

MASTER'S THESIS

Population Growth in Relation to Resources,
Environment and Sustainable Development

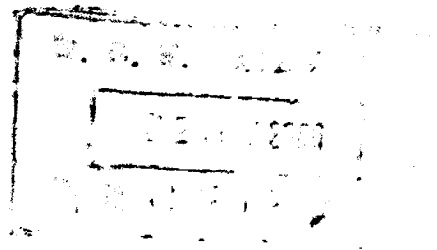
Janet Bassil

Population Growth in Relation to Resources, Environment and Sustainable Development

by
Janet Bassil

Submitted in partial fulfillment of the requirements for the
Master's Degree in the Department of International Affairs
and Diplomacy.

Notre Dame University
1995



Approved

G. Labaki
Dr. George Labaki
First Reader

H. Hadjitan
Dr. Hratch Hadjitan
Dean, Faculty of
Business Administration
& Economics

R. M. Haber
Dr. Ricardus M. Haber
Second Reader

ACKNOWLEDGEMENTS

I thank my Lord for the extraordinary gift of grace I received for reasons only He can fathom.

Many people have helped, in different ways, to shape this thesis, to whom I am indebted.

I owe a debt of deep gratitude to the N.D.U. Committee in general and to my first advisor, Dr. George Labaky in particular, who has so conscientiously studied, evaluated and proposed improvements in the manuscript.

I wish especially to acknowledge the professional support, comments and suggestions received from my second advisor, Dr. Ricardus M. Haber.

I would like to acknowledge the support and encouragement given by Fr. François Eid, President of N.D.U.

I am most grateful to Mr. Philippe Poinçeau of the UNDP for his generous help in providing me with the latest U.N. publications. Also to Mrs. Hajjar and Mrs. Nabila Srouji of the United Nations Information Center.

I wish to express my appreciation to the N.D.U. Computer Center Staff and Director, Mr. Fawzi Baroud, for the use of the computers, and for their professional assistance.

I should like to thank Dr. May Maalouf for reading the manuscript and for offering her helpful comments on it and her encouragement.

I thank my parents for all their support and prayers over the last three years, without which surely I could have never done what I have.

I owe many thanks to my partner and daughters for their endurance and support during the preparation of my thesis.

CONTENTS

CHAPTER ONE	INTRODUCTION	1
I.	General Background	1
II.	Need for the Study	4
III.	The Purpose of the Study	5
IV.	Statement of the Problem	6
V.	Research Questions	6
VI.	Research Hypothesis	8
VII.	Statistical Hypothesis	10
VIII.	Operational Definition of Terms	10
IX.	Limitation	11
CHAPTER TWO	REVIEW OF LITERATURE	12
I.	World Population History	12
II.	Present & Future Growth of World Population	20
A.	Fertility	30
B.	Mortality	37
C.	Migration	39
III.	The Urban Revolution	42
IV.	People & Resources	44
V.	Population Control	46
VI.	Birth Control	48
VII.	Technology & its Effects	57
VIII.	Population Composition	60
IX.	Population & Development in the Middle East	63

X.	Population, Human Resources & Development in the Arab World	66
1.	Socio-Economic Consequences of Oil	69
2.	Population Trends & Issues	72
3.	The Utilization of Development of Human Resources	75
XI.	Economic & Technological Impact	76
CHAPTER THREE	PROCEDURES & METHODOLOGY	82
I.	Population of the Study	82
II.	Sample Selection	82
III.	Selected Variables & their Measurements .	85
IV.	Conceptual Framework for Analyzing the Data	86
CHAPTER FOUR	FINDINGS	88
I.	Impact of Sustainable Development.....	88
A.	General Overvue on Human Security ...	88
B.	Sustainable Development	90
C.	Sustainable Human Development	92
D.	The Role of Women in Sustainable Development	93
E.	Sustainable Development & Economic Growth	94
F.	Disasters: Threats to Social Development	95
II.	Impact of Population Growth on Environment	97
A.	Environmental Pollution	97
1.	Air Pollution	99
2.	Water Pollution	100

3.	Soil Pollution	101
4.	Solid Wastes	102
5.	Other Kinds of Pollution	102
6.	Technological Causes	104
7.	Social Causes	104
8.	Controlling Pollution	104
9.	Government Action	105
III.	Health & the Environment	106
CHAPTER FIVE	CONCLUSIONS & RECOMMENDATIONS	108
I.	Population Growth	108
II.	Development & Sustainability	110
III.	Recommendations	111
Reference	114

List of Tables

Table 1	18
Crude Death Rates, 1950-2000 (per 1000 population)	
Table 2	63
Population "Momentum" & Projected Population Increase under Two Alternatives (Optimistic) Fertility Assumptions	
Table 3	71
Values of Oil Exports as a Percentage of Total Exports & GDP in Arab Oil Exporting Countries, 1970 & 1977	
Table 4	74
Total & Foreign Population & Labor Force in Labor-Importing Arab Countries, 1980	
Table 5	75
Percent Distribution of Foreign Labor Force by Area of Origin in Labor-Importing Arab Countries, 1980	
Table 6	83
Selected Demographic, Social, & Economic Indicators for the Middle East & North Africa	
Table 7	84
HDI for 17 Middle Eastern & North African Countries	

List of Figures

Figure 1	16
Population Growth, 1750-2100: World, Less Developed Regions, & More Developed Regions	
Figure 2	16
World Population Growth	
Figure 3	51
Population Growth Rates in Developed & Developing Countries, 1950-2000	
Figure 4	51
World Population by Region: 1990 & 2020 (Projection)	
Figure 5	84
HDI for 17 Middle Eastern & North African Countries	

ABBREVIATIONS

GDP	:	Gross Domestic Product
GNP	:	Gross National Product
HDI	:	Human Development Index
IPPF	:	International Planned Parenthood Federation
LDCs	:	Less Developed Countries
OAPEC	:	The Organization of Arab Petroleum Exporting Countries
R&D	:	Research & Development
UNDP	:	United Nations Development Program

PREFACE

We are faced with the problem of how to achieve a sustainable balance between the needs of growing human population and the resources of the planet.

My thesis is oriented toward population growth and the set of problems and issues faced by Africa, Asia and Latin America, regions collectively referred to as the Third World.

The issue of population growth in the Third World countries is mainly a problem of numbers. It is an issue of human welfare and of development. Rapid population growth accompanied by demands for a higher standard of living can have serious consequences for the well-being of humanity worldwide.

An accelerated international response is necessary to answer unmet family planning needs, and to recast development strategies in answer to the underlying causes of high fertility.

In some situations, the question may not be what rate of population growth is sustainable, but whether growth can continue without reducing living standards and jeopardizing the prospects for future generations.

So the current worldwide debate is mainly about world population growth in general and Third World population growth in particular, with its consequences on human welfare. Continuing population growth is considered a threat because of its consequences, so governments are urged to adopt an integrated policy on population and sustainable development.

There was a time when population growth was held in check by plague, famine, malnutrition, disease, war and natural disasters, conditions that resulted in high death rates, while in the 20th century such conditions have mostly come under technological and economic control. Population growth today is the result of a rapid transition from high birth and death rates to high birth rates and low death rates.

Population growth has been proven as the principle cause of poverty, low standards of living, malnutrition, illiteracy and ill health. It is a factor that prevents economic development.

Family planning programs with local clinics need to be established in Third World countries. This will improve the quality of life by promoting the health and welfare of the family; it will also contribute to economic and social development. Family planning has the following objectives: (1) to avoid unwanted babies; (2) to facilitate wanted babies; (3) to regulate intervals between pregnancies; (4) to control the time at which births occur in relation to the ages of the parents; and (5) to determine the number of children in the family. Moreover, family planning should include information and education on sexual relations and love, and guidance for family life.

CHAPTER ONE

INTRODUCTION

I. General Background

Population is a term referring to the total human inhabitants of a specified area such as a city, country, or continent, at a given time. Population study as a discipline is known as demography. It is concerned with the size, composition and distribution of populations, their patterns of change over time through births, deaths, and migration, and the determinants and consequences of such changes. Population studies help in planning particularly by governments, in fields such as health, education, housing, social security, employment and environmental preservation. Such studies also provide information needed to formulate government population policies, which seek to modify demographic trends in order to achieve economic and social objectives.

Demography is an interdisciplinary field involving mathematics and statistics, biology, medicine, sociology, economics, history, geography and anthropology. The field of demography has a relatively brief history, starting with the publication in 1798 of an essay on the "Principle of

Population" by the British economist Thomas Robert Malthus. In this work Malthus warned of the constant tendency for human population growth to outstrip food production and classified the various ways that such growth would, in consequence, be slowed. He distinguished between positive checks to population growth (such as war, famine and disease) and preventive checks (such as celibacy and contraception). The development of demography has been tied closely to the gradually increasing availability of data on births and deaths from parish and civil registers, and on population size and composition from the censuses that became common in the 19th century. The growth of behavioral sciences in the 20th century and advances in the fields of statistics and computer sciences further stimulated demographic research. Subfields of mathematical, economic and social demography have grown rapidly in recent decades.

Human population has been investigated for centuries, yet it is only recently that demography (from the Greek demos, "people"), the systematic study of population, has become the prime problem worldwide in both developing and developed countries. Fertility, mortality and migration determine the growth or decline and movement of a population. The population of a state or country is determined by three factors: age composition, sex distribution and increase or decrease caused by the flow of people into or out of an area.

Census: the word census comes from the Latin censere, meaning "to value", "to tax". In ancient times governments took censuses. Early censuses are recorded in the Bible, the most famous of which is the Imperial Roman decree that required Mary and Joseph to be in Bethlehem so they could be counted (Luke 2:1-5).

Even today the census is the most important single source of population data in most countries. As it is impossible to observe and record the hundreds of thousands of births, deaths and migrations that take place every day around the world, researchers interested in population characteristics must rely on the data gathered by others, mainly through censuses.

Changes in population affect us all. Increased immigration may change the kind of neighborhood in which we live. The aging of a population may affect tax rates and social security systems. The increasing younger age groups in populations in less developed countries may make economic development more difficult to achieve. A rapid increase in numbers is a serious obstacle to improving a nation's living standards.

A successful economic and demographic transition would combine an increase in the level of production and consumption with a decline in mortality and fertility.

Despite low income and productivity, developing countries play a vital role in the world economy. They supply rich countries with a variety of raw materials which are crucial for their economy and they provide important markets for manufactured goods. The productive capacity of developing countries is limited, their economy is retarded and are vulnerable politically.

II. Need for the Study

The output of the Bucharest conference in 1974 was that all couples and individuals have the basic right to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so. They also asserted that "the basis for an effective solution of population problems is, above all, socio-economic transformation."

The output of the Cairo conference in September, 1994 stressed education (especially for girls) infant, child and maternal mortality reduction and the provision of universal access to family planning and reproduction health services.

Over the next twenty years the world community must ensure that all children complete primary school, that the quality of basic education is improved and that the sex gap in education is closed.

III. The Purpose of the Study

The purpose of the study is to highlight the effect of population limitation on the economic status of the developing countries, given their expenditure on research and development (R&D) plus education. In other words, we ask whether the limitation of population increase in the developing countries is an important spur to economic development and whether it improves the economic growth of the developing nations. For this, the researcher has to focus on the relationship between economic development and population growth. The difficulty of making such an analysis lies in separating cause from effect. But this is necessary if we are to know whether economic development accelerates or retards population growth rates.

IV. Statement of the Problem

- Would limitation of population increase in the developing countries lead to better GNP via technological improvement, higher standard of living, and better quality of life and education?
- What are the effects of education on population growth, fertility, mortality and migration?
- Does economic development tend to limit or accelerate population growth rates?

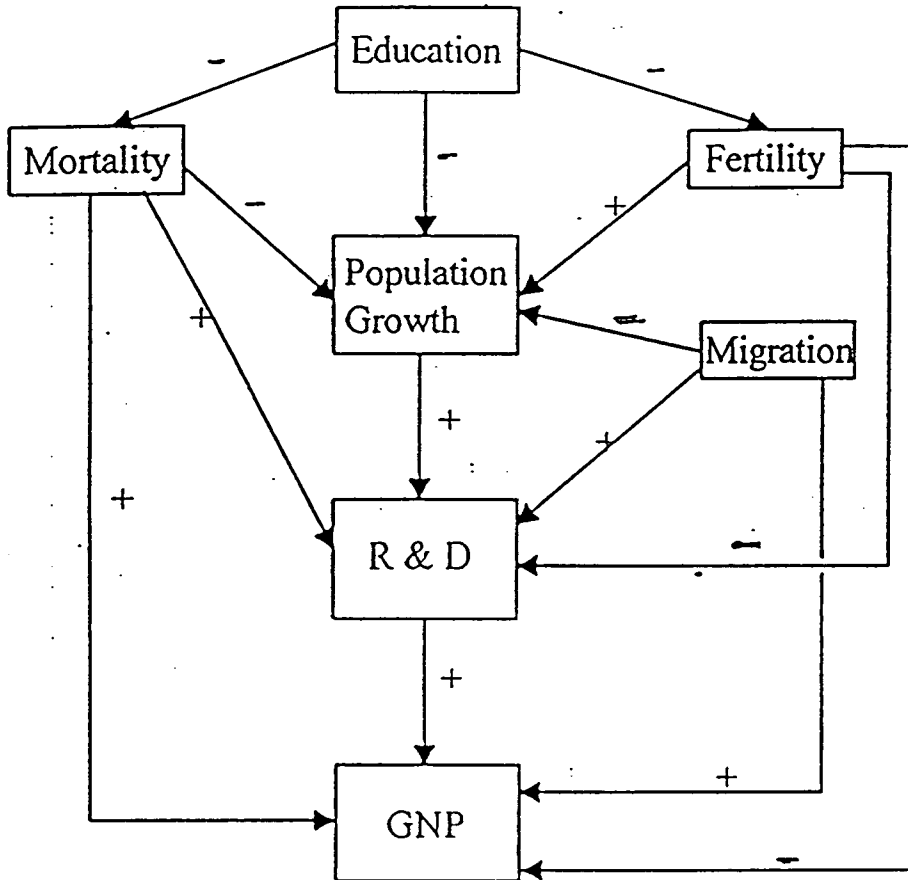
V. Research Questions

- What are the major characteristics of the selected sample of developing countries?

The major characteristics to be studied in the population of developing countries are age distribution, ethnic composition, reproductive age, education and religion. Other characteristics are fertility (reproductive potential), mortality and migration. Education is an important determinant of the residual element of economic growth.

- What is the relative importance of the variables discriminating between high and low HDI?

Hypothetical Model



Education has a negative affect on fertility, mortality and population growth.

Fertility has a positive affect on population growth, but a negative affect on R&D and GNP.

Mortality has a negative affect on population growth, but a positive affect on R&D and GNP.

Migration has a negative affect on population growth, but a positive affect on both R&D and GNP.

