CHAPTER I

INTRODUCTION

1.1 Population in World Perspective

Change is the law of Nature. Different concepts and trends of population education have been taking place from time to time. Once, there was little concern about population and people did not bother about its impact upon different aspects of life and economy. Mostly people wanted larger families as these satisfied economic and social needs along with emotional satisfaction. Only a few practised some measures or used some devices to control the size of their families. Now, due to population explosion, especially in developing nations, the world is facing numerous problems of shortages, pollution, epidemic etc. It has assumed menacing proportions in Asian countries, especially in India, China, and Bangla Desh. China is the most populous country followed by India, USSR, USA, Pakistan, Japan, Canada and Australia. The population of USA, USSR and Japan, put together, hardly equals that of India. China, India and Bangla Desh contain well over half the rising totals. India accounts for about 15.33 per cent of World's total population with only 2.4 per cent of land area i.e. 3.27 million square miles. Russia's total population is 26.7 crores i.e. 6.05 per cent of the world while she is spread over 15.3 per cent of the globe. USA holds 6 per cent of the world area and
her share of world population is 6.99 per cent only.
China's total population is 95.7 crores i.e. 21.72 per cent
of the world population whereas her share of the land is
7 per cent only.

1.2 Population Problem of India

At this time, there are two Indians after every
thirteen persons in the world. India's rate of population
growth is higher than most of the countries. In the 1981
census, the density of population was 221 persons per square
kilometer whereas world's density was 32 persons per square
kilometer and that of Punjab was 331 persons per square
kilometer. India's birth rate is relatively stable and
high i.e., 2.2 per cent with consistently declining death
rate. Furthermore, there are wide regional disparities in
the density of population. Thus India seems to be one of
the worst affected countries, fallen victim to the colossal
dragon of population explosion. Since independence, India,
has made tremendous progress in the economic and social
fields, yet all her developmental efforts have been swallowed
up by the increasing numbers. It is now being increasingly
felt that if India does not start paying serious attention
to the galloping rate of population growth, her economic
and social structure will collapse. In addition, ecological
aspects are still more complicated and serious. The
increase of population, has made the position still complicated.
The deforestation has led to ecological imbalances and the
seasons have undergone enormous changes. The air has been polluted, the sky is polluted and so much so that ocean too is polluted. A number of man-made foreign bodies, uncontrolled by any power, are moving in the atmosphere. The ocean is polluted by the industrial waste and huge ships movements. On most of the land, even water is polluted. Ganges, which is considered to be the sacred river of Indians and is emotionally and religiously so much integrated with Hinduism that its sacred water is used for all ceremonial purposes, has added so much of pollution to it, that the Government of India in 1984 has to go in for Rs. 10,000 crores project for its cleanliness.

Malthus, T.R. (1978) had said:

"I think, I may fairly make two postulates; first that food is necessary for the existence of man; second that the passion between the sexes is necessary and will remain nearly in its present state.

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

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

The theory laid down that the man's biological need for food and his sexual impulses are inescapably in conflict.
Darwin, Charles (1907) also warned about the approaching catastrophe by adding:

"Even the slow breeding man has doubled in twenty five years, and at this rate, in less than a thousand years there would laterally not be standing room for his progeny."

The historical perspective of the problem has been highlighted by Gillin (1969):

"The population problem has been present in one form or the other since the beginning of human society. As a matter of fear of too few for safety or of too many for comfort, it was perhaps more keenly felt, though less clearly recognised, in the beginning than it is to-day."

The first fairly reliable estimate of world population was made in 1650 A.D. at 500 million. During the next two centuries, the world population almost doubled. In the next century, it doubled itself again. Hertzig (1978) scientifically estimated that if the present annual rate of two per cent continues, twice as many people will be living on earth in the year 2000 as there were in 1965.

Davis (1951) had given the data of India's estimated population up to 1871, after which date systematic efforts were made to collect census data. It is depicted in table 1.1.
TABLE 1.1

Population of India from 300 B.C. to 1871 AD

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Date</th>
<th>Millions</th>
<th>Average annual growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>300 B.C.</td>
<td>100-140</td>
<td>-</td>
</tr>
<tr>
<td>2.</td>
<td>1600 A.D.</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>3.</td>
<td>1800 A.D.</td>
<td>120</td>
<td>0.09</td>
</tr>
<tr>
<td>4.</td>
<td>1834</td>
<td>130</td>
<td>0.24</td>
</tr>
<tr>
<td>5.</td>
<td>1845</td>
<td>130</td>
<td>-</td>
</tr>
<tr>
<td>6.</td>
<td>1855</td>
<td>175</td>
<td>2.97</td>
</tr>
<tr>
<td>7.</td>
<td>1867</td>
<td>194</td>
<td>0.86</td>
</tr>
<tr>
<td>8.</td>
<td>1871</td>
<td>255</td>
<td>0.84</td>
</tr>
</tbody>
</table>

Source: Kingsley Davis; Population of India and Pakistan; Princeton, 1951, p.25.

