



Population and Sustainable Development

TASK FORCE REPORT

IUCN
1987
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POPULATION AND SUSTAINABLE DEVELOPMENT PROGRAMME

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Population and Sustainable Development

REPORT OF THE
IUCN TASK FORCE ON POPULATION
AND CONSERVATION FOR SUSTAINABLE DEVELOPMENT



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INTERNATIONAL UNION FOR CONSERVATION OF NATURE
AND NATURAL RESOURCES

1987

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IUCN

International Union for Conservation of Nature and Natural Resources is a network of governments, nongovernmental organizations (NGOs), scientists and other conservation experts, joined together to promote the protection and sustainable use of living resources.

Founded in 1948, IUCN has more than 500 member governments and NGOs in 117 countries. Its six Commissions consist of more than 3000 experts on threatened species, protected areas, conservation science, environmental planning, environmental policy, law and administration, and education, training and awareness.

POPULATION AND SUSTAINABLE DEVELOPMENT PROGRAMME

At its 1984 General Assembly, IUCN's members called on all nations to adopt population policies which bring the needs of people into balance with the sustainability of natural resources. IUCN responded with a new Population and Sustainable Development Programme, specifically concerned with the impact of rapidly increasing human populations on the earth's natural resources and ecosystems. The Programme is undertaking projects joining population policies with conservation strategies.

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For reasons of space, acronyms are used throughout the text. The full title of each is given in the Glossary of Acronyms (Annexe II).

It is a pleasure to acknowledge the assistance of the following persons in the preparation of this book: Mr. J. H. ...

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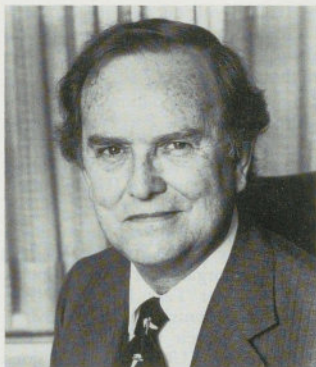
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Russell W. Peterson

FOREWORD

As the world community counts its 220,000 additional members each day, governments, communities and families struggle to alleviate the ecological consequences of human pressures on our natural environment.

Those pressures are not about to cease. Today's population of five billion is projected to climb to six in another 13 years and to at least ten before it might level off. High levels of consumption in industrialized regions markedly increases the human demands on fragile ecosystems making the population-resource question a high priority candidate for the international agenda.

The International Union for Conservation of Nature (IUCN) is concerned about the grave ecological consequences of these phenomena. It seeks to study and understand how we must manage our natural and human resources to achieve a balance between human numbers and the natural systems which sustain them.

In an attempt to answer these questions IUCN has created a major new programme in its Secretariat. The Population and Sustainable Development Programme is the result of several years' effort to bring the issue of human numbers and needs and long-term natural resource conservation to the centre of IUCN's strategies to promote sustainable development.

Indeed, at the 16th General Assembly, IUCN's membership passed a Resolution on Population and the World Conservation Strategy. (Annexe II). That Resolution, which stemmed from recommendations of the Commission on Ecology and IUCN's Council, charged IUCN with reflecting population issues in the action plan of the *World Conservation Strategy* and with incorporating policies designed to attain a balance between population and resources into its National Conservation Strategies and other programmes. Unless the present high rates of population growth are substantially reduced, it will not be possible to attain the goals of the *World Conservation Strategy*, even allowing for all foreseeable improvements in technology, distribution, organization and land productivity.

In addition, the Resolution charged IUCN with encouraging governments to develop population policies in accordance with their particular resources and needs and to provide family planning services as a basic human right and an essential aspect of health care.

To facilitate the implementation of those recommendations, Dr. M.S. Swaminathan, President of IUCN, appointed the Task Force on Population and Conservation for Sustainable Development in May 1985 and asked me to guide its work. We were charged with the task of defining policy guidelines for integrating the population dynamic into IUCN's wide range of activities.

Since the assignment involved the interests of other international bodies who could contribute substantial knowledge and experience, I asked the Chief Executive Officers of the following organizations to appoint someone to be their official representative on our Task Force: UNEP, WWF, FAO, Unesco, IPPF and UNFPA. Their contributions greatly facilitated our work and we are most grateful for their participation. The Task Force also had a representative from each of IUCN's Commissions and six members of IUCN's Council.

The Task Force met three times and consulted by mail and telephone. We are most grateful to Dr. Susan Miller, a member of the Task Force, who provided the initial draft of this report.

The Task Force completed its work at a meeting held during the Ottawa Conference on *Conservation and Development: Implementing the World Conservation Strategy* in June 1986. The conference recommended that IUCN prepare a supplement to the *World Conservation Strategy* with a statement urging the adoption within national conservation and/or development strategies of policies to stop population growth.

In the next year, IUCN will be working with its members and collaborating agencies to draft a revised version of the *World Conservation Strategy*. A chapter on Population and Resources will be included in that document and will take its inspiration from this report of the Task Force, published herein.

The Task Force is pleased that as a result of its recommendations, a fully-fledged Population and Sustainable Development Programme is now actively involved in the entire range of IUCN's activities. We believe such a programme is an essential element of IUCN's long-term conservation efforts.

With the publication of this report, the Task Force on Population and Conservation for Sustainable Development completes its assignment.

Dr. Russell W. Peterson
Chairman, Task Force on Population and
Conservation for Sustainable Development

Vice President, IUCN

OVERVIEW

The satisfaction of basic human needs draws fundamentally on the earth's natural endowment. The quality of human life, too, depends on a sound, supporting environment, of clean air, safe and plentiful water and adequate food and shelter, as much as on factors such as health, job satisfaction, education, security and self-fulfillment.

Today, while many people move up the ladder to a higher quality of material life, considerably more join the hundreds of millions living in absolute, desperate poverty. Both trends, in very different ways, impinge on conservation, reducing the long-term capacity of natural resources to provide for human needs.

Conservation is defined in the *World Conservation Strategy* as "the management of human use of the Biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining the potential to meet the needs and aspirations of future generations".

The current demand for natural resources, coupled with inappropriate technologies and management techniques applied in their use, is diminishing the resource base through overgrazing, overcutting, overcropping, overfishing, overdraining, and polluting. The results are desertification, soil erosion, forest depletion, poisoned water and loss of biological diversity.

The number of humans and the amount each consumes determines demand on resources. While the affluent consume at ever more disproportionate rates, the total number of humans, the vast majority of them poor, escalates at unprecedented rates. During the lifetime of many people living today, world population has tripled. In some regions growth is sharply higher. In Zimbabwe, for example, the older generation has seen population grow from 600,000 to 8 million.

The world community now recognizes limitation of population growth as part of the multifaceted approach to furthering socio-economic development and protecting the natural resource base. At the same time, advances in socio-economic development enhance reduction in population growth.

Family planning activities and development efforts are thus mutually reinforcing.

As a result of world-wide efforts, the global rate of population growth has decreased from 2.2% to 1.7% per year although the annual increase in numbers continues to rise.

On a country-by-country basis, there is a great variety of population situations. In some parts of Africa, for example, growth rates are higher than they have ever been anywhere, at any time in history. In some European countries, on the other hand, parents in the present generation are not having enough children to replace themselves.

Not only is there great variety between countries and regions; most of the current and future population growth is expected to occur in the developing regions, while the population of the developed world will remain relatively stable.

It is important to recognize the great diversity of environmental, population and socio-economic development factors. A country-by-country analysis shows a broad spectrum of conditions. Stages, levels and styles of development vary, as do the characteristics of the physical environment and the nature of population problems. Global and regional aggregates are useful in obtaining an overview, but the national level is where actions must be implemented.

Rapid population growth in developing countries, despite a general decline in birth rates, is due primarily to the sharp decline in mortality rates. Modern public health measures are largely responsible for these declines, including improvements in water supply and sanitation, better nutrition, immunization, and availability of maternal and child health care and family planning services.

Population growth will continue for some time to come, yet the rate of that growth and the ultimate level of the world's population depend on a host of interrelated and variable factors. Among those that contribute to lowered fertility rates are: socio-economic development, increased equity in distribution of income, availability of health and essential services and increased education -- especially for girls and women. The lowering of infant mortality rates can also be an important factor in reducing fertility rates. As healthier babies survive, mothers will eventually have fewer pregnancies which in turn will have positive effects on the health of mothers and on the whole family.

Access to information and services to enable couples and individuals to determine their own family size has been established as a basic human right (The 1974 World Population Plan of Action). The World Fertility Survey (WFS), the world's largest social science research project, which conducted surveys in developing countries between 1972 and 1984, found that women were generally having more children than they wanted. The WFS revealed a substantial, though widely varying, unmet need for modern contraception. The demand for family planning is likely to grow; by the turn of the century over one billion couples will be in need of family planning services.

To provide those services it would require an estimated \$6 billion annually in addition to the \$2 billion now being spent on family planning. If

this were done, it is probable that by 2050 the population in developing countries would level off at approximately 6.5 billion, or about 4 billion less than if the current rate of funding were to continue. An extra expenditure of \$6 billion is a lot but only six-tenths of 1% of what is spent annually around the globe on armaments.

Since the 1950s, the perceptions of developing country governments have undergone a profound change. Many governments that previously considered it unnecessary or even harmful to introduce population policies and family planning programmes have reversed their positions as the impact of population growth on socio-economic development became apparent.

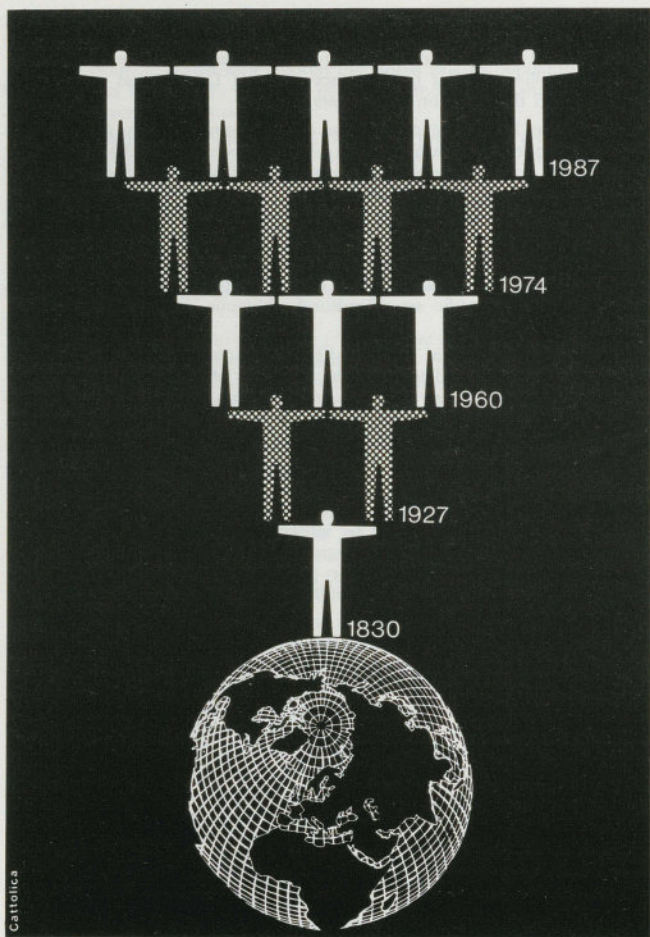
Population strategies, programmes and policies may be explicit or non-explicit, and each country must deal with its population problems in the context of a specific set of cultural, religious, historical, and socio-economic circumstances.

As of 1984, 90% of the world's population lived in 158 countries which at least subscribed to the right to family planning information and assistance. Although many of these countries may not have taken a position with regard to their own population size, 65 of them had expressed the desire to lower their rate of population growth.