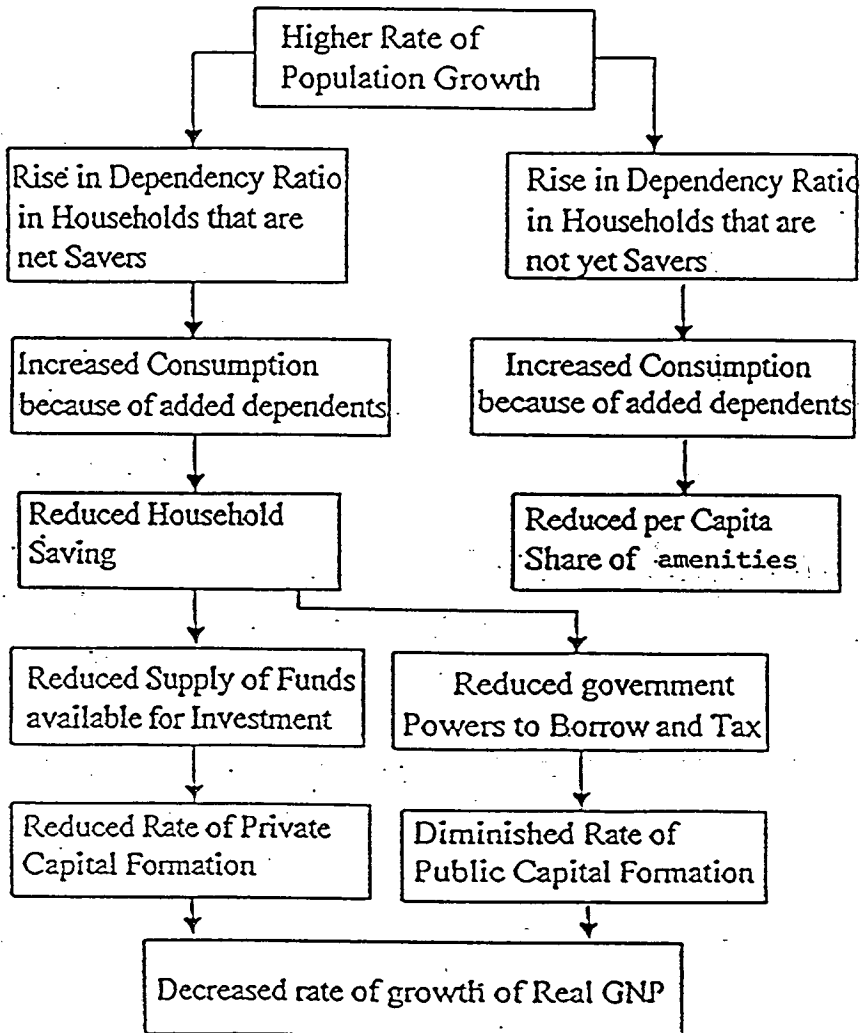
Population Growth has a positive affect on R&D.

R&D has a positive affect on GNP.

VI. Research Hypothesis

- A negative relation exists between population growth and education.
- R&D fosters a decrease in population growth.
- There is a negative relation between population growth and both development and economic progress resulting in a low GNP, as shown below.

Effects of Increased Rate of Population Growth on Economic Growth



VII. Statistical Hypothesis

H^0 : $R^2 = 0$

H^1 : At least one of the explanatory variables is significant.

VIII. Operational Definition of Terms

Developing countries are countries that have high fertility, low income and low GNP.

Fertility denotes reproductive potential.

Mortality is simply the termination of life.

Migration refers to the movement of people in space or geographical displacement. Migration rate: immigration at a specific year minus emigration at that same year divided by average population of an area during that year, times 100

Population Growth Rate: Population at the end of a specific year minus population at the beginning of that specific year divided by population at the beginning of that year, times 100.

IX. L i m i t a t i o n

Modern national governments and international organizations place a high priority on the accurate determination of national and worldwide populations. Describing the present populations and predicting those of the future with reasonable accuracy requires reliable data. But many of the developing countries lack recent figures on their population growth; therefore, the researcher is unable to analyze all the developing countries, and the findings of the study will be limited to the developing countries for which comparable data is available.

CHAPTER TWO

REVIEW OF LITERATURE

I. World Population History

The principal cause of human environmental change has been the unprecedented rapid increase in population, partly caused by the fall in the number of deaths from infectious diseases. This overpopulation is a problem the twentieth century is presently confronting.

There is a long history of ideas about population. Most of these ideas were based on superficial observations, and they were largely political in purpose. Both Plato and Aristotle believed that there was an ideal number of people who could live together in a community.

The world population in the distant past lived in small nomadic groups devoted to hunting, fishing and fruit gathering. At the beginning of the agricultural revolution, nearly ten thousand years ago, when humanity began cultivating plants and domesticating animals, the population increased from 125 thousand to five or ten

million. As a result, the population ceiling moved upward and population increased. By 3500 B.C. the global population had reached about 30 million. The desire for a larger population intensified in 17th century Europe under the influence of mercantalism. The central aim of this philosophy of government was to increase the power and wealth of the nation. It was thought that population growth would contribute greatly to this goal. As a result, more marriage, larger families, and immigration, especially for skilled workers, were encouraged. It was also believed that urban growth was advantageous because a dense population would lead to economies of scale and specialization in manufacturing.

Between 1798 and 1826, Thomas Robert Malthus, an English economist, argued that population always tends to increase beyond the means of subsistence unless this is prevented by one or more of three checks: moral restraint, vice and misery. By "moral restraint" he meant deliberately late marriage. "Vice" signaled abortion, contraception and extra marital sex. "Misery" included famine, pestilence (plagues) and war (Berelson, 190; Leland Bach, 649).

Controversy over population has tended to revolve around attitudes towards Malthus ever since his time. Optimists, liberals and socialists have generally opposed him and pessimists and conservatives have supported him. Malthus believed that the poor had an interest in restricting their fertility so as to reduce the supply of labor and thus raise its price, i.e. wages. Karl Marx was one of his most vehement critics, arguing that workers could not influence their condition significantly without a socialist revolution. Marxists say that it is possible to construct a society in which the Malthusian dilemma between population growth and misery will not emerge.

In 1850 the world community reached one billion (Luthans, 76); it had taken about two million years to reach this level. The next billion was added in one hundred years, the third billion was added in approximately thirty-five years, the fourth took fifteen years, while the fifth billion took only twelve years in the late 1980s. Today the earth counts 5.6 billion (Popline, vol. 16, 1; World Summit, 1), and by the year 2000, it is expected to rise to 6.25 billion, as per estimates projected in Figures 1 & 2 below. The scientific-industrial revolution which started in the 16th and 17th centuries increased food supplies, and resulted in improvements in medicine and public health

practices and fewer deaths, therefore, contributing to further population expansion. Large-scale urbanization and urban growth did not become possible until the Industrial Revolution, which greatly increased agricultural productivity, expanded the amount of land that could be utilized for food production and facilitated the transportation of food from one area to another. The age of industrialization was an age of urbanization. By 1900 cities, mostly in Europe and Northern America, were growing fast. Developments in industry and trade, as well as improvements in transport and sanitation had made this growth possible. During the 20th century, the rate of population growth in most countries of Europe and Northern America diminished. Birth rates declined faster than death rates, and the rates of natural increase were quite low. In a period of rapid population growth, death rates decline, but birth rates remain high. The fall in the death rate and decline in the birth rate are attributed to industrialization, urbanization, mass education and modernization in general (Mann, 25-27; Spanier, 166-168).

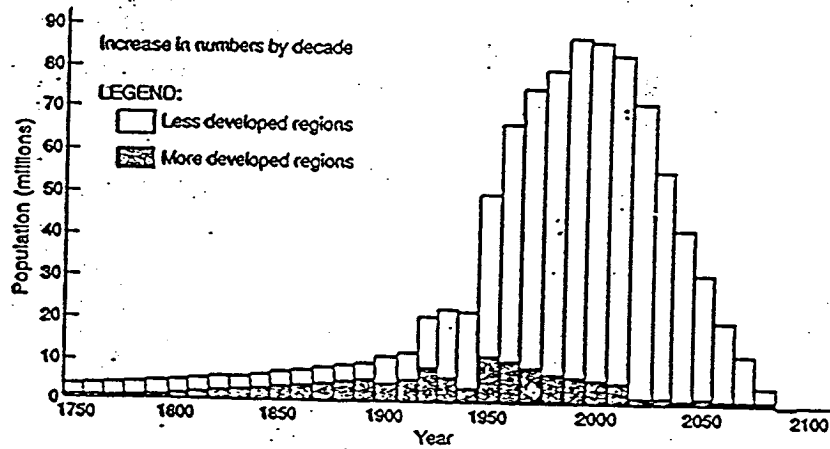
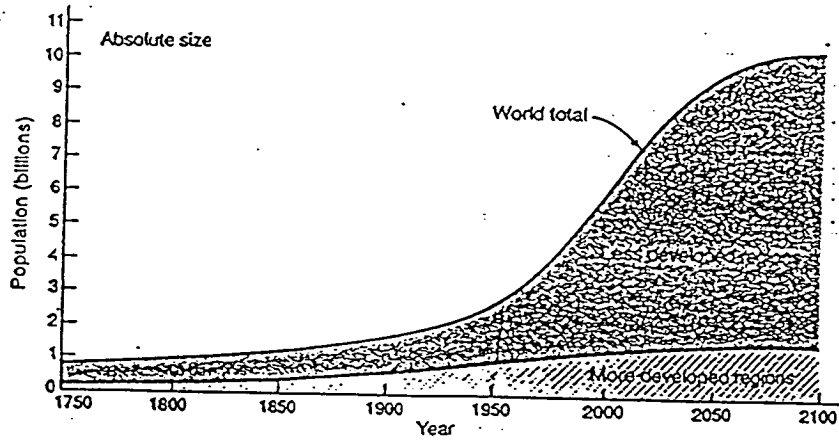


FIGURE 1 Population Growth, 1750-2100: World, Less Developed Regions, and More Developed Regions. SOURCE: Thomas W. Meirick with PRB staff, "World population in transition," *Population Bulletin* 41, no. 2 (April 1986), p. 4. Note: Three less developed regions = Africa, Asia (minus Japan), and Latin America. Two more developed regions = Europe, U.S.S.R., Japan, and Oceania (including Australia and New Zealand) combined and North America (Canada and the U.S.).

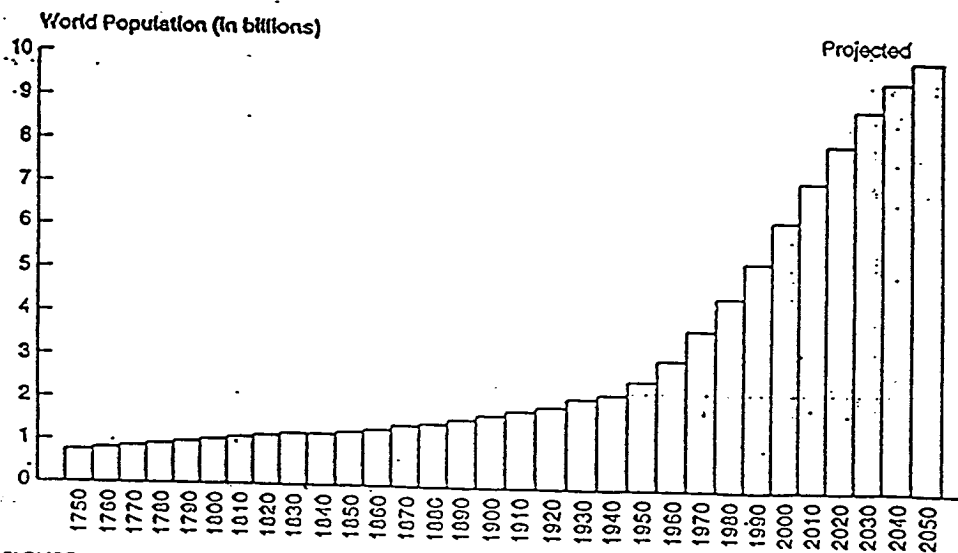


FIGURE 2. WORLD POPULATION GROWTH
World population was estimated to have reached 5 billion on July 11, 1987. It is expected to double to 10 billion people by the year 2050. (Source: Data from Population Reference Bureau. Adapted from *Columbus Dispatch*, July 11, 1991. Reprinted with permission *Columbus Dispatch*, July 11, 1991.)

Asia and Latin America had gained population at a rapid rate during the 1700's & 1800's without becoming industrialized, the reason being advances in agriculture, communication and transportation, improved living conditions and reduced occurrence of many diseases. Reduction in the death rates in Africa caused rapid population growth there as well. The increase in population developed slowly before 1950, but was partly masked by the poor data available for much of the world. Ninety percent of this growth occurred in the poorest countries. As a result of this rapid growth of population, the world faced hunger and poverty (Spanier, 169-171; Mann, 28-29; Etat de la Population Mondiale, 1).

Eckholm states that the rise in human numbers has had a profound impact on the environment. He adds that all people need housing; therefore, human settlements across the world have increased. They have consumed more of the earth's resources with respect to minerals and energy; consequently, they have increased the amount of pollution worldwide (Eckholm, 40). Refer to chapter IV.

In the agricultural countries of Africa, Asia and Latin America, the drop in the death rate did not occur

until the mid-1900s. Table 1 shows the rapid decline in Third World death rates between 1950 and 1990. The death rate plunged quickly without a corresponding decline in the birth rate. The entire world population grew rapidly, but it increased most rapidly in the developing nations, which could least afford such increases.

Table 1 Crude Death Rates, 1950-2000 (per 1,000 population)

	1950-55	60-65	70-75	80-85	90-95	1995-2000
World total	18.3	14.4	12.0	10.6	9.2	8.7
Developed countries	10.1	9.0	9.2	9.7	10.1	10.1
Developing countries	22.2	16.8	13.2	10.9	9.0	8.3
Africa	26.9	22.4	18.8	15.4	12.0	10.6
Middle East	25.3	20.9	16.6	13.4	10.4	9.2
Latin America	14.5	11.5	9.3	7.7	6.5	6.0
China	20.1	13.6	9.4	8.3	7.8	7.7
East Africa	30.0	11.8	8.7	7.4	6.7	6.6
South Asia	24.6	19.8	15.8	12.5	9.9	8.8

Source: UN, *World Population Trends and Prospects, 1950-2000* (New York: United Nations, 1979).

No one knows how many people the earth can support, but many scientists, economists, and other experts fear that food production cannot keep pace with the population explosion for long, and that the world will soon become overpopulated, i.e., it will have more people than it can support at an acceptable standard of living. Famine, war, and other disasters would then become common unless people took other steps to cut the growth rate (Dornbusch, 607).

Economists assert that increases in food production, together with other advances, will keep pace with future population growth. During the 1960s improved farming methods and new high-yield crop varieties helped the developing countries increase their food production. They also assert that the earth could support a much larger population with a more equal distribution of resources. They point out that many people have more than enough to eat, but that many others go hungry (Broom, 340-344).

The most rapid expansion of population has been occurring in Asia. In 1970, over half of the world's people were Asians, living on about a fifth of the world's area. Birth control programs achieved limited success. The birth rate, in the early 1970s was 42 per

1000 of the population, while the death rate was 17 per 1000. The fastest rate of growth in Asia was to be found in the population of India, which was higher than that of any country in Europe, but lower than many states in the Middle East and some states in Africa. This was a great threat to India's future development and its efforts to break free from poverty. The poorer, less-developed regions of the world are increasing in population more rapidly than the regions that are better off (Berelson, 17-22; Vander Zanden, 359-361; Bhatia, 74; Perrow, 12).

II. Present & Future Growth of World Population

During the life of the U.N., the program for population control has been steadily developed. As this subject was quite delicate, because of strong religious objections which certain governments, such as those of Latin America, felt towards birth control measures, the U.N. in its early years had to use a gentle method of approach (IPPF, Vol. 17, 8-9 & 13).

The U.N. formed programs for training experts in population studies and population control for governments who expressed their interest. The most important step was the establishment of the U.N. Fund

for Population Activities (UNFPA) in 1967, which, like other controversial programs, was financed by voluntary contributions. The funds increased rapidly and in less than five years reached more than fifty million dollars a year. The opposition of governments to such programs gradually declined. The UNFPA has spread all over the world knowledge of contraceptive techniques and helped organize family planning facilities (IPPF, Vol. 17, 24-25; ICPD, Sept. 94, 6).

