers. It is the quality of the population that is most relevant, both as a factor of growth and members have to be treated in terms of the effect they have on quality

7

either by way of deterioration or of improvement. Population education, therefore, is essentially related to human resources development. Thus, population education is not only concerned with population awareness but also with developing values and attitudes so that both the quality and quantity are taken care of.

Taylor (1969) stresses the motivational relationship between a Population Education Programme and the practice of family planning: "Population Education" has a double task: it is both motivational (trying to encourage people to adopt family planning) and it is instructional (teaching people the facts about the population problem, its probable consequences and the possible alternatives).

The definition on population education framed by Wadia (1970), the President of the Family Planning Association of India reads as follows:

Basically, it would aim at creating among the younger generation an awareness and an understanding of one of the most striking phenomena of the modern world namely population and its growth, and the causes, trends and major factors affecting it.

The significance of population growth on individual and family life would also be a part of population education. It would help to show that for preserving the health of the mother, the welfare of the children, the economic stability of the family and the future prospects of the younger generation, it is desirable to adopt the "Small Family Norm" of not more than 1 to 2 children - a norm which in fact prevails throughout the developed world.

Stegner (1970) views population education as an

eteological approach, stressing the interaction of the biological organism with the environment and the balance between the two. He states:

A group of organisms of the same species occupying a particular space is called a population. It grows, develops and maintains itself in a changing environment. So when I speak of population education, I mean population environment education. There is no way that population and environment can be separated.

In the Extension Monograph I, Baroda (1970) population education has been defined as a course of instruction in the dynamics of population, excessive growth of population and its impact on the personal and social life of the citizens of a country. It is a motivational programme for the future generation to realize that planning in all the phases of life is not only helpful, but also desirable, both for the individual and society. Howe (1969) states "Population Education" is not family planning or birth control education although these topics are related and relevant. Population education is merely instruction in the dynamics of population without the emotionally charged areas of sex, birth control and family planning.

Edlefsen (1969) contends that population education is not concerned with "Family Planning Education" and "Sex Education" except where age and maturity would make these appropriate; for instance, upper level students and those in colleges.

Faneff (1971) defines population education as "educational programme that has as its primary objective the development of a cognitive approach to the problem of uncontrolled growth". Thus, this definition emphasises the cognitive aspect of population education.

Ozzie (1970) stresses the cognitive as well as well effective aspects of population education. According to him:

Population education is a promising means of diffusing information about population problems more pervasively through the channels ordinarily available to family planning programmes. But it is also important to produce desired changes in attitudes, behaviour and values in the next generation which is almost here.

Simons(1970) also takes into account the cognitive the and/effective aspect of population education (diffusion of information and the desired changes in the attitudinal behaviour and values in the next generation).

The UNESCO appears to favour the terms "Population and Family Education". As per the Draft Final Report of the Regional Workshop on Population and Family Education, Bangkok (1970):

Population education is an educational programme which provides for a study of the population situation in the family, community, nation and world, with the purpose of developing in the students rational and responsible attitudes and behaviour towards coping with that situation.

Thus, various people have defined population education from different angles. It is upto the researcher

whether he wants to adopt any of these definitions or frame his own which is more comprehensive and defines his approach for the study of population education.

Population Education, Family Life
Education and Sex Education

Population education is neither sex education nor family life education. The guiding principle of sex education is to create respect for it and also find scientific information to help young people to develop healthy attitudes towards sex. The Family Life Education deals with the knowledge, attitudes, and skills required to be acquired for successful family living. It includes better understanding of themselves and a clearer concept of their own roles as husbands or wives, as responsible parents, and as members of the society. This will help them to develop their own codes of behaviour and of ethics, instead of blindly submitting to the codes of behaviour laid down as being mod or fashionable.

Whereas population education aims at creating among the people an awareness and understanding of population and involves the study of population trends and their impact on the various aspects of human life, social, cultural, economic and in particular the close interaction with the whole process of human growth and development. Population education does not merely consist of conveying of certain insights and attitudes about the place of man in the modern world. It is a strategy to build up a new ethic of respon-

sible behaviour in human reproduction and family living to improve the quality of one's life. It helps to prepare the younger generation in realistic and meaningful terms to face one of the major problems of our time - that of population explosion.

Need for Population Education

The commendable reduction in neo-natal, infant and child mortality of late, over 40 per cent in many developing countries are under 15 years of age (Sadashivaiah, 1979). This young population will constitute the adult population of the world in the next three crucial decades, and their reproductive behaviour will be of crucial importance to the efforts to control the rate of population growth. In most countries this group has received very little or no attention in population limitation programmes. Due attention has to be focussed on sectors, currently in the reproductive age group. Thus today's parents have a responsibility in controlling their family size and to educate the younger generation. Dissemination of proper information and guidance on population related matters has to be arranged through the process of population education, which may ultimately bring behavioural and value changes in the younger generation. While doing so, information on population education and sex education has to be excluded except where age and maturity make these appropriate. The same view is voiced by Pohlman and Rao (1969), rightly pointing out that there can be population education divorced from sex education, although an

understanding of sex education would give a more complete picture to population education.

Coming to the Indian scene the child-adult ratio constitutes 42 per cent of India's population under 15 years which means enormous strain in providing educational facilities for the school-going population, coupled with the problem of providing competent trained personnel and the effect of teaching on quality of education. If one carefully examines the age composition of our population 42 per cent would form major portion of adult population in the next decades. The reproductive behaviour of this population is of crucial importance in regulating population growth. Moreover any incidental learning by children may be harmful especially the impact of mass media in national family planning programme. Hence, the population phenomenon needs to be imparted in a scientific manner through well planned population education programme.

National and international seminars and conferences held during the last two decades have strongly recommended that in order to reach the largest number of people, the population problem should become an integral part of the education system. The world population conference in Bucharest in 1974 urged Governments to take the necessary steps to provide to all couples and individuals the information, education and means to decide freely and responsibly the number and spacing of their children as a basic human right (Wadia, 1974). While discussing the issue of

"education for our needs". Brar (1976) has very emphatically high-lighted the need of population education. The Ministry of Health and Family Planning is also in close touch with the introduction of population values in the educational system. The workshop held on population growth and education policy at New Delhi, 1973 had supported the view that population education should be included at all levels of education primary, secondary and higher secondary. NCERT has launched a population education programme in schools at primary and secondary levels in the 10 states of India from April 1st, 1980 (Centre Calling, 1980).

During these years of school an individual learns to think through the problem and obtains the relevant information and knowledge. In fact, during these years of school, children are growing up. There are many physiological as well as psychological changes which their bodies are undergoing. "During puberty and adolescence, changes start occurring and get completed till physiological maturity is attained. The increased strength of sexual desires cause the adolescents to withdraw from parental relationship. These adolescents become curious to know about these changes in their own bodies. The adolescent often finds satisfactory relationship with adults younger than his parents" (Bali, 1976). It is a matter of regret that the adults who have knowledge do not necessarily pass on the same to their young children. They should be informed with correct knowledge to help them find their own ways to regulate their own conduct with the normal satisfaction of life (Elizabeth, 1962). This

young group enters the reproductive stage without proper orientation in the problems related to population. The future patterns of our population growth will depend on our present generation who is soon going to be the parents of tomorrow. Therefore, during these years they should be provided with adequate information so that they can make use of their knowledge when the time comes.

Development of Population Education Programmes - Content, Teaching Strategies, Teaching Aids and Evaluation

Interest in the development of population education programmes arose largely in response to a growing concern about the consequences of population growth first in the developing world and more recently in the more developed countries. Justification for the development of population education programmes need not rest solely on the perception of and concern for problems arising as a result of population growth and change. Studies of students' knowledge of and attitudes toward population matters show that there is a considerable gap between students' concern and their knowledge of the processes involved and their consequences. This gap offers sufficient justification for the development of population education programmes, assuming that one of the functions of the formal school system is to assist students to achieve "informed concern" (Viederman and Wayland, 1973).

Finally, population education can be justified on purely intellectual and educational grounds. The -

67

characteristics of a population and the changes that occur in a population have consequences for our lives, whether we believe our country to be over-populated or underpopulated.

Content

A review of the materials from the various national and international groups now working in the field suggests that population education encompasses a wide range of issues in which many aspects can be included. The selection and treatment will obviously vary from place to place and culture to culture. However, some common elements do exist even though the definitions may differ in details or emphasis. As given by Viederman and Wayland, 1973, they are:

1. The focus is on an understanding of the relationship between population dynamics and the quality of life both for the individual and the society.
2. Attention is directed to the individual, the family, and the community, as well as to the nation and the whole world.
3. The process is described as education, not indoctrination or propaganda.
4. There is a focus on both the cognitive and the affective; a concern for knowledge and the skills, as well as to the nation and the exploration of values and attitudes.

5. The content is multi-disciplinary or intra-disciplinary, drawing on concepts and data from many subject areas.
6. The selection of the concepts and data to be included and excluded is determined by the specific goals and objectives of the programme and by the cultural and educational traditions of the country. The NCERT and many individual researchers have suggested the main areas of population education in India as: demography, determinants and consequences of population change, human reproduction/sexuality and family planning. The area on human reproduction is a controversial issue though important to understand basics of human sexuality with its biological, psychological and sociological component. Awareness that family size is controllable through understanding of the menstrual cycle will be developed (Villanueva, 1976).
7. Concern is expressed, in principle, for the whole range of population factors, such as migration, age structures, infant and maternal mortality etc. inspite of the major focus on rapid population growth.
8. The goal is often defined as motivating students, when they reach adulthood, to limit their family size for better quality of life.

7

9. The concern for rational and responsible behaviour and attitudes is usually defined in terms of developing ~~and~~ understanding of the consequences of the individual's own behaviour for himself and for society.
10. Particular attention is directed to the students' own milieu - his village, city, state and nation - indicating the particular distinctive processes that are, or might become, most familiar to him.
11. School educators are increasingly recognizing the value of population education as complements to school programmes for out-of-school youth and among adults so as to reach as many individuals as possible in the shortest possible time.
12. The term population education is used to describe a primary and secondary school programmes that are well planned and systematic at the national or state levels.

The NCERT, NewDelhi (1971) has prepared a draft syllabus on population education for all grade levels. The complexity of the contents increases as the level of education ~~is~~ increases. The major areas included for study are population situation at macro and micro levels, determinants and consequences of population growth, human

reproduction and family planning.

The major components of population education programme as suggested by Mehta (1974) are:

(a) Demography: Population situation and facts to assess changes in fertility, mortality and migration behaviour.

(b) Determinants of Population Growth: Determinants like social norms favouring large families, economic conditions, religious or superstitious beliefs.

(c) Consequences of Population Growth: Consequences of population growth on economic development, social development, employment opportunities, food and nutrition, health, housing, education, recreation etc. at micro and macro levels. Ecological consequences of increasing population are also equally important.

In order to make the population education programme more comprehensive and gear it to the needs of the country two more elements (components) may be added as follows:

(d) Human Reproduction: Basic knowledge about the process of human reproduction, to learn things about reproduction more accurately and scientifically than what they learn accidentally. This knowledge will help them to understand concept of small family norm.