The World Population Plan of Action adopted in Bucharest at the World Population Conference in 1974 urged that government population policies should not be considered substitutes for socio-economic development policies, but rather should be integral components of these policies. The Plan also recognized the sovereignty of nations in the formulation, adoption and implementation of their population policies, consistent with basic human rights and responsibilities of individuals, couples and families.

Population policies and socio-economic development policies should be mutually reinforcing, as recommended by the 1984 International Conference on Population in Mexico. Human resources can be an important moving force in development. They should not, however, overburden the investment sources. Many developing country leaders have repeatedly encouraged the adoption of national population policies, as was done, for example, in a 1986 report by the Organization for African Unity.

International population assistance has played a key role in providing support, where requested. For example, the United Nations Fund for Population Activities (UNFPA), the largest source of multilateral population assistance, has, between 1969 and 1986, worked with 149 countries in planning and carrying out nearly 4,400 population projects. Its success in overcoming the strong resistance that it met at the outset of its work stems in large measure from respecting national sovereignty and involving the recipient nations as partners in the design and implementation of programmes. It has won recognition for family planning as an integral part of socio-economic development. The International Planned Parenthood Federation (IPPF) is the largest non-governmental organization in the population field, with affiliates throughout the developing world. These and other organizations are funded primarily through donor countries, which also provide population aid to developing countries on a bilateral basis. A



UNFPA The State of World Population 1987

In 1987, the world added the five-billionth person to the human population, according to the U.N. Fund for Population Activities.

variety of other international, intergovernmental and non-governmental organizations are involved with the population issue at levels ranging from the international to the local.

Since population issues have only recently received priority attention, and as this has occurred at different times in different regions of the world, no two countries find themselves at the same stage in the continuum of progress in dealing with their own perceived problems. High rates of population growth constitute but one factor among many that aggravate environmental and development problems and the scourge of poverty. Others include over-consumption by the developed nations and inappropriate applications of technology, management, trade and aid.

One of the most urgent challenges of today is the need to provide the growing population with an adequate food supply. According to a study by FAO and IIASA, supported by UNFPA, soon after the year 2000, if present agricultural methods are unchanged, 65 countries will not be able to meet their own food needs. Fifteen of these are in Asia, and 30 are in Africa. In some areas population growth will outstrip rising food production, as has been true in Africa for the past decade. It is important to recognize, however, that inappropriate development patterns fostered by debt pressures, trade imbalances and misguided aid have contributed to this problem. Ironically, the food surpluses of the North are implicated in the situation.

As the *World Conservation Strategy* emphasizes, one of the most serious current environmental developments is a loss of resources essential for agriculture. These vary from ecosystem to ecosystem, but include: soil erosion, soil compaction, desertification, soil salinization, the loss of arable land to urbanization and associated development, the loss of genetic diversity from the wild to strengthen domesticated species, and contamination of water supplies by fertilizers and agricultural chemicals. Significant crop losses are caused by worsening air and water pollution and, increasingly, by frequent and severe water shortages.

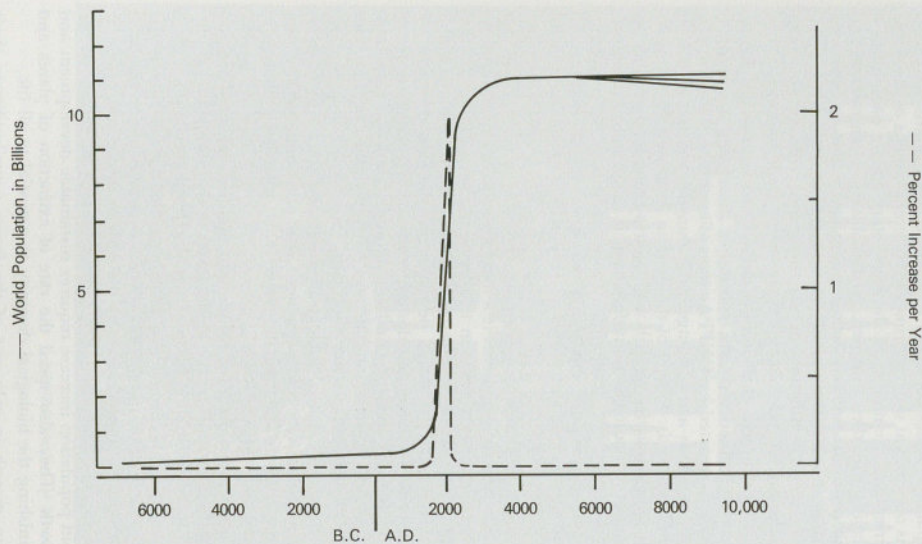
The destruction of essential ecological processes through the overcutting and clearing of forests and woodlands can also influence the productivity of croplands by lowering the water table, increasing siltation of rivers and dams and causing floods.

As population pressures force people into marginal land, where productivity often declines quickly, the global losses to desertification (at present estimated to be six million hectares per year) will accelerate.

On a global basis, according to a warning issued by the United Nations Environment Programme in 1981, over one-third of our arable land may be lost or become unproductive by the turn of the century.

These factors are undermining the resource base of society at the very time rapid population increase requires sustainable development and economic growth. They also speed the rate of extinction of plants and animals, diminishing the biological diversity so essential to all life.

Population growth is only one of the forces contributing to these problems, but slowing the rate of increase of human numbers and eventually stabilizing population at a no-growth level would curb degradation of the environment and of the renewable resource base. Although a



Population and Human Values *Jonathan and Jonas Salk*

Seen in the context of human history, a sudden population surge reaching a 2 per cent annual increase in the last centuries of the second millenium A.D. will leave the world with a population of over 10 billion, despite an equally sharp drop in growth rates in the next 100 years.

slowdown of world population growth would not automatically substitute for other solutions to development problems, it could provide the time and opportunity to cope with them.

Why is IUCN involved in this issue?

The *World Conservation Strategy* recognized the high increase in population growth and its deleterious impact on natural resources, but did not include any strategy or action plan for coping with this problem.

Noting this, IUCN's General Assembly and Council passed resolutions calling on IUCN to work to incorporate a strategy and action plan for stabilizing world population into the *World Conservation Strategy* and to incorporate a population stabilization component into IUCN's own Programme. They concluded that "Unless the present high rates of population growth are substantially reduced, it will not be possible to accomplish the goals of the *World Conservation Strategy*, even allowing for all foreseeable improvements in technology, distribution, organization and land productivity".

Accordingly, IUCN Council established a Task Force on Population and Conservation for Sustainable Development in May 1985 and charged it with developing, in cooperation with the Secretariat, a programme in response to the decision of the General Assembly.

This Task Force, chaired by Dr. Russell Peterson, Vice President of IUCN, had official representation from FAO, IPPF, UNEP, Unesco, UNFPA, WWF, and representation from each of IUCN's six Commissions.

In order to stabilize population at levels permitting sustainable use of natural resources, the IUCN Task Force recommends the following actions:

1. Country-level studies of the interactions between population, conservation and development should be undertaken. The results of such studies should be utilized as a basis for an integrated approach to long-term sustainable development.
2. Countries should be encouraged to formulate and implement population policies which take into consideration the natural resource base, environmental conditions and socio-economic and human resource development prospects. Such policies should respect human rights, religious beliefs, cultural values and the fundamental right of each individual and couple to determine their own family size.
3. The institutional structures through which population, conservation and development policies are formulated, implemented or influenced should be identified. Co-ordinating mechanisms should be introduced, where appropriate, to ensure that an integrated approach is taken in each of these policy areas.
4. Efforts should be made by governments and voluntary organizations to increase awareness of the interactions between population, natural

resources and development prospects. Such awareness-building activities should include information on the availability of family planning services and maternal and child health care services.

5. Governments should be encouraged to establish or strengthen population policy, including goals for the stabilization of population at a level that will permit sustainable management of resources and a satisfactorily high quality of life for all their people.
6. Governments and development agencies should take into account the special environmental problems of the urban and rural poor, devise and pursue environmentally sound urban policies and promote sustainable rural development. Conservation and family planning should be an integral part of all urban and rural development programmes, with the full participation of the community in the planning and implementation of such programmes.
7. Nations should be encouraged to take effective action to secure the basic right of all couples to have access to methods of family planning, as established in the World Population Plan of Action. In making this recommendation, IUCN emphasises its conviction that the provision of contraceptive information and services is essential for humanitarian and health reasons, quite apart from the effect on fertility levels. It is equally essential that women have the right of choice about pregnancy. This choice is not only important in reaching no-growth population levels but also in improving the status of women, a prerequisite for the achievement of development and conservation goals.
8. Programmes to integrate women into socio-economic development processes should be initiated and strengthened. Educational and training opportunities for women should be broadened to promote full awareness of choices open to women with regard to family size and their role in society.
9. The world community of nations and international organizations should co-ordinate activities in the fields of population, conservation and development, and intensify the study, understanding and awareness of the interrelationships. Further, they should co-operate in ensuring that the integrated approach is adopted and followed through in projects and programmes that receive their support.
10. Donor governments and international assistance agencies should be encouraged to respond favourably to the growing number of requests from developing countries for assistance to national population programmes.
11. International organizations, such as UNFPA and IPPF, which provide population assistance to developing countries, should receive support from donor countries at levels that will enable them to respond adequately to the needs of developing countries.
12. International population assistance should be increased to levels consistent with the goals of attaining the desired slowdown in population growth rates and eventual stabilization of population.

I. Demographic trends

Every human being in the world is entitled to a life without fear or want. This can be achieved only through disarmament and economic development. For the latter to become a widespread reality, the growth of the world's population must be held in check, as also the balance between resources and their consumption.

Rajiv Gandhi, Prime Minister of India

Rapid population growth is a very recent phenomenon in terms of man's life on this planet. It took one million years for the human population to reach one billion, about 150 years ago. Only 100 years were needed for that population to double, and in the last 50 years the world population has more than doubled again to reach the five billion mark in 1987.*

The growth from one billion to two billion people took place during and after the Industrial Revolution in Europe and the West. The pace was not uniform, but differed among regions and for different reasons. Just prior to this period, at the middle of the 18th century, the population of the vast regions known today as the developing world was three times greater than that of the countries in the smaller areas which comprise today's industrialized world.

In Europe and the West, the period during and following the Industrial Revolution was characterized by moderately high birth rates which declined in parallel to slowly falling mortality rates. The average annual population growth rates rose from about 0.5% between 1750 and 1850 to 0.9% from 1850-1950.

* Data quoted in this paper are from United Nations sources, unless otherwise stated and from the 1987 World Population Data Sheet, Population Reference Bureau Inc., Washington.

Until the early part of this century conditions in the developing world were characterized by somewhat higher birth rates and high, stable mortality, thus levelling out average annual growth rates at 0.4% between 1750-1850 and 0.6% between 1850-1950. As a result, during this period the population of the industrialized countries grew proportionately more rapidly than that of the developing world.

The higher percentage growth rate in European countries affected a relatively small and low density population base. Moreover, up to 20% of the growth was absorbed by emigration to North and South America, Australia and Africa. The colonial system not only enabled European countries to export excess population; they also could exploit other countries' resources for continuing economic growth at home without bearing the consequent environmental costs.

The situation changed dramatically after the first quarter of this century, as population growth accelerated in the developing world. By 1950, mortality rates in the developing countries had fallen to the levels the industrialized world had been able to achieve only 50 years earlier, following 125 years of steady decline. Since 1950, developing world death rates have dropped even faster due to expanding health services. Birth rates, however, stayed high and only recently began a decline to reach in 1980 the level prevailing in the industrialized world in 1900. Thus, between 1950 and 1975 the population growth rate in the developing world was over twice that of the industrialized countries and, as a result, by 1987 the total population of developing countries was more than triple that of the developed world.