The data in table 1.1 showed that the population of India was almost stationary from 1600 AD to 1845 AD and that it increased very rapidly from 1845 AD to 1871 AD, at the rate of 100 per cent. Systematic efforts were made to collect census data from 1870. The first all India census, in 1881, showed that there were 212 million people. India holds, around 1st March, a census of population after 10 years. Table 1.2 shows the population of Indian Union at the different census dates.
TABLE 1.2

Population Growth of India Since 1901

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Census year</th>
<th>Population nearest Lakh</th>
<th>Per cent increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1901</td>
<td>2383</td>
<td>-1.1</td>
</tr>
<tr>
<td>2.</td>
<td>1911</td>
<td>2529</td>
<td>5.7</td>
</tr>
<tr>
<td>3.</td>
<td>1921</td>
<td>2512</td>
<td>-0.3</td>
</tr>
<tr>
<td>4.</td>
<td>1931</td>
<td>2789</td>
<td>11.0</td>
</tr>
<tr>
<td>5.</td>
<td>1941</td>
<td>3185</td>
<td>14.2</td>
</tr>
<tr>
<td>6.</td>
<td>1951</td>
<td>3610</td>
<td>13.3</td>
</tr>
<tr>
<td>7.</td>
<td>1961</td>
<td>4391</td>
<td>21.5</td>
</tr>
<tr>
<td>8.</td>
<td>1971</td>
<td>5479</td>
<td>24.8</td>
</tr>
<tr>
<td>9.</td>
<td>1981</td>
<td>6838</td>
<td>24.75*</td>
</tr>
</tbody>
</table>


The statistics in table 1.2 indicate that the population growth upto 1921 was uneven and sporadic. After 1921, it was steady. According to the latest 1981 census, the India’s population figure is 683,810051. It is estimated that by the end of the century India’s population will touch 1002 million.

In addition there is the problem of rapid urbanisation that results in the problem of the growth of slums, overcrowding, unemployment, pollution, and shortages. They
create hindrances in economic, social, cultural and ethical developments. In India, industrial concerns are concentrated in a cluster of big cities namely, Calcutta, Kanpur, Lucknow, Delhi, Jaipur, Nagpur, Bombay, Allahabad, Pune, Hyderabad, Jamshedpur, Durgapur, Bilaspur, Raubakala etc. Their combined population constitutes about 46 per cent of the total urban population of India.

The schools are over-crowded. Low quality of education and lack of training for productive occupations is evident from the curriculum. At times, it is said that aimless formal education is responsible for the mass unemployment. It has been well said that population is the cause of all the problems being faced by India.

1.3 Determinants of Population Growth:

There are various and numerous causes and factors which lead to colossal growth of population. The factors that motivate people towards their population decision are complex and varied. In some societies, of the world say Denmark, Sweden, West Germany, population is decreasing and it worries them. In India, China, Bangladesh, Pakistan and so much so whole of Asia, the problem is that of over-population and how to cut it. In India, people belong to different races, religions, creeds, cultures and castes. Fertility is affected by a number of institutional, biological, social, cultural, economic, religious and other factors. The age at which a female marries, the duration of her fertile union
and the speed with which she builds her family, determine her fertility performance. These, however, are affected by a number of social and cultural factors, like the place of women in society, the appropriate age of female marriage, incidence of widow remarriage, value of children in society, use of methods to control the size of family, taboos on sex relations, duration of breast-feeding etc. Some of the causes are:

a) Fall in Death Rate:

In India, the galloping increase in population may firstly be attributed to a sharp fall in the death rate with high and constant birth rate. Major communicable diseases like cholera, small pox and malaria have been brought nearly under control and measures to eradicate them are being taken up at war footings. The wide spread use of antibiotics, vaccinations, better sanitation and other health measures, have greatly reduced many diseases. The mortality rate has fallen considerably in the last fifty years. Life expectancy has risen from 32 years in 1950 to 56 years in 1978. The figures in table 1.3 will reveal the whole story.
<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Period</th>
<th>Birth Rate</th>
<th>Death Rate</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1921-30</td>
<td>46.4</td>
<td>36.3</td>
<td>1.01%</td>
</tr>
<tr>
<td>2.</td>
<td>1931-40</td>
<td>45.2</td>
<td>31.2</td>
<td>1.42%</td>
</tr>
<tr>
<td>3.</td>
<td>1941-50</td>
<td>39.9</td>
<td>27.4</td>
<td>1.25%</td>
</tr>
<tr>
<td>4.</td>
<td>1951-60</td>
<td>41.7</td>
<td>22.8</td>
<td>1.89%</td>
</tr>
<tr>
<td>5.</td>
<td>1961-70</td>
<td>38.6</td>
<td>14.0</td>
<td>2.46%</td>
</tr>
<tr>
<td>6.</td>
<td>1971-80</td>
<td>29.7</td>
<td>9.2</td>
<td>1.95%</td>
</tr>
</tbody>
</table>

Source: Estimates based on the projections made by expert committee on population set up by Planning Commission in 1964 under Registrar General, Govt. of India.

b) Cultural factors:

In India, social securities are provided by the family ties and patterns. It is perhaps why that there is a strong preference for sons to carry on the family names, prestige, perform religious rites for the family and provide support in old age, on loss of family bread winner and during illness. In India, as per calculations made during 1979-80, child mortality was high i.e. 123, while in the Punjab it was 108. The world picture of death rate is painted in table 1.4.
TABLE 1.4

Table showing Infant Death Rate of Some Countries of the World

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the Country</th>
<th>Infant Death Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Bhutan</td>
<td>150</td>
</tr>
<tr>
<td>2.</td>
<td>India</td>
<td>123</td>
</tr>
<tr>
<td>3.</td>
<td>China</td>
<td>45</td>
</tr>
<tr>
<td>4.</td>
<td>England</td>
<td>11.8</td>
</tr>
<tr>
<td>5.</td>
<td>U.S.A.</td>
<td>11.8</td>
</tr>
<tr>
<td>6.</td>
<td>Sweden</td>
<td>6.7</td>
</tr>
</tbody>
</table>


Marked reduction in infant and childhood mortality should weaken the need for large family, but it has not been perceived in this respect. World Bank (1974) supported this argument:

"These motives, we believe, are rooted in the desire to ensure a minimum number of survivals in the face of heavy mortality risks and in the socio-economic circumstances which make couples view children as possible source of labour or old age security."

c) Early Marriage:

The universality and sanctity of early married life, the desire to have children for emotional satisfaction and the urge for a male survival after the death of the individual keep the birth rate high. No doubt, Indian
government has framed a law fixing the minimum age for marriage for girls and boys but it seems to be a dead law. The data in table 1.5 will make the picture clear.