(e) Family Planning: Family planning measures to develop an understanding that birth is a matter of

deliberate choice and human obligation. Along with this the concept of and desirability of small family size can also be included to promote happiness and to raise the standard of living of the families in our country. Family planning or welfare policies and programmes of nation can also be included.

There are certain considerations that have to be followed which are relevant to the formulation of national programmes of population education. It is deemed necessary to identify the following as suggested by Jayasuriya (1971):

1. Target groups which should have priority exposure to population education.
2. Resource persons to be trained and employed to reach these target groups.
3. The instructional system to be used, identification of which will highly depend on the target groups.
4. The mechanism for producing instructional materials, which would require national level plans to avoid unnecessary duplication of efforts.
5. Research needs and problems, including evaluation to make the programmes more viable and effective as well as strengthen them in all aspects.

72

Selection of Content: Reflection on the goals and nature of population education made it abundantly clear that "there is no single discipline which readily offers a body of knowledge for population education" (Byune, 1975). The content has to be selectively drawn from the fields of study such as demography, economics, sociology, health service, physical science, biology and, therefore, requires the collaboration of scholars from these disciplines and professionals in the field of education. A team of such scholars, having studied the available literature on population education, and the relevance of population in the context of a particular country or target group, to identify the concepts to constitute the conceptual structure of population education is required.

These considerations have to be taken care of whether a programme on population education is planned by an individual researcher, or at the national and state end. The emphasis may vary depending on whether the goal is of value teaching and value processing or both. The major content is suggested by Mehta (1974) related to the knowledge and understanding of demography/population dynamics, determinants of population growth, consequences of population growth, human reproduction/sexuality, and family planning. This content is reflected in the NCERT draft syllabus as well as the various research projects undertaken by population information. Division, Philippines and the innovative attempts made by Korea, El Salvador and Tunisias.

Teaching Strategies for Population Education for School and Out-of-School Youth

Introducing population education necessitates changes in the educational system plus a reasonably broad base of support. This would entail the creation of a population education cell or unit within the country's educational system. Once specific goals and purposes are made clear, the problem or approaches must be considered. This means the creation of new courses or the infusion of population concepts in all relevant subjects. Teacher training and the production of materials will definitely be affected by these changes. Research and evaluation should also be included as part of the development of these programmes. Finally, it must be remembered that the ultimate responsibility for the development of the programme must rest with the people of the country, not with any external force.

As with all good education, population education provides the student with the knowledge needed to act responsibly in any given situation, now and in the future (Viederman, 1970).

In order to impart population education, the educational approaches that can be made to children and youth can be divided into two main streams: (a) through the formal education system of schools and colleges, (b) through various community channels which influence, instruct or simply communicate with those who totally lack educational opportunities or are early school dropouts or adult

illiterates.

Formal Education: For a national plan of introducing population oriented education, it will be necessary to have a built-in strategy for reaching the various target groups. The key note of the national scheme is to introduce circular change with the minimal increase in the workload, expenditure, utilization of additional personnel and to share the responsibilities (including financial) among the various educational agencies both at the state and national levels. The problem of population growth requires a long term solution and it is here that education performs the important function of inculcating in youth and adults the values and the attitudes of personal and social responsibility that are necessary for human development of both the individual and society.

At the national level the curriculum development work is going on at a full swing as from April 1980 in 10 states, the population education is introduced at primary and secondary levels. The curricular approach must be used with imagination, a certain amount of freedom and flexibility to experiment so as to adopt to the local conditions and to relate meaningfully to the daily experience of children coming within its purview.

Extra-Curricular Activities: Whilst it is felt that the curricular approach must become the chief concern of educators, once they have accepted the underlying concepts of population education and the validity of its

introduction in school system, there is still a very wide scope for programmes of different types like NSS, NCC, Guiding, Scouting, etc.

The extra-curricular approach presents valuable opportunities for evolving and testing out population education materials, tailored to the needs of the particular classes or age groups. The talk and discussion methods with young university students has proved to be very stimulating and is particularly valuable in that it is gradually encouraging the students to articulate some of the difficulties or blocks they feel in accepting new ideas.

Non-Formal Education: A major challenge that must be faced is to devise means of working with those young people outside the usual channels of communication — the unattached, unorganized youth who are not reached by conventional school programmes. In our country, we have a large percentage of children and youth who are either non-school going or early school dropouts. Because they are the most difficult to reach, they are the ones who have been most neglected as many of them come from the most disadvantaged sectors of society and have little access to other sources of information and guidance.

Among the out-of-school youth, focus should perhaps be placed on older adolescents on the threshold of reproductive behaviour rather than on the relatively younger ones (Jayasuriya, 1972). The need to educate the youth in

population issues is now being recognized through the newly-emerging concepts and methods of population education. The out-of-school youth are recognized as important to national development, yet educational strategies have not been directed at them.

The article by Poffenberger (1971) suggests the propositions that population education programmes must be created for out-of-school Indian youth. Reaching the majority of Indian youth through population education programmes has remained a problem. Those who are reached through school programmes largely represent upper socio-economic groups who are more likely to favour a small family norm. On the other hand, the majority of the middle level or lower level castes, as well as girls from all castes who have high fertility values and behaviour, need to be reached through some kind of out-of-school programme.

The term "population learning" is preferred, since it implies that learning is largely a result of experiences outside formal educational settings, i.e., mass media sources and family planning information directed toward adults.

Coordination with Government family planning programmes and additional research to develop and evaluate the methods and approaches to reach the youth are deemed necessary pre-requisites in planning effective programmes for the out-of-school youth (Poffenberger, 1971).

In terms of planning for non-formal education programme there are four major approaches. The single agency approach, the integrated approach, the integrated approach and the intensified area planning approach (Chang, 1971).

In programme Design and Development, the strategy recommended by the consultative seminar on out-of-school Educational Programmes in Population Education, Bangkok, October, 1975, is one which would integrate the out-of-school population education programme with other development programme of different agencies in the country, as well as coordinate them in order to avoid overlapping and waste of resources. This would call for the establishment of a "resource centre" or similar body at the national level, with branches at the lower level if possible.

At the national level, funds may be provided by donor agencies for such needs as the solicitation of political support for the programme, the development of training, research and evaluation institutions, and the creation of a coordinating unit to support and manage population education programmes (Viederman, 1974). Such programmes should be developed, in the shortest possible time, to utilize facilities of all public and private organizations, e.g. agricultural extension services, religious and cultural groups, labour groups, mass media organizations, etc. (Edlefson, 1973).

Community Channels: Among the community channels through which young people can be reached, the radio provides great opportunity for mass dissemination of information and

it is increasingly penetrating into the deep country-side even in the developing countries. Such media should be fully explored and exploited more and more for this purpose. Methods of implementation are many and varied depending to a great degree on the preliminary survey. These include lectures, group meeting, and discussions, traditional or folk media, film shows, home visits, role-playing, etc. Reliance on the people and respect for their culture are undoubtedly indispensable factors for community education programme (Muslim, 1975).

The coverage of the school as well as out-of-school youth, with an approximate well planned programmes has to be tailored to their needs so as to benefit them otherwise all the efforts of dissemination will become infructuous to the population values and quality of life. The total planning of the content and procedure to be adopted should be based on the characteristics and needs of the target group. Only such programmes will achieve desirable results in future. The imperative today lies in reaching the most number of people through population education.

Besides these the other way to look at it which has also been widely accepted to determine the way that the population content would be introduced into the subjects at various grade levels, a careful consideration was given to the advantages of three modalities, namely, a separate course (wholistic approach), a unit approach, and an integration approach (UNESCO Report, 1981). The arguments may

be briefly summarized as:

A. Separate Course Approach: A separate course on population education, lasting a term or a year, has the advantage of meeting the criteria of continuity, sequence and integration, and thereby providing students with a concentrated course that would give them indepth knowledge. A further advantage is that only a small number of teachers would be involved thereby reducing the effort of the teacher-training component. However, a serious disadvantage of this approach is that the course would be an unwelcome addition to an already over-burdened time table. Secondly, if the course were presented in the more advanced grades, then the pupils who had left school would be excluded from its benefits. On the other hand, if the course were presented in one of the lower grades, certain basic population concepts would have to be omitted as they would be beyond the level of maturity of the pupils. In addition, the teachers of this new course would require more extensive training than is possible to give them a sufficiently deep knowledge of the multidisciplinary nature of this new field.

B. Unit Approach: Adding units of population education to the existing text-books and classroom instruction is the second mode of inclusion that can be considered.

In this approach a series of related concepts may be woven into an instructional scheme which take roughly from one to four weeks of classroom time. Since children vary in the degree to which they understand concepts, in the maturity level at which a

particular concepts becomes meaningful, and in their response to teaching methods, the unit approach has the advantage of providing for significant variety of content chronology and methodology. Its disadvantages are the difficulties of altering curricula and of training teachers in many subjects and grades. (Byun, et al., 1975)

Despite the considerable effort entailed by this approach, it is considered to be preferable to the separate course approach especially when some of the population concepts were already partially covered by the existing curriculum.

C. Integration Approach: This approach entails the restructuring of all existing curricula so that the population elements permeate many topics. Thus, although there may never be a population unit, relationships between population and other topics would constantly be noted and examples for reinforcing other learning would continually be based on population data. The major problem with this approach is that the task is difficult, time-consuming, and involves modification of so many curricula. It may also result in pupils acquiring greater knowledge of population "facts" but little comprehension of the relationships among them. On the other hand, this approach would be very valuable if the variety of population facts can occasionally be summarized by a unit specifically designed for this purpose (Byun, et al., 1975).

The Philippine experience in curriculum development for population education have stressed on the 'discovery approach' (Reyes, 1976) which is sometimes called "conceptual approach", "inquiry approach" and "process-oriented" or

"activity-oriented approach". This method is intended to help the child internalise a concept by guiding him to discover facts on his own and the relationship among these facts. The different approaches suggested by them are:

1. The infusion or integration approach.
2. Alternatives to integration:
 - (a) The separate course for population education for one term or one year.
 - (b) A unit of study or "mini-course", a series of related concepts integrated into a scheme taking up a total of roughly one to four weeks of class time.
 - (c) The "teacher dependent" course concept which requires that each teacher be given thorough training in population education and then encouraged to independently incorporate appropriate materials into his or her subject matter. This, of course, requires highly qualified and highly motivated teachers.
 - (d) "Learning Activity Packages" (LAPs), commercially published or developed by teachers, which use the approach of individualized independent learning. The

learner selects the learning activities he wants to use and paces his own involvement, with the teacher as guide.

The choice of the teaching strategy will be dependent on the goals of the programme and the target group to whom it is given.

Effective Communication and Audio-Visual Aids in Teaching

Communication is defined as the shaping of ideas and feelings in a mood of mutuality. It suggests that communication involves interaction - the give and take that provides feedback to persons involved in exchanging ideas. Teachers need to make full and varied use of these three modes of communications "speaking listening", "visualizing observing" and "writing reading". The arrows on both ways suggest that communication is interaction, a sharing, circular process (Dale, 1969). They can be used simply or in combination.