In the developing regions, including China, annual population growth rates now average 2.02% and are about 20% lower than at their peak in the mid-1960s. China's growth rate fell 59% from a high point in the mid-1950s and rates in the rest of East Asia (excluding Japan) dropped 43% from the late 1950s. Growth rates in Latin America are now 17% lower than at their peak some 20 years ago, and those in South Asia are 12% lower. However, in 34 developing nations, population is soaring at annual rates of 3% or more, and several countries with a combined population of 1.1 billion have not yet shown signs of a reversal in this trend. West Asia is growing faster than it was a decade ago. Africa's population is increasing at about 3% per year, and will rise sharply as today's large young population (in many countries over 40% of the population is under 15) reach childbearing age.

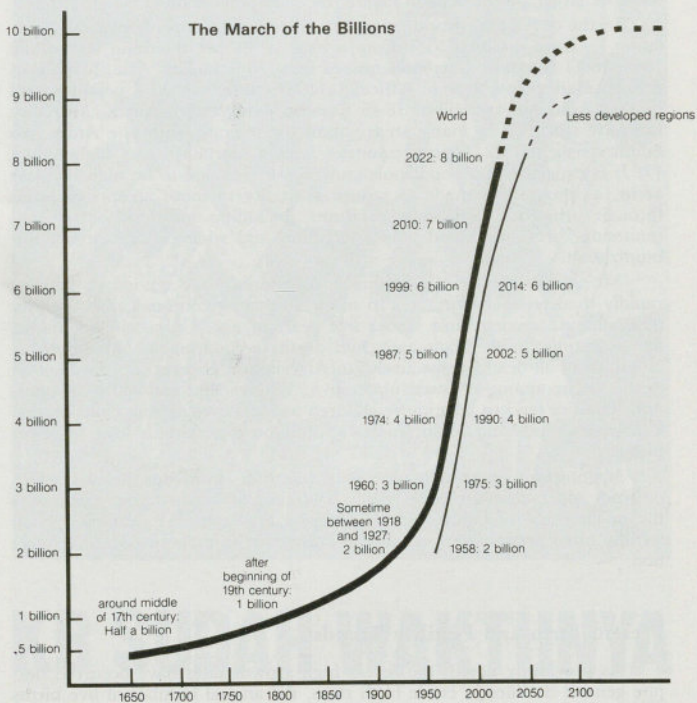
Unlike the opportunities available to Europe when it was growing rapidly, neither emigration on a significant scale nor exploitation of others' natural resources or land is presently possible for most developing countries. With some exceptions, population density is much higher, productive resources are more limited and human resources are less developed than they were in Europe and North America during their periods of high growth.

Globally, the rate of population increase peaked in the mid-1960s and has declined by nearly 20% since then, although the sheer numbers of women in or approaching childbearing years in developing countries, and the decline in mortality rates, will assure a rise in total population in the billions over several decades. Growth rates are now very low in most in-

dustrialized countries, averaging 0.5% annually. In 12 Western European countries, birth rates are as low or lower than mortality rates, and population growth has virtually ceased.

IUCN's commitment to sustainable development is directly relevant to concerns about human resources and the conditions in which the majority of the population of the developing world lives, and the rate at which that population is growing.

It is obvious that the developing world, which presently accounts for three-fourths of the world's people, and in 40 years will comprise five-sixths of humankind, will place rapidly growing demands on the environment. Less obvious are the highly disproportionate demands on natural resources and pressure on the biosphere's life support systems by the industrialized countries.



Note: Graph is partially based on figures from Table 1 which are derived from medium variant projections. Graph does not necessarily depict what will happen in the future. It only illustrates what could happen under certain assumptions of fertility and mortality. Curves have been manually extrapolated beyond 2025.

UNFPA *The State of world Population 1987*

To state the entire environmental question in terms of the developing world's demands on material resources would be to view the issue much too narrowly. Demands on natural resources must be brought into balance with the environment's capacity to meet them on a sustainable basis, whether they originate from the developing or the industrialized world.

Present Mortality Trends

The rapid rates of population growth in the developing world are due primarily to sharp declines in mortality. Birth rates have fallen, too, though not enough to offset the drop in deaths. In the industrialized world, on the other hand, mortality rates have risen 3% since 1950, due to the ever larger proportions of elderly in these populations.

In the developing world, mortality rates -- deaths per thousand population -- have declined 55% from a peak of 24 per thousand in the late 1950s to 11 by 1987. Decreases ranged from 78% in East Asia, to 47% in Latin America and 30% in Africa. In 1987, they reached 7 per thousand in East Asia, but are still at 18 in Eastern and Western Africa. Mortality rates are still high in many areas within the regions, with one Arab, two South Asian and 22 African countries having mortality rates higher than 17. It is expected that population growth will continue to be high in those areas, as progress is made to reduce mortality to more acceptable levels through primary health care measures, including improved water and sanitation, provision of adequate nutrition, and wider availability of immunization.

Mortality rates among infants and children have tended to fall less rapidly than general mortality. In most developing countries, the majority of deaths are among those under five years of age. Cuba and Sri Lanka are exceptions, with infant and child deaths accounting for one-fourth to one-third of all deaths respectively; in Algeria and Nigeria two-thirds of all deaths occur among children under five. Where child survival is in question, families tend to have more children as insurance against child deaths. Conversely, reducing infant mortality can be expected to lead to fewer births.

Malnutrition in combination with infection, from diarrhoeal diseases or from other communicable viral, bacterial, or vector-borne diseases is the major cause of infant and child deaths in developing countries. High fertility often accompanies conditions conducive to malnutrition and infection.

Present Birth and Fertility Trends

As previously noted, the recent high growth rates have occurred despite general declines in crude birth rates, the annual number of live births per thousand population. Between 1955 and 1985, birth rates in developing countries fell from 46.1 to 31.2 per thousand per year, a drop of one-third but remain very high. A large proportion of the decline is accounted for by China, where birth rates fell 59% from a peak of 45.5 per thousand

BEGINIKAH MASA DEPAN ANAKKU ?



KB SUDAH WAKTUNYA

IPPF

"Is this my child's future?" An Indonesian poster asks the question over a cartoon of children turned away from school by a teacher holding a "Class Full" sign. The legend below says "Now is the time for family planning".

in the mid-1950s to 18.5 in 1985. Over the entire African continent birth rates declined 3.9% from that peak. Five African countries experienced significantly increased rates. Birth rates in the industrialized world averaged 15.5 per thousand compared with 31.2 in the developing world as a whole for the period 1980-85. In 1987, estimates are respectively 15 and 32. However, in the 20 developing countries having the highest birth rates, they range between 48 and 55.

Birth rates are a function of the proportion of women bearing children to the total population, and the number of children they bear. The proportion of women of childbearing age (15-49) is roughly the same, between 22% and 26%, in both developing and industrialized countries. (Developing countries tend to have slightly smaller percentages of their population in this group because of the high proportion of very young in the population). However, in industrialized countries, childbearing is largely concentrated in a few years, say from 20-29, while in many developing countries it remains high from adolescence into the mid-thirties.

Instead of relating births to the total population, the Total Fertility Rate (TFR) refers to the total number of children the average woman would bear during her lifetime if she were to follow prevailing patterns. High values are 5 to 7; 1.5 to 3 low ones. In the developing countries, TFRs peaked at an average of 6.1 children in the early 1950s and had declined to 4 children by 1985. In 27 countries, representing two-thirds of the population of the developing world, the TFR has declined an average of 20% in the years between the periods 1970-75 and 1980-85. These declines ranged from 5% in Arab countries, where the average woman has 6.7 children, to 46% in East Asia (excluding China and Japan) where the average woman has 2.9 children.

Yet, in 59 developing countries the average woman bears 6 or more children during her lifetime, and in 13 countries she bears 7 or more. In all regions of Africa except the Southern, TFRs are over 6, with individual countries surpassing 8.

In summary, population growth in recent years has come about through rapidly falling mortality rates and high fertility rates as rising numbers of women of childbearing age produce many children, but in most cases, fewer children than their mothers.

II. Structural changes and future growth

What the rapid increase in population has done - and will do - is to make sustainable development more elusive. This conclusion was reached in the most dramatic way by China. Its two child per family policy was replaced by a one child strategy when a projected increase of 400 million people was related to the availability of water, land, energy and other basic resources.

China has achieved a reduction in the crude birth rate from 34 per thousand in the early 1970s to 20. The Chinese government concedes that in a country where large families are highly valued achieving this reduction has been a painful process. But it says that given the assessment of its available resources that has been no other option.

Mostafa K. Tolba, Executive Director, UNEP

High fertility rates leading to rapid growth bring about a youthful age structure in the population. This can be described graphically as a pyramid with ever larger numbers of people in the youngest age groups toward the base.

In some developing countries as much as 50% of the total population is under 15 years of age, compared to 16-23% under 15 in industrialized countries. Another way to understand the age structure differences between developing and industrialized countries is in terms of the median age, the point at which half the population is above and half below the median. In North America and Europe, the median age of the population is between 30 and 33 years old respectively; in Africa it is just over 17, in Latin America 19, and South Asia about 20.

This pyramidal age structure carries a built-in momentum for growth that persists long after fertility is reduced to replacement levels, as each year successively larger numbers of young women reach childbearing age.

Thus, even if Total Fertility Rates (TFR) in developing countries were to decline to replacement levels, i.e., slightly over two births per woman, the population would continue to grow by large increments for several decades.

If India had reached replacement level fertility rates in 1977, its 600 million people would still be increasing to number 1.02 billion by 2047. China, which has now almost achieved a two child per family fertility level, is still expected to grow from 1 billion to 1.2 billion by 2000, and if fertility did not fall below the two-child norm, would not stabilize until about 2075, when the population would be 1.6 billion. This projected growth, even with replacement fertility, has led the Chinese government to advocate one-child families.

The built-in momentum in the age structure explains why, although globally the *rate of population growth* has levelled off, the *annual increment* to the population has continued to increase every year. In 1950 the annual increment was 48 million, in 1980 it reached 77 million, and by 1987, 85 million people were added annually to the world. The annual increment is projected to peak at about 89 million by the turn of the century, and to decline to below the 1980 level by 2025.

In addition, the youthful age structures accompanying rapid population growth lead to what are termed high dependency ratios, with large proportions of the population supported by those in the economically productive ages, thus increasing the challenge of meeting the basic needs of the population. In the industrialized world, there are 4.1 people of working age to support each school age child; compared to 2.3 in the developing world. True, children and youth in developing countries are possibly not as 'dependent' as those in industrialized countries and, in fact, often help support their own families. Even so, the burden of producing to meet the needs of children falls heavily on the shoulders of productive adults in developing countries.

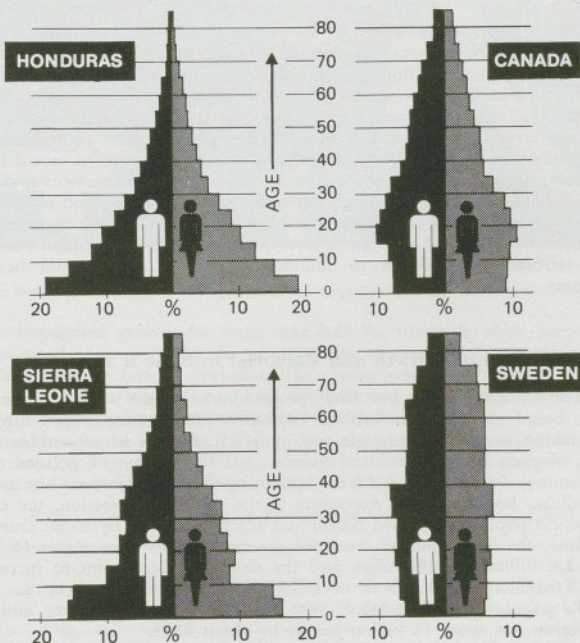
Youthful age structure has enormous implications for these countries in terms of requirements for schools, health services, future employment opportunities and the productive capacity to provide these services and other essentials.

