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A Global Population Policy To Advance Human Development in the 21st Century

by Robert S. McNamara

United Nations, New York
10 December 1991

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Rafael M. Salas Memorial Lecture
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PREFACE

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Rafael Salas was appointed to head UNFPA in 1969. Shortly after, he chose a young woman from Pakistan, Dr. Nafis Sadik, as his programme director. Together, with extraordinary wisdom and energy, they transformed a little-regarded operation into a major force contributing to human advancement across the globe. It is to them and their associates that I dedicate this lecture.

Robert S. McNamara
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PREFACE

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A Global Population Policy to Advance Human Development in the Twenty-first Century

I. Introduction

In September 1968, in my first speech as President of the World Bank, speaking to the Finance Ministers of the world at the annual meeting of the Bank and International Monetary Fund, I stated: "The rapid growth of population is one of the greatest barriers to economic growth and social well-being of [the people] of our member states."[1]

That was my view in 1968. It is my view today.

In the intervening 23 years, the world's population has grown faster than ever before, from 3.4 billion to 5.4 billion, an increase of over 60 percent. Growth rates are still extraordinarily high, almost 2 percent per year. Even if the fertility rates continue their present decline, 3 billion people will be added to the global population over the next 30 years.

Is this a cause for concern?

For many, the answer is not immediately clear. In spite of the increase of 2 billion people in the past quarter century, during the same period of time there have been remarkable advances in economic and social welfare in the developing countries, where 80 percent of the world's population lives. Consumption per capita has risen by almost 70 percent, infant mortality rates have fallen, literacy rates have increased, average nutritional levels have improved, and life expectancy has risen.

But in spite of such progress:

- The number of human beings suffering from hunger has increased to over 1 billion;
- The number of illiterates has risen to 900 million;

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[1] "Address to the Board of Governors," World Bank, Washington, DC, 30 September 1968.

- Maternal mortality has increased: 500,000 women now die each year from pregnancy and childbirth-related causes; and,
- Infant and child mortality remains at totally unacceptable levels: 40,000 children -- at least half of whom could be saved -- die each day.

So, I return to the basic question: Is the increase in human numbers and its environmental and developmental ramifications a cause for concern?

I will argue that it is; that the interests of both developing and developed countries -- particularly the interests of women and children in the developing world -- demand immediate action to accelerate the reduction in population growth rates; that there is clear evidence this is possible and that the action can be undertaken within acceptable expenditure limits.

I will conclude by suggesting how such a program can be initiated.

II. The Consequences of Rapid Population Growth[2]

When the World Bank began to discuss population issues systematically in the late 1960s, and made its first family planning loan in 1970, there was broad agreement among most scholars that rapid population growth had generally negative consequences for development. The arguments were not as simplistic as those of Malthus who, in the late eighteenth century, argued that food production would not keep pace with population growth. Nor did they project such catastrophic

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[2] This section draws in part on an unpublished paper by Steven W. Sinding of the Rockefeller Foundation, 1990; on Allen C. Kelley, "Economic Consequences of Population Change in the Third World," *Journal of Economic Literature*, vol. XXVI, December 1988, pp. 1685-1728; and on an unpublished new study on the subject by the same author.

consequences as Paul Ehrlich in *The Population Bomb* (1968) and Jay W. Forrester in *World Dynamics* (1971) or Donella H. Meadows, et al., in the Club of Rome's report *The Limits to Growth* (1972) -- the latter predicting that the world had only about 100 years remaining before its economic and/or biosystems collapsed. Instead, my associates and I in the Bank believed that lack of capital, and of surplus labor in the rural areas, were major constraints to human advance in the developing countries -- and that rapid population growth aggravated both of these handicaps.

By the late 1970s, this argument began to be questioned. What might be characterized as "revisionist" thinking came into vogue. It was suggested that if decisions regarding family size were made at the family level, based on market signals (e.g., the value of additional children as farm labor), these decisions would maximize not only individual welfare but social welfare as well, unless there were clear market failures.

The pendulum appeared to swing back in the mid- and late 1980s. A major report by the World Bank in 1984[3] emphasized that there were indeed institutional and market failures and that high population growth rates could, and were, severely inhibiting economic growth and human development throughout most of the developing countries.

In the seven years that have passed since publication of that World Bank report, we have learned much more about the adverse consequences of rapid population growth. In sections IV, V, and VI, I will present evidence that high population growth rates:

- Aggravate degrading poverty in the developing countries, which is affecting ever greater numbers, if not ever greater percentages, of their inhabitants;
- Adversely affect the role and status of women and the health and opportunities of both them and their children; and

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[3] *World Development Report 1984*, New York, Oxford University Press, 1984.

- Increase the danger that the present paths of economic development -- in developing and developed countries alike -- are unsustainable and risk the destruction of the earth's physical environment.

It is this evidence that leads me to urge a renewed effort -- an effort that, as I will explain later, must be concentrated in this decade -- to reduce rates of population growth and long-term population stabilization levels.

Before turning to a more extended discussion of the adverse consequences of high population growth rates and how to deal with them, it will be helpful to examine in more detail past and projected population trends.

III. Population Growth: Past and Projected

For thousands of years, as the table below indicates, the world's population grew at a snail's pace. It took over a million years to reach 1 billion in 1800. But then the pace quickened. The second billion was added in 130 years, the third in 30 and the fourth in 15.

The Rate of Growth of the World's Population

Year	Total Population	Years to Add 1 Billion
1,000,000 B.C.	a few thousand	
8,000 B.C.	8 million	
1 A.D	300 million	
1800	1 billion	one million
1930	2 billion	130
1960	3 billion	30
1975	4 billion	15
1987	5 billion	12
1998	6 billion	11

Source: Population Reference Bureau of Washington, D.C., based on United Nations and World Bank estimates.

During this decade nearly 100 million people per year will be added to the planet, the equivalent of almost four Canadas or another Mexico. Over 90 percent of this growth is taking place in the developing world. Where will it end?

The United Nations prepares long-range population projections which it revises every 10 years. The last such projection, prepared in 1982, estimated that population would stabilize at about 10.2 billion by 2085. But today the situation looks less promising. Population growth will stop much later and at much higher levels than previously thought.[4]

A new United Nations estimate, now in preparation, will raise the figures substantially. The World Bank has just completed, but not yet published, a similar calculation. The Bank's new "standard projection" will indicate that the level at which the population will stabilize will not be less than 12.4 billion. And Dr. Nafis Sadik, Executive Director of UNFPA, has stated "the world could be headed towards an eventual total of up to 14 billion."[5] Of that number, 12.5 billion would be in the developing countries compared to about 4.2 billion today.

What would such a world total -- with a three-fold increase in the developing countries -- mean in terms of the alleviation of poverty, the status of women and children, and the sustainability of development programs? To what degree are we consuming today the very capital required to achieve decent standards of living for future generations?

IV. The Relationship Between Population Growth and Sustainable Development

To determine whether the world -- or a particular country -- is on a path of sustainable development, one must relate future population levels and future consumption patterns to their impact on the environment. I will do so in this section.

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[4] United Nations Population Fund, *State of World Population - 1991*, New York, 1991, p. 3.

[5] United Nations Population Fund, *State of World Population - 1990*, New York, 1990, pp. 1-2.

Population, Consumption and Environmental Damage

The relationship between population, consumption and environmental damage can be expressed in the form of an equation:[6]

$$Ed = P \times C \times D$$

Where : **Ed** = Environmental Damage
P = Population
C = Consumption per capita
D = Environmental Damage per unit of consumption

Our task is to look into the next century and insert values into the equation. We can do so in terms of multiples of present levels.

I begin with population.

Were population to rise to the figure referred to by Dr. Sadik -- 14 billion -- there would be a 2.6-fold increase in P (14 billion divided by 5.4 billion).

To approximate C-- the growth of consumption per capita-- one can begin by recognizing the heavily skewed income distribution, both within developed countries and between developed and developing countries.

Within the United States, for example, the income per capita of the top fifth of the population is 10 times that of the bottom fifth. Between developed and developing countries, on the basis of purchasing power parities, the ratio is approximately 7 to 1. Although these differentials may ultimately be affected by the redistribution of income within nations and

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[6]The equation oversimplifies the relationship between population, consumption and the environment. Environmental damage has many causes: wasteful consumption and wasteful technology, bad management and poor policy. However, the point I wish to emphasize is that, other things being equal, the impact of human activity on the environment is not proportional to changes in population alone, but rather to the *product* of population levels and consumption per capita, both of which will rise sharply in the future.

between nations, both developed and developing countries must put primary emphasis on raising production per capita, if they are to meet the demands of their people for a better life. "Economic growth" must continue if the quality of life is to be improved for the billions of poor across the globe. For decades ahead, no other course will be acceptable.

Were consumption per capita to grow in the future at 2 percent per annum -- about two-thirds the rate realized during the past 25 years[7] -- it would double in 35 years, quadruple in 70 years, and by the end of the next century would be 8 times greater than today. Some may say it is unreasonable to consider an eight-fold increase in the per capita incomes of the peoples in the developing countries in the next century. They are wrong. Per capita incomes in the United States rose at least as much in this century, starting from a much higher base. A substantial increase in per capita incomes in developing countries is both economically desirable and politically justifiable.

If one multiplies an 8-fold increase in consumption per capita by a 2.6-fold increase in population, the globe's production output would be approximately 20 times greater than it is today. The impact on non-renewable and renewable resources would be 20 times greater, assuming no change in the environmental damage per unit of production.

On the assumptions I have made, the question becomes: can a 20-fold increase in the consumption of physical resources be sustained? The answer is almost certainly "No." If not, can substantial reductions in environmental damage per unit of production be achieved? Here, the answer is clearly "Yes."

The Outlook for Reduction in Environmental Damage

Environmental damage per unit of production can -- and will -- be cut drastically. There is much evidence that the environment is being stressed today. But there are equally

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[7]See Table I.

strong indications that we have barely scratched the surface in minimizing the consumption of resources and the generation of pollution and waste per unit of "human advance." I will elaborate on both these points.

With each passing year we are learning more about the environmental damage that is caused by present population levels and present consumption patterns. The superficial signs are clearly visible. Our water and air are being polluted, whether we live in Los Angeles, Mexico City or Lagos. Disposal of both toxic and non-toxic wastes is a worldwide problem. And the ozone layer, which protects us all against skin cancer, is being destroyed by the concentration of chlorofluorocarbons in the upper atmosphere.

But for each of these problems there are known remedies -- at least for today's population levels and current consumption patterns. The remedies are costly, politically difficult to implement, and require years to become effective, but they can be put in place.

- New compounds will be substituted for chlorofluorocarbons at a cost of $35 billion over the next several decades;[8]
- Steps are being taken to reduce packaging materials per unit of GNP: for example, the weight of containers (cans, bottles, pots) has been reduced by 50 percent in recent years;[9] and
- Water and air pollution are being reduced -- at least in the developed world -- although at a heavy cost.

The impact, however, of the huge increments of growth on such basic resources and ecosystems as land and water,

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[8]See, e.g., "In Washington, It's the Year for Clean Air," *The New York Times*, section 4, 21 January 1991.

[9]"How to throw things away," *The London Economist*, 13 April 1991, p. 17.

forests, photosynthesis, and climate is far more difficult to appraise. As Robert V. Ayres points out, changes in complex systems such as these are essentially non-linear and subject to discontinuities.[10] Therefore, they are very difficult to predict. Nathan Keyfitz in a recent article makes the same point.[11] But given that qualification, what can be said? I begin with land and water.

Land and Water Resources

Can the world's land and water resources produce the food required to feed a population of 14 billion at acceptable nutritional levels?

Modern agricultural techniques have greatly increased crop yields per unit of land and have kept food production ahead of population growth for several decades. This has been achieved mainly through the green revolution: use of high-yield crop varieties, increased use of fertilizers and pesticides, and the expansion of irrigated land. As the population doubled from 1950 to 1987, global grain production rose even faster: per capita output increased 25 percent.

But the costs of all this are proving to be high: widespread acceleration of erosion and nutrient depletion of soils; pollution of surface waters; overuse and contamination of groundwater resources; rapid deforestation; and desertification of overcultivated or over-grazed lands in many regions.[12]

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[10]Robert V. Ayres, *Eco-Restructuring: Managing the Transition to an Ecologically Sustainable Economy*, International Institute for Applied Systems Analysis (IIASA) and Carnegie-Mellon University, 12 June 1991, p. 20.

[11]Nathan Keyfitz, *Seven Ways of Causing the Less Developed Countries' Population Problem to Disappear -- in Theory*, IIASA, 11 June 1991, p. 2.