TABLE 1.5
Proportion of Indian Women in the Different Marital Categories by Age in 1971

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Age</th>
<th>Never married</th>
<th>Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>15-19</td>
<td>43.0</td>
<td>56.2</td>
<td>0.8</td>
</tr>
<tr>
<td>2.</td>
<td>20-24</td>
<td>9.0</td>
<td>89.3</td>
<td>1.7</td>
</tr>
<tr>
<td>3.</td>
<td>25-29</td>
<td>1.9</td>
<td>95.5</td>
<td>2.6</td>
</tr>
<tr>
<td>4.</td>
<td>30-34</td>
<td>0.9</td>
<td>89.5</td>
<td>9.6</td>
</tr>
<tr>
<td>5.</td>
<td>35-39</td>
<td>0.6</td>
<td>90.7</td>
<td>8.7</td>
</tr>
<tr>
<td>6.</td>
<td>40-44</td>
<td>0.6</td>
<td>84.5</td>
<td>14.9</td>
</tr>
</tbody>
</table>

Source: Pocket-Book of Population Statistics having facts and figures on family planning, Govt. of India, Ministry of Health and Family Planning, New Delhi, April 1976.

It showed that almost all women were married at the age of 20-24 and only a small fraction got married in the age group of 25-29. This increased the period of fertility. The social reform like widow marriage and remarriage is also adding to numbers. In India mean age for marriage, in case of males, is 22.7 years and for females is 17.2.

d) Fertility:

Fertility also depends upon social status of the women. In societies where women are confined only to
household jobs, they are mostly considered child producing machines. In such societies, fertility is very high as compared with the societies where the women are expected to participate in all walks of life. In spite of equal rights granted to women in Indian Constitution, the fact remains they continue to be the neglected lot.

e) Literacy

The literacy rate in India was about 36% in 1981. It was still less with females i.e. 24.88%. It has been well said that education is a contraceptive. The illiterates are least benefited from the fruits of education and they indulge in superstitions. Old taboos do not allow them to control their family size. In spite of all the efforts made by the government, adult education has been the most neglected lot. In fact, it is a difficult area of operation and the government need to give it a 'Big Push'. The New Education Policy (1986) also places emphasis upon it by mentioning:

"Education will be used as an agent of basic change in the status of women. In order to neutralise the accumulated distortion of the past, there will be well conceived edge in favour of women."

f) Poverty

Poverty is a curse. With the poor, the cost of rearing a child is negligible as standard of living is low. On the other hand they are considered an asset as they contribute to the income of the family by starting earning at very early age. In the words of Thompson and Lewis (1972):
"In every society there is a keen desire of people to improve their present status. There is also a desire that children should have still better and improved status, so that the family can go ahead in the eyes of the world. Therefore, in a society where there is strong competition to maintain and or improve social status; the restriction of the size of family is likely to spread rather rapidly."

g) Religion

Religion is yet another factor which effects fertility behaviour. The treatment of sex is different in different religions. India is a multi-religious society and different religions i.e. Hindu, Muslim, Sikh, Christian and Parsis have different things to say about the planning of families. The problem is a new one and has not been clearly dealt with in religious scriptures. At times different versions are given to it. The result is that there is no uniformity in its treatment and this makes the problem still more difficult. Within different religions, the attitude towards population education, not only differ on the basis of intensity of religious attitudes, but within different sects also. The attitudes of scheduled castes and scheduled tribes differ on different parameters. Firstly, they are having lesser educational and social status. Secondly, their economic earning improves with the size of the family as children start earning at comparatively smaller age. Thirdly the cost of raising children is negligible with them. Forthly they are exploited by the politicians and given money and gifts at the time of
elections and as such they want to raise their vote power. Because of these factors, it is expected that their attitude towards population education and environmental education would have developed in different dimensions. The value that those who have large size families develop more positive attitude towards population education and also environmental education, it does not seem to hold good with scheduled castes and scheduled tribes.

h) Education

It helps in bringing about the change. The demographic situation of any region is largely the product of education. Among other factors, family background and its peculiar socio-cultural and economic ethos affect the number of births, deaths and migrations. The population problem in India can conceivably be very different if the social institutions of early marriage, universality of marriage, social ban on widow remarriage, the joint Hindu family, low status of women, lower literacy rate, wide spread poverty, inadequate opportunities of employment and child labour and other such institutions and attitudes resulting in adverse sex ratio did not exist. Education has a positive role to play in dealing with the problems of population.