Changes in Urban-Rural Population Ratios

World population is steadily becoming more urban. Urban areas are growing at almost double the rate of the general population. It is estimated that 43% of the world population now lives in cities; some two decades hence, more than half the population will be urban. This has already been the case in developed regions since the 1950s; the developing countries are expected to pass the mark in the first quarter of the next century. In 1970, the total urban population of developing countries was three million more than in the developed countries; by 1985 the urban population of the developing countries was 315 million more than in the developed countries. By the year 2000, the number of city-dwellers in developing countries will be almost double that of the developed, and by 2025 it will be almost four times as large. Within the next 50 years, the mainly rural character of developing countries will be gone forever, with important implications for their development policies in general and population policies in particular.

PYRAMIDS AND PILLARS

The age profiles of developed and developing countries are very different. The diagrams show what percentage of the population of each sex falls within each age band. But tendency all over the world is to move to a more even 'pillar' pattern.



UNFPA *The State of World Population 1987*

A trend within the spread of urbanization is the emergence of huge 'megacities' in the developing countries, while in the developed countries there is a move towards deconcentration. Several cities have at least quadrupled in size since 1950. By the year 2000, there will be six cities of 15 million or more, four of them in developing countries, and 50 cities with more than five million inhabitants, all but 12 in developing countries.

In many developing countries urban population growth will continue

to be fueled by increases in the absolute size of the rural population, swelling the flow of migrants to the cities.

The world has never seen such extremely rapid urban growth. It presents the cities, especially in the developing countries, with problems new to the human experience, as well as old problems -- urban infrastructure, food, housing, employment, health, education. The 1986 Barcelona Declaration on Population and the Urban Future concluded that this transformation offers both hope and heavy responsibilities. Urbanization is an integral part of the development process. Comprehensive population policies for balanced development and measures to improve the quality of life in urban areas must be essential components of any strategy dealing with the complex problems of rapid urban growth.

As population pressure mounts in the countryside, migrants turn to the cities in the hope of finding jobs, education and health services, as well as other essential infrastructure. To these families even the deplorable conditions in vast slums and shanty towns, are often preferable to the extreme poverty, landlessness, lack of water, sanitation, health and education services they endured in the country. But as they continue to crowd into the cities, urban conditions deteriorate even further. Basic services such as water supply, sanitation, and rubbish removal break down, and air pollution increases from cooking fires. The blight of environmental degradation spreads. Overcrowding and unemployment and under-employment lead to social stresses, as well as to individual physical and mental health problems.

Projected Future Growth and Potential to Slow it Down

The United Nations has made projections of future world population levels, based on trends in fertility, mortality, life expectancy and migration, taking into account trends and expected changes in socio-economic status of each country, cultural values, and the impact of policies and programmes directed towards family planning. Three projections are made -- medium, low and high. According to the medium projection, the current world population of five billion will reach 10 billion by 2050. During this time, the industrialized countries are expected to grow about 16.5% from 1.2 billion to 1.4 billion and the developing countries to increase from 3.6 billion to 8.4 billion, or 133%. This projection predicts that the world's population will stabilize, with birth and death rates low and in equilibrium, at about 11 billion people by about 2150.

Among developing regions, Africa, with an annual population growth rate of 3%, is now growing the most rapidly. Its present population of 600 million is projected to nearly triple to more than 1.6 billion by 2025, a mere 40 years hence. Latin America's population of 420 million is projected to multiply to 787 million over the same period. South Asia, currently the most populous area of the world with 1.1 billion people, is presently growing slightly more slowly than Latin America, but it will nearly double to 2.77 billion. In contrast, East Asia, dominated by China's steep declines in fertility, is growing at 1.3% annually and is projected to increase from about 1.3 billion to 1.7 billion by 2025, an increase of about one-third.



UNICEF/Sean Sprague

Older members of the extended family offer an essential support system to families in many nations.

Population growth for some time into the future is, thus, inevitable. The speed of growth and the ultimate size of the world's population depend on many factors, including the determination of national leaders, how soon action is taken, and how effective it is. But there is potential for a more rapid decline than has occurred to date.

Although the medium U.N. projections are the most widely used of the three, any comparison only underscores the need to take urgent action now, and emphasizes the consequences of delay.

Population Projections for Developing Countries: (U.N. 1985)

	TFR 1980-90	TFR 1985-90	1980-85 growth-rate	Population in 2000 (in 1,000)	Population in 2025 (in 1,000)
Medium	4.09	3.68	2.02%	4,851,462	6,780,379
High	4.27	3.95	2.17%	5,050,256	7,649,142
Low	3.87	3.44	1.84%	4,660,474	6,003,026

The medium projections assume that progress in lowering fertility and mortality, the pace of socio-economic development, and the dissemination of health, family planning and education services will follow trends which have already begun. The high projections could be realized if progress along these lines is slowed, interrupted, or halted, perhaps due to deteriorating social and economic conditions. The low projections show what

could happen if progress is made more quickly than is presently anticipated. These figures show the compounding effect of population growth. In the 15 years between 1985 and 2000, the difference between the high and medium variant is 198.8 million people. In 25 more years that difference expands to over 1 billion people, equivalent to the 1986 population of China or one-fifth of the 1985 *world* population.

Similarly, the difference between maintaining present trends and making an all-out effort to slow population growth (i.e. the difference between the medium and the low variations) is equally striking. Globally, the difference in the year 2000, just 14 years from now, would be 228 million people, about equivalent to the present population of the U.S.A. Because of the compounding nature of population growth, however, the difference between medium and low variations in 2025 would be just under 900 million people, more than the 1986 populations of India and Bangladesh.

In Africa, compared to the projection of present trends, taking more effective steps would reduce population growth by 278 million people in 40 years, i.e. the equivalent of the present population of Central and Eastern Africa. In South Asia, the difference between medium and low projections by 2025 is 267 million people, slightly more than the combined 1986 populations of Pakistan, Bangladesh, Nepal, Sri Lanka and Afghanistan. In Latin America, this difference amounts to 101 million people, slightly less than the entire 1985 population of Central America.

The low variant projections do not assume unreasonable declines in fertility rates or growth rates. The Total Fertility Rate was 4.09 children per woman in the 1980-85 period, leading to an average growth rate in the developing countries as a whole of 2.02%. The medium variant assumes an average TFR of 3.68 children per woman, which would bring about average growth rates of 1.92% over the next five years. The low variant assumes achieving an average TFR of 3.44 children per woman, leading to annual growth rates of 1.74% over the next five years.

The equivalent of approximately \$2 billion is currently spent annually in developing countries on family planning, most of it from these countries themselves. The world's largest social science research project, the World Fertility Survey, has shown that hundreds of millions of additional parents would practise family planning given the knowledge and wherewithal to do so. It is estimated that it would require, by the year 2000, an additional \$6 billion per year to fulfil this need. If it were done, it is indicated that the population in developing countries by the year 2050 would be approximately 6.5 billion, or about 4 billion less than if only the current rate of support were continued.

The World Fertility Survey has to take into account many subtle influences on demographic trends, including the impact of technological innovation on patterns of behaviour in different cultures and the breakdown of traditional mechanisms for balancing numbers and resources within different societies. However, for effective action to be taken to reduce fertility and growth rates, to slow rural to urban migration and to raise the overall quality of life prevailing in developing countries, it is imperative to relate any analysis and subsequent action to the conditions in which people live. For the majority of today's population, that means discussing degrees of poverty.

III. Population policies

No population programme should be considered in isolation from policies and plans on health, housing, education, employment, the environment and the use of available resources.

Robert G. Mugabe, Prime Minister of Zimbabwe

Poverty implies not only lack of adequate income but also lack of opportunities for education, inadequate nutrition, poor health, and low life expectancy. All these usually, but not inevitably, accompany low income.

Using the cost of providing a minimum daily diet of 2,150 calories in India as a base, and converting that cost to 1970 U.S. dollars, an "absolute poverty line" of \$200 annual per capita income was set by the World Bank to assess levels and extent of poverty in the developing world. It has been found that in many countries, households below that line spend up to 80% of their income on food, mainly non-protein staples. Educational levels of adults below this line tend to be minimal and illiteracy is very high. Infant mortality rates may be double those of the non-poor and the majority of surviving children never attend primary school.

In general, the countries having lowest average per capita income have the highest proportions -- about 50% -- living in absolute poverty, while in those with somewhat higher average per capita incomes, the proportion in absolute poverty drops to one-third. However, where income is very unequally distributed much larger proportions of people may live in absolute poverty than in countries with similar average GNP per capita. Elsewhere, income may be very low, but wide distribution of essential services, such as education, health, water, sanitation and transportation alleviates the burden of poverty.

Various U.N. surveys indicate that the total number of the indigent in developing countries is well over one billion and continues to rise. The percentage figures vary regionally, from about 28% of the population in

Latin America in 1982 to 69% in Africa. On average, about half the inhabitants of the developing world live in absolute poverty.

Economic growth slowed in the industrialized world in the 1970s and 1980s, but given the prevailing low population growth rates, per capita incomes rose substantially. However, the income gap between rich and poor nations appears to be increasing, and is expected to continue. In the case of food consumption, it was estimated in 1975 that the average person in the industrialized world consumed over 200% of the minimum of grain needed for health (much of it in the form of grain-fed animal protein), while the average developing-world citizen consumed only 73% of the minimum health requirement. By 2000, average consumption in the industrialized world is expected to grow by over one-third to 276% of minimum health requirement, while per capita consumption in the developing world is expected to increase at one-third of that rate, still falling short of minimum levels by 18%. And these averages conceal discrepancies: food consumption may increase as much as 50% in Japan and 40% in the USSR between 1970 and 2000, but the average African may consume less at the turn of the century than in 1970.

Given the rate of population increase prevailing in most developing countries, even if economic growth reduces the proportion of those unable to meet basic needs, it is likely that the number of very poor will continue to rise.

Reducing Fertility through Raising Income Levels

Income levels have a direct bearing on individual decisions on family size, and hence on strategy to limit population growth. When income levels are so low that parental time has little value and extra hands can bring a bit more money or extra food to the family, there is incentive for having numerous children. Children provide the only old age security for parents in many societies. Beyond their material contributions, children are a source of pleasure and joy, provide hope for the future and a thread of immortality wherever they are born.

Very poor families apparently regard the benefits of having more children as more important than the costs. But as income rises, parental time is more valuable; an additional child then often means foregoing income from the wife. Education of children may be seen as beneficial but also as increasing the potential cost of additional children. Higher incomes makes acquiring material goods or savings possible, and the cost of additional children may be weighed against these benefits.

These factors, among others, underlie the finding that the poorest 20% of families have from 1.5 to 4 times more children than the 20% of families at the highest income levels. Paradoxically, people unable to meet their basic needs, do not see extra children as a major problem. And today over half of the population of the developing world are too poor to meet their basic needs.