To make a lesson interesting and receptive, the teacher should avoid formalism and rigidity in the lesson plan. Formal lesson plans are based on an outmoded psychology and an unsound pedagogy. Such plans do not develop the capacity for clear thinking or expanding the range of students' interest. Therefore, the basic assumption underlying Audio-Visual Aids is that learning - clear understanding - stems from sense experiences. The teacher must 'show'

as well as tell (Bhalla, 1963). Use of such aids will not replace the teacher but will make the teaching job easier and result in greater learning. These audio-visual materials have immense possibilities of completing the triangular process of learning viz., motivation - clarification - stimulation. Audio-visual methods harmonize the democratic approach. The teacher who uses such materials and methods is meeting the students' need of:

1. clear explanation and realistic answers that give feelings of safety and security by supplying a concrete basis for conceptual thinking,
2. self-expressive and useful activities which form the basis of effective teaching,
3. making educational process adventurous;
4. providing variety that stimulates learning,
5. they develop a continuity of thought specially the motion pictures.

An effective audio-visual aid\$ must be:

1. Simple - unnecessary details tend to confuse the issue.
2. Brief - pertain to the object in view.
3. Big enough - all can see it in detail.

4. Interesting - to produce desire to correlate learning and retention.
5. Realistic - to be meaningful and purposeful.

The success of these aids depends mostly on the appropriate use to which these are put. The teacher, however, is the best judge to decide the right and proper use of such materials (Bhalla, 1963). Proper use of audio-visual aids demands a great deal of planning on the part of the teacher. These aids are most effective when they aim at supplementing the class teaching and help the students in assimilation and application. The following suggestions given by Bhalla, 1963, may prove useful:

1. Always integrate audio-visual material with the organized curriculum.
2. Aids should be properly selected.
3. The aid should be suited to the physical and intellectual development of the children.
4. Do not overcrowd aids - like too many words, too many aids can lose their effect.
5. Aids should be informative.
6. Aids should conform to the school curriculum.
7. Aids should be kept up-to-date and well preserved.

8. Aids should be handy.
9. Pupil-teacher preparation.
10. Prefer simple indigenous aids to expensive ones.
11. Proper atmosphere and environment.

In short, to ensure effective utilization of audio-visual materials the following procedure ought to be kept in view:

1. Teacher preparation;
2. Pupil preparation;
3. Presentation and follow-up activities, and
4. Evaluation.

Audio-visual aids consist of a large variety of materials. For practical purposes Bhalla, 1963, and many others have grouped as follows:

1. Non-Projected Aids: These consists of black-board, bulletin board, charts, posters, maps, and globes, graphs, diagrams, pictures and models, gramophone records, tape-recording, radio-broadcasts, school museums, journeys, and excursions, dramatisation, story telling, exhibits, cartoons, puppeting and mock-ups, comic trips and text-books.

2. Projected Aids: These consist of motion pictures, film-strips, stereoscopes and slides and T.V. Some call these as visual aids.

Audio-visual materials must be understood in their relationship to teaching as a whole and to the learning process as a whole, unless the teacher groups this relationship she/he can hardly expect to make intelligent or fruitful use of these techniques that offer him so much help in his daily tasks. He/she must also keep the factors influencing communication in mind while selecting a teaching material. They are (Dale, 1969):

1. Age factor
2. Sex factor
3. The location factor
4. The mental factor
5. The education factor
6. The organization factor
7. The vocation factor
8. The social factor
9. The racial factor
10. The disability factor

To make education effective and capable of being utilized as an instrument of social progress, there should be close contact between the school and community life. Appraising the change that is working its way into the teaching of schools through the introduction of population education, the role of teacher has attained importance to make this innovative effort meaningful and effective.

A variety of teaching aids have been prepared, most

of which are of recent origin, at the national and state levels by NCERT, FPAI and other agencies interested in population education in India. Much work in this direction has also been done by other countries in the world. The materials prepared in India are dealing with:

(a) Philosophy of population education, its need and scope etc. for educational planners, policy makers, administrators and teacher educators and educational researchers, etc. This materials mainly is in the form of text-books, readings/reports based on the seminars/workshops, etc.

(b) Curricular and instructional materials for teachers, schools, boards of secondary education, university departments of education. These include the draft syllabus, teaching units on population education, manuals, handbooks, guidebooks, etc.

(c) Textual and reading material for students.

These include the textbooks, workbooks and supplementary reading materials like Dinu Daleiya, Bhavishya-ke-Sapne, Ceruum Munnu, Apna Haath Jagannath, etc.

(d) Films: There are a couple of attempts to produce materials that could be used through mass media on this subject, where emphasis would be on education and not on mere public slogans. Amongst them are - Down to Earth (FPAI), Subah ka Bhoola (Films Division, Government

of India, New Delhi) and Baap re Baap (FPAI).

(e) Film-strips and Slides: The Information and Educational Films, Bombay, also has various film-strips and slides related to different aspects of population education.

Besides all these the teacher-made aids like charts, maps, tables, photographs, posters, etc. have been prepared and used by the various agencies/cells/individual researchers working in this field both for in-school and out-of-school youth.

The teaching aids/materials have also been prepared in other countries like the simulation and other games by U.S.A. and Thailand, booklets and leaflets by Philippines, and Sri Lanka, flipchart by Philippines, film, slides and film-strips by Indonesia and U.S.A. and multimedia kit by Korea, U.S.A. and Philippines.

Thus, audio-visual materials can play a significant role in population education activities.

Evaluation

Evaluation is a necessary component of programme planning. It enables programmes planners and participants themselves to assess their performance, to gauge the "gains and losses" of the programme. (Oetting and Hawkes, 1974)

Evaluation must be considered even at the

programme's initial stages. General goals are translated into specific or performance objectives which facilitate evaluation along the way.

Formative evaluation especially makes possible the continued strengthening and modification of the project. It utilizes resources effectively, for then educators can conduct their own examinations and make their own analyses and recommendations.

Summative evaluation, on the other hand, provides educators with ways to determine the programme's success on educational goals. It allows examination of the social, external constraints that affect the learner, towards the improvement of population education inputs and programmes. Evaluation also makes possible technical assistance from outside.

Evaluation should also go further in making its uses applicable to others in the field. Dissemination of formative and summative results must be balanced against the notion that a process effective in a certain setting is readily translatable into other settings. (Draft report, United Nations Educational, Scientific and Cultural Organization, 1976).

There are three methods of evaluation as suggested by Farmer and Papagiannis (1975):

1. The historical approach;
2. The method dependent on machines, and
3. Other methods like the structured and un-structured methods, reports, etc.

Suchman (1967) suggested 5 categories of criteria for evaluating the success or failure of a programme. They are:

- (1) Effort, (2) Performance, (3) Adequacy of performance, (4) Efficiency and (5) Process.

He further gave 5 classifications of the evaluative research design: (1) One-shot case study, (2) one group pre-test, post-test design; (3) static group comparison; (4) pre-test-post-test control group design; and (5) Solomon form group design. Evaluation as an aspect of programme administration becomes an essential part of the entire administrative process related to programmes planning, development and operation.

The question of what evaluation strategy to use cannot be answered by hard and fast rules. Evaluation is such a diversified activity that no one set of principles will suffice for all situations. The procedures chosen largely depend on the needs and purposes of the evaluation.

There are, however, valuable but very general guidelines suggested by evaluation experts. Their

suggestions may help the evaluator in his choice of methodology. For this reason, the more workable and upto-date evaluation strategies have been given by Paraiso, 1977.

Emerging Framework for Evaluation: Conceptual framework suggest a structure - a stepwise development of concepts stemming from basic considerations which can make evaluation a relatively simple task. Card Weiss (1973) lists these considerations as:

- goals and nature of the evaluation programme;
- measures that indicate the programme's effectiveness in meeting goals;
- methods of sample collection (for experimental evaluation designs);
- allocation of responsibilities for participant selection, data collection, descriptions of programme inputs, etc.
- procedures for resolving disagreements between programme and evaluation; and
- decisional purposes that evaluation is expected to serve.

The emphasis on these considerations will depend on the evaluation strategies like value-oriented, objective-centred and decision-centred evaluation.

Evaluation Versus Research: Evaluation and research have basic differences, as well as similarities. However, it is hard to distinguish one from the other.

Both evaluation and research use systematic inquiry techniques, but for different purposes. Research is theory-oriented: it seeks to prove or disprove certain hypotheses in order to produce new knowledge. Evaluation, in contrast, is pragmatic: it judges the worth of programmes.

Evaluation has often been misconstrued as a form of applied research. The basic difference between the two terms is in terms of purpose. Applied research is aimed at producing knowledge by providing a solution to a general problem. Evaluation is focussed on collecting specific information relevant to a specific problem of a programme. Thus, the main difference between basic research (or non-evaluative research) and evaluative research lies in purpose and not in method. While both attempt to use research designs based on the logic of the scientific method for data collection, it is the application of the methodology as dictated by purpose, which makes the difference.

Evaluation Tools and Techniques: The quality of evaluation whether formative, summative or a combination of both these, depends on how the data has been collected. The selection of proper tools/techniques is very essential as no one single tool or technique of obtaining data is perfect.

Each one has certain weaknesses as well as strength. Each tool is appropriate for acquiring particular data and sometimes several instruments must be employed to obtain the information required to solve a problem. A researcher, therefore, must possess considerable knowledge about a wide variety of techniques and instruments. He must be familiar with the nature of the data that they produce; their advantages and limitations; the assumptions upon which their use is based; and the extent of their reliability, validity, and objectivity. Moreover, he must be very skilled in employing, constructing, and maintaining tools and interpreting the information they produce (Van Dale , 1973).

(a) Questionnaires: Questionnaires are widely used by educators to obtain facts about past, present and anticipated events, conditions, and practices and to make inquiries concerning attitudes and opinions. For some studies or certain phases of them, presenting respondents with carefully selected and ordered questions is the only practical way to elicit the data required to confirm or disconfirm a hypothesis. These questionnaires can be presented to respondents by either direct contact or through the mails. A researcher may cast questions in a closed, an open, or a pictorial form, and he may utilize one type exclusively or a combination of them when structuring his questionnaire. The nature of the problem and the character of the respondents determine which form or forms will most likely supply the desired data.

Questionnaires have been subject to severe criticism, but many common weaknesses in them can be avoided if they are structured carefully and administered effectively to qualified respondents.

(b) Interviews: Many people are more willing to communicate orally than in writing and therefore, will provide data more readily and fully in an interview than on a questionnaire. Indeed, several advantages accrue from the friendly interaction in an interview that cannot be obtained in limited, impersonal questionnaire contacts. In a face to face meeting, an investigator is able to encourage subjects and to help them probe more deeply into a problem, particularly an emotionally laden one. Though respondents' incidental comments, facial and bodily expressions, and tone of voice, an interviewer acquires information that would not be conveyed in written replies. These auditory and visual cues also help them/him key the tempo and tone of the private conversation so as to elicit personal and confidential information and to gain knowledge about motivations, feelings, attitudes and beliefs.