Modern family planning methods are unavailable to no more than 350 million couples worldwide, due to lack of investment in family planning programs. The growing acceptance and demands for services is shown by the increasing prevalence of contraceptives in developing countries, from 9 percent of women of reproductive age in 1960 to 51 percent in 1993. Researchers are aiming at revealing the links between population growth and development (technology), highlighting the financial implications of rapid population growth (economy) (WHO/FHE/94.1, 18-49; Perrow, 18).

Presently, economic development is the most urgent, most vital need of the overwhelming majority of mankind. Rich nations regarded the rapid growth of population as a serious problem, and preferred to keep the poor ignorant. During the conference held in Stockholm in

1972 to discuss environmental problems in which over a hundred nations participated, it was recognized through consensus that human beings were steadily destroying the air, water, land, flora and fauna around them and were rapidly consuming some of the earth's most important resources. The British representative in Stockholm expressed what must be the general aim for both rich and poor nations: "To get rid of poverty, illiteracy and disease" (Sayegh, 1-2; Roodel, 1; Akasheh, 3).

After Stockholm, the next major world population conference held by the U.N. in Bucharest in 1974 marked a significant change in attitudes. Traditionally, growing populations had been seen as indicators of rising national strength; only a few governments believed otherwise. In the 1950s population policy had not been a topic of international discussion; it was equated with birth control. With the advance of technology (in the field of medicine and sanitation), death rates dropped first in Europe and then in other parts of the world. Since birth rates did not fall at the same time, population grew swiftly. Early attempts at controlling population growth were based on the provision of contraceptive devices which would lead to an immediate reduction in the birth rate. By the end of the 1960s it was apparent that such an approach was not working (WHO/FHE/94.1, 17; ICPD, 94, No. 17, 1).

The next population conference after Bucharest took place in Mexico City, August 6-14, 1984. The documents prepared for the Mexico Conference showed that since 1974 the rate of growth of the world population had begun to drop from an estimated (3.7 billion), 2.02 percent in 1974 to (4.4 billion), 1.67 percent in 1984 (FNUAP, 1994, 4). During the decade between the first and second world population conferences (1974-1984), 78 million people were added to the global population every year (Todaro, 190). According to U.N. projections, this figure is expected to increase to almost 98 million annually between the year 1995 and 2000 (FNUAP, 1993, 1). The total human population is projected to go from 4.4 billion in 1984 to 6.25 billion by the end of the century. Because of changes in population structures, the number of young people is projected to increase from 657 million in 1980 to 888 million by the year 2000. The number of women of reproductive age in developing countries was 777 million in 1980 and is expected to rise to 1258 million by the year 2000. The U.N. World Fertility Survey conducted over the last decade has shown that many women are having more children than they desire, and that family planning programs could have a substantial effect (Roodel, 4; Jillani, 6; Mumtaz, 10-11).

The 1984 Amman Declaration on Population in the Arab World stressed the importance of the population growth issue for national development in the Arab World, because rapid and haphazard population growth hampers the Arab countries' efforts to develop their limited economic and social resources as well as to meet the needs of future generations for food, housing, employment, education, health and transport. The Conference's call was for the participating nations to promote and apply population policies in the Arab World within national development and population policies, to control population growth rates, to raise living standards, to reduce mortality rates as well as achieve an ideal geographical distribution of the population, and to organize internal and external migration (United Nations, ECWA, 5-15).

After the Mexico Conference in the summer of 1984, the Conference on Population Policies and Development in the Arab World was held in Amman in 1985 and sponsored by the United States Agency for International Development. The Conference issued a set of recommendations, the most important of which was a call to Arab countries to establish institutions to draw up population policies and coordinate work concerned with population issues. The Conference also stressed the

need to tackle population problems in the Arab World within a national framework, and to train personnel qualified in the population field, and insisted on the close relations linking population variables with economic and social variables within the framework of development plans (Abu-Gamrah, 250-259).

The Jordanian Government has adopted a socio-economic development policy which it considers as being sufficient to solve the problems arising from rapid population growth. Moreover, the Government has changed its position regarding its desire to intervene in order to amend the fertility rate. It has also stated that, despite the absence of a population policy, it acknowledges the importance of reducing the fertility rate (United Nations, 1980, 16).

Jordan suffers from maldistribution of population, growing internal and external migration, rising birth and fertility rates, especially in rural areas, and imbalances in the age structure of the population, leading to rising support rates and other problems.

The Jordanian Government has adopted an indirect population policy, to influence population size, growth, distribution and structure. This policy includes improvement of health services, expansion of education,

provision of job opportunities for women, tackling the migration problem through further attention to conditions of rural and desert areas, and overcoming the unemployment problem.

The 1984 Amman Declaration called for the implementation of population policies within the context of national development policies, in order to achieve the necessary socio-economic objectives of the developmental process (UNFPA, n.d., 16,31-32, 36, 58, 59). This process can be achieved by adopting a clear-cut policy on population aimed at the control of population growth rates, including family planning, raising people's living standards, organizing internal and external migration, imposing health services, achieving geographical distribution of the population and raising the level of women's education (Omran, 342; Al-Kasawani, 13-26; United Nations, 1980, 16; Salas, 153; IPPF, 42).

The result of the World Conference on Population and Development, organized by the United Nations in Cairo, September 5-13, 1994, whose aim was to draw up a twenty-year program to combat overpopulation in the world, was described as the faded rose of Cairo, and was announced to be a failure. The question of abortion seemed insurmountable, as this was rejected by the

religious authorities of both the Catholic Church and Islam. In most countries abortion is permitted where the pregnancy endangers the mother's life or permanent health. Only a few countries might accept it as a means of family planning.

The objective of the Cairo Conference was to set out ways of limiting an explosion in the world population, currently estimated at 5.6 billion inhabitants (World Summit, 1). Forecasters fear that the number will double in the next 50 years leading to serious pressure on the earth's resources, impoverishment of all peoples and wide-spread ecological damage.

It was pointed out at the Conference that all international studies on health and education prove that improvement in the standard of living or education of women has a positive impact on their environment, far greater than improvement for those of men. The basic assumption of the Cairo Conference is that there is a demographic threat. The part on family planning, particularly on the subject of the rights of individuals to decide freely about the number of children they want and the time they are conceived, was rejected by the Vatican, although the Moslem countries finally accepted it (ICPD 94, No. 21, 1, 4, 5).

The biggest stumbling block was the part on abortion, although it was stressed that abortion should not be seen as means of birth control, but characterized as a serious public health problem, which it would be hypothetical to ignore (Populi, 9, 14-15).

Countries that are most liberal in sexual matters, such as the Caribbean or Latin America, do not allow abortion although the practice is widespread in their territories. The consequence of this is to increase the risk of backstreet abortion. In Haiti, abortion is the most common method used for family planning.

The average number of children of uneducated women is seven, of those with primary education it is six, and of those with higher education it is four. In both Thailand and Colombia, the number of children per woman has fallen in 25 years. In China political measures forced families to have only one child.

Urbanization and migration are Latin America's most serious problems, while high growth and heavy in-migration are feature of the countries of the Middle East.

In the developed countries aging of the population is the most significant demographic trend. Statistics reveal the direct health costs of not promoting family planning. Women who bear children too early or too late in life, women who bear too many children, and women who bear children too close together endanger themselves and their babies. In short, family planning is necessary to good health. Millions of the poorest women in Africa, Asia and Latin America have had teenage marriages followed by two or more decades of uninterrupted pregnancy and lactation with consequent bad health (WHO/FHE/94.1, 24-29; IPPF, Vol. 17, 2-26; Perrow, 9).

All population change within a society can be reduced to three factors: The birth rate (fertility), the death rate (mortality) and migration rate into or out of the society.

Although the populations of modern industrial countries are increasing slowly or not at all, most less developed countries are growing and will continue to grow rapidly for many years. The increase will occur even if effective family planning is widely practiced, because less developed countries have a high percentage of young age groups. Very large, rapidly rising populations in the underdeveloped world are pressing on

limited land areas and are exhausting resources that can never be replaced. At the same time, people in developed countries are using up the same resources to maintain a uniquely high standard of living. The social, ecological, economic and political problems created by these demographic and social conditions have never occurred before on a global scale (Broom, 339-340; Perrow, 2).

A. Fertility

Fertility plays a major role in demographic change. In many countries, mortality decline without a parallel fertility decline has resulted in very rapid population growth. In consequence, the economy and environment of these countries have begun to suffer under the pressure of population increase. Family planning programs have been launched into most countries to curb population growth by reducing reproduction rates (UNDP, 94, 7).

A first step toward nationwide fertility reduction would be to set up an effective family planning program. Family planning is an ideology that motivates couples and urges them to have only the number of children they desire. In other words, it aims at eliminating unwanted births. To change people's attitudes about such fundamental matters, may take years; therefore, family

planning efforts may require some time with no visible results. In April 1994, the United Nations Population Fund, the U.N. agency responsible for population and family planning, put forth a proposal to stabilize world population at 7.8 billion by the year 2050 (UNFPA, 8). The plan calls for quadrupling funding for international family planning assistance programs. The program is broad-based, involving changes in the role of women and the expansion of family planning services.

The Population Fund plan calls for providing universal primary education for both girls and boys and making secondary education available to at least half of all girls.

Obviously today's question of population growth is more relevant than the cultural, economic and ecological forces. Many women in developing countries today would like to limit their families but are not doing so - in many cases because they lack the knowledge and the means. The World Fertility Survey undertook the largest social science research, which involved surveys of women in sixty countries over the last decade, and revealed the existence of a large unmet demand for family planning, especially in Asia and Latin America. In African countries traditional notions concerning the desirability of high fertility remain strong and

organized family planning efforts are nonexistent (Populi, 2-3, 14).

Analyses of the results of interviews conducted by the United Nations Population Division in 15 Asian and Latin American countries showed that the proportion of married women wanting to cease childbearing is surprisingly high. Of women with five living children, the proportion wanting to cease childbearing ranged from 66 percent in Nepal to more than 90 percent in Thailand and Sri Lanka. In Nepal more than three-quarters of the women had never heard of modern birth control methods. In Pakistan public education had made them aware of the possibility of birth control, but only one-third of the women knew where to go for assistance. Education has helped the spread of family planning services, but these have been blocked by cultural obstacles, including the attitudes of men. Equal opportunity and treatment between men and women with special attention to women's access to training, education, employment and improved working conditions; knowing that an important approach to improving the economy is the creation of new roles for women, roles beyond the traditional ones of wife, mother and worker in family enterprise. Education would

thus help women have direct control over their lives (Overbeek, 258; Populi, 3).

In many countries attitudes about birth control seem to be passing through a traditional period in which several factors, such as knowledge about contraception, the desire to limit birth, improved child survival and the convenient availability of family planning services, reinforce each other. World Fertility Survey results prove family planning services help to create a demand for them, as people become more aware of the possibility of doing so, they become more interested in limiting family size (WHO/FHE/94.1, 6-28; Populi, 6-7).

In the less developed world, the political support given varies widely. Private organizations, such as the International Planned Parenthood Federation (IPPF) have played heroic roles in spreading the benefits of family planning. Even though 95 percent of the world's people live in countries with organized programs, according to IPPF estimates, about 390 million women in 1980 were not using contraception. A large number of these women lacked knowledge of, or ready access to, effective means of preventing unwanted pregnancies. Furthermore, one-third of the world's women live in countries where abortion is illegal and millions lack access to safe abortions (IPPF, July, 94, 8 volumes).

In 1952 India became the first developing country to formulate an official population policy and establish a government sponsored family planning program. During 1966-67 over 863000 sterilization operations were performed (Bhatia, 83). As a result, India's birth rate is far lower than that of the neighboring countries of Pakistan and Bengladesh. The Indian government was concerned about the birth control campaigns but with little or no success. China in turn has made contraceptives and abortion available and backed it up with economic incentives and pressures for small families. China pulled down its birth rate with incredible rapidity. By year 2000 China will achieve its goal of zero population growth. This is due to the broader socio-economic reforms that have occurred in China (IPPF, Vol. 17, 22; Sadek, 6-7).

Among Latin American countries, Columbia has promoted family planning services; as a result, the birth rates has dropped well below that in neighboring countries. Cuba has also provided with family planning and has the lowest birth rate in the Caribbean and it has improved the lives of the poor. Mexico is working on putting contraceptives within reach of its entire population and is actively promoting smaller families. Governments of the Arab world, except for Egypt, Tunisia

and Morocco have done little to support birth control (IPPF, Vol. 17, 3; Tunis Declaration, May 84, 6).

Religion has an impact on fertility; some religions favor large families and others discourage the use of conventional contraception in favor of natural means of contraception. Fertility has been higher in rural than in urban communities. Traditional social customs are stronger among the rural dwellers than among city residents. A low level of education, combined with geographical isolation, tends to delay acceptance of the small family ideal. Economic factors play their role: it is easier to raise a child in the countryside than in the city; children on the farm may contribute to the family income as producers or laborers. In many developing countries, parents rely on their children, especially their sons, to take care of them in sickness and old age (U.N. Affairs, Vol. 1, N.Y. 79, 343-344; WHO/FHE/94.1, 23; Williams, 131-134).

There is a relationship between fertility and occupational status. The stronger the desire to improve one's position in society, the lower one's fertility tends to be. The relationship between income and fertility also tends to be inverse. Education, occupation and income are related. Education and training usually open up occupational opportunities that

in turn lead to high incomes - high income is associated with low fertility. There is a negative correlation of birth rates with the level of education. Low education is both a cause and an effect of high fertility. In the 1970s developed countries had low fertility and their per capita incomes ranged from \$3000 to \$10000 per year, while developing countries had higher fertility rate with per capita incomes below \$1000. It is clear that low fertility levels are associated with higher income, better education with effective family planning (The World Bank, Aug. 94, 15-16; Populi, 4, 10; Perrow, 7).

Modernization and industrialization have another impact on fertility: they further the breakdown of traditional family dependence. Industrialization and socio-economic progress replace custom and tradition. The decline of tradition and religion-bound attitudes and values in general lead to a decrease in desired size of the family. Evidently, whatever is done now to lower fertility will have a direct bearing upon the figure when world population stabilizes. According to researches, the use of contraception is only the most important determinant of fertility decline, of course along with the modern method of family planning. In developing countries, the number of couples using contraceptives has risen from 9 to 51 percent. According to the United Nations estimates, at least 350

million couples worldwide wish to space or prevent another pregnancy, but do not have access to full range modern family planning method (WHO/FHE/94.1, 23-29; Berelson, 20-22; Broom, 325-327, 344-345; Perrow, 18).

B. Mortality

Under primitive conditions both fertility and mortality were high, while nowadays such achievements as control of disease-carrying insects, vaccination, new drugs, water purification techniques and modern garbage disposal systems have been transplanted from the Western countries to the developing African, Asian and Latin American nations, resulted in a drop in death rates and an increase in population growth (Todaro, 195). In the year 1900, especially in Western countries, 30 percent of all deaths were due to infectious, respiratory, and parasitic diseases (Randall, 30). Furthermore, when cities began to grow, many infectious diseases became more common. With the Industrial Revolution, all this changed; the drop in mortality was slow at first, and accelerated toward the end of the 19th century. The second part of the 19th century witnessed a medical and public health revolution that helped to curb mortality. In the developing countries, the rapid decline in mortality resulted from effective transplantation of public health devices and medical techniques, drug

therapies and pesticides from abroad. All these facilities have made possible a highly successful battle against infections and parasitic diseases.