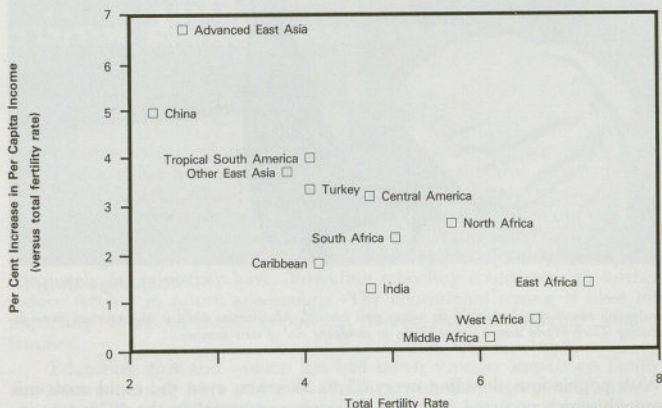
When social conditions are such that girls are not expected to be as economically productive as boys, families must have a certain number of

sons to assure material security. This frequently results in doubling family size. And where many children die in infancy, more are conceived to ensure that the desired number survive. There is also a certain percentage of births which are neither desired nor needed, but are not avoided.

If there is to be a significant reduction in birth rates, couples must be motivated to want fewer children, must recognize that child mortality is down and they need fewer births to ensure the number of children they want, and must be able to avoid births that are unwanted or unneeded. Some important factors motivating couples to want and have fewer children are more equitable distribution of income and basic health and essential services, reduced infant mortality, and education, especially for girls and women.

Equity of income distribution implies that more of the products of economic growth should be targeted towards meeting the basic needs of the poorest levels of society and reducing absolute poverty, rather than towards higher economic levels and expecting the effects to "trickle down". It also implies that sufficient national income should go to meet the needs of the people, rather than be spent on arms or drained away by debt servicing.

Growing populations need economies growing at least in proportion, simply to maintain the status quo. When a high percentage of the population is malnourished, poorly sheltered, has no access to safe water and sanitation, and limited access to health and educational services, and is jobless or under-employed, maintaining the status quo is not good enough.



UNFPA Annual Report 1986

A high percentage change in annual per capita income related to smaller families in China and Advanced East Asia gives way to families of six or more children in Africa, where incomes rise only slightly each year, UNFPA reports.



UNICEF/Maggie Murray-Lee

Increasing education opportunities for young girls like this Mauritanian child is an important factor favouring Third World women's possibilities to decide the size of their families.

With populations doubling every 25 to 30 years, even the rapid economic growth which occurred in many developing countries in the 1970s was insufficient to make progress in development to meet basic needs.

Population growth also increases the number of potentially productive people in the economy. An important corollary to raising income is providing employment at all economic levels. Not only is it necessary to create enough jobs and to provide training for growing numbers but also

to create jobs that pay enough to cover basic needs. Beyond this, food, sources of energy, materials for shelter and basic infrastructure must also be available. In general, these things are not happening fast enough in developing countries and the ranks of the jobless poor are growing.

Development efforts to reduce poverty and family planning activities to lower fertility are mutually reinforcing in reducing population growth. Economic growth is necessary to alleviate the poverty associated with high fertility and to provide the educational, health, and other essential infrastructure necessary to meet basic needs, raise quality of life, and thus encourage lower fertility. Family planning is needed to balance the size of the workforce with available economic investment. For each one per cent of population growth, at least three per cent of GNP is needed as "demographic investment" just to expand the stock of machines and buildings to be able to accommodate the new workers, without improving productive capacity per worker. Effective population policies are needed to ensure that investment which could lead to higher productivity, improved quality of life and reduced fertility, is not offset by a too rapid growth of the workforce.

The potential labor force of developing countries grew 60% in the 25 years between 1950 and 1975, and is expected to grow by 69% or an additional 782 million workers, between 1975 and the end of the century. These are the people who could provide the labour for the economic growth necessary to meet the needs of the growing populations in the developing world, but to do so they need productive work and paying jobs.

Without purchasing power they will not be able to afford the direct, indirect and opportunity costs of their children's education, and particularly that of their daughters, although education of girls is one of the most potent forces for slowing down population growth.

Providing Education

When schooling is available for children, and especially when it is perceived to make a difference in their futures, parents throughout the developing world take advantage of it to the extent they can, despite the fact that schooling raises the cost of each child. This is counted in lost productivity in family work and in meeting school expenses. When children are seen to cost more, parents tend to have fewer in order to provide more adequately for ones they have. Providing schooling could serve to further reduce fertility in future generations. The educational setting is ideal for imparting ideas on basic population issues and encouraging smaller families.

Educating girls and women has had much stronger impact on family size than educating boys and men. Women who have completed primary school have fewer children than those with no schooling, and families become smaller as the education level of mothers rises. These differences are found throughout the developing world, and are independent of income level, occupation, religion, and other factors. Differences in fertility according to women's education are largest in countries where fertility has already declined substantially. In Latin America, where these are most

pronounced, the difference between women who have had higher levels of schooling and those with little or none may amount to four or five children. In Africa, the Caribbean and Asia, the difference is smaller, in the order of one or two children.

In a society where education and economically productive work are accessible to girls, their value to the family in terms of extra income and old age security rises. This may reduce the parents' perceived need for sons. Education delays marriage and increases the ability to envision a fu-



UNICEF/Peter Tacon

Worldwide, millions of children are obliged to live by their wits in city streets.



UNICEF/Peter Tacon

Child labour, for poor families, is an essential element in the daily struggle for food.

ture and to plan for it. Schooling helps to combat traditional fatalistic attitudes about childbearing, the subservient role of women and the inevitability of infant and child mortality. Women often desire fewer children than men. Education enables them to stand up to husbands, relatives and community elders, and to defy tradition, if necessary, for the good of their families and for their own benefit.

Providing education for women and girls should be considered as only one element in raising women's status in society. Others include guar-

anteceding property rights, marriage and divorce rights, allowing and encouraging women to make decisions about their own welfare and that of their families, encouraging and facilitating employment of women in and outside the home and involving them in planning and decision-making at all levels. All of these factors combine to give women more of a voice in fertility-related decisions.

In the developing world, girls have traditionally been more disadvantaged than boys by the shortage of educational opportunities. Currently in the developing world, the ratio girls to boys enrolled in primary school varies from 73% in Asia to 78% in Africa, and 95% in Latin America. In Africa and Asia, these figures reflect substantial improvements in the last two decades. In secondary school, the ratios have also improved recently, but remain low: 61% in Africa, 64% in Asia, and 89% in Latin America. However, in spite of the gains, about 50% of women in the developing world are illiterate, compared to 32% of men.

Providing schooling plays an important role in the entire development process, as well as having important fertility implications. Yet past and present population rise and slower economic growth will make it very difficult to meet the educational needs of this and future generations of school children.

Reducing Infant Mortality

Although lowering infant mortality has the immediate effect of swelling the population, ultimately it will lead to slower rates of growth. The relationship between high infant mortality and fertility is a complex and bi-directional one. Infant death shortens the interval between births, leading quickly to impaired maternal health, which in turn leads to low birth weight babies at increased risk of early death or impairment, and again to the likelihood of a new pregnancy. In other words, high infant mortality leads to more frequent childbearing, which leads to more infant mortality or to increased numbers of children handicapped by preventable birth injuries.

When birth intervals are short, perhaps because of discontinuing such traditional practices as post partum abstinence or prolonged breast feeding, children are prematurely weaned and vulnerable to serious malnutrition and death. In the developing world, children born within two years of each other are 50% more likely to die as infants than those born more than two years apart. Infant mortality is also substantially higher when mothers are under the age of 20 or over 40. In general, infant mortality is also higher when families have more than four children. Unwanted fertility, with resultant neglect of siblings, also affects child survival.

Confining childbearing to the ages between 20 and 34, avoiding more than three or four children per family, and spacing births by at least two years would substantially reduce infant mortality.

Beyond the biological factors underlying the infant mortality-fertility relationship, studies show that couples who lose a baby will expect to have, and will have, more children than other couples. Furthermore, the pre-

valence of high infant mortality in a community encourages all couples to have more babies than they really want, in order to ensure the survival of the number they feel they need.

The experience of a number of countries shows that declines in infant mortality lead to lowered fertility and lowered fertility contributes to reducing infant mortality even further. When a country's infant mortality rate (IMR) passes 41 per thousand, the minimum average family size is 3.5 children. And, in the developing world, 72 countries count IMRs in excess of 50 deaths per thousand live births, in 50 of these, IMRs exceed 100 deaths per thousand. Given the reciprocal relationships between infant mortality and fertility, it has been estimated that if present infant and child mortality could be halved within the next decade, the projected world population in the year 2100 would have ceased to grow earlier and at a level lower by 2.5 billion people than is currently forecast.

The factors which have been demonstrated to be most effective in lowering infant mortality rates are:

- maternal education;
- adequate and safe water and sanitation;
- adequate nutrition;
- adequate and prolonged breast feeding;
- access to basic health services, including infant and maternal immunizations;
- family planning information and services.

In summary, a better quality of life, including (but not always), raised incomes, improved status of women, access to education for girls and women, and lower infant mortality all appear to be necessary precursors to lowered fertility because they bring about conditions in which having fewer children is seen to be in the best interests of families. Yet, even without more progress in development as an incentive for smaller families, it is estimated that at least 65 million couples in the developing world want no more children, but are not currently using contraception. This large unmet demand for family planning services pleads eloquently for increased government involvement in providing family planning services.

IV. Family planning and population programmes

Elimination of malnutrition, eradication of illiteracy, provision of access to health care, and employment of women in non-traditional sectors not only have been found to reduce morbidity and mortality rates but also fertility rates. Just as an increase in population pressure can have adverse effects on resources and the environment, an improvement in the resource base and in the quality of the 'living environment' can also produce equally favourable impacts on population growth.

Rafael M. Salas, Executive Director, UNFPA (1969-1987)

Access to information and to services to enable couples and individuals to exercise personal control over their fertility was established as a basic human right in the World Population Plan of Action adopted at the 1974 World Population Conference in Bucharest. Access to contraception and family planning services are essential for translating the motivation for fewer children into effective action. Moreover, family planning programmes play an important role in increasing awareness that people do have a choice and can exert some control over this aspect of their lives.

It has been estimated that, in the absence of breast feeding, women are capable of bearing an average of 15 children. Even the highest total fertility rates in parts of the developing world are considerably below that, suggesting that some factors may already be at work to limit fertility (Population Report, 1985). Traditionally, practices such as prolonged breast feeding, and post partum abstinence, sometimes throughout lactation, acted as natural birth spacing mechanisms.

Because of changes in family structures, attitudes and values, traditional birth spacing and methods regulating population growth are on the wane. In their wake have come a range of modern methods and improved techniques, which, while not yet perfect, offer effective and acceptable contraceptive choices to men and women through their reproductive years.

In order to use contraceptive methods, people must be aware that they exist, must know where services and supplies are available, and must be able to obtain them and be taught how to use them. Moreover, for all methods except sterilization and to some extent Intra-uterine devices (IUDs), people must also be motivated to use contraceptives on a continuous basis.

A great deal of information about factors influencing contraceptive use was collected by the World Fertility Survey (WFS) in 41 developing countries between 1972 and 1984. The Contraceptive Prevalence Survey programme (CPS) also conducted surveys in 33 countries from the mid-1970s to 1985. These, and other contraceptive prevalence/family planning/maternal and child health investigations provide a fair picture of the global situation.