Most interviews are conducted only once, but some are repeated at intervals to trace the development of behaviour attitudes or situations. Most interviews are conducted in a private setting with one person at a time so that the subject feels free to express himself fully and truthfully. In some instances, however, group interviews produce more useful data. The interviewer may

use a structured or unstructured interview schedule or a guideline. A successful interview is a dynamic interpersonal experience that is carefully planned to accomplish a particular purpose. Creating a friendly, permissive atmosphere, directing the discourse into the desired channels, encouraging the respondent to reveal information and motivating him to keep presenting useful facts require a high degree of technical skill and competence.

(c) Appraisal Instruments: In addition to interviews and questionnaires, researchers employ tests, scales, inventories and other tools to obtain data. Some of them provide for a self-appraisal; others require that the assessments be made by an expert. These instruments have been designed to measure many different factors, like performances and potentialities of the Ss, the preferences and behaviour of individuals, and to determine the environmental and physical status of people and institutions. Appraisal instruments vary not only in respect to what they measure but also in respect to how they obtain data. Information may be obtained through performance tests, inventories, scales, sociometric tools, projective techniques, or other means.

(1) Tests: Pencil and paper tests and other special performance tests are commonly employed to measure subjects' abilities. One of the most important tasks and researches performs when selecting or constructing a test or any type of measuring instrument is to evaluate the objectivity, validity, reliability and suitability of the

appraisal tool.

(ii) Inventories: Inventories are instruments that attempt to "take stock" of one or more aspects of an individual's behaviour rather than to measure in the usual sense. Unlike tests, inventories do not require subjects to perform at their maximum level. An inventory lists items relating to the factor being appraised.

(iii) Scales: Many social science data cannot be measured in inches, grams, or similar standardized units that convey the same meaning to all people. But since measurement is the key to scientific advancement, workers in the field have striven to develop a number of scaling techniques that enable them to assign numerical values to their estimates of the magnitude of variables. These scales are rating scale, rank order scale etc.

(iv) Sociometric Techniques: In recent decades workers have been developing sociometric methods for obtaining data on social interaction among group members. In its simplest form, this technique asking each person in a group to select which other member he would prefer to associate with-in a particular relationship or activity, for example, as a room-mate or as a co-worker on a project. Sometimes subjects are asked to select second and third choices and to list the persons that they would reject. The choices may be plotted on a sociogram which presents each student's name within a circle or triangle and utilizes connecting

lines (solid for acceptance and broken for rejection) and arrows to show the flow of interpersonal relationships. This net work of acceptance and rejections reveals the star and mutual attractions in the group as well as the fringers and isolates; the sociogram depicts social subgroupings, cleavages, and cohesiveness.

(v) Projective Techniques: Projective techniques are used to probe areas that cannot be reached easily by other means or areas in which direct questions are apt to elicit distorted data. Instead of asking a subject for specific information, an investigator has him interpret or respond freely to ambiguous stimuli, such as ink blots, pictures, unfinished sentences or situations, word associations or life like dramatic roles. Through self-structured, spontaneous responses, the subject unconsciously reveals manifestatis as of his personality characteristics and organization. Only highly trained workers can interpret the implications of these responses, however, and scoring them is laborious. Projective techniques are difficult to validate and many of the tools have not been standardized. But at the same time with due precautions they should be used, either those that are readily available or specially designed for the purpose, as they are the indirect measures to get the information from the subjects on the opinions, attitudes etc. In such situations the responses obtained through direct measures may not reveal the true picture of the respondents' views.

Observation: Observation, however, is the method that the researcher prefers to use when gathering data. Observations may be direct or indirect, scheduled or unscheduled, and known or unknown.

A number of instruments and methods have been developed to help the researcher focus his attention on specific phenomena, make objective and accurate observations, and systematize the collection of his data. Researchers often construct check lists or schedules to facilitate the recording of data. Besides these, the behavioural diaries and anecdotal records as well as mechanical instruments can also be used to assist observations.

Thus the information collected by a single or a combination of methods needs to be processed either in qualitative or quantitative terms in order to evaluate the data for the purpose of formative or summative evaluation attempted by the researcher.

The Utilization of Evaluation Results: The preparation of evaluation reports is a critical phase in the evaluative process. Evaluation studies concerning plans, designs and methods need to present the result in report form. These reports are meant, not only to be read, but also to be used in programme operations and modifications.

To sum up, evaluative research focuses not only on the outcome but also on the process and content of education, along with several areas of measurement such as input,

content, process and output.

Nature and Status of Population
Education Programme in Selected
Countries of Asian Region

As a result of the recognition of education as an important instrument of bringing about change in attitudes and behaviour, many countries of Asia now have national population education programmes funded by United Nations Fund for Population Activities (UNFPA, 1980).

Bangladesh

The Ministry of Education decided that population education will be introduced as an integral part of the curricular in the schools of the formal education system. As a result two projects were undertaken by the Ministry of Education - one funded by UNFPA and second by International Development Association. The actual implementation of the projects started in 1976 and will terminate in 1980.

During the current plan period, population education curricular for classes IV - XII have been developed and population education has been introduced in the next text-books for classes IV and V. Key personnel from teachers' training colleges, headmasters of secondary schools and other educators have been trained.

The out-of-school children and youth in Bangladesh mostly outnumber those who are in the formal school system. The Government departments, through multi-sectoral

approaches, and some local and international organizations run programmes for population education of these out-of-school people. Voluntary organizations like FPAI and others have also taken up lead in this field.

Indonesia

A national seminar on population education was held in October, 1970, which was attended by lecturers from higher education, education administrators, members of Parliament and private agencies which have education programmes. The group came up with a recommendation about the need of population education which was sent to the Government.

As a part of the overall development programmes, the Government has a comprehensive project to tackle the population problems. Along with the development of population education programme the Department of Education and Culture was engaged in developing a new curriculum for schools. A policy decision was taken whereby population education should be integrated to all relevant field of studies and subjects from the primary schools upto secondary schools as well as teacher training institutions. So population education becomes an integral part of existing educational system.

At present, there are 17 family planning development units which have population education programmes either for the in-school or for the out-of-school programmes or

both. These are still at the infancy stage.

Efforts have been cooperative, conducted with the project in developing sample learning units, National Source Book and in conducting a National Case Study. These kinds of activities need to be conducted regularly to ensure quality of materials produced. Efforts are being made to use Radio for giving education to teachers and villagers.

Korea

In-School Education: To develop awareness and orientation about population education, the short-term orientation programmes, tours, activities are planned for the key-post personnel of various levels.

For the implementation of the population education programme a task force committee was appointed to draft population education project. The representatives of the agencies and departments were invited and after discussions it was approved. Some materials were also developed based on the curriculum that has been implemented. Training is being given to teachers to teach population education.

Out-of-School Population Education: Out-of-school population education is mostly handled by the Governmental and non-Governmental organizations in cooperation with family planning programmes under the title of IEC activities. The programme was primarily designed for parents of the schools and school leavers in remote areas. A variety

of instructional material is also used along with the booklets etc. The implementation of the programme is made through parent-teacher association, adult education classes attached to schools, especially in remote areas where such family planning information is lacking and where teachers have stronger impact on community development.

Malayesia

Awareness of the implications of a high rate of population growth in the social, economic and health of the nation was felt in the 1960s. National workshops and study tours were organized to acquaint educators to various population issues and programmes. Through these activities it was realized that there was a need to set up a population education programme in schools.

The programme is geared to assist pupils to acquire the knowledge and understanding of population phenomena, the implications of the needs of a rapidly growing population and the nation's policy to improve the standard of living.

Population education is seen and studied as part of other areas of educational concern. The introduction of population education into the school curriculum is by way of inter-disciplinary approach. The main subjects considered relevant for the introduction of population education are Civics, History, Geography, Science, Health Education and Home Science. The levels selected are from standard four in the primary form, three in the secondary (grades 4 to 9),

upper secondary levels would also be involved where necessary.

Two strategies are adopted for this purpose: infusion and integration. Attempts are being made to ensure that population education is infused into the textbooks. As each new syllabus is ready for implementation staff has the main responsibility of preparing teacher guides in accordance with the need of the revised syllabus. Materials on population education concepts will also be prepared. The supportive materials and source book will also be worked out.

The project has also undertaken the responsibility of training the teachers.

The Out-of-School Population Programme: Population awareness in the out-of-school sector is incorporated within the national family programmes. Population education is incorporated in their respective development programmes and are co-ordinated by NFPB (National Family Planning Board).

Nepal

In order to check the rapidly growing population, the Family Planning Association of Nepal was inaugurated in 1959. Similarly, in 1966, His Majesty's Government launched a new programme, the Family Planning and Maternal Child Health Project. However, the Nepalese social structure, based on rigid traditional values has been a

bottle neck to the successful implementation of family planning measures.

Formal Education: With a view to introduce the concept of population education and to make young people feel that the alarming population problem is in part their responsibility, some topics related to population education are included in various lower secondary and secondary level subjects, such as, social studies, geography and health.

Non-Formal Education: In Nepal, various development agencies have included population messages of one kind or another. It needs to be emphasized that coordination on the part of all the development agencies is highly desirable.

Philippines

The PEP was established in the Department of Education (now) Ministry of Education and Culture in 1972 to build up support for the programme, a population education council was convened as advisory body to the PEP which consisted of 14 agencies involved in population activities and family planning.

The curriculum component was a multi-disciplinary group. The content that was planned could be integrated in five subject areas: Social Studies, Health Education, Science, Home Economics and Mathematics. Submits in PE were prepared to enrich existing units in the course guides of

the said subjects from / grade one in the elementary level to fourth year in the high school.

Numerous materials have been prepared in the form of teaching guides, pupil references, self learning units, a hand book, a resource book as well as charts.

Out-of-School Population Education: Supportive of its national educational aims the Ministry of Education and Culture has engaged in adult and community education for the out-of-school.

Sri Lanka

In-School Projects: Population education component were introduced to the Jr. Secondary stage (grades 6-9) in stages from 1974 following the institution of the population education in schools project. The method chosen was one of infusion where population components were introduced into the syllabi of the first language, Mathematics, Science, Health Science and Social Studies.

Out-of-School Education Programme: The Ministry introduced the basic training programmes of nurses, midwives and public health inspectors. The Ministry of Information & Broadcasting has introduced population education through its productions, posters, pamphlets, booklets and radio programmes.

Thailand

In-School Education: Population education was systematically introduced into the in-school programme in 1972. In 1975 a master plan for in-school and out-of-school population programmes was formulated and implemented. In 1977 Social Studies syllabi at all levels including teacher training were revised and population education was incorporated. The present primary syllabus incorporates population education in life experience and other related topics at the primary levels. Social Studies, General Science, Home Economics, Health Education are the subjects which include population education in the appropriate and relevant topics or unit at the existing Jr. Secondary School syllabus.