1.4 Consequences of Population Growth

Population growth, at the present rate, with limited resources of subsistence, is bound to lead the humanity to dark. In under-developed Asia, Africa and Latin America,
The population is growing at a rapid speed. In the USA, the USSR and a few other countries, the population growth is moderate. Fairly slow moderate growth is found in most of the countries of Western Europe and Japan. Yet there are some societies like Denmark, Sweden and Iceland, wherein, the population is decreasing and those who are at the helm of affairs are worried about the decreasing population. The problem is even more acute because of the widening of the gaps between the poor and the rich. The position is still more aggravated by the fact that the population in poor non-industrialised or partially industrialised countries has been growing at a faster speed than in advanced and industrialised countries. The result is that the poor are becoming not only poorer but numerous, while the rich are becoming richer and also fewer. The social gap is increasing. The gap of haves and have-nots is a danger to the society's peaceful existence.

The problem of rapid growth of population has been throwing a great challenge to social, economic and political life. Population increase is not only a threat to the human race but also to all the living things and even plants. Just, how many human beings our planet can support depends not only on our ability to harness our natural resources on land, in water, in the solar system but also on other very crucial factors.
India is facing the problem of rapid growth of population. Thus, while India and other developing countries, are facing the grim prospect of depressed economic standards the developed countries are enjoying the fruits of low rate of population growth and high rate of economic prosperity. Waldheim, Kurt (1974) gave a realistic estimate of situation and said:

"It is impossible to think of the solution to the major problems confronting the world economic development, pollution of the environment, improvement in the quality of life, even disarmament without some reference to population trends. The evidence is all around us. In the developing countries with two thirds of world's people and the highest-rates of population growth, there are insufficient schools, text-books, vocational training places, shortage of jobs for the untrained and unschooled young adults."

He further added:

"The industrialised nations have not been immune to demographic pressure. Swollen cities, the drain of talent from regions of low development to centres of affluence, heavy internal migration have all left their mark."

1.5 Population and Economic Development

The rapid growth of population has served to limit investment, the capacity for economic development and the potential rate of growth of average income, thereby reducing the pace of improvement of standards of living and quality of human life. In India, the economic development is just being eaten up by even more rapid growth of population. In India, although the availability of goods and services has increases three fold over the last decade or so, the
per capita consumption has not increased. Take any aspect of Indian life - economic, social, educational, the same story is being repeated. The increased facilities simply do not keep pace with the needs of the growing population.

In developed countries of the world like USA, UK and Japan, the rate of growth in population is not of fearful proportions. USA has only 6% of the world population but produces 35% of the world's economic goods and services. India has a large population but only a small share in the world's production which effects her national life. Although our agriculture as well as industrial production has increased appreciably, yet the per capita food consumption stands at the lowest ebb of 12.4 ounces. Borlang Norman (1971) has rightly pointed out:

"I believe it is far better for mankind to be struggling for abundance than with the old problem of famine. Therefore, the frightening power of human reproduction must be curbed. Rapid population growth in the last half century has also affected the structure of our population. At least half of the population of the country to-day is less than 16 years of age where as the median for most advanced countries is 30 to 35 years. A young population requires a particular trend of expenditure to support it, a proportionately large outlay is required for supporting the social services needed for it, like education, health and other facilities."

The economy in developing countries is put to additional pressure for the need of more schools, more job opportunities, more health facilities, more transport facilities, housing and so on.
Different demographers have made different predictions. According to an estimate made by Seal, K.C. (1967) for the annual increase of about 13 million people we need 112,000 schools, 330,800 teachers, 2,220,000 houses, 1,670,000 meters of cloth, 11,100,000 quintals of food grains and 3,540,000 jobs.

The problem of urbanisation is of large dimensions for all nations i.e. both developed and under developed. While urbanisation has resulted in the development of industries, it has inculcated a tendency of flocking to cities. Water and air pollution, transport congestion, shortage of housing, over crowded schools, unemployment, limited civic amenities are some of the problems that bother even the more affluent societies. Swelling numbers have created environmental problem, social tensions have increased considerably and so have slums with all their nefarious activities. Population growth in affluent countries put a disproportionately heavy load on the environment as well. One American, for example, consumes some 30 times as much oil as scarce minerals as one Pakistani. He is responsible for higher level of pollution of the air and water on the earth. His consumption makes him more responsible for over fishing the seas, exterminating animal species, poisoning and killing in island, lakes and other degradations.
It has created ecological problems too. Nature maintains the balance in an ecosystem, living and non-living components remain in balance through a cyclic process - through its own laws and processes.

Population growth increases the difficulty of finding jobs. Besides creating new jobs for the young people, additional non-agricultural jobs will have to be provided for farmers who will continue to leave depressed rural areas and to migrate to the cities. Likewise, more adequate jobs will have to be provided for those either under-employed or working in professions which are bound to become obsolete. Theisenmusen, William (1971) pointed out:

"In Latin America, regardless of what happens to the birth rate in the future the labour force will keep growing rapidly for generations. In countries where unemployment is already a serious problem such a prospect is chilling."

The demographic situation has also substantially contributed to the malaise of crime, violence and conflict. It is manifesting itself in a myriad forms in all countries of the world. Its genesis may lie largely in the revolution in man's minds and actions that has sprung from the frustrations of modern life and the unfulfilled expectations of a better future that we hoped for, but is found incapable of attainment. Above all, it means an increasing loss of liberty and degradation of human dignity.
1.6 Population and Ecology

