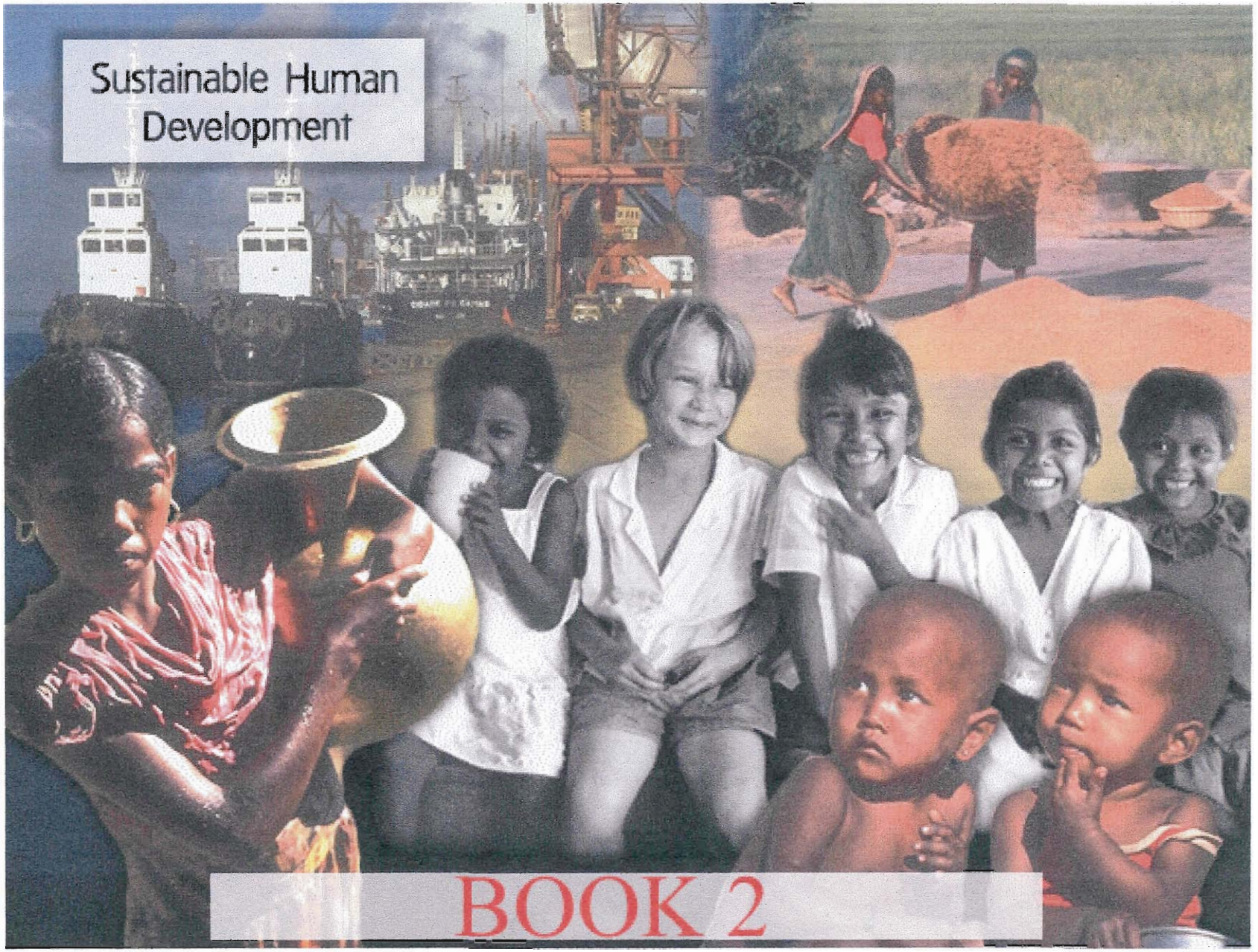

Sustainable Human Development
BOOK 2

module Intro

Social Development

We have defined social development with the following identifiers: the reduction of poverty, the improvement of health, increased access to education, a reduction in high fertility rates, and greater equality between men and women.

To build a framework for sustainable human development, each of these must become a key objective.

Description And Learning Objectives
Population

If present population growth trends continue for the next 100 years, the earth's population would reach 30 billion people. To many, this growth rate is neither sustainable nor desirable, and constitutes a serious global problem and issue.

To paraphrase from USAID'S own Strategy Papers, rapid population growth and poor health are inextricably linked, and are closely associated with low status and limited rights for women. Poor health conditions and rapid population growth obstruct rational planning, and makes investments in schools, housing, food production capacity and physical and social infrastructure inadequate. It challenges the ability of governments to provide even the most basic health and social services, and creates an ever-expanding need for new jobs. the global issues of health and population are being aggravated by the spread of HIV/AIDS.

The purpose of this module is fourfold: first, to acquaint you with key terms and variables used to define and measure population growth and population growth rates. Second to acquaint you with meaning and implications of the "demographic transition". Third, in this section we will also look at some of the global and regional trends in terms of global and regional population growth and fertility rates. Fourth, we will discuss some of the factors that can lead to declines in fertility rates. Fifth, we will examine in some depth some key linkages and relationships, e.g., education and declining fertility, fertility and employment.

At the end of this module and completion of the exercises provided, you should have:

1. A good grasp of meaning of key terms, variables and indicators used in the analysis of population and demographic issues and trends.

2. A good understanding of the demographic transition, its stages and its implications. And be able to determine where countries are in the demographic transition.

Section Intro

Population

Message from the Administrator

In just a little more than 50 years, the earth's population will grow from 5.7 billion to more than nine billion people, given current population trends. This rate of growth is neither desirable, nor sustainable. It is a problem with enormous, global consequences.

In this section, you will learn the key terms used to describe and measure population growth. You will discover population trends in the major regions of the world. And you will learn about the factors that slow population growth.

Overview

Population

Population Growth

- For most of human history, death rates were high and birth rates low.
- It took a million years of human history for world population to reach 1 billion
- It took another 120 years to reach 2 billion.
- As late as 1930, world population growth rate was less than 1 percent per year.

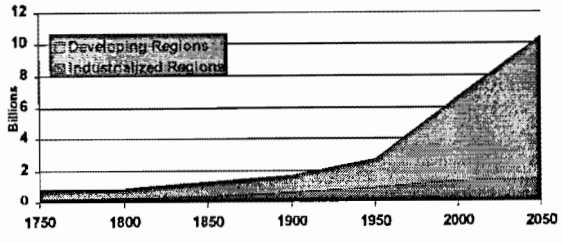
Population Growth

- After World War II Rapid technological advances in medicine and sanitation and economic and social development led to dramatic declines in death rates.
- This is one of humankind's greatest achievements-but it came at the cost of a population explosion.

Population Growth

- Between 1950 and 1990 world population more than doubled from 2.4 billion to 5.2 billion.
- Most of this increase in population occurred in the developing world
- Most of the projected increases in population will also occur in the develo countries.

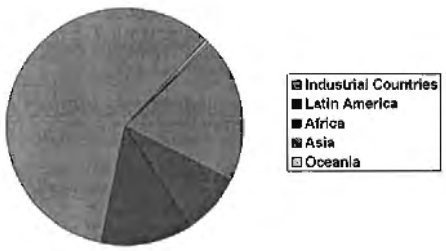
World Population Growth



Population Growth

- In 1960, North America and Europe accounted for 15% of the world's population.
- This percentage will decline to 10 percent by 2020
- The population share of Africa, Asia and Latin America will increase from 79 to 8 percent.

Proportions of worlds population in 1994 (%)



Trends in Population Growth

- Current total world population is estimated at 5.7 billion people.
- 4.6 of those 5.7 billion live in developing countries.
- In 100 years, the global population would exceed 30 billion if current population trends were to continue.

Implications of Growth

- Population projections can be derived from information about mortality rates, the age structure of the population and fertility rates.
- Because of population momentum, the population in the developing countries will continue to increase even after replacem level fertility is reached.

Implications

- Replacement level fertility is 2.1 children per woman of reproductive age.
- At this rate population will stabilize at zero.
- Currently, the average for 40 percent of the world's population is a fertility rate of 1.7.

Key terms used to describe & measure population growth

- *Crude Birth Rate*: Number of births per 1000 population that occur during a given year.
- *Crude Death Rate*: Number of deaths that occur per 1000 during a given year.
- *Rate of Natural Increase*: Birth rate minus death rate expressed as a percent.
- *Demographic Transition*: Depicts changes in vital statistics over time.
- *Total Fertility Rate*: Number of children a wo will have in lifetime. Assumes current age and speci birth rates are constant throughout childbearing years

•*Replacement Level Fertility*: Number of children required to replace parents, allowing for subsequent mortality.

•*Infant Mortality Rate*: Number of deaths among children between birth and year 1 per 1000 live births in a given years

•*Under 5 Mortality Rate*: Annual number of deaths of children under 5 per 1000 live births averaged over the previous 5 years.

•*Population Growth Rate*: Average calculated mid-year population expressed as a percent.

•*Population Mamentum*: Refers to the phenomeno for some period after replacement level fertility has been achieved, population growth continues.

Six Factors in Reducing Fertility

- Female Education
- Infant Mortality
- Maternal Health & Nutrition
- Female Employment
- Family Planning

Female Education & Fertility

- In general, there is a *negative relationship* between female education and fertility.
- Evidence also exists suggesting that for certain populations, the relationship between fertility and female education is inverted and U shaped:
  - Fertility increases at low levels of female education..
  - For countries with high overall fertility levels, fertility remains constant or increases with higher levels of female education attainment, until the threshold of secondary education is achieved. After that point, fertility begins to decline rapidly.

Population Growth & Family Planning

- The late 1960's marked the most rapid period of population growth in human history. During that time, the worlds population was estimated to double every thirty five years.
- From 1965-70, LDC growth rates were calculated to be at 2.5 % per year. Industrialized countries were growing at an average 1 % per year.
- By 1990, this period of unprecedented growth had begun to level off. Organized family planning programs, such as those backed by USAID in early 80's, played an important role in stabili world population growth rates.

Family Planning

- Without these programs, global growth would be considerably higher then now estimated; 14.6 billion by the year 2100 rather then the projection of 11.5 billion with access to family planning.

Family Planning & Female Education

- The prevalence of contraceptive practices increase with higher levels of education. Moreover, the more a country is into demographic transition (decline in birth and death rates), the lower down the education ladder is contraceptive use defused.
- For countries firmly in demographic transition, educational fertility differentials are equally due to later age at marriage and use of contraceptives.
- Thus, women with more education tend to marry later, use contraceptives, and defer childbirth. This results in fewer births overall.

- The average level of contraceptive prevalence among women of reproductive age (14 to 49), is now 54 percent overall. Wide variations of this statistic exist. Haiti, for example has a contraceptive prevalence of only 10 percent, whereas Costa Rica and Cuba are around 70 percent
- For most countries of the world, the range of contraceptive use lies between 40 and 50 percent.

Regional Population Trends

Viewing fertility trends by region accentuates the tremendous variation in population growth rates.

Sub-Saharan Africa Facts:

- Regional growth rate is currently estimated to be at 3.2 percent per year. It will double over the next two decades.
- Urban population is growing 2.5 times the rate of rural populations. If this trend continues, a majority of the people in Africa will live in urban areas.
- More then half of the region's people live in one of seven countries: Nigeria, Ethiopia, Zaire, South Africa, Tanzania and Kenya.

- Fertility in Africa is high and ranges from 6.0 % to 7.5 births per woman.
- Child mortality rates are among the highest in the world.
- In most of these countries, half of the deaths occurring before 5 are concentrated within the first year of life.

Latin America and the Caribbean

- The Latin American region encompasses 37 countries with a combined population of 471 million people, or 8.4 percent of the worlds population in 1994.
- Between the years 1950-94, the region's population doubled in size.
- The crude birth rate is now 28 per 1000, an average annual growth rate of 2.1 percent.

- Like Sub-Saharan Africa, urbanization is also a major problem. Urban populations in Latin America grew by more then 3 percent annually, whereas rural populations grew by a mere 0.4 percent.
- The fertility rate for the region is 3.5. Infant mortality rate is estimated at 41 per 1000 live births. The maternal mortality rate is currently 88 per 100,000 live births.
- Contraceptive use in Latin America is rising due to the introduction of public and private family planning services.

East and South East Asia

- Excluding Japan, East and South East Asia's population amounts to 1/3 of the total world's population and 2/5 of the population in the developing world.
- Over the next 35 years, East and South East Asia will grow by 700 million to over 2.3 billion people.
- Fertility rates for the region are low overall with some variation when comparing country to country.

- Rural to urban migration is increasing rapidly, and is a critical problem for this region.
- Fertility rates in the region have declined but at a significantly slower rate the rates in East and South East Asia. Fertility rates for the region is now 3.6 percent.
- Infant mortality has also fallen to 104 per 1000 in 1990. But, this rate still compares with the high rates found in Sub-Saharan Africa.

Text

Demographic Structure of World Population

The current 'world population' is estimated to be 5.7 billion with 4.6 billion living in the Developing World. It took approximately a century (1830-1930) to go from 1 billion to 2 billion people, 30 years (1930-1960 for the third billion, 15 years (1960-1975) for the fourth billion and 12 years to grow from 4 billion to 5 billion. Adding the next billion is expected to take only about ten years. If current population growth trends continue, in one hundred years global population would increase to 30 billion. This module is based on the premise that such an increase is neither sustainable nor desirable.

The 'Demographic Transition' represents the sequences of changes of world population over time. There are four stages represented in the Demographic Transition Model. They are:

Stage I: High Stationary
Stage II: Early Expanding
Stage III: Late Expanding
Stage IV: Low Stationary

Population Exercise Demographic Transition Case:

Some key terms that are used to describe and measure population growth include;

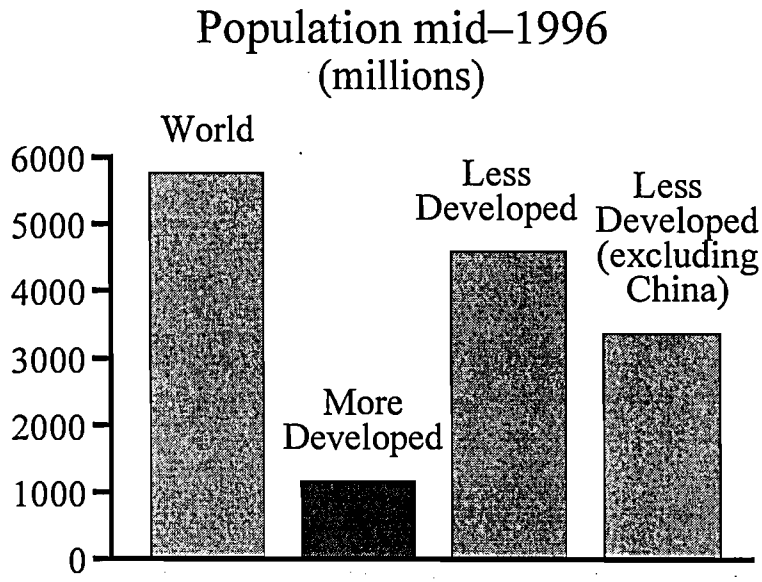
'Crude Birth Rate'
'Crude Death Rate'
'Rate of Natural Increase'
'Total Fertility Rate'
'Replacement Level fertility'
'Infant Mortality Rate'
'Under Five Mortality rate'
'Population Growth Rate'
'Population Doubling Time'

The late 1960s was the period of the most rapid population growth in human history. The world population was doubling every 35 years. From 1965-70 the LDCs growth rate was over 2.5% per year and the industrialized countries were growing at a little under 1% per year. By 1990 these trends, particularly those for the LDCs had improved. The global population growth rate dropped from 2% in 1965-70 to 1.7% in the period from 1985-90 and the growth rate of the LDCs dropped to just over 2%. Recent trends indicate the decline is continuing.

In some countries like Singapore, economic development was so rapid that there was an unbroken transition from high to low fertility. However, there is some evidence that after an initial period of rapid decline, fertility may have leveled off above replacement levels rates in some LDCs, such as Malaysia and Costa Rica.

'world population'

fo39wdpo-



wldpop.rtf

The term which refers to the number of people living on the earth..

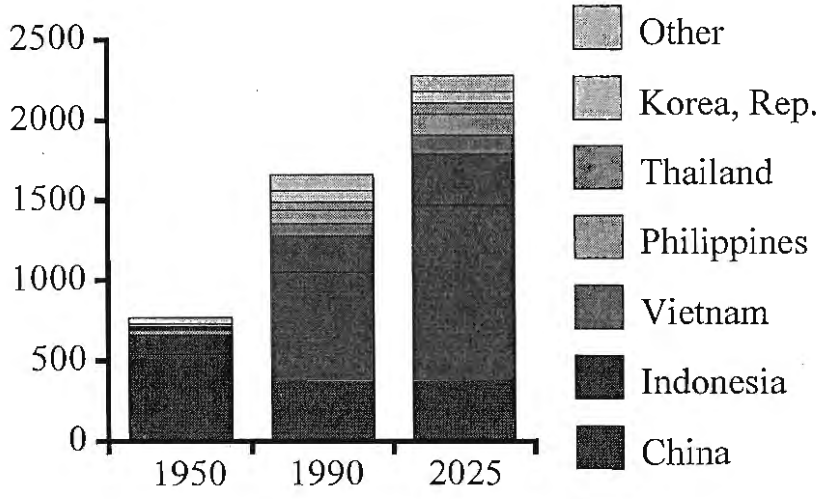
World Pop

The world's population is currently growing by nearly 90 million people per year, or around 240,000 per day, according to the World Resources Institute. The population momentum inherent in the youthful age structure of the developing countries populations, ensures that population will continue to grow for many decades to come. The extent of that growth will depend on how quickly the world reaches replacement level fertility, which is 2.1 children per woman. The speed of this depends on many factors including access to contraception. USAID has a long and successful history in the area of population and health.

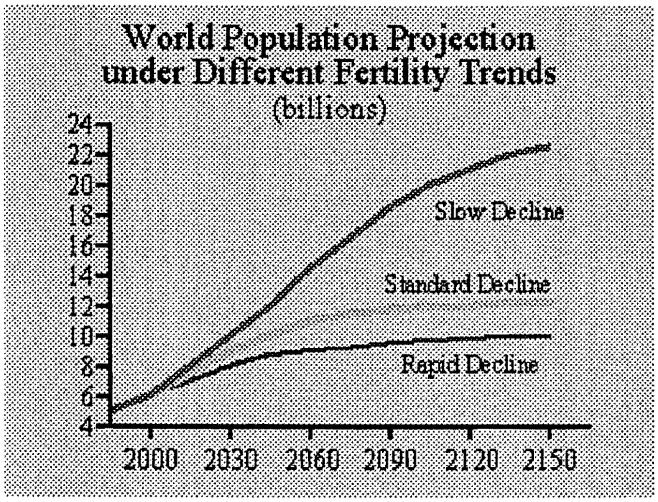
more info in 'world population'

fos1seap

Population Estimates and Projections: East and Southeast Asia (millions)

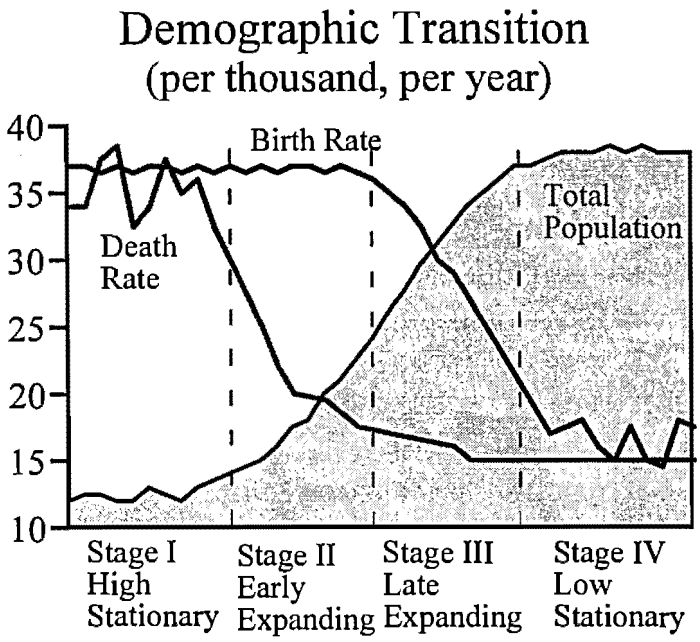


East and South East Asia Projections


World Population Projection
under Different Fertility Trends
(billions)
24
22
20
18
16
14
12
10
8
6
4
2000
2030
2060
2090
2120
2150
Slow Decline
Standard Decline
Rapid Decline

The world's population is currently growing by nearly 90 million people per year, or around 240,000 per day, according to the World Resources Institute. The population momentum inherent in the youthful age structure of the developing countries populations, ensures that population will continue to grow for many decades to come. The extent of that growth will depend on how quickly the world reaches replacement level fertility, which is 2.1 children per woman. The speed of this depends on many factors including access to contraception. USAID has a long and successful history in the area of population and health.

'demographic transition'



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dt.rtf

A term which describes the movement from high birth rates and high death rates to low birth and death rates. In the first or the High Stationary stage, both the birth and death rates are high. Although, both rates are very high, it is assumed that the greatest variation is caused by deaths stemming from wars, famines and diseases. The population remains at a low but fluctuating level. The second or Early Expanding stage is characterized by continuing high birth rates but a fall in death rates. As result life expectancy increases and the population begins to expand. The third, or the Late Expanding stage is characterized by a stabilization of deaths at a low level and reduction of birth rate. The fourth, or the Low Stationary stage is a stage when birth and death rates have stabilized and the population is stationary. Some demographers combine stages two and three as one.

more info in 'Demographic Transition'

transition in different regions

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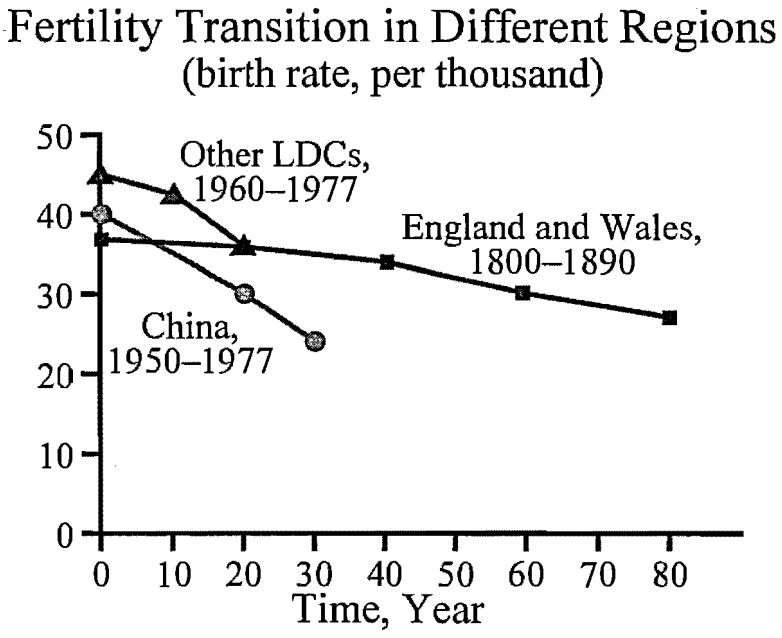


Stage I

Stage I: High Stationary must have all of the following characteristics:

a high level of birth rate

a high level of death rate

Non-example of Stage I: High Stationary
Zaire
Pakistan
Canada

Stage II

Stage II: Early Expanding must have all of the following characteristics:

a continuing high level of birth rate

a fall in death rate

Example of Stage II: Early Expanding
Ethiopia
Bangladesh

Non-example of Stage II: Early Expanding
Egypt
Australia
Brazil

Demographic Transition Stage II:
"Early Expanding"
(birth rate* over 35, death rate* over 15)

Country	Birth Rate	Death Rate
Nigeria	50	20
Tanzania	47	22
Uganda	43	18
India	43	18
Indonesia	36	15
Iran	15	13

* Per 1,000 per year, figures are for 1980s

Stage III

Stage III: Late Expanding must have all of the following characteristics:

a low level and a reduction in the birth rate

a stabilization of the death rate at a low level

Example of Stage III: Late Expanding
Kenya
Thailand
Mexico

Non-example of Stage III: Late Expanding
Ghana
Indonesia
United States

Demographic Transition Stage III:
"Late Expanding"
(birth rate* over 20, death rate* 15 and below)

Country	Birth Rate	Death Rate
Algeria	39	8
Egypt	41	11
South Africa	38	12
China	22	9
Sri Lanka	30	8
Argentina	23	9

* Per 1,000 per year, figures are for 1980s

Stage IV

Stage IV: Low Stationary must have all of the following characteristics:

a low level of birth rate

a low level of death rate

Example of Stage IV: Low Stationary
Japan
United States
Spain

Non-example of Stage IV: Low Stationary
Sudan
Malaysia
Argentina

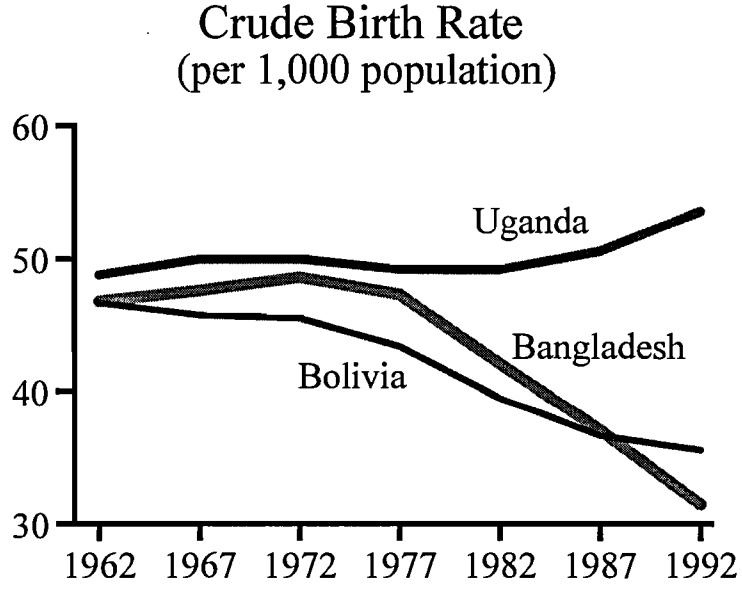
Demographic Transition Stage IV:
"Low Stationary"
(birth rate* over 20 and below,
death rate* 15 and below)

Country	Birth Rate	Death Rate
Japan	19	7
Australia	19	8
Belgium	13	12
France	14	10
Sweden	13	11
U.S.	16	9

* Per 1,000 per year, figures are for 1980s

Demographic Trans. Case

Graph the variables crude birth rate and crude death rate over time for your country. What is the relationship between births and deaths? Is population growth increasing or decreasing? What stage of the demographic transition is your country in?


Crude Birth Rate
(per 1,000 population)
60
50
40
30
Uganda
Bangladesh
Bolivia
1962
1967
1972
1977
1982
1987
1992

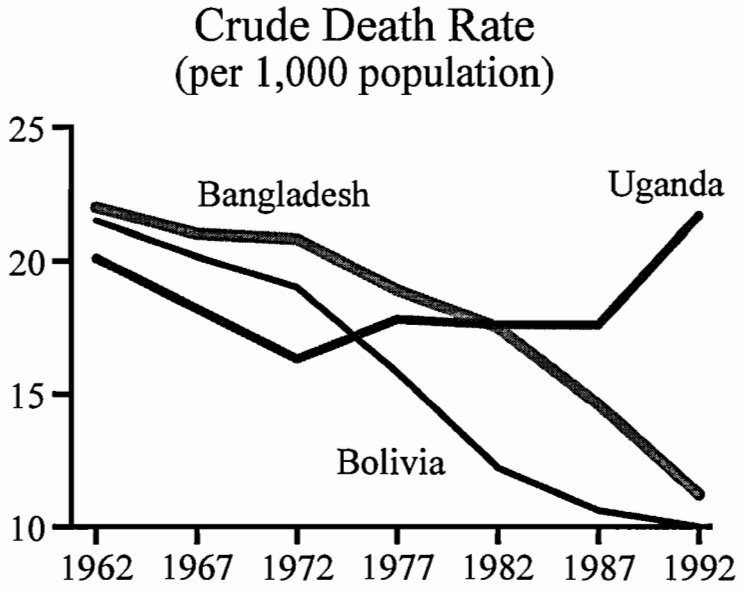
Crude Birth Rate

The Crude Birth Rate or CBR tells the number of births per 1,000 population that occur during a given year.

In developing countries that have relatively large populations in the younger age group, the Population Momentum inherent in this age structure prevents an immediate fall in the CBR. In the 1960s and 1970s Uganda's CBR was around 50 per 1000 population. CBR rose during the 1980s, reaching 54 by 1992, even though the Total Fertility Rate or TFR had actually fallen during that period. This is an example of population momentum. The same phenomenon is seen in the case of Bangladesh. Its TFR falls from about 1972 but its CBR responds more slowly with a time lag. The TFR of Bangladesh falls below that of Bolivia from about 1982, but the CBR remains above that of Bolivia until 1987.

Unlike the case of Uganda, the crude birth rate of the other two countries are moving in the "correct" direction with regard to the population transition.

Questions: Explain the concept of Population Momentum using Uganda, Bolivia and Bangladesh as examples. What policies can be adopted to reduce the population momentum in developing countries?

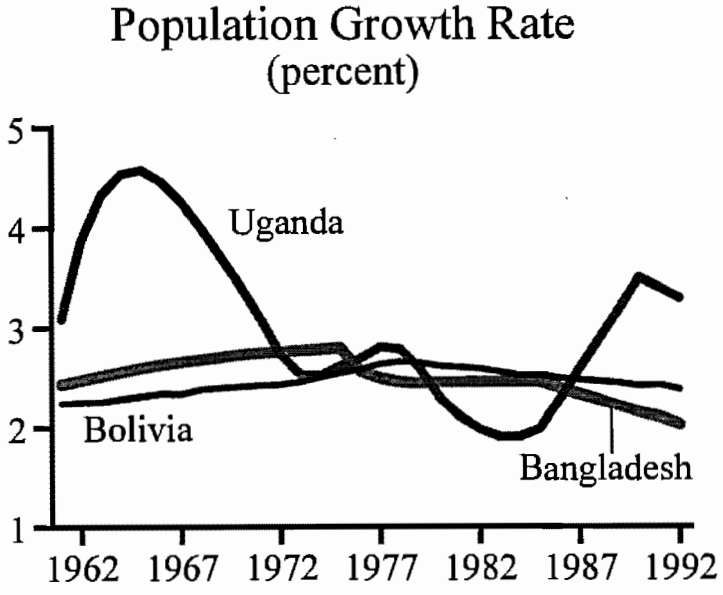

Crude Death Rate
(per 1,000 population)
25
20
15
10
Bangladesh
Uganda
Bolivia
1962
1967
1972
1977
1982
1987
1992

Crude Death Rate

The Crude Death Rate or CDR is the number of deaths that occur per 1000 population during a given year.

Both Bolivia and Bangladesh have experienced continuous declines in CDR although the rate of decline has been uneven. For Bolivia the decline was sharpest in the 1970s. The curve for Bangladesh shows a dramatic decline after the early 1970s. The flattening of the Bolivian curve in the 1980s illustrates the fact that the lower the CDR, the harder it is to achieve further declines in this measure. Uganda's CDR had fallen in the 1960s, risen in the early 1970s, held steady in the early and mid 1980s, and risen dramatically thereafter. This pattern matches the behavior of Uganda with regard to IMR and UFMR.

Questions: Explain the reasons for the slow down in the fall in CDR experienced by Bolivia after 1982; What factors would have accelerated the drop in CDR in Bangladesh after 1972?

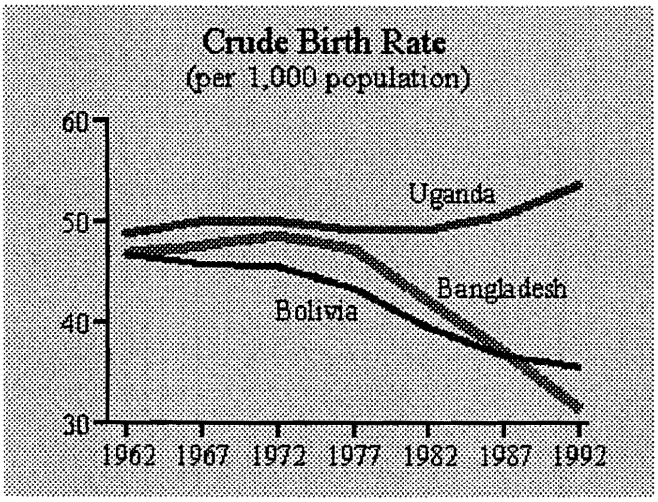

Population Growth Rate
(percent)
5
4
3
2
1
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Prop Growth Rate

The Population Growth Rate or PGR is an average calculated from mid-year populations expressed as a percent.

Both Bangladesh and Bolivia have experienced mild increases in PGR in the 1960s and 1970s followed by moderate to slow declines in the 1980s and early 1990s. This behavior in PGR is associated with: relatively slow declines in TFR in the first two decades, quite steep declines in the latter period, and continuous declines in IMR throughout the period.

Questions: What explains the mild increase in the population growth rate experienced by both Bolivia and Uganda in the 1960s and 1970s? Do you see any evidence for sustained declines in PGR in these two countries? What factors are responsible for the fluctuation in PGR in Uganda?


Crude Birth Rate
(per 1,000 population)
60
50
40
30
Uganda
Bangladesh
Bolivia
1962
1967
1972
1977
1982
1987
1992

'Crude Birth Rate'

m41crdbr.rtf

This term refers to the number of births per 1,000 population that occur during a given year.

more info in 'crude Birth Rate'

cbrmi.rtf

Uganda, Bolivia and Bangladesh

In developing countries that have relatively large populations in the younger age group, the Population Momentum inherent in this age structure prevents an immediate fall in the CBR. In the 1960s and 1970s Uganda's CBR was around 50 per 1,000 population. CBR rose during 1980s to reach 54 by 1992 even though the TFR had actually fallen during that period. This is an example of population momentum. The same phenomenon is seen in the case of Bangladesh. Its TFR falls from about 1972 but its CBR responds more slowly with a time lag. The TFR of Bangladesh falls below that of Bolivia from about 1982, but the CBR remains above that of Bolivia until 1987.

Unlike the case of Uganda, the Crude Birth Rate of the other two countries is moving in the "correct" direction with regard to the population transition.

Questions: Explain the concept of Population Momentum using Uganda, Bolivia and Bangladesh as examples. What policies can be adopted to reduce the population momentum in developing countries?

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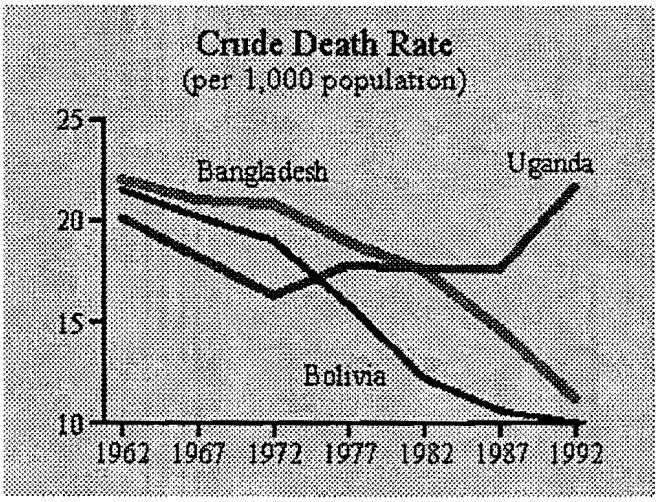
Europe

The European countries that underwent fertility transitions at the turn of century or even earlier had low birth rates and took a long time to make the transition, over 100 years for England and France and 80 years for Germany, Sweden and Italy. At no point in their transitions did their birth rates fall more than 3 points each decade. The current rate of fertility decline has been more rapid than in the past though starting from even higher levels.


Crude Death Rate
(per 1,000 population)
25
20
15
10
Bangladesh
Uganda
Bolivia
1962
1967
1972
1977
1982
1987
1992

'Crude Death Rate'

m41crddr.rtf

The term for the number of deaths that occur per 1000 population during a given year.

more info in 'Crude Death Rate'

cdrmi.rtf

Uganda, Bolivia and Bangladesh

Both Bolivia and Bangladesh have experienced continuous declines in CDR although the rate of decline has been uneven. For Bolivia the decline was sharpest in the 1970s. The curve for Bangladesh shows a dramatic decline after the early 1970s. The flattening of the Bolivian curve in the 1980s illustrates the fact that the lower the CDR, the harder it is to achieve further declines in this measure. Uganda's CDR had fallen in the 1960s, risen in the early 1970s, held steady in the early and mid 1980s, and risen dramatically thereafter. This pattern matches the behavior of Uganda with regard to IMR and UFMR.

Questions: Explain the reasons for the decline in the CDR experienced by Bolivia after 1982; What factors would have accelerated the drop in CDR in Bangladesh after 1972?

(Rate of Natural Increase

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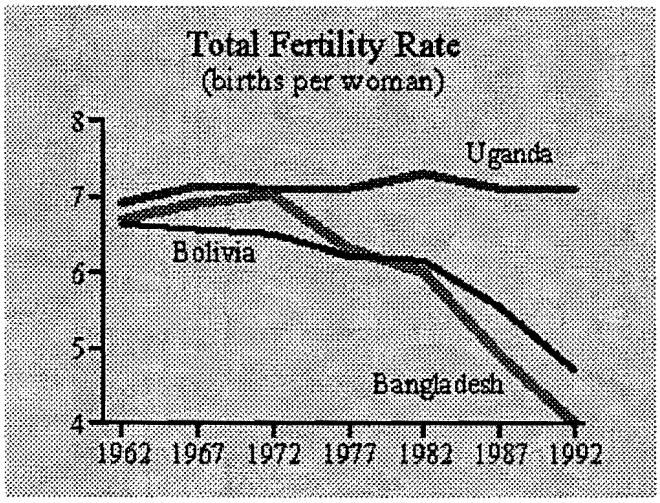
This term is expressed as a percentage and means and refers to the birth rate minus the death rate, without accounting for migration.


Total Fertility Rate
(births per woman)
8
7
6
5
4
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

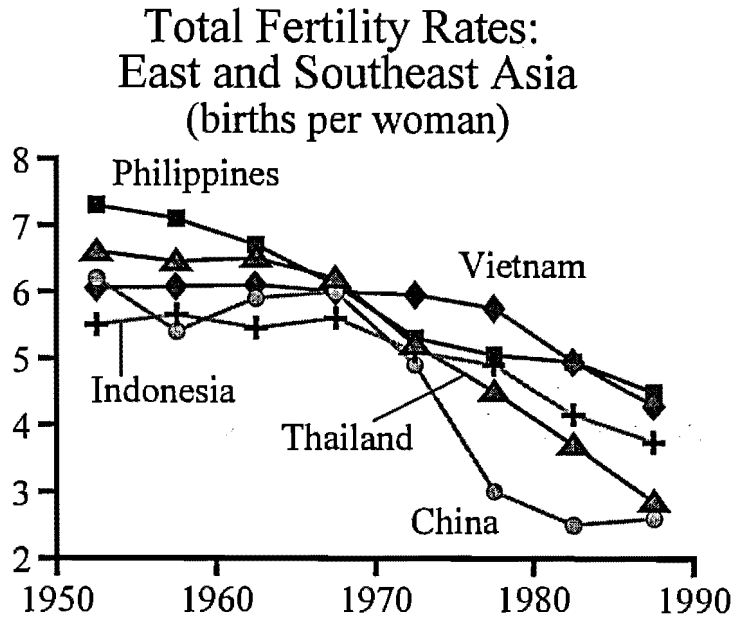
('Total Fertility Rate')

m41fertl.rtf

This term refers to the average number of children a woman will have. This is assuming her current age, and that specific birth rates remain constant throughout her childbearing years, generally considered to be between the ages 15 and 49. In the late 1980s, the average number of children was 2.8.

more info in "Total fertility Rate"

East and Southeast Asia



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In the late 1980s, the average number of children was 2.8. The fertility level is closer to the developed than to the developing world.

more info in "Total Fertility Rate"

Female Education

m4lemfnd

Female Education

In general there is a negative relationship between female education, or literacy and fertility. Educated women tend to have fewer children and marry later. There is also some evidence that for certain populations, there is an inverted U shape relationship, meaning that fertility increases with education at low levels of education. For countries with high overall fertility, fertility remain constant or even increases with higher levels of female education until the threshold of secondary education is reached and then it begins to fall rapidly. At elementary levels of education, women tend to breast feed for shorter periods and have children closer together-which is detrimental for both the mother and child.

This seems to be the case in Sub-Saharan Africa and parts of Asia. For those countries in Latin America which have reached the beginning of the decline in fertility, the relationship between education and fertility is strong.

There seems to be a structural relationship between education and contraceptive acceptance rates. Contraceptive use is related to both the level of education and the level of development. Family planning programs are most effective when overall mortality is low and levels of education are relatively high, although the example of Bangladesh shows that high levels of contraceptive use are possible when levels of education and development are very low.

more info in "Total Fertility Rate"

South Asia

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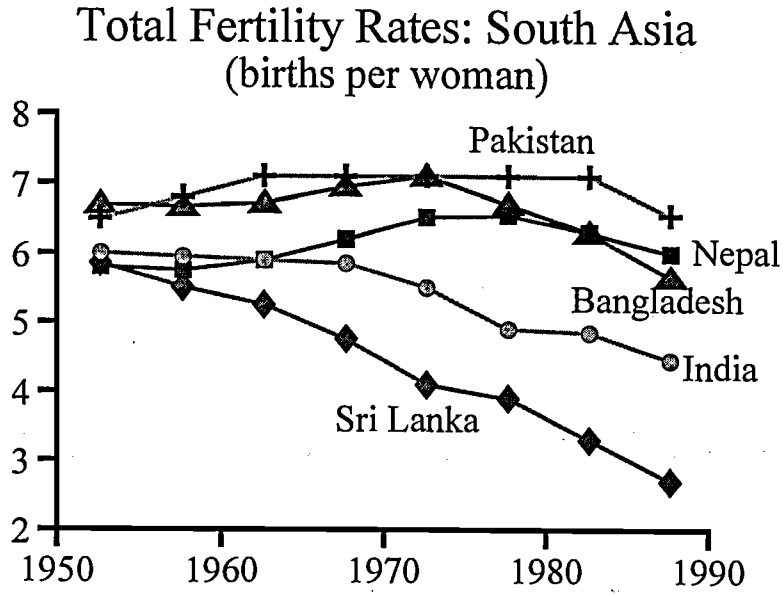


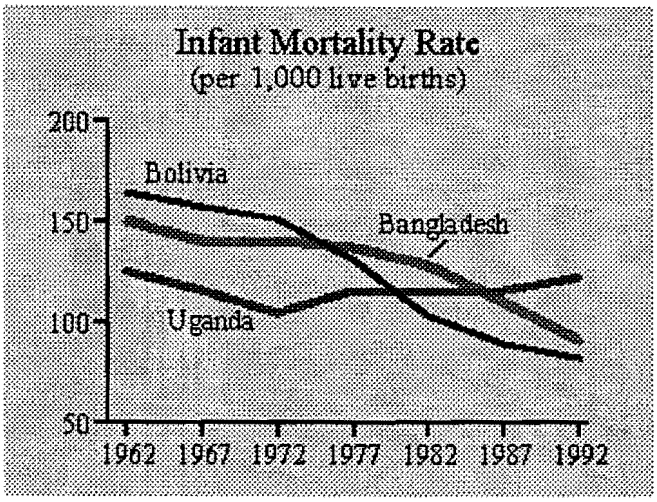
m41f69tx

There is considerable variation within this average. In Sri Lanka fertility rates were 2.4 in 1994 and in Pakistan 5.4. Fertility rates in Bangladesh were 3.6 and in India 3.3. Pakistan's and Nepal's rates have declined relatively slowly during the past two decades.

'Replacement Level fertility'

m41repft.rtf

In current terms, this means that the average number of children per married couple should be 2.1. Two children per couple would presumably not be enough to replace the current population because not every one has children, and not all children live to reproductive age. Hence 'replacement level' is generally defined as 2.1 children.


Infant Mortality Rate
(per 1,000 live births)
200
150
100
50
Bolivia
Bangladesh
Uganda
1962
1967
1972
1977
1982
1987
1992

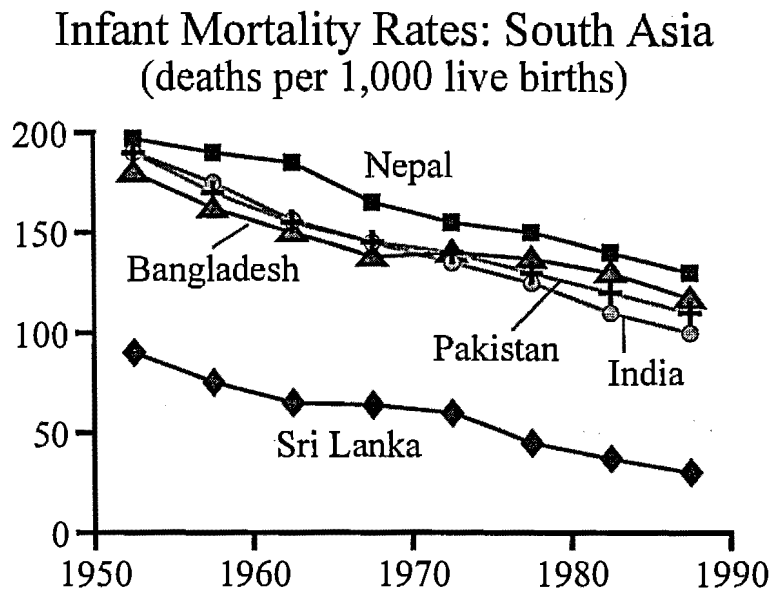
'Infant Mortality Rate'

m41infnt.rtf

This term refers to the number of deaths among children between birth and year 01 per 1,000 live births in a given year.

more info in "Infant Mortality Rate"

South Asia



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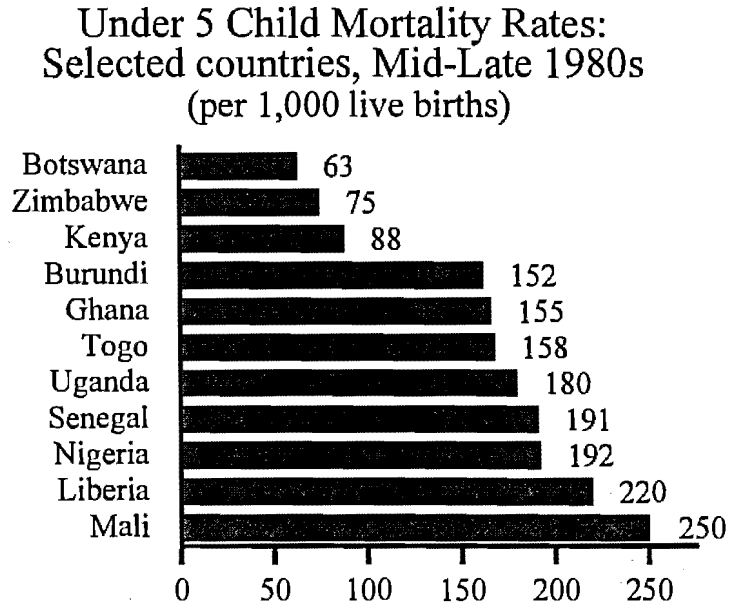
selected countries



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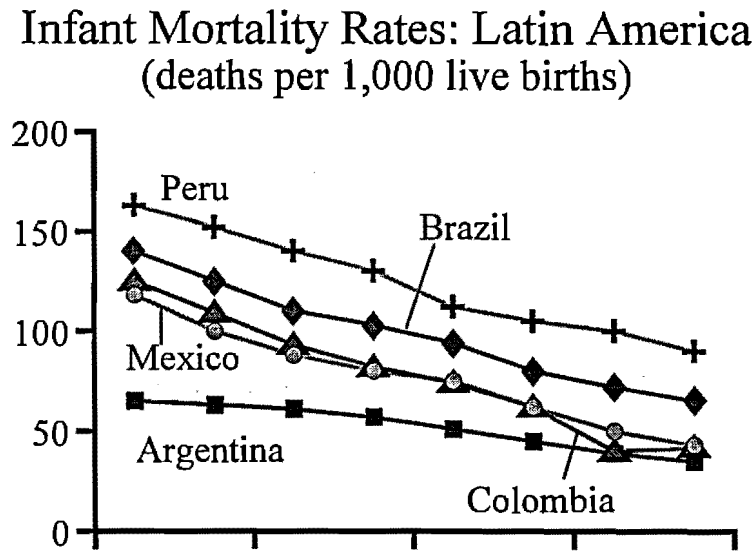
more info in "Infant Mortality Rate"

Latin America



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m41f65tX.rtf

Latin America

Infant and maternal mortality are highest in the indigenous groups and in the poorest countries of the Andean region, specifically in Bolivia, Ecuador, and Peru. In Central America the rates are highest in El Salvador, Honduras, and Nicaragua, and in the Caribbean, in the Dominican Republic and Haiti.

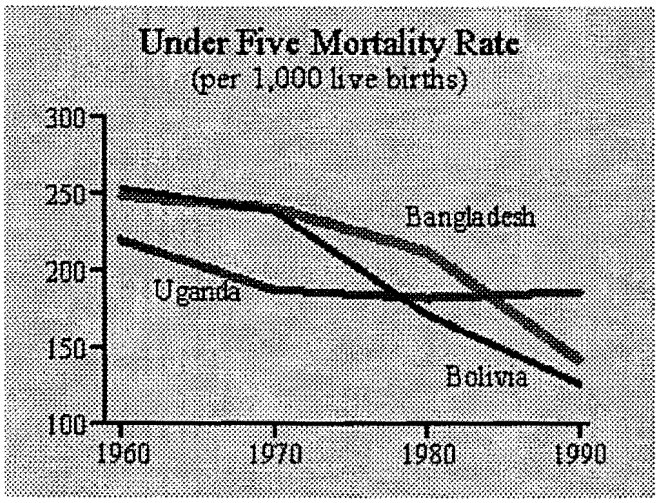
more info in "Infant Mortality Rate"

The Hypothesis

M41ICMOR.rtf

The Hypothesis

The hypothesis here is that higher levels of child and infant mortality are associated with higher levels of fertility. The reasoning is that women will have more children to "replace" those who have died and moreover that fertility levels depend in part on the probability of children surviving. So the higher the level of child or infant mortality, the greater the fertility necessary to achieve that goal. Because of this, improvements in infant and child mortality are expected to lead to lower fertility levels overall.


Under Five Mortality Rate
(per 1,000 live births)
300
250
200
150
100
1960
1970
1980
1990
Bangladesh
Uganda
Bolivia

'Under Five Mortality Rate'

m41unr5m.rtf

This term refers to the annual number of deaths of children under age five per thousand live births averaged over the previous five years.

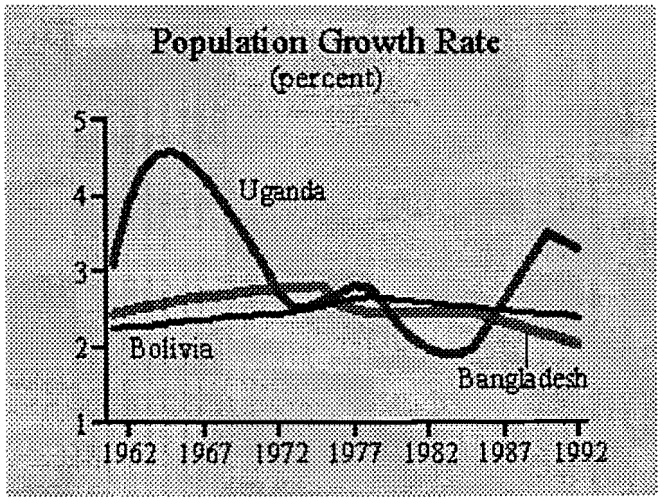
more info in 'Under Five Mortality Rate'

ufmmi.rtf

Uganda, Bolivia and Bangldesh

In the 1960s Uganda was much better placed than Bangladesh and Bolivia with regard to UFMR. All three countries experienced reductions in the rate during that decade. However, even by 1970 the UFMR of all three countries was relatively high and placed them in the bottom quarter among developing countries. From 1970 Uganda experienced a slight increase in the rate whereas Bolivia and Bangladesh experienced declining trends.

Questions: What is the connection between UFMR and IMR? What explains the decline in UFMR in Bangladesh and Bolivia, and the rise in Uganda?


Population Growth Rate
(percent)
5
4
3
2
1
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

'Population Growth Rate'

m41popgw.rtf

This term refers to an average calculated mid-year population expressed as a percentage.

more info in "population growth rate"

pgrmi.rtf

Uganda , Bolivia and Bangladesh

Both Bangladesh and Bolivia have experienced mild increases in Population Growth Rate (PGR) in the 1960s and 1970s, followed by moderate to slow declines in the 1980s and early 1990s. This behavior in PGR is associated with: relatively slow declines in TFR in the first two decades, quite steep declines in the latter period, and continuous declines in IMR throughout the period.

Questions: What explains the mild increase in the population growth rate experienced by both Bolivia and Uganda in the 1960s and 1970s? Do you see any evidence for sustained declines in PGR in these two countries? What factors are responsible for the fluctuation in PGR in Uganda?

pgrmi2.rtf

Regularities

1. The initial fertility level at onset of transition varies among countries.
2. Fertility may rise, often to new peaks, before declining.
3. The pace of the decline, and thus the number of years of the transition, from onset to completion, varies among countries.
4. The timing and pace of the transition may vary within the country.
5. Mortality declines do not necessarily initiate the transition.Once the transition begins, countries with higher per capita growth rates tend to have higher rates of fertility decline.

more info in "Population Growth Rate"

m41RCTRE.rtf

November 18, 1996

U.N. Survey Shows Population Growth Slowing
By BARBARA CROSSETTE

UNITED NATIONS---A new survey by the United Nations has found that the world's population is growing almost everywhere more slowly than expected even a few years ago. The study also found that the number of people being added to the world each year has begun to fall sooner than anticipated.

"The world's population is stabilizing sooner than we thought," said Joseph Chamie, director of the U.N. Population Division, which collects and analyzes population data. "We had some glimmer that this was occurring several years ago, but we weren't sure if it was simply a blip. Now we actually have concrete results showing this is a global trend."

The new population figures, now circulating among United Nations agencies, will be published with analysis and commentary in book form early next year.

Chamie and other analysts say the family planning and other aid programs of the 1960s and 1970s that gave couples around the world more control over the number of children they had, augmented by more recent programs to give women more economic power and social status, have paid off in steady, continuous fertility declines in every region.

But analysts caution that these gains could be reversed if foreign aid budgets continue to shrink and opposition to family planning programs and other aid intended to enhance women's rights restricts the activities of international agencies.

"There is no guarantee that these trends will be sustained," said Chamie, who is an American. "They could stagnate or switch back." J. Brian Atwood, administrator of the U.S. Agency for International Development, called the new figures heartening.

"The United States has been the world leader in family planning for more than three decades," he said. "The American people should feel proud of the contribution programs funded by their tax dollars have made in improving the lives of literally hundreds of millions of people around the world. The bitter irony is that recent shortsighted cuts in our population and development assistance programs represent a clear step backward."

Population declines are also explained, though to a lesser extent, by higher death rates in some areas, Chamie said. Wars and AIDS have reduced life expectancy in Africa. In Eastern Europe and the former Soviet Union, life expectancy has also declined.

The new U.N. figures, covering 1990 to 1995, show a population growth rate worldwide of 1.48 percent a year, significantly lower than the 1.57 percent projected by the previous report in 1994. The world therefore already has 29 million fewer people than expected.

In the same 1990-1995 period, fertility also declined, to an average of 2.96 children per woman. The projected figure had been 3.1. By 2050, U.N. analysts now say, the world's population could be 9.4 billion, nearly half a billion lower than 1994 projections. The United Nations says there are now 5.77 billion people on earth.

World population figures, and why they change, can fuel passionate debate among demographers and policy makers. These statistics are no exception. Critics of family planning, including Rep. Christopher H. Smith, R-N.J., who has led a campaign in Congress to cut American contributions to international family planning programs, say the money is finding its way into supporting abortion services.

He also says aid money is better spent on improving the lives of children and strengthening market economies, leading to better living standards and ultimately to smaller families even in the poorest countries. He says telling people how many children to have is a cultural intrusion by Westerners. Many in the developing world agree.

Chamie does not take issue with the belief that better education and rising living standards play a part in declining birth rates, but he and other experts argue that unless couples have access to safe contraceptives compatible with their cultural and religious beliefs, they are limited in how they can fulfill their hopes of smaller families, and population declines are much slower.

He points to countries like Bangladesh, Syria and Turkey, where even among poor populations, birth rates have been reduced before people's living standards rise.

"How long would it take to raise education levels in Bangladesh?" he asked. "Why wait? If you can provide help now, why not? The argument has been that you need socioeconomic growth to bring down fertility, but that has been shown in many instances not to be required."

In fact, he said, it often worked the other way: women with access to family planning cut family size first, and their own and their families' economic situations consequently improved.

"Childbearing and marriage are being postponed," he said. "There is more opportunity for women, and men, to follow pursuits other than feeding and maintaining households. And it has been done not by government population control programs in many places, but by giving people the right and wherewithal to choose.

"The more that you have people meeting their aspirations and desires in something as fundamental as reproduction, that is something that can be seen as very good progress."

'Population Doubling Time'

m41popdb.rtf

The expansion of human population has not proceeded at a uniform rate. It has not been a linear process. The world's population has been growing at exponential rates. As the rate of natural increases in population rises, doubling time decreases sharply. When it is 2 percent, (the current world rate) the doubling time of world population is 35 years. For some of the populations of the African continent with rates over 3.25 percent, the doubling time is only a little over 20 years.

Why might this be happening, that the total fertility rate is above replacement levels which are defined at 2.1 children per set of parents?

If the gender of the offspring is relevant to setting the desired target number of children, meaning if boys are valued more than girls, then this offers some explanation for this plateau effect. Moreover, in societies where women are dependent upon men, parents place greater premium on boys.

Population Exercise Fertility Case:

World Population Growth and Trends

The population of developing countries has more than doubled in 35 years, increasing from 1.7 billion in 1950 to 4.3 billion in 1993. By 2025, it will grow to over 7 billion--out of an expected world total of 8.47 billion. Maintaining a balance between population growth and food supply is critical in averting catastrophic situations leading to widespread starvation and famines. The population structures of developing countries are dominated by a bulge in the young age groups, consequence of which are larger dependency ratios.

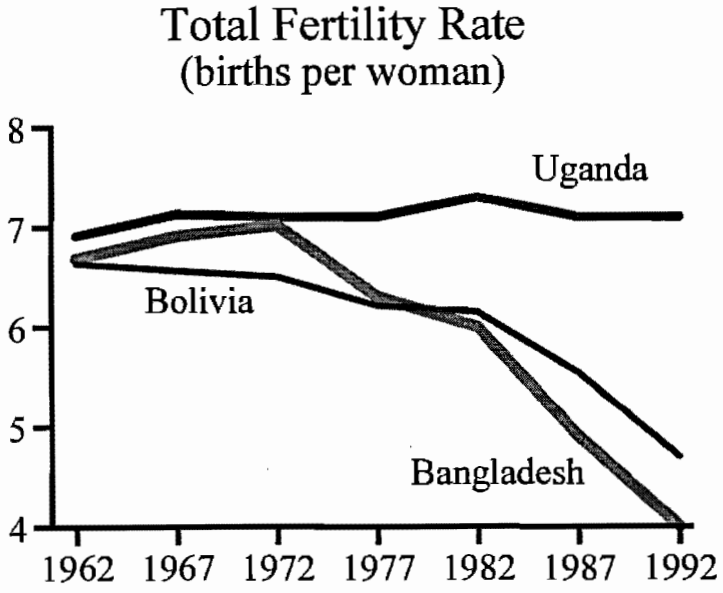
The human carrying capacity of the earth is not finite and the increasing population numbers and declining resources have serious repercussions on the issue of environmental sustainability. Yet another consequence of increasing population growth in developing countries is the rapid increase in rural to urban migration leading to uncontrolled urbanization.

Fertility Control and Family Planning

The implementation of 'family planning programs' has in most countries been a key factor in assisting individuals in changing their reproductive behavior, which has resulted in fertility declines. During the decade 1974-1984, even governments which were initially reluctant to accept the importance of reducing population growth by implementing family planning programs started to implement family planning programs in order to reduce population growth. For example, the Chinese government became so concerned over its rapidly expanding population that in 1978 it launched its aggressive 'one-child policy'.