Out-of-School Population Education: Out-of-school population education is carried out by many agencies e.g. education, public health etc. The population education programme is integrated into other non-formal education programmes i.e. the functional literacy programmes etc. The Department of Non-Formal Education has one division specially created to develop curriculum and materials for use in various programmes.

China

Population and Birth Planning in the People's Republic of China (Population Reports, 1982): The People's Republic of China, with a population of about one billion

people in 1981, is the first country in the world to embark on a deliberate and comprehensive policy to reach zero population growth by the year 2000 or as soon as possible thereafter. Stressing late marriage, universal use of contraception, and small families, China has reduced its birth rate from 34 per 1000 in 1970 to 13 in 1979, according to Government statistics. This is a decline unequalled by any other large developing country.

By 1980, as a result of the recent campaign for one-child families, an estimated 51 per cent of all births in China were first births, compared with 34 per cent in Taiwan (1976) and 42 per cent in the United States (1977). Moreover, by 1981 more than half of all couples with one child had pledged not to have another. By making a vigorous effort, Chinese leaders hope to counteract the demographic momentum generated in the 1950s and 1960s when family planning programmes were not effectively carried out and birth rates generally exceeded 30 per 1000.

The main features of the Chinese family planning programme (called birth planning by the Chinese) are:

- strong commitment by national leadership,
- a highly organized social structure with strong political control, in which leaders at all levels are held responsible for birth planning activities, and families are

rewarded or punished depending on their compliance with reproductive norms,

- continuing information, education, and motivation campaigns that utilize many different forms of persuasion, and
- wide availability of a variety of fertility control methods.

Current Policies: China's efforts to limit its population growth are not static. In the past, as political upheavals and ideological changes affected the Government's population policy, one birth planning campaign succeeded another. More recently, statistical projections and demographic scholarship have shaped China's policies as both population scientists and political leaders realize the impact of the high birth rates of the past. The one-child campaign is a direct response to projections that the PRC's age structure will generate population growth for a long time to come if each young couple has two or more children. By 1981 two new policy trends with important implications for the future of birth planning were evident: a deemphasis on postponing marriage and a shift away from collective farming in rural areas.

Programme Implications: China may offer some important lessons in the family planning field but would be imitators must be cautious. On one hand, some conditions in the PRC are similar to those in other

developing countries: incomes are low, most of the population is rural, and trained personnel are scarce. On the other hand, some aspects of the Chinese situation would be difficult to duplicate elsewhere, and the Chinese themselves insist that birth control efforts must be closely tailored to local circumstances. The commitment of Chinese national leaders to health care and birth planning, their authority over all levels of Government, and the lack of any significant opposition groups are unique. Also, birth planning activities are linked to the revolutionary restructuring of Chinese economic and social institutions, particularly the roles of women, the family, and various work units.

Nevertheless, there are at least three areas where the Chinese programme can be instructive to other family planning programmes. These include: (1) strong information and education programmes; (2) widespread, community-based availability of a broad range of family planning methods, and (3) sharing the responsibility for family planning and related health services between national and local Governments.

Basic to the success of these activities, however, is the strong commitment of national leadership, which has been translated into allocation of substantial resources and is pervasively communicated and implemented through a highly controlled social and political structure.

India

In-School Programmes: The NCERT as the apex body

for in-school programmes has organized national and regional workshops and seminars for key personnel in population education since the inception of the programme in 1970.

The population education unit in the NCERT prepared an outline of the curriculum in population education for an eleven year school programme in 1970-71. This was followed in 1974 by the planning of syllabi for teacher training both at the elementary and secondary levels of education as well as the publication of a manual "Population Education" for teachers. Other materials include the development of modules in population education to be incorporated in such subjects as Social Studies, General Science and Biology. It has also brought out handbooks and source books for teachers. The department of teaching aids of the NCERT is preparing audio-visual aids to impart population education at various levels of education.

The training of teachers has been a major concern of the population education cell. A large number of workshops, seminars and conferences have been organized by the cell to train key personnel. Other agencies which have supplemented the overall population education effort include the WHO; Central Health and Education Bureau, the FPAI, the Population Studies Centre at the Sri Venkateswara University, Tirupati; the Population Education Project, M.S. University of Baroda, the Path Finder Fund's Population Education Project, New Delhi, all of whom have worked in close association with the broad framework evolved by the

NCERT population education unit. The FPAI has prepared a film "Down to Earth" which serves as a good introduction of population education. The Association has also funded cells for population education in 7 universities in India. From April 1st, 1980 ten states have introduced population education in their schools (Planned Parenthood, 1980) and by April, 1981 another nine states have started population education programme under UNFFA grants. The UGC has accepted the need to include population education at the University level and efforts are being made to introduce population education into the existing undergraduate curriculum. All Agricultural Universities in India have also felt it necessary to include population education in their curriculum.

A large number of studies have been taken up in attitude assessment of teachers, students and others towards population education and allied areas.

Out-of-School Population Education: The Five Year National Adult Education Programme launched by the Directorate of Adult Education on October 2, 1978 seeks to bring 62.5 million Indians (11-35 age range) into the main stream of the country's developmental endeavour.

State Education authorities and various Governmental and voluntary agencies have been allocated responsibility for the implementation of the programme.

Apart from the 2 national seminars and this

programme, population education has been incorporated into the training programmes for industrial workers, for health and community development workers; for agricultural extension workers; cooperatives, etc.

The FPAI has taken up some innovative non-formal population education work for out-of-school youth in the age group 6-12 and 12-25 through story telling, songs and drama, films, as well as by means of long-term Family Life Education and the establishment of population education and Youth Clubs organized by young people themselves.

History and Status of Population Education in India

In India, the first ever discussion on population education was organized by the FPAI; a voluntary organization at Chandigarh, during December, 1968. This was followed by a seminar on population education for the younger generation by the same organization during March, 1969. In Karnataka, the first panel discussion on population education was held at the Institute for Social and Psychological Research, Bangalore, during June, 1969, followed by a National Seminar on Population Education on 2-3 August, 1969, by the Ministry of Education and Youth Services in collaboration with the Ministry of Health and Family Planning. This gave birth to the establishment of population cell at the NCERT, concerned with developing curriculum in this area. One can see initial enthusiasm in arranging the conferences, seminars on population

education during 1969-70.

As of today, since 1968, many conferences, meetings, seminars and workshops on population education were held in India. The sponsoring groups have ranged from National and International Organizations (Society for International Development, Family Planning Association of India, International Trade Union and Labour Organization, Path Finder Fund), and Government agencies such as National Council for Educational Research and Training, National Staff College for Educational Planners and Administrators, and Central Health Education Bureau. The aim of these meetings was to create an awareness and a sensitivity among our leaders and experts, in the field of education and population to the necessity of introducing the concept of population education into the school curriculum. Though this is a stepping stone, efforts were made to influence - middle - echelon groups, in implementing curriculum development and research (Kuppuswamy, 1971).

The same interest was not sustained in the period of 1971 and 1976. However, the FPAI, took sustained interest, during this period and was responsible to set-up the first Population Studies Centre at Sri Venkateswara University, Tirupati, to propagate a population education. This Centre has produced curriculum models and instructional materials. Recently, FPAI has opened many such centres in various universities of India. The FPAI was instrumental

in giving the grant to the various universities to develop the programme on population education. It is gratifying to note, that the Home Science Association of India, did not lag behind in this direction. They have convened a five day workshop in December, 1972 at Jdaipur, in order to integrate the better family living concept, in Home Science Syllabi.

The role of population education in the Agricultural University by K.P. Stephenson of Food & Agricultural Organization was presented at a convention of Indian Association of Agricultural Universities at Gauhati, in March, 1976. This was followed by a meeting of the Vice-Chancellors, held in August, 1976 and it was resolved that population education would form a course at the undergraduate levels. Since then there have been various seminars at various levels on population education.

At present the work is being done by the population cells and some of them have developed curriculum models and instructional materials for both school-going and non-school-going population.

The national population education project has been launched by Ministry of Education and Culture, Government of India, from 1980-81. Under this project, the Government of India has been providing needed assistance to the State Governments. The task of implementing the project at the national level by coordinating project activities in the participating states/union territories has been assigned

to the population education unit in the NCERT, New Delhi. The NCERT conducted a baseline survey of population education in India to provide a baseline to the development of state proposals for the National Population Education Project. The survey broadly aimed at finding out the position of introducing population education and identifying the needs of different states in this area. Based on the recommendations of this further lines of action was planned (NCERT, 1980). This unit organized twin-National Workshops-cum-Training Programmes for key persons from ten states/union territories that joined the project in its Phase I at Srinagar (July 7-14, 1980) and at Pune (July 16-23, 1980). In both these workshops the overall strategy of implementing the project at the national state/union territory levels was discussed and evolved.

Moreover, two intensive training programme for full time personnel identified by the ten participating states/union territories of Phase I were organized, the first at Hyderabad (Nov. 17 to 29, 1980) for the development of curriculum and instructional materials and the second at Bombay (Jan. 19 to 30, 1981) for orientation, training, monitoring of the project and programme evaluation including research. Two similar Intensive Training Programmes were again organized for full time personnel in the population education cells of other eight states/union territories that joined the project in its Phase II - the first at Bhopal (Oct. 14 to 23, 1981) for developing skills and

competencies among them in respect of curriculum development and preparation of instructional materials and the second at Varanasi (Dec. 14 to 23, 1981) for monitoring, training and programme evaluation including research. The population unit in the NCERT has also taken up steps for the preparation of model lessons in population education. It organized a ten-day National Workshops for Textbook writers at Coimbatore from March 7 to 16, 1981. A follow-up National Workshop for Textbook writers in population education for social sciences was organized at Allahabad during March 13-20, 1982 with the purpose to improve upon and finalize some lessons written during the previous workshop and prepare quite a few new textbook lessons in the field of social sciences/ social studies in a sequence, making it a unit or a module for different schools/stages. These were sent to the state/ union territories for their adoption/adaptation (Report of Allahabad Workshop, 1982). Besides this an All India Seminar on Population Education for High Level Educational Administrators was held at New Delhi on Feb. 18-19, 1982. This was organized by NIEPA (National Institute of Educational Planning and Administration) for commissioners/ secretaries of Education and Directors of Public Instruction (in charge) in the states and union territories of India. This was the first seminar of its kind with the main theme as "Population and Development". The focus was on:

- (a) Review of the progress of population education programme in the states/union territories.

(b) Census 1981 and its implications, and

(c) Management of Population Education Programme
- issues and strategies.

As a follow-up of this population education project, progress review meeting was held at SIERT, Udaipur (Rajasthan) during April 12-14, 1982. Most of the states have decided upon the concepts to be integrated in the various school subjects at the primary, middle and secondary levels. Some of them are even ready with the syllabi for these levels of education. However, they have not started giving the revised subject to the students except at primary level in some of the states. As for Rajasthan State the present emphasis on Population Education Curriculum Development is on standards 3-8 only according to the Progress Report 1981-82 of SIERT, Udaipur (Appendix).