Now, in the 20th century, most reported deaths result from cancer, heart ailments, stroke, diabetes and external causes, such as accidents, violence, suicide and poisoning. This is a shift from the age of epidemics of infection to an age of man-made illnesses which is called the "epidemiologic transition". During this transition, yellow fever, cholera, small pox, typhoid and other infectious diseases have disappeared as major killers.

Human catastrophes such as famines, epidemics, wars and plagues have affected the death rate far above the natural birth rate, and resulted in stable population. Under the impact of progress in medicine and sanitation, as well as improvements in the diet, the normal death rate declined. The gap between births and deaths widened adding new explosive growth. It is worthwhile mentioning that society views the premature death of the young as a waste of human resources. These premature deaths, therefore, should be thought of not only as individual lives lost but also as many future years of life wasted (Berelson, 22-24).

Mortality patterns affected by economic and social forces are:

- Other things being equal, there exists a negative long-run association between death rates and economic conditions.
- Urbanization and industrialization play a significant direct role in the reduction of mortality.
- Mortality is negatively associated with differentials in medical care.
- There is a negative partial correlation between the rate of growth of per capita income and death rates (WHO/FHE/94.1 8-34; Tunis Declaration, May 84, 6; Broom, 327-329).

C. Migration

Restless humanity has been in constant movement. Prehistoric migrations were usually gradual responses to changes in environment and climate. Migration over short and long distances has played a continuing role in the adjustment of humans to their environment. Modern migrations are more often impelled by social and political forces and personal motivations rather than by changes in environment and climate. People move to escape political oppression or religious and racial discrimination and to seek jobs and education. After mortality and fertility, migration constitutes the third

population process. Like mortality and fertility, migration has a direct impact upon the size of population. Fertility and immigration increase population, while mortality and emigration produce a decline in numbers. Demographically, migration implies a change of residence from one clearly defined geographical unit to another. Sociologically speaking, it entails a significant change in community ties and conditions of life (Perrow, 15).

Migration refers to the movement of people in space or geographical displacement. The field of migration is divided into two areas: internal and international migration. Internal migrants move within a nation's frontiers; international migrants cross national boundaries. In the past, the chief barrier to free international migration was physical, but today political and ethnic barriers are more important. In traditional society the rate of migration is usually low. Concern about political trends frequently stimulate migration, but in general, migration is seen as a flow from areas with low earnings to regions with high earnings (Berelson, 20; PNUAP, 1993, 17 & 19).

Individual motives for migration are classified as push factors, that encourage people to leave a habitat they already occupy, and pull factors, that attract

people to a new habitat. Among the push factors are unemployment and economic hardship, food shortages, racial or religious discrimination, political repression, deteriorated environment, and crowding. The pull factors include the availability of jobs, cheap land, political and religious freedom and educational opportunity. The push and pull factors work selectively on different potential migrants. Feelings of deprivation and discouragement about the home situation motivate individuals to seek ways to improve their lot elsewhere. But even when they are discouraged, people feel attached to their home country and friends and the strength of habit may keep them from moving. Most mass migration occurs when there is a perceptible difference between countries in the levels of economic development of employment opportunity.

Both push and pull factors are contributing to the entry into the United States of large number of illegal aliens from Mexico. Low agricultural productivity and commodity prices in Mexican agriculture have served as a push factor, and high American wages have served as a pull factor.

Production results from the effective combination of four major factors: land and other natural resources, labor, entrepreneurship and capital. No

output is possible without all four of them. If there is an enormous supply of land but a shortage of labor and capital, production will suffer. On the other hand, an increase in supply of labor will improve the resource combination and thus raise per capita productivity. Under such circumstances an increase in population is an economic blessing. When the Industrial Revolution was accelerating, internal migration was mainly rural-urban; industrial revolutions were accompanied by a country-to-city draft. Internal migrants flocked to the big cities where rapid industrialization occurred. At present around 60 percent of the world's population is urban (IPPF, Vol. 17, 29; Tunis Declaration, May 84, 7; World Economy, 94, 10-11; WHO/FHE/94.1, 18-22; Berelson, 20; Broom, 333-339).

III. The Urban Revolution

Urbanization is the twin brother of industrial technology. Clustering cities have been the characteristic of industrial society. Cities are coming under increasing pressure. This is particularly true of Africa. Urban development is, above all, physical expansion, but it is also a social process giving rise to ethnic, linguistic, professional and class contradictions (Warner, 165).

Urban development in developing countries and the expansion of major population centers have continued at a sustained rate throughout the last decade, with growth rates in excess of those for 1965 to 1985 in the poorest countries. Urbanization changes traditional cultural patterns. For cultural, psychological and economic reasons, fertility is higher in rural than in urban communities. The effect of traditional social customs is stronger on the rural dweller than the city resident (Warner, 213).

The twentieth century city growth that has accompanied the Industrial Revolution is not a continuation of earlier urbanization. It is a second urban revolution. Before this revolution, although some people lived in cities, they were an exception. Everywhere the population was predominantly rural. Today the situation is reversed. People are rapidly moving in the direction of an almost totally urban existence. Efficient transportation and communication, and expanding industrialization caused the bulk of urban growth (Greer, 147, 163).

Clustering was enhanced because it promoted specialization. Specialized services cannot be operated unless there is a mass of people large enough to support

them. Cities tend to draw individuals who have specialized skills to offer those who desire their services. The disadvantages of the cities are related to the fact that the city creates an artificial environment for man. Pollution of the urban air is the most serious of all the problems in the cities. Smog and not nuclear war may destroy mankind. Human civilization will gradually suffocate in its own waste (Berelson, 22-24; Greer, 16).

IV. People and Resources

The balance between population and resources is an important ecological problem. It is recognized that organisms tend to multiply up to the point at which the food supply of their habitat can no longer support them. Emigration of people from the threat of hunger is frequent.

With regard to the accelerated population growth, there are misconceptions concerning food and density. The population issue is often thought of as a race between food and people, or between space and people. The main problem is the growing imbalance between the number of human beings and the resources available to meet their needs. Population has gone beyond the food

supply to the point where hunger is typical of most human beings and large numbers are actually starving. With some mathematical calculation, we constitute that at the potential capacity to reproduce, no technology could provide food enough for very long (Perrow, 4).

In 1991, 1992 and 1993 world rice consumption exceeded production. The question now is whether the rice growers of Asia, who produce more than 90 percent of the world crop, can catch up with the growth in demand. No one knows how much of the world's food output is unsustainable. The researcher has not enough data available to be able to show that sustainable world food output is running well below consumption (Williams, 239). The problem of ecological balance of population and food has not been met, it has only been postponed. Even if food production could be unlimited, the need for an ecological balance would remain (UNDP, 1994, 7 & 15).

Overcrowding sets in motion psychological stress mechanisms which in the long run increase the death rates. City populations generally have higher death rates and lower fertility rates than provincial and country populations.

In the past four or five centuries, man has changed from a cooperator with nature, who returned what he took, to an exploiter of nature who takes on a vast scale without replacing; this has been true of his attitude toward forests, and plant and animal life in general. The progress of industrialism has meant a constant drain upon the earth's fuel resources, especially coal and oil. Man's technology still exists largely by exploiting and destroying resources, which must be exhausted in a very short time (Khoshkish, 43, 191).

V. Population Control

The steps to population control are the same in all societies:

1. A willingness to have small families.
2. The widespread availability of effective birth control methods.
3. The awareness of and acceptance of birth control methods to achieve small families and spaced births.

All the above mentioned steps must occur if population growth is to be controlled.

Population policy may be viewed as efforts to affect the size, structure and distribution of a population; it may have such a goal as the reduction of mortality. Population policy should be considered as a means rather than an end. Population policies are designed to speed up the process of economic development or to enhance the quality of the environment. Every nation has an economic policy and a foreign policy, but now the time has come to speak more openly of a population policy.

Currently, most population policies deal with fertility, because the most pressing problem in developing nations is that of excessively large families. Developing nations are now attempting to change the geographic distribution of their populations.

Almost all developed countries expect stationary or declining populations. In newly industrialized countries like Taiwan, South Korea and Hong Kong, rising education and living standards began to reduce fertility even before family planning measures were started (Populi, 11).

Many people believe disastrous shortages of food and other necessities can be avoided only by halting population growth. They insist that the birth rate be

reduced to the level of the death rate. This state, in which only enough people are born to replace those who die, is called zero population growth.

The governments of many countries have promoted birth control programs in an effort to reduce the birth rate. However, these efforts have had little success in most areas where living standards remain low. Many poor people want large families so they will have someone to care for them in their old age. Programs to limit population growth will have little effect until social and economic development raise the standard of living for the majority of people of an area (Broom, 314-346; Populi, 3, 5-6, 9).

VI. Birth Control

Birth control is a term that covers all methods used to regulate or prevent the birth of children. Other terms with a similar meaning are birth planning, family planning, fertility control and planned parenthood.

When people talk about birth control, they are usually referring to artificial methods. Voluntary efforts to limit births usually take the form of family

planning. Although this policy usually helps couples limit childbearing, it can also help infertile couples have children. Its main objective is the existence of a happy family, with special consideration for the health of the mother and children and for the family's ability to provide education and other advantages.

Couples that practice birth control do so for various reasons. They may want to limit or space their children, or to have no children at all. Young couples often postpone having children so the wife can work and add to the family income. Other couples space their children so they can give each child as much attention as possible. Some women are advised by their doctors to prevent pregnancy for health reasons. In many countries with rapidly growing populations, the government encourages couples to limit the size of their families.

Most people agree that some form of family limitation or spacing is desirable for the good of the family and society. But individuals and groups, especially religious groups, differ sharply on the methods of birth control.

For thousands of years birth control received little public attention. Death rates were extremely

high, particularly for infancy and childhood. Large numbers of children were necessary to ensure that enough would survive to adulthood and have children of their own. Later, during the 1700s and 1800s, scientific and technological advances in industrialized countries increased food supplies, controlled diseases and made work easier. As a result, the death rate began to drop in industrialized countries.

Most developing countries, such as Bangladesh and Pakistan, continue to have high rates, while industrialized nations, such as the United States and Japan, have much lower birth rates, as per Figure 3. Death rates in developing countries have dropped because of improved public health. The result of continuing high birth rates and low death rates has been rapid population growth in Asia, Africa and Latin America as shown in Figure 4. In many countries, far more children are born than can be adequately fed, housed, educated, or employed under present conditions.

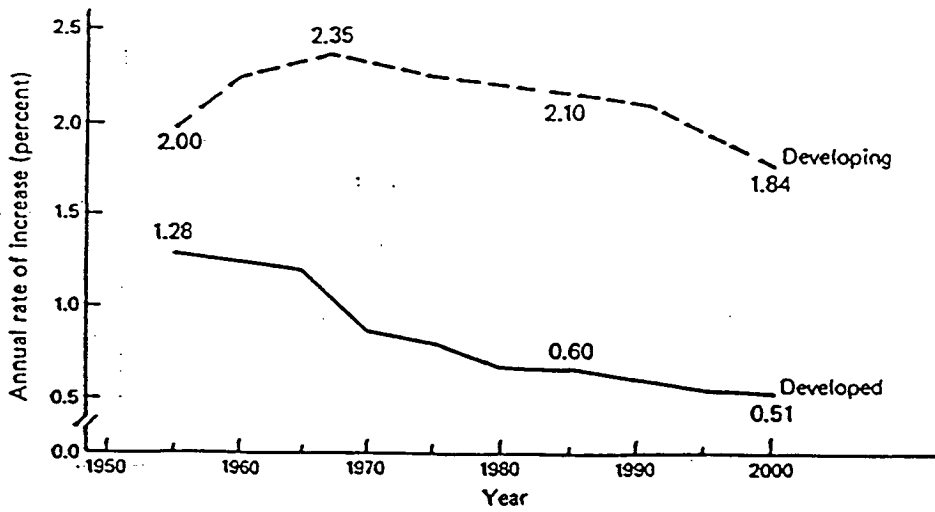


FIGURE 3 Population Growth Rates in Developed and Developing Countries, 1950-2000.

North America	5.3%	North America	3.7%
USSR	6.2%	USSR	4.4%
Europe	3.7%	Europe	5.3%
Latin America	4.4%	Latin America	8.9%
Africa	12.8%	Africa	18.5%
Asia and Oceania	56.7%	Asia and Oceania	58.2%
Year 1990: Total population 5286 million		Year 2020: Projected population 7992 million	

FIGURE 4 World Population by Region: 1990 and 2020 (Projection). SOURCE: Calculated from Population Reference Bureau, 1988 World Population Data Sheet.

The fear of overpopulation has exhorted interest in birth control. The population of the world reached about 5 billion in the late 1980s. At the present rate of increase, the world population will total about 6 billion by the year 2000.

Family planning groups in several countries started many of the birth control programs that are now carried on both privately and by governments throughout the world. Most birth control methods are designed to prevent conception and are called contraceptives.

The developing countries are most affected by the problem of population growth. In Sub-Saharan Africa, the population growth rate and the fertility rate are the highest in the world and family planning is practiced the least. Rapid population growth and underdevelopment interact closely and are both the cause and effect of one another (World Summit, 3).

The socio-cultural factor plays a crucial role among the various factors involved in maintaining and even increasing the high level of fertility. In African society family planning is seldom favorably received, especially in rural environments, where the behavior of the population is strongly influenced by values, traditions, principles and beliefs which are passed from

one generation to another. Other economic and political factors contribute to keeping the population growth rates high.

Communication is an essential instrument in family planning programs which are to be applied to slow down the growth in African population. The plan should include effective communication strategies which take proper account of the economic, cultural and social factors.

The "Information, Education and Communication" aspect is to be integrated into the implementation of these programs. Respecting the right to choose freely and responsibly the number and timing of the births of one's children is one of the basic principles of demographic policies. Everyone is entitled to have the information and the means to make use of it (Populi, 12).

In Sub-Saharan Africa, a large percentage of the population is illiterate and it is essential to relay the message. Among the different media for transmitting messages on family planning, the poster could be the first approach. This means of communication by images is appropriate for people who have received little or no school education. Each image is to have a socio-

educational message composed of different elements which contribute to producing certain effects on the recipient.

In less developed countries efforts at population control have made use of compulsory methods of birth control. One method is sterilization of parents who have had a specified number of children. In 1976, India adopted such a plan with financial incentives to encourage volunteers, and in some states, fines and other penalties for births after the third child. China's population program differs from that of any other country. It adopted in the mid 60s a one-child-per-family policy for urban dwellers; the goal is 40 percent reduction in population size by 2050. This population program had already had significant results by the late 70s (Populi, 4-5).

Voluntary birth control seems to be the more realistic and desirable approach to population control in LDCs. Family planning programs are the primary form of population control in most such countries. The main thrust of these programs is the provision of birth control information along with education programs demonstrating the economic benefits of smaller families. Such programs are directed toward women who have already borne three or more children.

Compulsory birth control in less developed countries has been attempted and has met with considerable resistance. The most effective policies in LDCs provide not only birth control devices, but also economic and social incentives to limit family size.

Population control faces powerful obstacles, and opposition to birth control continues. Some people fear that birth control encourages sexual relations outside of marriage. Some fear that governments might impose birth control as a means of political control. Some religions oppose birth control on moral grounds. The traditional position of the Roman Catholic Church teaches that artificial methods of birth control are immoral because they separate the two purposes of conjugal or nuptial love and the procreation of children. Although the Roman Catholic Church opposes all artificial birth control, it considers natural family planning acceptable (ICPD, 94). The Islamic traditional communities from which religious fundamentalism is derived, especially in the Islamic world, has discouraged birth control and family planning information and services, as some of the Islamic groups fear that this could be a threat on the Islamic nation in general and on Islam in particular.