In mid-1979, the world's total population was estimated at 4.336 million. Of this number, more than half – 55 per cent, lived in 38 countries of Asia and the Pacific. Every year, 43 million people are added to this area. Six of the ten most populous countries of the world are in this region i.e. Bangladesh, China, India, Indonesia, Japan and Pakistan. Changes in the population of these countries place severe stress on agricultural services, forests, fisheries, grass lands, energy resources and social services, as well as on total environments because man is able to manipulate and modify his environment and his consumption of natural resources. He has been able to raise and sustain increasingly large populations, at progressively higher levels of material comforts, that is why the voices demanding protection of our environment are being heard more clearly. The American and European people, have only in this decade, become really aware of what they have been doing to their rivers, their land-scape to all the features of their beloved countries – decades. The danger is now greater in all the developed and developing countries of the world. Only recently there have been a number of agitations in Western Europe because the distinguishing fire in an industry added so much of pollution to the rivers "Rehine" that thousands of tons of fish was killed.
Whenever new construction is planned, i.e. highways, airport, factories, resorts or railroads - or the expansion of towns and cities there has been large requirement for consultation with officially appointed authorities concerned with ecology, environmental protection and landscape design. As a result, the wishes of special-interest-groups (industry, business or local communities), or even attitude of thoughtless responsibility, have prevailed against considerations of the general welfare. It has been the practice to accept any sort of detriment to our natural surroundings as the price of new investment and the associated taxes obtained.

The public out-cry has now become so loud that the politicians are slowly beginning to take action. In West German Parliament, as also in the American Congress, there is already a majority, in favour of changing the law so as to permit the passage of the high priority legislations, controlling the impact of industry and technology upon the environments.

Many of the problems and concerns of the environmentalists, are not even considered in the old laws governing nature's conservation. These critical factors include the progressive change in pattern of land use, resulting from increased industrialization, the growing use of water and electricity, and the ever-larger population with its great-mobility of motor vehicles, its spread into
the suburbs, and its increased demand for leisure and recreation. Trends of this kind in society, technology and economy have already severely damaged the human habitat; essential parts of the country side have in some cases been seriously endangered by unplanned and unrestricted use, and in other cases, they have been destroyed.

Protection of the environment is a worldwide task. It involves not just the highly developed industrial countries but all the continents, lakes, streams, and oceans of the world, along with their envelope of air—crucial to the lives of all living beings and plants as well. The battle of survival in this increasingly overpopulated and poisoned environment will become more and more intense. A delay of even a few years would mean even more vandalism over large parts of the earth, bringing illness and death to many of our fellow human beings.

1.7 Ecological Principles of Environmental Protection

The human species is only one of the millions of inhabitants of the earth. He is really a new comer to the earth (one and half million years). Even well before the human beings evolved, plants, animals, insects, birds, lizards and other creatures were living on this earth (200 million years ago). Unfortunately, because of highly evolved brain, human beings have assumed a mastery, over not only other
creatures of the earth, but also is trying to have
mastery over even the elements of nature. Over the years,
man has had a short sighted view of the importance of the
environment. So abundant were the resources in the beginning
that man became convinced that these were infinite and
limitless and inexhaustible. He took what he needed without
any thought and passed the buck of conservation to future
generation. Through reckless exploitation, sheer indiffer-
ence or thoughtlessness, man wasted vast forests, large
areas of futile lands, vital sources of water and huge
deposits of valuable minerals. With the results that now
all over the world fauna and flora, are in danger.

What is so unique about it is earth? The earth has
just correct range of temperature which is ideal for variety
of life. The position of earth with reference to the sun
is most favourable for development of life providing optimum
day and night conditions. The atmosphere has the correct
blendings of chemical elements like nitrogen, oxygen, argon,
helium, carbon-dioxide and small quantities of Hydrogen
and Neon. However, it seems that man's maximum effort is to
imbalance this beautifully maintained balance.

Life of plants and animals, above all depends on
oxygen and carbon-dioxide. Oxygen helps in getting the
energy requirements for combustion of foods. Plants
manufacture food by using carbon-dioxide by animal life for
the functioning of oxygen. Carbon-dioxide cycle is just only one of many complex relationships for maintenance of life on earth.

a) **Producers and Consumers of the Earth**

It is now a well established fact that the first-life on earth was plant life, because, only plants which contain the chlortophyll, (green substance) in the leaves are capable of using the energy from the sun and with water, carbon-dioxide and nutrients from soil, convert the solar energy and storal energy in the form of food. The plant food would then be used by animals to get the energy for work, growth and other life patterns on earth and thus are known as primary producers. Once plants produce food, the other categories of life come into picture. Some of the animals can directly consume the plant materials as food. Those are called herbivorous - primary consumers i.e. cattle, rabbits, deer, camels and elephants which live on grass and other green vegetation. A category of animals is meat eaters i.e. carnivorous. The animals which get the energy for their life by eating herbivorous e.g. tigers, wolves etc. are known as secondary consumers. A part is left over from food eaten by these animals. This is consumed by another category of animals like jackals, hyena and vultures. At the end is a very important category of organisers called 'decomposers'. Different types of bacteria and fungi (micro-organisms) come under this category
of decomposers. These organisms decompose the dead and rotting plant and animals matter and release the various elements found in nature. Such released elements are used to form new life forms.

The sun, carbon dioxide, water, soil are all parts of physical environment of the earth. The plants, animals, bacteria and fungi compose of 'organismal environment - or living environment'. In order to get a precise understanding of life on earth, a study of relationship between physical and organismal environment is a necessity. The study of various components of earth and interrelationship of physical and organismal environment of the earth is what is known as ecology.