[12]See, e.g., Lester R. Brown, et al., *State of the World 1990* and *State of the World 1991*, New York, W.W. Norton, 1990 and 1991; World Resources Institute, International Institute for Environment and Development, and United Nations Environment Programme, *World Resources 1988-89*, New York, Basic Books, 1989.

The early gains of the green revolution now have nearly run their course. Since the mid-1980s, increases in worldwide food production have lagged behind population growth. In sub-Saharan Africa and Latin America, the harvest deficits have been widening for a decade or more.

What, then, of the future?

Today, in terms of grain equivalent, the 4 billion people in the developing countries consume about 250 kilograms per capita per year. That compares to 450 kilograms per capita in the European Community and 840 kilograms in the United States.[13] A substantial percentage of the people in the developing world -- well over 25 percent -- are malnourished. And as incomes rise, the diets of the remaining 75 percent will rise in terms of consumption of plant energy. Therefore, looking to the future, we should plan on an increase, in developing countries, of about 50 percent per capita in food consumption, to a level of 375 kilograms of grain equivalent per capita per year. For a population of 14 billion this would require a nearly four-fold increase over today's production. Is this feasible?

Bernard Gilland considers it impossible.[14] He estimates that, on average, per capita food consumption approximates 6,000 calories of plant energy and should be planned to increase to 9,000 (an increase of 50 percent, as I have suggested). By increasing the area of land under cultivation, and by using land-saving technology, especially genetic engineering, Gilland estimates that maximum global food output would support a population of not more than 7.5 billion.

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[13]"Global Food Resources and Prospects," an unpublished World Bank report, August 1991, chap. 2, p. 11.

[14]Bernard Gilland, "Considerations on World Population and Food Supply," *Population and Development Review*, vol. 9, no.2, June 1983, pp. 203-11.

More recent studies[15] are somewhat more optimistic. They conclude that if a variety of actions were taken, beginning with a substantial increase in agricultural research, the world's agricultural system could develop the capacity to meet food requirements for at least the next 40 to 50 years. However, they underline *capacity*. It seems clear that the actions required to realize that capacity are not now being taken. As a result there will be severe regional shortfalls (e.g., in sub-Saharan Africa) within the global capacity and, as the period is extended beyond the 40 to 50 years and the population continues to increase, the likelihood of meeting the requirement will become ever more doubtful.

Forests

Turning to forests, we are beginning to understand their importance, particularly the importance of tropical forests. Forests are both the primary source of genetic diversity, harboring perhaps 50 percent or more of all the earth's species, and a major factor affecting our ability to minimize the concentration of greenhouse gases in the atmosphere and its potential effect on global climate. Yet we continue to destroy them at alarming rates.

A recent forest-cover survey by the Food and Agriculture Organization of the United Nations (FAO) reveals that we are now losing 17 million hectares of tropical forest every year -- an area more than half again as large as previously reported.[16] Changes in macro-economic policy and changes in forest management, along with technological advances can, of course, reduce the rate of loss.

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[15]In particular, the August 1991 unpublished study by the World Bank referred to in footnote 13.

[16]Food and Agriculture Organization of the United Nations, *An Interim Report on the State of Forest Resources in the Developing Countries*, Rome, FAO, 1988; and World Resources Institute, United Nations Environment Programme and United Nations Development Programme, *World Resources 1990-91*, New York, Oxford University Press, 1990, pp. 101-102.

Over time, these factors can even expand forest cover. But, as in the case of food production, the changes required are financially costly, politically difficult, and very time consuming. I know of no one who predicts our present course will lead to "sustainable" tropical forest management over the next century.

Photosynthesis

Another "system" that some biologists are emphasizing as a factor that may limit realization of increases in output of the size I am examining is the process of photosynthesis. This is the formation of carbohydrates in the chlorophyll-containing tissue of plants through exposure to sunlight. It is a process basic to maintenance of all forms of life on the planet.

Professor P. M. Vitousek of Stanford University has written that "human activity now directly and indirectly preempts 25 percent of global net primary production (NPP) of photosynthesis and 40 percent of NPP on land."[17]

"NPP on land" is the energy fixed by land-based photosynthesizers, minus that used by the photosynthesizers to support their own life processes. Of this basic resource, humanity consumes directly about 5.5 percent as food, fodder, and forest products. A much larger proportion (35 percent) enters human activity, indirectly, as forest biomass killed but not used, crop residues, and plants grown in all human-directed systems, including pastures, gardens, parks and so forth. The 60 percent of NPP not now preempted by human beings must support other species and provide for future expansion of human population and consumption.

Anne Ehrlich, also of Stanford, estimates that global land-based NPP has fallen in recent decades by about 13 percent

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[17]P. M. Vitousek, P. R. Ehrlich, A. H. Ehrlich, and P. A. Matson, "Human Appropriation of the Products of Photosynthesis," *Bioscience*, vol. 36, no. 6, June 1986, pp. 368-373.

because of human activities.[18] The loss is a result of deforestation, desertification, and conversion of land from forests and wetlands to less productive systems such as pastures and farms and for non-productive uses including highways and cities.

An extrapolation of the figure of 40 percent ("human preemption" of land-based NPP) would appear to indicate that there would be barely sufficient NPP to support a doubling of today's population at today's consumption per capita. Or, if one believed human's could make use of both land- and sea-based NPP -- which is almost certainly impossible -- consumption per capita, for the larger population, would be limited to twice today's level. That is an increase far less than I have projected.

Herman Daly[19] comes to just these conclusions. He believes it would not be possible to reach a quadrupling of human preemption of photosynthesis, because the 25 percent currently being preempted by human activity shows clear signs of unsustainability.

Others, while recognizing the problem, find it hard to state at exactly what point photosynthesis will limit population growth or restrict human consumption per capita. Stephen D. Mink[20] points out that "constant per capita NPP use is by no means certain; income growth could increase use per capita, and technological change may well decrease it." He draws attention to the difference between the 40 percent of land-based NPP, which is altered by human activity, and the 5 percent which is consumed as food fodder and forest products.

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[18]Anne Ehrlich, "The Global Environmental Agenda: 2000 and Beyond," an unpublished paper, September 1991.

[19]Herman Daly, "Population and Economics: A Bioeconomic Analysis," *Population and Environment: A Journal of Interdisciplinary Studies*, vol. 12, no. 3, Spring 1991, p. 260.

[20]Stephen D. Mink, "Poverty, Population and the Environment," an unpublished paper of the World Bank, July 1991.

He implies that the proportion used directly by humans could be increased.

Anne Ehrlich[21] agrees that there is an opportunity -- indeed, a necessity -- to change the pattern of land-use and hence the pattern of consumption of photosynthetic products. How far such changes can go is not at all clear. But she concludes there is reason to fear that a population of over 10 billion, without major changes in technology not now in prospect, could not be sustained with even present levels of consumption, levels which are of course totally unacceptable to the world's poor.

More generally, with regard to sustainability, many other biologists are also beginning to stress that there are indeed biological limits to the size of population that the globe can support at acceptable standards of living. They say, in effect, "we don't know where those limits are, but they clearly exist."

Energy and Climate Change

One of the potential biological limits is related to energy use and its effects. The release of carbon dioxide into the atmosphere has been measured since the mid-1950s. It is only in recent years, however, that it has become widely -- but still not universally -- accepted that the concentration of CO_2, together with the other greenhouse gases, carries the risk of a general warming of the earth's surface and worldwide climate change. If greenhouse gas emissions are not limited, it is estimated that over the next century mean temperatures will increase between 2.6 and 5.8 degrees Celsius, and the level of the sea will rise between 30 and 100 centimeters.[22]

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[21]In a conversation with the author, 19 September 1991.

[22]J. T. Houghton, G. J. Jenkins and J. J. Ephraums, eds., "Climate Change, the IPCC Scientific Assessment," report prepared for the Intergovernmental Panel on Climate Change (IPCC) Working Group I, World Meteorological Organization (WMO) and United Nations Environment Programme, New York, Cambridge University Press, 1990.

Uncertainties abound, all vastly complicating the efforts of political leaders to come to grips with the problem. If global warming occurs, what are its likely consequences? How soon will changes appear? What specific changes in weather and rainfall patterns might occur in any given place? Who wins and who loses in the lottery of climate change? How will agriculture and natural ecosystems be affected?

I do not have answers to these questions. But the risks of procrastination are so great, I believe we must begin to act now to stabilize, and then reduce, greenhouse gas emissions across the globe. I am confident that within a decade or two that objective can be achieved at acceptable cost, and without penalizing economic growth in the developing countries. In the United States, for example, energy consumption per capita and per unit of GNP is approximately twice the level in Germany and Japan. And yet those two nations are planning to reduce per capita consumption below present levels. Therefore, the United States should be able to make cuts of 50 to 60 percent.

Movement in that direction is already occurring.

On May 20, 1991, the Southern California Edison Company, the second largest power generating company in the United States, announced it would reduce CO_2 emissions from electricity generating sources by 10 percent over the next decade. There will be a further 10 percent reduction by the year 2010. Such reductions, in the face of a growing population in the area served by the Company and rising production per capita, point to dramatic changes in both technology and consumption patterns.

Conclusions on Sustainability Limits

Within the past decade, four global environmental phenomena have surfaced: the loss of bio-diversity, acid rain, destruction of the ozone layer and climate change. All are a function of rising population levels and increasing consumption per capita. They should cause us to wonder when other unseen, but silently accumulating, environmental damage will come to our attention. When it does, will we have time to deal with it

without coercive action to limit population growth or economic activity?

Advances in technology will reduce resource use in relation to production. We can look forward, therefore, to substantial population growth and continuing growth in consumption without comparable increases in environmental damage. But we have no assurance that the globe can tolerate production increases of anything approaching the magnitude I have hypothesized.

How much might population grow and production increase without going beyond sustainable levels, levels that are compatible with the globe's capacity to dispose of waste, and which do not deplete essential resources?

Jim McNeil, Peter Winsemaus and Taizo Yakushiji try to answer the question in *Beyond Interdependence*, a study prepared for the Trilateral Commission. They begin by stating: "Even at present levels of economic activity, there is growing evidence that certain critical global thresholds are being approached, perhaps even passed."[23] They then estimate that if developing nations were to provide their present populations with the level of consumption now prevailing in the industrialized world, energy supply with current forms of energy development would have to increase by a factor of 5. With respect to population levels, the authors state: "If human numbers double [i.e., to 10 billion], a five-to-ten-fold increase in economic activity would be required to enable them to meet their basic needs and minimal aspirations." They ask the question: "Is there, in fact, any way to multiply economic activity a further five to ten times, without it undermining itself and compromising the future completely?"[24] They clearly believe the answer is "No."

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[23]Jim MacNeil, et al, *Beyond Interdependence*, New York, Oxford University Press, 1991, p. 19.

[24]Ibid., p. 25.

Such a conclusion would be shared, I believe, by the World Commission on Environment and Development, chaired by Prime Minister Gro Harlem Brundtland. The Commission report, *Our Common Future,* states: "In many parts of the world, the population is growing at rates that cannot be sustained by available resources."[25]

Even if the ultimate "carrying capacity" of the earth could support a global population and a total global output of the size I have discussed -- a 2.6-fold increase in population and a 20-fold increase in "output" by the end of the next century -- it is highly unlikely that the technical, institutional and political changes would occur fast enough, and evenly enough across regions, to meet the output requirements during the intervening years.

Similar questions and doubts exist in the minds of many experts in the field. In July of this year, Murray Gell-Mann, Nobel Laureate and Professor of Physics at the California Institute of Technology, Gustave Speth, President of World Resources Institute, and John Steinbruner, Director of Foreign Policy Studies at the Brookings Institution, instituted a multi-year project to try to understand how "humanity can make the shift to sustainability." They point out that "such a change, *if it could be achieved* [emphasis added], would require a series of transitions in fields ranging from technology to social and economic organization and ideology --."[26] The implication of their statement is not that we should assume that the outlook for sustainable development is hopeless, but rather that we must begin now to identify and introduce the changes necessary to achieve it if we are to avoid more precipitate and costly action in the future.

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[25]The World Commission on Environment and Development, *Our Common Future*, New York, Oxford University Press, 1987, p. 11.

[26]Speth, in letter of invitation to the conference, 1 April 1991.

I fully share that view and, as I will conclude later, one of the changes that would enhance the prospects for sustainable development in almost all developing countries would be a reduction in prospective population growth rates.

V. The Relationship of Population Growth to Economic Development and the Alleviation of Poverty[27]

As I stated earlier, the developing world has made enormous economic progress over the past three decades. But at the same time, the number of human beings living in "absolute poverty" -- if such a condition can be properly described as living -- has risen sharply.