THE RESEARCH FRAMEWORK

This section includes the review of researches in population education in India as well as outside India.

A Review of Researches in Population Education in India

The researches done in the field of population education have been classified and reviewed under different headings:

Exploratory Studies

A successful programme of population education depends to a great extent upon the knowledge and attitude of the primarily concerned groups, such as teachers, pupils, parents, and decision-makers at different levels of school administration towards population problems. In all, there were 33 studies in the decade 1968 to 1978 and a brief review of the magnitude of the nature of explanatory studies in India.

One of the earliest studies in this area is that of Edward Pholman and Seshagiri Rao (1968). In their study entitled, "Children, Teachers and Parents View Birth Planning", 1000 children from primary to secondary level, 499 parents and the 800 teachers from urban and rural Delhi were asked to give their opinion on various aspects of population such as over-population in India, need for small families, how the human child is conceived and methods of family planning. Most of the teachers thought that population problem exists in India. The teachers wanted that such topics as over-population in India and need for small families should be taught to children. But they did not want the topic "how a child is conceived and methods of family planning to be taught in school". The parents too favoured the introduction of population dynamics and the facts of life in schools, but objected to the teaching of family planning methods.

Balasubramaniam and others (1970) studied the reaction of high school teachers to population education. The sample consisted of 105 school teachers from twelve high schools located at Chembur, a northern suburb of Greater Bombay. A very high awareness of the population problem in India was found amongst the teachers. However, most of them did not know the efforts made by the Governments to introduce population education in schools. The teachers recommended teaching of topics such as demographic trends, population growth and impact of population growth on the economy of the country. A majority of the teachers also wanted that sex education should be taught in schools.

Varghese (1970) conducted a study on the attitudes of teachers towards the different aspects of population problems at Bangalore city. The teachers were having a favourable attitude towards the introduction of population education in schools. Further religion and marital status were not significantly related to their attitude towards population education.

Patel (1970) while studying the perception and practice in Family Planning Programme by teachers in rural secondary schools of Baroda Taluka observed that teachers with small family are more aware of the family planning programme. Further, there is no correlation between family structure and teacher's perception of family planning programme. The age and marital life also has no relationship with their perception and practices. Seth (1970) while

studying the population awareness among teachers of the rural high school observed that in her sample only half of them were conscious of the over-population and majority of the teachers did not perceive population as an obstacle for the social development. Sixty per cent of them agreed for the introduction of population education programme in school.

Patel (1971), while studying the population awareness of the X standard students of Varnama High School in Gujarat observed that most of the boys and girls preferred small family now and were in favour of old values and also the need for a son.

Patel (1971) conducted a study on population awareness of Itola High School, Gujarat, in respect of X and XI standard students. The study revealed that majority of the students realized that over-population has a bearing on their personal and social life and also the impact of large size family on their personal measures.

Raval (1971) focused the attention to study the students' knowledge and attitudes towards human reproduction of the XI standard students of Por village High School, Gujarat. It was revealed that by and large the students are moderately aware of the structure of the reproductive system but significantly lack of the knowledge of the functional part and are keen to know the system. Further, they preferred teachers to educate them on this theme.

Another study was conducted on the IX standard

students of the Por village in respect of population awareness by Mamlatdarna (1971). It was significant to note that the students coming from large families were aware of the population problem at micro level. Male students were more aware of the causes whereas the girls were more aware of the consequences of over-population.

Patel (1971) conducted a study on the students' knowledge and attitude towards human reproduction in selected schools of Baroda and came out with the following findings:

- (a) Majority of the students lack systematic and correct knowledge of the structure and functions of the human reproductive system. The usual source of information on this aspect is from friends and sex literature available in the market.
- (b) The students are aware of the family planning programme but not the methods of contraception.

Upadhyaya (1971) conducted a study to ascertain the knowledge and attitude towards human reproduction among science teachers in rural high schools of Baroda. The findings reveals that the rural teachers lack adequate knowledge of the structure and functions of reproductive organs. They showed positive attitude for teaching

reproductive system in plants and animals rather than of human beings. Majority of them were against the breaking of existing value system on giving knowledge of sex in schools. Most of the teachers felt that the students acquire reproduction education non-formally.

Nayak (1971), while studying the same aspect among the science teachers of Baroda schools observed that the science teachers had good knowledge of the structure and functions of human reproduction system. All categories of the science teachers acknowledged the need for teaching reproduction education and expressed the positive attitude for disseminating this information in the classroom only. The most significant aspect of the findings was the need expressed by the teachers for audio-visual aids for teaching.

Adhyapak (1971) studied the population awareness among the 8th standard students of Por village. The findings revealed that the students were conscious of different social problems that affect their basic needs like food, housing and educational requirements. Most of them were drawn from the large size family with small annual income and knew the impact of the large size families.

Bhatt (1971) conducted a comparative study of population awareness among rural and urban school teachers of Baroda Taluka and found that there exists a significant difference between levels of population awareness among

teachers of urban and rural areas. The rural teachers tend to view population not as a problem but as a necessity and they were against teaching population education due to its areas like sex and family planning education. The urban teachers considered population control through education as a long range goal as against the rural teachers.

Population awareness among the mothers of the IX standard students of Varnama High School in Gujarat was studied by Baxi (1971). The findings of the study indicated that mothers in the young age group had higher level of awareness of over-population in their villages than the mothers of old age group. Mothers belonging to advanced communities preferred small family and mothers of all age groups preferred a son and the family of five members at minimum. By and large the mothers had traditional outlook on marriage and family. Mothers belonging to younger age preferred the introduction of population education and population control methods in schools. The other groups of mothers had no answer for this.

Pathak (1971) conducted a similar study focussing the attention on the fathers of IX standard students at Varnama village revealed that all the fathers were aware of the population problem in their family but 60 per cent of them at village level and 30 per cent of them were aware at the national level. Fathers preferred a family size of six members and they did not like to speak on reproductive system to their children. By and large they supported

population education at school level.

Maheshwari (1972) conducted a study to find out the reaction of teachers to the introduction of population education in schools. The sample consisted of 300 teachers of Government Higher Secondary Schools of New Delhi drawn from 28 schools. A questionnaire was administered to the teachers. The results indicated that the teachers had high awareness of population problem. They opined that unemployment and poor standard of living were mainly due to over-population. They had no objection to the teaching of anatomy and physiology of human reproduction as a part of population education but rejected the idea of providing knowledge of contraceptives in schools.

Dayal (1973) studied the knowledge of school teachers on family planning and their reaction towards the introduction of population education in schools. It was found that 65 per cent of teachers favoured teaching the concept of small family and its advantages to high school students. The physiology of human reproduction be taught only at the secondary level and not at the elementary level.

Srivastava (1973) attempted to study the knowledge and attitudes of teachers towards the introduction of population education in school curriculum in the elementary and secondary schools belonging to Bhopal and Reva Districts. The findings revealed that the population problem was known to the teachers. At least four periods in a month should

set apart for teaching of population education in schools to the younger generation and also favoured the teaching of sex education in schools.

Ramchandran (1974) conducted a knowledge, attitude and practice study on the teachers of Kurnool in respect of population education. A seminar was conducted to impart population education to the teachers and it was found that the teachers gained the knowledge considerably and they appreciated the need for introducing population education in schools. This finding was borne out by administering a pre and post tests.

Hanumanlu (1974) conducted the survey in the Punjabi Basti Area at Anandparbat, a slum area of Delhi, to find out the knowledge and attitude of parents of out-of-school youth towards population education. Eighty per cent of the respondents favoured the idea of the children receiving not only the population education but also the teaching of human reproductive system in the school. Though the respondents were illiterates they wanted the children to be educated in population and sex education.

Mehta (1974) studied the opinion of parents and teachers towards introduction of population education in high schools with the help of an opinionnaire consisting of 46 items. This was administered to a random sample of 100 teachers from different schools at Bhubaneswar. He found that teachers and parents of both the sexes, had a

favourable opinion towards inclusion of population contents in the education programme. The parents especially, believed that such a measure would ultimately lead to small sized families which is necessary for happy and comfortable living. However, they did not favour the direct teaching of human reproduction in schools.

Salkar (1974) studied the population awareness of teachers and parents and their reaction to the inclusion of population education in the school curriculum in Goa. The sample consisted of 2,039 students of Grades VII to XI and about 200 parents and 400 teachers. A questionnaire was developed to elicit their opinion, and 50 per cent of the respondents were also interviewed. A majority of the Goan teachers as well as the students were aware of the population problem. They were in favour of introducing population education in curricula. They also suggested additional topics to be included in the curriculum.

Robinson (1975) tried to find out the impact of teaching population education on the awareness of VII grade students at Baroda. She also studied the reaction of the students to the introduction of population education in schools. While 81.4 per cent of the students were interested in learning about population problems, 66 per cent of the students did not want to learn about sex and family planning.

Prabhakar (1975) conducted a study on the opinion

of secondary school students of Bangalore city towards the introduction of population education in the school revealed that both the boys and girls of different age groups favoured that population education should be a subject to study in secondary schools. The students belonging to the different religious background and studying in different types of schools favoured the introduction of population education in schools.

Rao (1976) conducted a study on the awareness of teachers on population problems and their reaction towards the introduction of population education in schools. The majority of teachers had a good knowledge of the causes and consequences of over-population and ascribed unemployment, food shortage and paucity due to over-population. They were of the firm opinion that population education should be taught as an integral part of the school curriculum. Population aspects have to be integrated with other school subjects and should not be taught as a separate subject. They recommended that it should be made compulsory in schools and also be an examination subject. They also favoured the teaching of sex education in schools.

Devadas (1976) studied adolescents' awareness of population crisis and their opinion towards introducing population education in the schools from the IX and X standard students of urban and rural schools of Coimbatore. The urbanites were better informed about the population problem as compared to their rural counterparts. The chief causes

frequently mentioned were customs, traditions, religion and early marriages. Majority of the adolescents felt that both the boys and girls should receive population education in schools.

Deshmukh (1976) studied the population awareness of college students of Bangalore. It was found that only 55 per cent of the students were aware of the population problem. Male students had higher level of knowledge of population problem as compared to female students. Religious background of the students did not have any effect on their awareness of the population problem.

Kumpail (1976) studied the attitude of secondary school teachers of Baroda and Bangkok towards population education. A significant percentage of teachers in both the cities were not aware of the deeper consequences of population change. There was no significant difference in the population awareness and the attitudes of the Baroda and Bangkok teachers. It was found that majority of the teachers in both the cities lack the rationale approach and aim towards the study of population education.

Manohar (1976) studied the awareness of population problem among the pre-university students of a Junior College of Bangalore. The findings of the study were that the students had a moderate population awareness and it was not dependent on their family background and was independent due to their participation in social activities

related to their exposure to mass media and reading materials.

Basavalingaiah (1977) conducted a study on awareness of rural higher secondary students towards the consequences of population explosion. The study revealed that the students were aware of the population explosion and this was not dependent on sex. Size of the family was significantly related to the students awareness of population explosion.