In the past, most other major religions also opposed birth control or kept silent on the subject. Today, most Protestant faiths and Judaism favor contraception, and many Protestants and Jews support legalized abortion. Hindu and Buddhist religious leaders have seen no religious conflict in the development of government birth control programs in Asian nations.

In addition to religious resistances, strong obstacles remain that go to the heart of the problem of underdeveloped nations. Preindustrial societies regard children as a blessing rather than a curse. In an agricultural community, each newborn child is looked upon as another support for the work of the farm. Where there is no government support or social security, one is likely to feel that many children will make one's old age more secure.

With the traditional Chinese and the Old Testament Hebrews, agricultural people feel it important to have many heirs to honor their memory. Men feel that an abundance of children testifies to their manhood, while women regard continuous childbearing as their main function. People who have known nothing but poverty and deprivation are unwilling to take the trouble to use contraceptives because they believe that nothing they

can do will make their condition better. Some leaders of the underdeveloped nations actually feel that population control is a Western plot to reduce their numbers and power.

During the 1960s, many countries adopted government programs of family planning. Today, about 80 countries have national birth control programs. Some developed countries have granted funds and technical assistance to developing nations. Private and international organizations such as the United Nations and the World Health Organization have also helped countries set up birth control programs.

In 1948, Japan became the first country to take national action on family planning, with the Japanese government legalizing abortion and contraception and making both available. During the next ten years, the Japanese birth rate dropped about half. Legal abortion has also become a major birth control method in the Soviet Union and Eastern Europe.

VII. Technology and its Effect

As we approach the end of the twentieth century, and look back, we realize we are involved with several concrete revolutionary changes that have been taking

place in our life times, such as:

1. New technology affecting every aspect of society;
2. the explosive growth of population, a phenomenon related to changing technology;
3. the increasing density of population in urban area;
4. the rising expectations and revolutionary aspirations on the part of depressed peoples throughout the world due to technological and other changes;
5. the growth of vast organizations in every area of life, as well as changes in values and morality;
6. a revolution in warfare and diplomacy as a result of new weapons, the former of which now threatens the very existence of mankind.

We live today in a world dominated by technology, which has been developing at an ever-increasing rate. As never before industrial technology has separated man from nature. One of the unintended effects of technology has been a great wave of population growth, the reason being that when it is first introduced to an area, technology generally raises the living standard, improves housing, sanitation, and nutrition and brings better public health measures, with a consequent drop in the death rates. If the birth rate does not drop more slowly than the death rate, then population will increase.

New technology tends to throw men out of work. It is "labor saving" and its first effect is to reduce the number of workers. As a result, this may mean a long period of unemployment. Technological unemployment mostly cures itself by forcing laborers to learn an entirely new occupation. Technology has changed the nature of work itself. Technology has greatly increased our ability to grow food. Artificial methods of contraception have added a new effective check to population.

The advance of modern technology increases population by lowering the death rate. In general we can distinguish three stages in the population pattern that accompanies technology:

1. In the traditional pretechnological society, both birth and death rates are typically high. Thus population is fairly stable.
2. As technology is introduced, the death rate falls but not the birth rate. There is therefore a population explosion.
3. As technology develops still further, the birth rate tends to fall. Contraception is used, more people remain single or childless, others prefer to bring up a few children well. Thus both the birth and death rates are low (Baran, 64-68).

VIII. Population Composition

Births, deaths and migration affect population size. The most important aspects of a population are sex, age, rural or urban residence, race, religion, national origin, marital status, income, education and occupation. The sex characteristic is of particular significance. Another important population characteristic is its age composition.

The process of modernization is associated with three states in population change:

Stage 1: High Potential Growth. Societies untouched by industrialization and urbanization are characterized by high birth rate and high death rate. As a result, the population remains relatively stable.

Stage 2: Transitional Growth. Modernization has its impact on mortality. Improved housing, better levels of nutrition and improvements in health and sanitation bring a steady decline in death rate. A drop in the death rate, while the birth rate remains unchanged, results in increase in the rate of population growth. With modernization, couples form small families resulting from fewer births.

Stage 3: Population Stability. Modernization allows couples to control their fertility through

effective birth control techniques. Modern trends opt for low mortality and low fertility, a situation which results in zero population growth.

There are three basic schools relating to fertility reduction policies:

1. Family Planning. If contraceptives are made available together with information regarding the need for birth planning, people will reduce their birth rate, which will allow in economic development (The World Bank, Aug.94, 18).
2. Developmentalist Strategy. Fertility is a pattern of behavior tied closely to the institutional and organizational structure of society. Modernization automatically decreases fertility (The World Bank, Aug.94, 19).
3. Socialist Perspective. The government issues policies designed to produce changes in people's demographic behavior. Reduce fertility by rewarding low fertility and penalizing high fertility. A number of nations have used coercion to reduce fertility (The World Bank, Aug.94, 20).

The growth rate of a society is the difference between births and deaths plus the difference between immigrants and emigrants per 1000 population. The highest annual population growth rate is 11.3 percent,

in the United Arab Emirates. A number of nations including Germany and Hungary have negative annual growth rates, meaning that without immigration they will lose population. Due to the combined effects of a dramatic fall in death rates and high birth rates, the world's population of 5.6 billion is growing fast (World Summit, 1). The economic problems faced by many countries in the 1990s will seem mild compared to the problems those governments will face in the coming decades. Although birth rates are dropping, population growth has a momentum of its own. Table 2 illustrates population momentum using actual data and projections for a number of developing countries. Countries like Bangladesh, Nigeria, Mexico and the Philippines with high birth rates have the highest built-in momentum of population growth. The absolute numbers of peoples will continue to increase for at least another century until birth rates decrease to the level of death rates and populations stabilize, as over one-third of the world's population is currently under the age of 15 and has not yet reached the reproductive age (The World Bank, Aug. 1994, 6-7; Essayran & Shoucair, Jan. 94; Perrow, 2).

TABLE 2: Population "Momentum" and Projected Population Increases under Two Alternative (Optimistic) Fertility Assumptions

Country	Population circa 1970 (millions)	Eventual population size in 2005 (millions)		Increase from 1970 level (%)	
		Replacement by			
		1980-1985	2000-2005	1980-1985	2000-2005
India	534	1,002	1,366	88	156
Brazil	94	192	266	104	183
Bangladesh	69	155	240	125	248
Nigeria	65	135	198	108	205
Pakistan	57	112	160	96	181
Mexico	51	111	168	118	229
Philippines	38	79	119	108	213
Egypt	34	64	92	88	171
All LDCs	2,530	4,763	6,525	88	158
All developed countries	1,122	1,482	1,610	32	44
World	3,652	6,245	8,135	71	123

SOURCE: Tomas Frejka, reference tables to *The Future of Population Growth* (New York: Population Council, 1973).

IX. Population & Development in the Middle East

Riad Tabbara defines economic development as the optimal use of scarce resources for the continuous and maximal increase in the total welfare of society. Traditionally, resources are defined as land, labor and capital.

In Arab countries vast numbers of the population are relatively uneducated and incapable of participating effectively in the development of the region. Large numbers of highly qualified Arab nationals are emigrating from the region itself.

The nature of Arab development has created a major gap between social and economic indicators because the economy has grown faster than the quality of life of the population. In turn, this gap has important demographic consequences affecting the supply and distribution of human resources within the region. The increase in income without commensurate improvements in social and economic conditions has increased the demand for children. At the same time, the reproductive capacities of couples have been increased and mortality has decreased because of improvements in the health sector. The result has been rapid population growth produced by high birth rates and low death rates. In some instances massive immigration has also contributed to rapid population growth.

The migration patterns prevailing in the region have been disfunctional as well as beneficial. Labor-exporting countries may have initially experienced reductions in unemployment because of massive emigration, but now many of the sending countries are experiencing labor shortages and are attempting to regulate the volume of emigration and the characteristics of the emigrants themselves. At the same time, the volume of remittances from workers abroad

is considerable, often offsetting or even exceeding the amount of total imports. The effects of these remittances are unknown and constitute a subject upon which additional research is badly needed.

The experience of the labor-importing countries has not been entirely favorable either. Because they are dependent upon foreign laborers, the labor force is relatively unstable, which lowers productivity. Also the presence of so many non-nationals poses threats to internal security and provides a forward push to the dilution of the national culture. Further, the migrants themselves have often been treated arbitrarily by the governments of the various countries concerned (Tabbara, 257-276).

As a result, action needs to be taken on several fronts. Knowledge of the supply of human resources and their requirements, problems and policy options has to be improved through intensified research. Priority should be given to eliminating the gap between the social and economic aspects of development:

1. The Arab brain drain should be reversed.
2. A regional policy needs to be developed that coordinates the movement of labor and capital among the Arab countries and at the same time protects

the interests of the migrants and promotes their welfare.

X. Population, Human Resources & Development in the Arab World

In view of the abundance of capital resources in relation to land and more particularly, to labor, Arab development has been described as "development with unlimited supply of capital". In the major oil-exporting Arab countries, namely, Iraq, Kuwait, the Libyan Arab Jamahiriya, Qatar, Saudi Arabia and the United Arab Emirates (UAE), the over-abundance of capital in terms of financial resources infrastructure, has created a unique developmental situation. For the first time in history, poverty and underdevelopment have been clearly separated, giving rise to a new economic phenomenon, the "rich developing country", which may also be a "capital-exporting developing country".

One of the most important consequences of this over-abundance of capital is the pressure being placed in Arab development on the other factors of production, particularly human resources, because the approach to development in the region, in terms of both policies and institutions, continues to be of the most traditional kind.

How could the contribution of human resources improve with respect to development?

In order to be able to answer the above question we should be able to know the meaning of Human Resources Development. The concept of human resources development is still unclear in spite of the increasing literature on the subject, the reason being, that different authors have defined this area of development in various ways. At one extreme, the field has been defined as encompassing not only the development of human "skills, abilities and attitudes in promoting economic growth, work productivity and efficiency, but also a much wider range of social, psycho-social and cultural elements, such as spiritual qualities, open mindedness, allowing one to lead a richer life or the general welfare of society" (Gostkowski n.d., 15). At the other extreme, human resources development has been restricted in its application to measures leading to the development of the efficiency of workers in corporations, government and other organizational structures (Patten, 3). In between these two extremes, human resources development has been variously defined, but principally with reference to the human inputs into the productive process, making it analogous to the accepted definitions of natural and capital resources development (Parnes, 16; UNILO, June 1994, 2).

Human resources development is defined on both the micro and macro levels: On the micro level, human resources development focuses on the individual in a society and on the institutions that give him the skills and other basic requirements necessary for a dignified existence and an adequate degree of social participation. The major institutions that may be identified in this regard are the family, which has primary responsibility for the nurturing and initial socialization of the child; the school, which later assumes a major complementary role, particularly in the development of the child's cognitive skills; the employing organization, which affects the skill and dignity of individuals; and the social security and welfare systems, which provide the income support (Ginzberg, 34-35).

On the macro level, human resources development focuses on aggregate concepts relating to the supply and utilization of human resources. In this respect three areas may be identified: the first relates to the growth, structure and spatial movements of the population and the labor force; the second to the conventional field of manpower planning; and the third to the development and integration of unutilized and underutilized pools of human resources. These three

areas deal respectively with: (1) the population base from which the supply of human resources is obtained, (2) the process of insuring the best utilization of available manpower in development efforts, & (3) the effective incorporation of potential human resources into the development process.

It is clear that the human resources development is a broad interdisciplinary concept, which requires a lot of research work. Therefore, the analysis will be restricted to the macro level and will cover only selected aspects of the three areas just mentioned. The first section will be devoted to the discussion of the exceptional gap between social and economic factors observed in the development of major Arab oil-exporting countries; the second section will analyze principal population trends and issues resulting from the peculiar nature of Arab development, followed by a brief account of the utilization of existing manpower and the development of human resources potential. Moreover, a summary will be set on the main findings and proposed steps for improving the effectiveness of the human resources component in the Arab development process.

1. Socio Economic Consequences of Oil

Although Arab oil was discovered in the 1930s, its impact on the development of the countries concerned and the Arab region as a whole began to

be significant only during the Second World War, and more clearly during the 1950s (Al-Attar 1977). Nevertheless, surpluses in the balance of payments of the major Arab oil-exporting countries and the accumulation of capital abroad did not reach extreme proportions until the 1970s, in particular 1974, following the first major increase in oil prices decided on by the Organization of Arab Petroleum Exporting Countries (OAPEC) subsequent to the 1973 Arab-Israeli conflict.

The present overwhelming dominance of oil in the economies of the major OAPEC countries is incontestable. As can be seen from Table 3, oil accounts for between 90 and 100 percent of total exports of these countries, and more significantly, between 50 and 90 percent of their gross domestic products. The sudden and tremendous increase in income of these countries in the past 30 years has transformed them from the poorest to the richest countries of the world. The extent and magnitude of this transformation has created an unprecedented development situation. Because they are considered developing countries but at the same time enjoy very high per capita incomes, most OAPEC countries are generally referred to as "rich developing countries", a contradiction in terms according to

the conventional wisdom of development economies.

Table 3 VALUES OF OIL EXPORTS AS A PERCENT OF TOTAL EXPORTS & OF GDP IN ARAB OIL EXPORTING COUNTRIES, 1970 & 1977

Country	1970		1977	
	Percent of total Exports	Percent of GDP	Percent of oil exports	Percent of GDP
Algeria	67.5	14.7	95.3	28.8
Bahrain	75.7	67.6	78.4	87.4
Iraq	92.6	22.2	98.4	52.8
Kuwait	94.2	59.3	90.1	66.8
Libyan Arab Jamahiriya	99.7	76.0	99.9	50.3
Oman	99.5	76.5	99.3	61.6
Qatar	96.1	62.8	99.1	88.1
Saudi Arabia	99.6	60.8	99.8	63.9
United Arab Emirates	95.0	68.8	96.0	70.1

Sources: IMF 1978; United Nations 1979; World Bank 1978.

The gap between the "social" and "economic" aspects of development in these countries is too wide. The way of showing the magnitude of this gap is through a comparison between the physical quality of life and the corresponding per capita

GNP. The physical quality of life, which may be taken as the social well-being, is composed of three indicators: infant mortality, life expectancy and basic literacy, which are known to be highly correlated with other social indicators (Morris, 20-34).

2. Population Trends & Issues

The extremely high levels of income in the oil-exporting Arab countries, together with the unusual gap between social and economic aspects of development, have had important demographic consequences affecting the supply and distribution of population and labor force in the region. With respect to population growth, the sudden and tremendous increase in income, which was not accompanied by improvements in educational levels (UNESCO/UNEDBAS, 2) and general social conditions (except in the health sector) resulted in a significant increase in the demand for children. Improvement in health conditions raised the reproductive capacity of couples and resulted in a relatively high expectation of life at birth. Therefore, very high crude birth rate and very low crude death rate resulted in unusually high rates of natural increase.

The exceptional demographic feature of the Arab countries, which in consequence of oil, is related to the magnitude of international migration. As already mentioned, an oil-generated economic boom began to take place in the oil-exporting countries soon after the Second World War. Since these were mostly countries with populations that were small relatively to their oil revenues, an enormous demand for labor was created. The abundance of wealth in these countries and the lack of human resource made imported labor from underdeveloped Arab and other Asian countries inevitable. As a result, there were great movements of labor into these countries. The first country was Kuwait, where heavy immigration began in the late 1940s, but other Gulf countries soon followed (Al-Attar, 16, 17).