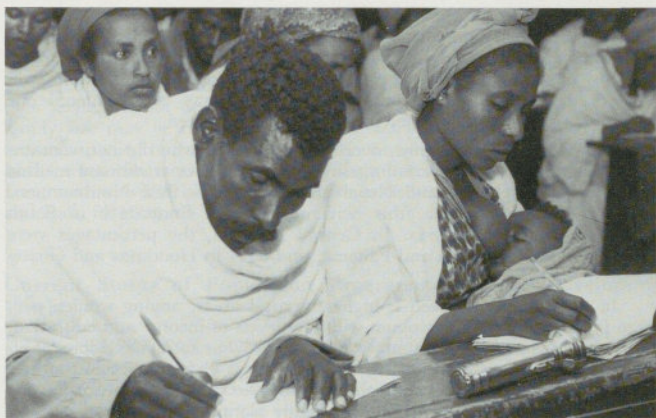
The surveys show that the great majority of women in the countries examined are aware of at least one family planning method, in most cases a modern one. Knowledge about the existence of contraceptives was most prevalent in Latin America and the Caribbean, with 90% of the women in the majority of the surveyed countries aware of at least one family planning method. In Asia the percentage of women with such knowledge varied from 52% in Nepal to 100% in Fiji, South Korea, Sri Lanka, and Thailand. In the 11 African countries surveyed, an average of 60% of the women were aware of the existence of family planning methods, varying from 32% in Nigeria to 94% in Kenya.

The high percentage of awareness about the existence of modern contraceptive methods in Kenya, which has the highest TFR in the world (8.12), is somewhat surprising. Only 7% of the Kenyan women surveyed were using any method at the time of the survey; only 13% had ever used a modern method, while 24% had used traditional methods. Among the women surveyed, 95% had more than four children, and 70% stated they wanted more children at some time. These figures appear to demonstrate the importance of the motivation factor in contraceptive use.

In most of the countries participating in the survey, the average woman wanted to limit the size of her family to four children. Even the desire in one Arab and two African countries for six or more children is an indication of wanting to set a limit to family size. Furthermore, except in two West African countries and one Arab country, most of the women surveyed wanted to delay the next pregnancy for a year or more, or to avoid any future childbearing.

Interesting differences emerge from region to region in terms of desire for birth spacing vs. desire to terminate childbearing. The majority of women surveyed in Africa wanted to space births rather than terminate childbearing altogether, and the majority of those using contraceptives were doing so for birth spacing. In Asia, Latin America and the Caribbean, women desiring an end to childbearing outnumbered those wishing simply to delay future pregnancies, and the majority of contraceptive users in those regions were using them to avoid having any more children. Women who were better educated were most likely to be using contraception for birth spacing.

Even when women want to limit childbearing and know an effective method to use, lack of information about where and how contraceptives



UNICEF/Louise Gubb

Parents who improve their condition want a better life for their children and tend to have fewer. According to WHO, family planning services are currently unavailable to some 300 million couples who desire to plan their families.

can be obtained may limit their possibilities to practise family planning. This demonstrates the importance of effective counselling and communication.

Knowing where to obtain contraceptives is no guarantee of use, however: surveys showed that most non-users of contraceptives knew of a source. Availability, in terms of distance or travel time, is also an important factor.

All methods of contraception are everywhere less readily available to rural than to urban women. However, this appears to be only one of several factors underlying lower rates of contraceptive usage and higher fertility among rural women. Rural women tend to marry younger and economic factors in rural settings may serve to encourage larger families. The relative disadvantages of rural girls and women in terms of access to education, and the differences in employment opportunities for rural men and women compared to those in urban settings appear to be very important also.

Contraceptive prevalence can be defined in terms of low (20% of women using any method), medium (20%-40%), and high (over 40%). Of 11 countries surveyed in Africa, eight had low prevalence rates, and three had medium rates. Of 18 Latin American and Caribbean countries, one had low contraceptive prevalence, eight had medium, and nine had high prevalence rates. Of five Middle Eastern and North African countries, one had a low prevalence rate, and four had medium rates. In Asia and the Pacific, the 10 countries were nearly equally divided among those with low, medium and high prevalence.

At least 75% of women in most of the countries surveyed did not want another child immediately. The majority knew of at least one modern contraceptive method, and most of them knew where they could obtain one. Yet of the 44 countries mentioned above, in only 14 were more than 40% of the women using contraceptives. This may be considered one measure of the unmet need for family planning services.

In most African countries, over 90% of women who did not want another child immediately were not using any modern or traditional method to avoid it. Bangladesh and Nepal also approach a 90% "unmet need level". Elsewhere in Asia, this percentage varied from 34% in South Korea to 60% in Malaysia. In Central America, the percentages were about 30% in Costa Rica and Panama, and 60% in Honduras and Guatemala.

In general, unmet need is higher in rural areas, among women with large families and among women with low levels of income and education. The demand for family planning is likely to grow as social development efforts reach more people in need, and as today's children become tomorrow's parents. It has been estimated that by the turn of the century, over one billion couples will be in need of family planning services.

The Wider Context of Family Planning Programmes

Family planning programmes are not solely a way to reduce births but are also a means for achieving human development objectives. The opportunity for women to space births and eventually to limit the total number of children they bear not only reduces the birth rate, it also improves women's health status, their ability to care for older children, and improves the health and well-being of their newborn as well. When one considers that by the time she reaches 30 years of age, the average woman in the developing world has spent 80% of her adult life pregnant or lactating, the health and productivity benefits of being able to space and limit childbearing are easy to appreciate.

Family planning programmes have gone beyond simply providing contraceptive information and services and frequently include efforts to enhance literacy and improve health. Population programmes have also begun to incorporate measures to improve the status of women and provide them opportunities for paid employment. Education in responsible parenthood for young men as well as young women is often included.

The dissemination of family planning information and services is more and more being integrated into the work of community development workers, co-operatives, health workers and teachers, and is frequently implemented as an integral aspect of health and social service programmes.

The integration of family planning and social development efforts promotes the effectiveness of both. Encouraging breast feeding, expanding coverage of preventive immunizations, adequate and safe water and sanitation, improved nutrition, and educational services for both men and women impact directly on infant mortality and indirectly on fertility. Fur-

thermore, they may affect values regarding family size independent of infant mortality.

When simultaneous efforts are made to draw attention to and interpret changes in infant mortality and to encourage women to articulate their feelings about desired family size, the effects of such programmes on family size may be maximized. It is, of course, essential that such efforts be accompanied by family planning services which offer the means to limit births when the motivation exists. Village based family planning services integrated with nutrition and child care have been very successful in Java and Bali, for example.

Current Status of Population Programmes in the Developing World

As of 1986, 90% of the world's population lived in 158 countries which at least subscribed in principle to the right of couples to have family planning information and assistance. Although many of these countries may not have taken a position with regard to their own population size, 65 countries have expressed the desire to lower their rate of population growth, including China, India, Bangladesh, Indonesia, Kenya, Ethiopia, Ghana, Senegal, and Mexico.

In the decade between the two U.N. population conferences at Bucharest in 1974 and Mexico City in 1984, there was a significant change in the perceptions of developing countries about their population problems.

In 1974, many planners argued that "development was the best contraceptive" and that with development assistance would come fertility declines. At the Conference ten years later, the causes of great concern requiring immediate action were identified as population growth, continuing high mortality and morbidity in certain countries, and migration. The wide disparity between developing and developed countries in family well-being and the quality of life was cited. The role of population and social pressures in perpetuating and widening the gap was recognized. Unwanted high fertility was seen as adversely affecting the health and welfare of individuals and families, as well as impeding social and economic progress.

The first of many recommendations made by the 1974 International Conference on Population stated: "Considering that social and economic development is a central factor in the solution of population and inter-related problems and that population factors... have a major impact on the attainment of development objectives, national development policies, plans and programmes, as well as international development strategies, should be formulated on the basis of an integrated approach that takes into account the interrelationship between population, resources, environment and development. In this context, national and international efforts should give priority to action programmes integrating population and development".

The growing commitment of governments is exemplified by the

achievements of the United Nations Fund for Population Activities (UNFPA). Its success in overcoming the strong resistance to population assistance that existed when it began its work in 1967 is largely due to its respecting national sovereignty. It has made a point of involving the client nations as partners in the design and implementation of programmes which recognize family planning as an integral part of socio-economic development. Over the period between 1969-1986 UNFPA has received over \$1.65 billion, mostly from 13 countries, for financing 4,373 population projects in 150 countries and territories. Its current annual budget is approximately \$140 million and covers programmes in 134 developing countries.

Presently, it is estimated that \$2 billion is spent on family planning annually in the developing countries. This is less than \$1 per capita, but because of relatively low rates of use, it amounts to about \$21.00 per user per year. In general, external assistance accounts for between 30% and 50% of total spending on population issues. Population activities account for about one per cent of all external development assistance funds.

In order for developing-world population to stay within the medium level projection of \$8.4 billion by 2050, the current level of spending on population assistance would need to triple by the year 2000. To achieve a more rapid decline, resulting in a developing world population of 6.5 billion in 2050, current spending on population assistance would have to quadruple to \$7.6 billion (U.S. 1980 dollars), or \$1.66 per capita, by 2000.



IPPF

A Chinese family planning poster shows a nurse holding the "Family Planning Propaganda Handbook" and the bottom legend proclaims "Family Planning for the Revolution". Between the mid-1950s and the early 1980s, Chinese birth rates declined 59 per cent.

Components of Effective Government Population Programmes

IUCN has long encouraged governments to identify optimum human resources and population size in relation to the natural resource base. However, with very few exceptions (e.g. China, Malaysia, Australia) neither developing nor industrialized countries have been able to define the optimal size of their populations. Yet the inability to specify just what their optimal population should be has not prevented many developing countries from formulating effective population policies.

Several components have been found to be essential. Family planning and contraceptive services should be widely available and accessible in terms of cost and location. Ideally, the issue of fertility levels should be included in general planning policy. Provisions should be made for adequate administrative structures, and the use of mass media and of field workers to disseminate family planning information. Public officials should be encouraged to speak out in favour of family planning. Institutionalizing population efforts is important too. For example, creating a population planning unit in parallel to other planning units, has been stressed by the UN.

Classic anti-natalist mechanisms of providing positive incentives for lowered fertility and/or economic sanctions for high fertility have been used by some countries. Sri Lanka and India have used positive incentives in the form of payment for sterilization. Singapore has in the past used negative sanctions in the form of taxes and housing policies to discourage large families although at present it is reconsidering this policy in the light of population projections. China combines taxes and housing penalties for families with more than two children with bonuses and housing preferences for one-child families. Its ideology proclaims later marriages and small families to be patriotic.

These classic mechanisms may not be appropriate in many developing countries at present. Human development factors, so important in determining motivation for family size, should be considered. Singapore and Sri Lanka, for example, had already achieved infant mortality rates as good or better than those prevailing in 69 or more developing countries in 1980. The level of human development achieved by those countries allowed them to implement positive and negative incentives without seriously compromising the right of couples to have the number of children they need and desire. Freedom of choice about family size should be the goal in all countries.

While positive reinforcements for low fertility may be appropriate at different levels of development, negative sanctions to control high fertility appear to be inappropriate where development has not yet progressed to the point where smaller family size is recognized by a particular population to be in its best interest. In many of the poorest developing countries, such policies are likely to be premature at best, not cost effective, and possibly counter-productive. In countries beset by racial, tribal or religious tensions, national policies must be sensitive to cultural differences and avoid the appearance of discrimination.

Population policies should also take into consideration the spatial distribution of the population. A policy which has reduction of urban growth

as one of its objectives would not only provide family planning services in the cities, but would focus attention on rural areas, building infrastructures, settling fair prices for agricultural commodities, providing schooling, sanitation, health facilities, and safe water. Likewise, policies which are aimed at redressing the inequities suffered by half of the developing world's population -- the women -- will serve development and are likely to pay enormous dividends in terms of reduced fertility.