"Absolute poverty" is a word of art. When I coined it in the late 1960s I did so to distinguish a particular segment of the poor in the developing world from the billions of others who would be classified as poor in Western terms. The "absolute poor" are those living, literally, on the margin of life. Their lives are so characterized by malnutrition, illiteracy and disease as to be beneath any reasonable definition of human dignity.

Today the number of such individuals approaches 1 billion. As a proportion of the total population, it has decreased over the past two decades (except in sub-Saharan Africa), but in absolute numbers it has increased. And the World Bank estimates that it is likely to increase further -- by nearly another 100 million -- in this decade.[28]

A major concern raised by poverty of this magnitude lies in the likelihood of physical and intellectual impairment of

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[27]This section draws, in part, on the World Bank, *World Development Report 1990*, New York, Oxford University Press, 1990.

[28]As cited in UNDP, *Human Development Report 1991*, New York, Oxford University Press, p. 23.

children. The distribution of family size by family income in many countries is such that the great majority of children are born into poor families. In Colombia and Malaysia during the 1970s, for example, the number of children in the poorest 20 percent of the households was three times as great as in the richest 20 percent.

Surveys have shown that millions of the children in these low-income families receive insufficient protein and calories to permit optimal development of their brains, thereby limiting their capacity to learn and to live fully productive lives. Additional millions die each year, before the age of five, from debilitating diseases directly attributable to nutritional deficiencies.

The penalizing effects of poverty in physical and mental terms are compounded by weak educational systems. High-fertility countries face a doubling or tripling of their school-age population within a decade or two. This is bound to lead to a reduction in the already poor quality of education. A culture of poverty is being transmitted down the generations, sacrificing human resources and impeding social mobility.

It is a disgrace that we in the developed countries, as well as the elite within the developing nations, permit such a situation to exist.

To what extent do high population growth rates contribute to the problem? All would agree they are not the only factor affecting economic and social advance: political organization, macro-economic policies, institutional structures, growth in the industrial nations all affect the rate of growth in developing nations. And, as I mentioned in Section II, economists continue to debate the quantitative impact of population growth on economic development. But, intuitively, we recognize that the immediate effects are adverse. This is particularly the case in countries where markets are not fully effective, and where

institutions capable of offsetting the effects of rapidly rising population levels are not strong.

Our intuition is supported by facts: in Latin America, during the 1970s, when the school-age population expanded dramatically, public spending per primary-school student fell by 45 percent in real terms. In Mexico, life expectancy for the poorest 10 percent of the population is 20 years less than that for the richest 10 per cent. In Cote d'Ivoire, the primary enrollment rate of the poorest fifth is less than half that of the richest.[29] In Thailand, the fewer the numbers of children in the family, the more likely that a child will stay in school.[30]

Based on such analyses, the World Bank stated that "up to a point population growth can be accommodated: in the past three decades many countries have managed to raise average incomes even as their populations grew rapidly. In that strict sense, population growth has been accommodated. But the goal of development extends beyond accommodation of an ever larger population: it is to improve people's lives. Rapid population growth in developing countries has resulted in less progress than might have been -- lost opportunities for raising living standards, particularly among the large numbers of the world's poor."[31] The Bank concluded by stating: "The evidence points overwhelmingly to the conclusion that population growth at the rates common in most of the developing

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[29]*World Development Report 1990*, p. 2.

[30]Napaporn Havanon, John Knodel, and Werasit Sittitral, "Family Size and Family Well Being in Thailand," Population Studies Center Research Report no. 90-191, University of Michigan, August 1990.

[31]*World Development Report 1984*, p. 79.

world slows development.... Policies to reduce population growth can make an important contribution to [social advance]."[32]

I strongly agree with such a judgement. It accords with my experience in 13 years of endeavoring to help developing countries maximize their rates of economic and social advance, particularly for the absolute poor.

VI. The Impact of Current Population Growth Rates on the Status of Women and Children

Most economists and policy makers have approached population issues as I have so far, i.e., from the point of view of the effects of rapid population growth on the national and international objectives of maximizing economic growth, alleviating poverty and assuring environmental sustainability. There is nothing wrong or illogical about this approach, but we are learning it is seriously incomplete. It is crucial to look at rapid population growth, as well, in terms of its meaning to individuals and families.

From the viewpoint of the family, the most important effect of high growth rates is too many children, too closely spaced. The result is greater health risks and lost opportunities for both women and children.

The first benefit of family planning -- of choosing the number and spacing of children -- is the benefit of better health for the mother and child.

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[32]Ibid., p. 105.

The health benefits of family planning have been proven by study after study over recent decades.[33]

The World Fertility Surveys (1972-1984) first showed birth-spacing's health benefits for infants and children. The more recent Demographic and Health Surveys reinforced this finding. Both surveys conclude that high mortality rates accompany more frequent pregnancies.

Babies born less than two years after their next older brother or sister are more likely to be underweight and anemic at birth. They start life with a huge disadvantage: on average, they are almost twice as likely to die as those born after a two-year interval. In many countries, birthspacing alone could prevent one in every five infant deaths and substantially reduce maternal mortality as well.

As I pointed out in the previous section, similar arguments can be made about the effects of high population growth rates on the ability of families to educate their children. Education is inevitably costly -- in terms of school fees, school clothing, transportation, and income foregone -- especially as children stay in school longer. In the face of such costs -- costs paid by both society and the individual family -- higher growth rates contribute to less education per child. The penalty falls most heavily on females.

The discrimination against females is seen in many other facets of life. Although in subsistence economies, and in poor families, women do substantially more of the work connected with agricultural production than do men, the women generally suffer the highest level of malnutrition. Men are given first claim on such food as is available, children second, and women last. The malnourished mothers give birth to weak and unhealthy infants, and have problems nursing them adequately.

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[33]See, e.g., Dr. Nafis Sadik, *Safeguarding the Future*, New York, UNFPA, 1989, p. 18; and Population Reference Bureau, *Family Planning Saves Lives*, 2nd ed., Washington, DC, to be published in 1991.

The mothers, constantly pregnant or nursing infants, are unable to play a larger role in the work force outside the home. This diminishes their occupational and economic status, which in turn reinforces the concept that males are more important. This makes sons more desirable than daughters. When only daughters are born, another pregnancy must ensue in order to try again for a son. Repeated pregnancy not only increases the family size, but exhausts the mother and weakens her health. Thus the whole cycle begins again.

Such a phenomenon is evident in demographic data. A recent UNDP report states: "100 million women are missing."[34] In societies in which girls are treated much the same as boys, there are about 106 females for every 100 males because females, on average, live longer. But if women do not receive equal treatment, the story changes. In most of Asia and North Africa, far fewer female children and women survive because they suffer active discrimination: there are, on average, only 94 females for every 100 males. UNDP calculates, therefore, that there is a shortage of 12 percent from the natural figure, a "shortfall" of 100 million women.

At the extreme, the male attitude towards females can be seen in a recent event at a school in a developing country where a midnight raid of male students resulted in the deaths of 19 girls and the rape of 71 others. The Deputy Principal of the school was quoted as saying: "The boys never meant any harm.... They just wanted to rape."[35] Newspapers, in both the developed and developing nations, cited the incident as evidence that in many parts of the world, males think of females as objects to serve their pleasure.

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[34]*Human Development Report 1991*, p. 27.

[35]*Time Magazine*, 12 August 1991, p. 43.

As a result of such attitudes, women are being denied the right to make -- or to share in making -- the most fundamental decisions regarding their own lives. Family planning is an important means by which women can begin to enhance their role and status.

VII. The Implications of the Adverse Effects of High Fertility Rates for Population Policy

Any one of the adverse consequences of the high population growth rates -- environmentally unsustainable development; adverse effects on the rate of economic and social advance and the alleviation of poverty; and the impact on the status and welfare of women and children -- would be reason enough for developing nations across the globe to move more quickly to reduce fertility rates. Taken together they make an overwhelming case.

If a nation were to decide to lower population growth, what would be a reasonable objective and how might it be accomplished?

As I indicated in Section III, UNFPA Executive Director Dr. Nafis Sadik considers that current trends may lead to national growth patterns which, for the world as a whole, would not stabilize below 14 billion. Such an estimate assumes that contraceptive users in the developing world -- now at over 50 percent of all couples in their reproductive years (see Table IV) -- will continue to increase at a moderate pace. Could the rate of increase be accelerated? The answer is clearly "Yes." In Section IX below, I suggest how that might be done.

The point I wish to emphasize here is that each developing nation has the opportunity to act now to establish -- within broad limits -- its future population growth and to set the rate of growth at levels that will maximize the welfare of both present and future generations.

Should not every such developing country, therefore, formulate long-term population objectives on that basis? They would be constrained only by the maximum feasible rate at which the use of contraception could be increased in the particular nation. If this were done the contraception targets of individual countries might approximate those shown in Table IV, leading in turn to the population stabilization levels shown in Table III. They yield a total 9.7 billion. That is an 80 percent increase over today's population of 5.4 billion. But a population of 14 billion would be 45 percent larger than the 9.7 billion figure. And by the end of the next century the additional 4.3 billion people -- on the assumption of an eight-fold increase in consumption per capita -- would require a production output 6 times greater than the world's total output today.

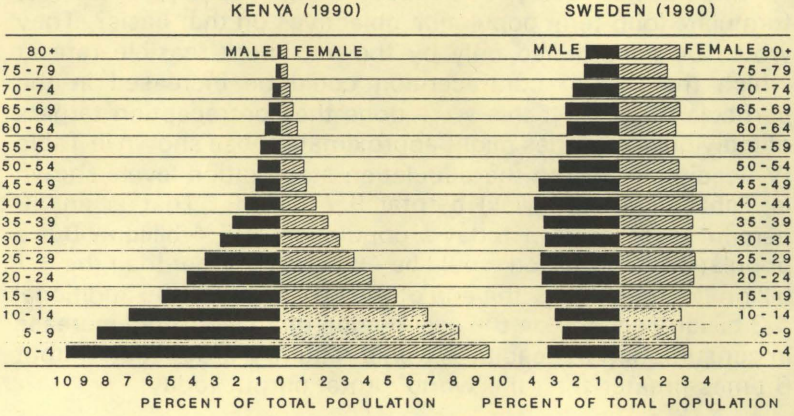
VIII. The Urgency of Acting Now

Before turning to a discussion of how accelerating the rate of increase in contraception prevalence rates can be accomplished, I want to stress that if the developing nations wish to hold to a minimum the levels at which their populations ultimately stabilize, they must act now.

Populations stabilize when total fertility rates (the average number of children a female produces during her reproductive years) reach replacement levels (approximately 2.1) and when age distributions of a population stabilize. Age distributions in developing nations are far from stable today.

The difference in age distributions between high-birth rate and low-birth rate societies can be seen in the age profiles of Kenya and Sweden.

Comparison of Kenyan and Swedish Age Distributions



Source: United Nations, *The Sex and Age Distributions of Population*, New York, 1990.

Were Kenya to suddenly drop to replacement-level fertility rates, it would continue to grow rapidly for approximately 70 years. Sweden, with replacement-level rates, has stopped growing because of its stable age distribution.

Because developing countries across the world tend to have age distributions similar to Mexico's, were their fertility rates to drop instantaneously from 3.9 (Table IV) to replacement levels of 2.1, their populations would continue to grow for another 50 to 70 years. The United Nations estimates that even under such a totally implausible assumption, the world's population would ultimately reach a total of approximately 8.4 billion.[36] The populations will continue to grow because the high birth rates of the past have produced an age distribution with a relatively high proportion of males and females in, or still to enter, their reproductive years.

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[36]This projection is contained in an advance unedited copy of United Nations, *Long-Range World Population Projections*, dated 27 August 1991.

The age distribution of today cannot be changed, but by accelerating the rate of use of family planning, it is possible to accelerate the movement toward stability. The table below shows, for four developing countries, the effect of achieving replacement-level fertility 25 or 30 years earlier than implicit in a global stabilization level of 14 billion.

Population size scenarios (population in millions)

Country	1990 Population	Ultimate Population if NRR = 1 in 2010	Ultimate Population if NRR = 1 in predicted year	Difference due to delay in reaching NRR = 1 Population	Difference due to delay in reaching NRR = 1 % of 1990 Population
Bangladesh	114.8	277	300.0	23.0	20.0
Ghana	15.0	46	66.2	20.2	134.9
Nigeria	118.8	341	617.3	276.3	232.6
Pakistan	114.6	334	556.2	222.2	193.9

Predicted year for NRR = 1: Bangladesh 2015; Ghana 2035; Nigeria and Pakistan 2040

Source: World Bank estimates for column 2; Population Reference Bureau estimates for column 3.

If Pakistan, for example, were to realize a contraception prevalence objective for the year 2000 shown in Table IV, and thereby achieve a Net Reproduction Rate of 1 (replacement-level fertility) in 2010 instead of 2040, its population, now about 115 million, would level off at approximately 334 million instead of 556 million. The difference is equal to 194 percent of today's population.