Although fertility rates are falling among most developing countries, researchers note that for a variety of reasons there is an unmet need in contraceptive prevalence, among women in developing countries. The IEC (Information, Education and Communication) component is used in family planning programs for motivating women to accept contraceptive methods.

Examine your country's current total fertility rate. Is it above replacement-level fertility, which is 2.1 children per parents? Examine the fertility rate over time. Is it increasing or decreasing?


Total Fertility Rate
(births per woman)
8
7
6
5
4
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

The Total Fertility Rate or TFR is the number of children that wuld be borne to a woman who lives to the end of her child bearing age (15 to 49 years) and bears children in accordance with the prevailing age-specific fertility rates.

Uganda's TFR has held up at a relatively high level of about 7.0. This high fertility rate present major challenges for Uganda. Note that Bangladesh started with a higher fertility rate than Bolivia, but has shown a sharper fall after 1972 and a lower rate from about 1982.

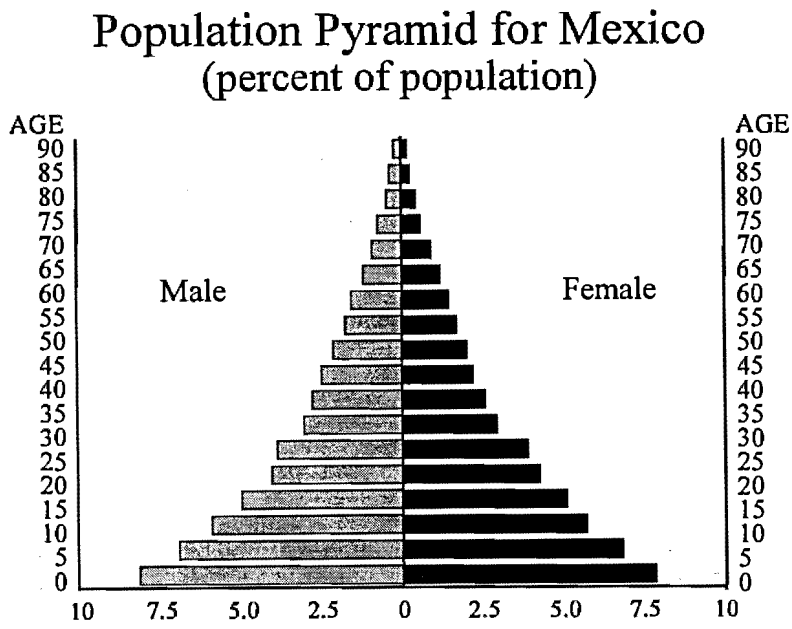
To what would you attribute Bangladesh's relative success? What factors are responsible for keeping the Ugandan rate at a relatively high level?

food supply

m41food.rtf

As early as 1798, Thomas Malthus, author of The Essay on the Principle of Population , argued that since the human population was increasing than food production, global starvation would eventually result. While, scholars such as Ester Boserup(1965) has argued that increases in human knowledge and technological innovation would enable humankind to provide rising standards of living for growing populations. This debate has continued until present times. However, today there is broad agreement that population control in the Developing World will improve living standards of additional population numbers in the decades ahead.

Population structures



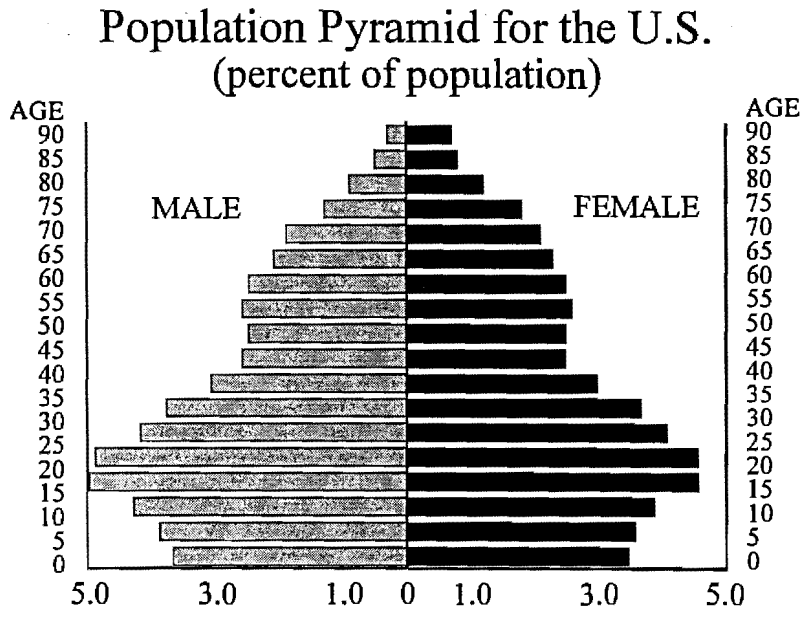
m41fig02

m41popst.rtf

The structure of the population in a given country, in terms of age and sex composition, is usually represented in a "population pyramid." This is a vertical bar graph showing the proportion of individuals in various age ranges. The number of males is measured left of the axis and the number of females right of the axis. The age-sex pyramid for Mexico shows how great the number of children in the three lowest age categories, compared to older groups. Mexico's population structure reveals a rapid rate of population growth. The wider the base of the age-sex pyramid, the faster the population is growing.

more info in "Population structures

m41fig03



"Carrying Capacity" is a concept commonly used by biologists and wildlife managers to refer to the maximum number of animals that can be sustained indefinitely in a specified eco-system. In this traditional sense the concept is simple: the sustainability of a given animal population is dependent on the availability of food: if the animal population exceeds food supply, the excess dies of starvation; this process continues until an equilibrium between the animal population and food supply is reached.

'Human Carrying Capacity' may be defined as he maximum number of persons than can the supported indefinitely on an area, with a given technology and consumptive habits, without causing environmental degradation.

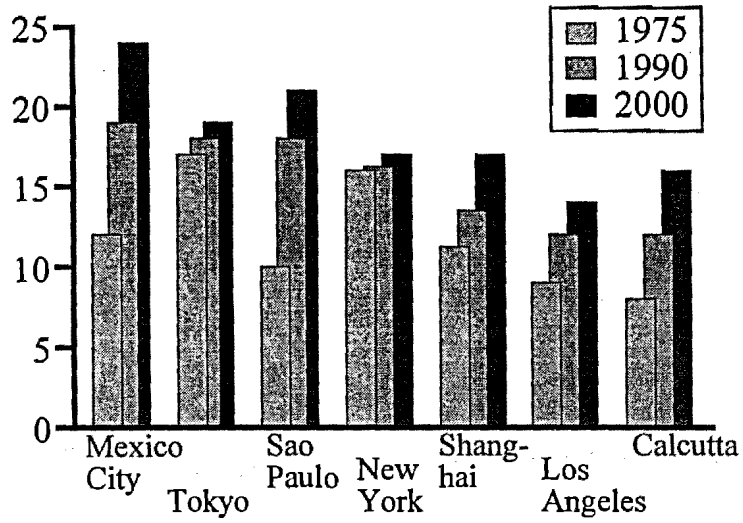
issue of environmental

m41envsu.rtf

It was the World Commission on Environment and Development (1987), chaired by Gro Haelem Bruntland, the Prime Minister of Norway, which, took a widely publicized, comprehensive view of the population-environment-and development nexus. The Bruntland report "Our Common Future", is widely credited for the development of the concept 'Sustainable Development'. It was argued that at any level of development, increased population increases energy use, resource consumption and environmental stress. These linkages received priority attention in 'Agenda 21'- the global action plan adopted by the United Nations Conference on Environment and Development (UNCED) in Rio de Janerio in 1992. 'Agenda 21' urges all countries to improve their capacities to assess the environmental and development impacts on their population growth rates, demand for better standards of living and to implement appropriate programs.

uncontrolled urbanization

World's Largest Urban Agglomerations
(millions of residents)



m41figs

Source: UN

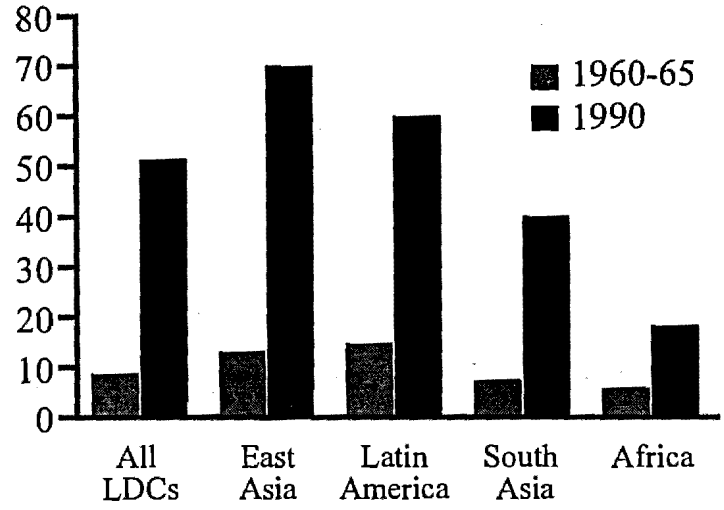
M41urbnz.rtf

The United Nations Fund for Population Activities (UNFPA) notes that migration from rural to urban areas account for about 60 percent of the urban growth in developing countries. By the end of the century over half the world's population will be living in cities and of the 20 largest cities in the year 2000, 17 will be in developing countries. Upto half the population in many large cities in developing countries live in slums or squatter settlements. Urban population in developing countries are growing at a rate of 3.7 percent a year, four times faster than in industrialized countries.

family Planning programs

m4lfig04

Trends in Contraceptive Prevalence
(percent of users, by region)



Source: United Nations

fampln.rtf

Family planning is the conscious effort to determine the number and spacing of births. Family planning involves the use of contraceptive methods, which range from the rhythm method, which relies on a woman's reproductive cycle to pills, injectibles, blocking methods and hormonal patches. The use of modern family planning techniques in developing countries has grown from less than 10 percent of married couples in 1960s to 45 percent in 1983 to 51 percent in 1993.

more info in "Family planning programs"

fpedu.rtf

Family Planning and Education

In general, the prevalence of contraceptive practice increases with higher levels of education. Moreover, the more the country is into the demographic transition (declining birth and death rates), the lower down the education ladder is contraceptive use diffused.

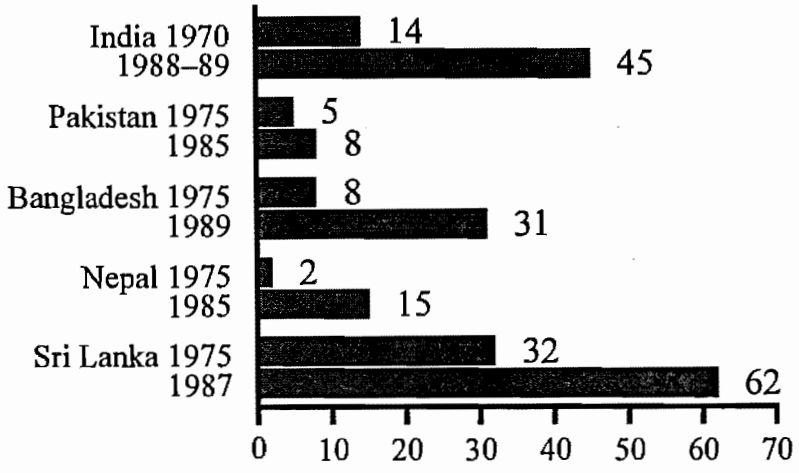
For countries that are firmly into the demographic transition (i.e. low birth and death rates) educational fertility differentials are equally due to later age at marriage and use of contraception.

This suggests that shifts in educational fertility differentials are due to higher levels of education and change in age at marriage. Specifically, women with more education marry later and so have their first births later, and have fewer children in total.

more info in
"family planning programs"

fo63sacn

Contraceptive Prevalence: South Asia
(percent of married women 15–49)



more info in 'Family Planning'

A SUMMARY OF PRINCIPAL LESSONS LEARNED FROM A.I. D. EXPERIENCE IN POPULATION AND FAMILY PLANNING

(Produced by Jock Conly, Harriett Destler and Lane Vanderslice, POL/CDIE)

OVERVIEW

A.I.D. has been the major donor in population assistance since the late 1960s. For more than two decades, A.I.D. has provided sustained and significant support for demographic, biomedical and operations research. This research provides an unusually rich information base from which to examine program issues, alternatives and results. It contributes importantly to improved contraceptive choices, family planning information and services and population program management.

The summary which follows draws upon this research base; A.I.D. experience as reported and analyzed in various policy and program papers and evaluation studies; and other studies by World Bank, Population Council and other key institutions to identify some of the important lessons learned and major unresolved policy and program questions.

THE REVOLUTION IN REPRODUCTION

There has been a profound and rapid change in fertility, family planning knowledge and practice, and population policy in the developing world.

The developing world has come half way to the replacement level of 2.1 children per woman. Since the mid-1960s the total fertility rate (TFR) has declined from about 6.1 children to 3.9. 17 countries have had fertility declines of more than 50% and an additional 31 have had declines exceeding 25% (Ross 1992:1).

Fertility is falling primarily because a growing percentage of married women are using effective family planning. About one third of married women in the developing world, excluding China, are currently using modern methods of family planning (Robey 1992:1). **Current fertility declines are much faster than in the past**, start from higher levels of fertility, are preceded by even more rapid decline in mortality and affect much larger populations (Bulatao 1993:7).

This represents a substantial increase in the numbers of women practicing family planning. In 1980, there were about 220 million contraceptive users in developing countries or 38-40 percent of the married women of reproductive age (MWRA). By 1990 there were 380 million users or 51% of the MWRA (Ross 1992:1).

In the 1960s few governments had national population policies. Now **governments in over 100 countries actively support the provision of family planning as do most donor countries in their foreign assistance programs** (Gillespie 1992).

While a number of socio-economic factors have contributed to these changes, contraceptive practice, access to family planning services and the strength of the national family planning program are among the most important.

Differences in levels of **contraceptive use explain 92 percent of the variation in fertility** among developing countries. The availability of family planning services, one of the key determinants of contraceptive use, accounts for between 40 and 75 percent of declines in fertility (Robey 1992:9).

While **typically the most effective family planning programs are in the most rapidly developing countries**, a number of studies have shown that strong family planning programs can encourage contraceptive use and lower fertility in very poor countries (Robey 1992:35).

A.I.D. assistance has been important.

Fertility has declined in almost all countries where A.I.D. has supported sustained programs of population assistance. Even in countries like Ghana, Pakistan and the Philippines where government support has been inconsistent and in some cases, where A.I.D. assistance has been suspended, there appears to have been recent progress in increasing prevalence and lowering fertility.

A.I.D. has been the leader among international development agencies in addressing the population problem. Through its unique partnership with private institutions working in the population field, A.I.D. has provided strong technical leadership. The presence of A.I.D. expert staff in the field has greatly contributed to the success of family planning efforts. A.I.D.'s programs have generally had more measurable impact than those supported by other donors (Conly 1991:1).

IMPLICATIONS FOR A.I.D.

Much remains to be done.

There are important fertility differences by region and country. Recent surveys found that TFRs ranged from a low of 1.7 children per woman in South Korea to a high of 7.3 in Niger (Robey 1992:5).

At current levels of contraceptive use, **family planning programs will need to serve about 100 million more contraceptive users in 2000 than in 1990 just to**

keep pace with population growth (Ross 1992:4). The **cost to donors, developing country governments and the private sector of meeting future need is expected to double during the decade of the 1990s** (Gillespie 1992:1).

Potential demand for family planning is considerably larger than current use in most LDCs. About 20% of all MWRA want to avoid pregnancy but are not using contraception. If this potential demand were met, the TFR would fall from an average of four children per woman to three (Robey 1992:35).

If need for family planning is measured by an index which includes unmet need for contraception, number of high risk births and number of new contraceptive users needed to track U.N. low fertility projections, **20 countries account for 80% of the need among the 83 countries receiving A.I.D. population assistance** in FY 1992 (A.I.D. 1993:5).

GENERAL LESSONS ON POPULATION ASSISTANCE

Experience suggests some important factors in program impact, resource leveraging and cost effectiveness.

Impact is greatest where there is a sustained program effort. It takes at least a decade to launch a successful family planning program. It takes even longer to reach isolated and other hard to reach populations and to develop sustainable systems. Conversely, if assistance is intermittent, very broadly dispersed and not sufficient to influence the development of key program components, there may be little impact. **Long-run government and donor support is needed** (Bulatao 1993:4).

Family planning programs work best when national political and public opinion leaders publicly support them. Changes in political leadership and subsequent support for family planning have important impacts on the national family programs (Schmeding 1992:ix and Dumm 1992:9-10).

There remain **important legal, regulatory and medical barriers to access and the expansion of services in most countries.** A variety of regulations affect the availability, distribution and advertising of contraceptive methods and abortion, limiting the potential of the private sector and hampering public programs. Many governments limit access to services by restricting those who can prescribe contraceptives or perform procedures. The medical system also creates barriers to access through inappropriate contraindication, process hurdles, provider bias, and requirements for elaborate and, in some cases, costly tests (Bulatao 1993:83).

There is **no single contraceptive method or service delivery approach which meets the needs of all couples.** Contraceptive choices change with age and family size. Providing couples with a choice increases prevalence and program

success. Successful programs involve all three sectors: public, private-not for profit and commercial (Destler 1990:26).

The **quality of services is critical to influencing decisions to accept and to continue family planning services.** Recruiting a smaller number of family planning acceptors and providing good care for them may have more impact on fertility than recruiting a larger number whose needs can not be met (Jain 1989:13).

Delivery systems must be flexible and client based. As programs become better established and reach more diverse and younger populations, service delivery systems must evolve (Destler 1990:28).

Information, education and communication (IEC) is a key component of family planning success. Promotion is essential for people to know why family planning is advantageous to them, where services and supplies are available and how to use family planning methods (Bulatao 1993:4).

Demand for family planning services is rising faster than public and private resources. It is no longer possible to support all service delivery approaches or programs. A.I.D. and its cooperating agencies have an important role to play in leveraging resources and developing more cost effective approaches. Cost and expected results, particularly in reaching targeted populations, need to be weighed in decisions about funding levels for both bilateral and multilateral projects. (Destler 1990:26).

Prospects are **not favorable for most developing countries to achieve financial sustainability from domestic resources** for their population programs. Nevertheless, there is ample room to improve cost-effectiveness, and greater attention needs to be paid to this area (Schmeding 1993:66).

Though overall there have been significant advances in the functioning of family planning programs, **there are still necessary improvements to be made in such key areas as logistics, management information systems, and operations research** (Schmeding 1993, p. 65).

LESSONS LEARNED IN PRINCIPAL PROGRAM AREAS

Women and Their Families

Female education is a predictor of contraceptive prevalence and of fertility. However, the effect of the relationship may not always be negative, especially at low levels of education, and in countries with low per capita incomes (Cochran 1979:9-10). While increased levels of education are valuable, education cannot be considered as a substitute for family planning programs.

Declines in infant and child mortality are associated with decreases in desired family size, as families adjust, with a greater or lesser lag, to the fact that their children are more likely to survive (Ross 1992:7). Conversely, child spacing is one of the most powerful child survival interventions (Ross 1992:5).

It appears that the male role in family planning has received relatively little attention by family planning programs, despite the fact that male methods are used by one-third of all couples practicing contraception (Schmeding 1993:61).

Government Policy

A crucial element for successful family planning programs is sustained political commitment at all levels. There is a need to build strong political constituencies for family planning programs. It is important to place the family planning program in an appropriate organizational location, appoint able individuals to key positions, and hold family planning program managers at all levels accountable for performance (Maguire 1992:3)

There is a need to undertake **strategic planning in order to determine operational priorities and allocate resources** (Maguire, 1992:4).

Government and donor-financed family planning programs can crowd out the private sector. Subsidized public programs can be a major constraint to developing private sector markets (Cross 1993:6).

Information, Education and Promotion (IEC)

Experience with family planning IEC has identified ways to promote family planning efficiently, including using the mass media, working with the commercial sector, making family planning news and persuading broadcast media to donate air time (Lande and Geller, p. 28).

Messages communicated through a variety of media, reinforced where possible through personal contacts and networks, will be most effective (Maguire 1992:8)

Negative or misinformed messages about family planning have an impact, and it is important to provide accurate information to the public about all aspects of family planning and fertility regulation (Maguire 1992:8).

Access

The most successful FP programs are those that move services and contraceptives as close as possible to where people live. There is no single way to do this - different programs must use different approaches but the barrier of distance must somehow be overcome (Ross 1989:60).

Devote a strong effort to the rural sector. In many countries, prevalence can't rise very much unless services are extended throughout the rural sector. Nearly, 70% of the developing world's population is rural. **Focus special efforts on the largest cities.** In many countries, a few cities contain a very large share of the entire urban sector (Ross 1989:22).

Typically, less than 20% of the national service delivery sites serve two thirds or more of all new and continuing family planning users. The remaining 80% serve no clients or just a few. This holds true even when controlling for the size of the facility. Low performing sites frequently have chronic shortages of basic equipment, contraceptives and other basic commodities, no trained staff or educational materials, etc. This may explain why some facilities are overcrowded and others underutilized. It may also explain why there is a so called "KAP GAP" in many countries, e.g. relatively high knowledge about family planning and expressed desire to use family but low current use. It may be more cost effective to focus on improving service delivery at existing sites rather than creating, equipping and staffing additional sites (Mensch 1993:4).

Paying for Family Planning

By the year 2000 as many as 600 million couples in the developing world may be using for family planning. **Family Planning** for these users **could cost as much as $11 billion per year.** Who should pay:

Governments could pay more. The estimated $3.4 billion that developing countries pay now covers an estimated 75% of family planning costs. But this expenditure amounts only to about 0.4% of their total budgets.

Donor organizations can pay more. Donor assistance amounts to about $560 million annually or about 15% of family planning costs. This accounts for about 1% of all development assistance.

More users could pay. Family planning users in developing countries pay an estimated 10% of total family planning costs. In some developing countries, the poor pay 1-8% of their income for health care. (Lande 1991:1,21.) Removing all subsidies for contraceptives would price the lowest income groups out of the market, however. To be successful in reaching poorer families, marketing strategies must be tailored to low

income households. Increasingly, public resources need to be directed to those least able to pay (Bennett 1993:14).

Private for profit organizations could invest more. A.I.D.-assisted social marketing and employer-based service delivery programs have shown that there is a commercial market for family planning services and commodities in developing countries and that for-profit firms will invest to enter this market.

Thirty years of experience and two decades of operations research have identified **ways to increase the efficiency of service delivery, promotion and evaluation.** These methods might include using lower level health care personnel, reducing the frequency of supervision, retraining CBD workers or combining clinic and CBD programs (Lande 1991:27-8).

UNRESOLVED ISSUES, PROGRAM AND POLICY QUESTIONS

Among the policy and program issues identified as priorities for further study by A.I.D. managers, the Office of Population's evaluation project staff and advisors; and various CDIE Impact studies on family planning and child survival are the following:

Benefits of sector integration: There has been a recognition of the need for integration of family planning with other major development areas, notably maternal and child health and women's development. How should the impact of this integration be measured and has integration with other sectors been fruitful from the point of view of use of family planning services?

Comparative Advantage: The delivery of family planning programs has diversified considerably over the past decade. What are the comparative advantages of the various delivery systems, such as community based distribution, employer-based services, hospital based clinics, etc. for effective contraceptive practice and for reaching different target populations? How do these change as programs mature and contraceptive prevalence increases?

Role of the Various Sectors: What are the comparative advantages of public, private-not-for-profit and private commercial delivery systems in terms of cost and ability to cover targeted populations? What are the implications of these differences for A.I.D and other donor support?

Cost Effectiveness: Although a primary output of population programs, the quantity and quality of services are often not well measured. Tracking and accounting for costs is even more problematic. What is the cost effectiveness of various approaches, providers and implementing organizations?

Unmet Need: Recent studies suggest high levels of unmet need for family planning services and conclude that fertility can be substantially reduced if this need is met. What is the extent of real unmet needs in different contexts? What are the underlying programmatic, socio-cultural and other factors.

Revised October 26, 1993

BIBLIOGRAPHY

Agency for International Development. "A.I.D.'s Population Program: Response to the Committee on Appropriations, United States Senate." Washington, DC: A.I.D., March 15, 1991.

Bennett, Joanne, Genevieve Kenney, Ruth Levine, Susan Livingston and Vijay Rao. "Sustainability of Family Planning Programs and Organizations: Meeting Tomorrow's Challenges." Washington, DC: The Futures Group, 1993.

_____. "Overview of A.I.D. Population Assistance, FY 1992." Washington, DC: A.I.D., April, 1993.

Bulatao, Rudolfo A. Effective Family Planning Programs. Washington, DC: World Bank, 1993.

Chiavaroli, Eugene R., Andrew N. Agle, Sarah C. Clark, and Patricia Gibson. "Evaluation of A.I.D. Child Survival Programs: Morocco Case Study." Washington, DC: A.I.D., Center for Development Information and Evaluation, December, 1991.

Cochrane, Susan Hill. Fertility and Education: What Do We Really Know? Washington, D.C.: World Bank, 1979.

Conly, Shanti R., J. Joseph Speidel, and Sharon Camp. "U.S. Population Assistance: Issues for the 1990s." Washington, DC: Population Crisis Committee, 1991.

Cross, Harry E. "Policy Issues in Expanding Private Sector Family Planning." Washington: The Futures Group, 1993.

Destler, Harriett, Dawn Liberi, Janet Smith, and John Stover. "Preparing for the Twenty-First Century: Principles for Family Planning Service Delivery in the Nineties." Washington, DC: A.I.D., Family Planning Services Division, Office of Population, November, 1990.

Dumm, John, Richard Cornelius, Roy Jacobstein and Barbara Pillsbury. "Evaluation of A.I.D. Family Planning Programs: Kenya Case Study." Washington, DC: A.I.D., Center for Development Information and Evaluation, June 1992.

General Accounting Office. "Foreign Assistance: A.I.D.'s Population Program." Washington, DC: GAO, May, 1990.

Gillespie, Duff, Constance Carrino, Charles Johnson, Barbara Seligman. "Egypt Population Assessment." Washington, DC : A.I.D., Office of Population, Bureau of Science and Technology, March 17, 1989.

_____, Ellen H. Starbird, Scott R. Radloff and Martin P. Brockerhoff, "An Analysis of A.I.D.'s Population Strategy for the 1990s", Paper presented at the meeting of the Population Association of America, April 1992, Denver, Colorado.

_____, "Family Planning Programs: The Challenge of Rising Expectations", paper prepared for delivery at the Plenary Session of the IPPF Family Planning Congress, New Delhi, India, October 24, 1992.

Green, C.P. "The Environment and Population Growth: Decade for Action." Population Reports, Series M, Number 10. Baltimore, Johns Hopkins University, Population Information Program, May, 1992.

Jain, Anrudh K., "Fertility Reduction and the Quality of Family Planning Services, Studies in Family Planning, Volume No. 20, No. 1, Jan/Feb. 1989.

Lande, R.E., and R. Blackburn. "Pharmacists and Family Planning." Population Reports, Series J, Number 37. Baltimore: Johns Hopkins University, Population Information Program, November, 1989.

_____ and J.S. Geller. "Paying for Family Planning." Population Reports Series J, Number 39. Baltimore: Johns Hopkins University, Population Information Program, November, 1991.

Maguire, Elizabeth S. "Meeting the Family Planning Challenges of the 1990s." Paper delivered at the Expert Group Meeting on Family Planning, Health and Family Well-Being, Bangalore, October 26-30, 1992.

Martin, Richard. "A.I.D.'s Child Survival Program: A Synthesis of Six Country Case Studies." (Draft) Washington, DC: A.I.D., Center for Development Information and Evaluation, April 9, 1993.

Mensch, Barbara, Andrew Fisher, Ian Askew and Ayorinde Ajayi. "Supply Side Determinants of Family Planning Clinic Utilization: Findings from African Situation Analysis Studies." (Draft).

Merrick, Thomas W. "Options: Strategic Planning for the Expansion of Family Planning." Washington, DC: Population Reference Bureau, February, 1993.

Robey, B., S.O. Rutstein, L. Morris, and R. Blackburn "The Reproductive Revolution: New Survey Findings." Population Reports, Series M, No. 11, Baltimore: Johns Hopkins University, Population Information Program, December, 1992,

Ross, John A., Marjorie Rich and Janet P. Molzan. Management Strategies for Family Planning Programs. New York: Colombia University, School of Public Health, Center for Population and Family Health, 1989.

John A. Ross, W. Parker Maudlin, Steven R. Green & E. Romana Cooke, Family Planning and Child Survival Programs as Assessed in 1991, The Population Council, New York, 1992.

Schultz, T. Paul. "Sources of Fertility Decline in Modern Economic Growth: Is Aggregate Evidence on the Demographic Transition Credible?" (Draft) New Haven: Yale University, March 29, 1993.

Schmeding, Robert, Krishna Kumar, Keyes MacManus and Thomas Pullum. "Evaluation of A.I.D. Family Planning Programs: Philippines Case Study." Washington, DC: A.I.D., Center for Development Information and Evaluation, October 1992.

_____. "Synthesis Report: Impact Assessment of Family Planning" (Draft). Washington, DC: Center for Development Information and Evaluation, October, 1993.

more info in "family planning programs"

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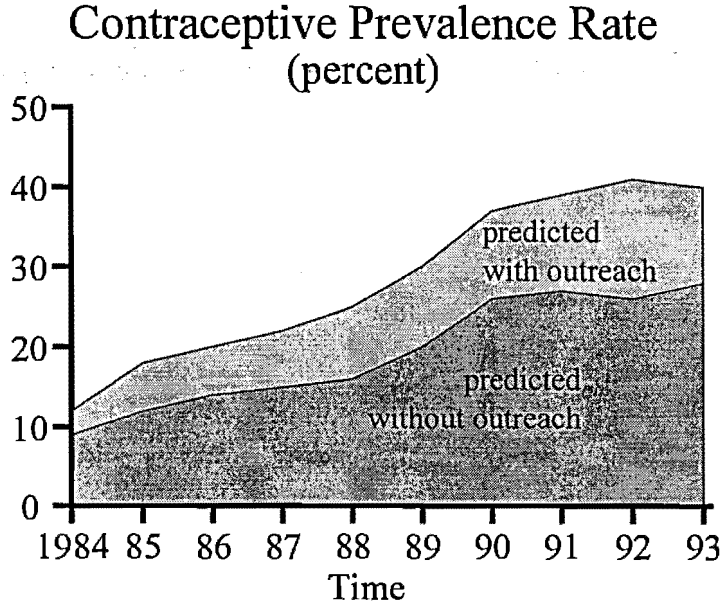

Source: Phillips etal., 1996

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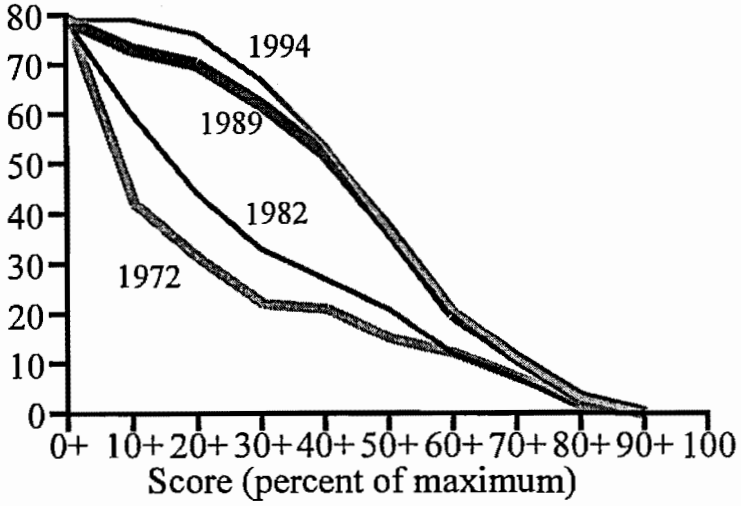
Number of Countries
at or Above Each Percent-of-Effort Score



Source: Ross and Mauldin, 1996

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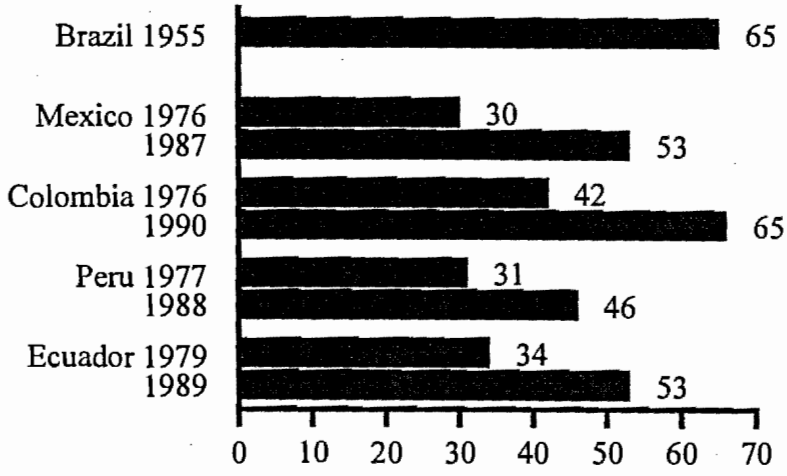
Latin America

Contraceptive Prevalence: Latin America
(percent of married women 15–49)



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Latin America

Major increases in use are reported in Mexico, Columbia, Peru and Ecuador.The average level of contraceptive prevalence among women of reproductive age is now 54 percent. The average conceals wide differences; it is only 10% in Haiti but 70% in Costa Rica and Cuba. For most countries the range is 40-50%.

fertility declines

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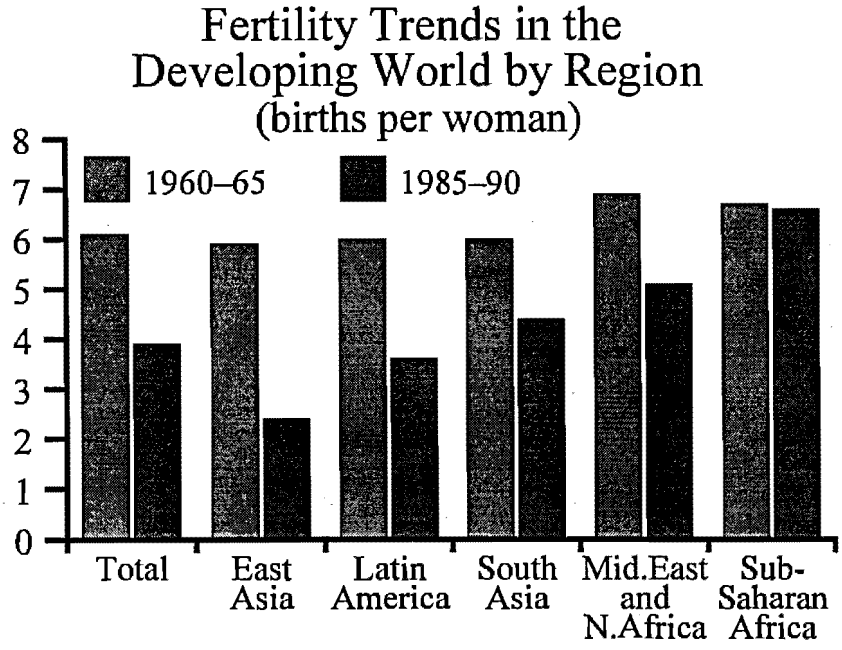

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The relative contributions of family planning programs and socio-economic development to fertility declines vary greatly among countries. By the early 1990s, the region of East Asia, including China, had already attained the replacement level fertility of 2.1 children per couple. In South Eastern Asia, Indonesia had achieved a fertility rate of about 3. In Latin America, fertility had declined by at least one child per woman since the 1970s and stood at just above 3 in early 1990s. In Africa, fertility rate per woman ranged from a high of 6.8 per women in East Africa to 4.2 per woman in Southern Africa. In the Middle East fertility rate per woman was 4.2 and in Southern Asia it was 4.7 per women in 1990.

unmet need

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Recent surveys in Developing countries strongly indicate that many women who wish to stop or delay childbearing are not practicing contraception. This is referred to as 'unmet need' in contraception. The unmet need seems to be the highest in countries of Sub-Saharan Africa averaging upto 25 percent. In Asia and Latin America, where family planning services are more prevalent, unmet levels reach 15 percent. The presence of an unmet need forbcontraception was first demonstrated with data collected in so-called KAP surveys, which inquired about women's Knowledge of, Attitude towards, and Practice of birth control (KAP), as well as their family size preferences. This discrepancy between reproductive preferences and birth control practices is referred to as the 'KAP gap' or 'Unmet need' for contraception.

There is an increasing acknowledgment of women's pre-eminent role in achieving fertility control. World Bodies and advocacy groups have placed reproductive rights for women as a woman's human right. Furthermore, the International Conference on Population and Development (ICPD), organized by the UN in Cairo in 1994 drew attention to the concept of empowerment of women as a crucial basis for lowering fertility while ensuring reproductive health, especially against STD pandemics as HIV/AIDS.

First it is important to recognize the difference between replacement level fertility and population stabilization. The reason the two are not synonymous is that population stabilization will not be achieved until the number of women entering the reproductive age group is equal to the number leaving that group. In other words even at replacement level fertility, if there are more women entering the reproductive age group than leaving it, there will be more births than deaths in a typical population. This phenomenon is called 'population momentum'.

We can see the magnitude of this population momentum, which is dependent on the age structure of the population and the level of fertility.

Regional Population Trends

What do we know about population trends in Sub-Saharan Africa, Latin America and the Caribbean, East and Southeast Asia, South Asia?

What do we know about the factors and policies which lead to declines in fertility and what are the lessons learned in this area?

Population Exercise Primary Enrollment Case:

Population Exercise Infant and Child Mortality Case:

There is a very large body of literature examining the relationships between the factors or variables considered important in reducing fertility. Five of the most important factors, however, are: female education, infant mortality, maternal health and nutrition, female employment and family planning. According to the empirical findings, these are the primary factors that account for reductions in fertility.

Population Exercise Female Employment Case:

While there is a large body of literature in this area, there is no common theoretical foundation. Empirical work has been done at different levels of analysis, that is at the individual level, household, regional and national level. Studies have used different data sets and different time periods. Finally, the majority of empirical work is oriented toward establishing statistical association. The interpretation of these association is, at least for most of the variables, impeded by a lack of theory in this area. Nevertheless, critically important findings have emerged during the last decade that identify these factors as

reproductive rights for women

The right of individuals and couples "freely and responsibly to decide the number and spacing of their children and to have the information and education to do so" was initially recognized as a human right in 1968. Over the past two decades reproductive rights have been closely associated with women's human rights. The three main reproductive rights for women are: 1) the freedom to decide how many children to have and when and whether to have them; 2) the right to have the information and means to regulate one's fertility; and 3) the right to 'control' one's body. The first two rights have had general acceptance since the 1960s, while the third does not have universal acceptance, mainly due to the debate on women's rights to abortion.

HIV/AIDS

An Epidemic's Global Reach

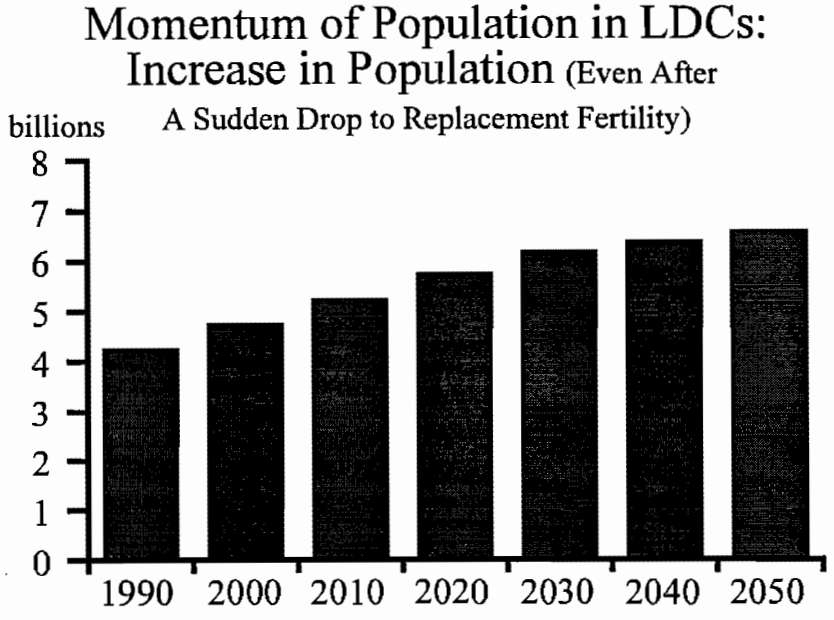
	Current HIV or AIDS cases	Percent of Population infected	Women as a percent of the infected
Sub-Saharan Africa	14 million	5.6	50 or more
South and Southeast Asia	5.2 million	0.6	30 or more
Latin America	1.3 million	0.6	20
Caribbean	270,000	1.7	40 or more
North Africa, Middle East	200,000	0.1	20
East Asia, Pacific	100,000	0.001	20
Central and East Europe, Central Asia	50,000	0.015	20

HIV/AIDS

More than 80 percent of those infected with HIV lived in developing countries in 1990, and according to the World Health Organization or WHO, by the year 2000 this will increase to an estimated 95 percent.

According to the WHO, by mid-1994 approximately 40 percent of estimated cases of HIV infection were women. By the year 2000 the number of women infected will equal that of men and in fact the number of women contracting HIV is growing faster than the number of men worldwide.

population momentum

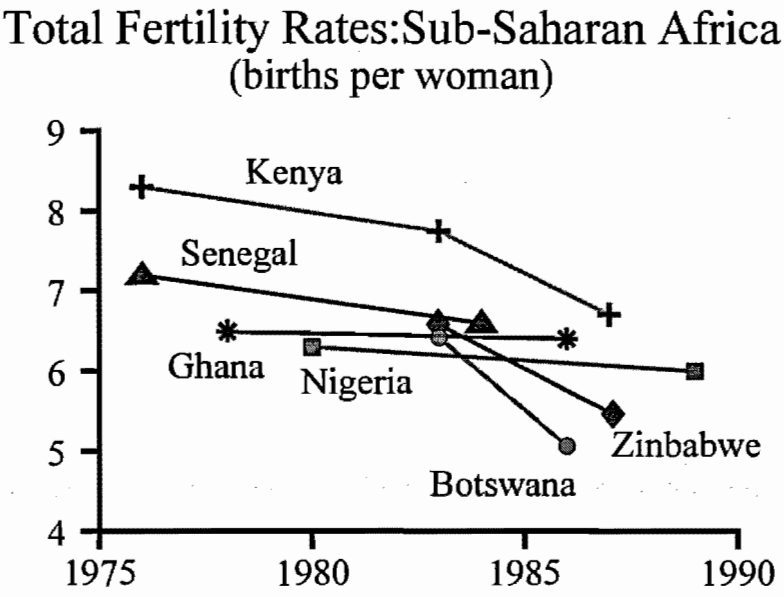


population momentum

This term refers to the phenomenon that for some period after replacement level fertility has been achieved, population growth will continue.

The graph shows that even if fertility suddenly dropped to replacement level fertility (2.1 children per woman) the population of the LDCs would still increase by more than 60 percent in the next six decades, from 4.1 billion to 6.6. billion. Since this will not happen immediately, it is projected that the population of the LDCs will by much larger than 6.6. billion.

Sub-Saharan Africa



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This region of the world has the most rapidly growing population in the developing world. In 1993 the population of the region was 529 million, accounting for 9.4% of the global population. It is predicted to climb to 16% in 2025.

more info in "Sub-Saharan Africa"

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Population Trends

The region as a whole is growing at 3.2% per year and is then expected to double over the next 2 decades. Urban population is growing at 2.5 times the rate of the rural population. If these growth rates continue, within 30 years a majority of people will live in urban areas. We know that rapid urbanization has profound social, economic and political consequences.

The 6 largest countries are Nigeria, Ethiopia, Zaire, South Africa, Tanzania, Kenya. More than half the population of Africa lives in these 6 countries, with Nigeria being the largest. Nigeria has 109 million people or 1/5 of the region's pop. By 2025, Nigeria is expected to be the 6th largest country in the world.

Fertility is very high, ranging from 6.0 to 7.5 births per woman. In only four countries, South Africa, Botswana, Zimbabwe and Kenya, have sustained fertility declines begun. Many factors led to these changes.

Recent studies indicate that marked improvement in female literacy and education, reductions in early childhood mortality, widely available health care and family planning, economic growth, and more stable governments were important factors. In fact, dramatic increases in modern methods of contraception explain a lot of declines in fertility in these countries.

more info in "Sub-Saharan Africa

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Sub-Saharan Africa Summary

Sub-Saharan Africa has the most rapidly growing population in the developing world. In 1993 the population of the region was 529 million, accounting for 9.4% of the global population. It is predicted to climb to 16% in 2025.

Although population growth has been rapid in recent decades, Sub-Saharan Africa remains a region of small sparsely populated countries. Of 50 countries, 25 have populations under 5 million, 12 have populations of 5-10 million and 7 have populations of 10-20 million.

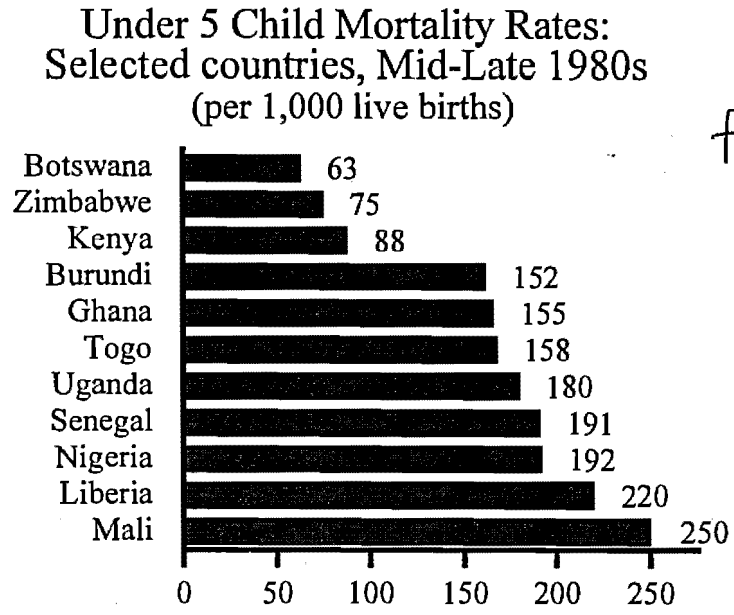
What do we know about the demographic transition in this region? The data gaps are pretty tremendous. However, we can say with some confidence that fertility rates in most Sub-Saharan countries as well as infant and under five child mortality rates in these countries are comparatively high.

What else can we say about this region? Child mortality rates in Sub-Saharan countries are among world's highest and the data suggest that they have fallen more slowly than in other developing countries.

In most of these countries at least half the deaths occurring before age 5 are concentrated in the first year of life. However, in several countries with particularly high child mortality, like Senegal, Nigeria and Mali, over 1/2 of child deaths occur after the first birthday. Why is this important? If there is prolonged uncertainty about whether children are going to live long, fertility declines will be postponed.

Only recently have most government in Sub-Saharan Africa developed policies to reduce population growth. Moreover, the spread of AIDS is now a big crisis complication public health efforts. Recent data indicated that infant and child deaths from AIDS could increase child mortality rates by as much as 50% in the most affected countries, wiping out gains of earlier decades.

more info in "Sub-Saharan Africa"



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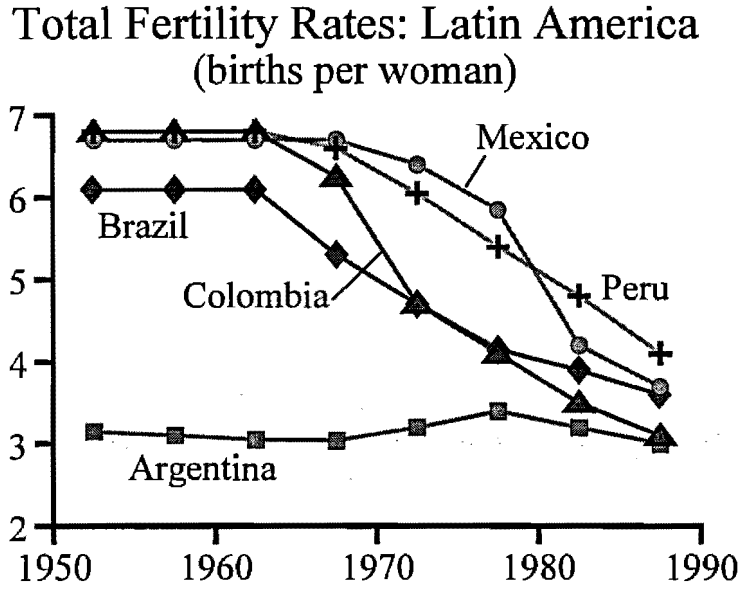
Under Five Mortality Rates

Child mortality rates are well below 100 deaths per 1000 births in Kenya, Botswana, South Africa, and Zimbabwe where. Mauritius has passed through transition and achieved replacement level fertility.

In eight other countries for which data are available, under 5 mortality is in the 150-250 range. The eight countries are Burundi, Ghana, Togo, Uganda, Senegal, Nigeria, Liberia, and Mali. In those countries, between 1 in 4 and 1 in 7 children die before reaching the age of 5.

4-2

Latin America and the Caribbean



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This region includes 37 countries that have a combined population of 471 million, approximately 8.4% of the world's population in 1994. Between 1950-1994, the region's population more than doubled, increasing in absolute terms by about 310 million.

more info in 'Latin America and the Caribbean" Summary

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Latin America and the Caribbean

These regions include 37 countries that have a combined population of 471 million, approximately 8.4% of the world's population in 1994. Between 1950-1994, the region's population more than doubled, increasing in absolute terms by about 310 million. The crude birth rate is now 28 rate per 1000. The population as a whole is growing at an average annual rate of 2.1%. But several countries have growth rates above 3% which means they double every 20 years. There is tremendous variation in country size. Brazil alone has 1/3 of the area's population. The five largest countries, Brazil, Mexico, Columbia, Argentina, and Peru, account for 73% of the total.

Urbanization is an important issue. During the 1980s, urban populations grew by more than 3% annually, lead by tremendous migration from rural to urban areas. During this same period, the rural population grew by a mere 0.4 percent. As a result of this, the region is now 70% urban. Four of the largest cities in the world are in this region: Mexico City, Sao Paulo, Rio de Janeiro and Buenos Aires.

The region's total fertility rate has dropped to 3.5 which is a tremendous change from 1950s when only Argentina and Uruguay had fertility rates under 4.

What has accounted for the declines? Although there is tremendous variability in access to health care, the infant mortality rate in Latin America and Caribbean declined from 126 per 1000 (in 1950s) to 41 in 1994. However, maternal mortality decreased from 194 per 1,000,000 live births in the early 1970s to 88 in 1990 but is still a major problem for many countries.

Contraceptive use has increased dramatically since mid-1970s with the introduction of public and private family planning programs.

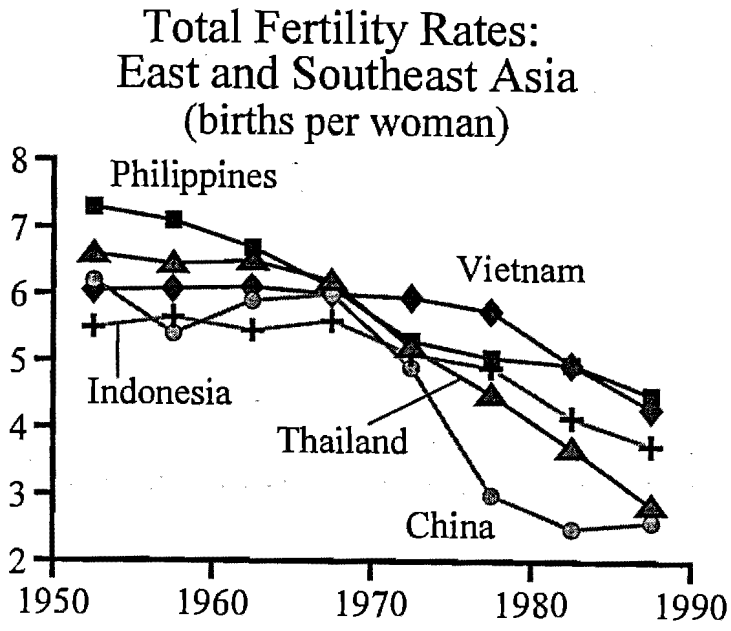
For the region as a whole, there are improvements in child survival and overall life expectancy, now 67 for the region with only Bolivia and Haiti reporting life expectancies lower than 60 years of age. Furthermore, over half of the governments have a government agency directly responsible for population policy.

Despite reductions in birth rates, this region, Latin America and the Caribbean, continues to have a relatively young population. Over 1/3 of the population, or 160 million people, are under the age of 15.

While there have been some major improvements region-wide for women, particularly in access to health care and education, in some countries like Bolivia women only live to 53 years. On the other hand women's life expectancy in Puerto Rico is 78 years. Looking at male/female differentials in health, education, employment, and social security, women's status is rated as poor or very poor in half of the 24 largest countries of Latin America and the Caribbean, by the Population Council.

4-h

East and Southeast Asia



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This region is the home of 1.7 billion people or 1/3 of world total and 2/5 of the population of the developing world. Over the next 35 years, the region is projected to grow by almost 700 million to over 2.3 billion.

more info in "East and Southeast Asia"

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East and Southeast Asia

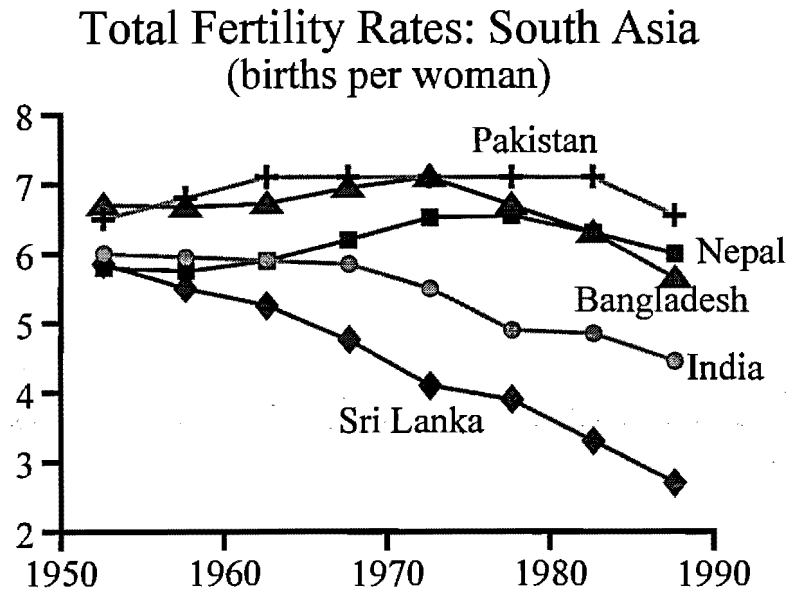
If you exclude Japan, East and Southeast Asia is home of 1.7 billion people or 1/3 of world total and 2/5 of the population of the developing world. China alone has 1.4 billion people, and Indonesia 184 million. Some of smallest countries in the region are Singapore and Hong Kong.

Over the next 35 years, East and Southeast Asia is projected to grow by almost 700 million to over 2.3 billion. While the increase in absolute numbers is incredible, the region's share of total world population is expected to decline because of its relatively low growth rate.

As a region, it is pretty advanced in its transition to low fertility.

Success stories are Korea, Taiwan, Hong Kong, Singapore, and recently Thailand. Indonesia's fertility levels are near three and falling, the Philippines' and Malaysia's near 4 births per woman and have declined from 7 in 1960s. Vietnam's fertility level is below 4, but in Laos estimated fertility rates are 6.6 births per woman. East and Southeast Asian infant mortality rates have also declined throughout the region.

South Asia



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21.4%, of the world's population lives in this region of the world. In 1994, Every 5th person in the world and every 4th in the developing world lives in this region.

more info in "South Asia"

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South Asia

A substantial proportion of the world's population, 21.4%, lives in South Asia, a region that includes India, Pakistan, Bangladesh, Nepal, Sri Lanka, Afghanistan and Bhutan. In 1994, 1.2 billion people lived in this region. Every 5th person in the world and every 4th in developing world lives in this region. India alone accounts for 75% of regions total. 95% of South Asians live in the three largest countries of India, Pakistan, and Bangladesh. The region's population is expected to double to 2.0 billion by 2025. Population growth rates are the highest in Pakistan at 2.8% per year. They are moderately high in Bangladesh (1.7%) Nepal (2.4%) and India (1.7%).

Rural to urban migration is increasing rapidly, and is a critical problem for this region. Fertility rates have declined but at a slower pace than in East and Southeast Asia. South Asian fertility rates were 6.1 in early 1950s but the average number of births per women now is 3.6.

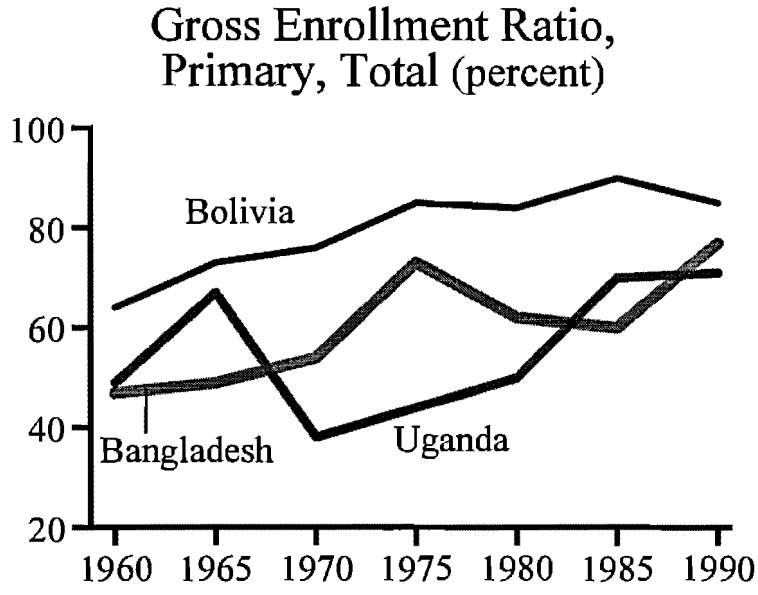
In India, fertility fell from 6 births per woman in early 1950s to just over 4 in late 1980s. This rate varies tremendously by region in India and it seems to be dependent on variations in contraceptive use.

Bangladesh is an interesting example of a country where there is extreme poverty, widespread illiteracy, and high infant mortality rates. But the rise in contraceptive prevalence in Bangladesh from 8% in 1975 to 31% in 1989 is remarkable. This is attributable in part to increased access to health services.

An expanding communication network facilitated and legitimized contraceptive behavior. All countries in this region have experienced declines in infant mortality which fell from 188 per 1000 in early 1950s to 104 in 1985-90. But remember that this level is still as high as Sub- Saharan Africa.

Primary Enrollment Rate

Examine your country's primary enrollment rate (gross enrollment ratio, primary total) and, if available, examine that rate for females, (gross enrollment ration, primary, females.) Look at the data over time. Is the rate increasing or decreasing? Add the variable total fertility rate. Is there an association between education and fertility over time?


Gross Enrollment Ratio,
Primary, Total (percent)
100
80
60
40
20
Bolivia
Bangladesh
Uganda
1960
1965
1970
1975
1980
1985
1990

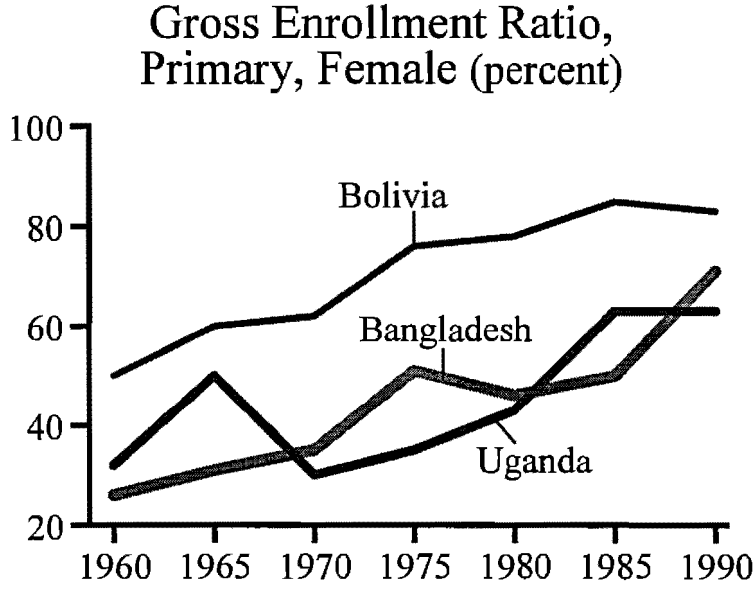
Gross Primary Enrollment Ratio

The gross total primary enrollment ratio is defined as the number of children of *all* ages enrolled in primary education as a percentage of the country's child population in the primary age group. This is typically six to eleven years.