By studying the earth's components as a whole i.e. 'Ecosystem' one can get a clear idea of the earth. It is essential for life to exist and function normally for which three factors are vital i.e. air, water and food. It is estimated that a person can exist without food for five weeks, without water for five days and without air for only five minutes. If quality of air, water and food is not good, then it seriously affects the life of organisms.

b) Air and Its Pollution

Air pollution has become one of the primary environmental problem of the past two decades. Exhaust gases from automobiles, gaseous and solid air borne
particles from industrial wastes and the smoke from forest fires and cozy fire places in the homes can have serious and adverse effect on earth. Air pollution is one of the world's most pressing social problems. The growing field of air pollution needs thousands of persons trained in the physical and social sciences to combat the environment menace.

As commonly defined, air pollution is the presence, in ambient atmosphere of substance, put there by the activities of man concentrations sufficient to interfere directly or indirectly with his comfort, safety, or health or with the full use and enjoyment of his property. Once the pollutants thrown into the air, they must be carried by the winds to some receptor, where the pollutants exert some effort such as damage to humans, animals, vegetation and material objects. Air pollution did not begin to be a problem until man began living in towns and cities and started to burn many fires close to each other.

The earth is surrounded by an envelope of air approximately up to the height of one mile. The composition of which is given in table 1.6.
TABLE 1.6
Composition of Air

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the Gas</th>
<th>Percentage content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Oxygen</td>
<td>21%</td>
</tr>
<tr>
<td>2.</td>
<td>Nitrogen</td>
<td>78%</td>
</tr>
<tr>
<td>3.</td>
<td>Carbon dioxide</td>
<td>0.3%</td>
</tr>
<tr>
<td>4.</td>
<td>Ozone</td>
<td>In traces</td>
</tr>
<tr>
<td>5.</td>
<td>Hydrogen etc.</td>
<td></td>
</tr>
</tbody>
</table>

The composition of air is normally constant. The air becomes polluted when any of the above gases except oxygen increases in it. The sources of air pollution are smoke, automobile exhaust gases, solid particles, carbon dioxide, nitrogen and exhaust gases.

In addition pesticides and fungicides are the chemicals which are normally used by man to kill pests and fungi etc. They spoil crops. These include D.D.T., Aldrin, Chlordane and Toxaphene. These are very harmful for health of mankind. D.D.T. has been banned in many countries. It is said that it takes as many as 200 years to deteriorate it into harmless chemicals.

c) Water Pollution

With progressive urbanisation and industrialization the problem of water pollution has become alarming. Rivers, lakes, man made reservoirs and under-ground water are our
water wealth. These are all in serious danger. Destruction of forests and trees, consumption of coal, petroleum, soil erosion and waste of industries are some other sources of pollution. In Punjab, the industry is concentrated in Ludhiana and due to the hovis of industrial waste, the surface water has become unfit for consumption. The water around the city of Bombay in the sea is so much polluted that even fish cannot live in it. The same is true of most of the rivers and it is perhaps why that scheme of "Cleanliness of Ganges", has come up, in India. The popular saying goes:

"Ram Teri Ganga Maili ho Gai"

i.e. "Oh God, the water of your Ganges has become polluted"

1.8 Education and Population Growth

Population growth has proved to be a major obstacle in the attainment of educational goals, both qualitatively and quantitatively. It adds to the problems of urbanisation, pollution of air, water, noise and also makes, poor not only poorer, but also numerous. It adds to the gap between the poor and the rich. The United Nations made a declaration on population:

"The numbers are striking, but their implications are of greater educational significance too. Rapid population growth seriously hampers efforts to raise living standard, to further education, to provide better housing and transportation, to improve health and sanitation, to forward cultural and recreational opportunities and in some countries
even to ensure sufficient food. In short, the human aspirations common to man everywhere, to live a better life, is frustrated and jeopardised."

1.9 Approaches to the Problem

The problems of over population is of serious nature and needs an urgent solution. It impinges upon all aspects of life both at micro and macro levels. The problem has an intricate relationship between population dynamics, social and economic development and progress in education. The magnitude of the problem requires a multi-pronged attack and a co-ordinated effort by different agencies. It is encouraging to note that India had viewed the spectacle of over-population even long before the country attained independence. Between 1916 and 1936, family planning was advocated by pioneers like Karve and Wattal. The first government sponsored birth control clinic was set up in Karnataka state in 1930. In 1935, the planning committee of the Indian National Congress, chaired by Late Sh. Jawahar Lal Nehru, expressed concern over the population growth.

Hutton, J.H., census commissioner for 1931 census had also pleaded for limiting the population growth. India claims the distinction to be the first country in the world to adopt family planning as a national policy in 1952 A.D. In terms of the recent amendment of the Constitution (42nd Amendment) population control and family planning
have also been made concurrent responsibility (list-III, concurrent list, entry 20-A). From the inception, family planning programme had been a centrally sponsored programme. Government of India is serious towards this giant problem but has not been able to score much success in controlling it even with a massive programme of family planning. Various official and non-official agencies extended their co-operation to solve this riddle. A lot of useful awareness was created among the masses. There had been a good deal of social awakening to raise the marriageable age of both boys and girls. Efforts were made with considerable success to liberalise the laws on abortion. The government also took several measures such as setting up high physical targets for family planning programme, providing attractive incentives, organising massive camps and campaigns and compulsory sterilisation. However, the problem needs a permanent awareness amongst the people. Scholars have worked out a number of remedies to it. It is more a social problem with cultural, economic and political implications and is to be tackled at human level. The opportunity to decide the number and spacing of children is the decision to be taken at the individual level. However, continuous research into the means of fertility control has yielded good results in developing methods. It is expected that more and better research will yield a wider variety, safer and more reliable
methods of fertility control. A thorough enquiry into the problem of population pressure reveals, it does not only need technician's effort, but human approach. Mathur, V.S. (1975) has accurately remarked:

"All of us have to realise that the stage has now been reached when family planning movement has to go beyond legalised abortion, compulsory sterilization, contraceptive techniques and surgical operations. A new twist is needed in our thinking as well as planning. An educational, social and economic revolution seems more relevant to achieve our goal. The whole process has to be conceived and worked at an intellectual level."