An extremely unusual international composition of population and labor force in these Arab labor-importing countries resulted from the massive labor movements. As shown in Table 4, the proportion of foreign to total population varied in 1980, from around 18 percent in Oman to over 70 percent in the United Arab Emirates. Since many migrant workers were not accompanied by their families, the proportion of foreign to total labor force was even

higher; it ranged from 37 percent in Oman to around 91 percent in the United Arab Emirates.

TABLE 4. TOTAL AND FOREIGN POPULATION AND LABOUR FORCE IN LABOUR-IMPORTING ARAB COUNTRIES, 1980

Country	Total population (in thousands)	Foreign population (in thousands)	Per cent population foreign	Total labour force (in thousands)	Foreign labour force (in thousands)	Per cent labour force foreign
Bahrain	344	107	31.1	119	65	54.6
Kuwait	1,356	794	58.6	453	342	75.5
Libyan Arab Jamahiriya	2,430	532	21.9	782	332	42.5
Oman	984	179	18.2	303	113	37.3
Qatar	243	178	73.3	130	116	89.2
Saudi Arabia	9,229	2,150	23.3	2,375	1,125	47.4
United Arab Emirates	1,043	794	76.1	554	502	90.6

Sources: Calculated on basis of data in United Nations, ECWA 1982.

Saudi Arabia has the highest migrant labor force among the labor-importing Arab countries, followed by the United Arab Emirates, the Libyan Arab Jamahiriya and Kuwait as per Table 5.

Intraregional migration has a number of major benefits; from the social and economic point of view, it contributes to a better distribution of income both among and within countries of the region. These redistributive effects are obtained mainly through the remittances to home of individuals from the poorer countries working in the oil-rich countries of the region.

Table 5 PERCENT DISTRIBUTION OF FOREIGN LABOR FORCE
BY AREA OF ORIGIN IN LABOR-IMPORTING
ARAB COUNTRIES, 1980

Country	Arabs	Asians	Europeans and Americans	Other	Total
Bahrain	6.4	85.1	8.3	.2	100.0
Kuwait	82.2	16.8	0.9	.1	100.0
Libyan Arab Jamahiriya	93.4	4.5	2.1	-	100.0
Oman	1.9	94.2	3.6	.3	100.0
Qatar	33.2	63.3	3.4	.1	100.0
Saudi Arabia	57.3	35.9	5.6	1.2	100.0
United Arab Emirates	28.4	68.5	2.4	-	100.0

Source: Estimated by (Tabbara, R.) from national sources (census and statistical abstracts) using data on stocks of migrants, entry and exit, residence permits and working permits.

3. The Utilization & Development of Human Resources

With respect to the human resources situation in the Arab world, in spite of the tremendous demand for labor in the region, an expanding emigration stream has been flowing from the main Arab labor-

exporting countries to Europe, the Americas, Australia and other traditional receiving areas outside the Arab region. The exact magnitude of this movement is difficult to ascertain because of data problems as well as insufficiency of research.

XI. Economic & Technological Impact

Human population needs to be in balance with the financial resources available for healthcare, education, employment, housing, food output, etc. Per capita is declining in 46 out of 95 developing countries even with improved agricultural techniques. This will leave certain countries, mostly African, unable to feed themselves by the year 2000. Economic development in the next generation can only come through education, for development requires an educated population. There is a link between education and development as well as a link between economic growth and limitation of the population (World Summit, 1). Education may not, in itself, be a universal recipe for economic and social progress, but it is a fundamental element in the development equation (Perrow, 6). It allows individuals and societies to unlock their potential, to expand their horizons and to adopt to a changing world. Occupation, education and income are all related. An educated population with

high income and a good position is associated with low fertility. Many developing countries between 1960 and 1980 improved the quality of education. In developing countries public expenditure on schooling increased from 2.3 percent to 3.9 percent of GNP between 1960 and 1974; but during the late 1970s rapid population growth produced a parallel increase in the number of school-age children resulting in a fall in spending per pupil (The World Bank, Aug. 94, 4-5; Khoshkish, 43, 191).

In the developing countries of Africa, Asia and Latin America 2.3 people of working age support each school-age child, compared to 4.1 in industrialized countries. Investing in education for girls will help in slowing rapid population growth. Women with high education marry late, want fewer children and most probably practice family planning. As a result, both birth rates and child death rates decline (World Summit, 2). Countries with rapidly growing population face rapid increase in their labor forces. Rapid population growth has complementary implications: On the one hand it means more people requiring jobs and on the other more people requiring goods and services. India is faced with a challenge to create jobs for its growing working age population. With an annual population growth rate of 2.1 percent and a fertility rate of 4.1 children per woman, India's population will double in 33

years. In 1990 the number of job seekers was 164 million 15-24 age group. With rapid population growth the stock of capital must increase continually in order to maintain current productivity, otherwise each worker will produce less and as a result productivity and incomes will decline and wages fall in relation to profits (People & The Planet, 92, 5).

With the rise of incomes, investment grows faster than the labor force and so ensure higher capital. This means a great demand for expenditure on education, health, roads, machinery, energy, etc. With rapid population growth when consumption is competing with investment, this cannot be implemented. Rapid growth in labor force will result in income inequalities, especially where most of the workers are young, poorly educated and generally earn low wages (The World Bank, Aug. 94, 10 & 11).

Traditionally urbanization has been linked with economic development, fertility decline, innovation and creation of new ideas and technologies. Urban dwellers were the first to modernize and adapt to change (World Summit, 4). Today urban dwellers are made up of internal migrants in direct consequence of rapid population growth, poverty and the failure of agriculture to absorb labor productivity. In 1965, 77

percent of employment (agriculture) in developing countries and represented over 41 percent of gross domestic product (GDP). By 1985, agriculture was contributing less to the economy, yet provided 72 percent of employment. A great number of people became dependent on agriculture, which is contributing less to GDP, resulting in annual migration of between 20 & 30 million of the world's poorest people to the cities (Roodel, 2; Akasheh, 5-6; World Economy, 94, 8-10; ICPD, 94, 2-3; WHO/FHE/94.1, 44-48).

Africa has the highest urban growth. Of the 22 countries in the world with high rates of urbanization, 18 are in Africa. Mosambique and Tanzania have rates of 8 percent per annum. In Latin America, however, 51 percent of the total population of Bolivia is urban, where 63 percent of the population live in the capital La Paz (The World Bank, Aug. 94, 9-10).

The growth of population in areas such as India, Pakistan and Indonesia threatened to increase economic and social discontent, which resulted in political instability. There were fears that the changing balance of the world's population might cause international problems in the future. Russia suspected that China might wish to expand into the underpopulated areas of the former USSR. The economic and ecological impacts of

rapid population growth has led a number of governments to set goals for reducing the national population growth rate and to actively encourage couples to have smaller families. Rapid population growth is not the only cause of failures to meet development goals, but it makes the situation worse. Arguments on population problems resulted that this problem will take care of itself when the world's poor enjoy the fruits of development (World Economy, 94, 2-89; Roodel, 3-4).

Statistical surveys and observed trends show that both economic progress and family planning programs contribute to fertility declines. In a review of the factors associated with recent fertility declines in developing countries, it was realized that social factors such as better health, higher literacy, more widespread education and higher proportion of nonagricultural employment were significantly correlated with falls in fertility. Well-organized family planning programs had a significant impact too. The key finding of the study was that broader social progress and family planning programs go best together, resulting in more rapid declines in fertility than reliance on one or the other alone (Myers, 30; WHO/FHE/94.1, 30-31).

Nations-oriented development and family planning result in improved health, better education, especially of women, and improved employment opportunities for women, which in the long-run establish a climate of progress in which desire for birth control rises. Provisional family planning is inexpensive compared to other measures for development. Investment in family planning will be rapid in future savings on education, healthcare, etc. If ignored, population growth will eliminate the gains from other expenditures in socio-economic development (The World Bank, Aug. 94, 15-21).

CHAPTER THREE

PROCEDURES & METHODOLOGY

Many variables affect the Human Development Index (HDI) or the GNP and determine the country's economic status. In this chapter the researcher will categorize the developing countries according to their HDI.

I. Population of the Study

The population of the study covers 127 developing countries, for which we have data computed by the UNDP, Euromoney and World Bank dated 1994. Of these, 50 countries are high on the HDI, 50 countries are medium on HDI and 27 are low on HDI, as per Appendix A; and the Histogram in Appendix B which reveals the three categories quite clearly.

II. Sample Selection

The sample for the study consists of 17 countries for which the researcher has comparable data on HDI, population growth, fertility, mortality and migration. Table 6 shows the fertility, mortality and migration percentage rates per

1000 of the 17 above mentioned countries along with their respective HDI shown in both Figure 5 and Table 7.

Table 6: Selected Demographic, Social & Economic Indicators for the Middle East and North Africa

	Population 1992 (millions)	Population projection 2021 (millions)	Crude birth rate (per 1,000)	Crude death rate (per 1,000)	Rate of natural increase* (%)	Population growth rate (%)	Urban population (%)	Life expectancy at birth Male / Female (years)
Algeria	26.5	44.5	39	6	2.4	2.4	54	67 / 68
Bahrain	0.5	0.9	25	5	2.0	2.6	84	68 / 71
Egypt, Arab Republic of	54.7	81.7	28	9	2.0	1.9	44	60 / 65
Iran, Islamic Republic of	59.6	116.7	32	7	2.5	2.5	58	65 / 66
Iraq	19.2	40.5	57	7	5.0	5.0	75	62 / 68
Jordan	5.9	8.1	38	5	3.5	3.5	69	68 / 72
Kuwait	1.4	2.6	28	5	2.5	5.6	96	75 / 78
Lebanon	5.8	5.5	28	8	1.9	1.9	86	64 / 68
Libya	4.9	11.6	42	8	5.4	5.5	84	62 / 65
Morocco	26.2	40.8	28	8	2.0	2.0	47	62 / 65
Oman	1.6	4.5	45	5	5.9	4.9	12	68 / 72
Qatar	0.5	0.8	22	4	1.9	2.5	91	63 / 75
Saudi Arabia	16.8	58.8	35	5	5.0	5.5	78	68 / 71
Syrian Arab Republic	15.0	50.4	42	6	5.6	5.5	51	65 / 69
Tunisia	8.4	15.4	25	6	1.9	1.9	57	67 / 69
United Arab Emirates	1.7	2.6	22	4	1.8	2.4	82	70 / 74
Yemen, Republic of	15.0	51.9	50	15	5.6	5.5	51	52 / 55

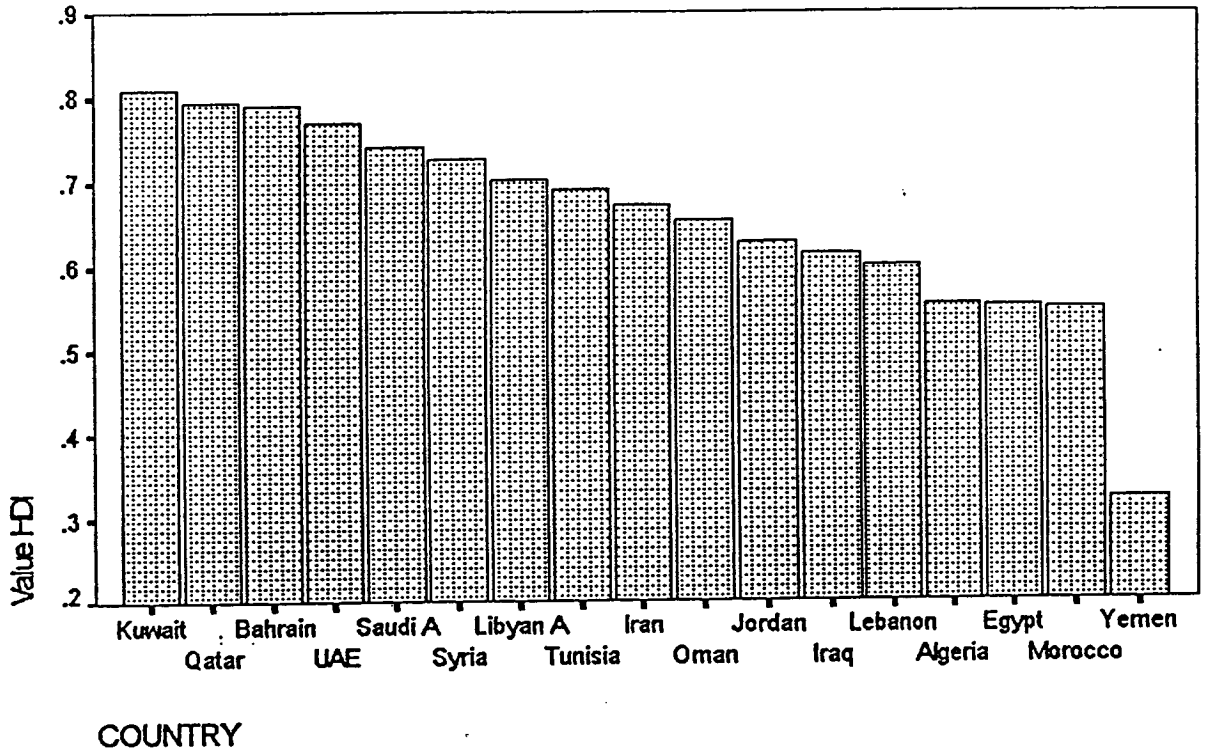
Note: Data refer to 1992 unless otherwise indicated.

*Rate of natural increase: Birth rate minus death rate.

**Population Growth Rate: Natural increase plus net migration.

Source: World Bank population database; World Bank, *World Development Report 1992*; World Bank, "Islamic Republic of Iran, Fertility and Family Planning in Iran," draft report, March 31, 1994; Child Health Survey, Kuwait, 1987; Syria, 1992; Women Demographic and Health Survey 1991/92.

Figure 5 : HDI for 17 Middle Eastern & North African Countries



Source: UNDP 1994

Table 7: HDI for 17 Middle Eastern & North African Countries

COUNTRY	HDI
Kuwait	.81
Qatar	.80
Bahrain	.79
UAE	.77
Saudi A	.74
Syria	.73
Libyan A	.70
Tunisia	.69
Iran	.67
Oman	.65
Jordan	.63
Iraq	.61
Lebanon	.60
Algeria	.55
Egypt	.55
Morocco	.55
Yemen	.32

Source : UNDP 1994

III. Selected Variables & their Measurements

Education : There is a negative correlation of population growth with the level of education. The International Planned Parenthood Federation (IPPF), upon the request of governments, has organized family planning programs for the underdeveloped countries.

Fertility : When we analyze fertility, we should distinguish between the actual reproduction performance of women on the one hand, and on the other hand the physiological capacity to reproduce. One measure of fertility is child-women ratio, and another measure is the crude birth rate, which shows the frequency of births per 100 or 1000. Another important measure is the general fertility rate. It attributes all births to the women capable of childbearing, women aged 15-44 or 15-49. It is defined as the number of live births per 1000 women in the 15-44 childbearing period in any given year.

Mortality : Many rules are used to measure and analyze mortality. We can measure the absolute number of deaths in a country during a given period; another measure is the crude death rate - the total number of deaths per 1000 persons in any given population. The age-specific death rate expresses the number of deaths at a certain age in a given year in relation to the total population.

Migration : Net migration is the number of migrants coming into an area minus the number of migrants the area loses to other regions or countries. Just like fertility and mortality, migration has its crude rates. A migration rate is the ratio of migrants observed to the exposed population during a given period of time.