Vanwani and Kapoor (1977) studied the attitude of school teachers towards the introduction of population education in schools in a crowded middle class locality of Bombay. Only 54 per cent of the teachers had heard about population education, only 30 per cent had a clear concept of population education. When the scope and meaning of population education was made clear, 75 per cent felt that it should be introduced as a subject in the school curriculum, 25 per cent of the teachers did not agree. The reason given was that they were not equipped to teach this subject without training in the field. Fifty per cent of the teachers opined it should be introduced in lower classes upto 7th standard.

Mangalika (1977) conducted a study to find out the awareness of the students regarding population problems in two selected schools in Sri Lanka. Her sample consisted of 100 students of ninth grade from 2 schools in Sri Lanka. She found that generally the students were aware of the

problems of the country. They were not aware of the consequences of the same in the long run.

Karnick (1978) conducted a study of knowledge of boys and girls studying in secondary schools of Udaipur district regarding population issues. It was revealed that the respondents had nearly 50 per cent of correct knowledge on various population issues. The girls had more knowledge in the areas of human reproduction and family planning. Boys had more knowledge in the determinants and consequences of population growth.

Khatoon (1978), while studying the attitudes of pupil-teachers of colleges of education of Bangalore city towards the introduction of population education at secondary level observed that the majority of pupil-teachers favoured population education at school level. Pupil-teachers' attitude was independent of their sex, socio-economic status and age.

Dave (1978) studied the knowledge and understanding of the students studying in secondary schools of Udaipur district regarding the major population issues. It was found that (a) the students from ^{co-}educational as well as non-co-educational secondary schools had 50-60 per cent correct knowledge on population issues, (b) there was no marked difference in the knowledge content of boys and girls from the non-coeducational and coeducational secondary schools, (c) there was a wide gap in the knowledge and understanding

of the students from coeducational and non-coeducational secondary schools regarding population issues.

Curriculum Development

Pholman and Rao (1968) laid the foundation to curriculum builders in population education. They have raised several issues regarding the content and curriculum in population education in the context of their findings on teachers, parents and students. Ninety per cent of the teachers preferred the topics on our population and need for small families. They were much opposed to the inclusion of elementary concepts of human reproduction and family planning.

Manjul (1970) developed a conceptual model of the curriculum on Health and Population Education. The model consists of three key concepts related to the three inter-related components of population education, family life education and health education namely: quality of life is a function of population size and optimum utilization of the available natural resources; family - the basic unit of society fulfils certain individual and social needs; health is moving target and ecological resultant involving the interaction of many factors and conditions. Under each key concept, a list of eight major concepts is included, which may further be broken into simpler concepts depending upon local needs of an educational group.

Mehta (1971) found that the related population

contents in several topics in the syllabi of different subjects that are directly or indirectly related to population, there was no systematic attempt to teach population education. Some of the population related topics are already included in the syllabi of classes III to VIII of most of the schools in the country embracing the subjects like Geography, Civics, Health, Hygiene, General Science, Social Studies and Elementary Mathematics.

Mehta and others (1971) developed a detailed syllabus in population education from elementary to higher secondary level based on their previous experience. They have worked out the objectives and the contents of population education to be imparted in schools under different levels in details under 5 areas:

(a) Population growth, (b) economic development and population, (c) social development and population growth, (d) health nutrition and population growth, (e) biological factors, family life and population.

Rao (1971) developed a concept based curriculum for population education. The curriculum is built on 3 tier concept related to the causes, consequences and control of population, namely:

(1) modern health practices save and prolong lives and simultaneously create new problems arising from rapid population growth.

(ii) Population characteristics affect the socio-economic development of a nation.

(iii) Population control is an individual national and international responsibility which are termed as trial of population education. Under each key concept, a number of minor concepts have been developed and the objectives have been spelt out in behavioural terms under three categories - cognitive, affective and behaviour domain.

Faneff (1975) undertook an action research for the development of a pilot model for teaching population dynamics information in the Government schools of Mysore State. The unit has covered five areas of concern, namely, (a) Birth rate, death rate and population; (b) Health and population; (c) Food production and population; (d) Family size and population; and (e) standards of living and population.

These were taught to the ninth standard students from 12 schools consisting of 6 urban and 6 rural schools. Four groups were taught by the formal methods and the four groups by the informal methods and the remaining four formed the control groups. He found that population dynamics informations units can be easily learnt by the ninth standard students. No difference was observed in the information carried about population dynamics between the boys

and girls. The rural children were found to be more receptive than the urban children. Both the formal and informal modes of instruction were equally affective in producing a significant information gain.

Gangrade (1975) developed a model for imparting population education for university youth. The students were required to participate in the extra-curricular activities related to different aspects of population growth.

Sounder^araj (1978) has developed a curriculum on population education for college students. To enable them to know the concept, scope, significance, right understanding towards responsible and planned parenthood and to raise the standard of living. She has also focussed the attention that population education is definitely a means of rapid change and national reconstruction. The study was designed in two phases. In the first phase curriculum, for population education was developed and in the second phase experimental tryout of the curriculum on undergraduate students was made using the experimental design in different colleges of Madras. This study revealed a significant difference in the performance of the experimental group between pre and post tests in the total scores whereas no significant difference in respect of the control group. There is conditioning effect of the curriculum in creating the proper motivational climate for population education on comparing the scores of experimental and control groups. Students'

ability to form better opinion about situations in population education has increased as a result of the instruction in population education through prepared curriculums. The experimental group has higher mean scores on attitudes than the control group in both the pre and post tests. The sequence of the units of the curriculum are favourable for developing power of knowledge, understanding as well as application among students.

Rehman (1978) developed a curriculum for out-of-school youth for eliciting the opinions of teachers, parents and experts from Bangladesh on the objectives and contents of population education. This model has been tried out on a sample of out-of-school youth and the result is awaited.

Thakur (1979) developed curriculum model in population education for secondary teachers under training at Ahmedabad. The model consisted of ten areas of knowledge content on different aspects of population education. It was tried out on the teacher trainees of the secondary teacher training college of Ahmedabad during the academic year 1978-79. It was found that developed curriculum could be imparted to the teacher trainees in 30 periods of 40 minutes each during an academic year. The findings of the pre and post tests of knowledge and attitudes also revealed that the curriculum model was effective in imparting the needed knowledge base and attitude in the teacher trainees.

Sadashivaiah, et al. (1980) has developed a curriculum model in population education for secondary schoolteachers which is under the experimental tryout.

Teaching Methodology

Parameshwarappa (1975) conducted an experimental study to compare the effectiveness of wholistic method with the integrated method of teaching population education at the secondary schools. Three groups were taken and one of them was considered the control group. One group was taught four units of population contents by the wholistic method and the other groups was taught the same content by the integrated method. The pre and post achievement tests were administered to the two groups to find out differential teaching effectiveness of the methods. The results indicated that the information gained was significantly higher in the integrated method as compared to the wholistic method.

Faneff (1975) conducted an action research experiment to make a comparative study of the formal and informal instructional formats in imparting population dynamics information. Five knowledge areas were developed in the form of 15 teaching units - 4 schools were taught by the formal method and another 4 by the informal method and the remaining formed the control group. An objective type achievement test was administered to all the three groups before and after the experiment. The results revealed that both the formal and informal methods of instruction

were equally effective in producing significant information gain in the area of population dynamics.

Gangrade (1975) conducted a **research-cum-action** study to tryout a model for population education for university youth. The model was tried on 200 students, 200 parents and 90 teachers. All the three realized the importance of introducing population education at the university level.

Robinson (1976) experimented the effect of teaching population education on the population awareness for a sample of students at Baroda using the single group experimental design. Five lessons in the 5 selected areas of population were planned and taught to the experimental group and a pre and post tests were conducted to find out the gain in the knowledge. There was a significant difference between the achievement of the students as decided by pre and post tests.

Leonardo dela Crus (1976) in his comparative study on the effectiveness of **discovery** and expository methods of teaching population education has adopted the quasi-experimental technique involving 656 students in Philippines. The findings reveal that the discovery approach is as effective as the other as a teaching strategy in regard to the acquisition of population concepts. Further, the discovery approach is better than the expository approach in terms of other three instructional objectives.

Sadashivaiah, et al. (1980) conducted a comparative study of the effectiveness of teaching the population education for the secondary school teachers by developing a curriculum model and subjecting one group of the teachers to undergo the formal training programme and subjecting the other group to go through the background material based on the curriculum, thus developed. The experiment is in progress and results are awaited.

Innovative and Experimental Studies

Parikh (1972) conducted an experimental study in correlated teaching of population education in the secondary school. The hypothesis that has to be tried is as follows:

"There is no significant difference in the pre and post tests scores of students in terms of knowledge attitude towards population problem". The findings illustrate that there is a significant difference in the pretest and post-test scores on attitude scale and performance tests of students. Correlated teaching of population education through Geography was found effective. Significant change was formed in the students towards their awareness of population issues through unit test scores.

Lulla (1974) developed a theoretical model for developing and implementing population education programme at primary level (5th-7th), secondary level (8th-11th) and collegiate level including out-of-school youth aged 18 years and above.

Under the population education research project, Population Division, Philippines, 1977, three monographs were published based on the results of the interviews of teachers, supervisors, trainees and population education programme staff and exhaustive literature survey to serve as spring board for discussion in three conferences. In these three conferences the emphasis was on worked out teacher training schemes in population education, strategies for value clarification in population education and effective evaluation of teacher training in population education. These monographs are the final product of combining the content of the three literature reviews with the reactions and recommendations of the conference participants.

Parakh and his team (1977) in the NCERT are engaged in a major population education project in collaboration with the UNESCO Regional Office, Bangkok. The project is titled as "Development of a work book on Population Studies" for class 8 of Indian students and a manual to accompany the workbook. The main objective is to develop a pictorial work-book for helping 7th grade pupils (aged) to imbibe the message of population education without the help of a teacher or instruction similar to a self-instructional device.

Desai (1978) and his team undertook a unique experiment in population education during 1975-76. The main aim of the experiment was to develop suitable curriculum

for the pupils of the grades VIII to IX and tried out the curriculum in classroom situation to test the efficacy in imparting the message of population education. The sample for this experiment consisted of 250 pupils from 5 schools of Ahmedabad. The experiment proved that the students gain knowledge or information on population dynamics when taught in the classroom situation.

This survey of researches reveals that population education research is still in its infancy, very little research is available, which has direct implications for developing the curriculum for improving teaching methodology or for effective implementation and evaluation of the programme. Though there are a number of studies related to family planning and demographic aspect of population, there are only few studies directly related to population education.

Further research in population education must try to concentrate more on significant areas using sophisticated research approaches. While exploratory studies continue to be important because of the vastness of the problem, there is a great need to use action research in implementing population education and evaluating it and give a feedback of the evaluation for further improvement of the programme.