Not all developing countries would see as great a change as Pakistan by acting now to achieve the contraception objectives listed in Table IV. But stabilization levels for all would be substantially lower.

IX. A Program to Reduce Rates of Population Growth

Assuming a nation wishes to reduce fertility rates to replacement levels at the fastest possible rate, what should be done?

The World Population Conference, in Bucharest in 1974, emphasized that high fertility is in part a function of "low" development. Experience has, indeed, shown that as economic growth occurs, particularly when it is accompanied by broadly-based social advance, birth rates tend to decline. But Kenya in the 1970s, and Brazil in the 1950s and 1960s, advanced economically while, at the same time, fertility rates remained high or actually increased. Hence it is generally recognized today that not all economic growth leads to immediate fertility reductions; on the other hand, experience also shows that such reductions can be accelerated by direct action to increase the use of contraceptives.

It follows, therefore, that any campaign to accelerate reductions in fertility rates should focus on two components:

1. Increasing the pace of economic and social advance, with particular emphasis on enhancing the status of women and on reducing infant mortality; and
2. Introducing or expanding comprehensive family planning programs.

Much has been learned in recent years about how to raise rates of economic and social advance in developing countries. I will not try to summarize the lessons here other than to stress the need to place special emphasis on:

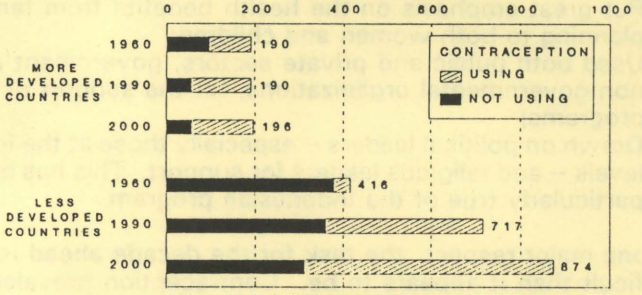
- Increasing the percentage of females attending primary and secondary schools. Female literacy is far below male levels in many developing countries and particularly so in those with the highest birth rates. Table I indicates, for example, that in Pakistan in 1985 only 18 percent of females were literate as compared to 43 percent of males; the figures for the Sudan are 10 percent and 39 percent, respectively.

- Improving the health of both women and children. Infant mortality remains high in many developing countries. On average for the years 1985-1990 it amounted to 99 per 1,000 live births in India, 76 in Turkey, 88 in Peru (Table I).

I do wish, however, to expand on the magnitude of the increases required, during the decade, in the use of family planning, if population levels in individual countries are not to rise substantially above the figures projected in Table III.

The chart below shows the number of married women in reproductive ages in 1960, 1990, and 2000.

MARRIED WOMEN IN CHILD-BEARING AGES
1960-2000
(Millions of women)



NOTE: CONTRACEPTIVE USE IN 2000 IS LEVEL NEEDED TO ACHIEVE FERTILITY ASSUMPTIONS IN TABLES IV AND POPULATION PROJECTIONS IN TABLE III
SOURCE: POPULATION REFERENCE BUREAU, 10/91

The number of women in child-bearing ages in developing countries is projected to increase from 717 million in 1990 to 874 million in 2000, an increase of 22 percent in one decade.

If the contraception prevalence objectives shown in Table IV are to be met, the number of those women in families using contraception must rise by nearly 60 percent, from 357 million in 1990 to 567 million in 2000. The required increase of 210

million in one decade compares with the actual increase of 175 million in the 20 years from 1970 to 1990.

That appears to be an unattainable objective.

It is not.

The task for certain countries and regions -- for example, India, Pakistan, and almost all of sub-Saharan Africa -- will indeed be difficult, but other countries have done as much or more. Thailand, Indonesia, Bangladesh and Mexico all increased use of contraceptives at least as rapidly. The actions they took are known and their experience can be exported. It is available to all who ask.

Almost all successful family planning programs have:

- Provided services -- contraceptive methods -- diverse enough to meet the needs of populations with widely different mores, income levels, and personal habits;
- Put great emphasis on the health benefits from family planning to both women and children;
- Used both public and private sectors, government and non-governmental organizations, for the support of the programs;
- Drawn on political leaders -- especially those at the local levels -- and religious leaders for support. This has been particularly true of the Indonesian program.

In one major respect, the task for the decade ahead is far less difficult than it appears to be. Contraception prevalence rates rise when there is both a demand for services and a supply available. Often the "demand" factor is the most difficult to create. But all the evidence indicates that today there is a large unmet demand waiting to be filled. Fertility surveys, for example, indicate that significant proportions of women have had unwanted births and that substantial numbers who wish to limit or space their children are not practicing contraception.[37]

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[37]John Bongaarts, et al., "The Demographic Impact of Family Planning Programs," *Studies in Family Planning,* vol. 21, no. 6, Nov./Dec. 1990, p. 305.

Table V supports these findings. It shows that in many countries desired family size has decreased substantially in recent years, indicating a rising demand for contraception services. Yet, UNFPA estimates that 300 million couples are not currently served by family planning networks. The gap between demand and supply -- the "unmet demand" -- is particularly large in Africa, but it exists across the developing world.

"Unmet Demand" for Contraception in Selected Countries

	% Married Women	
	Contraception Prevalence Rate	"Unmet Demand"
Burundi	9	20
Ghana	13	27
Kenya	28	29
Mali	5	21
Morocco	42	18
Ecuador	48	22
Peru	55	23
Average (all LDCs)*	51	17

Source: John Bongaarts, "The KAP-Gap and the Unmet Need for Contraception," *Population and Development Review,* vol 17, no. 2, June 1991, p. 308.

*Least Developed Countries.

The "unmet demand" can be overcome by improving family planning services and contraceptive distribution. It is estimated that this action alone would reduce population stabilization levels by about 2.2 billion.[38]

One of the factors standing in the way of meeting the unmet demand is lack of financial resources.

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[38]Ibid., p. 229.

X. Financial Requirements of the Proposed Program

Developing countries in 1990 spent $4 billion to $4.5 billion of public funds on family planning, $3 billion to $3.5 billion from domestic sources and about $800 million from external sources (Table VII).

I estimate that a global family planning program of the size I am proposing for the year 2000 would require approximately $8 billion in public funds in 1990 dollars.[39]

Because of the substantial increase in cost, I believe that the portion financed by the international donor community should be increased above the 1990 level. If local currency expenditures, in relation to gross domestic product (GDP), were held to 1990 levels, they would rise to about $4.5 billion in 2000. And the foreign funds required would increase from $800 million to approximately $3.5 billion. While the increment may appear large, it is very, very small in relation to GNP and Official Development Assistance (ODA) projected for the member countries of the Organisation for Economic Co-operation and Development (OECD). Indeed, in the year 2000 it would amount to less than two-hundredths of 1 percent of the total GNP of OECD countries and account for approximately 5 percent of ODA.

Clearly, it is within the capabilities of the industrialized nations and the multilateral financial institutions to assist the developing countries to finance expanded family planning programs. The World Bank has already started on such a path, doubling its financing of population projects in the current fiscal year (from $169 million in 1990 to an estimated $340 million in 1991). Others should follow its lead. The funds required are so small and the benefits to both families and nations so

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[39]The estimate is at best a rough approximation. However, it is sufficiently representative to permit judgements to be made as to whether family planning programs should be continued at present levels or sharply expanded.

large that money should not be allowed to stand in the way of reducing fertility rates as rapidly as desired by developing countries.

XI. Organizing to Carry Out the Program

If it were agreed that the interests of the developing nations and their peoples would be served by mobilizing a massive global effort during the 1990s to expand family planning services as I have proposed, what specific action is required?

I urge that emphasis be placed on six steps:

1. Each developing country, with the assistance of UNFPA, the World Bank and whatever other organizations it wishes to call on, should establish a target for its own long-term stabilization level, and support that target with a series of quantifiable and monitorable sub-objectives for the decade of the 1990s. Sub-targets should be set for: fertility rates, contraceptive prevalence levels, family planning expenditures, sources of finance, and so forth;
2. Each developing country should develop specific plans to achieve the objectives and report to its own people each year on the degree to which the objectives are being achieved;
3. The World Bank should assume the responsibility to organize the external financing required to support the country plans and serve as a financing source of last resort;
4. UNFPA should exercise overall monitoring of the Global Program;
5. The Economic and Social Council of the United Nations, meeting at the ministerial level, should receive annual reports from UNFPA on the progress or lack thereof and determine what further action is required to assure that the nations of the world are on a path

towards sustainable development and are making satisfactory progress in alleviating the disgraceful levels of poverty so evident across the globe;

6. And finally, I strongly recommend that a "Population Commission," similar in structure and purpose to the Pearson, Brandt, Palme and Nyerere commissions, be established, chaired preferably by a woman from a developing country, to assist in the preparation of the 1994 International Conference on Population and Development.

XII. Conclusion

Given the severity of the environmental and poverty problems facing the developing countries and the global community, reducing population growth rates below currently projected levels is a necessary, humane and low-cost step that will contribute to their solution. Reducing fertility will allow political leaders more time to come to grips with the immense pressures building on natural resources, and it will permit governments of developing countries to devote more resources to human development by increasing investment in education, health, welfare, and job creation.

The subject of population has just recently been placed on the agenda of the United Nations Conference on Environment and Development. Surely it deserves extended discussion there. And should there not be initiated there as well a discussion -- which will require decades to complete -- of how we in the developed world, consuming seven times as much per capita as do the citizens of the developing countries, may both adjust our consumption patterns and reduce the environmental impact of each unit of consumption, so as to help assure a sustainable path of development for all the inhabitants of our planet?

It will be neither morally defensible nor politically acceptable to do less.

TABLE I - Basic Indicators

Country	GNP Per Capita Amount[1]	GNP Per Capita Growth Rate 1985-88	Infant Mortality (per 1000 births)[2]	Life Expectancy[3]	% Literates[4] Females	% Literates[4] Males	% Age Strut.[5] 0-14 years
World*	**3,784**	**3.0**	**70**	**64**	**50**	**71**	**35**
More Developed	**17,675**	**2.5**	**15**	**74**	**94**	**98**	**22**
Less Developed	**766**	**3.0**	**78**	**62**	**49**	**71**	**37**
Africa	**623**	**0.7**	**103**	**54**	**35**	**58**	**45**
Sub Saharan	**1,706**	**0.6**	**100**	**52**	**36**	**57**	**45**
Low income	**242**	**-0.1**	**112**	**47**	**35**	**57**	**47**
Benin	380	0.1	90	46	12	26	47
Burkina Faso	320	1.2	138	47	6	23	44
Burundi	220	3.0	119	48	32	53	45
Central African Rep.	390	-0.5	104	49	19	45	45
Chad	190	-2.0	132	46	13	34	43
Ethiopia	120	-0.1	137	44	--	--	46
Gambia	240	--	143	43	11	30	44
Ghana	390	-1.6	90	54	42	63	45
Guinea	430	--	145	43	8	26	47
Guinea-Bissau	180	--	151	42	18	43	41
Kenya	360	1.9	72	58	53	77	50
Lesotho	470	5.2	100	56	84	62	43
Liberia	--	--	142	53	21	43	45
Madagascar	230	-1.8	120	54	68	86	45
Malawi	180	1.1	151	47	31	52	49
Mali	270	1.6	169	44	15	31	47
Mauritania	500	-0.4	127	46	16	40	45
Mozambique	80	--	142	47	16	39	44
Niger	290	-2.3	135	45	11	32	48
Nigeria	250	0.9	105	51	31	55	47
Rwanda	320	1.5	122	49	32	59	49
Sierra Leone	220	--	154	41	6	21	44
Somalia	170	0.5	132	45	9	27	47
Sudan	--	0.0	108	50	10	39	45
Tanzania	130	-0.5	106	53	88	93	49
Togo	390	0.0	94	53	25	51	45
Uganda	250	-3.1	103	51	29	57	50
Zaire	260	-2.1	83	52	53	79	46
Zambia	390	-2.1	80	53	59	77	49
Medium income	**1,464**	**1.3**	**88**	**57**	**36**	**58**	**43**
Angola	610	--	137	45	23	50	45
Botswana	1,600	8.6	67	59	60	82	49
Cameroon	1,000	3.7	94	52	36	61	47

Source: World Bank, *World Development Reports 1990* and *1991*, New York, Oxford University Press, 1990 and 1991; United Nations, *World Population Prospects*, 1990 (ST/ESA/SER.A/120), New York 1991; and United Nations Development Programme, *Human Development Report, 1990*, New York, Oxford University Press, 1990.