HDI (Human Development Index) : The HDI is composed of the following elements: adult literacy, life expectancy and per capita purchasing power.

IV. Conceptual Framework for Analyzing the Data

To answer the research questions posed in Chapter I, the researcher is going to use the following statistical techniques:

1. Percentage and frequency analysis will be used to describe the major characteristics of the selected sample of the study.
2. Recursive system will be used to determine the direct/indirect effects of the explanatory variables on GNP via R&D, migration, mortality, fertility and education.

3. Recursive system will also be used to determine the relative importance of the independent variable(s) to the explained variation of GNP and HDI.

CHAPTER IV

F I N D I N G S

I. IMPACT OF SUSTAINABLE DEVELOPMENT

A. General Overview on Human Security

For too long, nations have relied on arms to protect their security. Today, a new concept of human insecurity is taking form. For most people, a feeling of insecurity arises more from worries about daily life, about job security, income security, health security, environmental security, security from crime and security from natural disasters. These are the emerging concerns for human security all over the world.

Human security is relevant to people everywhere, in both rich and poor nations. The threats to their security may differ; hunger and disease in poor nations, drugs and crime in rich nations (PNUD, 1993, 1). Some threats such as job insecurity and environmental disasters in particular are common to all nations.

Challenges to security are to be met by a new development. The latter puts people at the center

of development. This new development regards economic growth as a means and not as an end, protecting the life opportunities of future generations as well as of present generations and respecting the natural systems on which all life depends.

The demands of global human security require a positive relationship among all nations of the world which lead to development cooperation. Economic partnership based on mutual interest, cooperation, equitable sharing of market opportunities and far-sighted internationalism are to be the basic objectives (PNUD, 1993, 3).

The demands of sustainable development must provide a new vision, a new direction, and lay a solid foundation for a new society. The most important global targets include:

- Universal primary education for girls as well as for boys,
- primary health care,
- the elimination of severe malnutrition,
- the provisional family planning services for all willing couples,
- the provision of safe drinking water and sanitation for all,

- the ensurance of self-employment opportunities for all (PNUD, 1993, 3).

This would not only give new hope to the majority of humankind, it would also advance other priority goals: for example,

- It would help slow down population growth, as experience shows that human development is the most powerful contraceptive.
- It would contribute to sustainability, as human capital can replace some forms of natural capital.

B. Sustainable Development

Sustainable development means a commitment to using renewable resources and to avoiding the over-consumption of non-renewable resources. It means choosing products and production processes that have the least adverse impact on the environment. It is development that is pro-people, pro-nature, pro-jobs and pro-women (PNUD, 1993, 1 & 3).

What is sustainable development?

Sustainable development is a new framework for action that has taken shape and that continues to be elaborated, based on the simple premise that ecological

priorities must be integrated into the making of economic decisions, whether affecting agriculture energy, transport, consumption or any of the thousands of other concerns. This framework represents a call to action, based on a real coalition of developing and developed countries, industry, non-governmental organizations, academics and the public (PNUD, 1993, 3 & 5).

It requires that current global development programs address with equity the needs of today, including first and foremost poverty and underdevelopment, without compromising the ability of future generations to meet their needs (UN General Assembly, 1994, 14; PNUD, 1993, 1 & 2; PNUE, 1995, 6 & 7).

In June 1992 over 150 countries met under the banner of the "Earth Summit" in Rio de Janeiro. Together they endorsed the goal of sustainable development and its elaboration in the Rio Declaration (UN Development Updates, 1995, 2 & 5; FNUAP, 1994, 4 & 6).

Sustainable development is ultimately about change, change from the economic status quo, change in North-South relations, change in technological transfer and

international cooperation strategies (PNUD, 1993, 10; FNUAP, 1994, 6 & 7; UN General Assembly, 1994, 17).

In response, environmental goals are no more seen as opposed to core economic priorities. What is changing is how the relationship between economic and environmental policies is viewed. Instead of viewing higher environmental performance as acting as a counter weight to profitability, there is a growing recognition that higher environmental standards can have positive economic benefits by way of advantages in innovation and efficiency (Haber, 165 & 166).

C. Sustainable Human Development

Sustainable human development values human life for itself and does not value one person's life more than another's. The essence of sustainable human development is that everyone should have equal access to development opportunities, now and in the future. Development must enable all individuals to enlarge their human capabilities to the fullest and to put those capabilities to the best use in all fields, whether economic, social, cultural or political (el-Haber, 13).

Sustainable human development is pro-people, pro-jobs and pro-nature. It gives priority to poverty reduction, productive employment, social integration and environmental regeneration (PNUD, 1993, 7; PNUE, Vol. 7, No. 2, 1995, 22). It accelerates economic growth and translates it into improvements in human lives, mainly in the status of women. It demands non-discrimination between all people, irrespective of sex, religion, race or ethnic origin, without destroying the natural capital needed to protect the opportunities of future generations (PNUD, 1993, 3).

Universalism is the common thread that binds the demands of human development today with the exigencies and difficulties of development tomorrow, and especially with the need for environmental preservation and regeneration for the future, i.e. to guarantee to future generations opportunities similar to the ones previous generations have enjoyed. This guarantee is the foundation of "sustainable development".

D. The Role of Women in Sustainable Development

Women are primary resource users and bear most of the responsibility for growing and collecting food, medicines, fuel, housing materials, providing cash

income for schooling, health care and other family needs to maintain or restore the environment. In rural communities, the value of women's labor is mostly outside the market and constitutes an economic subsidy. Because of their responsibilities and direct dependence on land-based resources, they are affected deeply by desertification, deforestation and misguided economic and development policies. Hence, they may be agents of environmental degradation (FNUAD, 1994, 19).

Because of their multiple roles, women can have an enormous impact on environment, whether this impact be positive or negative.

In order to be effective, women must gain more control of resources and of development planning, rather than participating by mere involvement. Their needs and roles must be integrated into decision-making in general rather than being treated separately. Technologies should be designed to meet their particular needs as well as more general ones (PNUE, Vol. 7, No. 2, 1995, 15-17; Levitan, 53).

E. Sustainable Development and Economic Growth

Sustainable human development implies that we have a moral obligation to do at least as well for our

succeeding generations as our predecessors did for us. It also means that sufficient investment must be made in the education and health of today's population to avoid creating a social debt for future generations. It further means that resources must be used in ways that do not create ecological debts by over-exploiting the carrying and productive capacity of the earth (Haber, 11 & 14).

Intergovernmental equity must go hand in hand with intragenerational equity, for a major restructuring of the world's income and consumption patterns may be a necessary precondition for any viable strategy of sustainable development.

F. Disasters: Threats to Social Development

There is both a link and a negative contribution between natural disasters and social development: migration, poverty, disease and environmental degradation (Haber, 170).

People everywhere are vulnerable to natural disasters. While industrialized countries suffer greater economic damage in absolute terms, poor countries are affected more severely in relative terms,

but the GDP loss due to the natural disasters is greater in developing countries than in developed countries, deaths from natural disasters being also more frequent in poor countries. For example, thousands died in the city of Kobe in Japan in January of 1995; over and above are the social and health costs of disasters caused by lost homes, jobs and hopes, the basics of human life (D.C., 1995, 3).

It is obvious that natural disasters have a great impact on social development, they kill millions of people and leave millions homeless, and cause economic damage in addition to social and health costs, which are the basics of human life (UN General Assembly, 1994, 15).

Disasters are often the trade-off for ignoring environmentally sustainable development practices. Disasters are often unsolved development problems, a consequence of the choices we make in our everyday lives.

The real culprit is Man, as disasters often stem from environmental degradation and uncontrolled urban growth. Only sustainable human development can reduce the frequency and impact of natural disasters (UN World Summit for Social Development, 1993, 3).

II. IMPACT OF POPULATION GROWTH ON ENVIRONMENT

A. Environmental Pollution

Environmental pollution is one of the most serious problems facing humanity. Air, water and soil all harmed by pollution, are necessary to the survival of all living things (Haber, 43). Heavily polluted air can cause illness and even death. Polluted water kills fish and other marine life. Pollution to soil reduces the amount of land that is available for growing food. Moreover, environmental pollution brings ugliness to our beautiful natural world. The protection of the environment and of natural resources is an essential part of development. The poor are both victims and agents of environmental damage; hence, eliminating poverty is a prerequisite for environmental sustainability and sustainable development.

What is Environmental Pollution and Who Causes It?

It is a term that refers to all the ways by which people pollute their surroundings. People dirty the air with gases and smoke, poison the water with chemicals and other substances, and damage the soil with too many fertilizers and pesticides. People also ruin natural

beauty in various ways. Nearly everyone causes environmental pollution in some way (UN General Assembly, 1994, 15).

Everyone wants to reduce pollution; but the pollution problem is as complicated as it is serious. Because much pollution is caused by things that benefit people; such as, exhaust from automobiles causes a large percentage of air pollution. But the automobile provides transportation for millions of people. Factories discharge much of the material that pollutes air and water, but factories provide jobs for people and produce goods that people want. Too much fertilizer or pesticide can ruin soil, but fertilizers and pesticides are important aids to the growing of crops (UNEP, 1993, 12).

People have always caused some environmental pollution. Since prehistoric times, they have put wastes in water and caused smoke by burning fuel. But early people did not live crowded together, and they had no machines that caused pollution; therefore, pollution was not a major problem. Pollution problems first arose during ancient times, when large numbers of people began living together in cities. As cities grew, pollution grew with them.

All parts of the environment are closely related to one another. The study of the relationships among living things and between living things and other parts of the environment, is called *ecology* (Haber, 38). Because of the close relationships, a kind of pollution that harms one part of the environment may also affect others. For example, air pollution harms the air; but rain washes pollutants out of the air and deposits them on the land and in water. Wind, on the other hand, blows pollutants off the land and into the air (Haber, 41).

1. Air pollution turns clear, odorless air into hazy, smelly air that harms health, kills plants and damages property. In crowded cities, thousands of automobiles, factories and furnaces add tons of pollutants to a small area of the atmosphere each day.

One serious result of air pollution is its harmful effect on human health. Both gases and particulates burn people's eyes and irritate their lungs. Particles can settle in the lungs and cause respiratory diseases such as asthma, bronchitis and pneumonia. They are also a contributory cause of cancer (Science & Vie, 1994. 37 & 43).

Air pollution also harms plants. Poisonous gases in the air can restrict the growth and eventually kill nearly all kinds of plants.

Polluted air may also affect climate. Gases and particulates can cause change in the average temperatures of an area. Gases, such as carbon dioxide allow sunlight to reach the ground, but prevent the resultant heat from rising out of the atmosphere and flowing back into space, causing average temperature to rise (UNEP, 1995, 5; UN Climate Change, 1993, 6 & 7).

In addition, air pollutants may damage the layer of ozone. The ozone layer protects animals and plants from much of the sun's harmful ultraviolet light. Studies suggest that chemicals called chlorofluorocarbons (CFC's), which until recently were generally used as refrigerants, are thinning the ozone layer (Jones, 638).

2. Water pollution reduces the amount of pure, fresh water that is necessary for drinking and cleaning. The pollutants that affect water come mainly from industries, farms and sewage systems.

Industries dump huge amounts of wastes which include chemicals, waste from animal and plant matter, and other substances. Waste from farms includes animal waste, fertilizers and pesticides. Sewage systems carry waste from homes, offices and industries into the water.

Another major pollutant is fuel oil, which enters oceans mainly from oil tankers and offshore oil wells. These ruin beaches and kill birds and marine life.

3. Soil pollution damages the thin layer of fertile soil that covers much of the earth's land and is essential for growing food. Natural processes took thousands of years to form the soil that supports crops, but by their malpractices people are destroying the soil at an increasing rate (Haber, 50).

People use fertilizers and pesticides to grow more and better crops. Fertilizers add extra nutrients to the soil and increase the amount of crop. But the use of large amounts of fertilizer may decrease the ability of bacteria to decay wastes and produce nutrients naturally (Haber, 26, 27, 42, 82 & 83).

Pesticides destroy weeds and insects that harm crops. But pesticides may also harm bacteria and other

helpful organisms in the soil. For example, DDT is responsible for the deaths of many birds, fish and other animals (Bennett, 312).

4. Solid wastes are the most visible form of pollution. People throw away billions of tons of solid material each year. These wastes end up on the roadside, float in streams, lakes or seashores or lie piled in dumps (Jones 637). Solid pollutants are most common in the heavily populated areas. All these wastes result in some type of damage to the environment. They ruin the attractiveness of the surrounding areas. Dumps are generally homes for disease-carrying animals, such as cockroaches and rats. If these wastes are destroyed by burning, the resultant smoke and gases cause air pollution, and if dumped in water they contribute to various forms of water pollution (Haber, 55 & 58).

5. Other kinds of pollution. Some elements that pollute the environment cannot be classified as air, water or soil pollutants, or as solid wastes. They travel through and affect various parts of the environment. These pollutants include noise, radiation, acid rain and pesticides.

Noise is a troublesome pollutant in urban areas. People in cities are exposed to loud noise most of the

time. The noise comes from airplanes, automobiles, busses, motorcycles, trains, trucks, construction projects and industries. Noise causes discomfort to human beings. In extreme cases, loud noise can damage hearing or even cause deafness. Some studies have linked prolonged exposure to loud noises with development of high blood pressure and ulcers (Haber, 62-67).

Radiation is an invisible pollutant that can be highly dangerous. Nuclear radiation comes from radioactive substances including waste from nuclear weapon-testing and from nuclear power plants. Radiation from electronic devices including that from computers, lasers, microwave ovens, television sets and X-ray machines. Scientists have not determined exactly what effects small amounts of radiation have on humans. But exposure to large amounts can cause cancer (Jones, 639; Haber, 60 & 62).

Acid rain has become a serious problem. The reaction between the moisture and the chemical compounds produces nitric and sulfuric acids, which fall to the earth with rain or snow. The acids pollute lakes, streams and oceans, resulting in the death of fish and the contamination of drinking water. They also can

damage crops and forests and cause harmful changes in soil. This form of pollution can even damage buildings and statues. Acid rain pollutants sometimes travel long distances, even from one country to another (Haber, 57).

6. Technological Causes. Many environmental pollution problems are a result of the rapid advances in technology that have been made since the end of World War II (1945). Technological advances in agriculture, industry and transportation have greatly improved our way of life, but most of the advances were made without consideration of the effects they would have on the environment (Haber, 35 & 36).

7. Social Causes. Our desire for convenience is another cause of pollution. Many synthetic materials that pollute the environment were developed to save people time, work or money. The use of throw-away packaging materials is an example of how the demand for convenience cause pollution when the materials are not recycled. The use of automobiles instead of public transportation results from the desire for convenience.

8. Controlling Pollution. Several different approaches can be used to control pollution. Waste products can be saved and used again. New technological developments can help prevent and control pollution

caused by other technology. Restrictions can be placed on the use of materials that pollute. Recycling programs can reduce the amount of solid wastes that are dumped or burned (The OECD Observer, 1994, 10).

An important development in agriculture is the use of biological controls instead of pesticides. Biological control involve the use of various types of insects and bacteria to control pests.

Restrictions on the use of materials that pollute can be extremely effective in controlling pollution. But the restrictions may also cause inconvenience and require changes in ways of life.

9. Government Action. Governments have to take necessary measures to control pollution, by passing laws to limit the amount of pollution, such as that caused by automobiles, industries and sewage treatment, and by conducting researches that lead to better understanding of environmental problems, while equally providing money for anti-pollution programs.