Similarly, Mehta, T.S. (1972) has pointed out:

"If the family planning programmes have failed to make any appreciable headway in our country it was because we failed to realise the nature of the problem. It was not clinical problem, but a social one. Since 45% of the population was below 16 years of age, it was rightly necessary to catch the prospective parents, the parents of the tomorrow in their formative stage while they were young, to help them in developing right rational decisions when the occasion would arise in their lives."

Some serious thinking in the recent years has led to two very crucial realisations:

(a) That rapid population growth is a social problem and not only a clinical problem. It could not be solved through science and technology only which, no doubt, can help to some extent.

(b) That it is a problem that could not be tackled at the adult level alone as approximately half of the population in developing countries belongs to the school going and pre-school age. Major chunk of population in India's lies in the age group of 10-15 years.
Education has, therefore, to play a vital role and is a major source of change. It should not be dealt in isolation. There is little doubt that major reduction in birth rate is vital to both qualitative and quantitative progress of education in developing countries. Educational planning should, therefore, not be done in isolation from other sectors of development e.g. family planning, health nutrition, etc. and secondly the educational policy of a country should have an ample thrust towards contributing to decrease the population pressures. This calls for imaginative and sound educational policy and planned educational action in order to complement the integrated efforts through all relevant social sectors to reduce population growth, multi-faceted planning and that introduction should be made for its check at right stage.

The Malthusian view, that over population is the main cause for the poverty of the masses and under development of the societies, is more or less uncritically adhered to, by the ardent advocates of population control. Neo-Malthusian scare has forced the nations to take firm steps to reduce the birth rates significantly. American government has, since the beginning of 1950's, shown a keen interest in the programme and has been spending million of dollars for the birth control programmes in the third world. Indeed, for the same purpose, 1974, was designated by the United Nations as 'World Population Year'. It is recognised that
without stabilizing India's population, rapid economic progress will be difficult. It is because of this realization that the interest in demography is rapidly growing and government officials, planners, educationists and policy makers are making increasing use of the demographic data. The National Policy on Population (1976) recognised the interaction between development and population growth. It added:

"Nonetheless it is clear, that simply to wait for education and economic development to bring about a drop in fertility, is not a practical solution. The very increase in population makes economic development slow and more difficult of achievement. The time factor is so pressing, and population growth so formidable that we have to get out of the vicious circle through a direct assault upon this problem as a national commitment."

Dube, S.C. (1976) noticed that family structure, child rearing practice and socialisation mechanism have not received the attention they deserve. In general, the studies of the progress of decision-making are skimpy, and one does not get a clear view of how culture and community influence, decisions concerning fertility control.

The population problem is basically a part of the general socio-economic crises, caused by the extremely unjust world economy and the internal inequities of the social system. Thus not population control but fundamental social transformations, are the essential conditions for achieving a breakthrough in the third world's under-
development. The relationship of fertility socio-economic status variables has received some attention of demographers. Aggarwal (1966), Chandrashekher (1967), Davis (1951), Ghosh (1946), Husain (1972), Jain, S.P. (1939), Prabhu John C. (1974), United Nations (1961) and Wattal (1958) support the hypothesis that the level of socio-economic status in positive correlated with fertility. Chandrashekhar (1972), Mukherjee (1974), and Nag (1972) and Som (1959) held for a curvilinear bell shaped relationship between socio-economic status and fertility. It indicates that, upto a certain point, fertility rises with socio-economic status, beyond that point it begins to decline. However, it seems that these variables have different types of results with different cultures and socio-economic strata of societies. Aggarwal (1977), Coale and Hoover (1950), Dandekar (1965), D. Souza (1966), Manoria (1970), Rainia (1970) and Raja (1959) found negative correlation between education and fertility. All this seems to be rather confusing. It might be so firstly, because the level of education classified and dealt within various studies of differential fertility are not uniform. Their methodologies especially the spelling out of various levels of education are so much at variance that no meaningful comparisons are possible. Secondly, most of the studies concentrate on the lower levels of education with a close differentiation of levels of education below matriculation which reduces the
possibility of identifying the critical threshold at which educational acts positively. Thirdly, most of the studies are based on the sample surveys of the tiny fringe of Indian population, frequently lacking in consistency, accuracy and adequacy in size. Lastly, any analysis of the relationship between these variables focussing especially on females education is confronted with the problem that the level of education of female is extremely low and therefore, precludes the drawing of any meaningful conclusion about it. The need for research on the demographic, biomedical and socio-psychological aspects of the population problem is one of the most pressing scientific demands. Although this conflicting issue has been touched by numerous commissions, demographers, sociologists, economists as well as educationists, little efforts seem to have been made to look into the problem in a systematic and scientific way.