In summary, government population policies should not be limited to concern about the present or optimal size of population, or even its rate of growth. They should also include attention to such aspects as the present and desired age structure, spatial distribution, levels of nutrition and education, employment status, access to adequate and safe water and sanitation facilities, and access to health services, including family planning. These efforts may not bear immediate results in reducing fertility or population growth, but must be sustained.

V. Interactions between population conservation and development

Sound ecology is good economics.

Barber B. Conable, President of the World Bank.

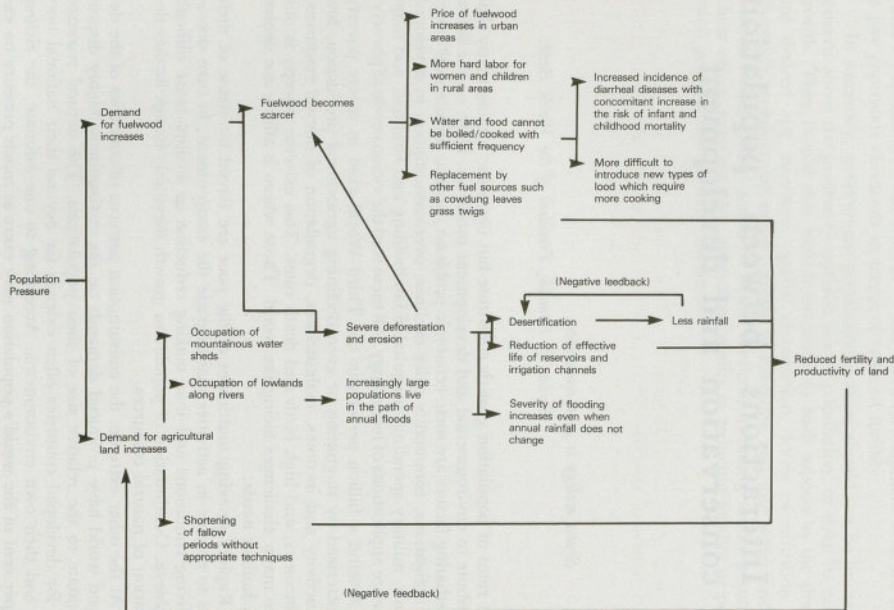
High rates of population growth constitute but one issue among many that contribute to environmental and development problems. High on the list of exacerbating factors are socio-economic problems, such as unbalanced trade, debt obligations, commodity price declines, over-consumption in developed nations, military spending, inequitable landholding and land use, and inappropriate applications of technology. All these feed the vicious cycle of poverty.

Around a billion persons in the Third World exist in severe poverty characterized by stagnating or even declining agricultural production, low productivity and incomes, malnutrition, degradation of natural resources, low incomes, and high birth and death rates. This extreme poverty is one of the major challenges facing the world. Those whom it affects are denied basic human needs.

Rapidly growing multitudes of the poor are forced by virtue of their needs to engage in activities that degrade the environment, in turn debasing living conditions and thus making reduction in fertility more difficult to achieve. Continuation of population growth inevitably brings further degradation of natural resources.

At the other extreme, the consumption patterns of countries of the developed world have produced demands on the environment highly disproportionate to the relative size of their populations. The natural resource base for developed countries often extends far beyond their national borders and their own environments. According to one estimate, the richest five per cent of the world's population may exert as much pressure on environmental resources as the poorest 25 per cent. If everyone in the world consumed at the rate of Europeans, the natural resource base would collapse and biosphere pollution would be intolerable.

Relationships between Population Pressure and Demand for Fuelwood and Agricultural Land



Source Mertens 1986

It has been suggested that under certain conditions population growth may stimulate technological innovations or improvements. However, such benefits may be outweighed by disadvantages when human institutions, market mechanisms and technology do not adapt quickly to changing conditions. Also, environmental circumstances may not favour innovations intended to respond to population growth, as for example, intensive agriculture in depleted soils which cannot support it.

Land

The incongruity of record-high world food production while millions suffer from malnutrition is one of the most urgent problems facing the world today. Over the period 1970 to 2000, world food production is expected to increase more rapidly than population, but there is still little hope for the hungry. The World Bank has estimated that the number of malnourished people could increase from 400-600 million in the mid-1970s to 1.3 billion in the year 2000. Most of these people will be in Third World countries where population growth will outstrip rising food production. According to a study by FAO and IIASA, which was supported by UNFPA, by the year 2000, 65 countries will not be able to meet their own food needs with present systems of agriculture. Fifteen of these countries are in Asia, and 30 are in Africa, which heads the list of current problem areas.

As the *World Conservation Strategy* emphasizes, one of the most serious environmental developments is a loss of resources essential for agriculture. The quality and quantity of arable land is being reduced by soil erosion, soil compaction, desertification, soil salinization, and the loss of crop land to urbanization and associated developments. Significant crop losses are caused by increased air and water pollution, and more recently by frequent and more severe water shortages.

The destruction of essential ecological processes through the loss of forests and woodlands can influence the productivity of croplands and the integrity of other life-support systems. Deforestation can result in a general lowering of the water table, reduced rainfall, increased siltation of rivers and dams and devastating floods down-stream.

Because of ecological and economic constraints, only moderate additions to global arable land may be feasible. Thus agricultural activity in food-deficit areas will have to increase to meet the demands of growing populations.

As population pressures continue, more and more people are being forced onto land that is becoming less and less productive, including important watersheds which become degraded and in turn reduce the productivity of agricultural land in their catchment areas. As people follow their desperate quest for a livelihood onto marginal lands, the global losses to desertification (at present estimated to be approximately 6 million hectares per year) will accelerate. In some areas of Ethiopia, people trying to eke out a living on eroded land are eroding it even more, cutting down the remaining trees for fuel, and denuding the countryside. Approximately half of India is already experiencing some form of soil degradation. The

pressures of population are so severe in parts of the country that it is difficult to maintain a balance between food production and land degradation. In Java, soil erosion is an ecological emergency, a result of overpopulation which has led to deforestation and misuse of hillside areas by land-hungry farmers. The United Nations Environment Programme (UNEP) forecasts that over one-third of the world's arable land may be lost or destroyed by the turn of the century.

Urbanization is swallowing up prime agricultural land in developing countries. Towns and cities serving as centres for farming, food distribution and services to agriculture spread over the best fields and river basins where rich, deep soils and ample water are available.

Loss of arable land to erosion and urbanization is not confined to the developing world; the United States is losing productive land at an alarming rate, and Japan has introduced legislation which prohibits the transfer of ownership of agricultural land without special permission from the Government.

Biological Diversity and Genetic Resources

The upsurge in consumption of natural resources and the inevitable destruction of natural habitats that accompanies rapid population growth are likely to speed the rate of extinction of threatened species of plants and animals. The loss of ecosystem support for human needs following the extinction of species can range from trivial to catastrophic, depending on the number of disappearing species and individuals and their role in maintaining balance in the ecosystem -- factors we know too little about.

The disruption of ecosystems through human activity narrows the prospects of preserving genetic diversity, a prime concern of the *World Conservation Strategy*. Wild plant and animal varieties used in breeding to strengthen domestic species have already done much to enhance human survival and sustainable development. Species from the wild are important as both traditional and commercial resources for medicines and industrial use. We have no idea at present to what extent unstudied and vanishing species of plants and animals might be of use to man.

Freshwater Resources

The largest population increases are projected for regions in the developing world with tropical and subtropical climates, where a dominating problem is soil deterioration and catastrophic droughts and floods. The demand for water is growing several times faster than population. By the year 2000, half of all the world's annually renewed water, precipitated on land, will be made use of by man. Much of this increased demand will be in the developing countries, where water for human and livestock consumption and irrigation is already in short supply in many areas, with local shortages made worse by the deforestation of watersheds and desertification.

Dirty and inadequate water supplies, the only option available to



IPPF/Mark Edwards

The bulk of humanity depends on wood for fuel, consuming it faster than it can be replaced and dangerously degrading the environment in the process. The difficulty of finding firewood greatly adds to the burdens of women.

millions in developing countries, lead to debilitating diseases and, when coupled with malnutrition, further affect human health and productivity. At least 10 million people die each year from diseases caused or aggravated by unclean water.

Chemical contamination of water supplies is a problem that predominantly affects the developed countries, but with increasing industrialization and urbanization, developing countries are becoming more vulnerable, particularly where environmental controls are tenuous or lacking.

Air

Air pollution has long been recognized as a primary problem in the developed world, where regulations increasingly limit emissions of dangerous substances. Today, however, some of the most serious examples are found in developing countries, particularly in megacities such as Mexico City and Lagos, where the simple act of breathing may occasionally be classified as a health hazard. The emission of pollutants into the atmosphere grows as the population and the economy expand.

Acid rain caused by the burning of fossil fuels is a major issue in the industrialized world. However, developing countries may also experience the effects of acid rain as the pace of industrialization increases. Certain ecosystems in these countries are especially sensitive to acid rain, such as the rice paddy fields where the blue-green algae are important sources of nitrogen. The blue-green algae have been shown to be intolerant to highly acidic environments.

The burning of wood, oil and coal releases carbon dioxide (CO_2) into the atmosphere where the CO_2 level is clearly increasing. Certain trace gases, such as chlorofluorocarbons, methane and nitrous oxide, are also increasing, due mainly to man's activities. CO_2 and these trace gases are responsible for the so-called "greenhouse" effect tending to warm the earth's surface temperature. A doubling of CO_2 levels in the atmosphere, together with the expected increases in levels of the trace gases, may result in an eventual warming of the Earth's climate by from three to five degrees centigrade, although estimates are in dispute. The doubling of CO_2 is not expected to be reached until the latter part of the next century, and it may be decades later before the full effect is felt, but potential consequences of such climate change are cataclysmic, they include perturbations in rainfall patterns, shifts in climate belts and hence of agriculture and a rise in the sea level. Unless human activities change radically and soon, the climate of a hundred years from now will probably be very different from that of today, imposing unprecedented changes in society.

Energy Resources

One of the most important causes of natural resource destruction and environmental degradation in the past 200 years is the increased use of fossil fuel to drive the industrialization of the developed world, vastly increase

agricultural production and spur the process of urbanization. Unfortunately, the finite supply and relatively high hard-currency costs of fossil fuels make it unlikely that the poorer Third World countries can rely on them to help raise food production substantially. They are beyond the reach of most poor farmers in those countries. High-energy consumption in the North seems to be widening the economic gap between the developed and developing countries.

Alternative sources of energy may have great potential for the future. Some forms, such as solar energy and wind power for example, have few if any environmental drawbacks, and substantial progress is being made in improving their efficiency and cost-effectiveness. Others, including certain energy crop plantations, may have a negative impact on the environment. The use of nuclear energy runs the risk of radioactive contamination of the environment, particularly since the safe disposal of radioactive waste remains an unresolved long-term problem.

expanding production and new job creation. The government has been successful in this regard, but it has also been successful in creating a new environment for business. The government has been successful in creating a new environment for business, but it has also been successful in creating a new environment for business.