III. HEALTH & THE ENVIRONMENT

Degraded environment has a direct impact on human health and welfare. The poorest countries in the world, which are concentrated in Africa, Asia and Latin America, suffer from high rates of infectious and parasitic diseases, and malnutrition. Under such health conditions, high infant mortality rates are accompanied by low life expectancy of birth. Health services, whether curative or preventive, rarely reach the very poor in developing countries in both rural and urban areas. Same applies to the basics of environmental health: clean water and sanitation, adequate food and shelter.

The most serious threat to health in both developing and industrialized countries is poverty. For the poor, the same water supply often serves for both drinking and sanitation. Moreover, they do not have sanitary waste disposal facilities. As a result of this situation, water-borne diseases: cholera, typhoid, diarrhoea, dysentery, malaria and intestinal worms, exist in the poorer countries.

As the number of urban poor increase, so do their health problems. One in four of the slum-dwellers' children die before the age of five, while one adult to two suffers from intestinal worms or serious respiratory

infections. Infectious diseases are easily spread in crowded and insanitary housing conditions. Poor housing increases social stress and disruption: domestic abuse, rape and drug use are common among urban poor, as are sexually transmitted diseases such as AIDS (FNUAP, 1995, 31).

Women whose health is adversely affected by their environment are much more likely to die as a result of childbirth. Pregnancy doubles the risk of death from common diseases such as pneumonia and influenza, which are more common among poorly-housed and ill-nourished women. Most of the pregnant women in developing countries suffer from vitamin and mineral deficiencies (UN Santé du Monde, No. 3, 22 & 23).

In brief, the elimination of poverty, measures to improve health, education and an improvement of the status of women are essential for sustainable development.

CHAPTER FIVE

CONCLUSIONS & RECOMMENDATIONS

I. Population Growth

Current rates of population increase in the Third World are among the highest the world has ever seen. The demographic question is not whether these populations will or will not stop increasing, but when they will stop increasing. But what will be the demographic means to this cessation of growth - lower fertility, higher mortality, or emigration? The related non-demographic question is, What will be the condition of life, economically, socially and environmentally, once this population increase has halted?

As the minimum goal of any population policy is to achieve lower, rather than higher mortality, therefore, the question is, how the necessary cessation of population increase can be achieved without resort to higher death rates. We are left with two demographic variables: emigration and fertility.

Either emigration must be increased at levels commensurate with natural increase, or fertility must be reduced to the point where the average annual number of births equals the average annual number of deaths.

Regardless of the difficulties encountered, emigration can never be more than a temporary expedient to relieve the pressures of high rates of natural increase.

This leaves us with the reduction of fertility to a level commensurate with that achieved with reductions in mortality. What sort of programs would seem appropriate for the achievement of such a goal?

Before setting any program or policy, it is necessary to change the social structure and economy, particularly the structure of the family and the position of women, before deliberate reduction in the birth rate can be achieved.

A well-designed program for the reduction of fertility would have several attributes. It would incorporate a high degree of flexibility, provide continuous monitoring, provide for the collection of appropriate data, emphasize inducements rather than negative sanctions, incorporate recognition of the

importance of population diversity, recognize macro and not mere micro-level benefits, and be based upon an understanding of the socio-cultural setting within which family-size decisions are made.

II. Development & Sustainability

Development is sustainable if the management of resources, the direction of investments, the orientation of technological innovation and institutional change are harnomized and enhance both current and future potentials to meet human needs and aspirations, including the ongoing pursuit to educate the poor on environmental degradation.

Sustainable development requires that (1) the scale of development be sustainable in biophysical terms, (2) a proper balance between present and future demands on resources be made, and (3) inequity of all kinds be kept within limits.

A key criterion for sustainable development is that it should not impoverish one group as it enriches another.

Economics in the past treated natural resources and environmental quality as being unlimited, but as it is recognized that they are not, economic decision-making will have to be adjusted accordingly. This may require the help of governmental, non-governmental and private organizations.

Sustainable development implies a policy of merging ecology and economics into decision-making. This means bringing environmental and resource costs to bear on prices and establishing proper economic systems at the macro-level.

III. Recommendations

Achievement of sustainability is a long-term process that will require investment in human and natural capital as well as significant political will. Investments in human capital contribute to the development of political capital because they enable poor people to participate in the political decisions necessary for the protection of natural capital. Immediate actions that can be taken to begin to move in the right direction range from policies at the level of individuals and communities to those at national and

global level. An integrated multi-scale approach is necessary in order to reap the benefits of small scale adaptive management while still recognizing and incorporating large scale goals and constraints.

Environmental externalities need to be internalized by way of prices. The use of scarce resources, such as water and forests, by agriculture or industry, need to be given a certain cost which is in line with their resource cost. The same goes for the creation of atmospheric pollution by industry, should be treated as the use of a scarce resource for which a price has to be paid, according to the "polluter pays" principle.

Commodity prices should fully internalize the human and environmental costs of food production. This is an important first step toward global sustainability because they provide the raw materials upon which all consumption is based, and because agriculture is central to the connection between the ecosystem and the human economy.

A consistent system of accounting for natural resource depreciation is necessary in order to identify environment costs and benefits, and their distribution. This is also important for correcting inequities because

poor people rely primarily on natural resources that are not valued in the market and pay a disproportionate share of the costs of environmental degradation.

At the individual level, investment in human capital, improvements in nutrition, health and education, ameliorates the quality of life of the poor and strengthens their ability to combat the environmental degradation of which they are victims and contributes to voluntary control of population growth.

Improving the quality of the lives of women can increase the effect because of their multiple roles in raising children, in education and in the management of natural resources in providing for their families. Greater power for the poor, especially for women, increases the political effectiveness of their demand for access to birth control and reproductive health services.

In short, by providing environmental knowledge to people with an incentive to use it, education can alter the balance of power and thereby direct environmental outcomes towards greater protection for natural capital.

REFERENCES

- Abu-Gamrah, Hamed. "Population Situation in the ESCWA region." Population Policies & Development in the Arab World. Amman: 1986.
- Akashah, T. "Environmental and Natural Resource Accounting". The Higher Council for Science and Technology. Friedrich Nauman Instiftung, Jordan.
- Al-Attar, Jawad. Tarikh al Betrol fil Shark al Awsat. (the history of petroleum in the Middle East). Al Ahliya bil Nashr wal Tawzi, Beirut: 1977.
- Al-Kasawani, Salem. "The role of the volunteers information & implementation of population policies & development goals." Selected Lectures in Family Planning. Jordan Family Planning & Protection Association. Amman: 1984.
- Arab Parliamentary Conference on Development and Population. "The Tunis Declaration". LeBardo, Tunis: May 1984.
- Baran, Paul A. The Political Economy of Growth. Monthly Review, Inc., USA: 1957.
- Bennet, A. Le Roy. International Organizations Principles & Issues. 5th. ed., Prentice Hall, Inc., USA: 1991.
- Berelson, Bernard, ed. Population Challenging World Crisis. New York: Voice of America Forum Lectures, 1969.
- Berelson, Bernard & Gary A. Steiner. Human Behavior. Harcourt, Brace & World, Inc., New York: 1967.
- Berelson, Bernard, ed. Population Challenging World Crisis. New York: Voice of America Forum Lectures, 1969.
- Bhatia, Dipak. "India: A Gigantic Task". Population: Changing World Crisis. Bernard Berelson, ed. New York: February, 1969.
- Broom, Leonard, Charles M Bonjean & Dorothy H. Broom. Sociology. Wadsworth Inc., USA: 1990.
- Development & Cooperatiopn (D.C.). "Our Shaky Ground." No. 2, Germany: March/April 1995.

- Dornbusch, Rudiger & Stanley Fischer. Macro-Economics. 3rd. ed., McGraw-Hill, Inc., USA: 1984.
- Earthwatch. Jillani, M. S. "Reviving the Family Planning Program". No. 4: 1990.
- Earthwatch. Mumtaz, Khawar. "Women Need Skills, Income and Family Planning". No. 4: 1990.
- Eckholm, Erik P. Down to Earth. First East-West Press Edition, New Delhi: 1991.
- Essayran, Toufic and Layal Shoucair. "Muktarahat Tafsiliya Hawl Kayfiyat Tafi'il Dawr al-Lajna al-Wataniya li-Sukkan". (Detailed suggestions regarding the role of the national committee for population). Beirut, Lebanon: Jan. 1994.
- FNUAP. "Etat de la Population Mondiale". Prographics, Inc., New York: 1993.
- FNUAP. "Etat de la Population Mondiale 1995". New York: 1995.
- FNUAP. Prographics, Inc., New York: 1994.
- FNUAP. "Les Femmes Comptent Mais Ne Sont Pas Comptées." New York: April 1994.
- FNUAP. "Les Problèmes Démographique." New York: April 1994.
- Ginzberg, Eli. The Human Economy. McGraw-Hill Book Co., New York: 1976.
- Gostkowski, Zigmunt, ed. N.d. Toward a System of Human Resources Indicators for Less Developed Countries. Polish Academy of Sciences, Institute of Philosophy & Sociology. Poland: Ossolineum for UNESCO.
- Greer, Scott, Dennis L. McElrath, David W. Minar, & Peter Orleans, ed. The New Urbanization. St. Martin's Press, Inc., New York: 1968.
- Haber, Ricardus Michel. "Tabiat Lubnan ... Bi'at el-Insan". (Lebanon's Nature ... The Human Environment). 2nd. ed., Al-Matba'a al-Arabiya, Beirut: 1992.
- ICPD 94. "Newsletter of the International Conference on Population and Development". No. 12. Cairo, Egypt: Sept. 1994.

- ICPD 94. "Newsletter of the International Conference on Population and Development". No. 17. Cairo, Egypt: Sept. 1994.
- ICPD 94. "Newsletter of the International Conference on Population and Development". No. 21. Cairo, Egypt: Sept. 1994.
- International Planned Parenthood Federation, (IPPF). Annual Report: 1982. Amman: 1982.
- IPPF Country Profiles. "Family Planning - Education". Tuvalu: July 1993.
- IPPF Country Profiles. "Family Planning - Education". Tonga: July 1993.
- IPPF Country Profiles. "Family Planning - Education - Demographic Trends". Thailand: July 1993.
- IPPF Country Profiles. "Education - Family Planning - Demographic Trends". Papua New Guinea: July 1993.
- IPPF Country Profiles. "Family Planning - Education". Singapore: July 1993.
- IPPF Country Profiles. "Family Planning - Education". Philippines: July 1993.
- IPPF Country Profiles. "Family Planning". Solomon Islands: July 1993.
- IPPF Country Profiles. "Family Planning - Demographic Trends". Vietnam: July 1993.
- IPPF People. "Freedom and Fertility". Vol. 17. No. 4. Lavenham Press Ltd., England: 1990.
- IPPF People & the Planet. Vol. 1. No. 4. Lavenham Press Ltd., England: 1992.
- Jones, Walter S. The Logic of International Relations. 7th. ed., Harper Collins Publishers Inc., New York: 1991.
- Khoshkish, A. The Socio-Political Complex. Pergamon Press, New York: 1979.
- La Revue du FNUAP Populi, Vol. 22, No. 2, New York: February, 1995.
- Landskron, William A., ed. "Annual Review of United Nations Affairs 1977". Vol. 1. Oceana Publications, Inc., New York: 1979.

- Leland Bach, George. Economics: Analysis, Decision Making, And Policy, 11th. ed., Prentice-Hall, Inc., USA: 1987.
- Levitan, Sar A., Garth L. Mangum & Ray Marshall. Human Resources and Labor Markets. Harper & Row, Publishers, Inc., New York: 1972.
- Luthans, Fred. Organizational Behavior, 2nd. ed., McGraw-Hill, Inc., USA: 1977.
- Overbeek, Johannes. Population An Introduction. Harcourt Brace Jovanovich, Inc., USA: 1982.
- Mann, Charles C. Dialogue. "Population Growth & Consequences". No. 103, USA: 1.1994.
- Omran, Abdul Rahim. "Population problems & prospects in the Arab World." Population Reports. No. 22, UNFPA, New York: 1980.
- Parnes, Herbert S. Manpower Forecasting in Education Planning. Paris: OECD. 1965.
- Patten, Thomas H., Jr. Manpower Planning & the Development of Human Resources. John Wiley & Sons, New York: 1971.
- Perrow, Frances, ed. The Financial Costs of Rapid Population Growth. USA: May 1994.
- PNUD. "Cap Sur Le Changement." New York: 1993.
- PNUE. "Notre Planète." Vol. 7, No. 2, New York: 1995.
- Randall, Alan. Resource Economics. 2nd. ed., John Wiley & Sons Inc., USA: 1987.
- Roodel, Walter. "Al-Bi'a wa et-Tanmiya al-Mustadama". (The ongoing growth & environment). Amman: 1994.
- Sadek, Nafis. IRRF. "A new development agenda." People & the Planet. Lawnham Press Ltd., England: 1990.
- Salas, Rafael. World Population Situation: 1980 Report. United Nations Fund for Population Activities. New York: 1980.
- Sayegh, Antoine. Food Insecurity: Desertification, Soil-Erosion Landflight, Urbanization. Environmental Sustainable Development. Faculty of Agriculture, American University of Beirut.
- Science et Vie. No. 918. France: March 1994.

- Spanier, John W. World Politics in an Age of Revolution.
Frederick A. Praeger, Inc., USA: 1967.
- Tabbara, Riad. Towards a Theory of Demographic Development.
"Economic Development & Cultural Change". Vol. 19,
Beirut: Jan. 1971.
- The OECD Observer. "The Role of Recycling." No. 188,
New York: June/July 1994.
- The World Economy (U.N.). "A Global Challenge". 1994.
- The World Bank. "A Population Perspective on Development:
The Middle East and North Africa". Population Reference
Bureau, Inc., Washington, DC, USA: August 1994.
- Todaro, Michael P. Economic Development in the Third World.
4th.ed., Longman Publishing, New York: 1989.
- United Nations Climate Change Bulletin, Issue 2, Switzerland:
4th Quarter 1993.
- United Nations Development, No. 8, New York: 1995.
- United Nations. World Population Trends & Policies: 1979
Monitoring Report. New York: 1980.
- United Nations. ECWA. New York: 1980.
- United Nations Education Science & Culture Organization
Regional Office for Education in the Arab States
(UNESCO/UNEDBAS), Beirut: April 1992.
- United Nations Fund for Population Activities, (UNFPA).
World Population Wall Chart & World Population Today.
New York: 1985.
- United Nations General Assembly, A/49/935, New York: May 6,
1994.
- United Nations International Labor Organization (ILO),
Beirut: June 1994.
- United Nations. Santé du Monde. No. 3, USA: May/June 1994.
- United Nations Popline, World Population News Services
(newspaper), Vol. 16, New York: May-June, 1994.
- UNEP, The Siren. No. 49, Nairobi, Kenya: Oct./Dec. 1993.
- United Nations Population Fund (UNFPA). New York: 1994.

- United Nations World Summit for Social Development.
Education Empowers. Published by the United Nations
Department of Public Information, New York: 1995.
- United Nations World Summit for Social Development.
Population and Social Development. Published by the
United Nations Department of Public Information, New
York: 1995.
- United Nations World Summit for Social Development. Fact
Sheet, New York: 1993.
- Vander Zanden, James W. Sociology The Core. "The Human
Environment". 3rd ed. McGraw-Hill, Inc., New York:
1993.
- Warner, Sam Bass, Jr. ed. Planning for a Nation of Cities.
The M.I.T. Press, USA: 1966.
- Williams, Michael. Society Today. MacMillan Education Ltd.,
London: 1991.
- World Health Organization (WHO/FHE/94.1.) Health, Population
& Development. Geneva: 1994.