For none of our countries is the ratio even close to 100. If a country has universal primary education, the ratio normally exceeds 100 because there would be some children who would repeat grades. Thus, we can infer that all three countries have yet to achieve universal primary education.

It is also useful to note that as the enrollment ratio rises the curve will tend to flatten, partly because it will be more difficult to reach the remaining hard-core of children who are non-attendees, and partly because of the simple statistical fact that the remaining pool of non-attendees is being eliminated.

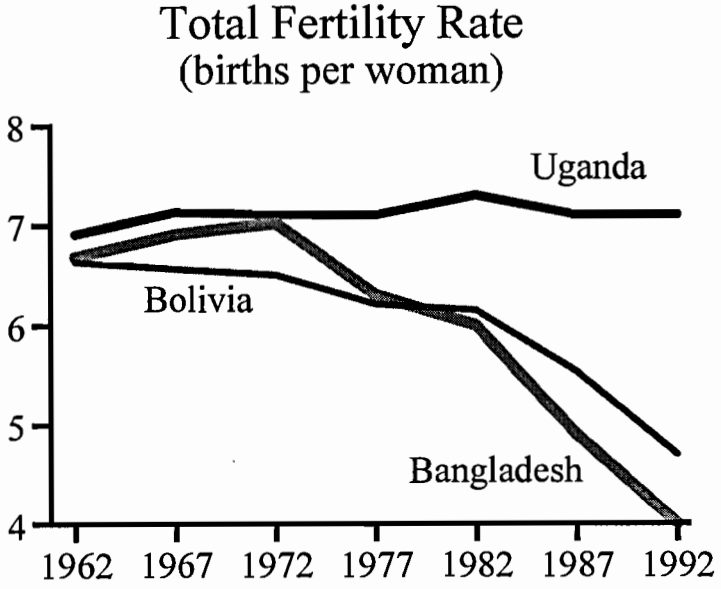
It is also the case that the overall gross enrollment ratio would camouflage significant gender, urban-rural, ethnic, and social class variations in enrollment. Such differences must be probed in detail to formulate effective policies to reach every child and to retain them until their education is completed.


Gross Enrollment Ratio,
Primary, Female (percent)
100
80
60
40
20
Bolivia
Bangladesh
Uganda
1960
1965
1970
1975
1980
1985
1990

Gross Enrollment Ration, primary, female

Historically, female enrollment in all levels of schooling has been lower than male. This is true of our three sample countries also. A complex mix of the social, cultural and economic factors that were briefly discussed in relation to the graph on literacy accounts for the discrimination against females.

However, it is also important to note that the gap has been closing over the last three decades. This trend reflects an increasing commitment to gender equity, and a realization of the value of female education. Research has demonstrated that there are enormous economic and social payoffs in female education. The positive impact on family planning and child health are two of the most important social benefits. Improved female productivity in the work place is a major economic benefit. This has led policymakers and donors to place greater emphasis on improving female education.


Total Fertility Rate
(births per woman)
8
7
6
5
4
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Total Fertility Rate

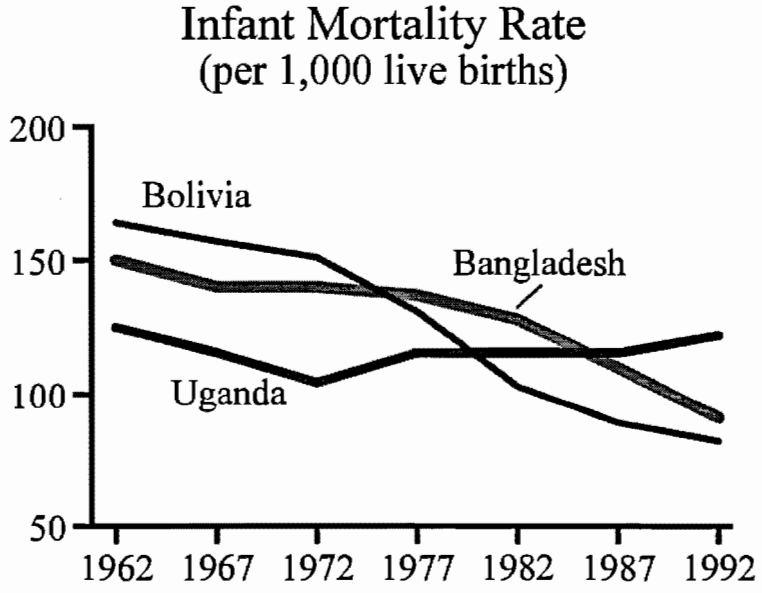
The Total Fertility Rate or TFR is the number of children that wuld be borne to a woman who lives to the end of her child bearing age (15 to 49 years) and bears children in accordance with the prevailing age-specific fertility rates.

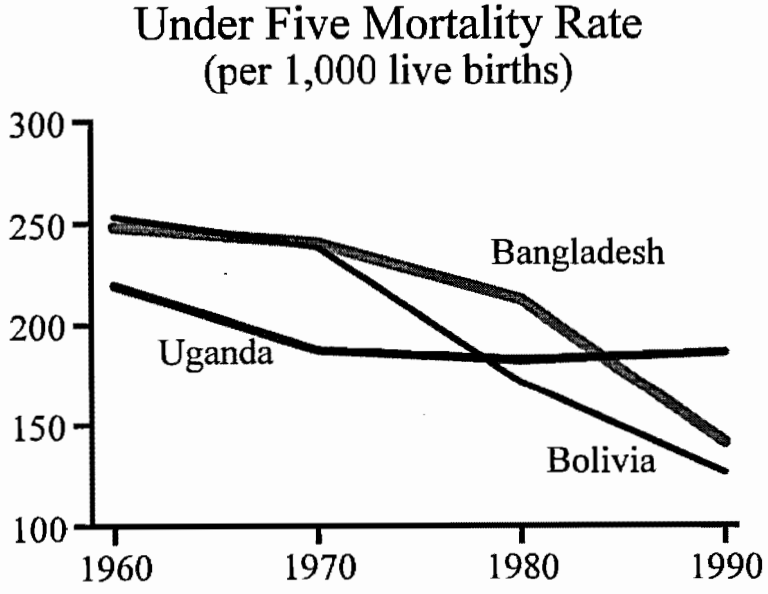
Uganda's TFR has held up at a relatively high level of about 7.0. This high fertility rate present major challenges for Uganda. Note that Bangladesh started with a higher fertility rate than Bolivia, but has shown a sharper fall after 1972 and a lower rate from about 1982.

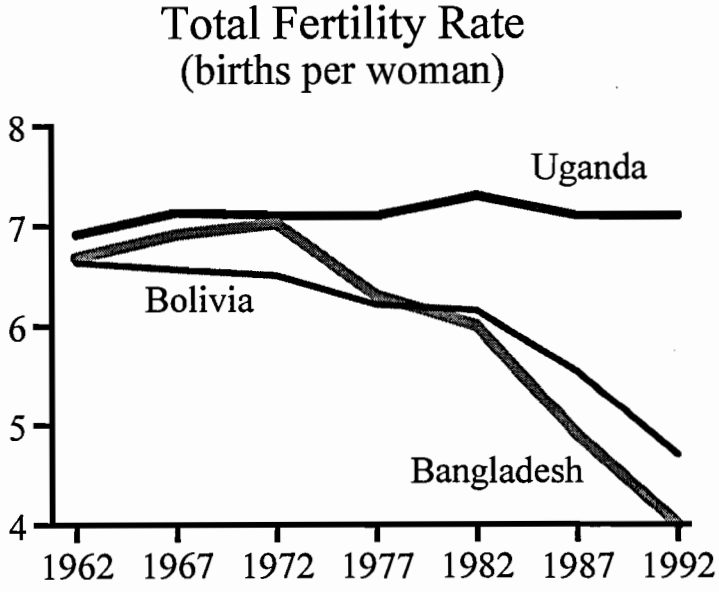
To what would you attribute Bangladesh's relative success? What factors are responsible for keeping the Ugandan rate at a relatively high level?

Infant and Child Mortality Case

Examine your country's infant and under five mortality rates. Are they increasing or decreasing over time? Compare these rates with your country's fertility rates. Does there seem to be a relationship in your country between fertility and infant and child mortality?


Infant Mortality Rate
(per 1,000 live births)
200
150
100
50
Bolivia
Bangladesh
Uganda
1962
1967
1972
1977
1982
1987
1992


Under Five Mortality Rate
(per 1,000 live births)
300
250
200
150
100
1960
1970
1980
1990
Bangladesh
Uganda
Bolivia


Total Fertility Rate
(births per woman)
8
7
6
5
4
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Infant Mortality Rate

The Infant Mortality Rate or IMR refers to the number of deaths among children between birth and year 1 per 1,000 live births in a given year.

Both Bolivia and Bangladesh have experienced declines in IMR during the entire period. For Bolivia the decline has been sharper in the 1970s and for Bangladesh in the 1980s. Uganda experienced a decline in IMR in the 1960s and early 1970s, followed by a rise during the rest of the period. Note here that until the mid 1970s Bangladesh - one of the world's poorest countries - had a lower IMR than Bolivia which had a per capita GNP about three times higher than that of Bangladesh. It is also useful to note that Uganda has regressed after 1972 to the point where its IMR in 1992 is almost the same as that which prevailed in 1962.

Questions: What factors have contributed to the drop in IMR in Bolivia and Bangladesh? How do you explain the reversal in IMR in Uganda?

Under 5 Mortality Rate

The Under Five Mortality Rate (UFMR) is the annual number of deaths of children under age five per thousand live births averaged over the previous five years.

In the 1960s Uganda was much better placed than Bangladesh and Bolivia with regard to UFMR. All three countries experienced reductions in the rate during that decade. However, even by 1970 the UFMR of all three countries was relatively high and placed them in the bottom quarter among developing countries. From 1970 Uganda experienced a slight increase in the rate whereas Bolivia and Bangladesh experienced declining trends.

What is the connection between UFMR and IMR? What explain the decline in UFMR in Bangladesh and Bolivia, and the rise in Uganda?

Total Fertility Rate

The Total Fertility Rate or TFR is the number of children that wuld be borne to a woman who lives to the end of her child bearing age (15 to 49 years) and bears children in accordance with the prevailing age-specific fertility rates.

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To what would you attribute Bangladesh's relative success? What factors are responsible for keeping the Ugandan rate at a relatively high level?

Most Impt. factors

Important factors for reducing fertility

Female Education

Infant Mortality

Maternal Health and Nutrition

Female Employment

Family Planning

Most Impt factors : Female education

First the theory that has been developed with regard to female education and fertility leads to the following hypotheses. Education provides first and foremost new information, new knowledge; information about contraception and family planning, nutrition and public health, information about child care and nutrition, and, it potentially leads to employment. Improvements in education, new knowledge, may change attitudes towards things like public health, as well as leading to value changes, increasing the woman's valuation of herself and her children. The hypothesis is that higher levels of education are associated with lower levels of fertility and that the links work through infant and child mortality, maternal health, employment and contraception.

Most Imp factors: Infnl Mortality

The hypothesis here is that higher levels of child and infant mortality are associated with higher levels of fertility. The reasoning is that women will have more children to "replace" those who have died and moreover that fertility levels depend in part on the probability of children surviving. So the higher the level of child or infant mortality, the greater the fertility necessary to achieve that goal. Because of this, improvements in infant and child mortality are expected to lead to lower fertility levels overall.

Most Imp factors: Maternal Health

The World Health Organization has identified the most promising interventions in maternal health as: primary prevention of infection, the prevention, detection and treatment of iron deficiency, and the detection of hypertensive disorders of pregnancy that lead to eclampsia.

Most Imp Factors : Female Employment

Improved access to labor markets and subsequent income are thought to enhance a woman's position in conflicts over control of resources and to offer a better bargaining position over the use of family resources. Moreover as women's time becomes more expensive (the value of which is measured in the labor market) the shadow price of children, which includes costs in terms of time spent in child care increases. These may lead then to a decline in fertility.

In general there is a negative relationship between fertility and female employment, meaning that as female employment increases, fertility declines. This has been observed more with regard to urban employment than rural employment and more at higher levels of occupational status.

Most Impl factors: Family Planning

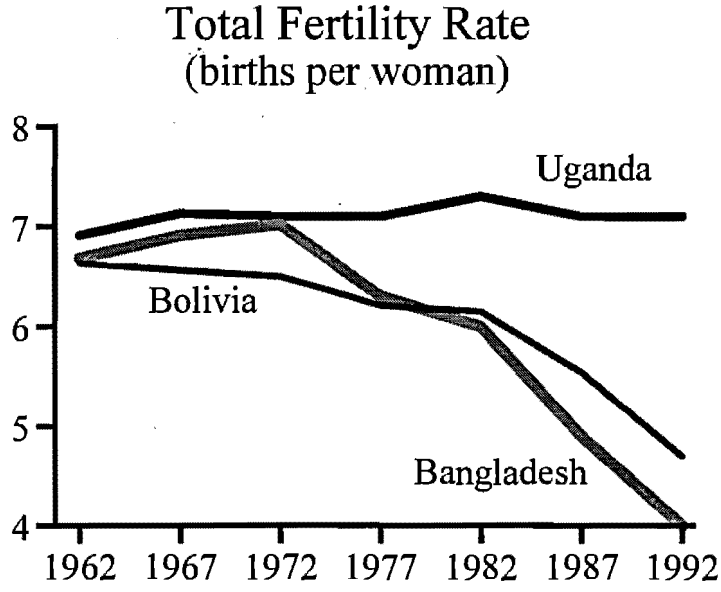
In general, the prevalence of contraceptive practice increases with higher levels of education. Moreover, the more the country is into the demographic transition (declining birth and death rates), the lower down the education ladder is contraceptive use diffused.

For countries that are firmly into the demographic transition (i.e. low birth and death rates) educational fertility differentials are equally due to later age at marriage and use of contraception.

This suggests that shifts in educational fertility differentials are due to higher levels of education and change in age at marriage. Specifically, women with more education marry later and so have their first births later, and have fewer children in total.

Female Employment Case

Examine your country's female employment rate. (Labor force, female as % of total) Is it increasing or decreasing over time? Now graph the total fertility rate for your country. Do you observe a relationship between female employment and fertility?


Total Fertility Rate
(births per woman)
8
7
6
5
4
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Total Fert. Rate

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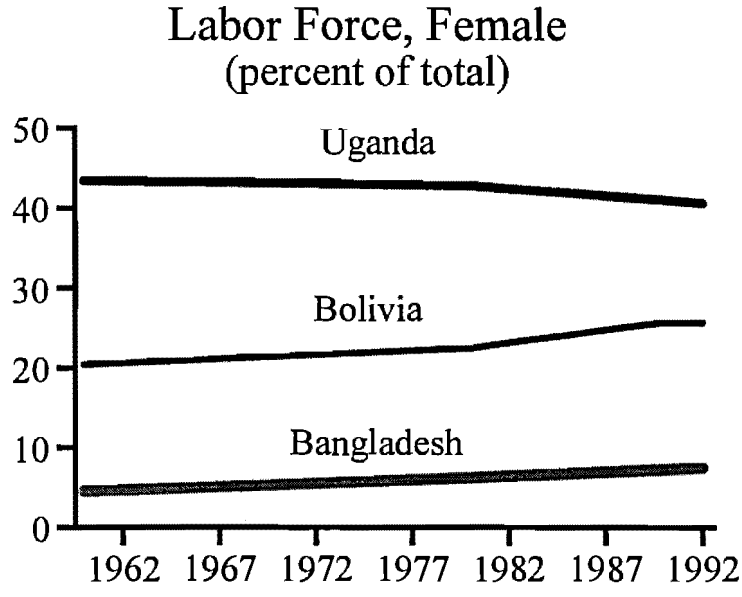
To what would you attribute Bangladesh's relative success? What factors are responsible for keeping the Ugandan rate at a relatively high level?


Labor Force, Female
(percent of total)
50
40
30
20
10
0
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Labor force female

In this graph on women in the labor force as a percent of total labor, note the low rate overall for Bangladesh. Less than 10% of the labor force in Bangladesh is female. On the other hand, Bolivia's rate is somewhat higher but may have plateaued in the early 1990s/ Uganda's rate started at a much higher level than the other two countries yet shows a downward trend since the mid-1970s. No date are available for Uganda after 1990 and it is very possible that there has been an increase in this variable in the past two years as the country has experienced rapid growth and transformation.

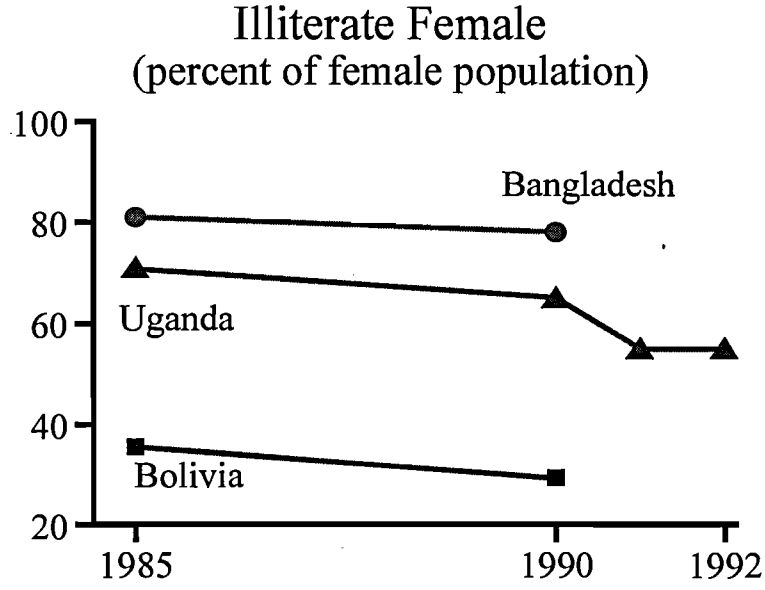
being the most important for reducing fertility with female education being perhaps the primary factor.

Population Exercise Education and Fertility Case:

Population Exercise Final Population Case:

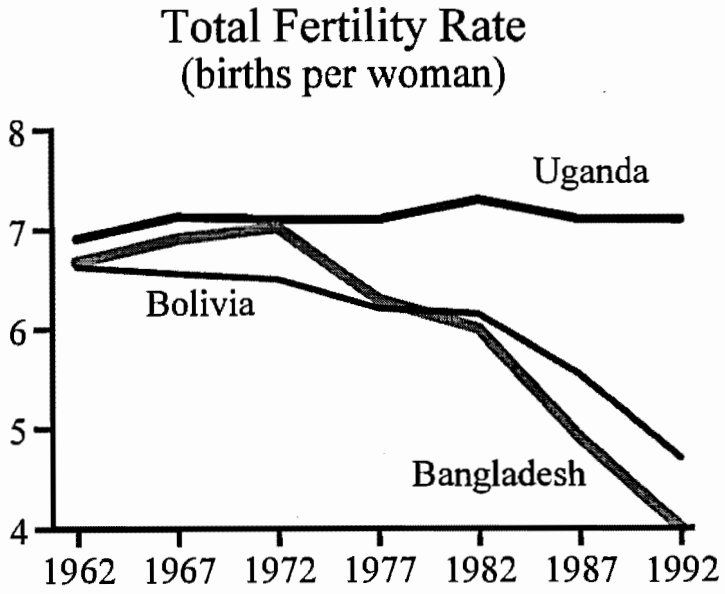
Education and Fertility Case

Graph the following two variables for your country: female illiteracy (as % of age 15+) and total fertility rate. Do you observe a relationshipover time between these variables?


Illiterate Female
(percent of female population)
100
80
60
40
20
Bangladesh
Uganda
Bolivia
1985
1990
1992

Female Illiteracy

The overall illiteracy rate generally masks differences in the rates between the genders, with females having a higher rate than males. The female illiteracy rate is higher than the rate for males in all three sample countries. Although the gap has narrowed over the years, the change has been quite slow in the three countries.


Total Fertility Rate
(births per woman)
8
7
6
5
4
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Total Fertility Rate

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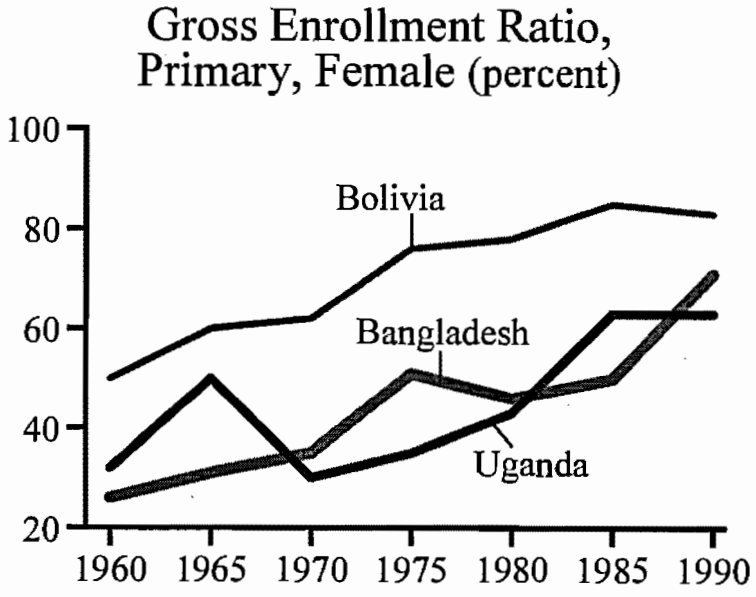
To what would you attribute Bangladesh's relative success? What factors are responsible for keeping the Ugandan rate at a relatively high level?


Gross Enrollment Ratio,
Primary, Female (percent)
100
80
60
40
20
Bolivia
Bangladesh
Uganda
1960
1965
1970
1975
1980
1985
1990

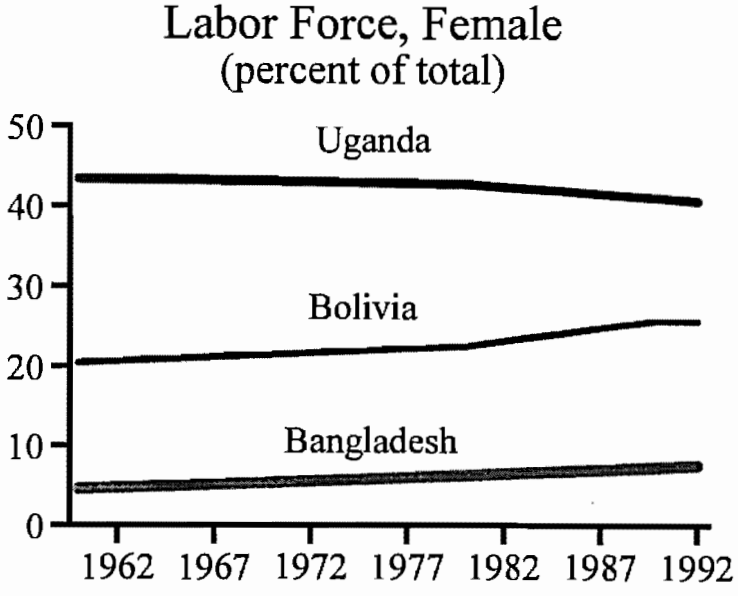
Gross Enrollment Ratio - Primary, Female

Historically, female enrollment in all levels of schooling has been lower than male. This is true of our three sample countries also. A complex mix of the social, cultural and economic factors that were briefly discussed in relation to the graph on literacy accounts for the discrimination against females.

However, it is also important to note that the gap has been closing over the last three decades. This trend reflects an increasing commitment to gender equity, and a realization of the value of female education. Research has demonstrated that there are enormous economic and social payoffs in female education. The positive impact on family planning and child health are two of the most important social benefits. Improved female productivity in the work place is a major economic benefit. This has led policymakers and donors to place greater emphasis on improving female education.

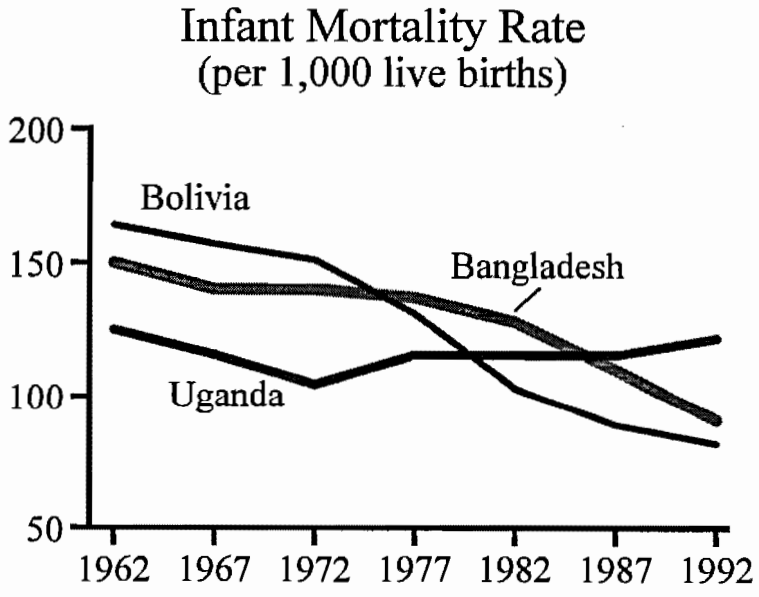
Population Case

Review the "demographic transition" experiences of Bolivia, Bangladesh and Uganda. What are the similarities and what are the differences? How do you account for them?


Labor Force, Female
(percent of total)
50
40
30
20
10
0
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Labor Force, Female

In this graph on women in the labor force as a percent of total labor, note the low rate overall for Bangladesh. Less than 10% of the labor force in Bangladesh is female. On the other hand, Bolivia's rate is somewhat higher but may have plateaued in the early 1990s/ Uganda's rate started at a much higher level than the other two countries yet shows a downward trend since the mid-1970s. No date are available for Uganda after 1990 and it is very possible that there has been an increase in this variable in the past two years as the country has experienced rapid growth and transformation.

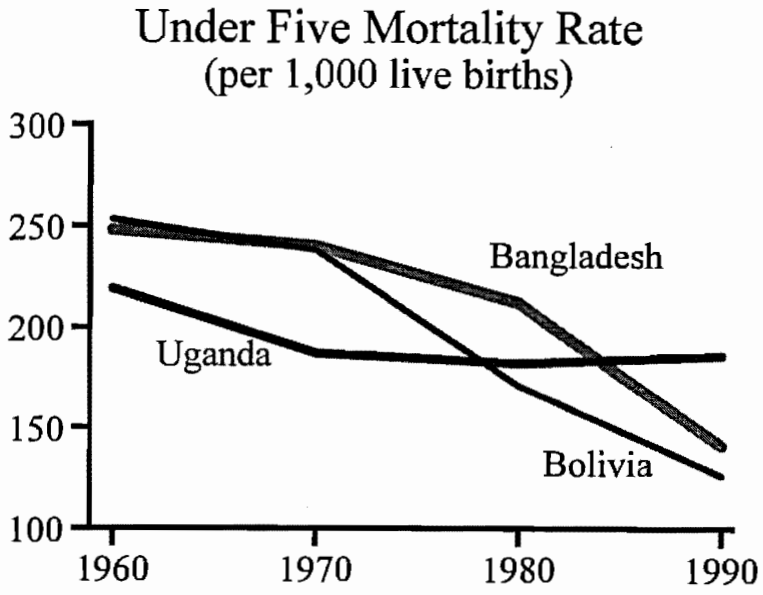

Infant Mortality Rate
(per 1,000 live births)
200
150
100
50
Bolivia
Bangladesh
Uganda
1962
1967
1972
1977
1982
1987
1992

Infant Mortality Rate

The Infant Mortality Rate or IMR refers to the number of deaths among children between birth and year 1 per 1,000 live births in a given year.

Both Bolivia and Bangladesh have experienced declines in IMR during the entire period. For Bolivia the decline has been sharper in the 1970s and for Bangladesh in the 1980s. Uganda experienced a decline in IMR in the 1960s and early 1970s, followed by a rise during the rest of the period. Note here that until the mid 1970s Bangladesh - one of the world's poorest countries - had a lower IMR than Bolivia which had a per capita GNP about three times higher than that of Bangladesh. It is also useful to note that Uganda has regressed after 1972 to the point where its IMR in 1992 is almost the same as that which prevailed in 1962.

Questions: What factors have contributed to the drop in IMR in Bolivia and Bangladesh? How do you explain the reversal in IMR in Uganda?

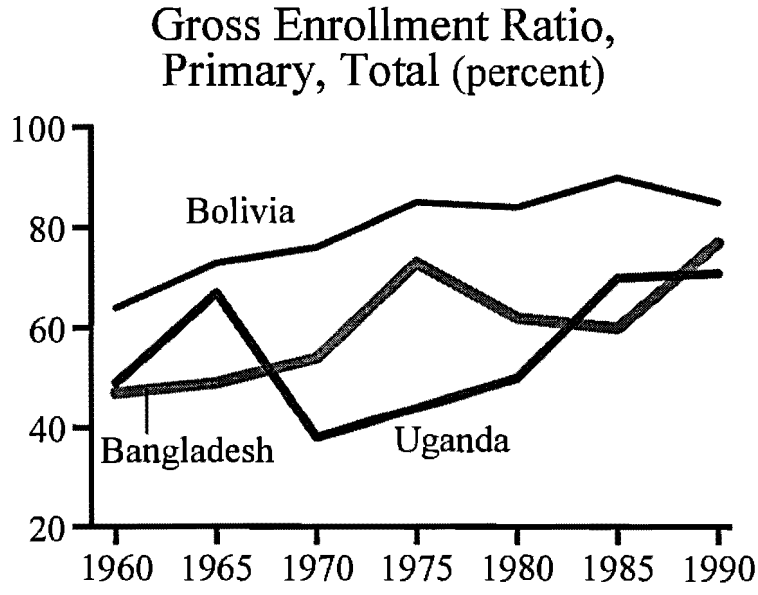

Under Five Mortality Rate
(per 1,000 live births)
300
250
200
150
100
1960
1970
1980
1990
Bangladesh
Uganda
Bolivia

Under 5 Mortality

The Under Five Mortality Rate (UFMR) is the annual number of deaths of children under age five per thousand live births averaged over the previous five years.

In the 1960s Uganda was much better placed than Bangladesh and Bolivia with regard to UFMR. All three countries experienced reductions in the rate during that decade. However, even by 1970 the UFMR of all three countries was relatively high and placed them in the bottom quarter among developing countries. From 1970 Uganda experienced a slight increase in the rate whereas Bolivia and Bangladesh experienced declining trends.

What is the connection between UFMR and IMR? What explain the decline in UFMR in Bangladesh and Bolivia, and the rise in Uganda?


Gross Enrollment Ratio,
Primary, Total (percent)
100
80
60
40
20
Bolivia
Bangladesh
Uganda
1960
1965
1970
1975
1980
1985
1990

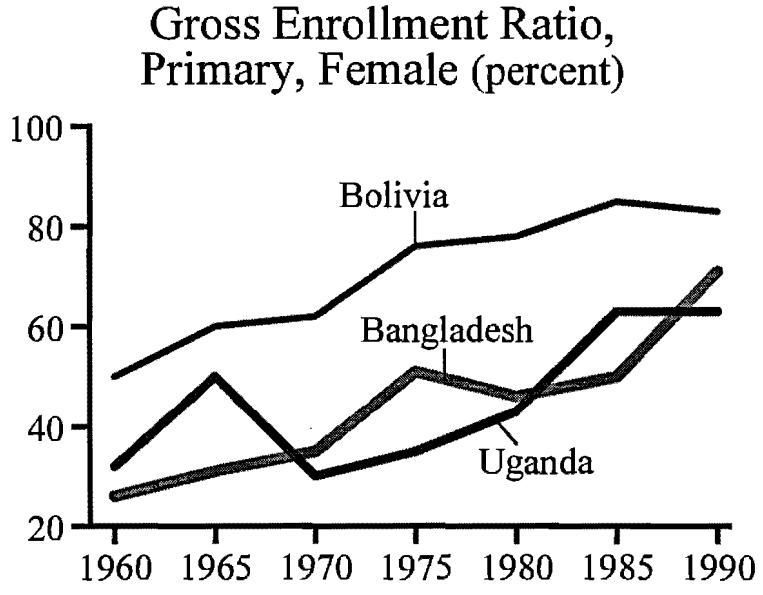
Gross Enrollment Ratio, Primary, total

The gross total primary enrollment ratio is defined as the number of children of *all* ages enrolled in primary education as a percentage of the country's child population in the primary age group. This is typically six to eleven years.

For none of our countries is the ratio even close to 100. If a country has universal primary education, the ratio normally exceeds 100 because there would be some children who would repeat grades. Thus, we can infer that all three countries have yet to achieve universal primary education.

It is also useful to note that as the enrollment ratio rises the curve will tend to flatten, partly because it will be more difficult to reach the remaining hard-core of children who are non-attendees, and partly because of the simple statistical fact that the remaining pool of non-attendees is being eliminated.

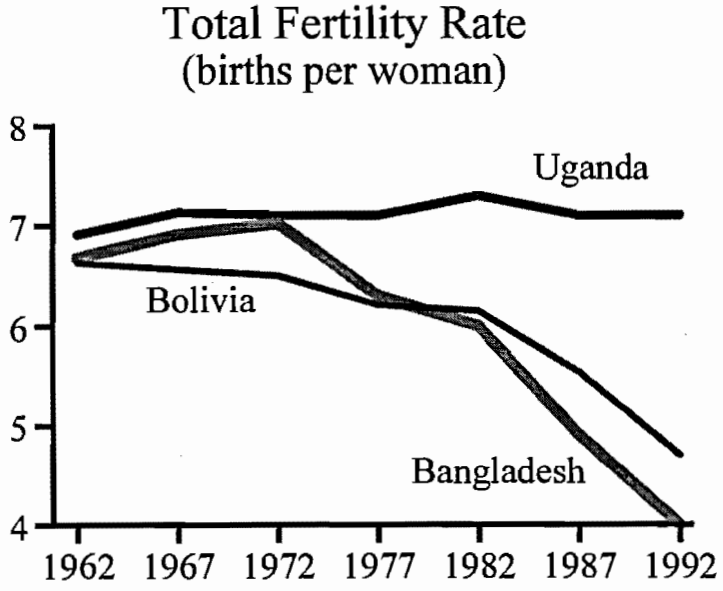
It is also the case that the overall gross enrollment ratio would camouflage significant gender, urban-rural, ethnic, and social class variations in enrollment. Such differences must be probed in detail to formulate effective policies to reach every child and to retain them until their education is completed.


Gross Enrollment Ratio,
Primary, Female (percent)
100
80
60
40
20
Bolivia
Bangladesh
Uganda
1960
1965
1970
1975
1980
1985
1990

Gross Enrollment Ratio, Primary, female

Historically, female enrollment in all levels of schooling has been lower than male. This is true of our three sample countries also. A complex mix of the social, cultural and economic factors that were briefly discussed in relation to the graph on literacy accounts for the discrimination against females.

However, it is also important to note that the gap has been closing over the last three decades. This trend reflects an increasing commitment to gender equity, and a realization of the value of female education. Research has demonstrated that there are enormous economic and social payoffs in female education. The positive impact on family planning and child health are two of the most important social benefits. Improved female productivity in the work place is a major economic benefit. This has led policymakers and donors to place greater emphasis on improving female education.


Total Fertility Rate
(births per woman)
8
7
6
5
4
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Total Fertility Rate

The Total Fertility Rate or TFR is the number of children that wuld be borne to a woman who lives to the end of her child bearing age (15 to 49 years) and bears children in accordance with the prevailing age-specific fertility rates.

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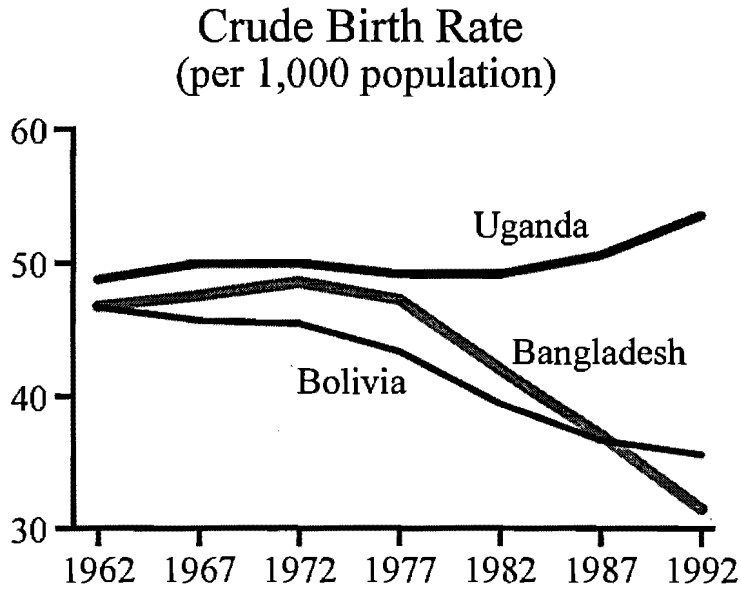
To what would you attribute Bangladesh's relative success? What factors are responsible for keeping the Ugandan rate at a relatively high level?


Crude Birth Rate
(per 1,000 population)
60
50
40
30
Uganda
Bangladesh
Bolivia
1962
1967
1972
1977
1982
1987
1992

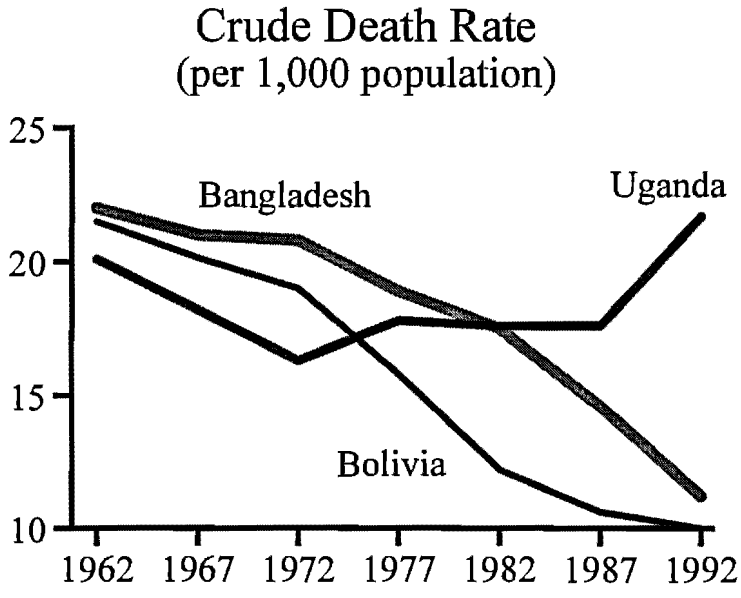
Crude Birth Rate

The Crude Birth Rate or CBR tells the number of births per 1,000 population that occur during a given year.

In developing countries that have relatively large populations in the younger age group, the Population Momentum inherent in this age structure prevents an immediate fall in the CBR. In the 1960s and 1970s Uganda's CBR was around 50 per 1000 population. CBR rose during the 1980s, reaching 54 by 1992, even though the Total Fertility Rate or TFR had actually fallen during that period. This is an example of population momentum. The same phenomenon is seen in the case of Bangladesh. Its TFR falls from about 1972 but its CBR responds more slowly with a time lag. The TFR of Bangladesh falls below that of Bolivia from about 1982, but the CBR remains above that of Bolivia until 1987.

Unlike the case of Uganda, the crude birth rate of the other two countries are moving in the "correct" direction with regard to the population transition.

Questions: Explain the concept of Population Momentum using Uganda, Bolivia and Bangladesh as examples. What policies can be adopted to reduce the population momentum in developing countries?

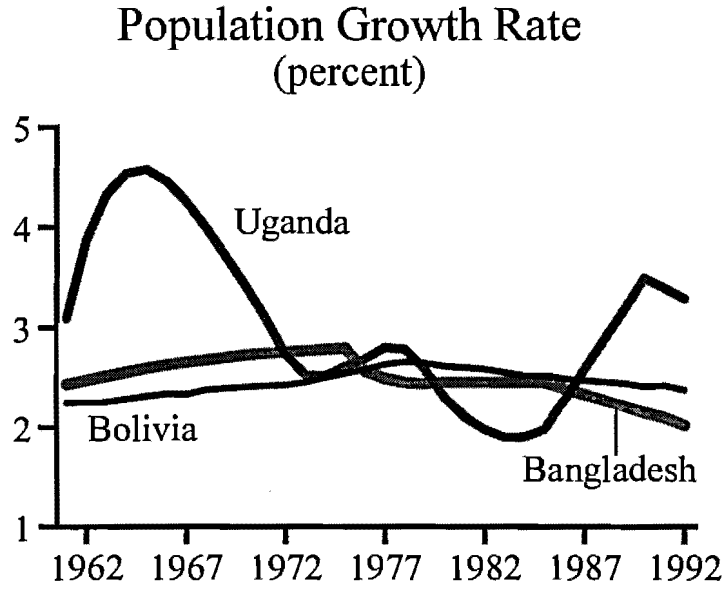

Crude Death Rate
(per 1,000 population)
25
20
15
10
Bangladesh
Uganda
Bolivia
1962
1967
1972
1977
1982
1987
1992

Crude Death Rate

The Crude Death Rate or CDR is the number of deaths that occur per 1000 population during a given year.

Both Bolivia and Bangladesh have experienced continuous declines in CDR although the rate of decline has been uneven. For Bolivia the decline was sharpest in the 1970s. The curve for Bangladesh shows a dramatic decline after the early 1970s. The flattening of the Bolivian curve in the 1980s illustrates the fact that the lower the CDR, the harder it is to achieve further declines in this measure. Uganda's CDR had fallen in the 1960s, risen in the early 1970s, held steady in the early and mid 1980s, and risen dramatically thereafter. This pattern matches the behavior of Uganda with regard to IMR and UFMR.

Questions: Explain the reasons for the slow down in the fall in CDR experienced by Bolivia after 1982; What factors would have accelerated the drop in CDR in Bangladesh after 1972?


Population Growth Rate
(percent)
5
4
3
2
1
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Population Growth Rate

The Population Growth Rate or PGR is an average calculated from mid-year populations expressed as a percent.

Both Bangladesh and Bolivia have experienced mild increases in PGR in the 1960s and 1970s followed by moderate to slow declines in the 1980s and early 1990s. This behavior in PGR is associated with: relatively slow declines in TFR in the first two decades, quite steep declines in the latter period, and continuous declines in IMR throughout the period.

Questions: What explains the mild increase in the population growth rate experienced by both Bolivia and Uganda in the 1960s and 1970s? Do you see any evidence for sustained declines in PGR in these two countries? What factors are responsible for the fluctuation in PGR in Uganda?

Experts Response

There is a significant difference in the behavior of the principal demographic variables such as the crude birth rate (CBR), crude death rate (CDR), infant mortality rate (IMR), under five mortality rate (UFMR), total fertility rate (TFR), and the population growth rate (PGR) with respect to Bolivia and Bangladesh on the one hand and Uganda on the other. These variables have more or less behaved in the theoretically expected "normal" manner in the case of the first two. In the case of Uganda they have not.

Bolivia has experienced an overall decline in CDR, IMR, and UFMR, and a considerable improvement in life expectancy. The crude birth rate has fallen slowly from the early 1970s. The population growth rate has shown a mild upward trend in the period 1961 to 1978 from 2.25 percent to 2.66 percent, and then a minor decline to 2.38 by 1992. The latter decline appears to be associated with a drop in total fertility rate from 6.14 in 1982 to 4.7 in 1992.

The downward movement in the TFR curve in the mid 1980s is a notable turning point in Bolivia's demography. Prior to 1984, the government of Bolivia was avowedly pro-natalist. It encouraged reproduction and immigration to increase the population which grew from 3.4 million in 1960 6.3 million by 1985, an increase of 85 percent. The Catholic Church, which is a powerful presence in the country, also did not support the idea of family planning.

In 1984, following the World Population Conference, the government endorsed the right of families to determine the number of children they wish to have and their spacing. However, not much practical action was taken by the government to promote fertility control.

Bolivia is a country with a relatively large land area and a comparatively low density of population. Bangladesh lies at the other extreme. It has been said that the population density of Bangladesh is equivalent to locating the entire world population in the United States. This rather dramatic comparison brings into sharp relief the salient fact that the country's current population of 118 million imposes enormous pressure on its limited natural resources. In that context, the declining trend in the total fertility rate is encouraging. However, the country's population is still growing at an annual rate of 2.2 percent which, if it continues, will double the population by the year 2024.

The graphs show that Bangladesh has achieved a significant reduction in infant mortality, under five mortality, and overall mortality rates, and a significant gain in life expectancy at birth. All four curves appear to have begun to move in the right direction and at a faster pace beginning in the mid 1970s. Indeed Bangladesh has done comparatively better than Pakistan - with which it had a union before independence - in almost all health and demographic indicators.

This change of movement coincides with the establishment of some measure of political stability following the war of liberation in the early 1970s. More important, the decline in CBR, PGR, TFR, CDR, IMR, and UFMR, and the improvement in life expectancy at birth in Bangladesh and the decline in the other indicators are not associated with dramatic improvements in living standards, or major structural changes in the social and economic systems, such as large scale urbanization and industrialization. These changes probably have more to do with effective population and family planning policies, improvements in primary health care (especially child immunization), improvements in female literacy and education, and attitudinal changes of the population with regard to desired family size and desired number of male children.

Uganda's demographic experience in the 1960s was fairly normal for a comparatively low

income developing country in Sub-Saharan Africa. Its crude birth rate and crude death rate, at about 50 per 1000 and 20 per 1000 respectively, were quite high and falling; the total fertility rate was a relatively high value at 7.0; infant mortality rate was around 125 per 1,000 live births; under five mortality rate was about 225 per 1000 live births; and life expectancy at birth was a modest 45 years. The country's population stood at 6.5 million in 1960 grew at an annual rate of about 3.9 percent, which is not unusual for a Sub-Saharan country.

From the early 1970s Uganda's demography not only began to deviate from the developing country norm, but increasingly showed signs of a major crisis in the making. As shown in one of the graphs, TFR remained virtually unchanged at slightly above 7.0 throughout the period. Uganda's TFR in the 1980s was reported to be the fourth highest among the 120 countries included in the World Bank data base, and was almost twice the average of 3.8 for developing countries. Indeed it was the only country for which no evidence of a decline in TFR was found among 25 countries in which a demographic and health survey was carried out by the World Bank in the late 1980s. CBR not only remained high, but actually rose in the 1980s, driven by the population momentum.

IMR which declined from 125 in 1962 to 104 in 1971, rose again to 116 by 1977. Having stayed unchanged at that level for a decade until 1987, it moved up further in the next five years to reach 122, a level very close to the figure that prevailed three decades ago. UFMR also stopped falling after 1970. However, in subsequent years it did not rise as sharply as IMR.

The movement in life expectancy at birth mirrors that of IMR. Within a decade it rose from 45.4 in 1962 to 50.7 in 1972. Thereafter it declined to 48.7 by 1977, remained at that level for ten years until 1987, and then showed a precipitous fall to 43.4 which was below the value that prevailed thirty years earlier in 1962.

From the above observations we can make the following inferences about the demographic transition in the three countries. First, both Bolivia and Bangladesh are slowly moving towards a low Total Fertility Rate and low Population Growth Rate which are characteristic of the demographic transition. However, both have a long way to go. For example, TFR is still well above the replacement level value. IMR is still very high by international standards. Indeed, further drops in IMR (and overall death rate) would cause a slow down in the drop of PGR unless offset by a compensating decline in TFR.

Second, in the case of Bolivia although the curves on the graphs are moving in the right direction, the pace of movement could have been much greater. Furthermore, Bolivia's demographic conditions compare quite unfavorably with those that prevail in the rest of Latin America. For example, Bolivia has the highest IMR (92/1000 in 1990), the lowest life expectancy at birth rates (60 in 1994), the second worst maternal mortality rate (373/100,000 in the early 1990s), and a TFR of 4.7 which is about 50 percent higher than the Latin American average.

Third, the declines in PGR and TFR, and the improvement in life expectancy at birth in Bolivia and Bangladesh are not associated with dramatic improvements in living standards, or major structural changes in the social and economic systems, such as large scale urbanization and industrialization. These declines probably have more to do with factors such as effective population and family planning policies, improvements in primary health care, especially child immunization, higher levels of female literacy and education, and attitudinal changes of the population in regard to desired family size, and a change in the desired number of male children. From a policy point of view this is promising because it indicates the potential for reducing population growth without

necessarily having to wait for rapid economic growth.

Fourth, Uganda displays a very unsteady pattern in its demography. Typically the population growth rate in developing countries increases in the initial stages of the demographic transition because a high crude birth rate combines with a falling death rate. That is followed by a slow but steady fall in the TFR and birth rate, leading to slow down in the rate of population growth. In the case of Uganda, there is a decline in the population growth rate from about 4.5 percent in the mid 1960s to about 1.9 percent by the mid-1980s, but for the wrong reasons. It was caused by an increase in the crude death rate that reached 22 per 1000 in the second half of the 1980s. Demographers have estimated that only 17 of these deaths were attributable to "underlying" factors. Four were the result of the war, and the resulting socio-economic dislocation. One death in every 22 was AIDS-related. Following the end of the civil war in March 1986, and the return of stability, the mortality rate has declined; it stood at 19.1 in 1993. This explains the rise in the population growth rate after 1985.

The demographic prospects for Uganda will depend on two major factors; one is AIDS, and the other is fertility. It is estimated that in the second half of the 1990s AIDS will increase the crude death rate in the country by 6 per 1000, and reduce the PGR by 0.6%. If AIDS is successfully controlled and TFR remains unchanged at the current levels, PGR will rise from the current 3.1 percent to 3.8 percent by 2010.

Description and Learning Objectives
Health

"The real foundation of human development is universalism in acknowledging the life claims of everyone. . . . It demands a world . . . where no human being is denied health care . . ."

(UNDP, Human Development Report 1994, p.13)

Good health is a vital aspect of human welfare. Individuals, families and societies are all concerned about maintaining good health. Relatively low infant mortality rates, child mortality rates and so forth as well as relatively high life expectancy rates reflect good health of a society.

From its very inception USAID made a strong commitment to the improvement of health status in LDCs. For example, in fiscal 1991 17% of development assistance (DA) went for health (another 16% for population). In addition 7% of the Economic Support Funds (ESF) also went for health and (another 1% for population). Indeed some of the Agency's outstanding successes in assistance and lasting contributions to development are in the health field—e.g. assistance in child immunization. The Agency is in the forefront in the fight against HIV/AIDS. Up to 1992 it had spent $ 358 million on bilateral and multilateral assistance to fight HIV/AIDS and is committed to spend $ 400 million more in the five years to 1997 for the same purpose. One of the five major strategic areas in which USAID would provide assistance in the next several years will be population and health. The World Bank in its 1993 World Development Report makes a strong and persuasive case for continued donor assistance for health. The Alma Ata goal of achieving "Health for All by the Year 2000" may be too ambitious, but it is a goal that the entire international community must strive for, if only to preserve the dignity human life.

Rising living standards combined with advances in health technology have been the two basic forces behind improvement in health. Generally richer a society is, the more that society invests in health. In particular, rich societies use more advanced and more expensive health technologies. However, as the current debate in the U.S. demonstrates,

this could lead to rapid increases in health care costs that become economically unsustainable. If affordability of modern health technologies is an issue for the richest country on earth, it is even more true for the middle and low income developing countries.

The latter two groups of countries have to simultaneously contend with several issues. Firstly, they have a much more limited resource base for development in general. In the case of some countries such as those in Sub-Saharan Africa, the resource base has been shrinking in the last decade. Thus health has to compete with a variety of other sectors to get resources. Secondly, unlike the richer countries, many of the poorer countries are also saddled with rapidly growing populations. Thus it can be a struggle to maintain current per capita health expenditure levels let alone increase them. Thirdly, they have to make very hard choices regarding what technologies to adopt, the right balance between preventive and curative services and so forth. Fourth, they have to make difficult policy decisions on a variety of issues such as the respective roles of the private and public sectors and the mode of financing of health care.

Learning Objectives

As a development professional you are bound to ask a variety of questions regarding the linkage between health and broad-based sustainable development (SHD). How does good health help achieve SHD? What are the concepts of health relevant to SHD? How do we measure those concepts? What is the current health status in less developed countries (LDCs)? How could one improve that status? What are the goals? What are the most appropriate policies to reach those goals? How could one reform existing policy to improve performance? How much resources are necessary for future sustained improvement in health status? From where would those resources come? What should be the role of the donor agencies in this process? Some of the above questions will be answered in a later module when we discuss the reform of the health sector.

In this module we set out to do the following. Firstly, we define and discuss the most commonly used indicators and measures to assess the health status of a community. This includes the more traditional

measures such as the infant mortality rate, life expectancy at birth and nutrition levels as well as a relatively new indicator called the Global Burden of Disease (GBD). Secondly, we discuss some of the global trends in health status over the past several decades, including trends in governments' investments in the health sector. We look at actual figures for health status measures to understand what the different LDC countries and regions have achieved in the past several decades. We also comment on the role of foreign assistance for health. Finally, this section examines the contribution of good health to SHD.

A detailed discussion of policy issues and health sector reform such as financing issues, appropriate delivery systems and so on will have to await a later module.

When you have finished this module and completed the analytical exercises, you should have:

1. A good understanding of the various measurements available to assess the health status of a population.

2. A comparative idea of health status in LDCs in general and of the small group of countries that you have chosen for special study in particular. You will note the significant strides that LDCs have made in the last two to three decades in health and the distance that they still need to travel before they could be satisfied that the basic health needs of all their citizens are being met.

3. You will have a better appreciation of the health status gap that exists between developed and developing countries on the one hand and between the rich and the poor, urban and rural in LDCs on the other.

4. You will have a deeper understanding of the relationship and linkages between good health and the other elements of broad-based sustainable development.

5. You will be better prepared to raise some critical questions on health policy and health sector reform.

Section Intro

Health

The current status of health in developing countries signs mixed signs of hope and disappointment. There have been dramatic improvements in many regions due to better health care.

But some 17 million people still die every year from infectious and parasitic diseases. More than 12 million children under age 5 die every year in the developing world. So what do we know about improving the health status of populations?

Example: Child Mortalilty in Africa

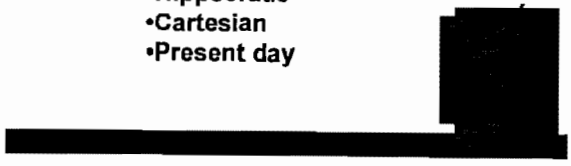
Overview

International Health

Evolution of the Definition of Health

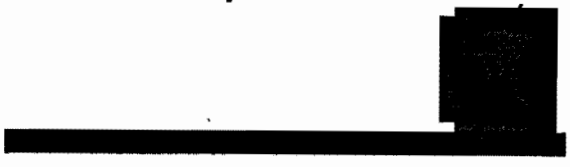
Different philosophical and or value systems related to defining health:

- **Chinese**
- **Hippocratic**
- **Cartesian**
- **Present day**



The Chinese Approach

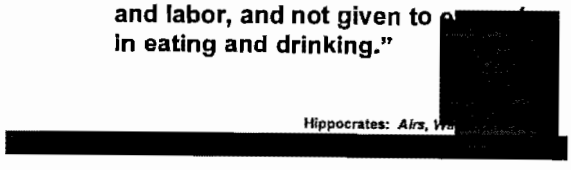
The Human Body is a system of interrelated components that have a natural tendency to maintain a state of dynamic balance.



Health according to Hippocrates

"The mode in which the inhabitants live and what are their pursuits, whether they are fond of drinking and eating to excess, and given to indolence, or are fond of exercise and labor, and not given to e... in eating and drinking."

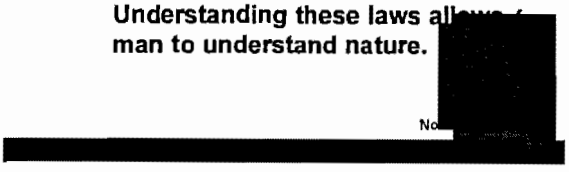
Hippocrates: *Airs, Wa...*



Cartesian Science

The Universe functions as a machine which functions with precision according to mathematical laws. To discover these laws one applies analytical science. Understanding these laws all... man to understand nature.

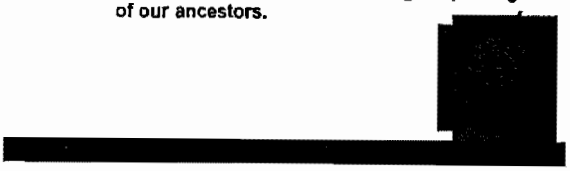
No...



Modern Definition

Microbiology and bacteriology characterized modern medicine in the early 1900's.

Immunological resistance or the more generalized concept of host resistance has brought the benefits of Cartesian based science back to the socio-ecological paradigm of our ancestors.



Modern Definition

Health as the state of a lack of disease

The state of "health" is therefore one that integrates the presence of disease with the absence of factors that make the individual or the community vulnerable to disease.

Integrated Definition of Health

The Model for the definition of Health integrates the following:

- **Bio-medical**
- **Psycho-social**
- **Socio-medical**
- **Political-ideological**

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"Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity"

Critiques of the WHO definition:

1. Goal can be approximated but never attained.
2. One ambiguous term (health) replaced by another (well-being).
3. Reflects "medical imperialism:" all of life falls under the medical care brokers.
4. It is impossible to measure.

Other Definitions of Health

Ease to Disease Continuum

1. Pain (none to severe)
2. Functional
   (no limitation in life activities to severe)
3. Pragmatic implications
   (none to serious and life threatening)
4. Action Implication
   (none to active therapeutic int

Ant

Evolution of International Public Health

Transitions:

- **Demographic**
- **Epidemiological**
- **Socio-cultural**

International Health and Development

- **The relationship between Socio-economic status and Economic Development as it relates to Health**
  - Infectious disease
  - Social class and major disease areas
- **Other Indicators:**
  - Class
  - Status
  - Power
  - Politics

The Demographic Transition:
The Engine behind International Health

- **World Population**
- **Population Control Issues**
- **Contraception and Fertility Control**
- **Current Funding**

The Epidemiological Transition:
Disease and Development

- **Diseases:**
  - Infectious
  - Parasitic
  - Chronic
- **New and Resurgent Pathogens:**
  - HIV/Aids
  - TB
  - Malaria
  - Dengue

The Socio-cultural Transitions:
Health and Quality of Life

- **Infectious Disease**
- **Nutritional Status**
- **Population Trends**
  - Migration
  - Urbanization
- **Violence**
- **Disasters**
- **Injuries**
- **Environmental Issues**

The Socio-cultural Transitions:
Psycho-social Aspects

- **Impact of Mental Health**
- **Immigration and its relationship to mental health**
- **Substance Abuse**
- **Changing Rates and Definitions of Health**

The Socio-cultural Transitions:
International Health and Civil Society

- **Impact of democratization and decentralization**
- **Role of private and non-governmental organizations**
- **Special role of NGO's in food security**
- **Sustainability in the non-public s**
- **Role of "North" institutions and assistance in NGO/PVO sector**

The Socio-cultural Transitions:
The Environment

ÿÿ**Issues:**

- Air pollution
- Water resources
- Rain forest depletion/invasion of new lands
- Electrical power generation
- Soil degradation

Tourism and Eco-tourism

Environmental Impact Assessment

Legislation and World Governance of S International Resources

Other Impacts:
Technology

Information technology

- Comparative health studies and epidemiology
- Dissemination and publication
- International communication
- Role in education and training

Genetic or Bio-engineering technology

- Vaccine and medicine research
- Role of technology in food security: The G Revolution and its Aftermath

New technology

- Solar

Other Impacts:
Human Resource Development

Epidemiologically-based human resource planning

Needs assessment

Matching health care needs to training needs

Different training institutions

Impact of training programs

Graduate training

Role of technical assistance in training

Expanding the role of "South" countri training

Other Impacts:
Health Administration & Management

Comparative health systems:

- Privately oriented
- Socialist and/or collective
- Comprehensive or mixed
- Welfare state oriented
- Intersectoral collaboration

Components of health systems:

- Resource production
- Service delivery
- Program form and organization
- Management styles
- Finance and economics

Other Impacts:
Multi- and Bilateral Programs

International health is directly concerned with the flow of resources to and from a complex of primarily governmental organizations dealing with direct a/o indirect social sector assistance. The policies and practices of these org do much to influence change and the realms of international health development.