*** Excludes countries with populations of less than 1 million.**

[1]1989; [2]1985-90; [3]1985-90; [4]1985; [5]1990;

TABLE I - Basic Indicators
(continued)

Country	GNP Per Capita Amount[1]	GNP Per Capita Growth Rate 1985-88	Infant Mortality (per 1000 births)[2]	Life Expectancy[3]	% Literates[4] Females	% Literates[4] Males	% Age Strut.[5] 0-14 years
Congo	940	3.5	73	53	38	66	46
Cote d'Ivoire	790	0.9	96	52	31	53	48
Gabon	2,960	0.9	103	52	43	70	32
Mauritius	1,990	2.9	23	69	77	89	29
Namibia	1,030	--	106	56	--	--	46
Reunion	--	--	14	71	81	77	32
South Africa	2,470	0.8	73	60	--	--	37
Senegal	650	-0.8	87	47	19	45	45
Zimbabwe	650	1.0	66	58	55	70	45
North Africa	**1,265**	**2.9**	**71**	**62**	**33**	**60**	**41**
Algeria	2,230	2.7	74	64	35	63	44
Egypt	640	3.6	65	59	30	60	39
Lybia	5,310	-2.7	82	61	40	70	46
Morocco	880	2.3	82	61	30	54	41
Tunisia	1,260	3.4	52	66	47	68	38
Latin America and the Caribbean	**1,953**	**2.1**	**54**	**67**	**80**	**84**	**36**
Argentina	2,160	0.0	32	71	94	95	30
Bolivia	620	-0.6	110	53	65	81	44
Brazil	2,540	3.6	63	65	77	80	35
Chile	1,770	0.1	20	72	92	93	31
Colombia	1,200	2.4	40	68	84	86	36
Costa Rica	1,780	1.4	18	75	92	92	36
Cuba	--	--	15	75	91	94	23
Dominican Rep.	790	2.7	65	66	79	82	38
Ecuador	1,020	3.1	63	65	81	86	40
El Salvador	1,070	-0.5	64	62	65	73	44
Guatemala	910	1.0	59	62	44	60	45
Guyana	340	--	56	63	94	97	33
Haiti	360	0.4	97	55	42	54	40
Honduras	900	0.6	69	64	65	71	45
Jamaica	1,260	-1.5	17	73	98	98	33
Mexico	2,010	2.3	43	69	82	88	37
Nicaragua	--	-2.5	62	63	78	78	46
Panama	1,760	2.2	23	72	86	87	35
Paraguay	1,030	3.1	42	67	86	91	40
Peru	1,010	0.1	88	61	75	90	38
Puerto Rico	--	--	15	75	89	90	26
Trinidad & Tob.	3,230	0.9	16	71	94	96	34
Uruguay	2,620	1.3	24	72	95	96	26
Venezuela	2,450	-0.9	36	70	88	84	38
Asia & Middle East	**631**	**3.7**	**73**	**59**	**47**	**71**	**35**
Afghanistan	--	--	172	41	9	38	42
Bangladesh	180	0.4	119	51	19	45	44
Bhutan	--	--	128	48	19	45	40
Cambodia	--	--	130	48	17	41	35
China	350	5.4	32	69	55	80	26
Cyprus	7,040	--	12	76	85	93	26
Fiji	1,650	--	27	64	75	85	37

TABLE I - Basic Indicators
(continued)

Country	GNP Per Capita Amount[1]	GNP Per Capita Growth Rate 1985-88	Infant Mortality (per 1000 births)[2]	Life Expectancy[3]	% Literates[4] Females	% Literates[4] Males	% Age Strut.[5] 0-14 years
Hong Kong	10,350	6.3	7	72	81	95	21
India	340	1.8	99	58	29	58	36
Indonesia	500	4.3	75	60	64	80	36
Iran, Islamic Rep.	3,200	--	52	65	36	59	44
Iraq	--	--	69	64	41	64	46
Israel	9,790	2.7	12	75	93	97	31
Jordan	1,l640	--	44	66	62	86	44
Korea, PDR	--	--	28	70	--	--	29
Korea, Rep	4,400	6.8	25	69	91	98	26
Kuwait	16,150	-4.3	18	73	63	75	35
Lao, PDR	180	--	110	48	76	92	44
Lebanon	--	--	49	65	69	86	36
Malaysia	2,160	4.0	24	69	65	83	38
Mongolia	--	--	68	61	87	95	41
Myanmar	--	--	70	60	69	88	37
Nepal	180	--	128	51	11	34	42
Oman	5,220	6.4	40	64	12	47	46
Pakistan	370	2.5	109	56	18	43	46
Papua New Guinea	890	0.5	59	54	32	60	41
Philippines	710	1.6	45	63	87	88	40
Saudi Arabia	6,020	3.8	71	63	43	69	45
Singapore	10,450	7.2	8	73	76	90	23
Sri Lanka	430	3.0	28	70	81	92	33
Syrian Arab Rep.	980	2.9	49	65	44	74	48
Taiwan[6]	--	--	--	--	85	96	--
Thailand	1,220	4.0	28	65	87	95	33
Turkey	1,370	2.6	76	64	64	88	35
U. Arab Emirates	18,430	--	26	70	--	--	31
Vietnam	--	--	64	61	80	90	39
Yemen	650	--	120	50	20	47	50
Eastern Europe	**2,469**	**3.9**	**21**	**71**	**87**	**97**	**24**
Albania	--	--	39	72	--	--	33
Bulgaria	2,320	--	16	72	--	--	20
Czechoslovakia	3,450	--	15	71	--	--	23
Hungary	2,590	5.1	20	70	--	--	20
Poland	1,790	--	18	72	--	--	25
Romania	--	--	23	70	--	--	23
Yugoslavia	2,920	3.4	25	72	87	97	23
U.S.S.R.	**--**	**--**	**24**	**70**	**--**	**--**	**25**
OECD countries	**19,747**	**2.4**	**9**	**76**	**96[7]**	**98[7]**	**20**
Australia	14,360	1.7	8	76	--	--	22
Austria	17,300	2.9	11	74	--	--	17
Belgium	16,220	2.5	10	75	--	--	18
Canada	19,030	2.7	7	77	--	--	21
Denmark	20,450	1.8	7	75	--	--	17
Finland	22,120	3.2	6	75	--	--	19
France	17,820	2.5	8	76	--	--	20
Germany	20,440	2.4	9	75	--	--	16

[6]A province of China; [7]data not available; these are approximations.

TABLE I - Basic Indicators
(continued)

Country	GNP Per Capita Amount[1]	GNP Per Capita Growth Rate 1985-88	Infant Mortality (per 1000 births)[2]	Life Expectancy[3]	% Literates[4] Females	% Literates[4] Males	% Age Strut.[5] 0-14 years
Ireland	8,710	2.0	9	74	--	--	28
Italy	15,120	3.0	11	76	96	98	17
Japan	23,810	4.3	5	78	--	--	18
Netherlands	15,920	1.9	8	77	--	--	18
New Zealand	12,070	0.8	11	75	--	--	23
Norway	22,290	3.5	7	77	--	--	19
Sweden	21,570	1.8	6	77	--	--	17
Switzerland	29,880	1.5	7	77	--	--	16
United Kingdom	14,610	1.8	9	75	--	--	19
United States	20,910	1.6	10	76	--	--	21

TABLE II - Population and Population Growth Rates: Past and Current

	Population (in millions)			Growth Rates - Average Annual		
Country	1950	1990	2000[1]	1950-1980	1980-1990	1990-2000
World*	2,516.4	5,292.2	6,260.8	1.9	1.7	1.7
More Developed	788.6	1,150.1	1,206.4	1.1	0.6	0.5
Less Developed	1,678.4	4,070.6	4,978.3	2.3	2.1	2.0
Africa	221.0	639.3	862.7	2.6	3.0	3.0
Sub Saharan	178.4	524.1	717.6	3.9	4.5	3.0
Low income	145.0	429.7	592.6	2.6	3.1	3.2
Benin	2.0	4.6	6.4	1.8	2.9	3.2
Burkina Faso	3.7	9.0	12.1	2.1	2.6	3.0
Burundi	2.5	5.5	7.4	1.7	2.8	3.0
Central African Rep.	1.3	3.0	4.1	1.9	2.7	2.9
Chad	2.7	5.7	7.3	1.7	2.4	2.6
Ethiopia	19.6	49.2	66.4	2.3	2.4	3.0
Gambia	0.3	0.9	1.1	2.6	3.0	2.6
Ghana	4.9	15.0	20.6	2.6	3.4	3.1
Guinea	2.6	5.8	7.8	1.9	2.5	3.1
Guina-Bissau	0.5	1.0	1.2	1.5	1.9	2.2
Kenya	6.3	24.0	35.1	3.3	3.7	3.8
Lesotho	0.7	1.8	2.4	2.0	2.8	2.9
Liberia	0.8	2.6	3.6	2.7	3.2	3.3
Madagascar	4.2	12.0	16.6	2.4	3.1	3.3
Malawi	2.9	8.8	12.5	2.5	3.5	3.5
Mali	3.5	9.2	12.7	2.2	2.9	3.2
Mauritania	0.8	2.0	2.7	2.1	2.7	2.9
Mozambique	6.2	15.7	20.5	2.2	2.6	2.7
Niger	2.4	7.7	10.8	2.8	3.2	3.3
Nigeria	32.9	108.5	149.6	2.9	3.2	3.2
Rwanda	2.1	7.2	10.2	3.0	3.4	3.4
Sierra Leone	1.9	4.2	5.4	1.7	2.4	2.7
Somalia	2.4	7.5	9.7	2.6	3.4	2.6
Sudan	9.2	25.2	33.6	2.4	3.0	2.9
Tanzania	7.9	27.3	39.6	2.9	3.7	3.7
Togo	1.3	3.5	4.9	2.3	3.0	3.2
Uganda	4.8	18.8	27.0	3.4	3.6	3.6
Zaire	12.2	35.6	49.2	2.6	3.0	3.2
Zambia	2.4	8.5	12.3	2.9	3.9	3.7
Medium income	33.4	94.4	125.0	2.6	2.8	2.8
Angola	4.1	10.0	13.3	2.1	2.6	2.8
Botswana	0.4	1.3	1.8	2.8	3.7	3.3
Cameroon	4.5	11.8	16.7	2.2	3.1	3.4
Congo	0.8	2.3	3.2	2.4	3.1	3.3
Cote d'Ivoire	2.8	12.0	17.6	3.6	3.8	3.8
Gabon	0.5	1.2	1.6	1.8	3.7	3.2

Source: Population Council, New York, September 1991.

* Excludes countries with populations of less than half a million.
[1] Based on UN median projection in United Nations, ***World Population Prospects, 1990***, New York, 1991.

TABLE II - Population and Population Growth Rates: Past and Current (continued)

Country	Population (in millions)			Growth Rates - Average Annual		
	1950	1990	2000[1]	1950-1980	1980-1990	1990-2000
Reunion	0.3	0.6	0.7	2.3	1.6	1.5
Mauritius	0.5	1.1	1.2	2.2	1.1	1.0
Namibia	0.7	1.8	2.4	2.2	3.1	3.1
S. Africa	13.7	35.3	43.7	2.4	2.2	2.1
Senegal	2.5	7.3	9.7	2.7	2.8	2.8
Zimbabwe	2.7	9.7	13.1	3.2	3.1	3.0
North Africa	**42.6**	**115.2**	**145.1**	**2.4**	**2.6**	**2.3**
Algeria	8.8	25.0	32.9	2.5	2.9	2.8
Egypt	20.3	52.4	64.2	2.3	2.5	2.0
Libya	1.0	4.5	6.5	3.6	4.0	3.6
Morocco	9.0	25.1	31.6	2.6	2.6	2.3
Tunisia	3.5	8.2	9.9	2.0	2.5	1.9
Latin America and the Caribbean	**164.2**	**445.2**	**535.2**	**2.6**	**2.1**	**1.8**
Argentina	17.1	32.3	36.2	1.7	1.4	1.1
Bolivia	2.8	7.3	9.7	2.3	2.7	2.8
Brazil	53.4	150.4	179.5	2.7	2.1	1.8
Chile	6.1	13.2	15.3	2.0	1.7	1.5
Colombia	11.9	33.0	39.4	2.7	2.0	1.8
Costa Rica	0.9	3.0	3.7	3.2	2.8	2.1
Cuba	5.9	10.6	11.5	1.7	0.9	0.8
Dominican Republic	2.4	7.2	8.6	2.9	2.3	1.8
Ecuador	3.3	10.6	13.3	3.0	2.6	2.3
El Salvador	1.9	5.3	6.7	2.8	1.5	2.5
Guatemala	3.0	9.2	12.2	2.8	2.8	2.8
Guyana	0.4	0.8	0.9	1.9	0.5	1.1
Haiti	3.3	6.5	8.0	1.7	1.9	2.1
Honduras	1.4	5.1	6.8	3.2	3.4	2.9
Jamaica	1.4	2.5	2.7	1.4	1.4	1.1
Mexico	28.0	88.6	107.2	3.1	2.3	1.9
Nicaragua	1.1	3.9	5.3	3.1	3.3	3.1
Panama	0.9	2.4	2.9	2.6	2.1	1.8
Paraguay	1.4	4.3	5.5	2.8	3.1	2.6
Peru	7.6	21.5	26.3	2.7	2.2	2.0
Puerto Rico	2.2	3.5	3.8	1.2	0.8	1.0
Trinidad & Tobago	0.6	1.3	1.5	1.8	1.7	1.5
Uruguay	2.2	3.1	3.3	0.9	0.6	0.6
Venezuela	5.0	19.7	24.7	3.7	2.7	2.3
Asia & Middle East	**1,294.4**	**2,990.7**	**3,585.7**	**2.2**	**1.9**	**1.8**
Afghanistan	9.0	16.6	26.5	1.9	0.3	4.7
Bangladesh	41.8	115.6	150.6	2.5	2.7	2.6
Bhutan	0.7	1.5	1.9	1.8	2.0	2.3
Cambodia	4.3	8.2	10.0	1.3	2.5	2.0
China	554.8	1,139.1	1,299.2	2.0	1.3	1.3
Cyprus	0.5	0.7	0.8	0.8	1.1	0.8
Fiji	0.3	0.8	0.9	2.6	1.9	1.4
Hong Kong	2.0	5.9	6.3	3.1	1.5	0.8
India	357.6	853.1	1,041.5	2.2	2.1	2.0
Indonesia	79.5	184.3	218.7	2.1	2.0	1.7