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Energy Research

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VI. Strategy considerations as recommendations

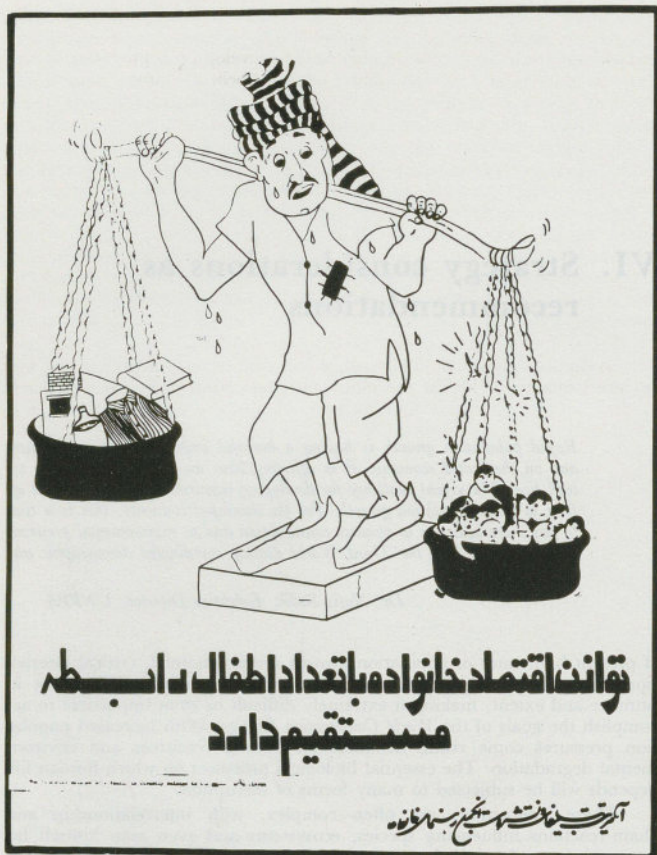
Rapid population growth is having a harmful impact on the environment and on the world economy. It is affecting how we live now and how we will live. The urgent challenge for developing countries is to step up their efforts to slow population growth. For the developed countries, this is a time to pay more attention to resource consumption and to environmental preservation -- and to help the Third World develop coordinated demographic and economic policies.

Dr. Nafis Sadik, Executive Director, UNFPA

If present high rates of population growth are maintained, critical interactions between human populations and natural resources will increase in number and extent, making it extremely difficult or even impossible to accomplish the goals of the *World Conservation Strategy*. With increased population pressures come rising demands on natural resources and environmental degradation. The essential biological processes on which human life depends will be subjected to many forms of disruption.

These interactions are often complex, with interrelationship and chain-reactions influencing species, ecosystems and even man himself far removed from the initial point of contact. Sound conservation and environmental policies and strategies and intelligent management of biosphere resources can moderate some of the deleterious effects of these interactions. But it is clear that conservation and development policies must go hand-in-hand with population policies. Their integration should be a priority for the future.

A slowdown and eventual cessation of world population growth is likely to lead to a reduced rate of degradation of the environment and of the renewable resource base. Although this will not automatically substitute for other solutions to development problems, it can provide the time and opportunity to reduce the worst effects of population pressure on the biosphere.



IPPF/Afghanistan AFGA

Afghan family planning poster advises: "The balance of the economy in the family has a direct relationship with the number of children."

National Level Action

Country-level studies of the interactions between population, conservation and development should be undertaken. The results of such studies should be utilized as a basis for an integrated approach to long-term sustainable development.

Countries should be encouraged to formulate and implement population policies that take into consideration the natural resource base, environmental conditions and socio-economic development prospects. Such policies should respect human rights, religious beliefs, cultural values and the fundamental right of each individual and couple to determine their own family size.

The institutional structures through which population, conservation and development policies are formulated and implemented should be identified. Co-ordinating mechanisms should be introduced where appropriate to ensure that an integrated approach is taken in each of these policy areas.

Countries should establish goals as part of their population strategies and policies, establishing, where appropriate, the desired target date for a reduction of the population growth rate or its stabilization at levels permitting sustainable use of natural resources.

National population policies should take into account both urban and rural dynamics. They should encourage balanced development and aim for enhanced quality of life in the cities and the countryside. Such policies should recognize the importance of economic growth, social equity, initia-



UNICEF/Ruby Mera

Improved health facilities have dramatically lowered the rate of child deaths in developing countries and increased total population. In time, couples will perceive that this means they need fewer pregnancies to ensure desired family size.

tives by local governments and the potential offered by technological advances. To counteract the swelling of large cities, medium and small cities should be promoted, bearing in mind the freedom of all citizens to choose their place of residence. The pressures exerted by urban areas on natural resources and environmental quality should be considered in the formulation of national population policies.

Efforts should be made by governments and voluntary organizations to increase awareness of the interactions between population, natural resources and development prospects. Such awareness-building activities should provide information on the availability of family planning services, maternal and child health care services and other aspects of national population programmes.

Programmes to integrate women into socio-economic development processes should be initiated and strengthened. Educational and training opportunities for women should be broadened, as well as information about choices open to them with regard to family size.

International Level Action

The world community of nations and international organizations should co-ordinate their activities in the field of population, conservation and development and further the study, understanding and awareness of the interrelationships. Further, they should cooperate in ensuring that the integrated approach is adopted and followed through in projects and programmes which receive their support.

Donor governments and international aid agencies should be encouraged to respond favourably to the growing requests from developing countries for assistance to national population programmes.

International organizations which provide population assistance to developing countries such as UNFPA and IPPF should receive support from donor countries at levels which will enable them to respond to the needs of developing countries.

International population assistance should be increased to levels consistent with the goals of attaining desired slowdown and eventual stabilization in population growth rates.

ANNEXE I

IUCN Task Force on Population and Conservation for Sustainable Development

Chairman:

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Coordinator of the FAO Population Programme

Food and Agricultural Organization of the United Nations

Mrs. Francis Dennis

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United Nations Education, Scientific and Cultural Organization

Mr. Pierre Spitz

Independent Commission on International Humanitarian Issues

Mr. Hans Wagener
United Nations Fund for Population Activities

Representatives of the IUCN Commissions

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International Council of Scientific Unions

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National Parks and Protected Areas

Dr. Geoffrey Mosley
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Member, Commission on National Parks and Protected Areas
Director, Australian Conservation Foundation

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Professor Peter A. Jewell
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Physiological Laboratory Cambridge University

ANNEXE II

16th Session of the General Assembly of IUCN Madrid, Spain, 5-14 November 1984: *Resolution 16/3*. Population and the World Conservation Strategy

RECALLING that the 14th Session of the General Assembly at Ashkhabad in 1978 considered that the time had come for IUCN to pronounce on the relationships between population growth and ecosystem conservation;

RECALLING, in particular, the consequent Resolution 15/3 adopted by the 15th General Assembly of IUCN at Christchurch in 1981 requiring IUCN to take specific actions in this field;

WELCOMING the action taken by the IUCN Council in 1983 in adopting a Position Statement on *Population and Natural Resources* which seeks to extend the World Conservation Strategy (WCS) so as to include these complex inter-relationships;

APPROVING the subsequent action of the Commission on Ecology in initiating work on a supplement to the WCS;

NOTING that sustainable development to meet present and future human needs is the basic concept of the WCS;

RECOGNIZING the challenge and opportunity created by the worldwide growing consensus on the interdependence of population, resources, environment and development, most notably in the recommendations adopted by 157 Governments at the International Conference on Population in Mexico City in August 1984, and in declarations of regional and global parliamentary groups for population and development before and after that event;

The General Assembly of IUCN, at its 16th Session in Madrid 5-14 November 1984, adopts the following as a statement of its understanding of the relationship between population and natural resources, which stems directly from the Position Statement approved by the IUCN Council in 1983:

World population doubled three times between 1650 and 1975 when it approached four billion, and is projected to double again by 2025 to over eight billion. It will increase by about 80 million in 1983 and, according to United Nations projections, this annual increase will itself keep growing until it peaks at close to 90 million.

In many countries, a tremendous demographic momentum exists because of the current youthful age structure. Actions taken today to reduce birth rates -- or failure to act -- will have a magnified effect decades hence. The projected increases in population are not inevitable, but significantly reducing future human numbers will require early and sustained action.

Some communities have adopted ways of life that involve high levels of resource consumption. Waste is prevalent. Others, by trading manufactured goods and skills in exchange for primary products, are able to support higher numbers than their primary resources would warrant. At the other extreme, some poor communities, where numbers are increasing rapidly, can meet their basic needs only by over-exploiting their resources, sometimes with irreversible consequences. The situation is exacerbated by inequalities, problems of land tenure, misallocation of land, and lack of clear responsibility for the management of resources shared in common. Worldwide, the future demands of a rapidly growing population, especially in the developing world, and rising consumption, especially in the developed world, may together exceed human capacities to safely extract the necessary goods and services from the land and the sea.

In most countries, no serious attempt has yet been made to introduce measures for the joint management of population and resources.

Although more food is being produced than ever before, more people are malnourished than at any time in history. The reasons for this are complex. They relate to the ability of people to buy food, to unequal land holdings, to urban bias by governments and the neglect of rural development, and to unfair trading relationships. But they are also connected to rapid population growth, particularly in regions where difficult soil and climatic conditions are allied to traditional methods of farming. As a result, many countries are increasingly reliant on food imports.

Unless the present high rates of population growth are substantially reduced, it will not be possible to accomplish the goals of the World Conservation Strategy, even allowing for all foreseeable improvements in technology, distribution, organization, and land productivity.

Therefore, all nations, and the world community, should take steps to stabilize populations at levels which will permit improvements in the quality of life, in ways which do not damage biological and physical support systems.

Towards this end, the Director General is requested to:

1. TAKE INTO ACCOUNT the fundamental issues of population and resources in IUCN's own policies, programmes, resolutions and public statements, where appropriate.
2. KEEP trends in population and resources under review and report back to each General Assembly.
3. ACTIVELY PROMOTE policies designed to attain a balance between population and resources, within national conservation strategies and through field activities to preserve nature and natural resources.
4. ENCOURAGE non-governmental organizations, including local conservation groups and family planning associations to work together to spread awareness of the links between population, resources, and the environment. These bodies will also be encouraged to develop demonstration projects which link community action to conserve local ecosystems and develop wise use of natural resources with family planning programmes.
5. ENCOURAGE governments to undertake periodic assessments of population trends, natural resources, and likely economic conditions, their inter-relationships and the implications for the attainment of national goals. In doing so, governments should take account of the international impacts of population size and resource consumption.
6. ENCOURAGE governments to establish a population policy, including goals for the stabilization of population at a level that will permit sustainable management of resource and a satisfactory high quality of life for all their people.
7. ENCOURAGE governments and development agencies to take into account the special environmental problems of the urban and rural poor and to promote sustainable rural development. Conservation and family planning should be an integral part of all rural development programmes, with the total participation of the community in the planning and implementation of such programmes.
8. ENCOURAGE nations to take effective action to secure the basic right of all couples to have access to safe and effective methods of family planning, as established in the World Population Plan of Action. In making this recommendation, IUCN believes strongly that the provision of contraceptive information and services is essential for humanitarian and health reasons, quite

apart from the effect on fertility levels. In facilitating the practice of responsible parenthood, it is essential that women have the right of choice about pregnancy. Such a choice is important in the stabilization of population and in improving the status of women, a prerequisite for the achievement of development and conservation goals.

9. GENERALLY ENCOURAGE national and international development policies which help create the conditions in which human population can successfully be brought into balance with carefully conserved natural resources.
10. CONSULT with its collaborators, UNEP, WWF, Unesco and FAO in preparing a supplement to the WCS in conformity with the statement hereby adopted and to determine how the recommended actions listed above are to be pursued in the implementation of the WCS at the national and international levels.

ANNEXE III

Glossary of Acronyms

CPS	Contraceptive Prevalence Survey
FAO	Food and Agriculture Organization of the United Nations
GNP	Gross National Product
IMR	Infant Mortality Rate
IPPF	International Planned Parenthood Federation
TFR	Total Fertility Rate
UNEP	United Nations Environment Programme
UNFPA	United Nations Fund for Population Activities
Unesco	United Nations Educational, Scientific and Cultural Organization
WFS	World Fertility Survey
WHO	World Health Organization
WWF	World Wide Fund for Nature

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