Elements of the Definition of International Health

It is comparative and cross cultural in perspective

It is multidisciplinary by definition

It focuses on change as a normal process

It is not geographic or disease specific

It is public-private sector supported and driven

It emphasizes the importance of economic empowerment as an element of health

DALY:
Disability-Adjusted Life Year*

A unit used for measuring both the global burden of disease and the effectiveness of health interventions, as indicated by reductions in the disease burden.

It is calculated as the present value of the future years of disability-free life that are lost as the result of the prematur deaths or cases of disability occurri a particular year.

Costs and Benefits of Public Health Packages in Low-Income Countries, 1990

Country Group and Component of package	Annual Cost (dollars) Per Participant	Per Capita	Per DALY	Disease Burden Averted %[a]
EPI Plus	14.6	0.5	12-17	6.0
School Health Program	3.6	0.3	20-25	0.1
Other PH Programmes[b] (including FP, Health and Nutrition Information)	2.4	1.4	.[c]	.[c]
Tobacco and Alcohol Control	0.3	0.3	35-50	0.1[d]
AIDS Prevention Programme[a]	112.2	1.7	3-5	2.0
TOTAL	-	4.2 (1.2)	-	8.2

Note: Numbers in parentheses refer to per capita cost as a % of income per capita.
a. Although costs are estimated for 100% coverage, the health benefits are based
EPI Plus and 80% coverage for the school health, AIDS prevention, and tobacco a
b. Includes information, communication, and education on selected risk factors a
plus vector control and disease surveillance and monitoring.
c. The health benefits from information and communication and disease surveillan
other public and clinical services in the health package. The health benefits from
unknown.
d. Calculation of the potential disease burden averted through this program assu
prevalence of smoking and alcohol consumption; if such prevalence were to rise,
calculations

Costs and Benefits of Public Health Packages in Middle-Income Countries, 1990

Country Group and Component of package	Annual Cost (dollars) Per Participant	Per Capita	Per DALY	Disease Burden Averted %[a]
EPI Plus	28.6	0.8	25-30	1.0
School Health Program	6.5	0.6	38-43	0.4
Other PH Programmes[b] (including FP, Health, and Nutrition Information)	5.2	3.1	.[c]	.[c]
Tobacco and Alcohol Control	0.3	0.3	45-55	0.3[d]
AIDS Prevention Programme[a]	132.3	2.0	13-18	2.3
TOTAL	-	6.8 (0.3)	-	4.0

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prevalence of smoking and alcohol consumption; if such prevalence were to rise,
would be lower.

Distribution of DALY loss by Cause and Demographic Region

Communicable Disease

Cause	Sub Saharan Africa	India
TB	4.7%	3.7%
STD w/HIV	8.8%	2.7%
Diarrhea	10.4%	2.6%
Vaccine Prev. Childhood Inf.	9.6%	6.7%
Malaria	10.8%	0.3%
Worm Infections	1.8%	0.9%
Acute Infections	10.3%	10.9%
Perinatal Causes	2.7%	2.7%
Maternal Causes	7.1%	9.1%
Other	4.6%	4.0%

Distribution of DALY loss by Cause and Demographic Region

Non-Communicable Diseases

Cause	Sub Saharan Africa	India
Cancer	1.5%	4.1%
Nutritional Def.	2.8%	6.2%
Neuro Psychiatric	3.3%	6.1%
Cerebro vascular	1.5%	2.1%
Ischemic Heart Dis.	0.4%	2.8%
Pulmonary Obstructive	0.2%	0.8%
Other	9.7%	18.5%
Totals	19.4%	40.4%

Distribution of DALY loss by Cause and Demographic Region

Injuries

Cause	Sub Saharan Africa	India
Motor Vehicle	1.3%	1.1%
Intentional	4.2%	1.2%
Other	3.9%	6.8%%
Total	9.3	9.1

DALY:
Disability-Adjusted Life Year*

A unit used for measuring both the global burden of disease and the effectiveness of health interventions, as indicated by reductions in the disease burden.

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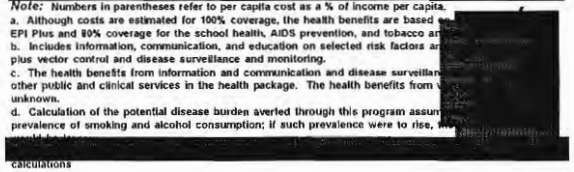

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Diarrhea	10.4%	2.6%
Vaccine Preventable	3.6%	0.7%
Malaria	10.8%	0.3%
Worm Infections	1.8%	0.8%
Birth Asphyxia	10.3%	10.9%
Tetanus	2.0%	0.7%
Prematurity	2.7%	1.7%
Other	4.6%	1.0%

Distribution of DALY loss by Cause and Demographic Region

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Total	9.3	9.1

explorer prof

Proposition one is that steady and sustained economic growth, especially poverty reducing growth, is essential to achieve good health status for the population at large. For example, in the 1980s in LDCs where per capita incomes declined due to recession, under 5 mortality declined by about 30%. However, in those countries that experienced an increase of per capita income by at least 1.0% per annum, the under 5 mortality rate declined by more than 60%.

explorer Prop2

Basic education, especially for women is essential to achieve better health status.Women play a critical role in health care and other health-related activities in the house hold.It is now firmly established empirically that women with an education, even a basic education, perform better in this regard than women without an education.

explore Prop 3

Spending less on expensive institutionalized curative care and more on preventive public health services such as immunization, essential primary clinical services, nutrition, AIDS prevention etc., will yield higher returns.

oxflow Prop 4

Promoting competition in the supply of health care services can improve efficiency. This includes decentralization of government health services, performance incentives, and firm government regulation to prevent wasteful insurance schemes and other such inefficiencies.

explore Prop 5

For any country, developed or developing, rich or poor, a successful health care system that is both efficient and equitable needs the involvement of both the state sector as well as the private sector.The state by itself generally fails to raise adequate resources to run an efficient system.The private sector by itself fails to ensure a reasonable degree of equity.The secret of sound health policy, it appears, is to avoid both market as well as state failure.

Text

Health

What are the main indicators used to measure the health status of a population?

Health status measurements fall into two broad categories. Measures of actual health such as life expectancy or measures of ill health which include a host of morbidity (illness) and mortality (death) rates by cause. The majority of all these indicators are correlated with individual and societal economic status. The greater the control over societal resources the better the health measures.

Of the most utilized measures two occur often in the literature. One is life expectancy at birth (LEAB). LEAB is defined as the number of years newborn children would live, if subject to the age specific death rates (mortality risks) prevailing for the cross section of population in that society at the time of their birth. Life expectancy has increased substantially everywhere in the past forty years due in a large part to the relative control of childhood infectious disease and better nutrition for a large part of the world's population.

Another measurement is the infant mortality rate (IMR). IMR is considered a particularly good indicator of the quality of public health and the living conditions of the poor in LDCs. Typically if public health facilities are not good and the living conditions of the poor are deteriorating, IMR will begin to climb.

It is also possible to use the under 5 mortality rate or the 1-5 mortality rate as an indicator of health care in particularly the poorer countries. These together with the under 5 malnutrition rate form a useful set of indicators of child health. Child nutritional status, as measured in several ways, is an important correlate of many aspects of family and community development. As indicators they reflect broader inputs into societal economic development among the poorer countries.

The maternal mortality rate (MMR), defined as number of maternal (pregnancy-related) deaths per 100,000 live births, is a widely used measurement of health status of women. MMR also affects LEAB. Maternal mortality is again highly correlated with overall socio-economic status measures.

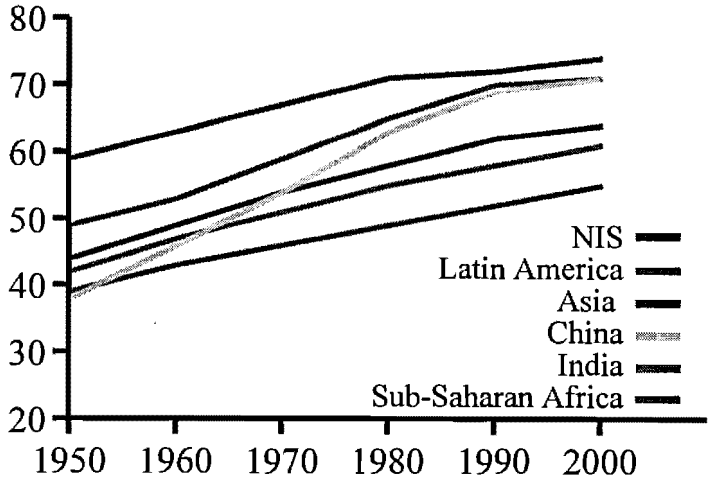
Health Exercise Indicators of Health Case:

What, is the nature of the relationship between morbidity, health status and development?

Morbidity figures may also be used to measure health status. In the case of morbidity, it has been observed that as countries develop, move a larger proportion of their populations to the cities and enjoy increasingly higher incomes and living standards, they gradually change their morbidity profile. When incomes are low there is a higher incidence of infectious diseases ("poor person's diseases") such as childhood communicable diseases.

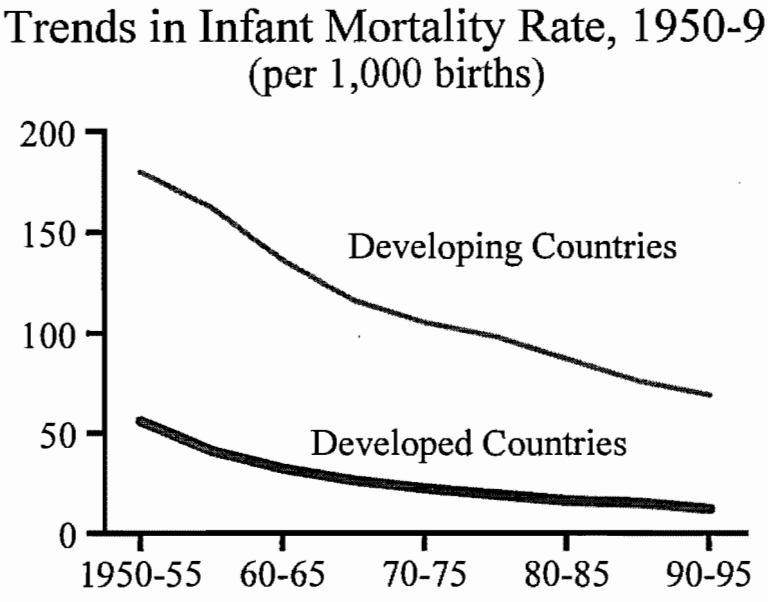
Life expectancy has increased

Trends in Life Expectancy 1950–2000

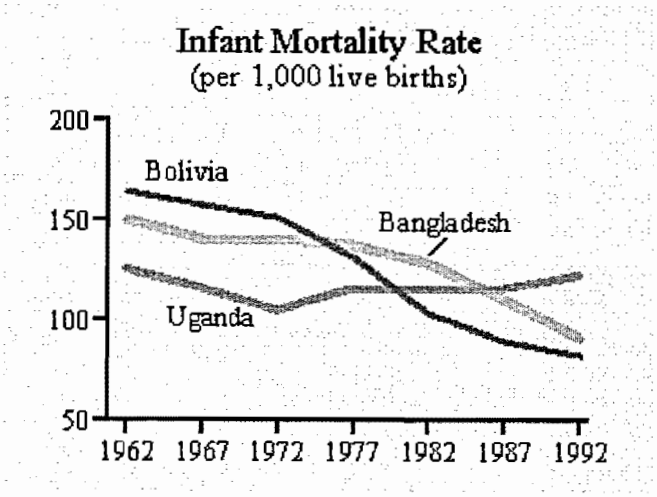


Life expectancy, or longevity is a good measure of a country's capacity to provide a high quality of life for its citizens. While there are great variations among regions, one of the striking aspects of this graph is the increase in life expectancy for all regions, even low income countries, during the past four decades. In fact countries like China and Sri Lanka, with relatively low incomes, have achieved remarkable high life expectancy as well as low child mortality.

infant mortality Rate (IMR)



In the last four decades there has been a dramatic decline in infant deaths in the developing countries. From 1950 to 1995, infant deaths have fallen from 1 out of every 5 babies in the developing world to 1 in 14.

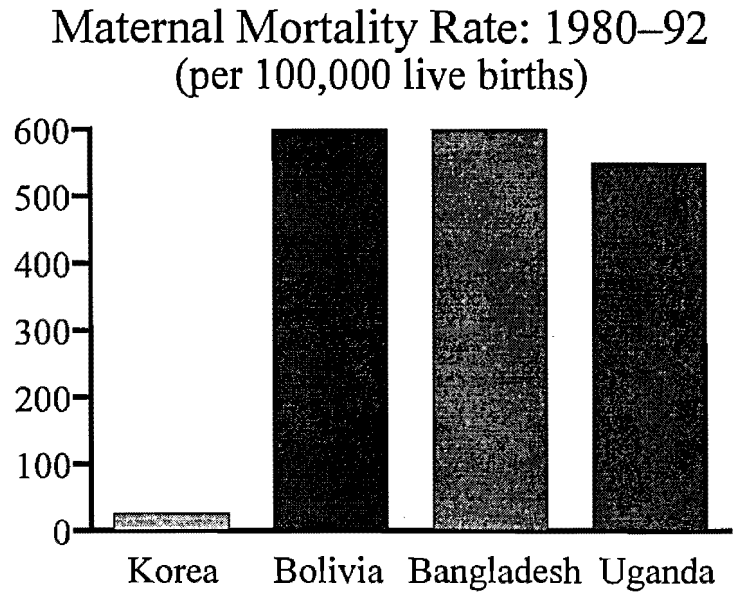


more info:
Bangladesh, Uganda, Bolivia

more info : Infant Mortality Rate

The infant mortality rate is defined as the number of deaths among children between birth and 1 year of age per 1,000 life births. Both the infant and child mortality rates are influenced by many factors including the nutritional state of health of mothers and children and the health care available to them, as well as female education and access to clean water. As this graph shows, there has been a dramatic decline in infant mortality rates for both developed and developing countries during the past four decades.

maternal mortality rate (MMR)

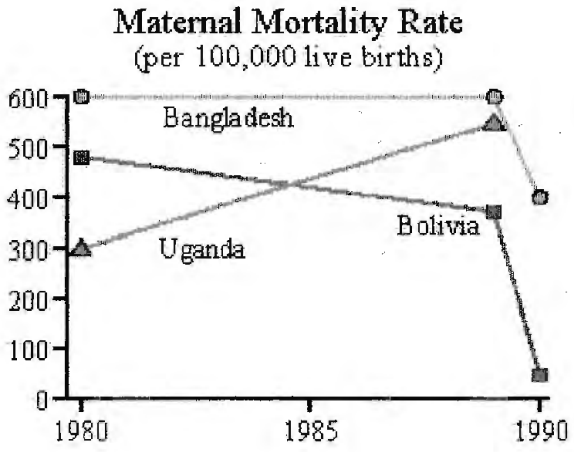


fo75mort

Source: UNDP, Human Development Report 1995, pg 168-169

m42matnl.rtf

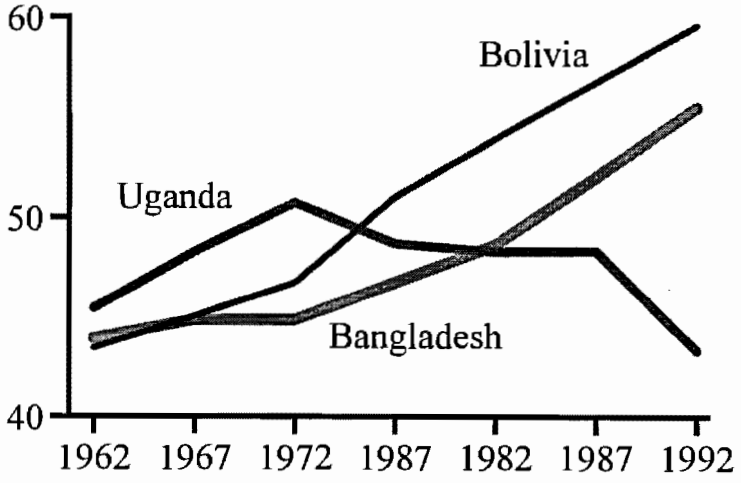
The maternal mortality rate is the annual number of deaths of women from pregnancy-related causes per 100,000 live births. In developing countries maternal mortality is a leading cause of death for women of reproductive age. Maternal mortality is highest in Sub-Saharan Africa at around 700 maternal deaths per 100,00 live births and lowest in East Asia., at 120.


Maternal Mortality Rate
(per 100,000 live births)
600
500
400
300
200
100
0
Bangladesh
Bolivia
Uganda
1980
1985
1990

more info

Graph the three variables, life expectancy, infant mortality rate and maternal mortality rate, for your country. Are they moving in the desired direction? Is life expectancy increasing and infant and maternal mortality decreasing? If not, can you explain why not?

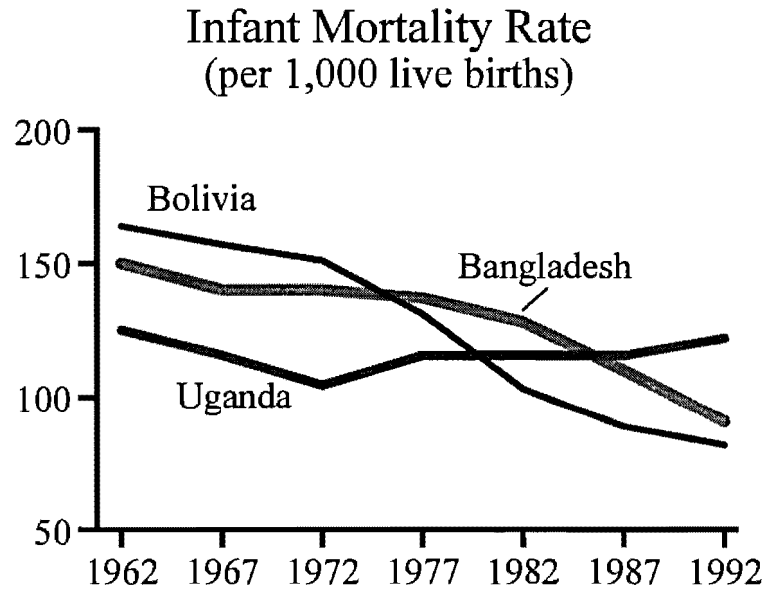
Life Expectancy at Birth

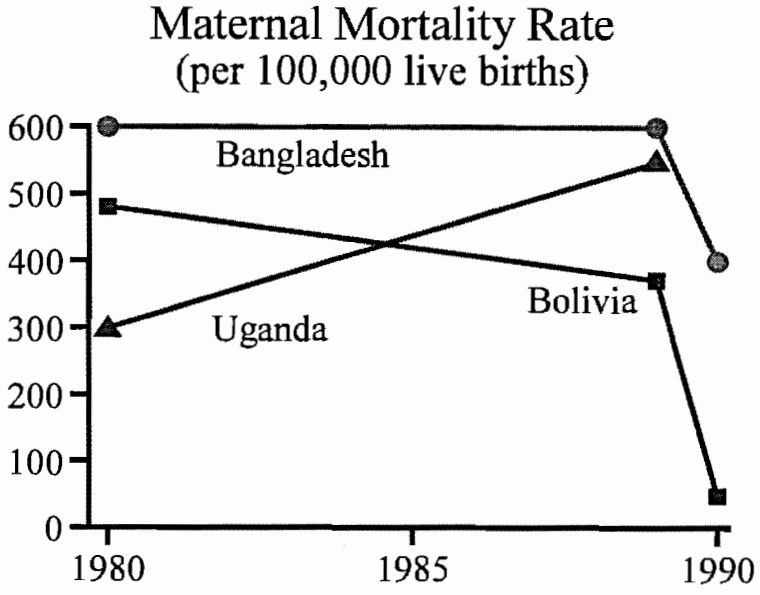


Life Expectancy

Life expectancy at birth is the number of years that a new-born child would live, if the mortality risks prevailing at the time of its birth remained unchanged.

Bolivia and Bangladesh show sustained increases in life expectancy throughout the perio rapid gains after the mid -970s. Uganda also experienced an increase in the 1960s, but sh after 1972. The decline has accelerated since 1987. Note that Bolivia and Bangladesh star virtually the same level in 1962, but Bolivia achieved more by 1992. Also note that Ugan this regard not only stopped after 1972, but that its life expectancy in 1992 was lower tha prevailed three decades ago.


Infant Mortality Rate
(per 1,000 live births)
200
150
100
50
Bolivia
Bangladesh
Uganda
1962
1967
1972
1977
1982
1987
1992


Maternal Mortality Rate
(per 100,000 live births)
600
500
400
300
200
100
0
Bangladesh
Bolivia
Uganda
1980
1985
1990

Maternal Mortality

The relatively high rates of maternal mortality seen in all three countries accords with other indicators of health and welfare and is no surprise. The rise in the rate of Uganda is probably associated with the breakdown in the formal health system in the 1980s.

The morbidity profile in turn is related to the mortality rate. For example, when the IMR is above 50, typically, the main causes of infant deaths are diarrhea, tuberculosis, acute respiratory infections, preventable childhood diseases such as measles and pertussis and tropical diseases such as malaria. As incomes and health technologies improve, health status improves and chronic and non-communicable diseases ("rich persons diseases") take over for all ages. Health experts have named this the "epidemiological transition (ET)." Normally ET and the 'demographic transition' move in consort.

Measurements of malnutrition primarily in children 1-5 also can be used to assess the health status of a population. Nutritional problems of developing countries usually include protein, energy and vitamin/mineral deficiencies, while in post-transition countries the predominant form of malnutrition is obesity or an excessive intake of certain nutrients.

Mortality, morbidity and malnutrition are the outcomes of complex processes that determine the health of a population. Not all variables that determine these process are directly related to health in the narrow sense of the term. For example, quality and quantity of food consumed is a critical determinant. Food consumption is determined by a variety of socio-economic and cultural factors, most importantly by the level of household income. Issues of food security or the capacity of a family to adequately feed itself are closely linked with many development concerns particularly in heavily rural areas. Another increasingly important measure of health and welfare in certain areas of the developing world are rates of violence. Increasingly injury and death by accidents and violence are affecting the health status of broad, particularly young adult male, populations in the developing world. Although the health sector has begun recently to address these issues there is no consensus as to which part of the development community should take responsibility measuring and intervening in acts of violence.

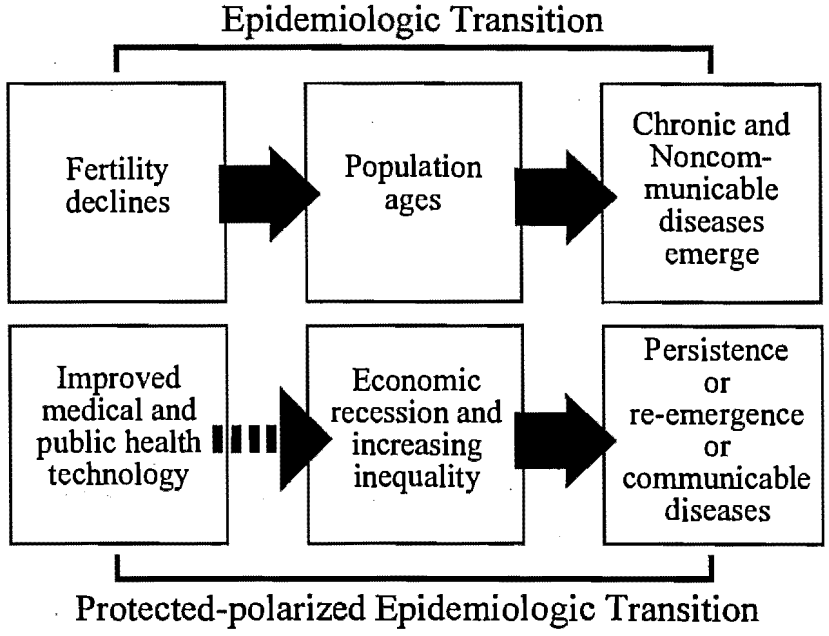
Maternal health is becoming an increasing part of the global health equation. Although generally ignored by the development community increasing levels of stress, urban centered societal breakdown, and conflict or violence seem to be creating high rates of clinical levels of mental illness, particularly depression among the young. While the precise effect of mental health on sustainable development around the world is unknown there is little doubt that it contributes to ill health around the world.

Health Exercise Child and Maternal Health Case:

Health inputs

There are a number of health inputs that have an important bearing on health status. On the preventive side we usually include variables such as the percentage of one year olds fully immunized and the percentages of the population with access to quantities of 'safe drinking water', health services and sanitation. On the curative side population per physician and population per nurse ratios are commonly used measurements. Here too a note of caution regarding the type and quality of the data is called for. Concepts such as

epidemiological transition (ET)



M42fig04

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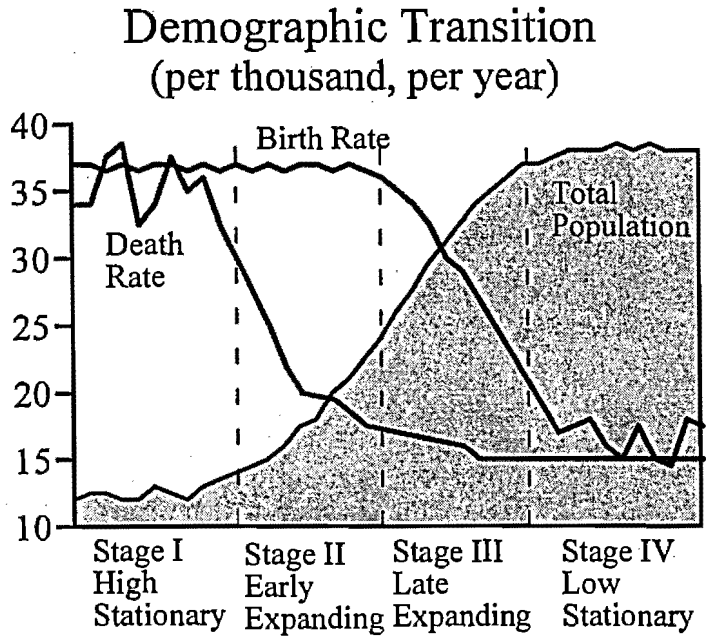
The epidemiologic transition describes the shift in the relative importance of different diseases -- a shift toward greater prominence of diseases suffered by adults and the elderly -- particularly noncommunicable diseases and injuries. The term health transition is also often used and refers more broadly to the levels and causes of all illnesses and deaths in a country.

'demographic transition'



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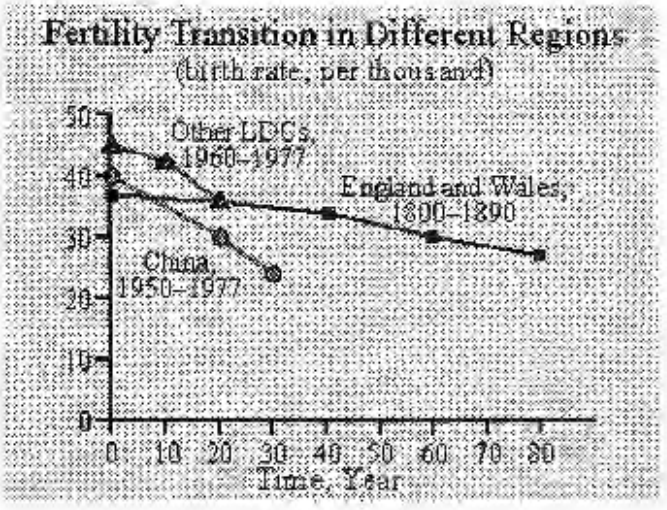
A term which describes the movement from high birth rates and high death rates to low birth and death rates. In the first or the High Stationary stage, both the birth and death rates are high. Although, both rates are very high, it is assumed that the greatest variation is caused by deaths stemming from wars, famines and diseases. The population remains at a low but fluctuating level. The second or Early Expanding stage is characterized by continuing high birth rates but a fall in death rates. As result life expectancy increases and the population begins to expand. The third, or the Late Expanding stage is characterized by a stabilization of deaths at a low level and reduction of birth rate. The fourth, or the Low Stationary stage is a stage when birth and death rates have stabilized and the population is stationary. Some demographers combine stages two and three as one.


Fertility Transition in Different Regions
(birth rate, per thousand)
50
40
30
20
10
0
Other LDCs,
1960–1977
England and Wales,
1800–1890
China,
1950–1977
0
10
20
30
40
50
60
70
80
Time, Year

Measurements of malnutrition

A widely used method for assessing levels of undernutrition in a population is anthropometric measurement of children under five years of age. Evaluation of nutritional status is achieved by collecting weight, height, age, sex and often arm circumference measures on a sample of children. These measures are compared to the international standard reference population in order to classify children as adequately nourished or malnourished.

more info : anthropometric measurment

Three different aspects of a child's nutritional status are commonly characterized by anthropometric measures. Nutritional "stunting" results from cumulative nutritional insults to children. Beginning as early as the third or fourth month after birth, children in the developing world grow more slowly than their parallel cohorts in the developed world. As a result, they are either short or have low height-for-age.

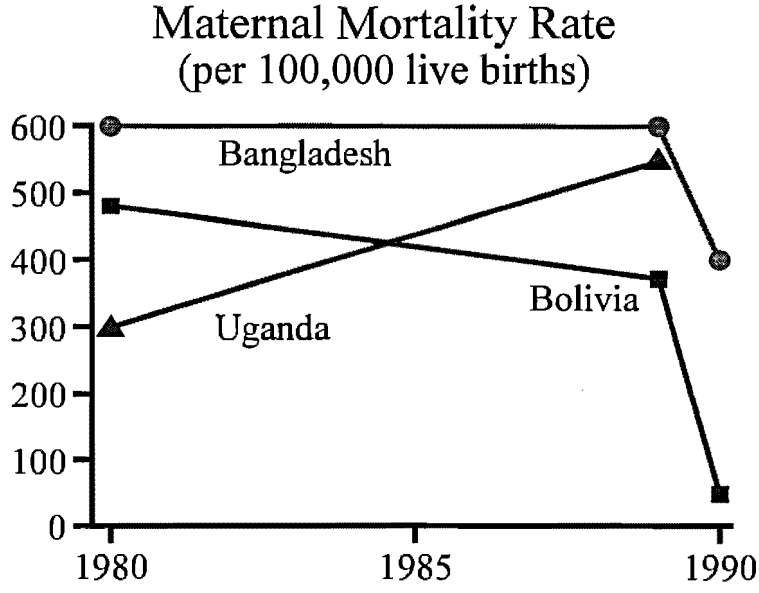
The height/age index is often expressed as a "z-score" or standard deviation unit from the median value of the international reference population. Children whose z-scores fall more than -2 standard deviations from the median are considered to be stunted. A large percentage of children in the developing world are nutritionally stunted, generally more than 25%.

Nutritional "wasting" describes a thin child. This child is one who has inadequate soft tissue mass, a very common occurrence in acute nutritional emergencies associated with famines. Wasting is determined by the index, weight-for-height (weight/height). Again, -2 standard deviations from the reference median value is generally considered to be the cut-off point for identifying children who are moderately or severely wasted.

The third way and most commonly available indication of undernutrition is "underweight" status. In order to determine whether or not a child is underweight, his/her weight is compared to the standard reference population values for children of the same age. Again, the -2 standard deviation cut-off point is used to identify children as malnourished. Unlike height/age or weight/height, weight/age reveals nothing about the physical manifestations of malnutrition; i.e., a child who has low weight/age could either be very short but have adequate weight or the child could be starving to death. The weight/age indicator, therefore, is less useful for assessing the problems of a population, but can be very useful as a monitoring indicator because of its widespread availability through the health care system.

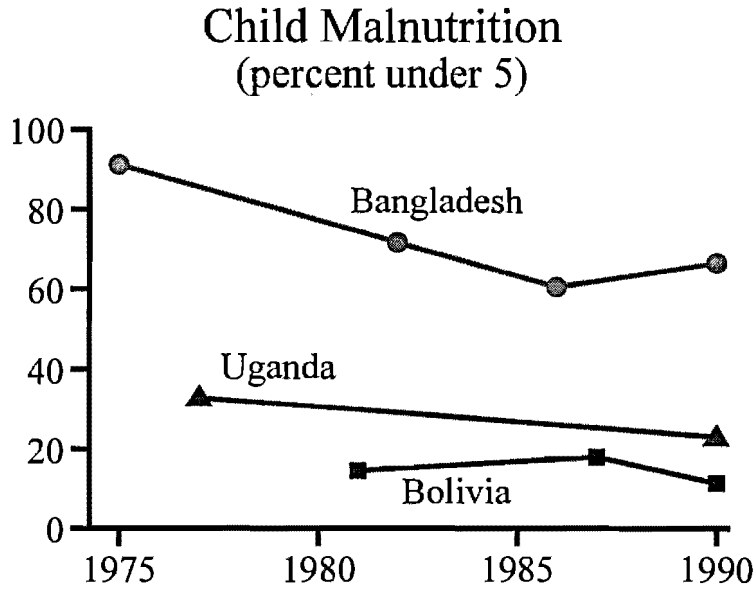
Child and Maternal Health
Case

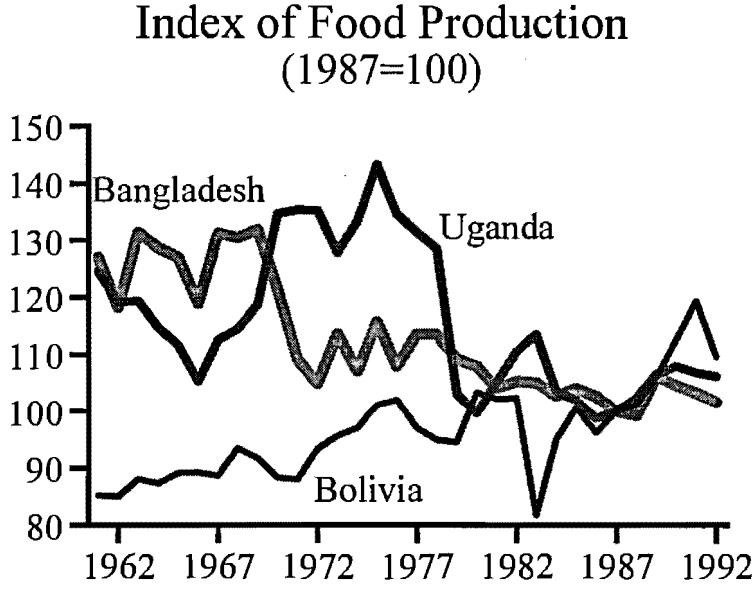
Graph the variable, child malnutrition (% under 5), over time. Is the value for this variable increasing or decreasing? Compare this variable to the maternal mortality rate over time. Are there particularly striking features in the health status of the more vulnerable groups such as infants and pregnant women?

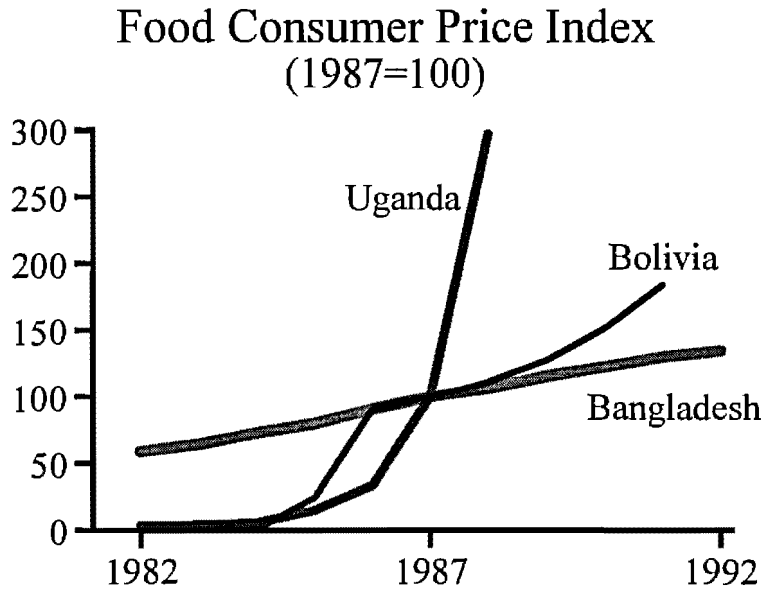

Maternal Mortality Rate
(per 100,000 live births)
600
500
400
300
200
100
0
Bangladesh
Bolivia
Uganda
1980
1985
1990

Maternal Mortality

The relatively high rates of maternal mortality seen in all three countries accords with other indicators of health and welfare and is no surprise. The rise in the rate of Uganda is probably associated with the breakdown in the formal health system in the 1980s.


Child Malnutrition
(percent under 5)
100
80
60
40
20
0
Bangladesh
Uganda
Bolivia
1975
1980
1985
1990


Index of Food Production
(1987=100)
150
140
130
120
110
100
90
80
Bangladesh
Uganda
Bolivia
1962
1967
1972
1977
1982
1987
1992


Food Consumer Price Index
(1987=100)
300
250
200
150
100
50
0
1982
1987
1992
Uganda
Bolivia
Bangladesh

Graph 5 - Under 5 Malnutrition Rate
Graph 6 - Index of Food Production
Graph 7 - Food Consumer Price Index

The first point to note is that the overall comparative malnutrition levels roughly accord with our expectations for the three countries. Bolivia with the highest per capita income has the lowest and, Bangladesh and Uganda with lower per capita incomes have higher malnutrition levels.

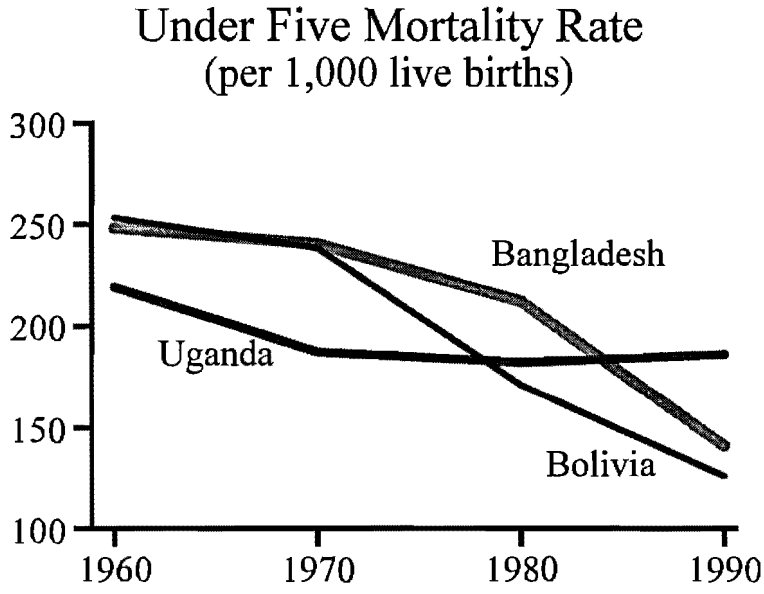
However, the large gap between Uganda and Bangladesh is a little more problematic. The former had a civil war and extreme economic dislocation in the early 1980s. Yet there is no significant deterioration in the malnutrition levels. In the case of Bangladesh the numbers show a slight increase in malnutrition between the mid 1980s and the early 1990s when the country's economy was doing comparatively well.

The explanations for the above inconsistencies could be statistical as much as real. First, note that these graph lines are constructed using a few data points. In the case of Uganda, it is just two, spanning a period of about 12 years. Thus we cannot be certain as to what actually happened during the intervening period.

Second, there can be significant differences in the methodology of measurement used in the different surveys even in the same country let alone among different countries.

Having said that, consider the Index of Food Production and the Food Consumer Price Index. In Uganda food production had fallen by about 30 percent between 1975 and 1988. Between 1986 and 1988 food prices had escalated at hyper-inflation rate. Bangladesh had experienced a sharp drop in food production in the early 1970s and a slow declining trend from mid 1970s to late 1980s. Throughout the period food prices have slowly risen in the country. Bolivia's food production shows a rising trend in the 1970s and again from mid 1980s to the early 1990s. However, food prices show a very sharp rise in the early 1980s when the country had hyper-inflation. What this means is that deteriorating food availability for the lower income groups could have worsened under 5 malnutrition in our sample of countries.

For all these reasons it is best to consider these numbers as rough orders of magnitude of the situation. It is also very sensible to read such data in the light of other information such as food availability, economic growth, unemployment situation, income distribution, political situation and so forth.


Under Five Mortality Rate
(per 1,000 live births)
300
250
200
150
100
1960
1970
1980
1990
Bangladesh
Uganda
Bolivia

Under Five Mortality Rate

The Under Five Mortality Rate (UFMR) is the annual number of deaths of children under age five per thousand live births averaged over the previous five years.

In the 1960s Uganda was much better placed than Bangladesh and Bolivia with regard to UFMR. All three countries experienced reductions in the rate during that decade. However, even by 1970 the UFMR of all three countries was relatively high and placed them in the bottom quarter among developing countries. From 1970 Uganda experienced a slight increase in the rate whereas Bolivia and Bangladesh experienced declining trends.

What is the connection between UFMR and IMR? What explain the decline in UFMR in Bangladesh and Bolivia, and the rise in Uganda?

'safe drinking water'

Reductions in Diarrheal Morbidity Rates Attributable to Water Supply or Santitation Improvements

Type of Improvement	Number of Studies	Morbidity Reduction (%)	
		Median	Range over Studies
All Interventions	53	22	0-100
Water Quality	9	16	0-90
Water Availability	17	25	0-100
Water Quality and Availability	8	37	0-82
Excreta Disposal	10	22	0-48

source: World Bank Discussion Paper #189,
Poverty, Population, and the Environment, p5

As the table shows, the importance of water quality in determining the incidence of diarrheal and bacterial disease is becoming increasingly evident.

more info

Drinking Water and Sanitation by Poor and Non-Poor Households (urban, Indonesia, 1988)

	Poor	Non-Poor	Total
Source of Drinking Water:			
Piped System	1.1	1.1	1.1
Pumped Wells	16.0	24.4	22.2
Other Wells	59.4	34.0	40.7
Peddlers	10.1	11.1	10.8
Other	2.0	2.2	2.1
	100.0	100.0	100.0
Santitation Facility:			
Flush Water	55.0	75.4	70.0
Open Pit Latrine	7.6	7.9	7.8
Sanitation Block	7.1	4.1	4.9
None	30.3	12.7	17.3
	100.0	100.0	100.0

Source: World Bank Dicussion Paper #189
Poverty, Population, and the Environment, p2

"access to health services" are meaningful only if they could be measured with some degree of accuracy. For example, some figures such as the population with access to safe water are often very rough estimates done for political reasons. In some instances different international agencies report significantly different numbers for the same country. Another example of this problem often measured concerns the number of physicians available. In countries that have indigenous (traditional) medical practitioners, counting only practitioners of western medicine may give a misleading picture of the population/doctor ratio. Data quality is generally correlated with level of development which complicates measurements in areas of the poorest of the poor.

Finally, to assess the economic basis of the national health system we usually compute the health expenditure to GNP ratio. For many LDCs it is difficult to get accurate information on private expenditures on health care. Thus, in practice, we have to be satisfied with the ratio of public expenditure on health to GNP. Again in the poorest countries this is often a poor estimate since so much of the expenditure is in the hands of the private sector often in the hands of NGO/PVO entities such as religious missions or foreign assistance.

Health Exercise Access to Water Case:

The Global Burden of Disease

Most indicators that attempt to assess the impact of diseases examine the number of deaths they cause. There are numerous diseases, however while not causing death do lead to handicap, pain or other types of disabilities. The World Bank and the World Health Organization (WHO) have developed a measure called the global burden of disease (GBD) which combines "a) losses from premature death, which is defined as the difference between actual age at death and life expectancy at that age in a low-mortality population; and b) loss of healthy life resulting from disability." (World Bank Report, 1993, p. 24). The resulting GBD is measured in what are called disability, adjusted life years or DALYs.

According to the Bank, worldwide, 1.36 billion DALYS were lost in 1990, the equivalent of 42 million deaths of newborn children or 80 million deaths at age 50. Although much research has been recently directed towards refining DALYs it is important to note that the link between a measure of health and a measure of productive activity has gone far to forge a stronger link between the delivery of health services and sustainable economic development.

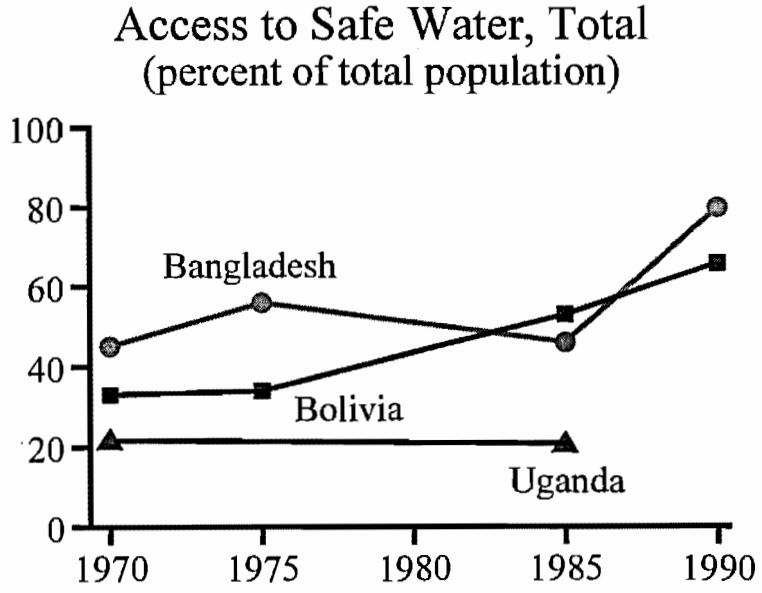
Table 1 (health) shows the GBD by sex, category of disease, and type of loss.

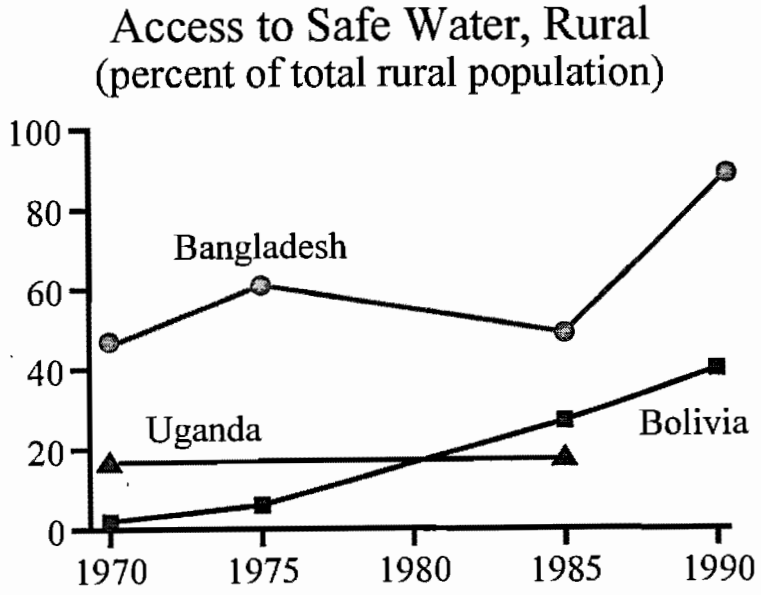
Trends in health status in the LDCs

The current health status of LDCs presents a mixed picture of disappointment and encouragement. It is disappointing when one considers the fact that about 17 million

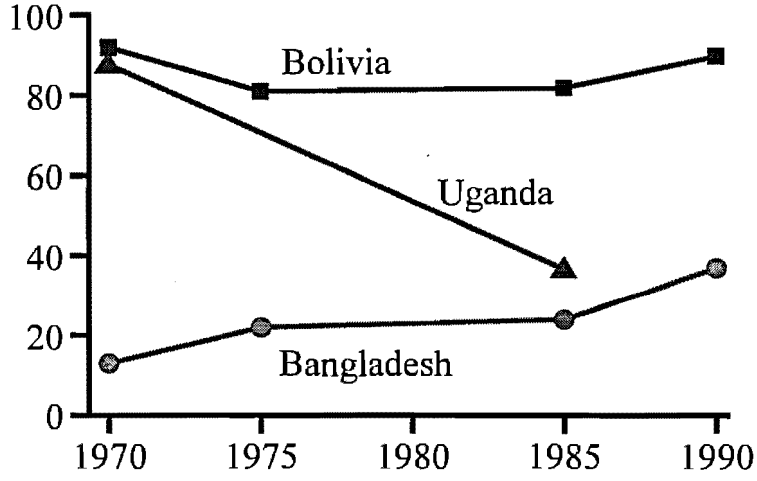
Access to Water Case

Graph the variable access to safe water, total. Is this variable increasing or decreasing over time for your country. Now graph the variables access to safe water, urban, and access to safe water, rural. Are the values of these variables moving in the correct direction, i.e. increasing over time. Is there a difference in the value and trend rural and urban areas in your country?


Access to Safe Water, Total
(percent of total population)
100
80
60
40
20
0
Bangladesh
Bolivia
Uganda
1970
1975
1980
1985
1990


Access to Safe Water, Rural
(percent of total rural population)
100
80
60
40
20
0
Bangladesh
Uganda
Bolivia
1970
1975
1980
1985
1990

Access to Safe Water, Urban
(percent of urban population)



Access to Safe Water

The methodology of collecting data on this subject varies a great deal from country to country. The World Bank also notes that the definition of safe water has changed over time. Thus, these figures must be generally taken as, at best, rough orders of magnitude. Even with respect to broad trend, it must be noted that there is a gap of ten years between 1975 and 1985 for which no data are available.

Clean drinking water is a crucial variable that affects the health of the population. In countries where access to clean water is limited, typically the incidence of water-borne and diarrheal diseases is correspondingly high.

According to our graphs Bangladesh is in a better situation than Bolivia and Uganda. Uganda's comparatively low and unchanged position between 1970 and 1985 generally squares with other known facts about the country. Its per capita income is comparatively very low. The country was in civil turmoil and the economy was in crisis in the 1980s. Thus the poor public health condition revealed by this figure is probably accurate.

In general rural populations have less access to safe water than do urban populations. However, it is hard to explain how rural Bangladesh could significantly outperform rural Bolivia. Bolivia has a considerably higher per capita income than Bangladesh. A casual visitor to the Bangladesh countryside is struck by the scarcity of clean water sources. It is possible that the Bolivian figures are roughly accurate but that the Bangladeshi figures are an over-estimate.

The urban figures for both countries are more credible with Bolivia having a very high access rate. The sharp decline in the rate of Uganda probably reflects the influx of war refugees from the country-side to the towns who had no access to clean water and other amenities.

table 1 (health)

m42tb102

Disease by sex, cause, and type of loss, 1990
(millions of DALYs)

Sex & outcome	Communicable[a]	Noncommunicable	Injuries
Male			
Premature death	259	152	70
Disability	47	146	39
Female			
Premature death	244	135	33
Disability	74	142	20

Note: DALY, disability-adjusted life year
a - Includes maternal and perinatal causes

Source: World Bank, World Development Report 1993
Table 1.1, p. 25

m42gbd.rtf

This table shows what is called the global burden of disease or GBD. It is measured, "by combining a) losses from premature death, which is defined as the difference between actual age at death and life expectancy at that age in a low-mortality population, and b) loss of healthy life resulting from disability. The GBD is measured in units of disability-adjusted life years, (DALYs). Worldwide, 1.36 billion DALYs were lost in 1990, the equivalent of 42 million deaths of newborn children or of 80 million deaths at age 50." World Development Report, 1993, p. 125.

people in these countries are killed every year by infectious and parasitic diseases. There are nearly one billion cases of diarrhea reported every year. Most of these deaths and diseases are linked to malnutrition, unsafe drinking water and poor living environment. According to the World Bank, about 12.4 million children under age 5 died in 1990 in the developing world. Had those children faced the mortality risks of children in the industrialized countries, the number of deaths would have been 90 percent less or 1.1 million.

All the basic measurements of health status that are available suggest that LDCs as a whole have made very significant progress in the last three decades. That is the source of encouragement and hope for the future. For example, as table 2 (health) shows the IMR has declined in every developing region of the world after 1965. However, the figures also reveal that the performance has varied widely across the regions and that for many even the current rates are unacceptably high. In the case of underweight pre-school children-- table 3 (health) -- prevalence rates also have been reduced in varying degree between 1975 and 1990 although to a much lesser extent than mortality rates. The rates remain high and the absolute numbers suffering from malnutrition exceeds 0.5 billion.

It is very important to note the significant disparities that are hidden behind these global averages. In general, the poor have less health security than the rich. Thus citizens of the richer countries enjoy better access to health care, better public health and higher food security than those in poorer countries. Within any country also the rich\poor disparity holds. In the case of many LDCs this usually means that the urban populations have more health security than the rural. Women of child bearing age in LDCs are a particularly disadvantaged group. Annually more than three million women die, most in LDCs, from causes connected to childbirth. With relatively inexpensive improvements in health care for pregnant women most of these deaths are preventable.

The spread of HIV and AIDS has become a new and increasing source of threat to the health status of populations in LDCs. It is estimated that there are over 12 million cases (75 % of these cases are in Sub-Saharan Africa) in LDCs and that the number will grow to over 30 million by the end of the decade. AIDS is a particularly problematic disease since it attacks adults in the prime of their productive years. In addition the cost of treatment of AIDS is extremely high, unacceptable so for the economy of a developing country.

Government expenditures on health

In 1990 all countries together spent U.S. $ 1.7 trillion or about 8% of the world income on health. However, the distribution of this expenditure was highly skewed. The high income countries that had about one-fifth of the world population accounted for about 90% of the total expenditure. The U.S. (5% of the world population) that spends about 12% of its GNP on health accounted for 41% of the global health expenditure. On average the rich countries spend about $ 1,500 per capita on health care whereas the average for LDCs is only $ 41. Among the LDCs too there are large disparities. For

table 2 (health)

m42tb104

Trends in Infant Mortality Rate by Region

Region	1965	1975	1985	1994
East Asia & Pacific	94.5	55.7	41.3	35
Europe & Central Asia	76.5	52.9	33.3	23
Latin America & the Caribbean	94.0	72.9	53.1	41
South Asia	147.1	128.4	103.3	73
Sub-Saharan Africa	156.1	133.7	117.1	92

m42imrtr.rtf

This table shows that there have been declines in infant mortality in every region in the past thirty years. Rates are lowest in Europe and Central Asia followed by East Asia and Latin America and the Caribbean. Infant mortality rates are still very high in Sub-Saharan Africa and South Asia.

table 3 (health)

Prevalence and Numbers of Underweight Preschool Children in Developing Countries

Region	1975	1990
Sub-Saharan Africa	31.4	29.9
South Asia	67.7	58.5
South East Asia	43.6	31.3
Central America and Caribbean	19.3	15.4
South America	15.7	7.7
Global Total	41.6	34.3

m42tb103

m42preva.rtf

As the table shows, there is great variation in the numbers of underweight preschool children by region. South Asia and South East Asia have the highest numbers, although they have declined since 1975.

Spread of HIV and AIDS

An Epidemic's Global Reach

	Current HIV or AIDS cases	Percent of Population infected	Women as a percent of the infected
Sub-Saharan Africa	14 million	5.6	50 or more
South and Southeast Asia	5.2 million	0.6	30 or more
Latin America	1.3 million	0.6	20
Caribbean	270,000	1.7	40 or more
North Africa, Middle East	200,000	0.1	20
East Asia, Pacific	100,000	0.001	20
Central and East Europe, Central Asia	50,000	0.015	20

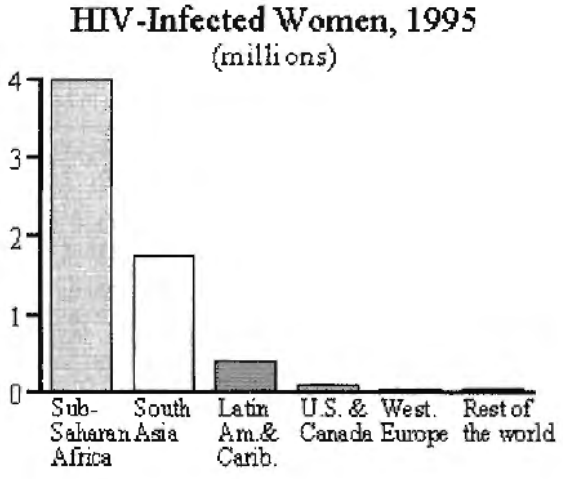
m42tb101

m42hiv.rtf

More than 80 percent of those infected with HIV lived in developing countries in 1990. and according to the World Health Organization or WHO , by the year 2000 this will increase to an estimated 95 percent.

According to the WHO, by mid-1994 approximately 40 percent of estimated cases of HIV infection were women. By the year 200o the number of women infected will equal that of men and in fact the number of women contracting HIV is growing faster than the number of men worldwide.

more info



As the graph shows, HIV-Infected women are prevalent in all regions of the world According to the World Health Organization (WHO) estimates, more than 13 million women will have been infected by the year 2000 and 4 million will have died.

In Sub-Saharan Africa, where 10 million adults are infected with HIV, one-half of the newly infected adults are women and more than 5 million of these are women of childbearing age.

World Bank, 1997.

Estimated and Projected Annual AIDS Cases, 1987-98 (thousands)

Year	Adults	Children	Total
1987	21.3	13.3	34.6
1988	30.0	19.3	49.3
1989	40.8	26.3	67.1
1990	53.6	33.9	87.5
1991	68.4	42.2	110.6
1992	85.0	50.9	135.9
1993	102.7	59.9	162.6
1994	120.9	67.1	188.0
1995	139.0	73.6	212.6
1996	156.5	81.3	237.8
1997	173.0	89.0	262.0
1998	188.4	96.3	284.7

more info

example, South Korea, an upper middle income NIC which is well on its way to becoming an advanced industrial country, annually spends $ 377 per capita whereas Bangladesh only $ 7.

With regard to health expenditure one basic rule that seems to be universally valid is that it goes up as income increases but at a rate that is higher than the growth of income itself. Thus, in general, as a country gets richer it tends to spend an increasingly higher proportion of its income on health. Moreover, the available data also tells us that as national income increases the government's share in total health expenditure also goes up. However, more expenditure does not necessarily mean more efficient expenditure. For example, countries such as China and Sri Lanka spend comparatively small sums per capita on health. However, they have much better health outcomes as measured by LEAB or IMR, than what one would expect for such modest levels of expenditure. In contrast, the U.S. does not have an LEAB commensurate with the expenditure that the country incurs on health care. Inefficiencies in health care expenditure and inequities can occur in poor as well as rich countries.

The role of foreign assistance in the health sector

As a development professional in USAID it may be of special interest to you to note the role played by foreign assistance in health in LDCs. According to calculations made by the World Bank, for example, in 1990, in Sub-Saharan Africa international donors accounted for 10.4% of total health expenditure. If South Africa is excluded the share rises to 20%. Elsewhere in the developing world, on average, it was around 1.5% or even less. There are a few lessons to be learned from these figures.

In summary, foreign assistance is crucial to the viability of health systems in Sub-Saharan Africa and serves as an important catalyst to change in other regions of the world.

What do we know about the relationship between the health status of a population and the creation of capital?

The new conventional wisdom in development is that human resources, and not physical capital or natural resources, is the ultimate determinant of all wealth creation and development. It is human beings who accumulate wealth, organize production, develop institutional structures and so forth. This means that human capital is the most important form of capital.

The quality of human capital depends on two factors. One is education and the other is health. Without ensuring the physical well being of the people a country simply cannot achieve sustainable development. A healthy labor force will be a more productive labor force. Populations subjected to debilitating diseases such as malaria, or AIDS have to forego economic opportunities and suffer from lost production. The health sector also provides employment to a sizable number of the work force. Changing age structures in north and south countries also imply that a greater proportion of societies goods and

Inefficiencies

m42ineff.rtf

For instance, in poor countries government facilities may be poorly managed. For example, weak policies with respect to pharmaceutical use cause tremendous drains of foreign exchange. In middle income countries in Latin America subsidized health insurance frequently benefits the affluent. In the United States low income families with a family member in regular employment may not have adequate health insurance but may also not be eligible for state health care subsidies.

more info in "Inefficiencies"

m42ample

SOME COMMON TYPES OF INEFFICIENCIES IN HEALTH CARE SYSTEMS

A most common type of inefficiency cited often in the literature is the mis-allocation of the government health budget in LDCs in favor of curative care as against preventive care. Moreover, typically the poor have less access to health care than the rich. For example, in 1990 in Indonesia the richest 20% obtained 29% of the government health subsidy whereas the poorest 20% got only 12%.

A similar bias is also often observed in favor of urban areas as against rural areas. In both cases the return in terms of improved health is less than what it would be had allocation been different. This is often reflected in significant differences in mortality and morbidity rates in favor of urban populations.