TABLE II - Population and Population Growth Rates: Past and Current (continued)

Country	Population (in millions)			Growth Rates - Average Annual		
	1950	1990	2000[1]	1950-1980	1980-1990	1990-2000
Iran, Islamic Rep.	16.9	54.6	68.8	2.8	3.4	2.3
Iraq	5.2	18.9	26.3	3.2	3.5	3.3
Israel	1.3	4.6	5.3	3.8	1.7	1.5
Jordan	1.2	4.0	5.6	2.9	3.2	3.3
Korea, PDR	9.7	21.8	26.1	2.1	1.8	1.8
Korea, Rep	20.4	42.8	46.4	2.1	1.2	0.8
Kuwait	0.2	2.0	2.6	7.3	3.9	2.6
Lao, PDR	1.8	4.1	5.5	2.0	2.6	2.8
Lebanon	1.4	2.7	3.3	2.0	0.1	2.1
Malaysia	6.1	17.9	22.0	2.7	2.6	2.1
Mongolia	0.8	2.2	2.8	2.6	2.8	2.6
Myanmar	17.8	41.7	51.1	2.1	2.1	2.0
Nepal	8.2	19.1	24.1	2.0	2.5	2.3
Oman	0.4	1.5	2.2	2.9	4.2	3.7
Pakistan	39.5	122.6	162.4	2.6	3.6	2.8
Papua New Guinea	1.6	3.9	4.8	2.2	2.3	2.2
Philippines	21.0	62.4	77.5	2.8	2.6	2.2
Saudi Arabia	3.2	14.1	20.7	3.6	4.1	3.8
Singapore	1.0	2.7	3.0	2.9	1.2	1.0
Sri Lanka	7.7	17.2	19.4	2.2	1.5	1.2
Syria	3.5	12.5	17.8	3.1	3.5	3.5
Taiwan[2]	--	--	--	--	--	--
Thailand	20.0	55.7	63.7	2.8	1.8	1.3
Turkey	20.8	55.9	66.8	2.5	2.3	1.8
U. Arab Emirates	0.1	1.6	2.0	8.9	4.5	2.1
Vietnam	30.0	66.7	82.4	1.9	2.2	2.1
Yemen	4.3	11.7	16.6	2.1	3.5	3.5
Eastern Europe	**87.7**	**124.0**	**129.2**	**1.0**	**0.5**	**0.4**
Albania	1.2	3.2	3.8	2.6	1.9	1.6
Bulgaria	7.3	9.0	9.1	0.7	0.2	0.1
Czechoslovakia	12.4	15.7	16.2	0.7	0.2	0.3
Hungary	9.3	10.6	10.5	0.5	-0.1	0.0
Poland	24.8	38.4	40.4	1.2	0.8	0.5
Romania	16.8	23.3	24.3	1.0	0.5	0.5
Yugoslavia	16.3	23.8	24.9	1.0	0.7	0.4
U.S.S.R.	**180.1**	**288.6**	**308.4**	**1.3**	**0.8**	**0.7**
OECD countries	**519.56**	**733.0**	**763.5**	**1.0**	**0.5**	**0.4**
Australia	8.2	16.9	18.9	1.9	1.4	1.1
Austria	6.9	7.6	7.6	0.3	0.0	0.0
Belgium	8.6	9.8	9.8	0.4	0.0	0.0
Canada	13.7	26.5	28.5	1.9	1.0	0.7
Denmark	4.3	5.1	5.2	0.6	0.0	0.0
Finland	4.0	5.0	5.1	0.6	0.4	0.2
France	41.8	56.1	58.1	0.8	0.4	0.4
Germany	68.4	77.6	77.0	0.5	-0.1	-0.1
Ireland	3.0	3.7	4.1	0.5	0.9	0.9
Italy	47.1	57.1	57.2	0.6	0.1	0.4

[2] **A province of China.**

TABLE II - Population and Population Growth Rates: Past and Current (continued)

Country	Population (in millions)			Growth Rates - Average Annual		
	1950	1990	2000[1]	1950-1980	1980-1990	1990-2000
Japan	83.6	123.5	128.5	1.1	0.6	0.6
Netherlands	10.1	15.0	15.8	1.1	0.6	0.6
New Zealand	1.9	3.4	3.7	1.6	0.9	0.8
Norway	3.3	4.2	4.3	0.7	0.3	0.3
Sweden	7.0	8.4	8.6	0.6	0.2	0.1
Switzerland	4.7	6.6	6.8	1.0	0.4	0.2
United Kingdom	50.6	57.2	58.4	0.4	0.2	0.2
United States	152.3	249.2	266.1	1.3	0.9	0.7

TABLE III - Projected Population Levels by Country (in millions)

Country	1990	2000	2025	2050	2100
World*	**5,220.8**	**6,023.3**	**7,765.5**	**8,911.9**	**9,705.6**
More Developed	**1,150.1**	**1,212.9**	**1,318.4**	**1,338.0**	**1,347.0**
Less Developed	**4,070.6**	**4,832.8**	**6,447.2**	**7,573.9**	**8,359.0**
Africa	**639.3**	**827.4**	**1,226.9**	**1,547.5**	**1,807.8**
Sub Saharan	**526.1**	**687.7**	**1,033.2**	**1,314.1**	**1,549.3**
Low income	**429.7**	**567.5**	**856.9**	**1,094.0**	**1,295.9**
Benin	4.6	6.2	9.2	11.7	13.7
Burkina Faso	9.0	11.3	16.0	19.8	23.1
Burundi	5.5	7.2	10.7	13.8	16.5
Central African Rep.	3.0	3.8	5.5	6.9	8.0
Chad	5.7	6.9	9.5	11.5	13.5
Ethiopia	49.2	67.3	101.9	130.1	155.4
Gambia	0.9	1.1	1.5	1.8	2.1
Ghana	15.0	19.4	28.9	36.6	42.8
Guinea	5.8	7.1	9.9	12.2	14.4
Guinea-Bissau	1.0	1.2	1.6	2.0	2.4
Kenya	24.0	32.6	51.3	66.9	77.9
Lesotho	1.8	2.2	3.2	4.0	4.6
Liberia	2.6	3.3	5.0	6.2	7.2
Madagascar	12.0	14.9	21.7	27.1	31.7
Malawi	8.8	11.3	17.2	21.7	25.8
Mali	9.2	10.7	15.8	20.0	23.6
Mauritania	2.0	2.4	3.5	4.3	5.1
Mozambique	15.7	20.3	29.8	37.4	44.2
Niger	7.7	9.9	14.8	18.8	22.4
Nigeria	108.5	155.0	236.5	303.3	359.3
Rwanda	7.2	10.0	16.5	21.9	26.8
Sierra Leone	4.2	5.0	6.7	8.1	9.4
Somalia	7.5	8.0	11.5	14.3	16.8
Sudan	25.2	32.2	46.6	58.4	68.7
Tanzania	27.3	32.0	47.9	60.8	71.7
Togo	3.5	4.9	7.4	9.7	11.5
Uganda	18.8	23.2	35.8	46.5	55.6
Zaire	35.6	47.0	72.9	94.4	112.7
Zambia	8.4	11.1	18.0	23.7	28.5
Medium income	**94.4**	**120.2**	**176.3**	**220.1**	**253.5**
Angola	10.0	12.6	18.2	22.7	26.8
Botswana	1.3	1.6	2.3	2.9	3.2
Cameroon	11.8	15.9	25.3	33.3	39.4
Congo	2.3	3.1	5.0	6.6	7.9
Cote d'Ivoire	12.0	17.1	27.9	36.6	44.2
Gabon	1.2	1.5	2.1	2.8	3.3
Mauritius	1.1	1.2	1.4	1.5	1.5
Namibia	1.8	2.3	3.5	4.4	5.1
Reunion	0.6	0.7	0.6	1.0	1.0

Source: World Bank Data Files
Note: The projections assume that each "Less Developed" country will increase in the use of contraceptives at the maximum possible rate. They approximate the World Bank's estimate of "rapid" reductions in fertility rates.

*** Excludes countries with populations of less than half a million.**

TABLE III - Projected Population Levels by Country (in millions) (continued)

Country	1990	2000	2025	2050	2100
South Africa	35.3	42.6	57.7	68.3	75.4
Senegal	17.3	9.3	13.8	17.6	20.9
Zimbabwe	9.7	12.4	18.1	22.3	24.6
North Africa	**115.2**	**139.7**	**193.7**	**233.3**	**258.5**
Algeria	25.0	32.0	47.0	58.2	64.1
Egypt	52.0	61.2	81.2	95.5	105.8
Libya	4.5	6.1	9.4	12.1	13.9
Morocco	25.1	30.5	42.6	51.4	57.2
Tunisia	8.2	9.9	13.6	16.1	17.5
Latin America and the Caribbean	**445.2**	**516.3**	**685.9**	**798.9**	**860.6**
Argentina	32.3	35.5	43.1	48.3	51.1
Bolivia	7.3	9.3	13.4	16.7	19.4
Brazil	150.4	175.1	230.8	265.6	285.7
Chile	13.2	14.8	18.6	20.8	21.9
Colombia	33.0	37.8	50.1	57.5	61.1
Costa Rica	3.0	3.3	4.5	5.1	5.4
Cuba	10.6	11.7	13.6	14.2	14.3
Dominican Republic	7.2	8.4	11.2	13.1	14.2
Ecuador	10.6	12.9	17.7	21.0	22.9
El Salvador	5.3	6.1	8.5	10.5	11.7
Guatemala	9.2	11.7	17.4	22.2	25.3
Guyana	0.8	0.8	1.0	1.2	1.3
Haiti	6.5	7.5	9.7	11.6	13.2
Honduras	5.1	6.4	9.5	11.8	13.2
Jamaica	2.5	2.5	2.9	3.3	3.5
Mexico	88.6	101.3	137.8	162.3	173.2
Nicaragua	3.9	5.0	7.6	9.7	10.9
Panama	2.4	2.8	3.7	4.2	4.4
Paraguay	4.3	5.3	7.5	9.2	10.1
Peru	21.6	26.13	5.3	41.7	45.7
Puerto Rico	3.5	3.4	3.5	3.7	3.7
Trinidad & Tobago	1.3	1.4	1.8	2.1	2.2
Uruguay	3.1	3.3	3.8	4.1	4.3
Venezuela	19.7	24.0	32.9	38.8	41.9
Asia & Middle East	**2,990.7**	**3,472.1**	**4,539.1**	**5,235.4**	**5,698.4**
Afghanistan	16.6	25.3	34.8	42.2	49.3
Bangladesh	115.6	134.6	183.3	219.4	249.4
Bhutan	1.5	1.7	2.2	2.7	3.1
Cambodia	8.2	9.8	12.7	14.8	17.0
China	1139.1	1284.6	1582.0	1741.1	1826.3
Cyprus	0.7	0.8	0.9	0.9	1.0
Fiji	0.8	0.8	1.0	1.1	1.2
Hong Kong	5.9	6.3	7.0	6.8	6.4
India	853.1	991.7	1287.4	1495.0	1648.8
Indonesia	184.3	210.3	275.8	320.0	347.7
Iran, Islamic Rep.	54.6	70.9	105.2	130.8	147.7
Iraq	18.9	25.5	39.7	51.3	58.9
Israel	4.6	5.5	7.0	7.9	8.2
Jordan	4.0	4.4	7.0	9.1	10.5
Korea, PDR	21.8	25.3	32.7	36.6	38.3