1.10 Indian Position

India is a multi-religious society having many different socio-cultural backgrounds. It is very difficult, at least, for an individual to emphasise all the segments of the society, in one investigation. In order to know the totality a number of research investigations are to be carried out on different socio-cultural groups. Thereafter, steps may be taken to integrate and to formulate the total
picture. It was therefore, decided to conduct an investigation about one segment i.e. scheduled castes. Again it would have been difficult to do so on all India level, as the data would have been so diversified that no useful purpose would have been served. It was thought to confine it to Punjab, the population of which, in accordance with 1981 Census, was 16,789,915 consisting of 8,937,210 males and 7,851,705 females. Again it would have been difficult for the investigator to carry it on in whole of Punjab because of the difficulty involved in the technique and collection of data so it was decided to confine to the Kapurthala District. It had a population of 545,249 consisting of 2,87,286 males and 257,963 females. It had a literacy rate of 44.85% which composed of 50.77% males and 38.27% females. The population consisted of 4,511,703 scheduled castes out of which 42,039 were literates, in accordance with census report of 1981.

1.11 Need of the Study

The problems of over population and pollution of environments are thus fundamental for economic development, social growth and industrial advancement of developing nations and thus of India, Punjab and Kapurthala. There could be many ways to deal with these problems. Some of the paths are to introduce these elements in school curriculum so as to form constructive attitudes towards these vital areas, to make the grown up aware about these problems and to educate the masses about these hazards.
However, in Indian context, the problem is more complicated in social and cultural content and needs to be looked into in the light of these special circumstances. The fact cannot be overlooked that even the parents want to know what and why their wards study some subjects. In fact it is their attitude towards an area which matters a lot. While the fact remains that other things being the same the more the members of the family, the lower the standard of living. However, it stands good only to a limited extent. In economically and socially disadvantageous societies, especially in India, this principle has limited applicability. With those, who are poorest of the poor or those who live at the subsistence level only, the bigger family means more income as their expenditure to bring up the child up to the age of 7 or 8 years is almost negligible and at this age the child starts to earn by doing menial jobs and thus becomes a source of income. Secondly, with such people there is a notion that more is their population, the more will be their vote power and more will be their strength. Thirdly such people are not alive to the gigantic problems of population explosion and environmental pollution. Fourthly, they have so poor standard of living that they cannot think of anything lower than that. Due to these reasons, the attitude of such sects of the society towards population education and environmental pollution, is only casual. In the Punjab, such population mainly consists of
scheduled castes, backward classes, economically depressed, and socially disadvantaged people. It is very difficult to prepare complete list of such types of people. However, there can be no denying the fact that scheduled castes form a big chunk of the population and any study conducted on it should cover a reasonable ground for them. If one has the limited resources to look into only one part of such people, it is worth considering to cover the scheduled castes first.

There can be many approaches to tackle the problem of population growth and environment pollution such as to strengthen adult education programme, to expand education, to make sterilisation compulsory, to legalise abortions, to tax those who have larger families, to popularise family planning measures and to educate the people with disadvantageous of bigger families. However, now it is being increasingly recognised that education has a vital role to play in this complicated problem. No such study seems to have been conducted on the population of scheduled castes, in Punjab. The vital point is that the same principles of population growth do not apply to all the societies, all the people, all the cultures and all the social set ups, and that different societies have their own problems of vital importance and that such problems are blocking their developmental plans. So they are to find ways and means to tackle them in effective ways.
All this made the investigator interested in the problem of attitudes towards population education and environmental education of scheduled castes of Punjab and to see the level of their education and the size of the family was to do something with these areas.

1.12 The Problem

A Study of the Attitudes of Scheduled Castes Towards Population Education and Environmental Education in Relation to Their Family Size and Educational Levels.

1.13 Objectives

1. To study and compare the attitudes of persons belonging to scheduled castes towards population education at different educational levels.

2. To study and compare the attitudes of persons belonging to scheduled castes towards environmental education at different educational levels.

3. To study and compare the attitudes of persons belonging to scheduled castes, having small and large families towards population education.

4. To study and compare the attitudes of persons belonging to scheduled castes, having small and large families, towards environmental education.

5. To study and compare the attitudes of scheduled castes living in rural and urban areas on their attitudes towards population education.
6. To study and compare the attitudes of scheduled castes living in rural and urban areas, on their attitudes towards environmental education.

1.14 Hypothesis

1. There is no significant difference in the attitude towards population education of scheduled castes having different levels of education.

2. There is no significant difference in the attitude towards environmental education of scheduled castes having different levels of education.

3. There is no significant difference in the attitude towards population education of scheduled castes having small and large sizes of families.

4. There is no significant difference in the attitude towards environmental education of scheduled castes having small and large sizes of families.

5. There is no significant difference between the attitudes of scheduled castes towards population education living in rural and urban areas.

6. There is no significant difference between the attitudes of scheduled castes towards environmental education living in rural and urban areas.

1.15 Delimitations

1. The study was delimited to the revenue area of Kapurthala District of Punjab.
2. It was delimited to five levels of education i.e. (a) Primary pass i.e. having 5 years of schooling, (b) Middle Pass, (c) Matric and Higher Secondary, (d) Graduates and (e) Post-graduates.

3. The study was delimited to the population of productive age i.e. 15-45 years of age.

4. The size of the family meant husband, wife and their children only i.e. nuclear family.

5. If a man had two wives (polygamy) or a woman had two husbands (polyandry) he or she was not be made the subjects of the study.

6. The areas of attitudes of scheduled castes was confined to attitudes towards population education and environmental education.

7. Only those scheduled castes were taken, who had been notified as such for Punjab and also Kapurthala District by the government of India.

8. The Municipal Committee and Notified Area Committee were treated as urban areas whereas all village panchayats were taken as rural areas.

9. The data was collected from the male heads of the families i.e. male parents.

10. Some case studies of those, in whose case both male and female had the same level of education, were made. In such cases the data was collected from the female parents.