The World Bank (*World Development Report 1993*, p.60) cites an example from Brazil. A hospital that had a pediatric intensive care unit for sick babies could not save many of the patients admitted to the unit because many of them arrived very sick and malnourished. The hospital stopped admitting such babies and used the resources thus saved to establish a network of community health outposts in the slum neighborhoods served by the hospital. In a few years the IMR in the area declined dramatically.

lessons to be learned.

m42lsntb.rtf

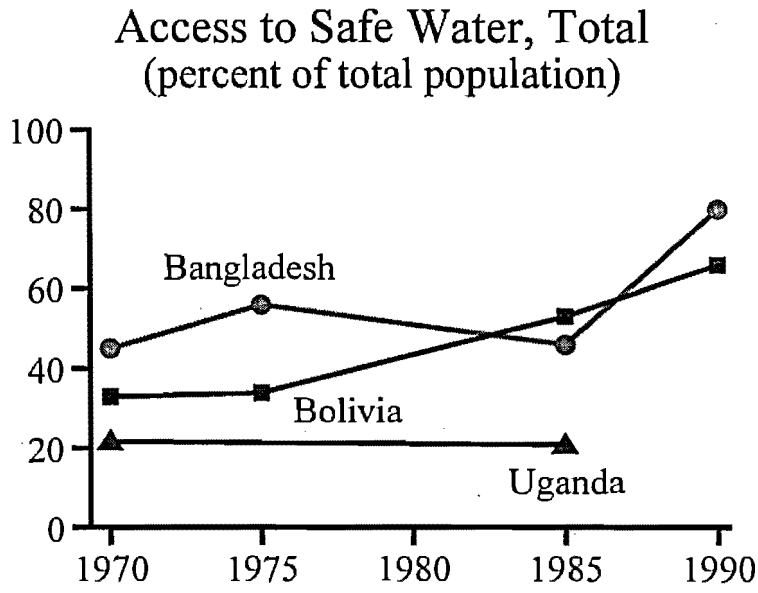
First, in the poorer African countries in particular, aid plays an important role in financing health. Thus, where the money is put could make a very significant difference to the type and quality of health care that is provided. Secondly, most countries outside Sub-Saharan are largely self-reliant in financing health. Thus, in this latter group of countries, aid probably matters not so much in terms of its overall contribution to resources but in terms of influencing investment decisions regarding new programs and facilities.

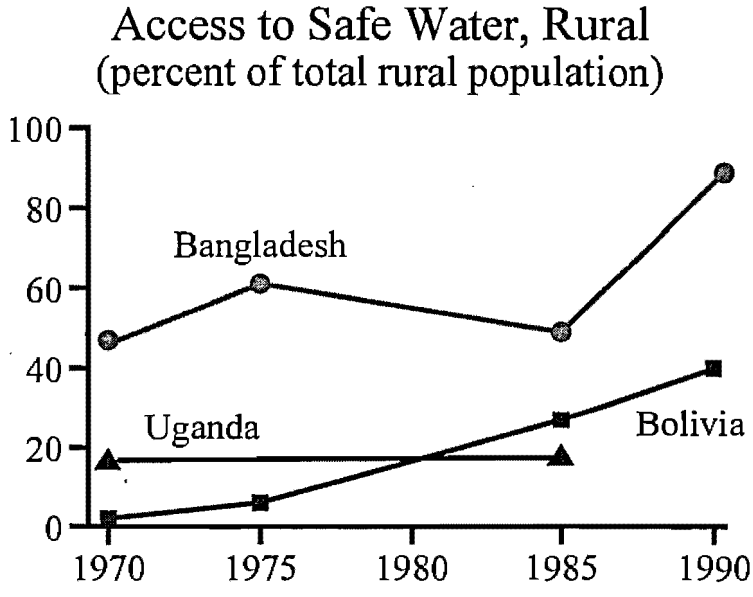
services will be spent on health and social services as the number of people in older and therefore sicker age groups increases. In some countries such as Thailand, Mexico, or China the policy makers are faced with the dual problem of numerically expanding populations at the chronic or older age end of the spectrum and large numbers of individuals still in the poor and infectious disease laden part of the population. As nations become wealthier, people live longer, and health costs increase as a proportion of GNP societies will have to take critical looks at how much they can afford to pay for what level of health care. Typically as one improves health status it costs more on a per capita basis to make smaller advances. The interrelationship between the definition of a certain level of health for all members of society, long term health impacts such as those caused by environment insults, the abuse of drugs or unhealthy life styles and population growth needs to be continually examined as we explore the relationship between health and sustainable development.

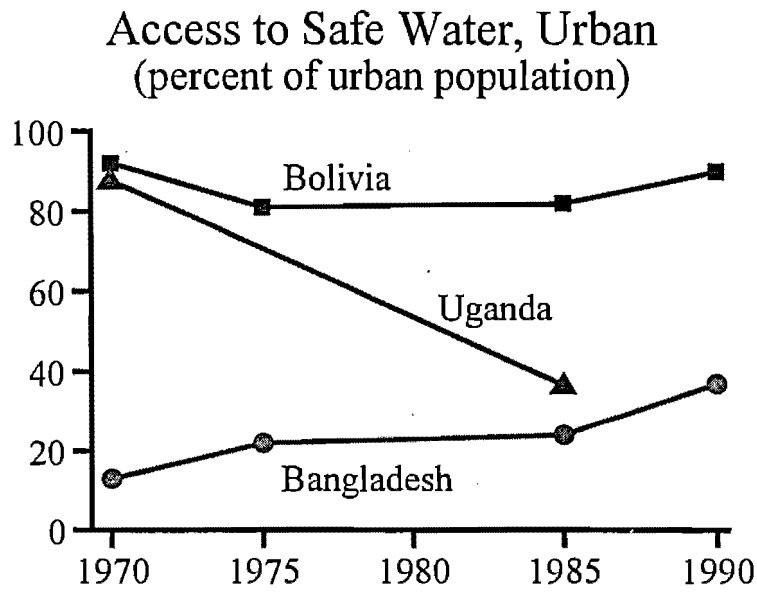
Health Exercise Final Health Case:

Health Case

The case of Bolivia, Bangladesh, and Uganda taken together demonstrate both the potential for advancement in health status even under conditions of limited resources as well as the threat posed to the health of the community by political and economic instability. Comment on this.


Access to Safe Water, Total
(percent of total population)
100
80
60
40
20
0
Bangladesh
Bolivia
Uganda
1970
1975
1980
1985
1990


Access to Safe Water, Rural
(percent of total rural population)
100
80
60
40
20
0
Bangladesh
Uganda
Bolivia
1970
1975
1980
1985
1990


Access to Safe Water, Urban
(percent of urban population)
100
80
60
40
20
0
1970
1975
1980
1985
1990
Bolivia
Uganda
Bangladesh

access to safe water

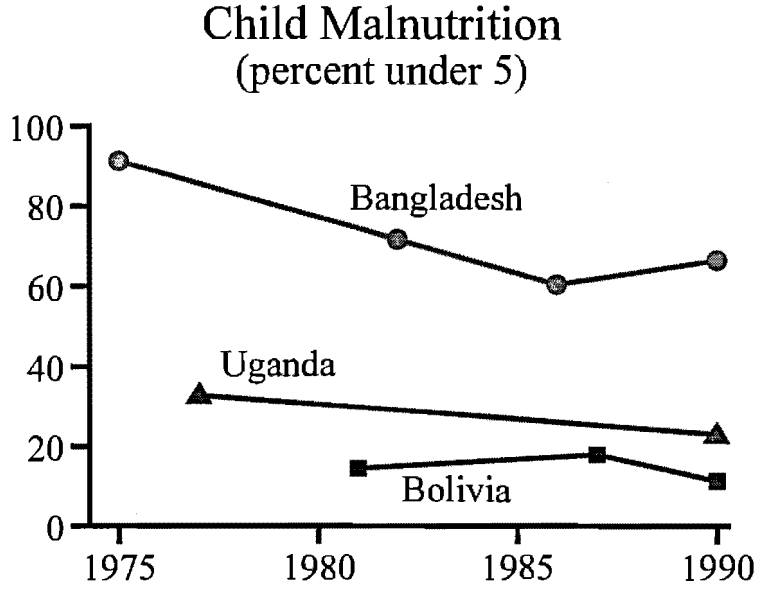
The methodology of collecting data on this subject varies a great deal from country to country. The World Bank also notes that the definition of safe water has changed over time. Thus, these figures must be generally taken as, at best, rough orders of magnitude. Even with respect to broad trend, it must be noted that there is a gap of ten years between 1975 and 1985 for which no data are available.

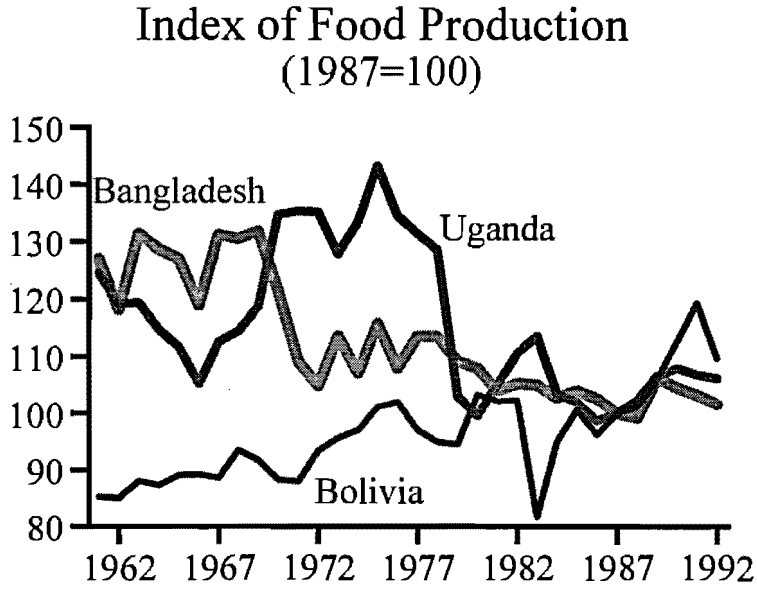
Clean drinking water is a crucial variable that affects the health of the population. In countries where access to clean water is limited, typically the incidence of water-borne and diarrheal diseases is correspondingly high.

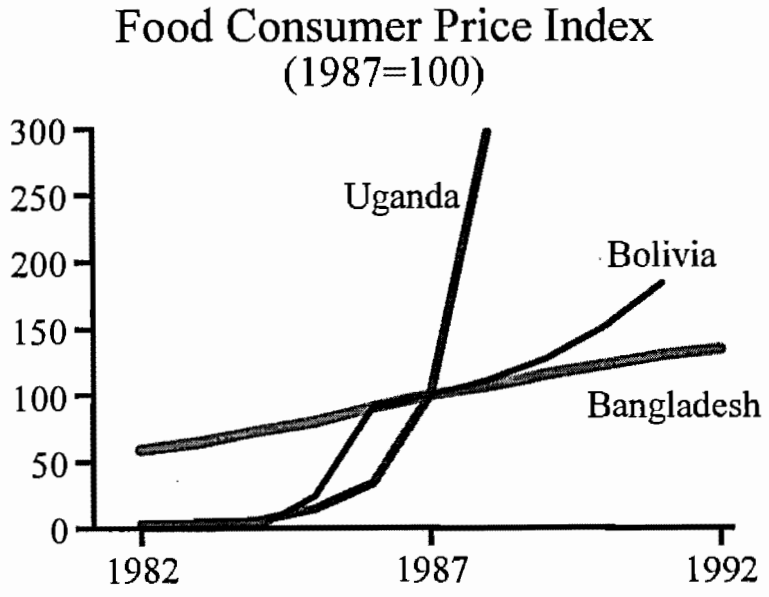
According to our graphs Bangladesh is in a better situation than Bolivia and Uganda. Uganda's comparatively low and unchanged position between 1970 and 1985 generally squares with other known facts about the country. Its per capita income is comparatively very low. The country was in civil turmoil and the economy was in crisis in the 1980s. Thus the poor public health condition revealed by this figure is probably accurate.

In general rural populations have less access to safe water than do urban populations. However, it is hard to explain how rural Bangladesh could significantly outperform rural Bolivia. Bolivia has a considerably higher per capita income than Bangladesh. A casual visitor to the Bangladesh countryside is struck by the scarcity of clean water sources. It is possible that the Bolivian figures are roughly accurate but that the Bangladeshi figures are an over-estimate.

The urban figures for both countries are more credible with Bolivia having a very high access rate. The sharp decline in the rate of Uganda probably reflects the influx of war refugees from the country-side to the towns who had no access to clean water and other amenities.


Child Malnutrition
(percent under 5)
100
80
60
40
20
0
1975
1980
1985
1990
Bangladesh
Uganda
Bolivia


Index of Food Production
(1987=100)
150
140
130
120
110
100
90
80
Bangladesh
Uganda
Bolivia
1962
1967
1972
1977
1982
1987
1992


Food Consumer Price Index
(1987=100)
300
250
200
150
100
50
0
1982
1987
1992
Uganda
Bolivia
Bangladesh

Graph 5 - Under 5 Malnutrition Rate
Graph 6 - Index of Food Production
Graph 7 - Food Consumer Price Index

The first point to note is that the overall comparative malnutrition levels roughly accord with our expectations for the three countries. Bolivia with the highest per capita income has the lowest and, Bangladesh and Uganda with lower per capita incomes have higher malnutrition levels.

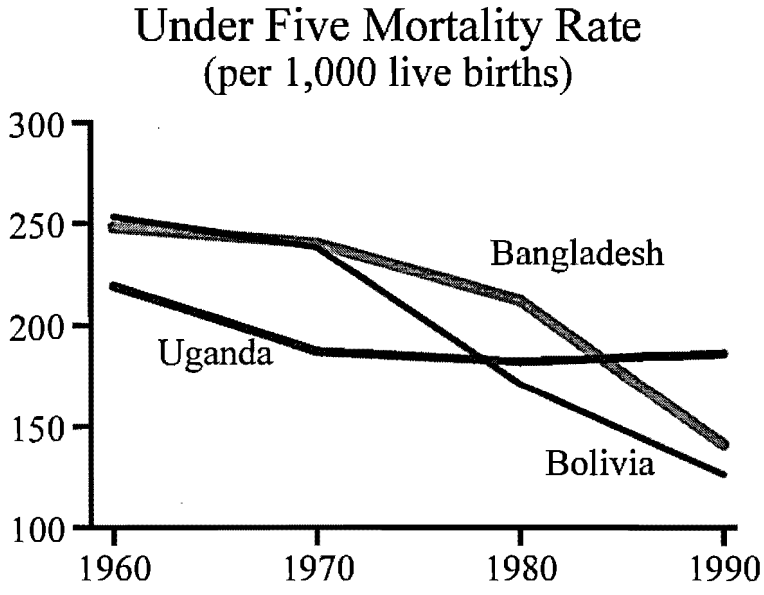
However, the large gap between Uganda and Bangladesh is a little more problematic. The former had a civil war and extreme economic dislocation in the early 1980s. Yet there is no significant deterioration in the malnutrition levels. In the case of Bangladesh the numbers show a slight increase in malnutrition between the mid 1980s and the early 1990s when the country's economy was doing comparatively well.

The explanations for the above inconsistencies could be statistical as much as real. First, note that these graph lines are constructed using a few data points. In the case of Uganda, it is just two, spanning a period of about 12 years. Thus we cannot be certain as to what actually happened during the intervening period.

Second, there can be significant differences in the methodology of measurement used in the different surveys even in the same country let alone among different countries.

Having said that, consider the Index of Food Production and the Food Consumer Price Index. In Uganda food production had fallen by about 30 percent between 1975 and 1988. Between 1986 and 1988 food prices had escalated at hyper-inflation rate. Bangladesh had experienced a sharp drop in food production in the early 1970s and a slow declining trend from mid 1970s to late 1980s. Throughout the period food prices have slowly risen in the country. Bolivia's food production shows a rising trend in the 1970s and again from mid 1980s to the early 1990s. However, food prices show a very sharp rise in the early 1980s when the country had hyper-inflation. What this means is that deteriorating food availability for the lower income groups could have worsened under 5 malnutrition in our sample of countries.

For all these reasons it is best to consider these numbers as rough orders of magnitude of the situation. It is also very sensible to read such data in the light of other information such as food availability, economic growth, unemployment situation, income distribution, political situation and so forth.


Under Five Mortality Rate
(per 1,000 live births)
300
250
200
150
100
1960
1970
1980
1990
Bangladesh
Uganda
Bolivia

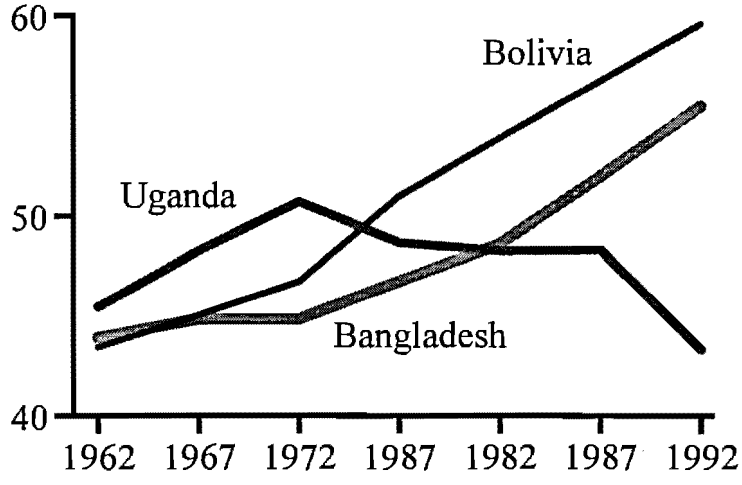
Under Five Mortality Rate

The Under Five Mortality Rate (UFMR) is the annual number of deaths of children under age five per thousand live births averaged over the previous five years.

In the 1960s Uganda was much better placed than Bangladesh and Bolivia with regard to UFMR. All three countries experienced reductions in the rate during that decade. However, even by 1970 the UFMR of all three countries was relatively high and placed them in the bottom quarter among developing countries. From 1970 Uganda experienced a slight increase in the rate whereas Bolivia and Bangladesh experienced declining trends.

What is the connection between UFMR and IMR? What explain the decline in UFMR in Bangladesh and Bolivia, and the rise in Uganda?

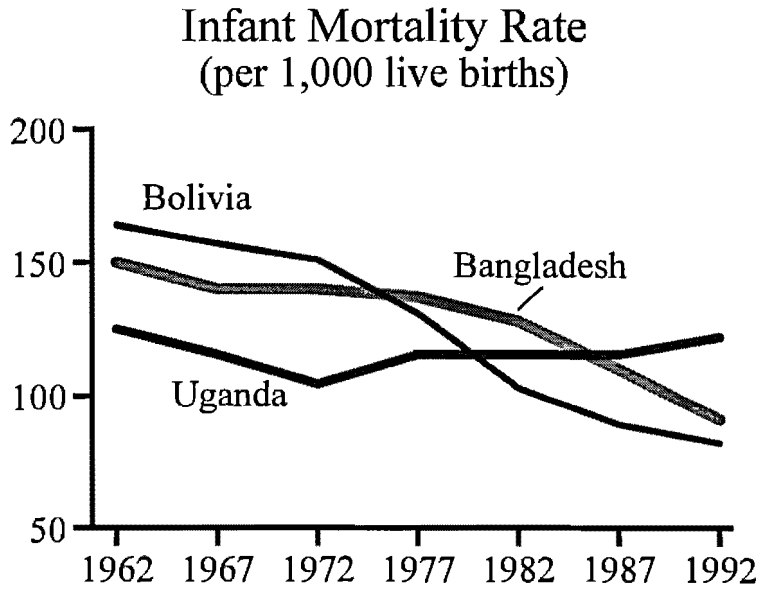
Life Expectancy at Birth

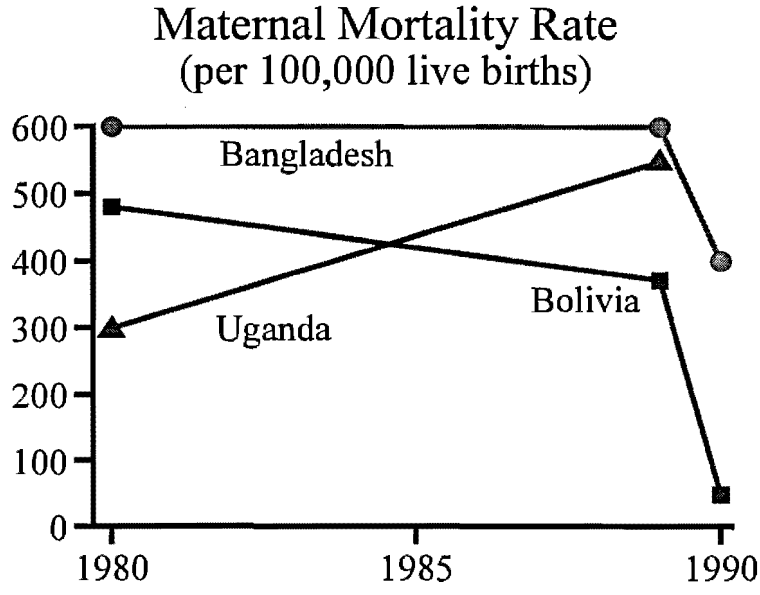


Life Expectancy

Life expectancy at birth is the number of years that a new-born child would live, if the mortality risks prevailing at the time of its birth remained unchanged.

Bolivia and Bangladesh show sustained increases in life expectancy throughout the perio rapid gains after the mid -970s. Uganda also experienced an increase in the 1960s, but sh after 1972. The decline has accelerated since 1987. Note that Bolivia and Bangladesh star virtually the same level in 1962, but Bolivia achieved more by 1992. Also note that Ugan this regard not only stopped after 1972, but that its life expectancy in 1992 was lower tha prevailed three decades ago.


Infant Mortality Rate
(per 1,000 live births)
200
150
100
50
Bolivia
Bangladesh
Uganda
1962
1967
1972
1977
1982
1987
1992


Maternal Mortality Rate
(per 100,000 live births)
600
500
400
300
200
100
0
1980
1985
1990
Bangladesh
Bolivia
Uganda

Maternal Mortality

The relatively high rates of maternal mortality seen in all three countries accords with other indicators of health and welfare and is no surprise. The rise in the rate of Uganda is probably associated with the breakdown in the formal health system in the 1980s.

Public Expenditure on Health as a percentage of GDP

Country	1960	1986	1987	1989	1990
Bangladesh	-	0.6	0.6	0.9	1.4
Bolivia	0.4	0.4	0.4	2.2	2.4
Uganda	0.7	0.2	0.3	-	1.6

Central Government Expenditure on Health
as a Percentage of Total Expenditure

Country	1972	1980	1987	1988	1989	1990	1991	1992
Bangladesh	5.0	6.4	5.0	-	-	4.8	4.8	-
Bolivia	6.3	-	6.1	1.9	6.6	2.3	3.3	8.2
Uganda	5.3	5.1	7.4	2.4	-	-	-	-

Central Government Health Expenditure

It is not easy to measure total health expenditure in developing countries because reliable data on private health expenditure, that of households as well as non-government organizations, is not always available. Usually they are estimated with the help of household budget surveys and health surveys. The World Bank estimates that typically about half of the total national expenditure on health in a developing country comes from the private sector.

Central government health expenditure is relatively easy to compute provided we limit ourselves to the usual preventive and curative services. However, government expenditure on water, sanitation, nutrition programs, and even housing and education can and do have major health benefits. Moreover, the government health regulatory framework that may not cost that much in budgetary terms could have significant beneficial health effects. Sometimes health expenditure incurred by regional and local authorities are not included in the published figures.

Bangladesh has generally set aside about 5.0 percent of central government spending for health. In the case of Uganda in the 1970s the percentage had been roughly the same, but in the 1980s it had fallen to about half of that. The Bolivian figures have fluctuated widely from as much as over 6.0
percent in the early 1970s to as little as 1.9 percent in the late 1980s, and then back to 8.2 percent in the early 1990s.

Public expenditure on health as a share of GDP has risen in the late 1980s in both Bangladesh and Bolivia. But the opposite was true in Uganda although by 1990 the share had gone above the other years for which data is shown. According to UNDP figures public sector expenditure on health in industrialized economies including the US, averaged a little over 6 percent in the early 1990s which was at least three times as high as the level that prevailed in our sample.

In both Bolivia and Bangladesh economic difficulties in the 1980s led to the drastic fall in government health expenditure reflected in the figures. The improvement in the economic situation towards the close of the decade is reflected in the higher health expenditure figures for 1990. In the case of Bangladesh, in the 1980s, partly with the help of donor assistance, the government made a conscious effort to direct more budgetary resources for health.

These figures, as useful as they are, hide as much as they reveal. First, the percentages obscure the fact that the absolute amounts involved could be pitifully low. For example, in 1990 Bangladesh spent only $ 7 per capita on health when the typical industrialized country spent as much as $1,860 which was over eight-times the per capita income of the former. Thus even if the Bangladesh figure had risen, say, three-fold, it would have hardly been adequate to meet the "basic" health needs of the population.

Second, the figures consolidate expenditure funded from local sources and donor sources. For example, in the case of Uganda around 1990 only about one-third of the health budget was funded from local sources. In the case of Bangladesh and Bolivia also foreign funding looms large in the health budgets.

Third, there are the vital questions of efficiency and equity in the allocation of the health budget. In efficiency the question is whether the government spends the available funds in the most effective manner to combat the diseases from which the population suffers. Not surprisingly in many cases the answer is "no". For example, in an analysis done by the World Bank where the percentage of the GDP spent on health was matched against life expectancy (a health outcome) one of our sample countries, Uganda, was shown to

have a life expectancy that was *below* what one would expect for the country's health expenditure level. A study of the Ugandan health sector done in the early 1990s pointed out that the there was no policy and program orientation in the health budget, and that no less than two-thirds of the total was spent on curative care. This may not only be inefficient but also be inequitable.

Uganda is only one of many developing countries that have been faulted for skewing the health budget in favor of curative care as opposed to preventive care, expensive institutional care as opposed to primary care, hospital care for urban areas as opposed to primary care rural areas, and care for the elite as opposed to care for the poor. Another of our sample countries, Bangladesh, has done reasonably well in the past ten years to reduce this imbalance and move the budget towards primary care and away from tertiary care. This has happened partly due to the pressure applied by donors who have provided assistance on the condition that such assistance be directed towards primary care and preventive health.

Experts Response

In Uganda and Bangladesh we are dealing with two of the poorest countries in the world, both having had per capita GNP around $ 200 in the early 1990s. The overall health status would be profoundly influenced by this simple, yet critical fact. In the case of Bolivia the situation is slightly better in terms of income level, having had a per capita GNP of about $ 700 in the early 1990s. In broad terms, the economic reality embodied in these figures is also reflected in the social reality represented by indicators such as life expectancy, mortality rates, malnutrition levels, and access to water, sanitation and other public health facilities. On most health status indicators Bolivia comes on top with Bangladesh a not so close second, with Uganda trailing behind in the third place.

The relative position of the three countries at any given point in time is perhaps the least interesting from a developmental perspective. Development is a dynamic process. Thus what is more interesting to find out is how these three countries have faired over time. An attempt to answer this question gives us a clue to three important issues concerning health and development. First it would tell us the association between economic growth and social conditions, in this case health status. Second, it would also tell us what judicious interventions can do to improve health conditions even in a very poor country with limited resources. Third, it would also reveal the manner in which major political and economic dislocations adversely affect health status.

First is the question of the association between growth and health conditions. In general Bolivia had relatively good economic growth in the 1970s, negative growth in the 1980s and some recovery from the late 1980s. Bangladesh had indifferent growth in the 1970s, and reasonably positive growth in the 1980s and early 1990s. Uganda had some growth in the early 1970s, but in general the decades of the 1970s and 1980s were economically disastrous for the country. In broad terms health status indicators reflect this economic reality. In Bolivia, health indicators did better in the 1970s than in the 1980s. IMR, an index that is considered to be particularly sensitive to changing economic conditions, showed a sharper decline in the 1970s than in the 1980s. For Bangladesh it was the opposite with better economic growth and improved health indicators in the 1980s. In the case of Uganda from about 1972 negative economic growth has been associated with deteriorating health status indicators.

As we know association does not signify causality. However, a review of, say, the case of Bolivia or that of Uganda reveals how economic performance impacts on social conditions.

In the case of Bolivia an economic collapse began in the late 1970s and lasted until about 1985. From the mid 1980s a stringent stabilization and austerity program was enforced that saw further cut backs in social expenditure, and even more difficult economic conditions for the average Bolivian. For example, by the mid 1980s an estimated 20 percent to 25 percent of the economically active population were unemployed. More than 25,000 miners had been laid off by private mines. The public sector had laid off another 15,000 to 17,000 workers in other fields of employment. These lay-offs, it is said, adversely affected the income of farmers who lost the markets for their produce. Hyper-inflation seriously eroded the real incomes of fixed income earners. All this had very adverse consequences for health which, to some extent, are camouflaged by the aggregate data in our graphs. Moreover, in some cases such as malnutrition, the data points cover relatively long spans of time, and fail to capture short to medium term changes in conditions. It is also important to note that some of the most vulnerable groups were the rural populations in the Altipano, a fact not revealed by aggregate data.

In the case of Uganda also the economic collapse of the 1980s had a severe impact on the social sectors. What is particularly useful to remember is that in Uganda as well as

Bolivia institutions responsible for delivering health care to the people failed badly in crisis situations. In the case of Uganda they virtually collapsed when the political crisis led to a general collapse of the government. In the case of Bolivia, institutions such as the Health Ministry were too weak to cope with the social impact of the depression. These precisely are the conditions that have to addressed if the health sector is to be made more viable. It has to be done by strengthening not only state institutions, but also by bringing in the private sector including the NGOs to play an effective role.

This brings us to the third question that we raised at the beginning of this discussion, how effective interventions can make a difference even if the country is relatively poor and resources are scarce. The Bangladesh case perhaps illustrates this best. The enormous progress made by that country in the health sphere is owed to a judicious partnership between the public and private sectors, and supported by the donor community. For example, Bangladesh no longer faces a threat of famine. A reasonably functional public sector food security system supported by the private sector has been in place since the 1980s. With the help of donors, USAID in particular, Bangladesh has made significant strides in fertility reduction, and child survival, especially be improving the service delivery system in contraceptives, child immunization, and primary health care. These successes are reflected in falling mortality rates and rising life expectancy.

Finally, a point about health expenditure. We saw in our discussion earlier of the graphs that government health expenditure in all three sample countries suffered in the 1980s due to economic recession. We also noted that all three spent more of their respective budgets on defense. Thus a reorientation of government spending is a policy reform that would help improve health and social welfare in all three countries.

Description and Learning Objectives
Education

> If you plan for a year, plant a seed. If for ten years, plant a tree. If for a hundred years, teach the people. When you sow a seed once, you will reap a single harvest. When you teach the people, you will reap a hundred harvests.
>
> --K'UAN-TZU, 551–479 B.C.

Education, like health, is critical to the quality of life. A good education is generally associated with modern attitudes, upward social mobility, and high incomes. The quality of human capital that decisively influences economic development depends on the quality of education that is available to the people of a country.

In this component of the SHD course we will address the important topic of education. Up to this point in the SHD module numerous references have been made to the importance of investments in education (or human capital) on growth, equity, poverty reduction and overall achievement of SHD. In this session we will not only address the definition and measurement of educational status in developing countries, but we will also reinforce some of the most important points made about investments in education, specifically: the correlation between development performance and educational investment levels; equity impacts of increasing the returns to labor—the most equally distributed factor of production; education for girls as a key factor in reductions in fertility rates and in the incidence of poverty.

USAID, in its 1994 Strategy Papers, states that sustainable, broad-based development requires investment in people to improve their health and productivity, enhance their skills, protect their rights, and help them to be full participants in society.

It goes on to state that acquisition of economically valuable skills plays a central role in the empowerment of individuals. Education

increases social mobility and thus serves as a formidable mechanism of conflict resolution. Moreover, rising education levels are critical to democratic governance and peaceful political discourse. USAID's education programs will give particular emphasis to the quality and availability of primary education, especially for the poor, women and girls and minorities. The Agency will also support targeted, market-oriented interventions aimed at technical and vocational training; the freer flow of technology and technical information; and training in business skills.

This section is organized as follows. First, and after again reviewing the importance of education to development, we will discuss the most common methods of measuring education status in developing countries. You will be asked to do an analytical exercise in which, using several of the available variable, you determine and compare the education status of several countries and/or regions. Second, we will examine some global and regional trends in the education sector. You will learn that there is, unfortunately, a much greater focus on quantity of education services provided than on either the quality or impact of those educational services. Last, we will look at the relationship of education to development. Clearly, there is a positive relationship of such strength as to possibly make you wonder why donor organizations don't focus even more on this sector.

At the end of this section and the analytical exercises, you should:

1. Have a good understanding of the key variables, and how to determine and compare education status for, between and among developing countries.

2. Be able to recognize and compare the good/bad performers and what reasons may be adduced for the observed differences?

3. Have a good understanding of both long and short-term trends in education, globally and regionally and be able in general terms to account for some of the disparities.

4. Have a good grasp of the linkages or associations between educational status and the expenditure on education on the one hand and economic

performance, poverty level, equity, gender equity, health status and other elements of SHD on the other?

Intro

Education is Everything

Education

Improving education is an important development goal, by itself. But improvements in education also contribute to other aspects of sustainable human development. Better education tends to foster stronger demands for human rights and democracy. It also increases participation in civil society, and reduces fertility rates. Hence education is a key development objective. How is it measured and achieved?

Overview

Education

Education

- Education is the cornerstone of social and economic development, with primary education as its foundation.
- Education increases social mobility, serving as a formidable mechanism of conflict resolution.

Education

- Rising education levels are critical to establishing solid democratic foundations.
- Significant linkages exist between female education levels, family health and economic development

Education is clearly one of the most important development interventions any government can make.

Measures of Education Attainment

There are many measures which give education attainment levels within a country:

- Literacy rates are the most commonly used education status measure.
  - While literacy rates are the most *common* measurement for education attainment, they are not always the most accurate and can often be misleading. Methodological issues make comparisons of data troublesome, particularly in cross-country analysis.

- Input or quality measures examine government input, such as public expenditures, on education. This is usually expressed as a percent of a country's Gross National Product.
  - Input/quality measures do not take into account the role the private sector plays in providing educational services. In country's where the provision of education is primarily through private, usually secular, institutions, government expenditures on education will not reflect the governments true commitment to education.

- Average years of schooling measures the average number of years of schooling a population has attained. It is usually reported as the mean school years completed.
- School enrollment ratios and school completion rates, at the primary, secondary and tertiary levels, also give useful information as to the distribution of educational services and can be reported in gross or in net terms.
  - The gross enrollment rate uses the number of students actually attending primary school classes and divides it by the number of children in a particular age group. This statistic can be misleading because the number can be at times greater then 100 due to over-age students.

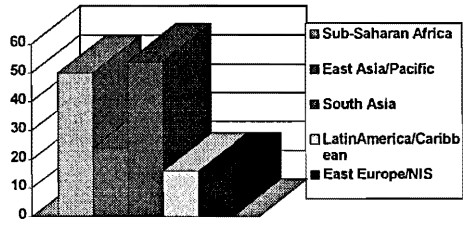
  - Net enrollment ratio tells you what percentage of any age cohort actually attends a particular level of school.
  - School completion rates tells what percentage of the age cohort completes a specific level of education.

Global Trends in Education and Literacy

- Education has improved dramatically in most developing nations as governments have boosted enrollment and attendance, built schools, trained more and better teachers, developed curricula and supplied text books and other educational material.
- The United Nations Educational, Scientific, and Cultural Organization (UNESCO) reports that adult literacy world wide has increased to 75 percent since 1990. 67 percent of adults in developing countries are literate.

- School enrollments in developing countries at the primary and secondary levels have continued to grow, except for Sub-Saharan Africa, which experienced a drastic reduction in enrollment rates during the 1980's due to war and economic adjustment.
- Illiteracy rates are highest in Sub-Saharan Africa and South Asia

Illiteracy Rates (%)



Education and Gender

- Basic education for women contributes toward lower fertility rates, and has dynamic and positive effects on children's health, nutrition and mortality rates.

Impacts of Education

- Better Health and Nutritional Status
- Improved Growth and Productivity
- Increased Gender Equity
- Increases Participation in Civil Society and Political Processes
- Increased Environmental Awareness and Conservation

" Only people can manage an economy.

Only people make scientific discoveries.

Only other people turn those discoveries into productive innovations.

Unless those people are literate, well educated and are healthy, development will not occur...."

Explore Role of educ...

The thinking on education's role and relevance in development has changed considerably since the 1950s from a basically trained manpower focus to a far more eclectic and integrative role.

Explore - Socially Profitable

Education has been found to be a socially profitable investment.

explorer Society Fabb
achievements

Almost all developing countries have made great strides since the 1960s in providing an adequate educational infrastructure, particularly at the primary level.

explore Quality of education

The focus has been on the quantitative side to the neglect of the qualitative aspects of education as evidenced in the high dropout rates and lack of learning and achievement of core skills.

explorer disturbing trends

There are some disturbing trends, particularly in the low income countries, that investment in education is declining even though it has been increasingly demonstrated that investment in education, particularly at the primary level, yields one of the highest returns.

exploring East Asia

Universal and high quality primary and secondary education appear to be one of the most important determinants of the highly successful east Asian countries development strategy.

explore Linkages

Education is increasingly seen as not only an important contributor to economic betterment, but also to better health, lower population growth, increased gender equity, environmental sustainability and increased participation in the democratic processes.

Text

Education

Education has been defined as the cornerstone of economic and social development with primary education as its foundation. As the strategy paper of USAID released in 1994 states, "Education increases social mobility and thus serves as a formidable mechanism of conflict resolution. Moreover, rising education levels are critical to democratic governance and peaceful political discourse." The 'social rate of return' investments in primary education are among the highest any country can make. Moreover, there are significant linkages between female education and 'fertility', child health and 'mortality'. Education is clearly one of the most important development interventions governments can make.

Measuring educational attainment

'Literacy rates' are the most commonly used education status measures. While this variable has the advantage of being an indicator of the success of a country's education system in enabling its people to attain a fairly minimal educational level, it has some very distinct disadvantages as well.

There are, also, methodological issues in measuring literacy which make the comparisons of data troublesome, particularly across countries.

A second category of education status measures fall into what we will call input measures or quantity measures. These include the share of public expenditures in education, which is commonly measured as a percentage share of a country's Gross National Product. This scaling by size of the economy enables reasonable cross-country comparisons of this indicator. What is missing from such comparisons though is the role of the private sector in a country's education system. In countries where the provision of education services through private, often church-related, institutions is great, there would be less need for higher public sector levels of investment in education.

An additional indicator measures the average years of schooling of individuals in the population. This is often reported as the mean school years completed (MSYC).

Another category of education status measures will actually tell us useful information about the distribution of educational services. These include school enrollment ratios at the primary, secondary and tertiary levels. They also include school completion rates at the three levels. The definition of the measures that are available to you needs to be carefully noted. Each of these indicators can be measured in gross terms or in net terms. The difference is important. The gross primary school enrollment ratio uses the number of students actually attending primary school classes and divides it by the number of children in a particular age cohort, say 5-11 year-olds. As a result of this method the percentage number reported can be somewhat misleading, in fact it can be greater than 100%. How does this happen? Essentially, it is the result of early or late starters, repeaters, and over-age students in primary school classrooms.

Social rate of return

m43tb101

Table 1: Average Social Returns to Education
(percent)

Region	Primary Education	Secondary Education	High Education
Sub-Saharan Africa	26	17	13
Asia	27	15	13
Latin America and Caribbean	26	18	16

m43socrt.rtf

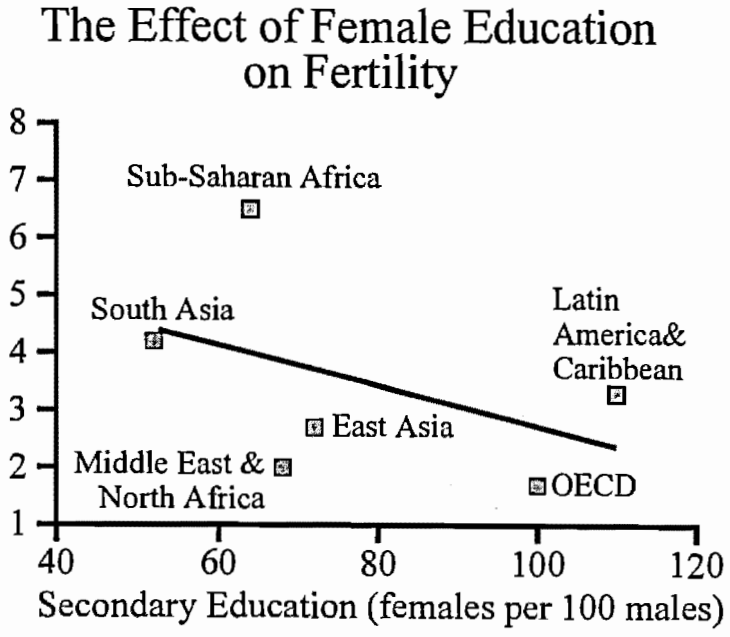
Average Social Rate of Return on Education

The *social (or economic) rate of return* on education is calculated using *all* costs and *all* income that are attributable to that level of education. This means that on the cost side, public expenditure that we ignore when the *internal (private) rate of return* is calculated is factored in. On the benefits side, in principle, after tax income is used to calculate the internal rate of return, but before tax income is used to calculate the social rate of return. However, in most developing countries the before tax income is used partly because tax data are hard to get. Moreover, since many do not pay income tax, this omission may not be of serious consequence. It is also helpful to note that social benefits of education such as more informed participation in politics and greater social cohesion *not* captured by income are excluded from this calculation.

The figures in the Table show the well established fact that the social rates of return are the highest at the primary education level and lowest at the higher education level. Second, these rates of return are generally higher than the rates of return on physical capital. Thus, education appears to be a sound investment. Third, since the government bears a larger proportion of the cost of education in developing countries, the spread between the social rate of return shown in the table and the private rate of return can be quite large.

'fertility'

m43fig01



Source: Summers, Investing in all the people

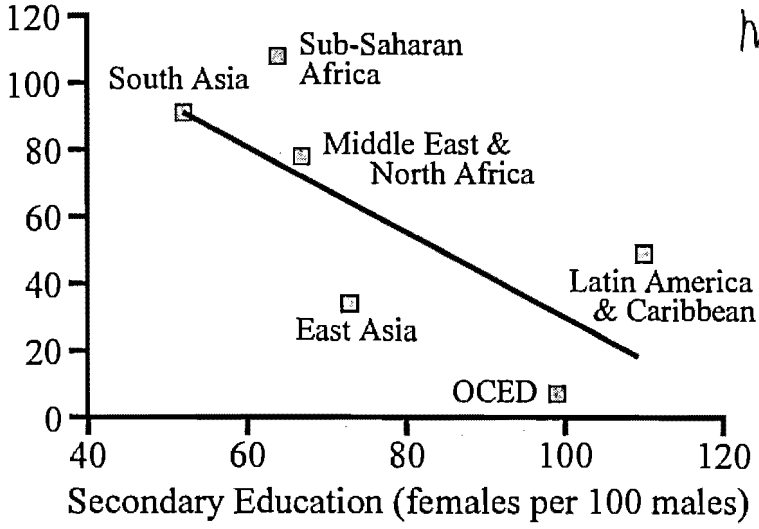
m43fert.rtf

The best available data suggest that each additional year of schooling for women reduces female fertility by 5 to 10 percent and under-five child mortality by 10 percent.

'mortality'

The Effect of Female Education on Infant Mortality Rates

m43fig02



Source: Summers, Investing in all the people

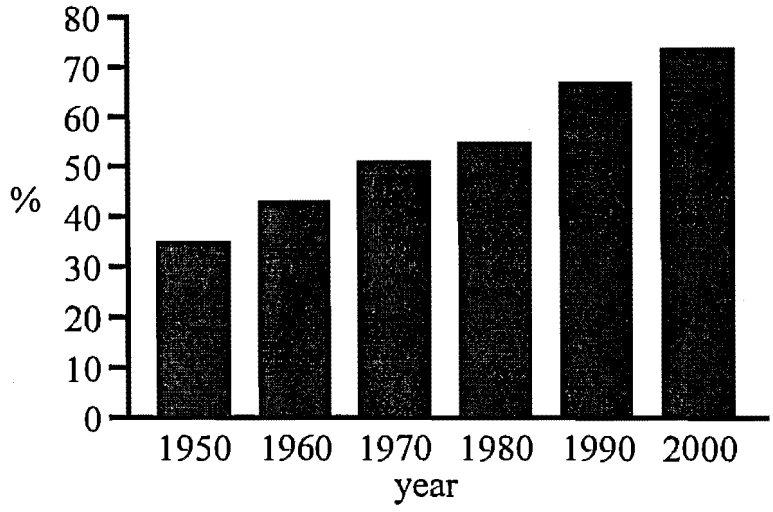
m43morta.rtf

There is an almost immediate payoff from increased female education and that is a reduction in infant mortality rates. The graph shows a significant decline in the infant mortality rate as women receive more education.

'Literacy Rate'

m43fig03

Literacy Rate for Developing Countries:
1950–2000 (percent)



Source: UNESCO

m43liter.rtf

One of the most significant advances in human welfare comes from the improvements in literacy that have been achieved during the past four decades. As the graph indicates, literacy rates in the developing world have more than doubled during this period.

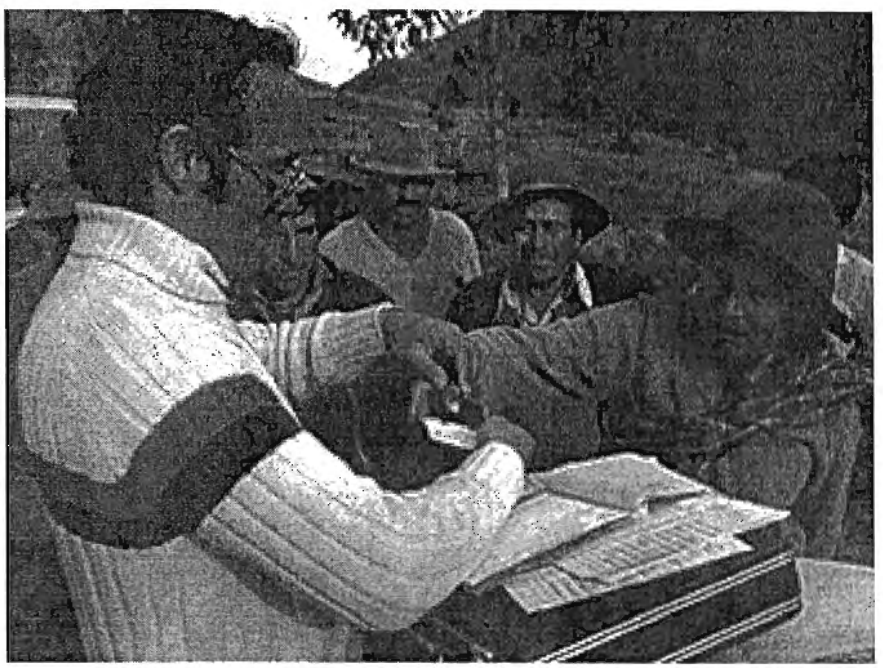
disadvantages

m43disad.rtf

First, there are definitional problems such as what age level is the cut-off for adults, most commonly the adult literacy rate includes population over 15, but in practice this varies widely; there are also differing definitions of what is considered literacy with standards varying from a minimal ability to recognize written characters as words to more rigorous standards of functional literacy which require the individuals tested to perform a specific set of tasks which require higher skills.

methodological issues

m43mthod



m43metho.rtf

Some countries measure and report data for literacy disaggregated by age cohorts and by gender. This is especially useful in tracking historical trends and more recent performance of the educational system. A final weakness in using literacy rates to assess educational status is that the minimal level of literacy (especially when measured using less rigorous standards) may be achieved by a broad section of the population and then remain very near that level despite significant changes in the quality or even quantity of educational services provided by the education system. Put simply, literacy is not an indicator which is very sensitive to short-term or medium-term changes.

MSYC

m43msyc.rtf

The interpretation of this is useful, the MSYC is 6.1, then we know that half of that country's population has at least six years of education; however, very little can be determined about the distribution of educational services in the population. For example, in one country with an MSYC of 6.1 the lower half of the population may receive little or no access to education, while in another country with the same measured MSYC, the lower half of the population may receive almost universal access to, say, five years of education. The key to differentiating between the educational status of two such countries would necessarily come from a judicious use of multiple variables, would almost certainly expect a lower literacy rate in the country with little access to education among half the population.

A better, less misleading indicator is the net enrollment ratio; unfortunately this is more difficult to gather and much less widely reported by developing countries. The net enrollment ratio tells you what percentage of any age cohort actually attends a particular level of school. Still better, the school completion rate tells you what percentage of the age cohort completes a specific level of education, terms of measuring access to education this is a very useful indicator.

You will see that some countries provide some of the enrollment or completion ratios disaggregated by gender (or race, ethnicity, region, etc.). This becomes a useful measure of equity in access to a human capital resource, education, which has excellent predictive value with respect to many indicators of economic and social development.

Global Trends

Education has improved dramatically in most developing countries since the 1960s, as governments have helped to boost enrollment and attendance, build schools, train more and better teachers, develop curricula and supply textbooks and other educational material. The United Nations Educational, Scientific and Cultural Organization (UNESCO) reports that adult literacy has increased from 56 percent of the world population in 1950 to 75 percent in 1990. As can be seen from table 2 (education) in the developed countries, literacy is almost universal, reaching 95 percent in 1990 and 67% in the developing world in 1990. But much remains to be done. Educational opportunities are still not equal, particularly for women, for girls and in rural areas. Countries need more resources to continue to improve the quality of basic education.

Table 3 (education) shows how school enrollments in developing countries, at the primary level, grew from about 90 million in 1950 to 499 million in 1990 and secondary grew from 9 million to about 210 million. During this period, period enrollments continued to rise in all regions except Sub-Saharan Africa, where gross enrollment ratios fell in the 1980's in at least half the countries for which data is available. In fact many countries' positive trends in primary and secondary enrollment were reversed in the 1980s because of problems associated with wars and economic adjustment among others.

While these data in general show favorable trends in the quantitative aspects of education and education inputs, they do not show some of the less favorable trends in the quality of education world-wide, and some of the sharp disparities between and among regions.

Education Exercise Education Trends Case:

Primary Education:

In low income countries fewer than two-thirds of those who enroll in primary school complete the entire cycle. The dropout rate is due in large part to poor learning and

table 2 (education)

m43tb102

Table 2: Literacy Rate (percent)

Period	World	Developing Countries	Developed Countries
1950	56	35	93
1960	61	43	95
1970	66	51	96
1980	67	55	95
1990	75	67	95
2000	80	74	98

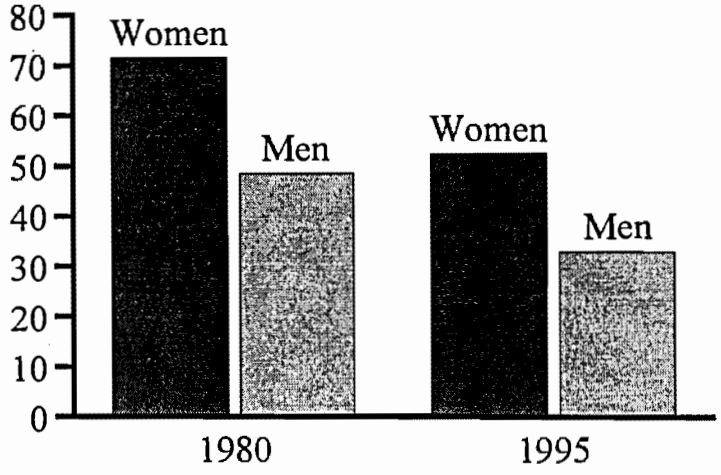
Source: UNESCO

One of the most positive developments of the past four decades is the increase in literacy worldwide. In the developing countries, literacy rose from 35 percent in 1950 to 67 percent in 1990. Much of this is due to dramatic improvements in school enrollments, particularly for children. Elementary level enrollment rates for the developing world rose from 38 percent in 1950 to around 97 percent by 1990.

Particularly for women

m43fig04

Estimated Adult (15+) Illiteracy Rate:
Sub-Saharan Africa (percent)



Source: The World's Women 1995, p. 90

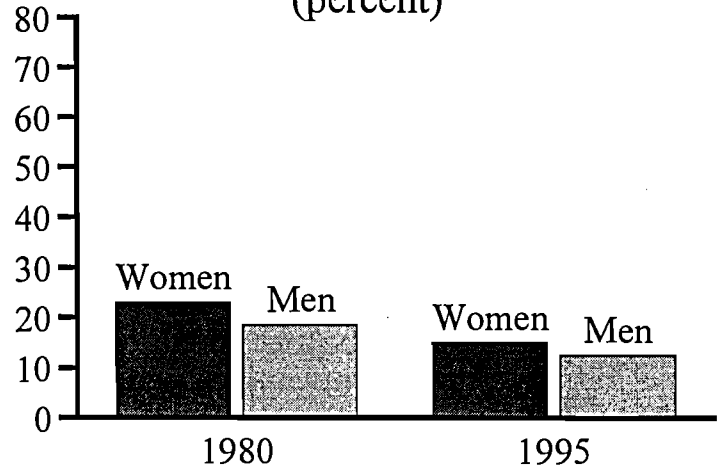
m43partw.rtf

While there have been reduction in illiteracy for both men and women in Sub-Saharan Africa during the fifteen year period represented in the graph, high rates of illiteracy among women still prevail in much of Sub-Saharan Africa. In 1995 almost half of the women in this region were illiterate.

more info in "particularly for women"

m43 fig 05

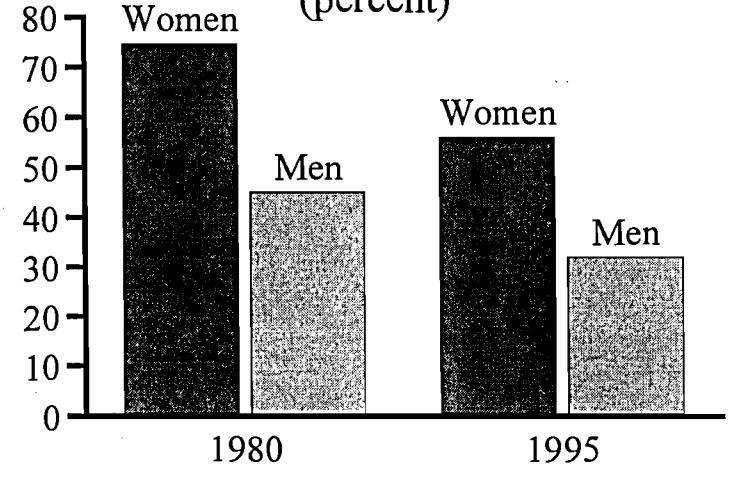
Estimated Adult (15+) Illiteracy Rate:
Latin America and Caribbean
(percent)



Source: The World's Women 1995, p. 90

m43 fig 06

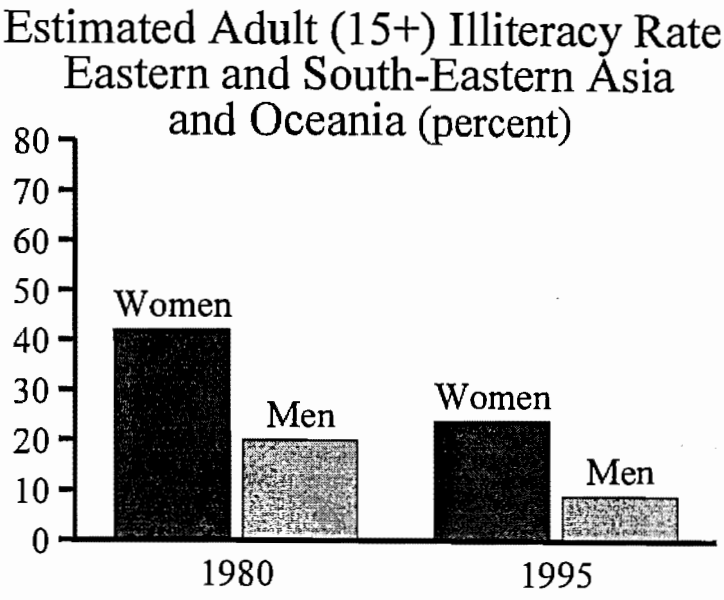
Estimated Adult (15+) Illiteracy Rate:
Northern Africa and Western Asia
(percent)



Source: The World's Women 1995, p. 90

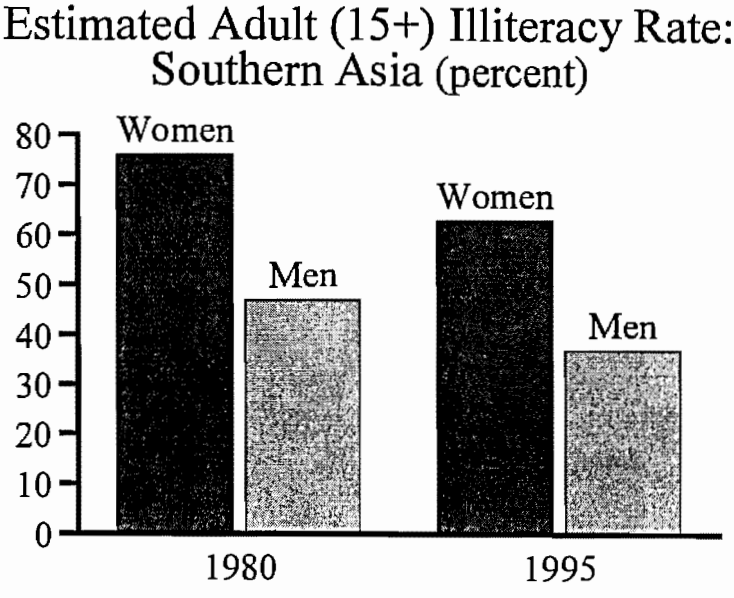
more info in "particularly for women

m43fig07



Source: The World's Women 1995, p. 90

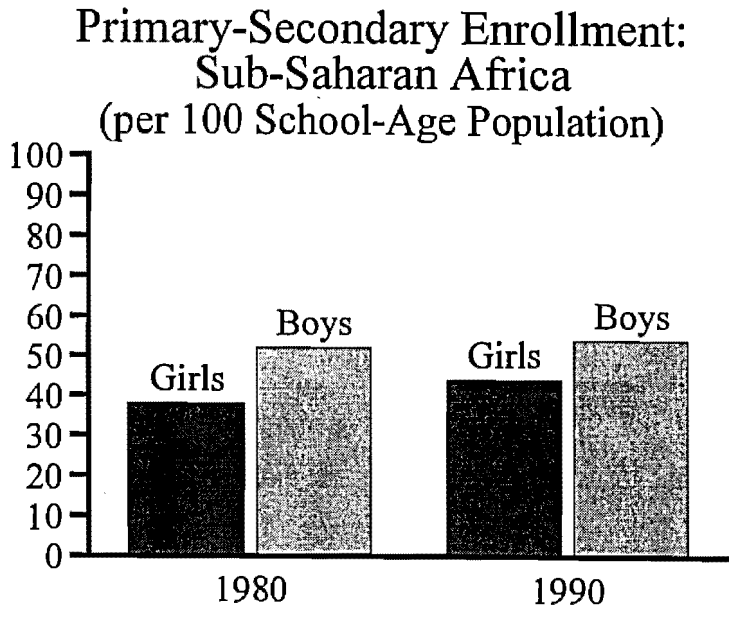
m43fig08



Source: The World's Women 1995, p. 90

for girls

m43fig09



The World's Women 1995, p. 92

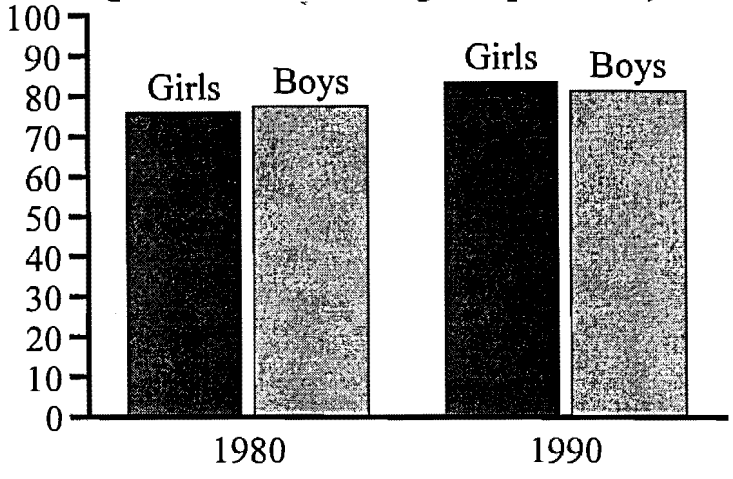
m43girls.rtf

This graph shows the sex ratio of girls to boys in primary and secondary schools in Sub-Saharan Africa. As the graph shows both girls and boys enrollments are less than 50 percent and girls' enrollments lag behind boys.

more info in 'for girls'

m43fig10

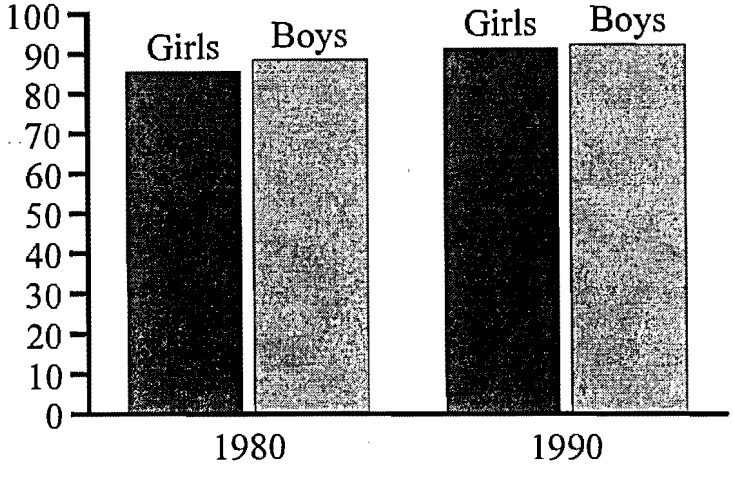
Primary-Secondary Enrollment: Latin America and Caribbean (per 100 School-Age Population)



The World's Women 1995, p. 92

m43fig11

Primary-Secondary Enrollment: Eastern Asia (per 100 School-Age Population)

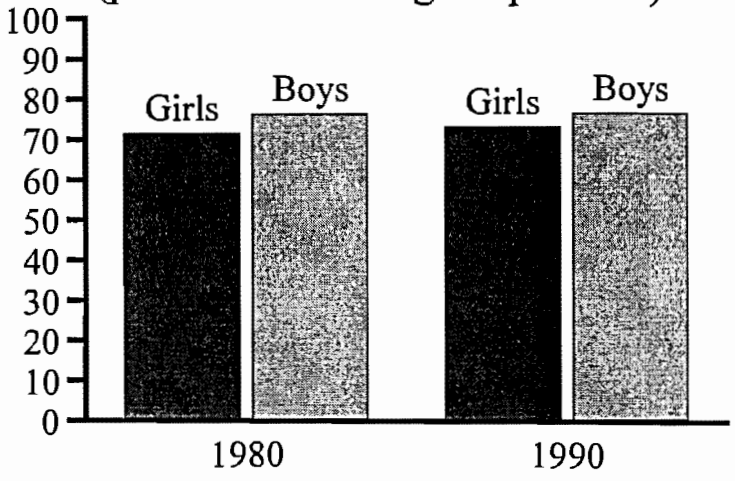


The World's Women 1995, p. 92

more info in "for girls"

m43fig12

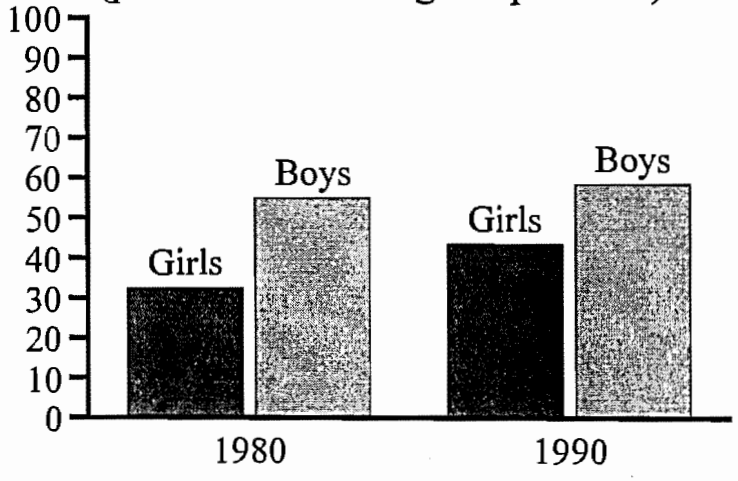
Primary-Secondary Enrollment: South-Eastern Asia
(per 100 School-Age Population)



The World's Women 1995, p. 92

m43fig13

Primary-Secondary Enrollment: Southern Asia
(per 100 School-Age Population)

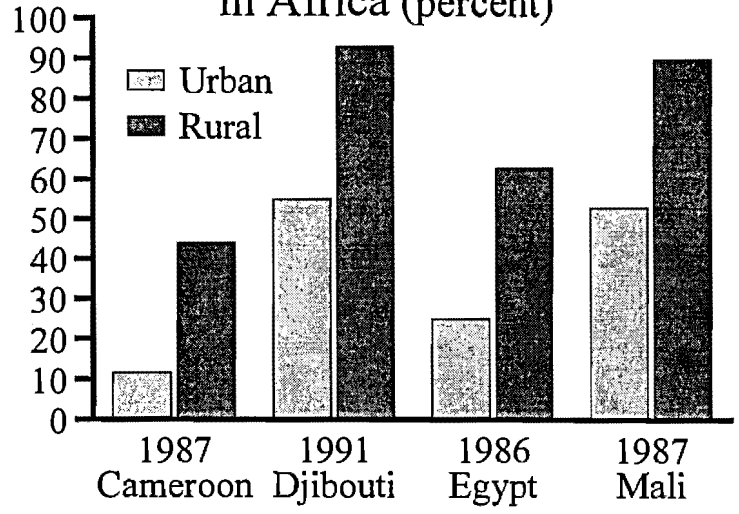


The World's Women 1995, p. 92

in rural areas

m43fig14

Illiteracy Rates amoung Urban and Rural Women Aged 15-24: Selected Countries in Africa (percent)



The World's Women 1995, p. 91

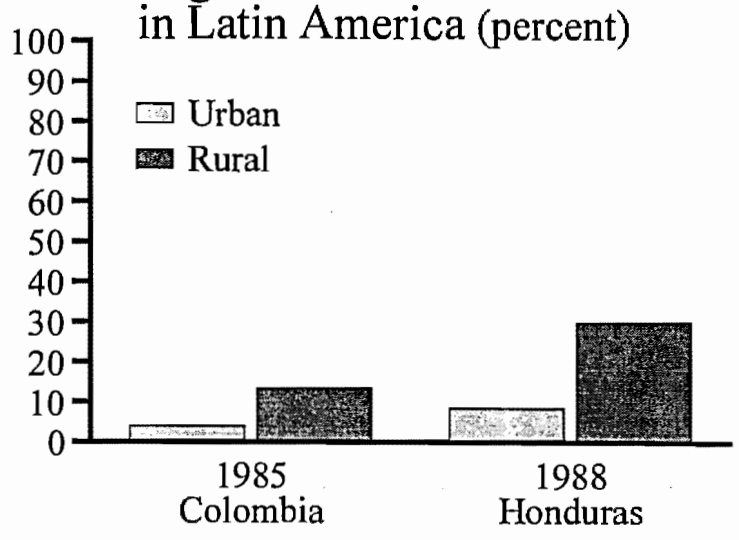
m43rural.rtf

Women in rural areas often at a disadvantage in attaining literacy. As the graph shows, the illiteracy rate for women in these four countries is two to three times that of women in urban areas.