TABLE III - Projected Population Levels by Country (in millions) (continued)

Country	1990	2000	2025	2050	2100
Korea, Rep.	42.8	46.7	53.4	55.2	55.1
Kuwait	2.0	2.8	3.9	4.4	4.6
Lao, PDR	4.1	5.3	7.7	9.7	11.4
Lebanon	2.7	2.9	3.9	4.8	5.2
Malaysia	17.9	21.4	29.3	34.7	37.3
Mongolia	2.2	2.6	3.8	4.7	5.2
Myanmar	41.7	50.1	68.0	81.2	90.0
Nepal	19.1	23.5	32.6	39.6	45.5
Oman	1.5	2.2	3.6	4.8	5.6
Pakistan	122.6	149.9	225.7	285.8	332.4
Papua New Guinea	3.9	4.8	6.5	8.1	9.3
Philippines	62.4	72.9	98.5	117.2	128.3
Saudi Arabia	14.1	20.7	33.5	44.0	51.7
Singapore	2.7	3.0	3.4	3.5	3.5
Sri Lanka	17.2	18.9	23.7	26.5	27.9
Syrian Arab Rep.	12.5	17.4	28.5	37.8	44.2
Taiwan[1]	--	22.1	25.7	26.7	26.6
Thailand	55.7	63.8	82.6	94.1	100.4
Turkey	55.9	67.2	89.1	103.8	112.4
U. Arab Emirates	1.6	1.9	2.4	2.5	2.7
Vietnam	66.7	81.0	112.3	135.0	147.4
Yemen	11.7	15.6	24.4	31.8	38.1
Eastern Europe	**124.0**	**128.0**	**139.7**	**146.9**	**152.7**
Albania	3.2	3.8	4.9	5.6	5.9
Bulgaria	9.0	8.4	8.4	8.5	8.6
Czechoslovakia	15.7	16.1	17.6	18.4	19.1
Hungary	10.6	10.4	10.4	10.4	10.5
Poland	38.4	39.5	43.7	46.4	48.7
Romania	23.3	24.5	27.1	29.1	30.6
Yugoslavia	23.8	25.2	27.6	28.6	29.3
U.S.S.R.	**288.6**	**307.9**	**352.6**	**379.3**	**397.4**
OECD countries	**733.0**	**771.6**	**819.0**	**803.9**	**788.8**
Australia	16.9	19.5	23.1	23.9	23.9
Austria	7.6	7.7	7.6	7.1	6.7
Belgium	9.8	10.2	10.1	9.7	9.3
Canada	26.5	28.8	32.2	31.9	31.0
Denmark	5.1	5.1	5.0	4.6	4.4
Finland	5.0	5.1	5.1	4.9	4.8
France	56.1	58.9	62.8	62.9	62.3
Germany	77.6	76.3	71.7	64.7	60.8
Ireland	3.7	3.6	4.2	4.6	4.8
Italy	57.0	57.7	55.0	50.1	45.6
Japan	123.5	128.7	130.7	124.6	119.9
Netherlands	15.0	15.5	15.9	14.8	14.0
New Zealand	3.4	3.7	4.2	4.4	4.4
Norway	4.2	4.4	4.7	4.6	4.6
Sweden	8.4	8.8	9.2	9.1	9.2
Switzerland	6.6	6.9	6.9	6.5	6.2
United Kingdom	57.2	58.9	61.36	1.2	60.9
United States	249.2	271.7	309.1	314.1	315.9

[1] A province of China.

TABLE IV - Fertility Rates and Contraceptive Use in Developing Countries (Associated with the population projection in Table III)

Country	Fertility Rates				Contraceptive Use[1]		
	1965	1990	2000	2025	1990	2000	2025
World*	**5.0**	**3.48**	**2.65**	**2.13**	**53.8**	**65.4**	**73.6**
More Developed	**2.6**	**1.92**	**1.88**	**2.04**	**71.3**	**70.7**	**65.6**
Less Developed	**6.1**	**3.92**	**2.83**	**2.14**	**50.5**	**64.4**	**74.7**
Africa	**6.8**	**6.13**	**4.14**	**2.20**	**16.6**	**43.7**	**72.9**
Sub Saharan	**6.6**	**6.09**	**4.13**	**2.19**	**20.15**	**44.5**	**73.5**
Low income	**6.8**	**6.69**	**4.53**	**2.23**	**7.8**	**37.4**	**72.2**
Benin	7.0	6.35	4.10	2.23	5.9	40.0	70.5
Burkina Faso	6.7	6.50	4.10	2.31	3.1	38.3	68.2
Burundi	6.8	6.80	4.40	2.28	8.7	40.2	71.9
Central Afr. Rep.	5.7	5.75	4.11	2.24	12.7	37.8	69.3
Chad	6.0	5.96	4.00	2.25	17.2	43.3	71.0
Ethiopia	6.7	7.50	5.10	2.31	3.8	33.6	73.1
Gambia	6.5	6.50	4.31	2.43	0.0	32.6	65.1
Ghana	6.9	6.25	4.00	2.17	13.4	45.4	73.3
Guinea	7.0	6.50	4.32	2.49	0.0	32.4	64.1
Guinea-Bissau	5.2	6.00	4.80	2.60	18.9	36.3	68.3
Kenya	8.1	6.66	4.00	2.11	28.4	57.1	79.7
Lesotho	5.8	5.65	3.68	2.14	18.9	48.0	72.5
Liberia	6.7	6.35	4.10	2.14	7.0	40.7	72.2
Madagascar	6.6	6.45	4.06	2.27	0.0	36.6	67.7
Malawi	7.1	7.60	5.20	2.36	7.0	35.3	73.6
Mali	7.1	7.03	4.74	2.31	4.6	34.7	71.3
Mauritania	6.5	6.80	4.40	2.34	0.0	34.5	68.3
Mozambique	6.4	6.41	4.45	2.27	0.0	29.1	67.4
Niger	7.1	7.14	4.91	2.31	0.0	30.1	70.4
Nigeria	6.9	6.58	4.44	2.16	7.3	38.0	73.0
Rwanda	7.8	8.29	5.89	2.33	14.4	38.1	78.3
Sierra Leone	6.3	6.50	4.10	2.39	4.0	38.8	67.2
Somalia	6.6	6.77	4.37	2.31	0.0	34.6	68.7
Sudan	6.7	6.33	4.25	2.27	3.4	35.8	68.8
Tanzania	6.9	6.56	4.38	2.25	3.0	34.2	69.5
Togo	6.6	6.65	4.40	2.18	33.9	56.7	80.8
Uganda	6.9	7.30	4.90	2.28	4.9	35.2	73.1
Zaire	6.0	6.05	4.72	2.20	14.2	33.8	72.6
Zambia	6.6	6.71	4.90	2.20	3.0	29.2	71.8
Medium income	**6.5**	**5.49**	**3.73**	**2.15**	**32.5**	**51.6**	**74.9**
Angola	6.4	6.47	4.40	2.28	3.0	32.8	68.6
Botswana	6.9	4.81	2.72	2.06	35.0	65.0	75.0
Cameroon	6.1	6.47	4.72	2.13	2.0	28.6	71.5
Congo	6.1	6.56	5.13	2.17	11.2	30.1	74.0
Cote d'Ivoire	7.4	7.32	5.28	2.24	3.0	30.0	73.8
Gabon	4.1	5.71	4.89	2.22	30.8	39.8	75.7

Source: Fertility rates are from World Bank Data Files; contraceptive use is from The Population Council Data Bank.

* **Excludes countries with populations of less than half a million.**

[1] **Percentage of married women of childbearing age in families using contraception.**

TABLE IV - Fertility Rates and Contraceptive Use in Developing Countries (continued)

Country	Fertility Rates				Contraceptive Use[1]		
	1965	1990	2000	2025	1990	2000	2025
Mauritius	5.0	1.88	1.78	2.03	79.5	80.9	77.4
Namibia	6.1	5.94	3.90	2.10	14.2	44.4	73.0
Reunion	5.2	2.29	2.06	2.05	69.6	73.3	73.6
S. Africa	6.2	4.28	2.71	2.07	56.3	71.0	79.1
Senegal	7.0	6.50	4.10	2.28	14.9	45.8	72.5
Zimbabwe	7.5	4.98	2.76	2.07	45.7	71.0	79.5
North Africa	**7.0**	**4.55**	**2.89**	**2.11**	**41.2**	**62.7**	**74.3**
Algeria	7.4	5.16	3.18	2.10	44.5	65.8	79.2
Egypt	6.8	4.11	2.69	2.13	40.8	62.2	71.5
Libya	7.3	6.67	3.87	2.10	4.7	43.7	72.6
Morocco	7.1	4.69	2.91	2.11	41.5	61.9	74.0
Tunisia	7.0	3.90	2.56	2.09	54.2	71.1	77.5
Latin America and the Caribbean	**5.8**	**3.37**	**2.36**	**2.09**	**60.3**	**72.5**	**76.3**
Argentina	3.1	2.82	2.17	2.07	61.5	71.3	72.8
Bolivia	6.6	5.91	3.90	2.18	31.0	55.0	77.1
Brazil	5.7	3.23	2.24	2.08	69.2	79.4	81.2
Chile	4.9	2.59	2.10	2.07	64.4	71.2	71.6
Colombia	6.5	2.90	2.14	2.08	66.7	75.6	76.3
Costa Rica	6.4	3.06	2.17	2.07	70.9	80.1	81.3
Cuba	4.5	1.90	1.91	2.05	61.0	60.7	57.2
Dominican Rep.	7.0	3.51	2.50	2.09	55.3	69.4	75.4
Ecuador	6.8	4.03	2.61	2.10	48.4	67.4	75.0
El Salvador	6.7	4.65	2.89	2.09	52.6	69.5	79.3
Guatemala	6.7	5.45	3.50	2.10	26.6	53.6	74.7
Guyana	6.1	2.85	2.17	2.08	51.1	63.1	64.8
Haiti	6.2	4.83	3.05	2.18	10.8	41.0	60.5
Honduras	7.4	5.27	2.98	2.10	46.1	69.5	80.0
Jamaica	5.7	2.44	2.08	2.05	56.4	64.2	64.6
Mexico	6.7	3.32	2.22	2.08	57.9	73.0	75.1
Nicaragua	7.2	5.35	3.42	2.09	38.9	61.6	78.5
Panama	5.8	2.90	2.10	2.07	66.4	75.7	76.1
Paraguay	6.6	4.65	2.85	2.09	47.0	65.8	76.5
Peru	6.7	3.82	2.58	2.10	54.9	70.4	76.9
Puerto Rico	3.9	2.29	2.08	2.06	74.8	77.5	77.7
Trinidad & Tob.	4.4	2.80	2.14	2.06	54.5	66.4	68.0
Uruguay	2.9	2.31	2.09	2.07	69.5	73.0	73.4
Venezuela	6.2	3.56	2.47	2.08	40.6	60.1	67.7
Asia & Middle East	**6.0**	**3.53**	**2.59**	**2.13**	**56.1**	**68.2**	**75.0**
Afghanistan	7.1	6.90	4.50	2.61	1.6	35.0	65.1
Bangladesh	6.8	4.88	3.20	2.28	32.9	55.3	70.0
Bhutan	5.9	5.53	3.52	2.38	8.9	41.3	62.8
Cambodia	6.3	4.56	3.20	2.20	23.8	46.8	65.8
China	6.0	2.47	2.12	2.08	74.9	78.5	79.0
Cyprus	3.1	2.23	2.09	2.07	71.1	73.4	73.6
Fiji	5.3	3.05	2.18	2.08	44.7	61.9	64.0
Hong Kong	4.7	1.55	1.60	2.00	82.6	81.9	75.8
India	5.7	4.00	2.68	2.14	44.9	64.1	72.7
Indonesia	5.5	3.25	2.27	2.10	52.2	68.0	70.9
Iran, Islam. Rep.	7.1	6.03	3.50	2.12	30.8	58.7	77.1

TABLE IV - Fertility Rates and Contraceptive Use in Developing Countries (continued)