A Review of Researches in Population Education Outside India

The review of researches in population education outside India has been broadly classified under the three headings: Curriculum Development and Innovation; Teaching Method; Evaluation. The researches under each of these are as follows:

Curriculum Development and Innovation

A study of teacher characteristics as predictor in the successful implementation of an innovative curriculum was conducted at Texas University in 1968. A change that has taken place in the methodology of teaching Science - from teaching to how to process information from experience - has led to questioning whether a relationship exists between selected teacher characteristics and success in teaching such a curriculum. Factors of sex, grade level taught, school district, years of teaching experiences, and academic preparation in Science were examined for significance. A sample of 110 elementary teachers from six school districts were participants in an inservice teacher education programme prior to teaching Science using the process approach. Student achievement, which was assessed by administering the AAS Competency Measure at the conclusion of each exercise. A minimum of six exercises were taught by each teacher. Multiple linear regression analysis showed that the variables of sex, grade level, school district, years of experience, and hours of Science

accounted for 45 per cent of the variance in the student achievement score. Of these, sex, grade level, and years of teaching experience made significant independent contributions to predicting teacher success.

Razik (1970) examined three major learning theories and their application to innovation research. The theories that contributed to the process of planning innovation in education were the stimulus - response theory, the cognitive theory and the personality theory. A working model is proposed as an approach to the innovation in education a model with a time dimension, from planning to dissemination.

In terms of methodologies for change, five variables were listed for consideration - the political framework, finance and administration, the institutional management structure, instructional systems and teachers. In each area, Razik considers it important that the source of innovation be determined together with the mechanism for securing adaptation of these innovations.

The findings of the curriculum development group, at the conference held at the Development Academy of the Philippines in 1974 revealed the following needs: (1) integration of formal and non-formal educational programmes, (2) determination of content in programmes for the out-of-school youth, and (3) integration of non-formal education into other activities for easier acceptance by the people.

Further in 1981, UNESCO prepared the case studies

of El Salvador, the Philippines, the Republic of Korea and Tunisia to examine each case for the various factors of the education process: content, curricula, methods and personnel training under the "study of the contribution of population education to Educational Innovation and Renewal". The four case studies were carried out in the framework of the material situations of the country concerned and hence they were not identical.

Teaching Method

The studies under this section/head are related to communication strategy; value clarification system and discovery approach.

Communication Strategies

Jackson and Johannes (1972) studied nineteen rural villagers in south eastern West Java to gather and analyse data relevant to communication strategies as a means to national integration. Three main areas were examined in detail: administrative communication between the village and the outside world; exposure to and effort of mass media; and exposure to and effects of traditional communication networks. Out of these three, the third area = traditional communication networks, revealed a demonstrable effect on village behaviour. Thus, a balanced communication strategy can be achieved by encouraging traditional communication networks to introduce and spread innovations to the village level.

Thailand's unique experiment in functional literacy and family life education programmes (1973) indicated that this is an effective way to reach the people, particularly those in the rural areas who need it most. The main teaching technique used is one which stimulate the natural learning environment of the Thai rural people - the group discussion. The pilot phase of the programme revealed, among others, that reading and mathematical abilities increased between the pretest and posttest periods, though the difference was not statistically significant. Thailand's experiment demonstrated that it is possible to develop low-cost programme that is responsive and relevant to the needs of the out-of-school population.

Katty and Tobia (1974) designed a study to answer three questions: (1) What communication characteristics do group members perceive as constituting the amount of influence of a designated leader, (2) What communication characteristics do designated leaders perceive as constituting their own amount of influence on the group, and (3) What is the degree of similarity between the two?

Twentythree task-oriented groups were used, each composed of three to five undergraduates. The data showed that all the five variables (degree of credibility, competence respect; coordination - moving the group towards its goal; information; objectivity; and dynamism) were perceived as important in determining a leader's influence.

Value Clarification Strategy*

Because value education is a recent development, the proper implementation of value clarification strategies has not yet really caught on among teachers. Furthermore, only a few and preliminary studies have so far been done on this activity. These researches are basically experimental in nature and deal directly with value clarification strategies and their effects on the attitudes, knowledge, and behaviour of students in elementary high school, college and teacher training institutions.

The studies by Kleven (1957) and James Rath (1962) revealed that students, given the opportunity to clarify their values to undergo the value clarifying process, showed improvement in their attitude toward learning. They became more committed to, and constructively involved in, school work.

Further, the studies by Rath (1960) and Lang (1962) revealed that students given the opportunity to clarify their values in the classroom showed improvements in grades and gain in knowledge.

When the valuing process was instituted among children described as apathetic, indecisive, over-conforming, inconsistent, flighty, and lacking value clarity, these types of behaviour became noticeably less acute and less frequent (Jones, 1960, Machnits, 1960 and Martin, 1960).

* Villanueva, C.L., Value Clarification on Population Education, Population Education Research Utilization, Monograph Series 2, Part 2, 1977, pp.36-49.

It was also studied that effectiveness of the value clarification strategy depends to some extent on the personality, mental ability and age of the students (Raths, 1962; Hogan and Dickstein, 1969). Simon (1958), Sherwood (1966) found that the effectiveness of the value clarification strategy depends to some extent on the competence and personality of the teacher. The effectiveness of this strategy depends to some extent on the degree of controversy and value content of population issues and their appropriateness to the level of maturity and experience of the students as well as on administrative support and sanction.

The Discovery Approach *

The discovery approach is proved effective by various researches. The generalizations that can be drawn are:

1. This approach is found to be more effective than the traditional expository approach in bringing about learning, retention and transfer. And, when different kinds of discovery approaches are compared, the guided discovery seems to be more effective than the independent discovery approach (Craig, 1956; Wittrochs, 1962; Guthrie, 1967; Amidon and Flanders, 1969 and others).

2. The discovery approach seems to be more effective than the traditional expository approach in stimulating critical thinking, and, in so doing, more

*Villanueva, C.L., On the Effectiveness of the Discovery Approach as a Teaching Method for Pop.Edu., Pop.Edu. Research Utilization, Monograph Series 1, Part 2, 1976, pp.26-41.

active student participation in the classroom (Bruner, 1960 and Suchman, 1961; Massaialas, 1970; Ramos, 1971).

3. The discovery approach seems to be more effective than the traditional expository approach in developing in students a favourable attitude towards the subject matter and towards teacher (Massaialas, 1970 and Villavicencio, 1973).

4. The effectiveness of the discovery approach depends to some extent on teacher competence: the more competent the teacher, the more likely that discovery approach is to be effective (Shaver and Richards, 1971 and Silvestre, 1973).

Evaluation Research

Sherman and Winstead (1975) studied the formative evaluation system for student evaluation of university instruction, their findings being used to improve instruction. Two dimensions in student evaluation are included: the quality of instruction, and students' feeling of personal gain. Sixty students enrolled in a teacher education programme served as subjects while taking a required course.

Results indicated that students were able to rate on a day-to-day basis with a high degree of reliability. The correlation was quite high between evaluations of the instructor and evaluations of the personal value of the day's activities. What is significant was the role played

by daily evaluation in solving instructional problems with individual students and particular concepts during the course. Cues for needed remedial work were made more evident and could be responded to more effectively.

Formative evaluation carried out on a session-by-session basis can facilitate changes in instructional programmes because of the immediate and specific nature of feedback received from the students. Student feedback can likewise be directed at specific teaching techniques and lessons.

Resume of the Literature

The review of literature clearly indicates that the educational approach (both formal and non-formal) has increasingly been stressed to overcome the multifaceted consequences of over-population throughout the world. The population policy declared by the Government of India on 16th April, 1976 stresses the importance of introducing population education in the schools and colleges for younger generation in all age groups since all efforts of family planning have not yielded the expected results.

Population education has been defined differently by various experts. Therefore, anyone wishing to undertake work related to population education, particularly in the direction of curriculum development, must state a clear operational definition. Population education basically aims at creating among the people an awareness and

understanding of population trends and their impact on various aspects of human life. It is an innovative strategy to build-up a new ethic of reproductive behaviour in human reproduction and family living to improve the quality of one's life. The future pattern of our society will depend on our present generation i.e. parents of tomorrow. The review emphasizes that it is important for people of all age groups.

Looking to the present conditions and needs of India, the target group for offering such a programme should be carefully selected. The theoretical as well as research literature stresses that priority should be given to the adolescents who are at the threshold of marriage and reproduction. Many exploratory researches have shown that this age group of children lack basic information or awareness regarding marriage and family life. The marriage age in India, and more so in Rajasthan, is very low as compared to other countries. This further contributes to the need of population education for this age group of children. The deep-rooted religious beliefs and the hush-hush attitude which is still prevalent further adds to their ignorance. Thus, to initiate a population education programme, this age group of children should be tackled first and then gradual efforts be made to go down the line in the educational system.

The researches on curriculum development and teaching strategies reveal that the content for population

education has to be carefully developed/formulated based on the cultural expectations and the social background of the target group. To date few indigenous curriculum models are available. NCERT, New Delhi (1971) prepared a draft syllabus on population education for all age groups of children encompassing the four major areas of demography, determinants and consequences of population growth, human reproduction/sexuality and family planning. Other curriculum models in the field also embrace the same areas. Mehta (1974) also has suggested all these areas to make the programme more comprehensive and gear it to the needs of our country. However, the educators and researchers in the field have strongly felt that the formal content of such a programme be based on baseline surveys and the knowledge content of the target group for whom it is planned. Many of the current efforts have been geared towards curriculum development for the primary and middle grade levels and there are few models for the secondary grade level students. As regards the strategy of offering this content, both formal and non-formal, have been widely used throughout the world. Our country, along with other countries of the world, has preferred to adopt the integration approach as against the separate course or unit approach keeping the workload of the students in view. The efforts are being made to integrate the population concepts into the related school subjects like Mathematics, Biology, Social Studies, Geography, History, etc. in our country. The recent review committee meeting

held at SIERT, Udaipur in April, 1982 reports that development of curriculum and instructional materials has been partly achieved for the grades 3 to 8 only. At present, no efforts have been made in this direction regarding the secondary school level, though it is there a long-term objective for Rajasthan. For the purpose of an experimental try-out, a separate course approach is much preferred by educators as through this approach the concepts can be given in a more comprehensive way. The evaluation also would be easier, whichever approach is used, the researches on teaching methodology and communication show that the use and selection of audio-visual aids is an important aspect of any educational programme. In the absence of text-books on population education it is still more important to lay emphasis on this to make the teaching-learning process more meaningful and interesting. The role of the educator does not get over with the development and implementation of a population education programme. Evaluation of the entire process of curriculum development is equally important. More and more action researches are needed to plan, implement and evaluate such programmes to provide timely feedback to those interested in utilizing these efforts/ results on a larger population. In order to increase the utility of the evaluation results the tools and techniques must be carefully selected or developed. A combination of both projective and non-projective techniques will yield better results as population education aims at creating

both knowledge/awareness as well as the understanding in people regarding population dynamics. Thus, the present investigation aims at developing, executing and evaluating a population education programme for secondary school students of Udaipur, Rajasthan, with the help of the insight that the investigator has developed for this entire process through the review of relevant literature in the field.