More info in "in rural areas"

m43fig15

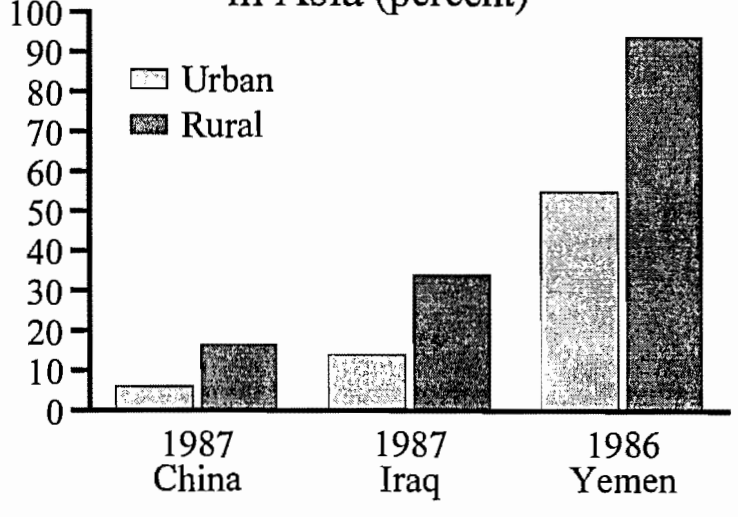
Illiteracy Rates amoung Urban and Rural Women Aged 15-24: Selected Countries in Latin America (percent)



The World's Women 1995, p. 91
Note: Colombia: Ages 12-24

m43fig16

Illiteracy Rates amoung Urban and Rural Women Aged 15-24: Selected Countries in Asia (percent)



The World's Women 1995, p. 91
Note: Yemen: Data refer to the former Yemen Arab only

table 3 (education)

m43tbl03

Table 3: Enrollments in Educational Institutions in Developing Countries, 1950–1990 (millions of students)

Year	Primary	Secondary	Higher	Total
1950	90	9	1	100
1960	199	27	3	229
1970	333	68	6	407
1980	446	159	16	621
1990	499	210	29	738

Source: UNESCO

m43enrol.rtf

In the past four decades, there have been significant gains in both primary and secondary school enrollments in the developing countries.

except Sub-Saharan Africa

m43ssaen.rtf

The enrollment ratio for all levels ages 6-23 fell in Sub-Saharan Africa from 39% in 1980 to 36% in 1990.

reversed in 1980s

m43tb10x

Table 4: Change per 100 in Primary-Secondary Gross Enrollment Ratio, 1980–1990: Sub-Saharan Africa

	Girls	Boys
Central African Rep.	1	-5
Comoros	0	-8
Cote d'Ivoire	-1	-5
Ethiopia	1	-8
Ghana	-2	-4
Guinea	-3	-4
Guinea-Bissau	1	-10
Madagascar	-16	-20
Mali	-2	-4
Mozambique	-8	-15
Nigeria	-11	-17
Somalia	-6	-11
Togo	-4	-13
United Rep. of Tanzania	-14	-21
Zaire	-6	-13

Source: The World's Women, 1995, p. 93

m43rvrsd.rtf

As this table shows, during the 1980s a number of Sub-Saharan Africa countries saw declines in primary and secondary enrollments during this decade. In many countries the reductions were greater for girls than boys.

more info in 'reversed in 1980s)

M43tb105

Table 5: Change per 100 in Primary-Secondary Gross Enrollment Ratio, 1980–1990: Latin America and Caribbean

Country	Girls	Boys
Bolivia	0	-4
Haiti	-4	-9
Jamaica	-5	-4
Nicaragua	-1	-5

Source: The World's Women, 1995, p. 93

M43tb106

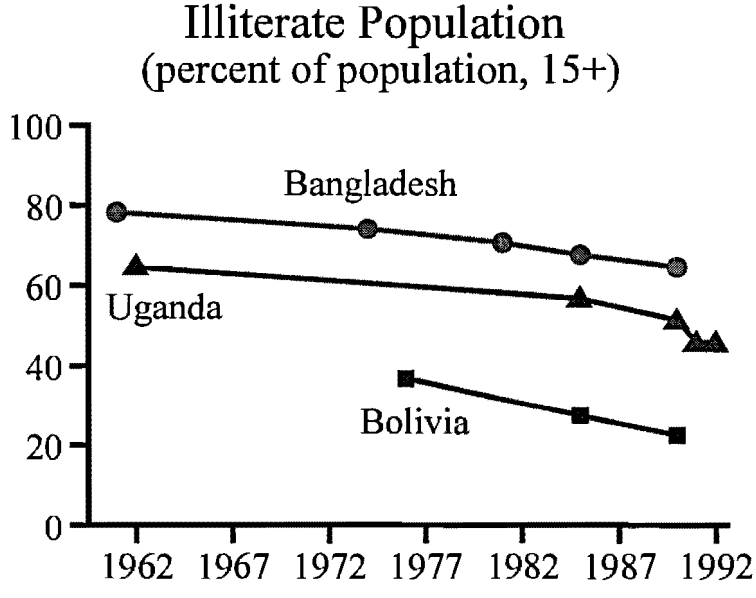
Table 6: Change per 100 in Primary-Secondary Gross Enrollment Ratio, 1980–1990: Asia and Pacific

Country	Girls	Boys
Afghanistan	3	-17
Iraq	-5	-8
Lao People's Dem Rep.	-8	-3
Thailand	-6	-7

Source: The World's Women, 1995, p. 93

Education Trends Case

Graph the following variables over time: 1) illiteracy and 2) gross enrollment ratio, primary, total. Determine the education status of the country you are studying. What trends can be observed?


Illiterate Population
(percent of population, 15+)
100
80
60
40
20
0
Bangladesh
Uganda
Bolivia
1962
1967
1972
1977
1982
1987
1992

Overall Illiteracy

It is useful to start with some observations regarding the definition of literacy. The figures that we have used in the graph refer to the proportion of the population fifteen years and older, that cannot, with understanding, read and write a short and simple statement about their everyday life. At least two other widely accepted definitions of literacy require a higher level of function. It is also important to note that different countries may use different approaches to measure literacy.

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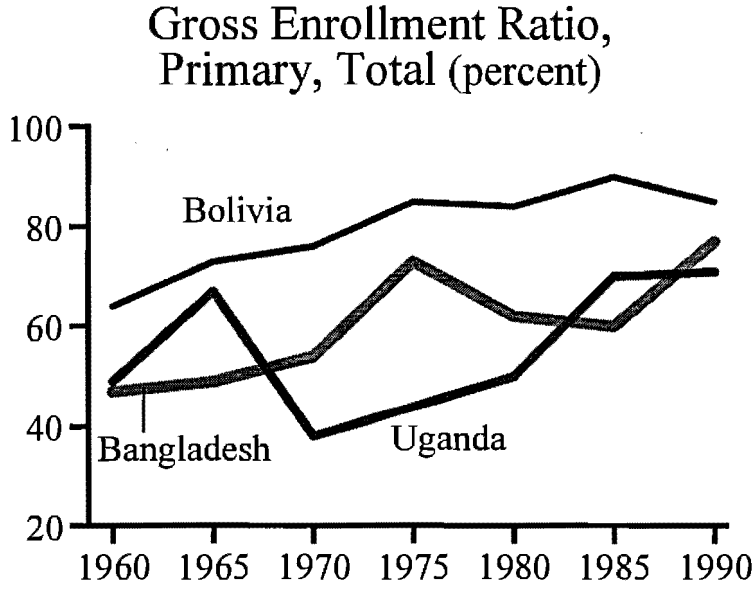
In almost every developing country, illiteracy has been falling in the past several decades. This is true for our sample countries as well. However, in Bangladesh and Uganda illiteracy levels are still relatively very high.

In general, illiteracy is negatively correlated with level of development. Thus, to the extent that GNP per capita is a measurement of the level of development, it is not surprising that Bolivia, which has the highest per capita GNP among the three sample countries, also has the lowest illiteracy rate.

Illiteracy can be viewed as a basic cause of under-development. However, it must not be forgotten that poverty and a lack of resources can hold back educational development, and thus retard a country's efforts to combat illiteracy. Both perspectives are useful for understanding the differences in illiteracy rates that we see in our three sample countries. Thus, Bangladesh and Uganda which have comparatively low per capita incomes, will also have less resources to devote to, say, primary education and adult education to reduce illiteracy.

Nevertheless, if there is one feature that has been almost universal in development, it is the decline in illiteracy over the past two to three decades. From our graphs we can see that even a country such as Uganda which was devastated by civil war, experienced a decline in illiteracy after 1960. Here there is some difficulty in interpreting the data. The primary school enrollment ratio in Uganda declined significantly between 1965 and 1970. This should have had some negative impact on the literacy rate. But the figures we have do not show such an impact for say, the period 1980 to 1985.

As we noted above with regard to the definition of literacy, the "basic" standard of literacy that is represented in the graphs may not be a level that is sufficient to function in a modern urban environment. In that sense, the illiteracy levels in all three countries would be higher than shown here.


Gross Enrollment Ratio,
Primary, Total (percent)
100
80
60
40
20
Bolivia
Bangladesh
Uganda
1960
1965
1970
1975
1980
1985
1990

Gross Enrollment Ratio - Primary: Total

The gross total primary enrollment ratio is defined as the number of children of *all* ages enrolled in primary education as a percentage of the country's child population in the primary age group. This is typically six to eleven years.

For none of our countries is the ratio even close to 100. If a country has universal primary education, the ratio normally exceeds 100 because there would be some children who would repeat grades. Thus, we can infer that all three countries have yet to achieve universal primary education.

It is also useful to note that as the enrollment ratio rises the curve will tend to flatten, partly because it will be more difficult to reach the remaining hard-core of children who are non-attendees, and partly because of the simple statistical fact that the remaining pool of non-attendees is being eliminated.

It is also the case that the overall gross enrollment ratio would camouflage significant gender, urban-rural, ethnic, and social class variations in enrollment. Such differences must be probed in detail to formulate effective policies to reach every child and to retain them until their education is completed.

repetition. Repetition rates in low-income countries tend to be two to five times higher than those in upper middle-and high-income countries.

Poor primary schools compromise the entire system for human capital development, leading to an insufficient number of educated managers, workers and parents who can contribute to development. The most visible signs of ineffective primary education are the low primary completion rates and low student achievement. In many countries problems of access result in inadequate enrollment, particularly for girls. Even children who complete primary school, have not learned the core skills specified in the national curriculum.

While most middle-income countries have achieved universal primary education, fewer than 75 percent of school-age children in low-income countries are enrolled in primary school. The percentage drops to 54 percent when India and China are excluded. In half of the low-income countries, fewer than half of school-age children are enrolled, and 68 percent of all developing countries have not achieved their goal of universal primary education. The majority of those not in school are girls, rural children, and children of the poor.

In summary, some governments have stressed quantity over quality in education. For many countries, expenditures on textbooks and other materials are less each year. In low income countries teaching materials account for less than 3 percent of recurrent expenditures in education. Given the recent and current budget constraints of most developing countries, the long-term prospects for increasing quantity and quality of educational systems are not favorable.

Education Exercise Female Education Trends Case:

Educational trends in Sub-Saharan Africa

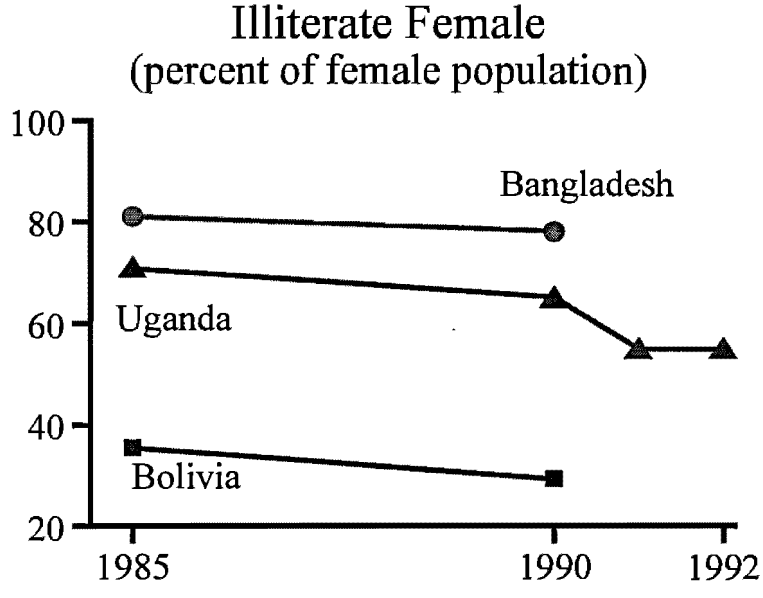
Sub-Saharan Africa made remarkable progress in education from 1960 through the mid-1980s, given its low starting point after emerging from colonialism. Over a 30 plus year period, gross enrollments increased five-fold, and in the period between 1970 and 1980, the enrollment rate in Africa was double that of Asia and triple that of Latin America.

Primary school enrollment increased the most, from 11.9 million in 1960 to 51.3 million in 1983, reaching an enrollment ratio of 75 percent.

In relative terms, enrollments increased most at the tertiary level, especially during the 1960's when newly-independent governments were trying to overcome trained manpower shortages. The increase was particularly dramatic in French-speaking Africa.

There was a dramatic increase in the number of schools and teachers trained between 1960 and 1983. The number of primary schools doubled and the number of primary school teachers quadrupled. The average primary school size doubled from 162 to 317,

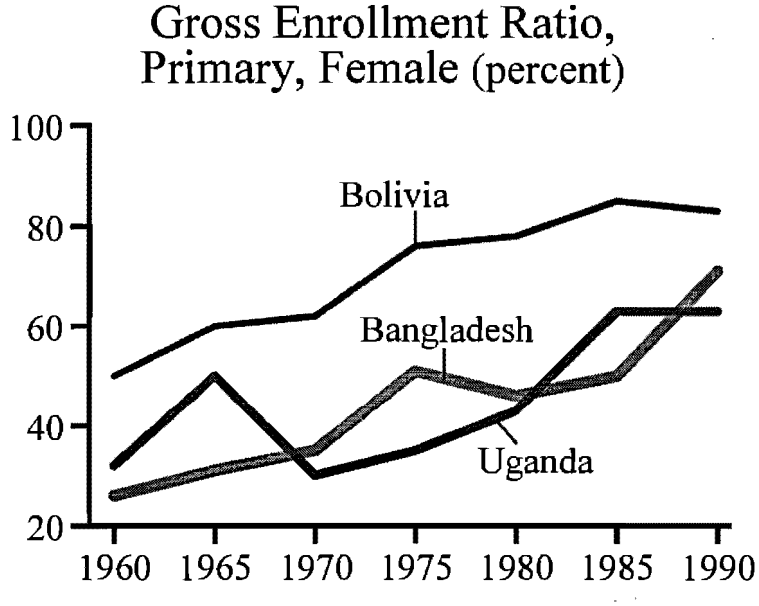
Graph the variables, illiterate females as % of female pop 15+ and gross enrollment ratio, primary, female. Are these variables moving in the correct direction for your country ?


Illiterate Female
(percent of female population)
100
80
60
40
20
Bangladesh
Uganda
Bolivia
1985
1990
1992

Female Illiteracy

The overall illiteracy rate may mask important differences within any given population. Typically, in many developing countries female illiteracy is higher than male illiteracy. This is true for all three sample countries. As a result, special programs to increase female primary school enrollment have been launched in a large number of developing countries.

It is also the case that rural populations are usually less literate than their urban counterparts. In some countries certain ethnic groups, for example, the Hill Tribes in Bangladesh and the native population of Bolivia - who also frequently happen to be predominantly rural, also have higher illiteracy rates.


Gross Enrollment Ratio,
Primary, Female (percent)
100
80
60
40
20
Bolivia
Bangladesh
Uganda
1960
1965
1970
1975
1980
1985
1990

Gross Enrollment Ratio - Primary, Female

Historically, female enrollment in all levels of schooling has been lower than male. This is true of our three sample countries also. A complex mix of the social, cultural and economic factors that were briefly discussed in relation to the graph on literacy accounts for the discrimination against females.

However, it is also important to note that the gap has been closing over the last three decades. This trend reflects an increasing commitment to gender equity, and a realization of the value of female education. Research has demonstrated that there are enormous economic and social payoffs in female education. The positive impact on family planning and child health are two of the most important social benefits. Improved female productivity in the work place is a major economic benefit. This has led policymakers and donors to place greater emphasis on improving female education.

can enrollment ratio

m43t6l10

School Enrollments and Enrollment Ratios in Sub-Saharan Africa in 1960 and 1983

Level	1960	1983
Primary Education		
Enrollment (thousands)	11,900	51,300
Gross Enrollment Ratio (%)	36	75
Secondary Education		
Enrollment (thousands)	800	11,100
Gross Enrollment Ratio (%)	3	20
Higher Education		
Enrollment (thousands)	21	437
Gross Enrollment Ratio (%)	0.2	1.4
Total Enrollments (thousands)	12,700	62,900

m43enrto.rtf

Enrollment ratios are arrived at by dividing the enrollment number by the total school-age population (male and female). While enrollment ratio is an accurate measure of a school system's capacity relative to the school-age population, the ratio tends to be overstated when students outside the official age range are included.

but the pupil teacher-ratio of 39 to 1 remained about the same. Teachers at the secondary level increased eight-fold. At the tertiary level, the number of institutions of higher learning tripled to 80. Adult literacy increased in this region from 27 percent 1970 to 54 percent in 1992.

There are, however, some disturbing recent trends. Confronted with budget constraints, many African countries are not expanding their school systems fast enough to keep up with population growth, and in a few countries enrollment ratios, not to mention the quality of education, are declining. Of the twenty-six countries where the primary-secondary gross enrollment ratio declined in the 1980s, fifteen are in Sub-Saharan Africa.

Education and the East Asian success stories

Recent literature confirms that the growth and transformation of the educational system in the rapidly growing East Asian economies has been dramatic and has had a significant impact on development in these countries.

Because expansion of the education system was expensive, great care was taken in the sequencing and timing in the development of a cost effective educational system. In each of the East Asian NICs, the earliest emphasis was on expanding primary enrollment. The share of public expenditures on basic education has been higher in east Asia than other developing regions. The emphasis in East Asia was on universal, high-quality primary education. This emphasis paid off in terms of both equity and growth. East Asian countries eliminated the gender gap faster than other developing countries, and as is well known, these economies have also had some of the fastest growth rates of any developing country regions.

This was followed with timed expansion of the secondary and then the tertiary system. The cost effectiveness of system expansion was promoted by several means. Promotion from one level in the system to the next depended on only the best students successfully passing a rigorous nation wide examination. The number of student spaces created in the tertiary system were targeted to employment needs. Finally, because unit costs in public universities, particularly in the sciences were high, the government limited expansion of this system while permitting the development of a private system of higher education. This limited the financial burden on the national budget while shifting some of the costs to individuals who reaped the gains from their own investments in education.

A wide range of empirical evidence suggests that the social benefits of these kinds of investments in education are quite large. Aggregate growth studies suggest that investments in education account for between 3% and 25% of the overall economic growth rate. In Taiwan, they accounted for between 5.2% and 6.5% of the overall growth rate between 1963 and 1972. At least one study suggests that no country since 1850 has achieved self sustaining growth prior to the achievement of universal primary education.

East Asian economies

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The success of development in East Asia is well documented. This region has reduced poverty, generated growth and raised living standards faster than any other developing country region. A significant factor in this success story was universal access to primary and secondary education for both girls and boys.

expenditures on basic education

m43buded

Allocation of Education Budgets, 1985

Economy	Public Exp. on Ed. as a % of GNP	Public Exp. on Basic Ed. Exp. as a % of GNP	% of Ed. Budget Allocated to Higher Education	% of Ed. Budget allocated to Basic Education
Hong Kong	2.8	1.9	25.1	69.3
Indonesia	2.3	2.0	9.0	89.0
Korea, Rep. of	3.0	2.5	10.3	83.9
Malayasia	7.9	5.9	14.6	74.9
Singapore	5.0	3.2	30.7	64.6
Thailand	3.2	2.6	12.0	81.3
Venezula	4.3	1.3	43.4	31.0

Source: UNDP, UNESCO

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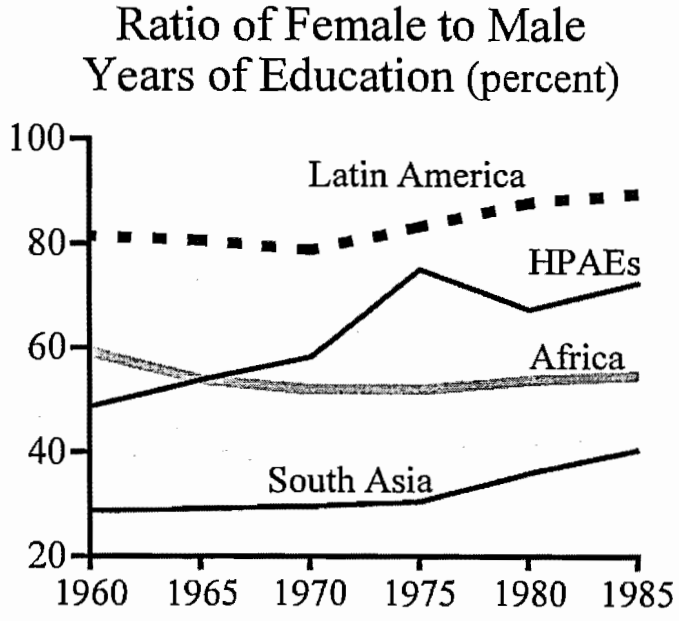
As the table shows the share of public expenditures in basic education has been higher in East Asia than in other countries.

eliminated the gender gap

m43fig17



eliminated the gender gap

As the graph shows, the High Performing Asian Economies, or HPAEs, have significantly reduced the gender gap in education in the last three decades. Latin American countries have the smallest gap and South Asia the largest gap.

fastest growth

m43 fb108

Real GDP per Capita Growth Rates
(% per annum)

	1965–80	1980–90	1995
East Asia	5.1	6.2	8.0
Sub-Saharan Africa	1.5	-1.0	1.1
Latin America and Caribbean	3.5	-0.5	-0.7

Source: WDR 1996

m43fstst.rtf

As the table shows, real GDP per capita growth rates in East Asia are significantly higher than the other two regions and have doubled in the period from 1980-90 to 1995.

Estimates of the social rates of return to education are very high. In fact, the social rate of return on investments in primary education are among the highest any country can make. In Taiwan, the social rate of return to investments in primary schooling was 27% in 1972. Other studies have documented that even low levels of education for farmers (four years) can significantly increase farmers' productivity by making them more receptive to new technology and by making them understand better the proper way to use new technology. A basic education for women is believed to help contribute towards lower fertility rates by making them more receptive to the use of contraceptives. Women's education has also been found to exert a positive influence on child health, child nutritional status, and child mortality. Finally, a large number of studies have demonstrated that access to and the distribution of education across a population has a large impact on the distribution of income across that population. But none of these findings should be surprising. We have known for some time that human resources, people and their education and health, are the ultimate resource that determines the pace and pattern of growth.

Only people can manage an economy.
Only people make scientific discoveries.
Only other people turn those discoveries into productive innovations.
Unless those people are literate, well educated, and healthy, development will not occur. Unless all of them are also literate, well educated, and healthy, development will not be broad based and income growth will not be liberating.

What are the major linkages between education status and the other elements of sustainable human development?

There can be little doubt of a positive relationship between education and development when development is as broadly defined as the sustainable human concept as used in the DSP. However, most research on the contributions of education to development have focused more narrowly on purely economic measurements. Fortunately, even these narrow studies, which fail generally to capture equity-enhancing and quality-of-life benefits, have consistently found impressively high rates of return to investments in education.

Productivity

There have also been many studies which have demonstrated, at the micro-level, that increased and improved education can be demonstrated to have positive impacts on farm productivity, family enterprise creation and profitability, and wage levels and productivity of employees.

Growth

At a more macro-level, the impact of education on aggregate output has been more difficult to isolate and demonstrate, but a recently completed World Bank study of the determinant of real GDP in 58 developing countries from 1960-85 reports a statistically

significant relationship between the average years of education of the labor force with the GDP level in a country. Across all countries, an increase in the average years of education of one year is associated with a 3 percent rise in the GDP level. Unfortunately the regional variation found in this study is considerable.

The effect on the level of real GDP of one additional year of average education varies from a negative value for sub-Saharan Africa, to well over 3 percent for East Asia. What could possibly explain this variance? Clearly, the determinants of growth are numerous and complex. Among the factors which may lead to the unexpected result for Sub-Saharan Africa are: unfavorable internal and external conditions which limit people from fully benefiting from their greater skills, a shortage of complementary inputs, and inadequate institutional capacity.

Another implication of the study is that there appears to be a threshold value below which the returns to education are negligible, and above which the returns are increasingly higher. Thus, it would seem the appropriate response to the results shown in Figure Two would not be to assume a persistent and irreversible effect of education on aggregate output in Sub-Saharan Africa, but rather to anticipate a great return to investments only when those investments are great enough to push education levels over the critical threshold level. In fact the study suggests that the higher the initial level of education, the greater the impact of additional education on aggregate output.

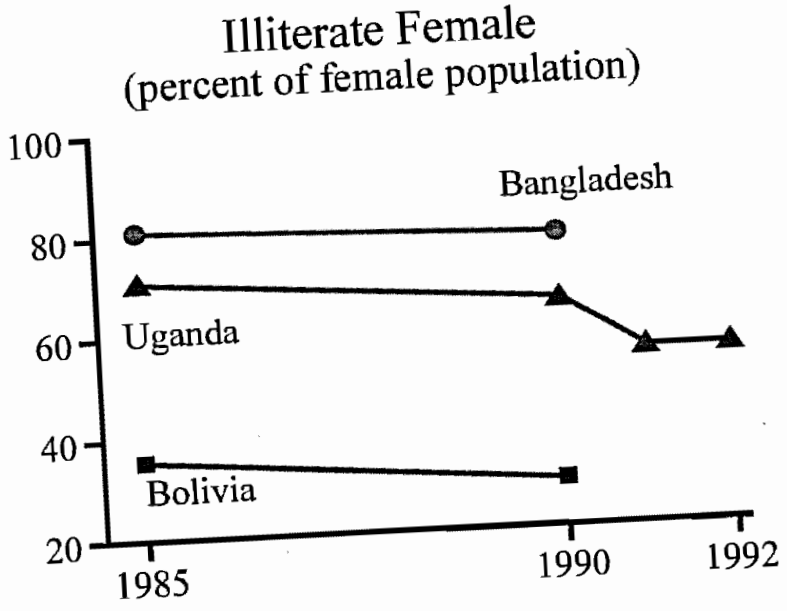
The thinking on how education can contribute to development has changed substantially over the last several decades. In early development thinking and strategies, education was focused on filling trained manpower needs. This fit in well with the "gap filling" strategies of the 1950's and 1960's.

More recently, while less well- and widely-documented, education like health has been found to impact positively on many other aspects of broad-based sustainable development, more paid employment, higher earnings, greater agricultural productivity, better health and nutritional status, increased equity in general and increased gender equity in particular, etc. For example, it has been found that one year of a mother's education has been associated with a nine percent decline in under age 5 mortality. The impact of education on fertility is more mixed. Studies indicate that a few extra years of schooling may actually lead to an increase in fertility, but education beyond this has a strong influence on decreasing fertility. Increased education of parents has a positive effect on child nutrition, which in turn increases children's learning capacities. The more education parents have, the more likely they are to send their children to school. More recently, there have been studies that also show positive correlations between education and increased participation in civil society, political processes and environmental awareness and conservation.

Education Case

Review the graphs for overall illiteracy and female illiteracy in Bolivia, Bangladesh and Uganda. What is the gap between male and female literacy? What explains the gap?

Review the level and trend of the primary enrollment ratio for the three sample countries, paying special attention to the female ratio. What accounts for the changes that have occurred?


Illiterate Female
(percent of female population)
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Bolivia
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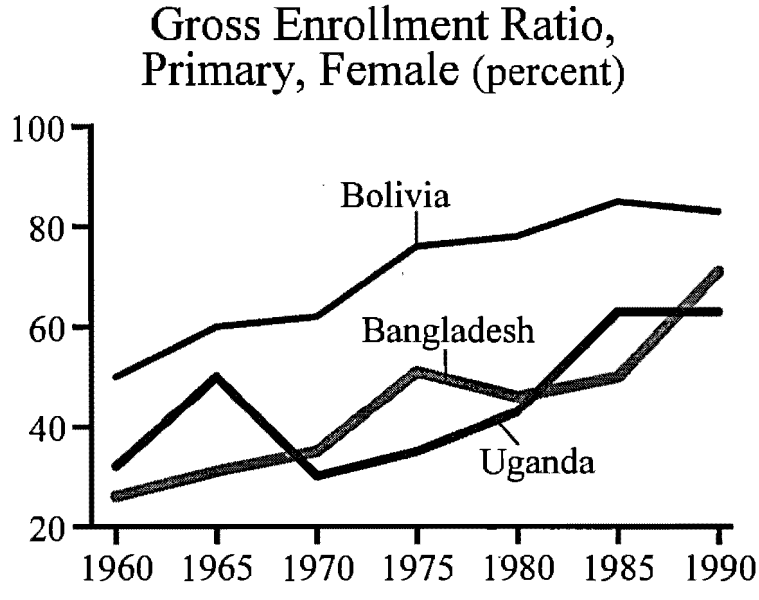
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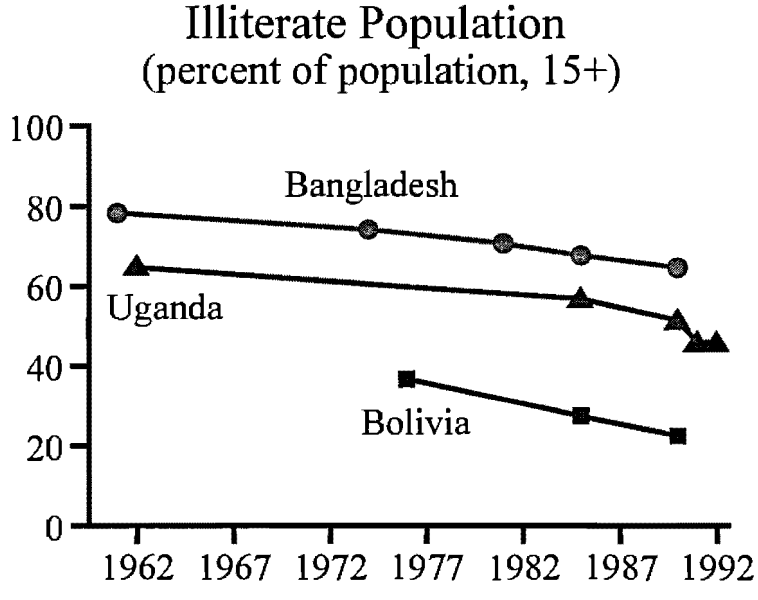
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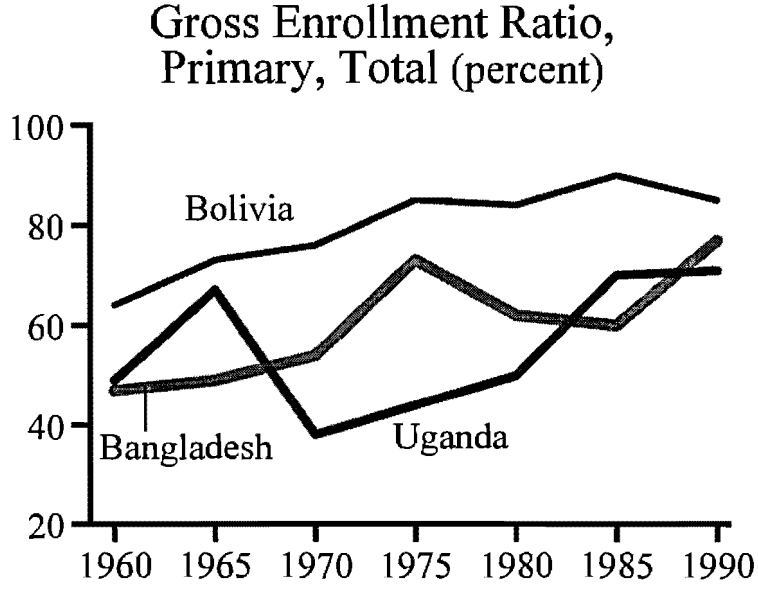
Nevertheless, if there is one feature that has been almost universal in development, it is the decline in illiteracy over the past two to three decades. From our graphs we can see that even a country such as Uganda which was devastated by civil war, experienced a decline in illiteracy after 1960. Here there is some difficulty in interpreting the data. The primary school enrollment ratio in Uganda declined significantly between 1965 and 1970. This should have had some negative impact on the literacy rate. But the figures we have do not show such an impact for say, the period 1980 to 1985.

As we noted above with regard to the definition of literacy, the "basic" standard of literacy that is represented in the graphs may not be a level that is sufficient to function in a modern urban environment. In that sense, the illiteracy levels in all three countries would be higher than shown here.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It is also the case that the overall gross enrollment ratio would camouflage significant gender, urban-rural, ethnic, and social class variations in enrollment. Such differences must be probed in detail to formulate effective policies to reach every child and to retain them until their education is completed.

Experts Response

Answer for Overall Illiteracy and Female Illiteracy

Of our three countries Bangladesh is the poorest and illiteracy the highest. It is true that in terms of per capita GNP in the mid 1990s Uganda is behind Bangladesh. However in the mid 1970s this was not the case. In fact before the political crisis and the civil war virtually destroyed the country in the 1980s, Uganda was one of the most promising countries in Sub-Saharan Africa, and was far ahead of most low income countries. Since literacy
rates do not change quickly, and any retardation in primary education gets reflected in literacy rates only with a time lag of about ten years, the 1980s crisis has not radically altered Uganda's position relative to that of Bangladesh.

Bolivia has the lowest illiteracy rate among our three sample countries. This is in accordance with our expectations since it also has the highest per capita income.

As we noted above in regard to the definition of literacy, the "basic" literacy that is used for the graphs may not be sufficient to function in a modern urban environment. In that sense the illiteracy levels in all three countries would be higher than what is shown here.

In almost every developing country illiteracy has been falling in the past several decades. This is true for our sample countries also. However, it is seen that especially for Bangladesh and Uganda the actual rates that still prevail are relatively very high.

The data in the UNDP *Human Development Reports* show that in 1970 for every 100 males adults who were literate in Bolivia only 68 females were literate. For Uganda the rate was 68 and for Bangladesh only 33. This gap still persists but has narrowed considerably in the last twenty years. By 1993 it had gone up to 83 for Bolivia, 66 for Uganda, and 52 for Bangladesh.

The existence of this gap is explained by several socio-economic factors. In many traditional societies there is a clear male bias. Thus if the parents have to make a choice, male children are given preference in education. In certain Islamic societies less emphasis is placed on female education. Government policy itself may have a male bias. For example, the curriculum may favor what are considered to be "male" subjects such as vocational training in engineering trades. The teachers may also impart, deliberately or otherwise, a bias in favor of male students.

Answer for level and trend of the primary enrollment ratio for the three sample countries, paying special attention to the female ratio.

Our three sample countries have gross enrollment ratios between about 70 percent and 85 percent. In 1990 Bolivia reported a primary repeater rate (as a percentage of primary enrollment) of 3 percent, and Bangladesh 7 percent (*HDR 1994*). In 1988 Uganda reported a repeater rate of 14 percent (*HDR 1992*). Thus the net enrollment ratios are still lower than the gross ratios, especially for Uganda. Moreover, the completion rates for the three countries for the same years were 44 percent, 47 percent, and 46 percent respectively.

The implications of the above figures are quite grave. Broadly speaking what this means is that not more than about 30 percent to 40 percent of the 5 to 11 age group in these three countries complete at least a primary education.

In the long run all three countries show rising trends in gross enrollment ratios. However, it is notable that Uganda (1965-70), and Bangladesh (1975-85) suffered significant

reversals in enrollment rates. Even in the case of Bolivia there was a mild setback in the late 1970s. These are probably related to economic recessions, government funding cuts, and political instability.

With regard to the gap in enrollment between males and females, two features stand out. First, the female enrollment ratio is lower than the male enrollment ratio in all three countries. Second, the gap between the genders has been closing. For example, in 1960 the female primary enrollment as a percentage of males was 39 percent in Bangladesh and 64 percent in Bolivia. In 1986-88 the percentages were 84 percent and 88 percent respectively.

Description and Learning Objectives
Gender

As a group, females in almost every country, but especially in LDCs. are relatively disadvantaged when compared with males. They suffer from gender-based discrimination in most areas of human activity.

In this section, we will examine what is known about women's lives in the developing countries, especially in terms of maternal mortality and malnutrition. We will look at the issue of gender equity and discuss methods and means of measuring status of women and gender equity. Next we will discuss the types of changes that must occur to lead to increased equity. Finally, we discuss the linkages between gender equity and population, nutrition and health.

At the end of this section, you should:

1. Be familiar with the variables and methods for measuring the status of women in a developing country, and determine whether there has been any visible improvement in their status since the early 1970s?

2. Have a clear understanding of both the importance of increasing equity for women and how this goal relates to the other components of sustainable human development.

3. Understand the social and cultural factors that help explain observed disparities in the status of women in the different countries?

4. Have a good grasp of the linkages between levels of poverty and equity and the status of women; also between economic prosperity and the status of women, or the degree and duration of democracy and freedom in a country and the status of women?

3. A clear idea of population trends globally and regionally. Perhaps most importantly, you should be able to identify and discuss the primary factors that have been identified as leading to reductions in fertility.

4. A good grasp of the linkages between fertility and several economic and non-economic variables within the SHD framework.

section Intro

Gender Equity

The process of development cannot claim to be sustainable and equitable without closing major gaps of inequality between sexes. How do we measure gender equity and how do we go about improving the lives of girls and women in the developing world?

Women's Rights

Overview

Gender and Development

The World's
Girls and Women

The Role of Women

ÿÿÈ Each the goal of sustainable human development, the perspectives, organizations, and activities of women as well as men must be fully engaged.

But presently, "no country in the world treats its women as well as it treats its men."

UNDP, 1993

Obstacles to Empowering Women

- High rates of maternal mortality
- Chronic malnutrition
- Violence
- Child labor
- Women's work is undervalued

Measuring Gender Equity

- Ratio of Women to Men in a Population
- Mortality Rates
- Literacy Rates
- GDI--Gender Related Development Index
- GEM--Gender Empowerment Measure

Achieving Gender Equity

There are strong linkages between education, health and nutrition and

Improvements in well-being and growth and productivity.

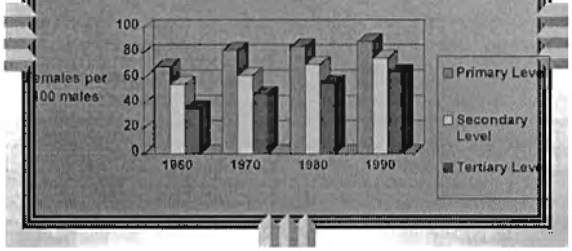
There has been progress in increasing school enrollment rates for both boys and girls...

Education

While there has been progress in educational enrollment rates,

Growth in female enrollment rates lags behind that of males at all levels

School Enrollment Ratios In Developing Countries



Female Education

There are strong linkages between female education lower fertility

Strong linkages between female education and improved health for women and children

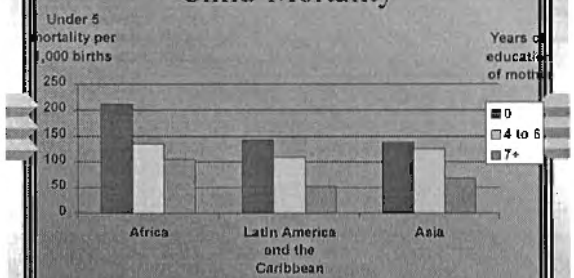
An additional year of schooling can reduce the fertility rate, on average between 5 and 10 percent. (Summers, 1994)

Total Fertility Rate

Child mortality

In every region of the world, child mortality levels decrease as women's education increases.

Child Mortality



Empowering Women Key Policies

Education

Income

Credit

Women's organizations

Legal Reform

Reproductive Rights

Investing in Girls

explore Health

The most documented and by now traditional linkages are those regarding health, nutrition, and population. For twenty years, studies have demonstrated that increased income and education for women results in improved health and nutritional status for themselves, their children, and other members of their families. Studies have also shown that increased educational attainment, especially at the secondary level and beyond, and increased income opportunities both result rather directly in lower fertility. Women with more education and income desire to have fewer children, and have the increased means and status to translate those desires into actually lowered lifetime fertility.

explore econ growth

Women's increased education and income (a portion of which becomes available for reinvestment in productive activities) has also been shown to lead directly to increased productivity in women's economic activities. This has been shown to be true for women's farming and livestock management, home-based microenterprises, and small business ventures. Case studies in a variety of cultures have shown that in many circumstances women have a relatively high propensity to save and invest. This increases their productivity at the same time as it makes them excellent risks for production credit programs, as the Grameen Bank (Bangladesh) and other similar programs have discovered.

explorer - civil Society

As interest has grown in the civil society and democratization aspects of sustainable human development, women's role in furthering these goals has come under study. First, women are much more likely to participate in the organizational life of civil society and democratic politics if they have enough education to achieve literacy and enough income security to escape the day-to-day desperation of the lowest levels of poverty. Second, suggestive case studies in Latin America, South Asia, and the Middle East show that women are more likely than men to engage in political activity with modest and pragmatic goals, and less likely to accept totalitarian goals of revolutionary or fundamentalist societal transformation. To the extent this is true in a particular society and culture, then the greater the participation of women in political life, the more democratic pluralism is furthered in its political culture. Finally, recent studies show that there is a positive relationship between civil liberties and female education. Specifically, the more civil liberties women have, the higher the values of female educational attainment.

explore - environ.

Environmental sustainability may also be enhanced by the empowerment of women. In many cultures, women are charged with the day-to-day management of familial and communal natural resources. In many cultures, they have shown a greater propensity to prefer a more risk-averse and environmentally sustainable pattern of agriculture than men in the same culture, who are more easily attracted to short-term profit-maximizing commercial monocultivation. In many cultures, they more than men are conscious and supportive of preserving environmental assets and amenities for their children's generation. For whatever reason, all over the developing world where there are grassroots organizations with environmental and sustainable development goals, women play a relatively more important leadership and membership role that they do in many other political movements. For instance, the term "tree-huggers" as a label for environmental activists, came directly from a 1970s movement among women in northern India, who prevented commercial loggers from destroying village woodlots by hugging the trees so the chain saws could not get at them. For all these reasons, although the literature is still more speculative than empirically conclusive, it does suggest that women's empowerment will also further environmental sustainability goals.

Text

Gender

A series of United Nation Conferences from the Population Conference in Mexico (1975) to Women's Conference in Beijing (1995), as well as the initiatives of International donor agencies have alerted the world community to the crucial significance of women's role in the development process. As the UNDP report (1993) points out "No country in the world treats its women as well as it treats its men," however, certain key indicators illustrate that the gap in women's status changes in relation to the developmental level of the country and that, in general, women fare particularly badly in developing countries.

Health, Nutrition and Education

The essential role that women play in the development process is now generally accepted. However, significant obstacles remain to empowering women and improving their lives in the developing world. For example, in almost all developing countries, maternal mortality remains one of the five leading causes of death among adult women, and these deaths leave behind over one million motherless children each year. Many of these deaths are attributable to abortion. Abortion is still illegal or highly restricted in most developing countries, yet despite these restrictions, it remains one of most widely used methods of fertility reduction. It is estimated that one in three maternal deaths are from abortions.

Increasingly, we are also aware of the impact of AIDS as well as genital mutilation on women in the developing countries.

A second serious problem is chronic malnutrition. Chronic malnutrition often starts very early in women's lives. Undernourished and anemic mothers frequently bear babies with low birth weights. This is compounded for female infants in some countries where, because of cultural preferences for male children, girls tend to be less well nourished and receive poorer health care than boys. In fact, in 13 countries, more girls than boys die at a young age which is a marked departure from that which is observed in most countries. We are only beginning to understand the nature of children's lives in developing world, particularly related to children's education and also their work.

Moreover, while recent Demographic and Health Surveys from the developing world indicate that child marriage is declining. In some countries a large percentage of young girls are still married off before their 15th birthday. It is not uncommon for these young girls to suffer great physical and emotional trauma. Childbearing at a young age can cause life long health problems. Finally the impact of violence on girls and women's health has recently documented.

Women are the primary consumers and managers of drinking water and fuel wood resources worldwide. Indoor pollution from biomass fuels is one of the worst pollution problems facing developing countries, in terms of its human health impact. Women and children are the primary victims. Women are the primary food crop farmers in Africa and primary farmers of usually secondary food crops or poultry and livestock in every other

maternal mortality remains

Estimated Levels in Maternal Mortality 1983 & 1988 (per 100,000 live births)

m44tbl10.bmp

	1983	1988
Developed Regions	30	26
Sub-Saharan Africa	670	690
Central America	240	160
South America	290	220
Eastern Asia	55	120
Southern Asia	650	570

Source: World Health Organization, " Maternal Mortality: ratios and rates, a tabulation of available information'

m44matnl.rtf

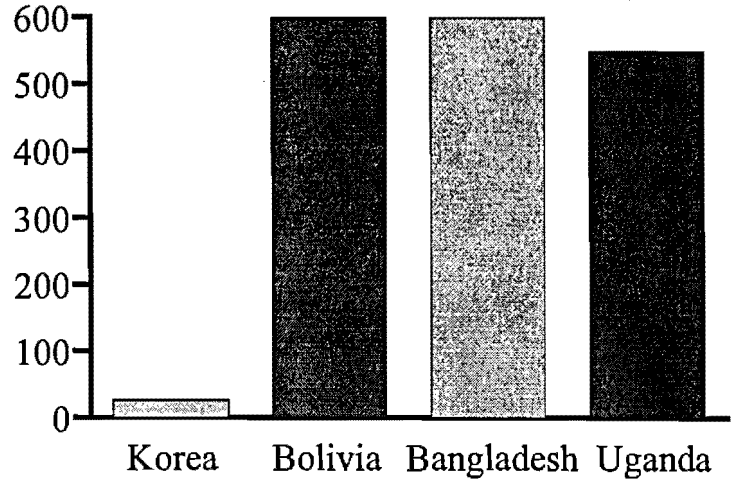
The maternal mortality ratio is the number of maternal deaths divided by the number of live births in a given year. The ratio is expressed as the number of maternal deaths per 100,000 live births. Maternal mortality is highest in sub-Saharan Africa at about 700 maternal deaths per 100,000 live births in 1988. This table shows that maternal mortality rates vary in Asia from the low in Eastern Asia of 120 to 570 in South Asia, where 1 in every 35 women die of pregnancy complications. In Latin America, the rates are lower compared to other developing countries but are high in rural areas and in specific countries such as Bolivia.

Although Africa's maternal mortality ratio is the highest in the world, more maternal deaths occur in Asia, because of the larger population living in Asia. In 1990, 60 percent of maternal deaths occurred in Asia, while Africa accounted for 34 percent and, Latin America for 5 percent of total maternal deaths. Maternal mortality ratio is nearly 40 times greater in less developed countries than in developed countries. The North-South gap for other mortality indicators is far less; for instance, infant mortality rate is about 7 times greater in less developed countries.

more info for "Maternal Motality remains"

Maternal Mortality Rate: 1980–92
(per 100,000 live births)

f075mort



Source: UNDP, Human Development Report 1995, pg 168-169

m44fig75.rtf

This table shows that maternal mortality rates remain very high for Bolivia Bangladesh and Uganda but are very low for Korea, a country that has experienced significant economic growth and development during the last twenty years.

undernourished and anemic

m44tb1/4.bmp

Estimated Current Prevalence of Anaemia
Among Women
(% with Haemoglobin levels below norm)

Region	Pregnant	Non-Pregnant
Developed Regions	18	12
Sub-Saharan Africa	51	42
Central America	42	39
South America	37	25
Caribbean	52	36
Eastern Asia	37	33
South-eastern Asia	63	49
Southern Asia	75	58

Source: WHO, "The Prevalence of Anaemia in Women: tabulation of available information"

m44anem.rtf

Anemia, or iron deficiency , is a common condition among women of reproductive age in the developing world. 35 percent of the world's women suffer from anemia during their reproductive years and 50 percent during pregnancy. Anemia reduces productivity, the capacity to learn, and reduces the chance or delivering a healthy baby. The highest rates of anemia in the world are found in South Asian women, 58 percent overall and 75 percent during pregnancy.

die at a young age

m44tbl02

More girls than boys die at a young age
(annual deaths per thousand children aged 1-4, 1984–90)

Country	Girls	Boys	Girls' Deaths as % of Boys'
Singapore	0.5	0.4	125
Egypt	6.6	5.6	118
Grenada	1.6	1.4	114
Pakistan	9.6	8.6	112
Bangladesh	15.7	14.2	111
Suriname	2.2	2.0	110
Jamaica	1.5	1.4	107
Guatlemala	11.3	10.6	107
Honduras	2.9	2.8	104
Syria	2.9	2.8	104

HDR 1995, P.35

m44tbl02.rtf

More girls than boys die at a young age

In the countries shown in the table, more girls than boys die at a young age, a marked departure from the biological pattern observed in most countries. In these countries it is clear that there is discrimination against girls in the areas of health and nutrition.

nature of children's lives

The World's Children: How many, how old? m44tbl#3
Population by age group (millions)

Age Group (years)	0-4	5-9	10-14
Developed Countries	72	78	48
Developing Countries	563	532	263
World	635	610	310

Source: UN Population Division, World Population Prospects: The 1994 revision, The United Nations, 1995.

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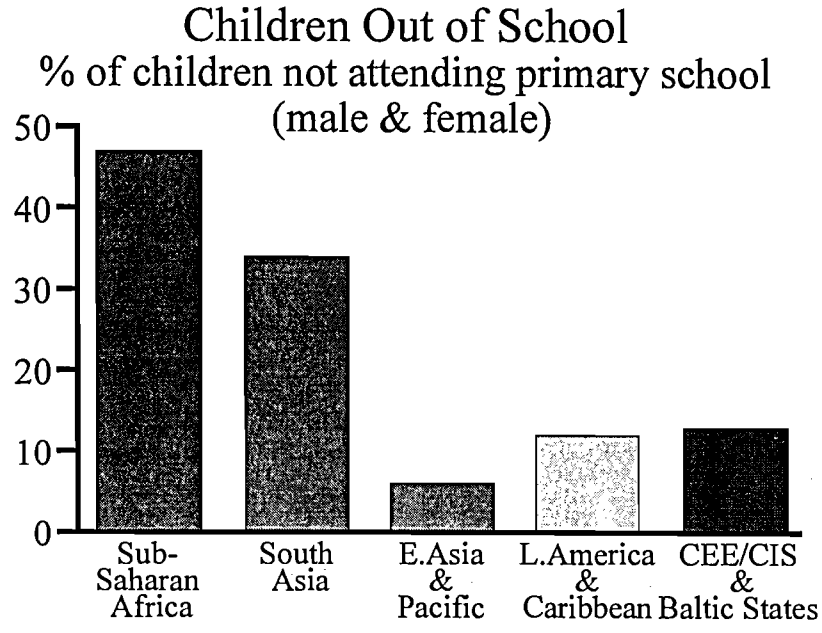
What do we know about the world's children? The majority of children live in the developing world where 1.3 out of 1.5 billion children reside.

children's education

m44fig02



Source: UNICEF

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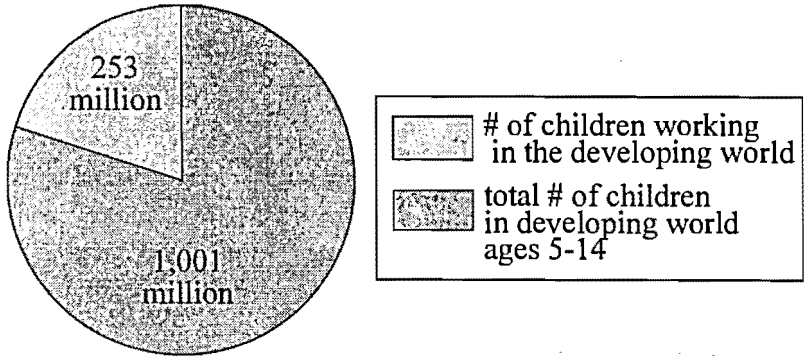
Despite significant gains in the past decade, 23 percent of children in the developing world have not attended primary school. Most of these children are in Sub-Saharan Africa and South Asia. Many of these children are girls.

their work

m44 fig 03

The Working Child in the Developing World



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One out of every 4 children in the developing world work every day. They are often denied education and trapped in cycles of poverty. Their health and their lives are often in jeopardy. More than 150,000 girls between the ages of 5 and 16 are employed by the 2,000 carpet factories in Nepal. They are forced to work 16 hours a day. In Haiti more than 250,00 children from 5 to 15--three quarters of them girls--work as domestics, forced into servitude through poverty. Most cannot read or write. An estimated 2 million children worldwide have been sold into prostitution.

The simplest way to protect children from hazardous and exploitative labor is to extend and improve their access to education.

Married off

While recent Demographic and Health Surveys from the developing world indicate that child marriage is declining, as the table shows, in some countries a large percentage of young girls are still married off before their 15th birthday.