Country	Fertility Rates				Contraceptive Use[1]		
	1965	1990	2000	2025	1990	2000	2025
Iraq	7.2	6.20	3.95	2.12	12.4	45.0	73.5
Israel	3.8	2.85	2.14	2.07	60.7	71.4	72.7
Jordan	8.0	6.30	4.05	2.08	35.8	59.3	81.3
Korea, PDR	6.3	2.36	2.11	2.07	68.4	72.5	73.1
Korea, Rep	5.0	1.77	1.78	2.03	76.1	76.0	71.6
Kuwait	7.4	3.66	2.47	2.05	52.1	69.6	75.8
Lao, PDR	6.2	6.69	4.29	2.29	5.1	38.4	70.2
Lebanon	6.2	3.64	2.51	2.10	38.7	58.4	66.5
Malaysia	6.3	3.65	2.46	2.08	56.8	71.3	76.7
Mongolia	6.0	4.74	3.02	2.11	15.1	48.3	66.5
Myanmar	5.8	3.87	2.79	2.10	45.5	60.8	72.2
Nepal	6.0	5.71	3.76	2.27	18.1	46.8	70.4
Oman	7.2	7.02	4.77	2.08	0.0	32.5	74.1
Pakistan	7.0	6.55	4.30	2.21	15.4	45.1	74.6
P. New Guinea	6.2	5.10	3.24	2.20	13.4	46.0	65.9
Philippines	6.3	3.63	2.53	2.10	48.9	66.3	73.1
Saudi Arabia	7.3	7.02	4.77	2.10	1.2	33.3	74.2
Singapore	4.2	1.85	1.87	2.04	73.5	73.2	70.1
Sri Lanka	4.9	2.42	2.10	2.07	65.5	71.0	71.4
Syrian Arab Rep.	7.6	6.61	4.36	2.10	10.6	41.6	75.0
Taiwan[2]	--	1.85	1.78	2.03	78.0	79.1	75.3
Thailand	6.3	2.43	2.12	2.08	73.5	77.5	78.0
Turkey	5.9	3.56	2.50	2.09	65.9	76.7	81.3
U. Arab Emirates	6.8	4.59	2.85	2.07	31.0	55.8	69.9
Vietnam	6.0	3.94	2.56	2.09	56.4	72.6	78.6
Yemen	7.7	7.71	5.31	2.38	1.8	31.3	72.3
Eastern Europe	**2.4**	**2.06**	**2.04**	**2.08**	**67.6**	**67.8**	**67.3**
Albania	5.4	2.97	2.18	2.08	60.9	72.2	73.8
Bulgaria	2.2	1.90	1.91	2.06	76.0	75.8	73.5
Czechoslovakia	2.2	2.00	2.01	2.06	75.0	74.9	74.0
Hungary	1.9	1.81	1.83	2.05	74.0	73.6	69.5
Poland	2.5	2.10	2.11	2.09	75.0	75.0	75.3
Romania	2.5	2.13	2.11	2.08	58.0	58.5	59.2
Yugoslavia	2.6	2.00	2.01	2.07	55.0	54.8	52.9
U.S.S.R.	**2.5**	**2.36**	**2.10**	**2.07**	**35.1**	**43.6**	**44.7**
OECD countries	**2.6**	**1.72**	**1.76**	**2.03**	**72.1**	**71.2**	**65.3**
Australia	3.1	1.85	1.87	2.04	75.0	74.7	71.6
Austria	2.7	1.48	1.54	2.00	72.7	71.3	59.6
Belgium	2.5	1.60	1.64	2.01	81.0	80.4	74.5
Canada	3.1	1.68	1.71	2.02	73.3	72.6	66.2
Denmark	2.4	1.50	1.55	2.00	63.0	61.3	46.0
Finland	2.3	1.68	1.71	2.01	80.0	79.5	74.7
France	2.7	1.83	1.85	2.03	79.0	78.7	75.9
Germany	2.4	1.44	1.50	2.00	76.9	75.6	64.4
Ireland	3.9	2.17	2.09	2.08	68.4	69.9	70.1
Italy	2.5	1.31	1.38	1.99	78.0	76.3	61.5
Japan	2.0	1.68	1.71	2.01	64.4	63.5	55.1
Netherlands	2.9	1.54	1.59	2.00	71.3	70.2	59.8
New Zealand	3.5	2.00	2.01	2.06	75.0	74.9	74.1

[2] **A province of China.**

TABLE IV - Fertility Rates and Contraceptive Use in Developing Countries (continued)

Country	Fertility Rates				Contraceptive Use[1]		
	1965	1990	2000	2025	1990	2000	2025
Norway	2.8	1.80	1.82	2.03	71.0	70.5	66.2
Sweden	2.2	1.98	1.98	2.06	74.8	74.6	73.4
Switzerland	2.4	1.65	1.69	2.02	71.0	70.1	62.4
United Kingdom	2.7	1.84	1.86	2.04	82.5	82.3	80.1
United States	2.9	1.88	1.89	2.04	68.2	67.9	64.7

TABLE V - Trends in Average Number of Children Desired among Married Women, 1970s vs. 1980s

	Date of Field Work		Mean Number of Children Desired		
Country	1970s	1980s	1970s	1980s	Percent Decline
Sub-Saharan Africa					
Ghana	1979/80	1988	6.0	5.5	9
Kenya	1977/78	1988/89	7.2	4.7	35
Senegal	1978	1986	8.3	7.1	14
North Africa					
Egypt	1980	1988/89	4.1	2.9	29
Morocco	1979/80	1987	4.9	3.7	24
Tunisia	1978	1988	4.1	3.5	17
Asia					
Indonesia	1976	1987	4.1	3.2	22
Sri Lanka	1975	1987	3.8	3.0	21
Thailand	1975	1987	3.7	2.8	24
Latin America					
Colombia	1976	1986	4.1	3.0	27
Dominican Rep.	1975	1986	4.6	3.6	22
Ecuador	1979	1987	4.1	3.3	19
Mexico	1976	1987	4.4	3.3	25
Peru	1977/78	1986	3.8	2.9	24
Trinidad & Tob.	1977	1987	3.8	3.1	18

Source: Charles F. Westoff, "Reproductive Preferences: A Comparative View," *Demographic and Health Surveys Comparative Studies*, no. 3, Institute, for Resource Development/Macro Systems, Inc., February 1991.

TABLE VI - Evaluation of Family Planning Programs in Developing Countries

Strong	Moderate	Weak	Very Weak or None
Bangladesh	Algeria	Afghanistan	Argentina
Botswana	Chile	Angola	Bhutan
China	Colombia	Benin	Cambodia
El Salvador	Costa Rica	Bolivia	Chad
India	Cuba	Brazil	Cote d'Ivoire
Indonesia	Dominican Rep.	Burkina Faso	Gabon
Korea, Rep.	Ecuador	Burundi	Iraq
Mexico	Egypt	Cameroon	Kuwait
Sri Lanka	Ghana	Central African Rep.	Lao, PDR
Taiwan[1]	Guatemala	Congo	Libya
Thailand	Guyana	Ethiopia	Malawi
Tunisia	Honduras	Guinea	Myanmar
Vietnam	Iran, Islamic Rep.	Guinea-Bissau	Namibia
	Jamaica	Haiti	Oman
	Kenya	Jordan	Saudi Arabia
	Korea, PDR	Lesotho	Somalia
	Lebanon	Madagascar	Sudan
	Malaysia	Mali	U. Arab Emirates
	Mauritius	Mauritania	
	Morocco	Mozambique	
	Nepal	Niger	
	Pakistan	Nigeria	
	Panama	Papua New Guinea	
	Peru	Paraguay	
	Philippines	Rwanda	
	South Africa	Senegal	
	Singapore	Sierra Leone	
	Trinidad & Tob.	Syrian Arab Republic	
	Venezuela	Tanzania, United Republic	
	Zambia	Togo	
	Zimbabwe	Turkey	
		Uganda	
		Uruguay	
		Yemen	
		Zaire	

Source: W. Parker Maudlin and John A. Ross, "Family Planning Programs: Efforts and Results, 1982-1989," *Studies in Family Planning*, vol. 22, no. 6, Nov./Dec. 1991.

[1] **A province of China.**

TABLE VII - Sources of Foreign Assistance for Population Activities - 1989 (in million US dollars)

Country	Amount	Percentage of GDP	Percentage of ODA
Australia	5.4	.00205	.53
Austria	0.2	.00014	.06
Belgium	1.0	.00064	.14
Canada	31.9	.00603	1.38
Denmark	18.4	.01823	1.97
Finland	15.7	.01395	2.22
France	0.7	.00007	.01
Germany	31.3	.0026	.63
Italy	2.9	.00033	.08
Japan	59.9	.00211	.67
Netherlands	33.0	.01428	1.58
New Zealand	0.4	.00108	.50
Norway	43.7	.04949	4.77
Soviet Union	0.5	----	----
Sweden	34.4	.01861	1.91
Switzerland	5.4	.00292	.96
United Kingdom	28.5	.00843	1.10
United States	247.7	.00473	3.23
TOTAL	**561.0**	**.0036**	**1.21**
World Bank	125.4		
Private Sources	39.3		
UNFPA Trust Fund	31.1		
GRAND TOTAL	**756.8**		

Source: United Nations Population Fund, *Global Population Assistance Report 1982-1989*, New York, 1989.

Glossary

Carrying Capacity: The maximum sustainable size of a resident population in a given ecosystem.

Contraceptive Prevalence Rate: The percentage of couples of reproductive age who are using some method of family planning.

Crude Birth Rate (CBR): The number of births, per year, per 1,000 of population.

Crude Death Rate (CDR): The number of deaths, per year, per 1,000 of population.

Doubling Time: The number of years required for a population of an area to double its present size, given the current rate of population growth.

Infant Mortality Rate: The number of deaths, per year, of infants aged 0-12 months, per 1,000 live births.

Life Expectancy at Birth: The average number of years newborn children would live if subject to mortality risks prevalent for the cross-ection of the population at the time of their birth.

Maternal Mortality Rate: The number of deaths to women due to pregnancy and childbirth complications per 100,000 live births in a given year.

Net Reproductive Rate (NRR): The number of daughters a woman would have, under prevailing fertility and mortality patterns, who would survive to the mean age of childbearing.

Rate of Natural Increase (NI): The difference between the crude birth rate and the crude death rate, usually expressed as a percentage.

Rate of Population Growth: The rate of natural increase, adjusted for migration, and expressed as a percentage of the total population in a given year.

Replacement-Level Fertility: A level of fertility equivalent to a Net Reproductive Rate of 1.0 -- the level at which childbearing women, on the average, have enough daughters to replace themselves in the population.

Stationary Population: A population that for a long time has had a constant replacement-level fertility and therefore also has a growth rate equal to zero and a constant age composition.

Total Fertility Rate (TFR): The number of live births an average woman would have if during her lifetime her childbearing behavior were the same as that of the cross-section of women at the time of observation. A total fertility rate of 2.1 is equivalent to replacement-level fertility.

"Unmet Demands": The number or percentage of married women who say they either want to limit the number of births or space them more than two years apart but are not using family planning.

Acknowledgements

Although my association with global population issues extends back a quarter of a century, I have not been a student of the subject in recent years. It would not have been possible, therefore, for me to prepare this statement without the assistance of experts in the field: demographers, economists, physical scientists, and administrators of family planning programs. A host of them came to my aid. Needless to say, I, and not they, am totally responsible for the structure of the argument and the judgements, conclusions and recommendations which follow from it.

I am particularly indebted to five organizations: The Population Crisis Committee, The Population Reference Bureau and The World Bank in Washington; and The Population Council and United Nations Population Fund in New York. Members of their staffs, from whom I received extensive assistance, are listed below, along with others who reviewed part or all of successive drafts. Their comments were occasionally caustic, often critical, but always stimulating. They added to my knowledge and frequently caused me to modify my premises and revise my conclusions:

Hirofumi Ando, David E. Bell, Nancy Birdsall, John Bongaarts, Lester R. Brown, Lincoln C. Chen, Leif E. Christoffersen, Herman E. Daly, Paul Demeny, Alex De Sherbinin, Anne H. Ehrlich, Alene Gelbord, Ann O. Hamilton, Donald D. Hinrichsen, Ishrat Husain, Edward V. K. Jaycox, Sasha Loffredo, John L. Maddux, Jessica T. Mathews, John W. Mellor, Thomas W. Merrick, Gayl D. Ness, Sandra Purcell, Moeen A. Qureshi, Nafis Sadik, John W. Sewell, Steven W. Sinding, Jyoti S. Singh, James A. Socknat, J. Joseph Speidel, James Gustave Speth, Andrew D. Steer, Lawrence H. Summers, Nancy Yinger.

Jeanne Moore, my never complaining secretary, worked through innumerable drafts to produce the final text.

I am enormously grateful to all.

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