It is not uncommon for these young girls to suffer great physical and emotional. Childbearing at a young age can cause life long health problems.

Women age 20 to 24 today who were married before age 15, selected countries

Country	Percent	Year of report
Mali	21.3	1989/90
Nigeria	26.7	1990
Cameroon	26.7	1987
Uganda	17.8	1991
Egypt	15.0	1987
Pakistan	11.4	1991
Indonesia	10.0	1987
Guatemala	12.6	1987
Dominican Republic	9.0	1988
Mexico	6.2	1991

Source: Selected Demographic and Health Surveys

Impact of violence on

m44violn.rtf

Estimated global health burden of selected conditions for women age 15-44.

A growing body of literature is documenting the impact of violence on women's physical and mental health. There are several areas where women face violent situations. In the family (includes domestic violence and traditional practices), violence in the community (such as rape) and violence by the state (includes custodial violence as well as violence against women in situations of armed conflict and against refugee women) and violence against women manifested in trafficking in women for prostitution. The World Bank estimates that rape and domestic violence account for 5 percent of the healthy *year of life lost* to women of reproductive age in developing countries.

more info on "impact on violence"

m44vilif.rtf

Gender Violence Throughout the life cycle

Prebirth
Sex-selective abortion (China, India, Republic of Korea); battering during pregnancy (emotional and physical effects on the woman; effects on birth outcome); coerced pregnancy (for example, mass rape in war).

Infancy
Female infanticide; emotional and physical abuse; differential access to food and medical care for girl infants.

Girlhood
Child marriage; genital mutilation; sexual abuse by family members and strangers; differential access to food and medical care; child prostitution.

Adolescence
Dating and courtship violence (for example, acid throwing in Bangladesh, date rape in the United States); economically coerced sex (African secondary school girls having to take up with "sugar daddies" to afford school fees); sexual abuse in the workplace; rape; sexual harassment; forced prostitution; trafficking in women.

Reproductive age
Abuse of women by intimate male partners; marital rape; dowry abuse and murders; partner homicide; psychological abuse; sexual abuse in the workplace; sexual harassment; rape; abuse of women with disabilities.

Elderly
Abuse of widows; elder abuse (in the United States, the only country where data are now available. elder abuse

Source: World Bank, Discussion Papers #255, "Violence Against Women" p 5

more info on "impacts of violence" m44tb109

Correlates of gender violence in cross-cultural studies

Predictive of high violence

1. Violent interpersonal conflict resolution
2. Economic inequality between men and women
3. Masculine ideal of male dominance, toughness, honor
4. Male economic and decisionmaking authority in the family

Predictive of low violence

1. Female power outside the home
2. Active communicty intervention in violence
3. Presence of all-female work or solidarity groups
4. Sanctuary from violence (shelters, friends, family)

Source: World Bank, Discussion Papers #255, "Violence Against Women" P. 29

Primary Victims

m44tbl 11

Women's Exposure to Indoor Air Pollution From Biomass Fuel Combustion

Kitchen Area Concentration levels	Measurement Conditions	Particulate Concentration
Kenya, 1972	overnight, highlands	2,700-7,900
	overnight, lowlands	300-1,500
Kenya, 1988	24 hours	1,200-1,900
Gambia, 1988	24 hours	1,000-2,500
India, 1982	cooking with wood	15,800
	cooking with dung	18,300
	cooking with charcoal	5,500
India, 1988	cooking	4,000-21,000
Nepal, 1986	cooking with wood	4,700
China, 1987	all day, wood burning	2,600
Papua New Guinea, 1968	overnight, floor level	200-4,900
	overnight, sitting level	200-9,00

Source: M.R. Pandey and others, "Indoor air pollution in developing countries and accute respiratory infections in children"

m44primv.rtf

Women's exposure to indoor air pollution from biomass fuel combustion

In many developing countries, women spend a significant part of their day cooking indoors with biomass-wood, straw or dung, in areas that are poorly ventilated. They are thus exposed to high levels of indoor air pollution. This table shows that for example that in India, women were exposed to indoor air particulate concentrations as high as 21,000 micrograms per cubic meter. These high levels of exposure can lead to increased respiratory diseases.

developing region. Overall, women's health burdens have a tremendous cost in life years lost.

While there has been progress in increasing educational enrollments for both males and females during the past three decades, for all levels of education, however, female enrollments still lag behind male enrollments. The gender gap in education is widest in Sub-Saharan Africa and in some countries in South Asia and the Middle East.

Women's Work

The process of development cannot claim to be broad-based and equitable unless it does something about gross gender inequities where they exist. Ester Boserup's seminal work on Women's Role in Economic Development (1970) greatly influenced the early thinking of the Women in Development (WID) paradigms adopted by many international donor agencies and world bodies, specially during the first development decade.

Women's contribution to growth in developing countries, though still undervalued and often overlooked, remains significant in terms of the amount of work and time spent on work. It has been noted that this error of omission is mainly due to the single minded attention to the centrality of the market in terms of economic activities. In many developing countries, especially in Africa and Asia, women's contribution to the economic survival of their families is in food production for household consumption which is often hidden within the reproductive sector. It is also noteworthy that the reponsibility for providing household needs of food, fuel and water has made women more concerned with the environment.

Although, in terms of wage employment the gender gap in wage differentials is universal, formal sector employment opportunities are much less for women in developing countries. However, there is a trend towards feminization of labor in developing countries as a result of relocation of certain industries in the region by multi-national companies, seeking to cut labor costs. Also, international migrant labor is also being feminized. While, women in developing countries are getting more visibility as wage earners, due to the changes that have occurred in the international division of labor, these new job opportunities for women are on the lowest rung in the occupational hierarchy.

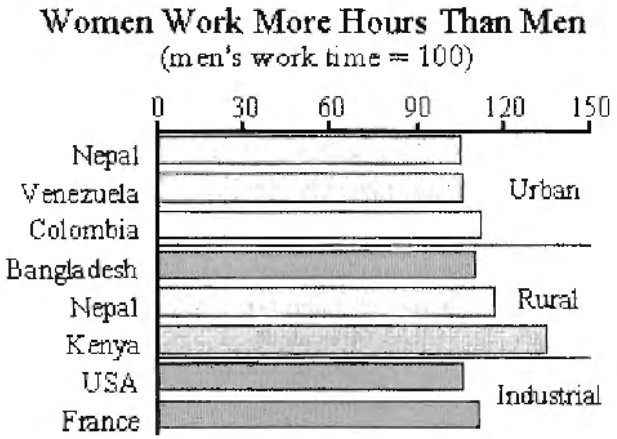
Measuring Gender Equity

Amartya Sen, in a famous article entitled "More than 100 Million Women are Missing," says that the best possible summary measure of gender equity is the simple population ratio between women and men. Biologically, more men are born than women under normal conditions, but from childhood through adulthood the mortality rates for men are higher than for women. In high income countries with relatively long life expectancies, the ratio of men to women is 100 to 104-109. In lower income countries with lower life expectancies, the ratio is usually 100 to 102-105. Wherever the ratio is less than that, as it

still undervalued

The HDR (UNDP, 1995) shows that among the sample of 9 developing countries, women accounted for 53 percent of the total time on all economic activities performed by men and women. Among 13 Industrialized countries sampled, women accounted for 51 percent of the total 0time spent on economic activities.

time spent


Women Work More Hours Than Men
(men's work time = 100)
0
30
60
90
120
150
Nepal
Venezuela
Colombia
Bangladesh
Nepal
Kenya
USA
France
Urban
Rural
Industrial

time spent

The HDR of the UNDP (1995) notes that most of women's work, specially in developing countries, remains unpaid, unrecognized and undervalued. The System of National Accounts (SNA) used in economic valuation is synonymous with market value. Although recent revisions of the SNA imputes market value to certain goods produced and consumed within the household, much household and community level goods and services produced by women remain unvalued since they do not come within the accepted definition of the SNA.

The UNDP (1995) study shows that in a sample survey of 31 countries, of the total burden of work. women carry on average 53 percent in the developing countries, and 51 percent in Industrial Countries.

concerned with the environment

m44wmnen.rtf

Women living in developing countries, in their daily quest for food, fuel and water have experienced the adverse impact of environmental degradation on household survival strategies. Protection of the environment has in fact led to the women's mobilization to organize themselves to challenge the power structure that seemed to subordinate the needs of women in favor of different development goals. The 'chipko' movement of India is an illustration of the environmental protection serving as the catalyst for a women's movement to protect the means of their livelihood.

wage differentials

m44wgdif.rtf

Around the world, women make up about one-third of the labor force working for wages in non-agricultural jobs. The proportion is higher in Developed countries than in Developing countries.

In general, women's wages for non-agricultural work are lower than men's, both because women have less access to high paying jobs and because they are paid less than men for comparable jobs.

feminization of labor

m44femlb.rtf

The global average for women's participation in the manufacturing labor force has increased at a faster pace than that of men mainly due to the location of Export Promotion Zones in Asia and in Latin America. Guy Standing (1989) explains that, in many economies in the 1980s, there has been a change in labor practices, resulting in an absolute and relative growth in the use of women's labor. Women in developing countries, who work in manufacturing industries tend to be concentrated in a limited number of labor-intensive industries. Women working in manufacturing jobs generally have low occupational status. Two thirds are categorized as workers. Men outnumber women five to one in professional and technical positions and eight to one in administrative-managerial positions.

References

Standing. Guy. "Global Feminization Through Flexible Labor," World Development , Vol.17. No.7. 1989.

UN. Women in a Changing Global Economy: 1994 World Survey on the Role of Women in Development, (New York: UN, 1995).

migrant labor

m44miglb.rtf

International migrant labor is also being feminized. The forces driving most female migrants are poverty and expectations of relatively high monetary returns for their labor. Most female migrants from Asia seek domestic service mainly in the oil rich Middle East. Female migrants from the philippines to other Asian countries outnumber male migrants by 12 to 1. In Sri Lanka the figures are 3 to 2.

100 million Women are Missing

m44wmlst.rtf

One Hundred Million Women Lost

The male/female ratios of the population are largely the result of biological determinants. In the OECD countries women comprise slightly more than 51 percent of the population. In Latin America and Sub-Saharan Africa the ratios range from slightly under 51 percent to slightly less than 49.5 percent. But in Asia the figures are dramatic: women represent 48.5 percent of the population in China, 48.1 percent in India, and 47.6 percent in Pakistan-the lowest share in the developing world.[1]

This discrepancy lies behind a stunning conclusion, first advanced by Amartya K. Sen, namely that 100 million women are missing. Sen rightly claims that this is "one of the more momentous problems facing the contemporary world."[2] The magnitude of the problem has been confirmed by Ansley Coale, who used slightly different assumptions but arrived at an estimate of 60 million missing women-still a staggering figure, which as he says "confirmed the enormity of the problem."[3]

The explanations for the missing women are, fundamentally, higher death rates for young girls in societies that discriminate against women through neglect and reduced opportunities for girls. In some cases selective abortion of female fetuses has been reported,[4] but it is undoubtedly higher mortality rates at ages one to four that account for the bulk of the discrepancies.

Beyond the moral outrage that such findings rightly generate, it is important to emphasize that they reflect societal attitudes inimical to development because empowering women through education and removing obstacles to their full participation in economic life demonstrably improves the developmental performance of any society.

Note: See also United Nations Development Programme, *Human Development Report 1991* (New York: Oxford University Press 1991), 27.

1. Lawrence H. Summers, *Investing in* All *the People,* EDI Seminar Paper (Washington, DC: World Bank, 1994),2

2. Amartya X. Sen, "Women's Survival as a Development Problem (Comments prepared for the 1700th Stated Meeting of the American Academy of Arts and Sciences, March 8, 1989); and Sen, "More than 100 Million Women Are Missing," *New, York Review of Books 37* (December 20, 1990): 61-66.

3. Ansley Coale, "Excess Female Mortality and the Balance of the Sexes in the Population: An Estimate of the Number of Missing Females", *Population and Development Review 17* (3) (September 1991): 517-23.

4. See Anouch Chahnazarian, "Determinants of the Sex Ratio at Birth (Hepatitis B) " (Ph.D. diss., Princeton University, Princeton, N.J., 1986).

Population ratio

Women per 100 men

m44tb104

	1970	1995
Europe	106	105
Developed regions	101	103
Nothern Africa	99	97
Sub-Saharan	104	102
Latin America	99	100
Caribbean	106	103
Eastern Asia	98	97
Southern Asia	95	95
Western Asia	90	92
World	99.6	98.6

Source: UN, The Women's World 1995, pg 1

m44poprt.rtf

The ratio of women to men in a population is determined initially by the sex ratio of the population and the subsequent differences in mortality and migration between men and women. Women outlive men almost everywhere in the world yet there are fewer women than men in the world, 98.6 women for every 100 men. All but two of the countries with fewer men than women are in the developing world. In some of the Asian countries, such as China, there is strong evidence that the sex ratio indicates a traditional preference for boys. The imbalance in the sex ratio at birth is likely explained by factors such as female infanticide, and, increasingly, sex-selective abortion.

is in much of the Middle East, South Asia, and China, then you can be sure that women are dying prematurely and disproportionately. Sen calculates that 100 million such premature deaths have occurred worldwide in the present generation. The reasons for these premature female deaths range from female infanticide, to inadequate nutrition and health care for female children and adults, to inadequate health services for childbirth and other gender-specific threats to female health. Other indicators of gender equity frequently used are:

school enrollment ratios;
adult illiteracy rates; and
paid labor force participation rates.

Another important area where female participation is particularly deficient is in politics. Although systematic and comparable statistics are not available, it is generally known that women play a less significant role than men at every level of politics and in decision-making positions in most countries.

In 1995 the UNDP developed two additional measures of gender inequality, the gender-related development index or GDI and the gender empowerment measure. The GDI measures the same variables as the Human Development Index or HDI but notes inequality between men and women. The GEM is focused on women's participation in economic, political and professional areas.

Gender Exercise Gender Equity Case:

Policy Towards Achieving Gender Equity (Women's Empowerment)

Women's empowerment is an enabling condition that is manifested in terms of individual self assertion, collective mobilization, resistance and protest that challenges existing power relations. Hence it entails a process aimed at changing the nature and consequently the direction of forces that marginalized women. It implies a redistribution of power.

Empowerment entails an understanding of causes of subordination and practical intervention to rectify such subordination. Furthermore, since demand for change does not usually begin from the subjugated and therefore disempowered groups, policy measures that originate externally, play a crucial role in stimulating the process towards ultimate empowerment.

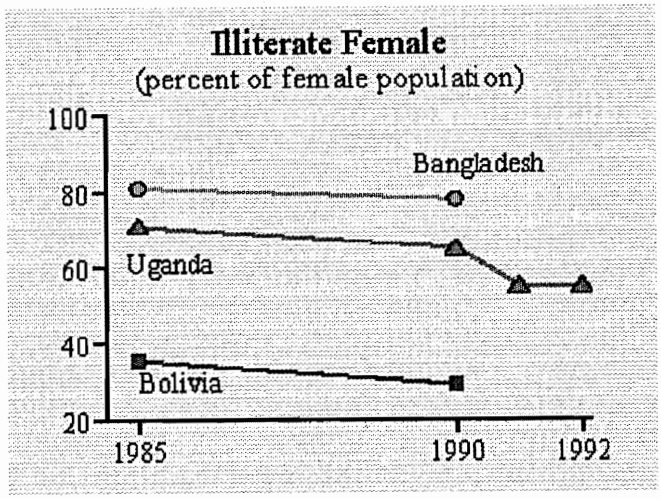
Based on the main causes of discrimination toward women, the following key variables should form the foundation of policy measures aimed at stimulating female empowerment. It should be noted that these elements are mutually supportive.

a) education
b) income
c) credit

School enrollment ratios

m44enrol.rtf

In much of Africa and Asia, three quarters of all women aged 25 and over are illiterate, and girl's secondary-school enrollment lags behind boys. Although illiteracy rates are falling for young women, they are still much higher for young women than for young men, and the illiteracy rates of young women in rural areas remain higher than those living in urban areas.


Illiterate Female
(percent of female population)
100
80
60
40
20
Bangladesh
Uganda
Bolivia
1985
1990
1992

adult literacy rates

m44adllt.rtf

Either the ratio of male to female or simply the separate literacy rates for men and women compared.

paid labor force participation

m44labor.rtf

Men to women, or separately for each gender.

every level of politics

m44tbl05

Women Elected Heads of State or Government in the Twentieth Century

Presidents		
Bolivia	Lidia Guelier	1979-1980
Haiti	Ertha Pascal-Trouillot	1991
Nicaragua	Violeta Chamorro	1990-
Philippines	Corazon Aquino	1986-1992
Prime Ministers		
Bangladesh	Khaleda Zzia Rahman	1991-1996
	Zakina Hussein	1996-
Burundi	Sylvie Kinigi	1993-
Isreal	Golda Meir	1969-1974
Pakistan	Benasir Bhutto	1988-1990
		1993-1996
Sri Lanka	Siramovo Bandaranaike	1970-1977
Turkey	Tamsu Cillerv	1993-1995

Source: UN, Women's World 1995, pg. 152

m44lvlpo.rtf

While only 24 women have been elected as a head of state or government, half of them have been elected since 1994.

decision-making positions

m44t6106

Percentage of women in decision making positions in government by field, 1994

	Chief Executive	Economic	Social	Political
Western Europe	7.8	8.0	18.7	0.6
North Africa	5.8	0.0	1.6	0.0
Sub-Saharan Africa	2.8	4.5	12.5	4.4
Central America	7.7	9.7	14.6	6.4
South America	4.9	5.1	11.5	3.1
Caribbean	7.3	6.7	22.1	20.5
East Asia	0.6	1.5	3.9	0.0
South Asia	5.7	4.9	4.8	1.0
West Asia	0.7	1.8	3.9	0.0
Oceania	8.8	2.2	5.0	18.3

Source: UN, Women's World 1995, pg. 154

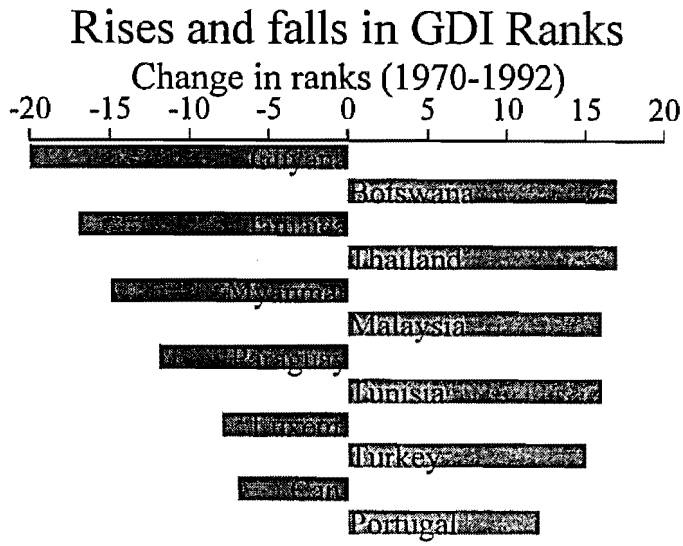
m44decmk.rtf

The HDI has three components: life [redacted] attainment, co[redacted] secondary and te[redacted] sured in terms of Purchasing Power Parity (PPP).

Decision making positions are defined by the United Nations as ministers or equivilent deputy or assistance ministers or equivalent secretaries of state or permanent secretaries and deputy of state or director of government. There are signs of progress for women in decision-making positions as the table shows. In the United States in 1996 the first female Secretary of State was designated.

gender-related development

for79gdi



Source: UNDP, HDR 1995, pg. 81

m44gdi.rtf

The gender-related development index (GDI) measures achievement in the same basic capabilities as the HDI does, but takes note of inequality in achievement between women and men. The methodology used imposes a penalty for inequality, such that the GDI falls when the achievement levels of both women and men in a country go down or when the disparity between their achievements increases. The greater the gender disparity in basic capabilities, the lower a country's GDI compared with its HDI. The GDI is simply the HDI discounted, or adjusted downwards, for gender inequality.

Human Development Index or HDI

m44hdi.rtf

In estimating the GDI, a measure is constructed for the overall achievements of men and women using the three indices of the HDI--life expectancy, educational attainment, adjusted real income--after taking note of the inequalities between men and women. In other words, the GDI is the HDI adjusted for gender inequality.

The human development index (HDI) measures the average achievement of a country in human capabilities. The HDI indicates whether people lead a long and healthy life, are educated and knowledgeable and enjoy a decent standard of living. The HDI examines the average condition of all people in a country: distributional inequalities for various groups of society have to be calculated separately.

GEM

m44gem.rtf

GEM concentrates on three broad classes of variables.

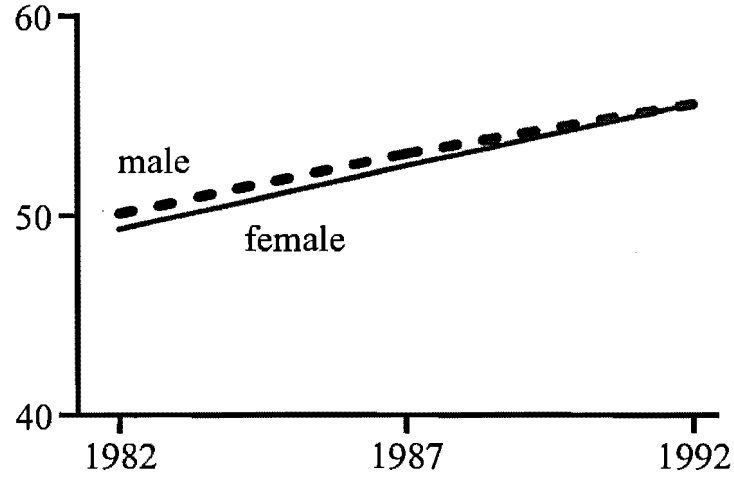
1. Women's power over economic resources based on earned income.
2. Women's share of professional, technical, administrative and managerial jobs.
3. Women's share of parliamentary seats.

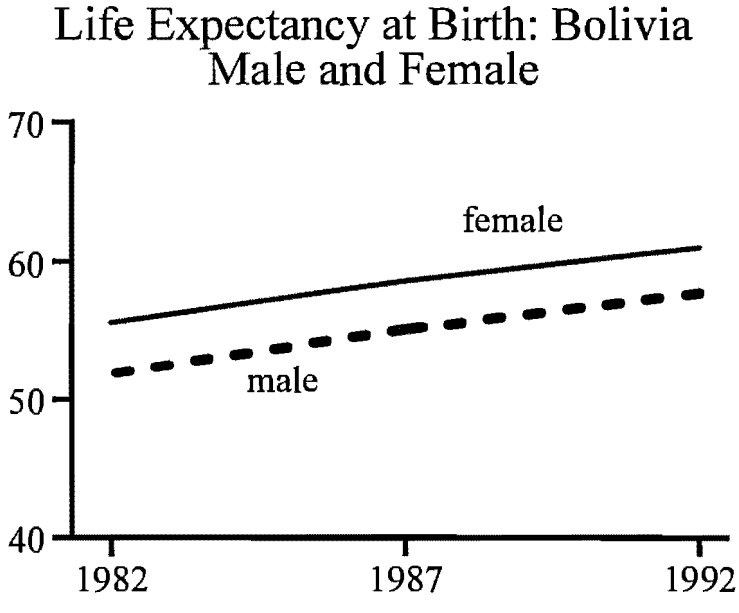
The gender empowerment measure (GEM) examines whether women and men are able to actively participate in economic and political life and take part in decision-making. While the GDJ focuses on expansion of-capabilities, the GEM is concerned with the use of those capabilities to take advantage of the opportunities of life.

Gender Equity Case

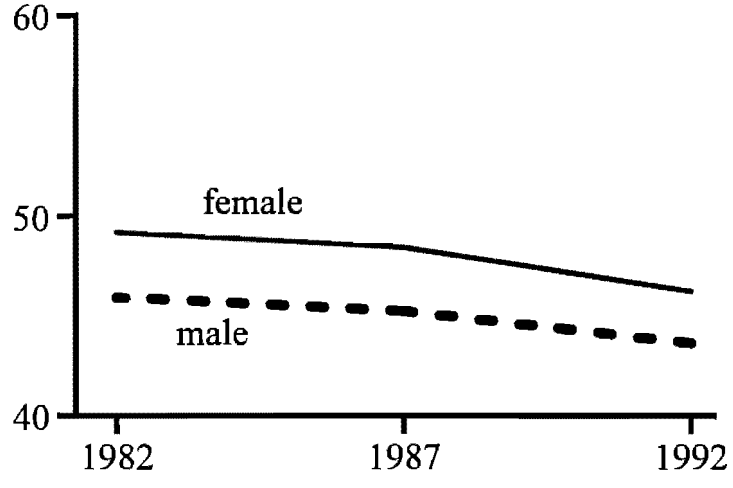
For your country, look at variables that measure gender equity, such as illiteracy, gross enrollment ratios, infant deaths, and life expectancy at birth. Infant deaths, infant mortality rates, and life expectancy have separate male and female values. Do these variables indicate a society where gender inequity is a problem? What are the trends over time for these variables in your country?

Life Expectancy at Birth: Bangladesh
Male and Female




Life Expectancy at Birth: Bolivia
Male and Female
70
60
50
40
female
male
1982
1987
1992

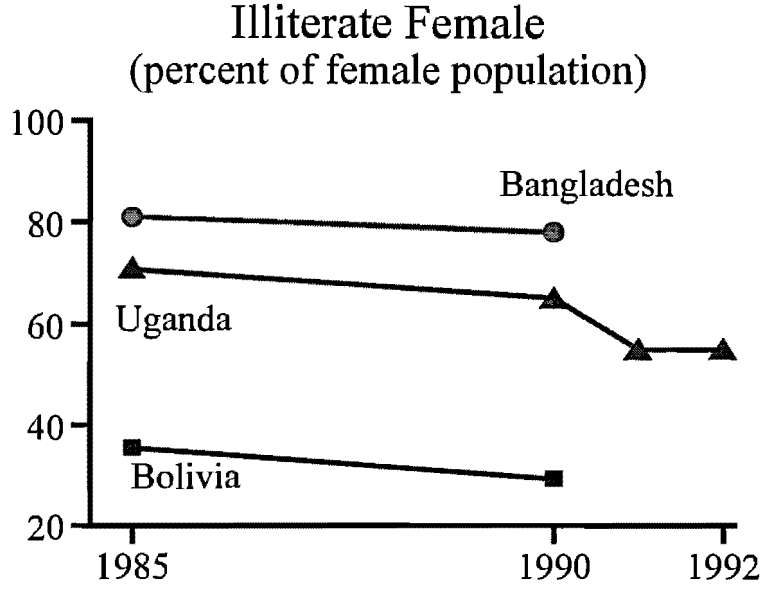
Life Expectancy at Birth: Uganda
Male and Female



Gender Equity Graphs
Graphs 1, 2, 3 - Life expectancy at birth - Male and Female

Normally there is a gender gap in life expectancy in favor of females. Experts attribute this to certain behavioral and lifestyle differences between the two sexes. Bolivia and Uganda conform to this pattern. In the case of Bangladesh, male life expectancy was higher than that of females until parity was achieved in 1993. A gap in favor of males is considered a sign of serious male bias in society. For example, it is believed that in such societies male children are favored in intra-family food allocation, and even in the resources and effort devoted to health care and education. Such gender gaps in favor of male children persist not only because of individual and family preferences, but also because governments themselves may follow policies, say in education, employment or property inheritance laws, that discriminate against women.

There is a notable feature in the Ugandan figures. Between the early 1980s and the early 1990s there was a deterioration in life expectancy for both males and females. This is probably largely related to the AIDS epidemic and the civil war.


Illiterate Female
(percent of female population)
100
80
60
40
20
Bangladesh
Uganda
Bolivia
1985
1990
1992

Female Illiteracy

The overall illiteracy rate generally masks differences in the rates between the genders, with females having a higher rate than males. The female illiteracy rate is higher than the rate for males in all three sample countries. Although the gap has narrowed over the years, the change has been quite slow in the three countries.

a) education

m44eduat.rtf

Education has empowerment pay-offs at all levels, literacy and nonformal training, primary schooling, secondary schooling, and post-secondary graduation. The empowerment comes from the enhanced knowledge resulting from the educational content itself, from the increased social status that the educational credential carries, and from the increased income opportunities that the education makes possible.

b) income

m44incom.rtf

The empowerment impact of income is greatest for women with the lowest incomes, but the marginal increases in empowerment for each additional unit of income remains important throughout the income range. The income increases "the power of the purse string" that women have over themselves and decreases their dependence on the "purse-string power" of others.

c) credit

m44credt.rtf

Research show that poor women in developing countries are heavily concentrated in running small businesses in the informal sector, as self employed operators or as employees. However it has been widely recognized that access to credit, in terms of availability and terms and conditions demanded by credit agencies, is a major impediment that discourage women from establishing successful income generating enterprises. At the same time, lessons learnt from innovative approaches in offering credit facilities for poor women, such as the Grameen Bank initiative of Bangladesh and SEWA of India, does yield rich dividends in empowering women.

Grameen Bank and SEWA

Grameen Bank of Bangladesh and SEWA of India use similar strategies in facilitating loan schemes for women. First, they basically act as intermediaries who can help bridge the gap between poor women and Commercial Banks by forging links between the two. They retail the credit from Commercial Banks to small borrowers. Both organizations cgarge commercial interest rates for loans. Second, in place of the usual collateral demanded by Commercial Banks, small groups of poor women from the same community stand as collateral for each other. The principle used is peer pressure to pay back the loan. Third, it is mandatory to set aside a small percentage of the loan as compulsory savings. Fourth, the banker or the intermediary usually collects the loan installment, eliminating the need for women to spend time away from their work to visit the Banks. The loan repayment rate for Grameen and SEWA exceeds 90 percent.

d) gender sensitive data
e) women's organizations

Gender Exercise Women and Work Case:

f) legal reform
g) reproductive rights
h) media and communication
i) investing in girls
j) politics

Development professionals should note that most of the contributors to women's empowerment are development objectives in themselves. They have been defined and accepted all over the world as part of a widely accepted development agenda.

Gender Exercise Education and Fertility Case:

Since women's empowerment is a difficult term for applied social scientists to handle, methodologically and politically, studies of the impact of women's empowerment on development have usually been defined as studies of the impact of women's increased education and income on development. These developmental linkages, from women's empowerment to sustainable development for the whole society, are extraordinary in their variety. Every year new studies emerge documenting new linkages. The single most effective way to empower women is through education. The best available data suggest that each year of additional schooling of women reduces under-five child mortality by 10 percent and reduces female fertility by 5 to 10 percent and has an immediate impact on the reduction of infant mortality. The costs of improving the educational status of girls is quite minimal.

Gender Exercise Final Gender Case:

d) gender sensitive data

m44gensn.rtf

The ILO, UNDP and other UN organizations are giving the lead in restructuring national level data collection in order to make them more gender sensitive. The System of National Accounts (SNAs) is primarily based on valuing labor on the strength of the market value of goods and services. This leaves a host of women's work outside the system such work is pushed into the uncounted reproductive household sphere. The 1993 revisions of the SNA incorporate certain categories of women's household level labor, but that is not comprehensive enough to capture women's total contribution to household survival. Recognition of ones worth leads to empowerment. The recent focus on 'time' as a basis of measurement of work needs to be expanded.

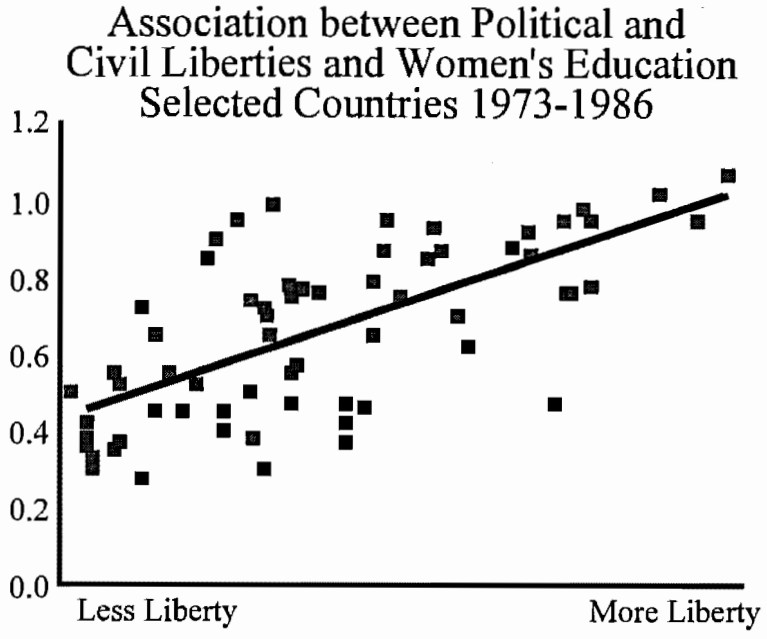
e) women's organizations

m44wmnor.rtf

One of the fundamental reasons for women's disempowerment is the fact that they are very often isolated within a household, a circumstance which nurtures a perpetuation of their subjugation. Literature shows that when women join forces as a group, as mother's groups, Soup Kitchen groups, community credit or craft cooperatives or self help organizations such as 'Harambee', a self-help organization based in Kenya, women's sense of empowerment is known to increase. However, an important characteristic of many of these community based and grass roots women's organizations is that, either charismatic individuals or non-local organizations have been instrumental in helping to establish these women's associations. Hence, in terms of policy intervention, the recognition of the role of such intermediaries is important. Also, as clearly demonstrated in recent UN sponsored conferences, the national and international level, women's NGOs and PVOs have played a major role in connecting local community level experiences and needs with global policy making.

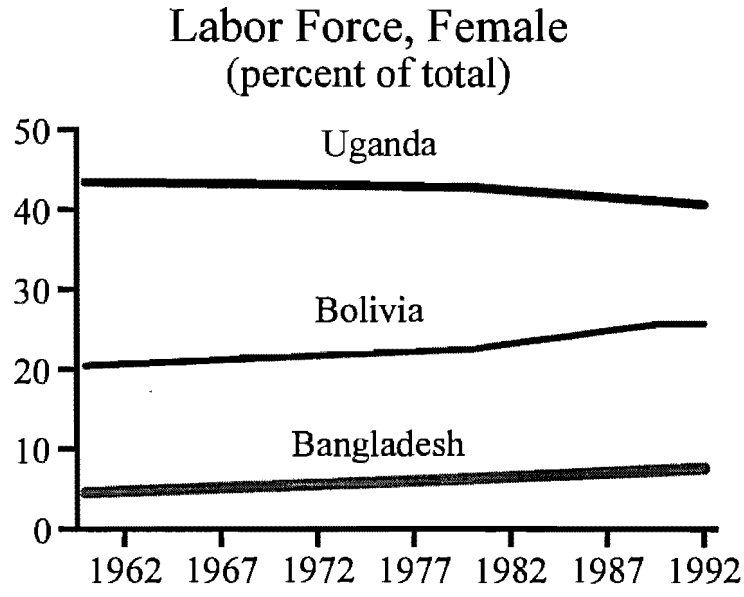
In relation to female empowerment women's organizations are a valuable resource for several reasons. At the community and grass roots level they break the barrier of individual woman's isolation and enhance self esteem and confidence through collective mobilization. They have a better understanding of local conditions and how best to implement change. They become an important segment of civil society, an essential element in vibrant democracies.

More info women. orgs.



Source:World Bank, World Development Report 1991, 50

Examine the variables, female labor force (as a percentage of the total) and one of the variables representing educational attainment. What are the trends over time in these variables? Is the status of women improving in your country or getting worse?


Labor Force, Female
(percent of total)
50
40
30
20
10
0
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

f) legal reform

m44legal.rtf

The fundamental thrust in advocating legal reforms as a strategy of female empowerment is in eliminating laws that discriminate against women and in introducing new sets of laws that would have a positive effect on achieving gender equality and equity. Such legal reforms include women's right to vote, their rights to property, specially land and elimination of women's legal status as minors, as practiced in certain Developing countries. An important step in providing the legal framework on gender equality was taken with the adoption the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), by the United Nations in September,1981. It has been described as a women's Bill of rights, where women's rights are described as human rights. However, many countries have still not ratified it. While legal reforms would not bring radical changes in societies where gender discrimination is pervasive, a legal framework is provides the basic foundation upon which gender equality could be built, leading to women's empowerment..

More info : human right

At the World Conference on Human Rights held in Vienna in 1993, the Vienna Declaration and Program of Action recognized that women's rights are universal, inalienable, and indivisible and should not be subordinated to culture or religion. The UN called for the elimination of "violence against women in public and private life" as a human rights obligation. The Vienna declaration also called for the incorporation of women and gender perspectives into all human rights mechanisms and practices, which included gender training for those responsible for protecting human rights. Rape of women in conflictual situations has been recognized as a war crime.

g) reproductive rights

m44rprdc.rtf

Reproductive rights include women's rights to fertility control and reproductive health. At the UN sponsored International Conference on Population and Development (ICPD) held in Cairo in 1994, 184 participating governments agreed on a twenty year Program of Action that would work towards securing reproductive and sexual health, gender equity and equality, promote women's empowerment and ensure women's reproductive rights.

There are three main reproductive rights for women: 1) the freedom to decide how many children to have and when and whether to have them; 2) the right to have the information and means to regulate one's fertility; and 3) the right to 'control one's body'. The first two have been accepted in various UN declarations on population issues since the 1960s, while the third does not have formal UN sanction, mainly due to the debate on women's rights to abortions.

Access to fertility control methods is known to give women the right to plan their families and has enabled women to have more freedom to engage in activities outside the home, opening avenues of empowerment in economic as well as political terms. However, the spread of sexually transmitted diseases, specially, HIV/AIDS have increased women's vulnerability, since female contraceptive technology that is available (although a female condom is being developed) does not prevent the transmission of STDs.

h) media and communication

m44media.rtf

In this era of increasing globalization communication technology plays a major role in bringing people closer. There are different ways in which communication technology could be used to educate women on the theme of empowerment. Television transmissions are found in remote parts of the world, and televisions given to community centers in many villages in the developing countries are an effective medium through which lessons learnt in female empowerment in different parts of the world may be disseminated. This strategy is not new and has been used effectively in development programs. However, there is ample room for its expansion as a tool for expanding women's awareness of their potential for empowerment.

Furthermore, media has a role to play in highlighting the positive role women could play in society and reducing sexism in reportage. Increasing female recruitment in journalism and communication could have a positive impact on making the media, an avenue for disseminating lessons and experiences of female empowerment.

ii) investing in girls

m44girls.rtf

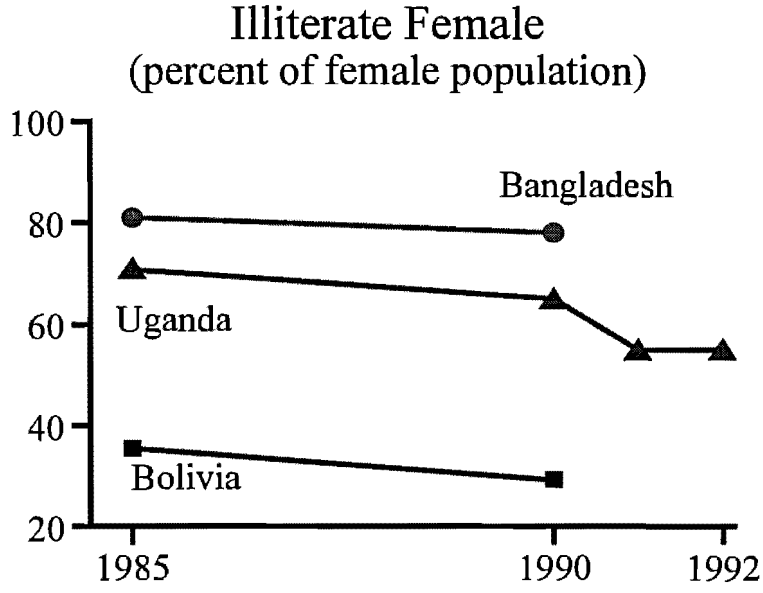
A special focus on girls would ensure that, girls will have the opportunity to mature into empowered women. In many developing countries girls continue to have a lower quality of life than boys. If girls are not viewed by societies and families as having an important role to play in the social development of the community, and are not provided with opportunities to learn and grow, they will not achieve their full potential as productive human beings. Their children are likely to be less healthy, less educated and the cycle may continue for yet another generation. Hence, an investment in girls should be considered as an investment in national development.

jj politics

m44pltcs.rtf

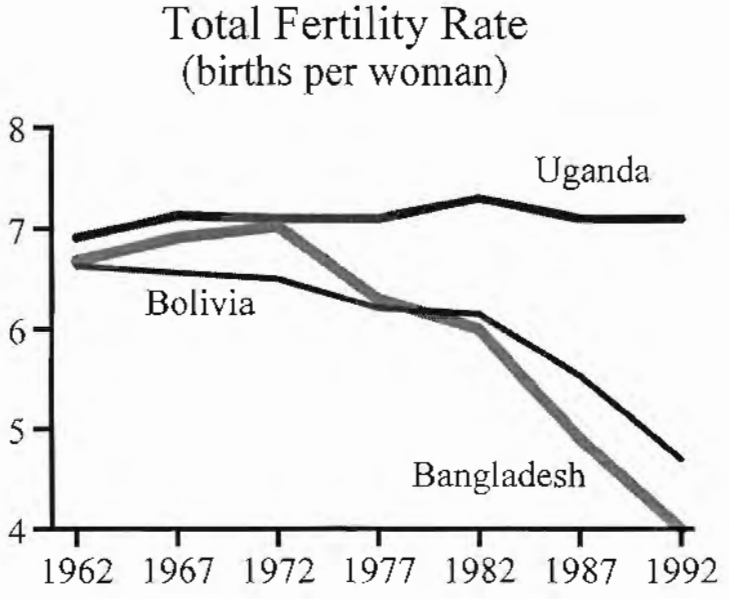
While all of the elements of empowerment are expected to strengthen women's access to decision making which affects their lives, a central concept in political empowerment, there are certain policy considerations that would give a much needed push in the direction of active political participation. The recent experiences from India are significant. Starting at the local government level, India passed the 73rd amendments to its constitution, whereby one third of all seats in the local 'Panchayats' are reserved for women. It gives the right of representation to women, in a system where women find it hard, to compete against men in the political arena. The proposed 81st amendment to the Indian constitution, if adopted, would see one third of all parliamentary seats reserved for women as well. Such policy moves are expected bring medium to long terms dividends in achieving gender equity.

Graph the following two variables for your country: female illiteracy (as % of age 15+) and total fertility rate. Do you observe a relationshipover time between these variables?


Illiterate Female
(percent of female population)
100
80
60
40
20
Bangladesh
Uganda
Bolivia
1985
1990
1992

Female Illiteracy

The overall illiteracy rate generally masks differences in the rates between the genders, with females having a higher rate than males. The female illiteracy rate is higher than the rate for males in all three sample countries. Although the gap has narrowed over the years, the change has been quite slow in the three countries.

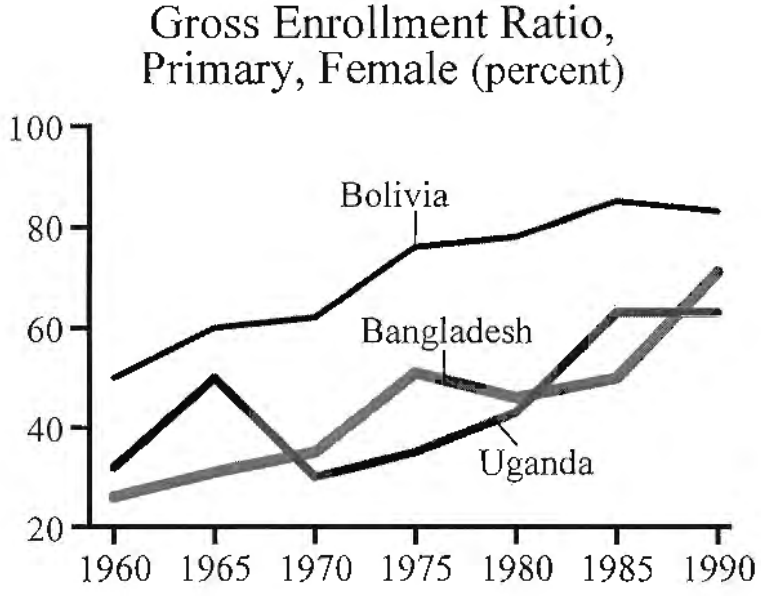

Total Fertility Rate
(births per woman)
8
7
6
5
4
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

Total Fertility Rate

The Total Fertility Rate or TFR is the number of children that wuld be borne to a woman who lives to the end of her child bearing age (15 to 49 years) and bears children in accordance with the prevailing age-specific fertility rates.

Uganda's TFR has held up at a relatively high level of about 7.0. This high fertility rate present major challenges for Uganda. Note that Bangladesh started with a higher fertility rate than Bolivia, but has shown a sharper fall after 1972 and a lower rate from about 1982.

To what would you attribute Bangladesh's relative success? What factors are responsible for keeping the Ugandan rate at a relatively high level?


Gross Enrollment Ratio,
Primary, Female (percent)
100
80
60
40
20
Bolivia
Bangladesh
Uganda
1960
1965
1970
1975
1980
1985
1990

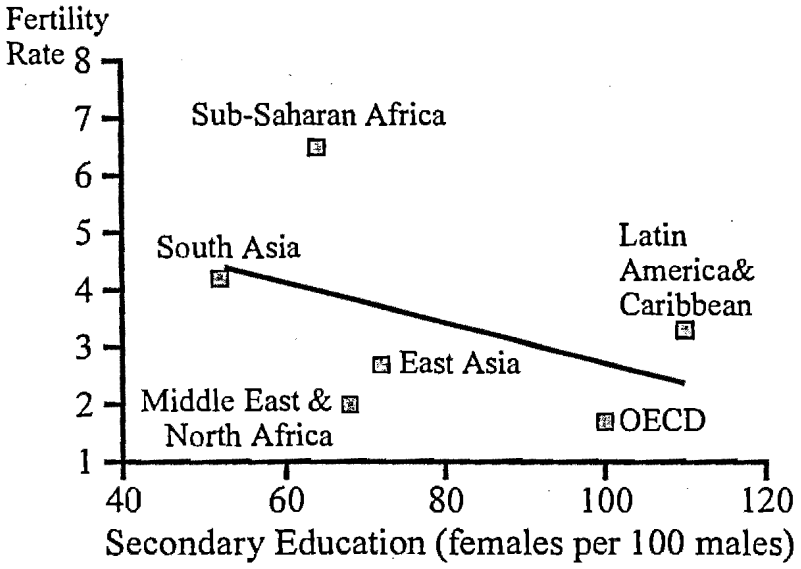
Gross Enrollment Ratio - Primary, Female

Historically, female enrollment in all levels of schooling has been lower than male. This is true of our three sample countries also. A complex mix of the social, cultural and economic factors that were briefly discussed in relation to the graph on literacy accounts for the discrimination against females.

However, it is also important to note that the gap has been closing over the last three decades. This trend reflects an increasing commitment to gender equity, and a realization of the value of female education. Research has demonstrated that there are enormous economic and social payoffs in female education. The positive impact on family planning and child health are two of the most important social benefits. Improved female productivity in the work place is a major economic benefit. This has led policymakers and donors to place greater emphasis on improving female education.

reduces female fertility

Effect of Female Education on Fertility

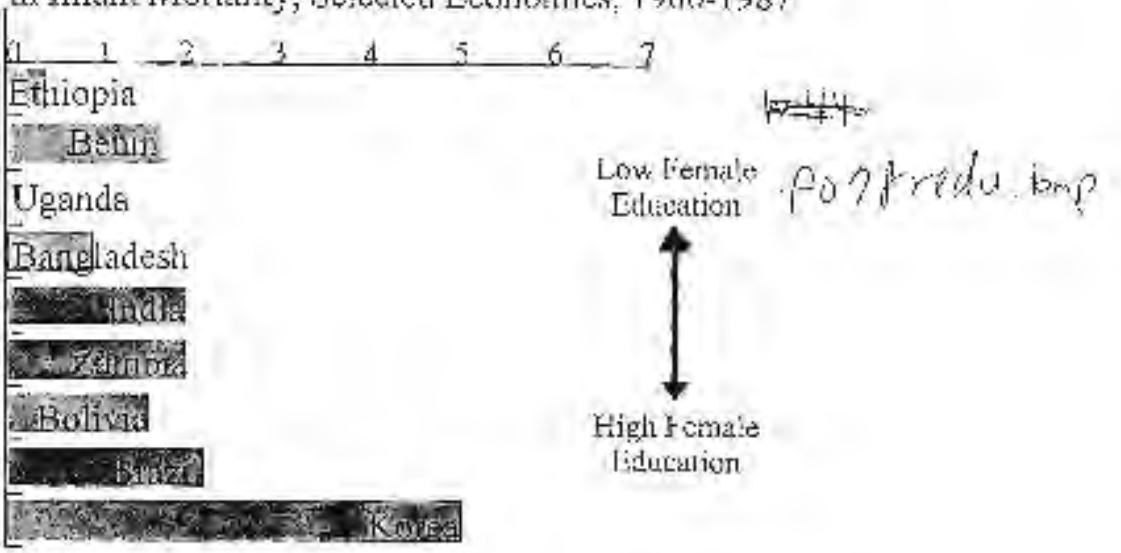


Source: Summers, Investing in all the people

The most significant predictor of fertility decline is female education.

reduction of infant mortality

Female Educational Attainement and Decline in Infant Mortality, Selected Economies, 1960-1987



Source: World Bank, WDR 1991, pg 49

m44redin.rtf

It is very clear that improvements in female education lead to significant reductions in infant mortality. In countries with low female education, infant mortality and female fertility rates are still high. In the Sahelian countries, where 22 percent of children die before age 5 and fertility rates are 6.4, a rate 25 percent higher than the developing country average.

quite minimal

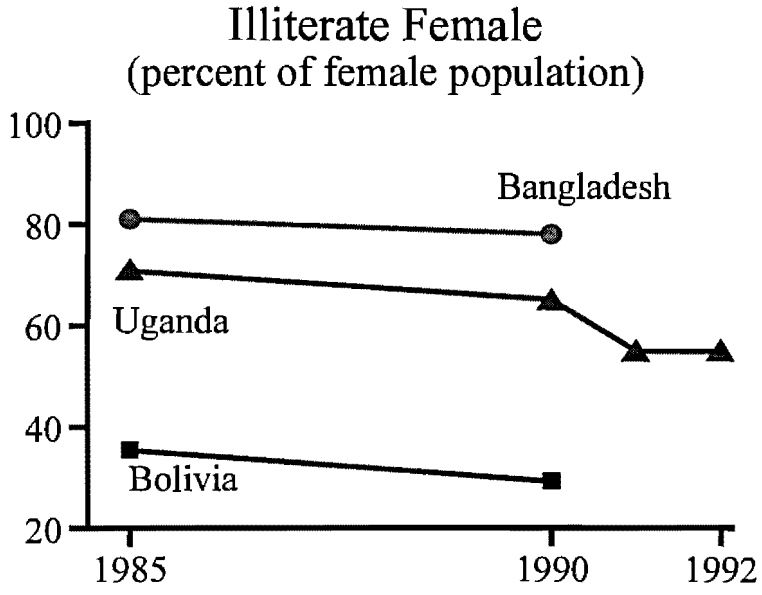
m44minim.rtf

Raising the female primary school enrollment rate of girls to equal the male primary school enrollment rate in the world's low-income countries would involve educating an additional 25 million girls each year at a total cost of approximately $93 million. Raising the secondary school enrollment of girls to equal the secondary school enrollment rate of boys would involve educating an additional 21 million girls at a total cost of $1.4 billion. Eliminating educational discrimination in the low-income parts of the world would thus cost a total of $2.4 billion. This represents less than one-quarter of one percent of their GDP, less than two percent of their government consumption spending, less than one percent of their investment in new capital goods, and less than 1/10 of their defense spending.

Source: Summers, "Investing in all the People", pg 9

Gender Case

Is there a gender gap in social indicators in Bangladesh, Bolivia, and Uganda? If so what is the size of the gap? Does it vary from indicator to indicator? What are the trends in the gaps? What are the differences, if any, in the gap(s) between the three countries, and how do you explain the differences?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Uganda
Bolivia
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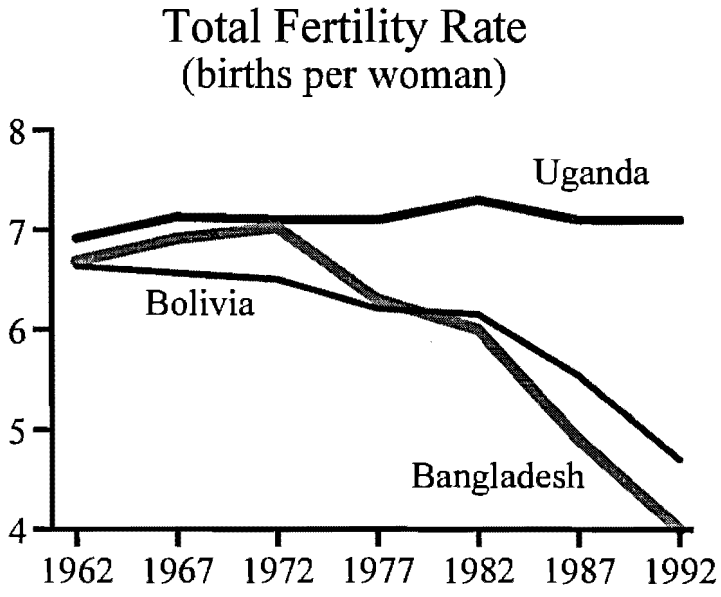
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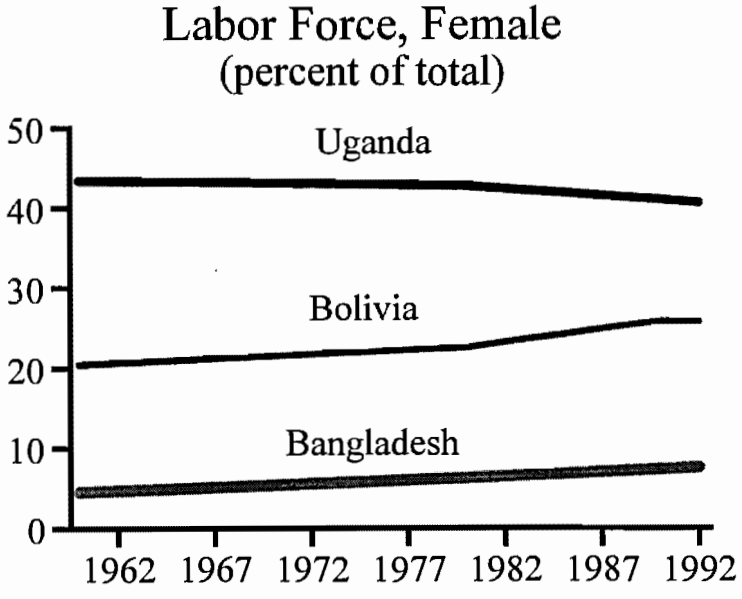
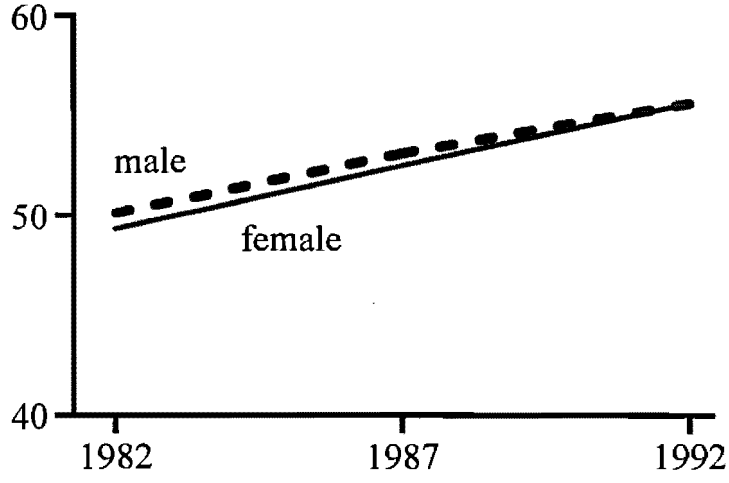
Uganda's TFR has held up at a relatively high level of about 7.0. This high fertility rate present major challenges for Uganda. Note that Bangladesh started with a higher fertility rate than Bolivia, but has shown a sharper fall after 1972 and a lower rate from about 1982.

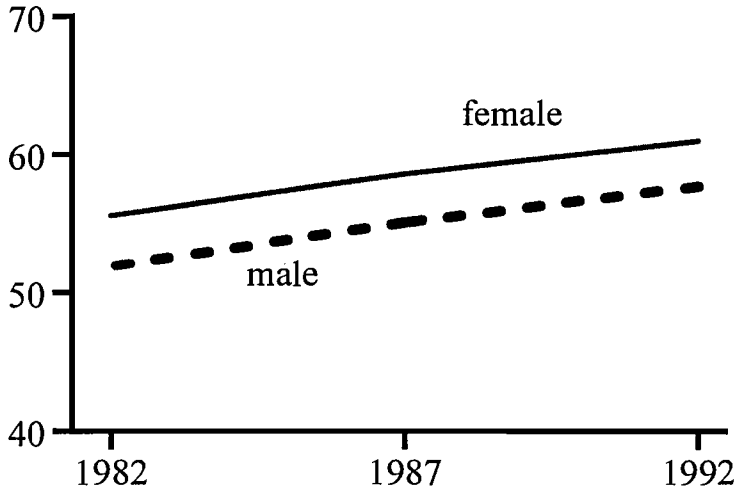
To what would you attribute Bangladesh's relative success? What factors are responsible for keeping the Ugandan rate at a relatively high level?


Labor Force, Female
(percent of total)
50
40
30
20
10
0
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

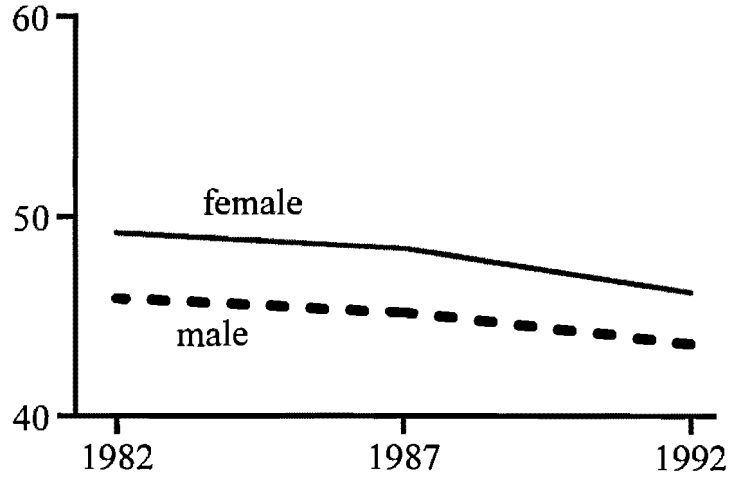
Life Expectancy at Birth: Bangladesh
Male and Female



Life Expectancy at Birth: Bolivia
Male and Female



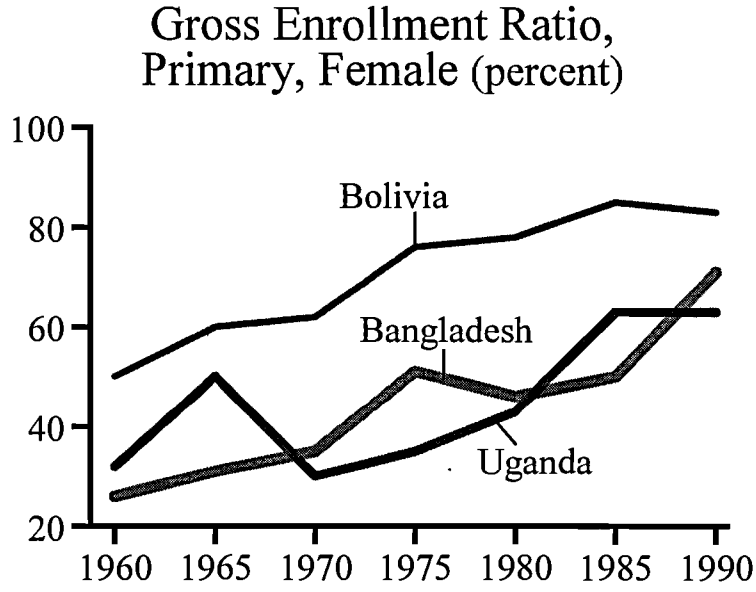
Life Expectancy at Birth: Uganda
Male and Female



Gender Equity Graphs
Graphs 1, 2, 3 - Life expectancy at birth - Male and Female

Normally there is a gender gap in life expectancy in favor of females. Experts attribute this to certain behavioral and lifestyle differences between the two sexes. Bolivia and Uganda conform to this pattern. In the case of Bangladesh, male life expectancy was higher than that of females until parity was achieved in 1993. A gap in favor of males is considered a sign of serious male bias in society. For example, it is believed that in such societies male children are favored in intra-family food allocation, and even in the resources and effort devoted to health care and education. Such gender gaps in favor of male children persist not only because of individual and family preferences, but also because governments themselves may follow policies, say in education, employment or property inheritance laws, that discriminate against women.

There is a notable feature in the Ugandan figures. Between the early 1980s and the early 1990s there was a deterioration in life expectancy for both males and females. This is probably largely related to the AIDS epidemic and the civil war.


Gross Enrollment Ratio,
Primary, Female (percent)
100
80
60
40
20
Bolivia
Bangladesh
Uganda
1960
1965
1970
1975
1980
1985
1990

Gross Enrollment Ratio - Primary, Female

Historically, female enrollment in all levels of schooling has been lower than male. This is true of our three sample countries also. A complex mix of the social, cultural and economic factors that were briefly discussed in relation to the graph on literacy accounts for the discrimination against females.

However, it is also important to note that the gap has been closing over the last three decades. This trend reflects an increasing commitment to gender equity, and a realization of the value of female education. Research has demonstrated that there are enormous economic and social payoffs in female education. The positive impact on family planning and child health are two of the most important social benefits. Improved female productivity in the work place is a major economic benefit. This has led policymakers and donors to place greater emphasis on improving female education.

Experts Response

We use three commonly available indicators, life expectancy at birth, illiteracy rate, and gross primary school enrollment ratio to answer these questions. Of these the first one, which reflects the health status of the population has a special property that needs to be borne in mind. That is that under "normal" conditions life expectancy for females would be a little higher than that for males. That is because for various social, life style, and health reasons, on average, females live a little longer than males in most relatively developed societies. Thus if that gap in favor of females does not exist, it is usually taken as a sign that females suffer from certain serious disadvantages such as inadequate health care, discrimination against female children and so forth.

In the case of our three sample countries, Bolivia and Uganda conform to the normal situation with a gap in favor of females. However, in the case of Bangladesh until the early 1990s there had been a small gap in favor of males. In fact if historical data are examined one would see similar gaps in the past for many developing countries. The closure of the gap can be interpreted as social progress for females brought about by improvements in education, income, nutrition, health care, and overall social status compared to males.

It is also interesting to note that in the case of Uganda, not only is there a decline in life expectancy over the 1980s and early 1990s, but also a slight narrowing of the gap between males and females. This of course accords with the theoretical expectation that if the rising trend in life expectation were to reverse itself, the factors that favor a higher life expectancy for females may eventually disappear.

A comparison of the data for the three countries reveal another interesting point about the gender gap in life expectancy. That is that there is no hard and fast rule regarding the level (years) of life expectancy at which the normal male/female gap gets established. Thus for Uganda the gap has been well established even when the overall life expectancy was just under 50. In the case of Bangladesh the gap in favor of males vanished only when the average life expectancy reached 55. For Bolivia the gap has been quite steady while average life expectancy rose from a little over 50 to about 60.

A higher rate of illiteracy for females compared to that for males is ubiquitous in the developing world. Even in countries such as China that have made considerable progress in mass education a significant gap exists. This again is mainly due to discrimination against female children. Families tend to give precedence to males in education as they are often considered the "bread winners" of the future.

In fact it is quite conceivable that in countries such as Bangladesh and Uganda where the illiteracy rate is comparatively very high , and the male/female gap rather narrow, if may even widen as education expands. That could happen if, under limited resources, both private, and public, male children are given precedence in primary school enrollment. In Uganda this seems to have happened for a while in the late 1980s, under crisis conditions, when the female enrollment ratio had lagged behind the overall enrollment ratio. However, today, in general, there is a greater awareness among leaders and policy makers in developing countries of the importance of female education. Donor agencies also lay special emphasis on female education. It is now well known that there is a substantial social rate of return on female education. Even from a private point of view, as more and more women enter the formal labor market and women break into types of jobs that in the past were the exclusive preserve of men, the traditional view that educating a male yields a higher return than educating a female has diminished. Thus, especially at the primary level, the enrollment gap has generally narrowed.

Description and Learning Objectives
Poverty and Equity

Economic growth that does not reduce poverty and improve equity cannot be viewed as meaningful development.

A Westerner who regularly visited the less developed countries LDCs) of Latin America, Asia and Africa in the last three decades would have been struck by two facts. Firstly, the remarkable progress made by a relatively few countries, most notably the Newly Industrializing Countries (NICs) of East/Southeast Asia, to reduce mass poverty and improve equity in their respective societies. Secondly, the widespread poverty that exists in most LDCs and the relatively high living standards (in some cases standards that compare very favorably with those of people in the upper income brackets in Western countries) enjoyed by a small minority.

The poverty is a testimony to the fact that even after almost half a century of development plans, several U.N. Development Decades and substantial foreign assistance, these countries have failed to provide significant segments of their populations with the basic material necessities to lead a decent life.

At least one quarter of the world's population lead a marginal existence in poverty. The inequity reflects the fact that the fruits of economic growth have often not been shared very equitably in many LDCs. Thus it should not surprise anyone, least of all people like you who have dedicated their professional careers to development, that poverty alleviation and the equitable distribution of income have become central concerns of development today.

For example, one central idea in USAID's own Strategies for Sustainable Development (January 1994) that will guide the Agency's activities for the next several years is poverty reduction via equitable growth. This means that one of the principal criteria by which the success of USAID programs would be evaluated would be by measuring their contribution to poverty alleviation and equitable growth. Thus, to be a successful development professional in USAID, you will need to

know what poverty and equity precisely mean and how they are measured.

The main purpose of this module is to do just that; we shall talk about the concepts and definitions of poverty and discuss how we can measure them quantitatively. Concepts and measures such as the Lorenz Curve, Gini coefficient, and the Poverty Line will be discussed.

As development professionals you will want to go beyond concepts, definitions, and measurements. You will want to know what policies work best to alleviate poverty and induce equitable growth. For example, does rapid economic growth alleviate poverty? Does rapid growth reduce equity or does it increase equity? These and related questions concerning policy will have to be taken up in later modules. In the full CAI system we shall have a case study—Sri Lanka—that has achieved a standard of human development and welfare that is unusually high for an LDC with a per capita GNP of about U.S. $ 500. Later in this study program when we deal with the question "How to achieve broad based sustainable development?" we shall also have a separate module addressing the issue of appropriate policies for poverty alleviation and equity. In this module we limit ourselves to defining and measuring the poverty and equity elements of SHD.

At the end of this section after you complete the analytical exercises, you should:

1. Be able to define, measure and understand concepts of poverty and equity, using a variety of measurement tools, and have a good understanding of their limitations, reliability and applicability and appropriateness.

2. Understand the trends in poverty and equity generally associated with development;

3. Have the basic analytical skills that will enable you to study and understand poverty and equity conditions and issues in any LDC that you are interested in and prepare an analytical country case study on the heme.

4. Have a good grasp of the theories that explain the observed relationships between economic growth on the one hand and poverty and equity on the other. And whether these theories are a reliable guide to understand what happened to poverty and equity in LDCs in the past, and whether they would be able to accurately predict future trends.

5. Understand the impact of economic growth on increases and decreases of poverty and equity.

6. Have a good understanding of the linkages of poverty and equity to the other elements of SHD.

Poverty Reduction

Nearly a third of the developing world lives in poverty. How do we define poverty and inequity? What lessons have we learned about how to reduce poverty? These key themes are introduced in this section.

Dimensions of Poverty

Overview

Global Income Distribution

According to the Development Pro[gramme] 1960, the wealthiest tw[enty] of the world population had [thirty] times the income of the poores[t] twenty percent. By 1990, the margin had increased to more [than] sixty times the income

Income Inequalities between the Richest & Poorest 20% of the World Population

(% share of [income])

	Poorest	Richest	Ratio	Gini coefficient
1960	2.3		30 to 1	0.69
1970		73.9	32 to 1	
1980		76.3	45 to 1	0.7
1989	1.4	82.7	59 to 1	0

- The Gini coefficient measures income distribution: the higher the value, the more unequal the distribution relationship.

Source: UNDP 1992.

Concepts

Poverty is not the same as inequality:

Poverty: the in[adequacy] of minimal standards, an absolute [concept]

Inequality: Re[lative] standards [and] is the wide[r] society

Note: [In]equality ref[ers] situation where one individual possesses the entire income [of the] community. All others are poor. This is an abstraction. The point being that high inequality and widespread poverty are likely to co-exist.

Minimum inequality (or absolute equality) refers to a situation where either *zero* poverty exists within the community or *all* exist in poverty.

Measurements of Inequality

[Distribution of per]

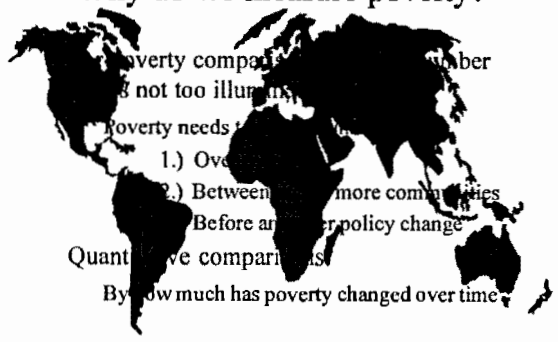
Lorenz Curve: [a] [percentages] of total [income] against cumulative percent[ages] of recipients, starting with the [lowest] income recipient.

The Gini coefficient (or concentration ratio): obtained by calculating the ratio of the area between the diagonal and the Lorenz curve divided by the total area of the half-square in which the curve lies. Gini's minimum and maximum values range from 0 to 1.

Measurement of Poverty

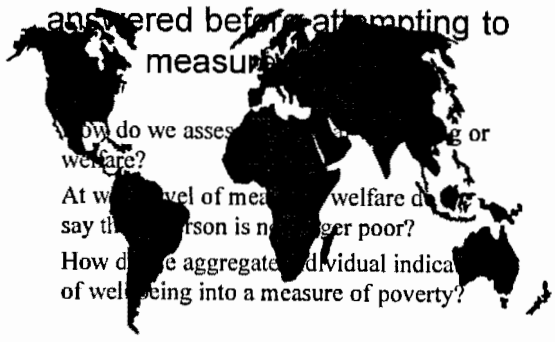
[Poverty] can be said [to exist] in society [when] one or more [people] [live] with a level of material [well-being] deemed to constitute a reasonable minimum by the standards that soc[iety]

Why do we measure poverty?



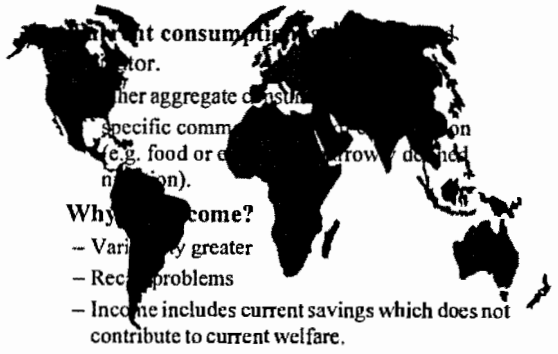
overty compa[ri]ber
not too illum[in]
overty needs
1.) Ov[er]
2.) Between [and] more com[mu]ities
Before a[n] policy change
Quant[i]ve compari[s]
By [h]ow much has poverty changed over time

Three Questions that must be answered before attempting to measur[e]



[H]ow do we asse[ss] [in]g or welfare?
At w[hat] vel of mea[n] welfare d[o] say th[at] rson is n[o] ger poor?
How d[o] e aggregate dividual indica of wel[l]eing into a measure of poverty?

Measures



[C]onsumption
tor.
her aggregate
specific comm[od]on
(e.g. food or e[du]rrow[ly] de[fi]ned
n[u]on).

Why [i]come?
- Vari[ab]y greater
- Rec[all] problems
- Inco[m]e includes current savings which does not contribute to current welfare.

Consumption Surveys/me[a]ur[e]nts

[H]ehold surveys
[W]orld Bank sur[v]
– Li[v]Standards M[e]ents (LSMS)
– So[u]ensions o[f] stment in Sub-Saha[r]rica Surve

Problems in measuring consu[m]

[S]ple bias

Valu[a]n of public [g]s is diffi[cu]

Data c[o]mall farm p[r]duction/produc
self-co[n]umption is not always captured.

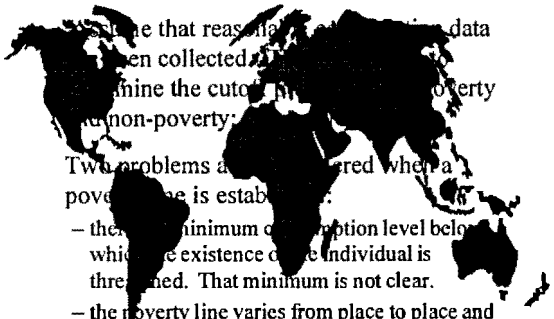
Alternative measures

[C]/share/non-fo[od]

Nutritional indi[ca]

Anthr[o]etric mea[s]of the nutriti[o]
status [o]children

Poverty Lines

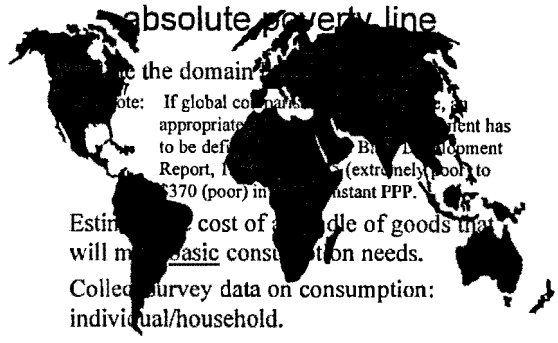


e that reas data
en collected
mine the cut erty
non-poverty.

Two problems a red when a
pov e is estab .

- the inimum o ption level belo
  whi e existence o individual is
  thre ned. That minimum is not clear.
- the poverty line varies from place to place and over time.

Steps in determining an absolute poverty line



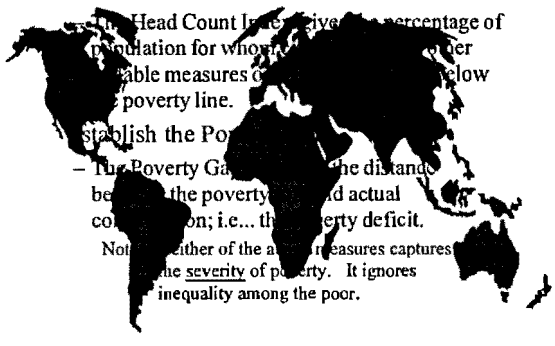
e the domain

ote: If global co
appropriate ent has
to be defi Bank Development
Report, (extremely poor) to
$370 (poor) in nstant PPP.

Estim cost of dle of goods that
will m basic consu on needs.

Collect survey data on consumption: individual/household.

Consult the Head Count Index.



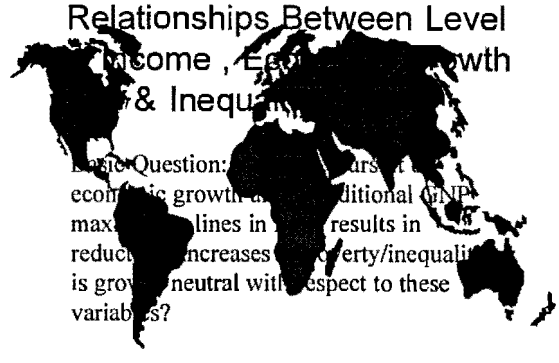
Head Count I ive percentage of
ulation for who der
able measures o low
poverty line.

tablish the Po

- The Poverty Ga he distance
  be the poverty d actual
  co on; i.e... th erty deficit.

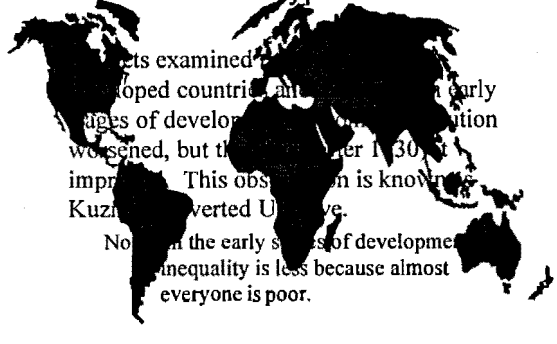
Not ither of the a easures captures
he severity of po erty. It ignores
inequality among the poor.

Relationships Between Level come , Eco wth & Inequ



Logic Question: urs
econ ic growth a ditional GNP
max lines in results in
reduc ncreases erty/inequali
is gro neutral with espect to these
variab s?

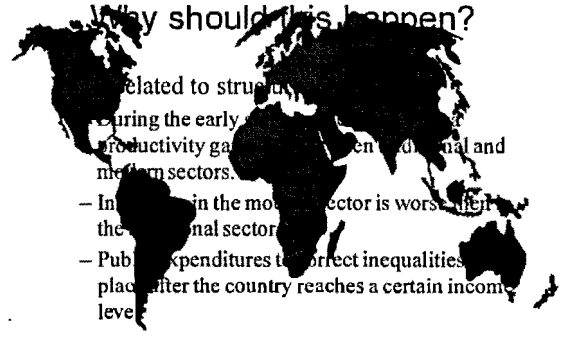
Kuznets Hypothesis



ts examined
oped countri ar
ges of develo ition
wo ened, but th er 1,30
impr This obs n is know
Kuzn verted U ve.

No the early s s of developme
inequality is less because almost
everyone is poor.

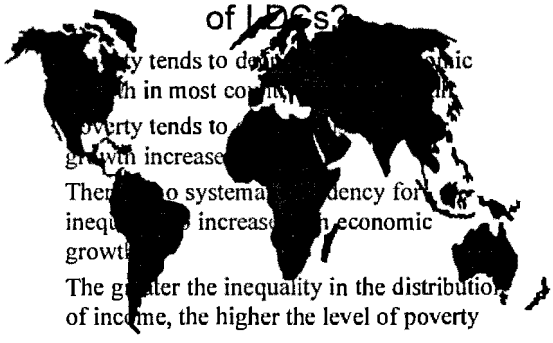
Why should this happen?



elated to stru
uring the early
productivity ga en al and
me rn sectors.

- In in the mo ector is wors
  the nal sector
- Pub xpenditures t rrect inequalities
  plac fter the country reaches a certain incom
  leve

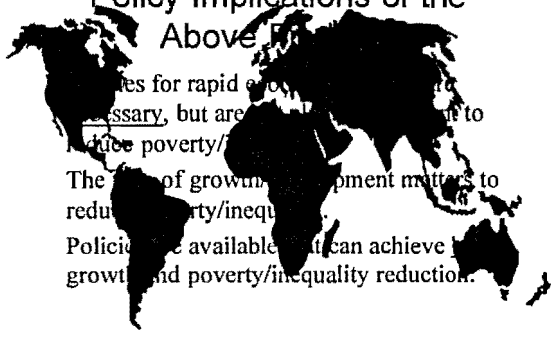
What is the recent experience of LDCs?



...ty tends to de... ...mic ...h in most co... ...
...verty tends to ... ...
...growth increase...
Ther... ...o systema... ...dency for ...
inequ... ... increase... ...economic growt...
The g...ater the inequality in the distributio... of income, the higher the level of poverty

There is no evidence to suggest that inequality increases with rapid economic ...th. In fact, accu... ...rts the oppos... ...e is no eviden... ...growth ...ds to raise ine... ...LDCs and reduc... ...in ...ely high-...ome LD... ...n can be ... acco... ...d by inc... ...d inequality ... either ...itionally, ...e is no tendenc... for ine... ...ity to incre... ...more often in early ...ges of development.
Growth seems to increase inequality a little more in Latin America compared to Asia.

Policy Implications of the Above F...



...es for rapid e... ...d ...ssary, but are ... ...t to ...uce poverty/...
The ... of growth ... ...pment matters to reduc... ...rty/inequ...
Polici... ...e available ... can achieve ... growth ...d poverty/inequality reduction.

explorer

Scenario 1

One possible scenario is illustrated by the Chinese experience after the Communist revolution (1948) and before liberalization in the mid 1970s. During that period China heavily favored rural development through collective forms of agriculture. There was also a strong emphasis on basic welfare services. In general in a country where the majority of the population were rural and a majority of the poor were also rural, a pro rural development strategy would probably move the Lorenz curve towards the diagonal line and reduce the value of the Gini coefficient. Of course, this does not necessarily mean that this is the best policy to reduce poverty. There could be more equity and more poverty existing side by side.

explorer

Scenario 2

A second possible scenario is illustrated by the Latin American experience of the 1960s and the 1970s. In general most Latin American countries favored import substitution industrialization (ISI). The strategy relied on capital intensive industries that benefited local business and a small (elite) labor force lucky enough to secure employment in industry. A poverty stricken large urban under-class came into existence under this strategy. Moreover, agricultural development was also neglected aggravating rural poverty. Thus this strategy was a recipe to move the Lorenz curve away from the diagonal and increase the value of the Gini coefficient.

explore

Scenario 3

A third possible model is offered by the Korean experience. Korea's modern urban industry and services showed high and steady growth from about the mid 1960s. Productivity, earnings and employment in these activities grew enormously over the next three decades. Helped by a land reform program, Korean agriculture also showed considerable productivity and income gains during this period. In such a situation, especially in the initial stages of development, the Lorenz curve may move away from the diagonal and the Gini value may rise. That is because income earners, especially the entrepreneurs, managers, professionals and highly skilled workers in the modern sector will experience faster income growth than others. However, for two reasons the situation will not be as bad as in, say, Latin America. Firstly, agricultural incomes will not diminish in absolute terms and will eventually begin to rise as agricultural productivity improves. Secondly, ordinary urban workers will also begin to enjoy higher incomes as their productivity increases and labor becomes relatively scarce. Thus, in the long term the Lorenz curve will move towards the diagonal and the Gini coefficient will fall.

explore

Scenario 4

A fourth possible model is associated with countries that have been in decline, especially in sub-Saharan Africa. These countries probably would have experienced an increase in inequity resulting in higher Gini coefficients. This would be so because these countries have experienced rising unemployment, deteriorating social services, declining agricultural outputs, and in the worst cases famine, widespread social dislocations caused by civil war and serious food shortages.

explorer

Scenario 5

A fifth possible case relates to some of the OPEC countries. Beginning with the first oil price hike of 1973 they experienced over one decade of enormous increases in oil incomes. This boosted the income levels of the residents of these countries. However, in most OPEC countries, especially in the Middle-East, typically, a disproportionate share of this income went to a small oligarchy consisting of the ruling circle and privileged businessmen. In most cases the income of even the poorest household went up. However, the distribution of the total income deteriorated showing up in a rising Gini coefficient.

explorer

Scenario 6

A sixth possible model is associated with the former communist countries of central and eastern Europe. Under socialist systems these countries typically had low Gini coefficients. However, economic restructuring following the collapse of communist regimes would show up in worsening income distribution and increasing Gini coefficients, at least in the initial stages of the process. This is attributable to two contrasting trends. One is the rise in unemployment and cut backs in social welfare expenditure of the state. The other is the growth of a relatively rich but yet not very large business class.

Text

Poverty and Equity

Why should we be concerned with poverty and equity?

The current concern for poverty alleviation and greater equity stems from a lesson learned by the development community from past experience. Those of you who are familiar with the development experience of the 1950s and the 1960s may recall that in many LDCs economic growth rates in those two decades were considered very satisfactory. Indeed the annual average target growth rate for the U.N. Development Decade beginning 1960 was 5.0% whereas the rate actually achieved was higher at 5.6%. However, it was increasingly noticeable that good economic growth numbers did not automatically translate into a reduction of poverty and an improvement in living standards of the poor in LDCs. The "trickle down" approach to development, it appeared, had failed. For example, the incidence of malnutrition showed no visible decrease, mass unemployment worsened and the lot of the rural poor in particular remained as before. Thus many felt that the focus of development must be poverty alleviation and not economic growth per se. In the 1970s the International Labor Office (ILO) called for a development strategy that directly addressed basic needs and stressed the importance of creating jobs. USAID also adopted a basic needs approach to foreign assistance, which was formalized in the New Directions legislation of 1973. The World Bank also declared its interest in doing more in the field of poverty alleviation.

In the 1980s attention of the development community shifted to economic stabilization, structural adjustment and market-oriented economic liberalization. That experience has taught us two important lessons.

First that stable economies, successful adjustment and sustained economic growth are essential to achieve viable improvements in living standards.

Second, neither successful stabilization and adjustment nor economic growth by itself guarantee significant reductions in poverty, especially among the most disadvantaged sections of LDC populations such as the rural landless laborers. They generally need direct assistance, usually from the state, at two levels. They need temporary assistance to secure basic needs for a period of time until they develop a capacity to provide for themselves. Secondly, they need assistance in areas such as education and credit to develop that income earning capacity. We have learned a great deal in the 1990s about not only where the poor live but the extent of the 'income gap' - between the richest and poorest in the world.

The difference between poverty and inequality

It is very important to understand the difference between poverty and inequality. In simple terms poverty refers to the inability to attain a minimal standard of living. Inequality refers to relative living standards across an entire community or society. At this point you should note the two theoretical extremes in the distribution of income of a

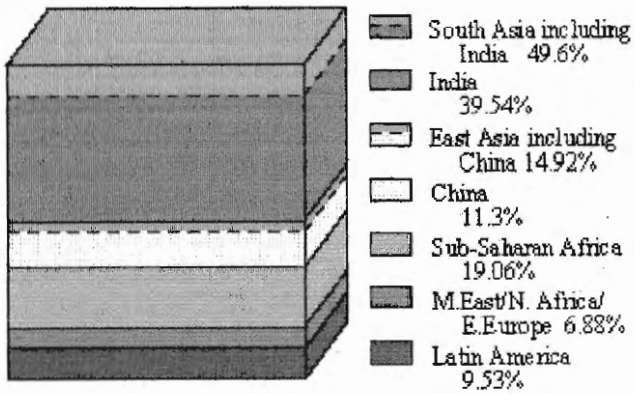
economic growth by itself

m45fig01

m45gwslf.rtf

During the past twenty years, some regions in the developing worlds, particularly East Asian countries have done extremely well in increasing both income and equality. Other regions have not fared as well. This graph for the Human Development Report or HDR, 1966) shows that in Sub-Saharan Africa, for example twenty countries are still below their per capita income of 20 years ago. Although there has been growth and recovery in Latin America during the 1990s, 18 countries in this region are still below their per capita income of 10 years ago.

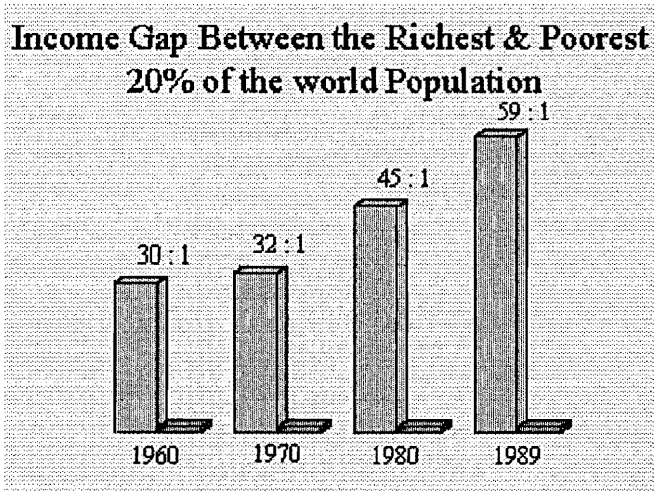
Where the poor live: percent of world's poor
(total 1,133 million people)



poor live

Poor Line

According to the World Bank about 30 percent or 1.13 billion people in the developing world are considered poor-with annual per capita incomes of less than $420. But poverty is not a problem that affects all regions equally. While about half the population of South Asia is considered poor, the proportion of poor in East Asia is only about 11 percent. India and China, with poor populations of 448 and 128 respectively, are the major contributors to poverty in Asia. For Sub-Saharan Africa the World Bank estimates that by the year 2000 half of the people in this region will live below the poverty lie. In Latin America, the poor are expected to increase from 108 million in 1990 to 126 million in the year 2000.



Income gap

According to the United Nations Development Programme or UNDP, there has been a dramatic increase in global income differences during the period from 1960-89. As the graph shows, in 1960, the wealthiest 20 percent of the world population had more than thirty times the income of the poorest 20 percent. By 1990 this had increased to almost 60 times as much,.

more info

Per capita income of the poorest 20%, 1993 (PPP$)

Country	Average per capita Income	Per Capita income of the poorest 20%
USA	24,240	5,814
Japan	20,850	9,070
Rep. of Korea	9,630	3,563
Chile	8,400	1,386
Hungary	6,050	3,297
Brazil	5,370	564
Guatemala	3,350	352
Indonesia	3,150	1,370
Nigeria	1,400	357
India	1,220	537
Bangladesh	1,290	613
Nepal	1,020	464
Tanzania	580	70

Source: Basu 1995

community. In the first situation just one individual in a community gets all the income of that community. The others get nothing and are all very poor. Of course this is an abstraction. However, there is an important lesson in this. That is that very high inequality and widespread poverty are likely to coexist. As an example, you may think of a country such as Zaire where its ruler Mobutu and his coterie of supporters take a large share of the country's income and the mass of people live in poverty.

The current global distribution of income is the result of a complex of forces at work. However, the final outcome is a highly unequal distribution. The Human Development Report published by the UNDP notes that in the early 1990s the richest fifth of the world population (i.e. mainly the inhabitants of the Western industrial countries) received about 80% of the global income and the other four-fifths the balance 20%. The poorest 20% received only 1.4% of the income. In such a situation it is not surprising that there should be widespread global poverty.

The other theoretical extreme is where every individual gets exactly the same income. This is absolute or perfect equality. In principle, such a situation can be associated either with zero poverty or all in poverty. That will depend on whether the per capita income is above or below the minimum level required to avoid poverty.

Measuring inequality

Economic inequality manifests itself in different ways and forms. Unequal ownership of physical assets is one obvious form. Some of these physical assets are durable "consumption" goods ranging from household appliances to automobiles and dwellings. Some others are economically productive assets such as land and machinery. In many predominantly agricultural LDCs, unequal ownership of land is a principal source of inequity in rural communities. Given all other factors such as natural ability and individual preferences, differences in the level of education (human capital) is also a manifestation of economic and social inequity. That is because such differences may be attributable to variations in access to education determined by economic and social circumstances.

The most commonly used measure of inequality is the size distribution of personal income. By personal income we mean the total income that an individual receives in a given period of time, usually for one month or one year. We are not concerned here as to what the income source is. It could be from labor (salaries and wages), money lending (interest income), renting or leasing assets (land rent or property rent) or entrepreneurial activity (profits or dividends). In LDCs where income in kind is important we would add such incomes as well. Usually one would also add government subsidies received that increases personal income beyond what is earned. Ideally personal income taxes paid by each individual must be deducted from the gross personal income. In some instances instead of calculating individual incomes we may calculate total household incomes aggregating the individual incomes within each household. This may reflect the reality more accurately where personal earnings of individuals within a household are difficult to

poorest 20%

Per capita income of the poorest 20%, 1993 (PPP$)

m45tbl02

Country	Average per capita Income	Per Capita income of the poorest 20%
USA	24,240	5,814
Japan	20,850	9,070
Rep. of Korea	9,630	3,563
Chile	8,400	1,386
Hungary	6,050	3,297
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Guatemala	3,350	352
Indonesia	3,150	1,370
Nigeria	1,400	357
India	1,220	537
Bangladesh	1,290	613
Nepal	1,020	464
Tanzania	580	70

Source: Basu 1995

m45poor.rtf

According to the UNDP, the poorest 20% of the world's population saw their share of global income decline from 2.3% to 1.4% in the past 30 years. This table shows the gap between the average (median) per capita income in a set of countries with the per capita income of the poorest 20% of the population.

desegregate. For example, this would be the case, in rural farming communities in LDCs where agricultural production is a shared family effort. The principal disadvantage of the household income method is that in a situation where the number of income earners varies from family to family the numbers may bias the income distribution in a particular way. For example, if low income families typically have more income earners than high income families, household incomes will show a higher degree of equity than what exists in reality.

The Lorenz Curve shows us a relationship between growth, poverty and income distribution.

Poverty and Equity Exercise Distribution of Income Case:

Defining poverty

What we mean by poverty is the existence of at least one individual in a society who is not able to reach the minimum material standard of living that is considered acceptable by that society. This definition of poverty immediately raises the issue of what or whose minimum standards we are talking about. The minimum standard varies from society to society and also over time. Thus, for example, the minimum living standard acceptable in the U.S. is not the same as in Haiti or Bangladesh. The minimum standard will generally rise over time. Thus, poverty is a relative concept but with an absolute standard at a given point in time in any given society.

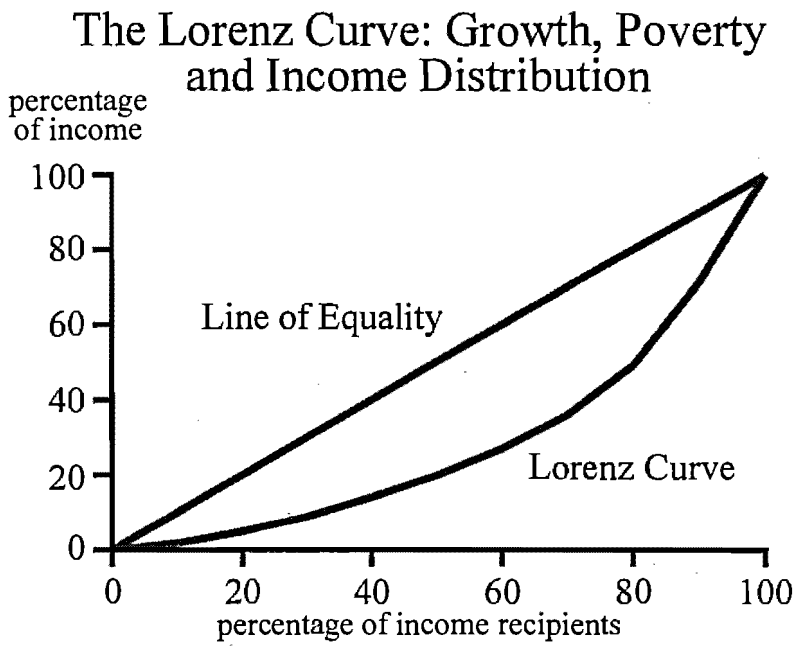
There are several reasons for wanting to measure poverty. First, when it is measured from time to time over a period of time it provides us with an indicator of general human material well-being. Second, it allows us to make comparisons in living standards between different communities, between countries, rural-urban etc. Third, measuring poverty helps us to formulate economic and social policies designed to alleviate poverty and also to evaluate the impact of economic and social policies on living standards over time. For these reasons we need a reliable quantitative measurement of poverty.

To develop an appropriate quantitative measure of poverty we need to answer three questions. The first is, how do we assess individual well-being? Secondly, at what level of well-being do we say that a person is not poor? Thirdly, how can we add individual welfare measures to show the poverty level of a community?

Measuring poverty

Normally to assess poverty in LDCs we use a measurement of the standard of living. The preferred measure is the current level of consumption. Here there is a choice of more than one. The most comprehensive measure will be aggregate consumption including goods and services such as education and health services provided by the government. Such a measure will also include goods and services produced by the individual or household for ones own consumption. In theory aggregate consumption must also include the

Lorenz Curve

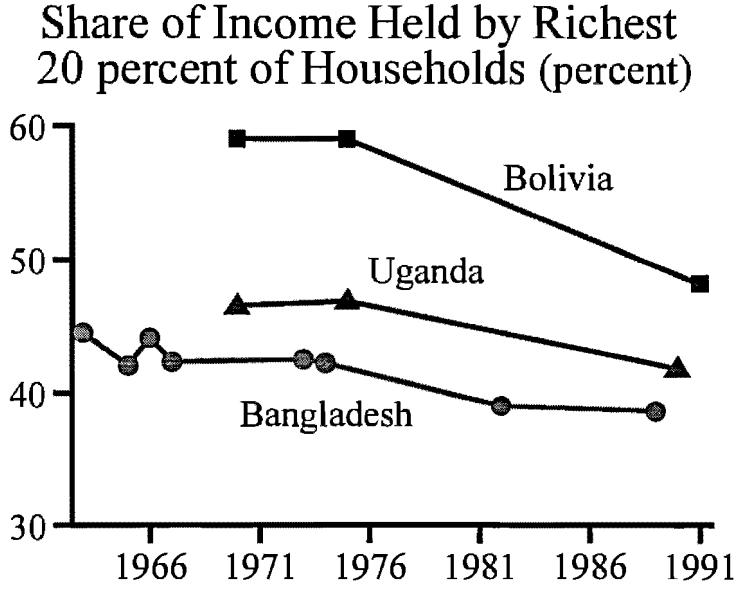


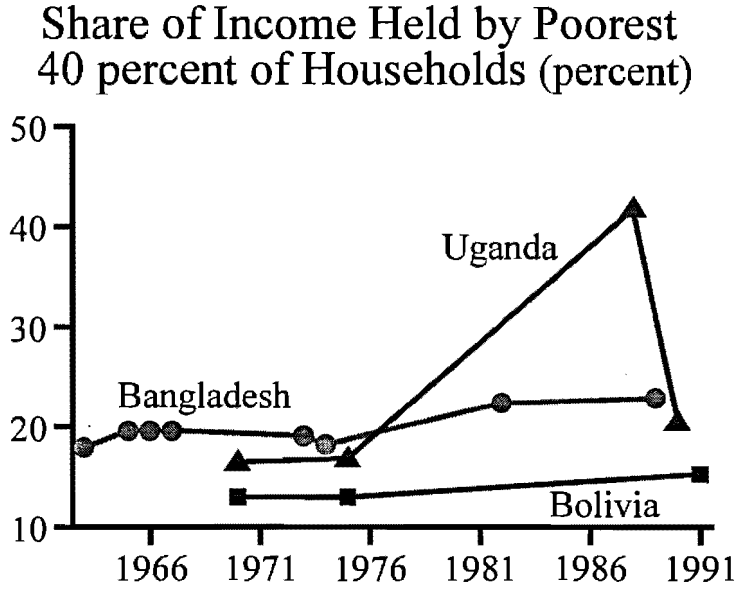
The horizontal (x) axis shows the cumulative percentage of income recipients and the vertical (y) axis the cumulative percentage of income. Note that both are percentage figures that add up to 100. The coordinates of these two sets of cumulative figures are plotted in Figure One and connected to produce the Lorenz curve. The typical income distribution will have a Lorenz curve similar in shape to what is shown in the figure. However, one can think of two extremes. One is a situation of perfect equality where everyone gets exactly the same income. If so, in our example, each individual will receive 5.0 income units, no less, and no more. Thus 5% of the population will receive 5% of the income, 10% will receive 10% and so forth. The Lorenz curve will fall on the line of equality. At the other extreme, if one individual gets the entire income of 100 monetary units and the others none, the Lorenz curve will be an "L" with the coordinates A to I falling on the horizontal axis. It follows that greater the equality closer will be the Lorenz curve to the line of equality and vice versa.

What does the Gini coefficient tell us about poverty and inequality?

Distribution of Income Case

Review the distribution of income in your country using the variables, household income share, top 20 percent and household income share, bottom 40 percent. How do you explain, especially in terms of government policy in your country, what you see in the figures?


Share of Income Held by Richest
20 percent of Households (percent)
60
50
40
30
Bolivia
Uganda
Bangladesh
1966
1971
1976
1981
1986
1991


Share of Income Held by Poorest
40 percent of Households (percent)
50
40
30
20
10
Uganda
Bangladesh
Bolivia
1966
1971
1976
1981
1986
1991

Share of income held by the richest 20 percent of households
Share of income held by the poorest 40 percent of households

The first point to note is the methodological question of data points. For both Uganda and Bolivia, we have three data points each for a period of twenty years. For Bangladesh we have a few more.

Second, the problems with data gathering and estimation that we mentioned with regard to poverty lines also apply to income distribution.

What you should consider here are the factors that have led to the income distribution you observe. In particular, you should review such factors as ownership of productive assets like land, level of education, employment conditions, and government policies such as taxation and budgetary spending in order to understand the observed figures.

consumption of "leisure" but due to a lack of data that is almost never included in the actual figures that are computed.

Sometimes, instead of aggregate consumption a narrower band of consumption is measured. For example, food consumption. In other instances nutrition levels are measured to determine poverty levels.

One may wish to know the reasons for not using the level of income to measure poverty. There are a number of reasons for generally not using income as a measure of poverty in LDCs. Firstly, there can be very considerable variability in incomes, especially of those who rely on rain-fed agriculture for their livelihood. When income temporarily falls in such communities they either liquidate assets or borrow in cash or kind to maintain current consumption. Using consumption rather than income to measure poverty has another advantage. When one uses assets (savings) accumulated from the past to maintain current income in the face of an income shortfall, it reveals past incomes. When one borrows to do so it reflects anticipated incomes. Thus, in sum, current consumption is a better indicator of the current living standard.

Secondly, reliable income data are difficult to gather especially in agricultural communities that have to recall income figures for a past period, usually one year. Moreover, people are generally reluctant to reveal true income figures for fear of taxation or losing government subsidies and other such benefits.

The Poverty Line

Poverty measurements assume that there is a clear cut, pre-determined standard of consumption called the poverty line (PL) which must be reached for a person not to be considered poor. But two qualifications must be made. [see figure 1 (poverty)]. There is an absolute minimum consumption level below which physical existence will be in jeopardy. However, it is not clear what this minimum is for any given individual. Secondly, the minimum socially acceptable level of consumption is generally higher than this. But views differ as to what that acceptable minimum is.

However, neither the head count index nor the poverty gap tells us the severity of poverty. That is they ignore inequality among the poor.

Each of the measures discussed has policy uses. For example, if we do not know who is below the PL but know what the PL is, the total cost of a non-targeted program to eliminate poverty will be the poverty line income multiplied by the total population. On the other hand, if we know the poverty gap (i.e. can identify who the poor are) the minimum cost of a targeted transfer scheme will be equal to the area of the poverty gap. The amount required to eleminate poverty will vary depending on the relative size of the poverty gap. [see figure 2 (poverty)]

current consumption

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Household sample surveys have to be done to measure consumption both food and non-food. One of the best known in this genre is the World Bank series called Living Standard Measurement Surveys (LSMS). One must be aware of problems that are bound to be encountered in such surveys. One is sample bias. For example, poor people in remote areas may be missed disproportionately. A second difficulty is the valuation of publicly provided services. Thirdly, data on produce for self consumption can get left out. Fourth, the survey must take into account seasonal and monthly cyclical patterns of consumption.

If, for whatever reason, total consumption data cannot be collected, one may have to use a more limited measure such as food consumption data. Sometimes nutritional indicators are also used to measure poverty. For this a minimum nutrition level is specified and those who fall below that are said to suffer from "food-energy poverty". Anthropometric measures, weight for age and weight for height, are used to measure the nutritional status of children. A principal drawback of all nutritional measures is that nutrition is only one aspect of human well-being.

poverty line (PL)

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A step by step approach to the determination of a poverty line is as follows. Firstly, identify the community or country to which the PL is applicable and choose a sample for which consumption data is to be collected. The PL should be appropriate to that community or country. For global comparisons of poverty a global PL will be needed. For example, the World Bank uses a lower PL and an upper PL, $ 275 to $ 370 consumption per capita in constant 1985 PPP dollars respectively, to identify a consumption band as the minimum acceptable level. This band is based on recent country PL from India ($ 275), Bangladesh, Indonesia and so on.

Some suggest two poverty lines of a slightly different nature. One is the "ultra PL" that consists of the minimum food requirement only. The other is the "regular" PL that includes both food and non-food consumption.

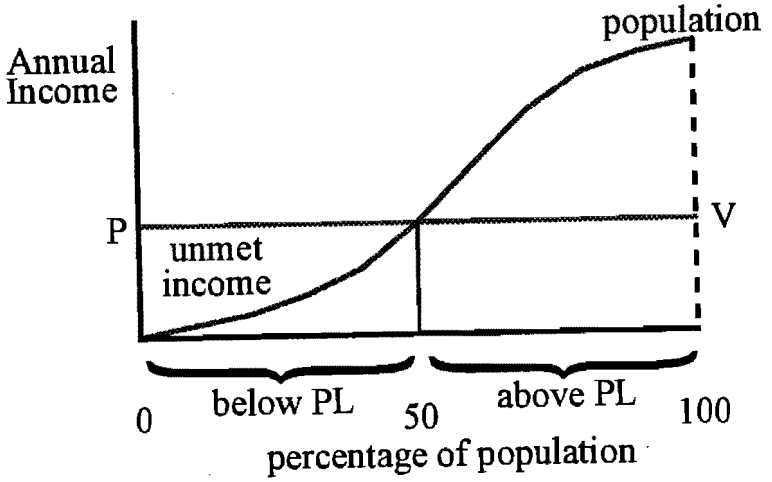
After identifying the domain to which the PL is to applied the next step is to determine the "basic" bundle of consumption goods to be included. Typically this bundle will consist of food plus a modest quantum of non-food goods and services. This is a complicated task. For example, food energy requirements can vary from individual to individual depending on, among other things, the nature of ones occupation. The poor may spend more than what is actually needed to attain the stipulated caloric level by choosing relatively expensive foods when cheaper substitutes are available. In short there is some arbitrariness in the choice of the basic bundle of consumption goods.

The third step is to estimate the cost of the bundle of goods for each person or household in the sample.

The fourth step is to add them up into a measure of poverty. Here we have a choice. One is to calculate a Head Count Index which is one of the most common poverty measures. It is simply the percentage of the population that falls below the minimum consumption level. In figure 6 (poverty) the horizontal (x) axis shows the population as a cumulative percentage and the vertical axis the consumption per capita (or household) in monetary units. PV is the poverty line and the line originating in 0 and running diagonally is the actual cumulative consumption line. Assume the PL to be $ 100. Then 50% of the population have a consumption level below the poverty line. This number gives the poverty prevalence rate. It is easy to understand.

more info : head count index

Measuring the Poverty Gap: A Relatively Large Poverty Gap



However, there is one big drawback to the head count index. It is not sensitive to, say, a further deterioration in the living standards of those who are already below the PL. Neither does it tell us the difference in the degree of poverty between two societies when both have the same proportion of the population under PL but one, for example, has a higher proportion of the poor just below the PL and the other has a higher proportion well below the PL. To capture such changes and differences we measure the poverty gap (or poverty deficit). It measures the distance between PL and actual consumption. Thus the area between PL and the consumption line is the poverty gap.

more info : figure 1

Measuring the Poverty Gap:
A Relatively Small Poverty Gap

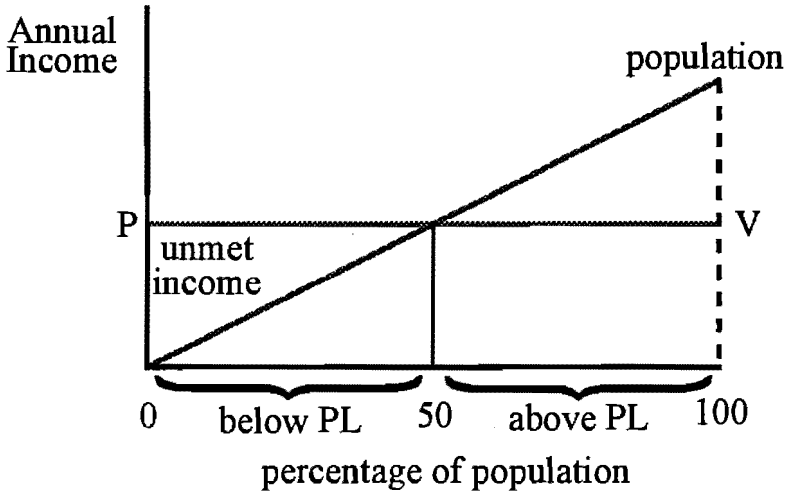
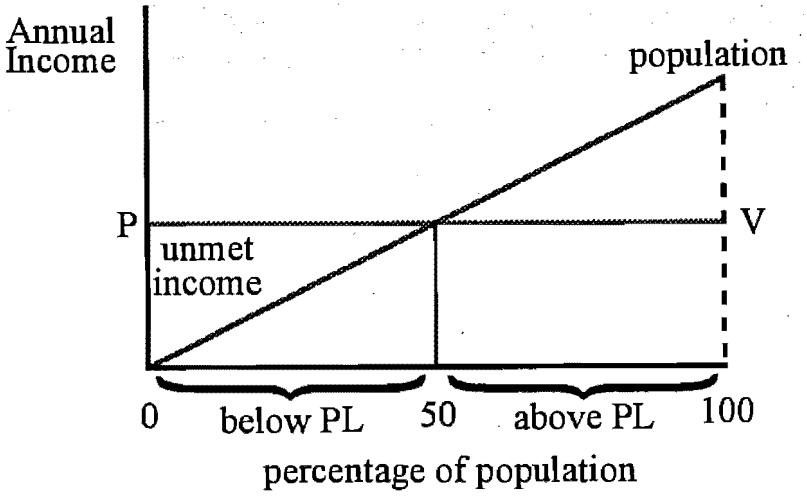


figure 1 (poverty

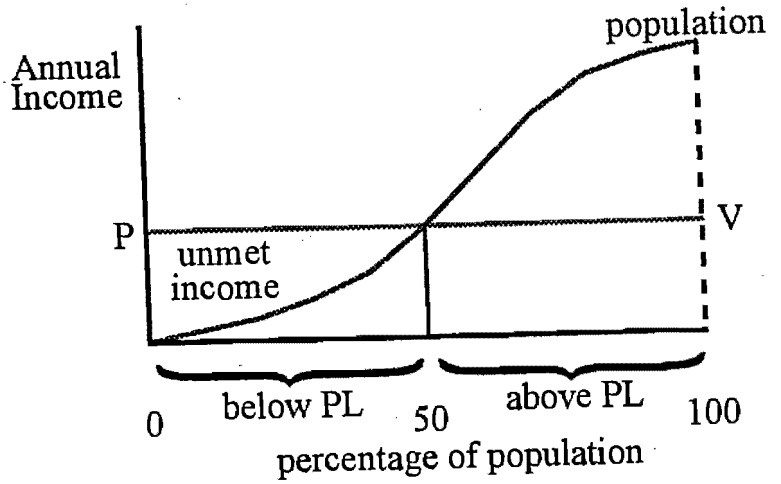
Measuring the Poverty Gap:
A Relatively Small Poverty Gap



The graph shows how we can measure the poverty gap using the poverty line (PL). The diagonal straight line shows the percentage of the population below any specified level of annual income. In the graph 50% of the population are shown to have incomes below the poverty line, and the balance 50% above the poverty line. The poverty gap measures the shortfall in income to bring those who are below the poverty line to a level above the poverty line.

figure 2 (poverty)

Measuring the Poverty Gap:
A Relatively Large Poverty Gap



The Poverty Line and the population percentage below the poverty line in this graph and in figure 1 (poverty) are the same. The only difference is that the population who are below the poverty line in figure 2 (poverty) have smaller incomes than those in figure 1. In other words poverty is more acute in figure 2 and the poverty gap is correspondingly larger.

Assume that a policy is designed to reduce the severity of poverty by transferring income to the poorest who even after the transfer remain below the poverty line. This will have no impact on the head count index. But it will reduce the poverty gap by reducing the severity of poverty.

There are broader measures of human welfare such as the infant mortality rate (IMR: deaths in the age group below one year per 1,000 live births) and life expectation at birth. It is widely known that generally countries with higher per capita incomes have lower IMR and higher life expectancy at birth. Measures of educational attainment are also important to examine. In other words these variables are positively associated with GNP per capita that is taken as a general measure of economic progress and development. The Human Development Index is also an important measure of development.

Poverty and Equity Exercise Measures of Poverty Case:

What are the relationships between economic growth, equity and poverty?

A question that is often raised is whether economic growth in LDCs along traditional GNP maximizing lines results in a reduction or an increase in poverty and equity. Or is growth neutral with respect to these two variables?

Poverty and Equity Exercise Growth and Poverty Case:

It is also useful to compare growth with the purchasing power parity index as comparing increases across countries can be problematic.

Poverty and Equity Exercise Comparison of GNP/PPP Case:

'Kuznets' Hypothesis

Simon Kuznets examined the experience of developed countries and noted that in the early stages of development income distribution worsened but that later (after about 1930) it improved. This observation is known as the Kuznets "Inverted U" curve.

If the Kuznets hypothesis is valid the coordinates for each country should arrange themselves in an inverted "U" pattern. That, however, is hardly evident. What this means is that there are LDCs with relatively high per capita incomes and a high level of inequality (e.g. Brazil) and others with a high income and more equity (e.g. Korea). The same mixed picture is true for LDCs with relatively low incomes. Thus no sweeping generalizations can be made regarding the nature of the relationship between economic growth and equity.

To further elaborate the above point in terms of recent development experience we can note several scenarios in explore page in this section.

Humand Development Index is also

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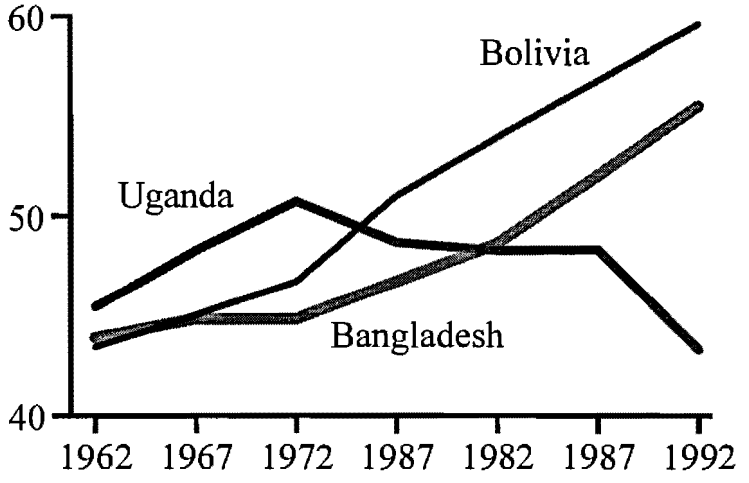
What is the Human Development Index?

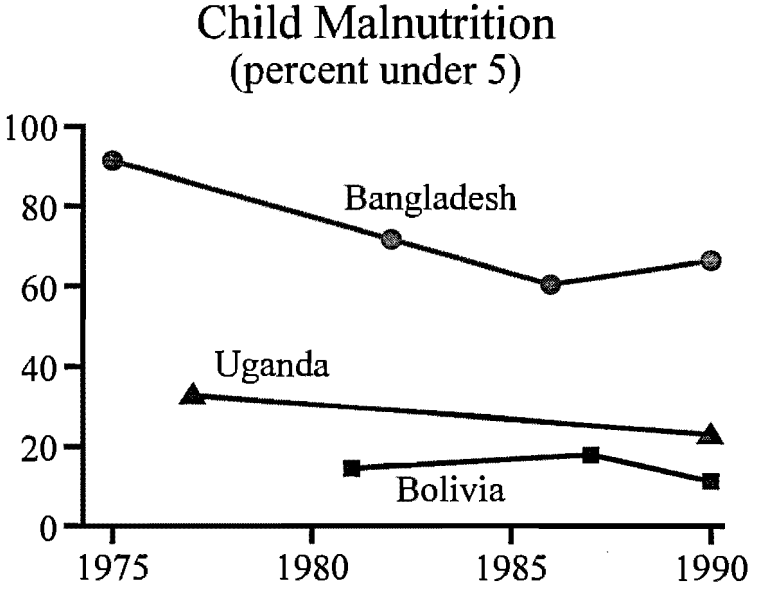
The UNDP (Human Development Report - Annual) annually prepares a Human Development Index (HDI) which combines three variables, longevity (life expectation at birth), level of knowledge (adult literacy rate and the mean years of schooling) and income per capita. In general HDI and income per capita are positively related. Thus those countries with high per capita incomes also have high HDI values. However, there are notable outliers. Countries such as China and Sri Lanka who have relatively modest per capita incomes have relatively high HDI rankings that are normally associated with countries with much higher per capita incomes. Then there are some oil producers and many Sub-Saharan African countries that have HDI values below what one would expect given their per capita incomes.

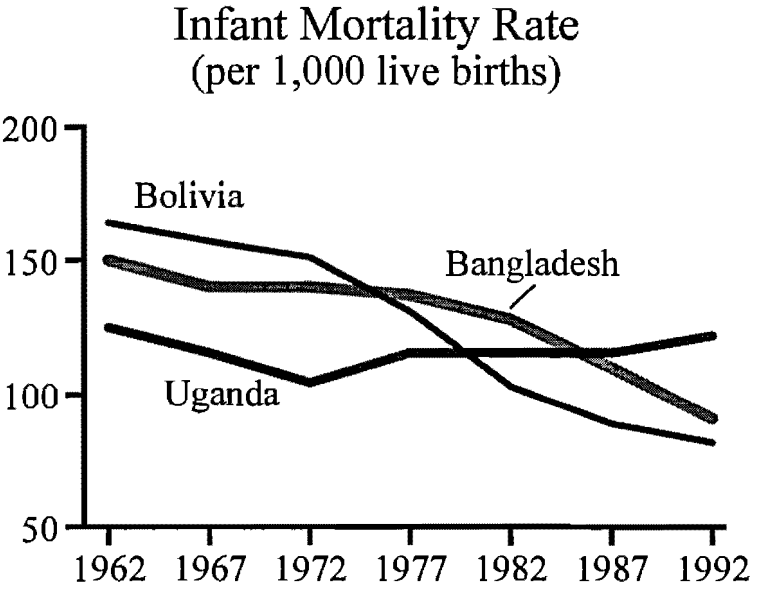
Measure of Poverty Case

Examine the variables, life expectancy at birth, infant mortality rate, under 5 mortality rate, child malnutrition rate under 5 years, the Human Development Index, and the GNP per capita. What do they reveal about poverty in your country?

Life Expectancy at Birth




Child Malnutrition
(percent under 5)
100
80
60
40
20
0
1975
1980
1985
1990
Bangladesh
Uganda
Bolivia


Infant Mortality Rate
(per 1,000 live births)
200
150
100
50
Bolivia
Bangladesh
Uganda
1962
1967
1972
1977
1982
1987
1992

Life expectancy

Life expectancy at birth is the number of years that a new-born child would live, if the mortality risks prevailing at the time of its birth remained unchanged.

Bolivia and Bangladesh show sustained increases in life expectancy throughout the perio rapid gains after the mid -970s. Uganda also experienced an increase in the 1960s, but sh after 1972. The decline has accelerated since 1987. Note that Bolivia and Bangladesh star virtually the same level in 1962, but Bolivia achieved more by 1992. Also note that Ugan this regard not only stopped after 1972, but that its life expectancy in 1992 was lower tha prevailed three decades ago.

Graph 5 - Under 5 Malnutrition Rate
Graph 6 - Index of Food Production
Graph 7 - Food Consumer Price Index

The first point to note is that the overall comparative malnutrition levels roughly accord with our expectations for the three countries. Bolivia with the highest per capita income has the lowest and, Bangladesh and Uganda with lower per capita incomes have higher malnutrition levels.

However, the large gap between Uganda and Bangladesh is a little more problematic. The former had a civil war and extreme economic dislocation in the early 1980s. Yet there is no significant deterioration in the malnutrition levels. In the case of Bangladesh the numbers show a slight increase in malnutrition between the mid 1980s and the early 1990s when the country's economy was doing comparatively well.

The explanations for the above inconsistencies could be statistical as much as real. First, note that these graph lines are constructed using a few data points. In the case of Uganda, it is just two, spanning a period of about 12 years. Thus we cannot be certain as to what actually happened during the intervening period.

Second, there can be significant differences in the methodology of measurement used in the different surveys even in the same country let alone among different countries.

Having said that, consider the Index of Food Production and the Food Consumer Price Index. In Uganda food production had fallen by about 30 percent between 1975 and 1988. Between 1986 and 1988 food prices had escalated at hyper-inflation rate. Bangladesh had experienced a sharp drop in food production in the early 1970s and a slow declining trend from mid 1970s to late 1980s. Throughout the period food prices have slowly risen in the country. Bolivia's food production shows a rising trend in the 1970s and again from mid 1980s to the early 1990s. However, food prices show a very sharp rise in the early 1980s when the country had hyper-inflation. What this means is that deteriorating food availability for the lower income groups could have worsened under 5 malnutrition in our sample of countries.

For all these reasons it is best to consider these numbers as rough orders of magnitude of the situation. It is also very sensible to read such data in the light of other information such as food availability, economic growth, unemployment situation, income distribution, political situation and so forth.

Infant Mortality

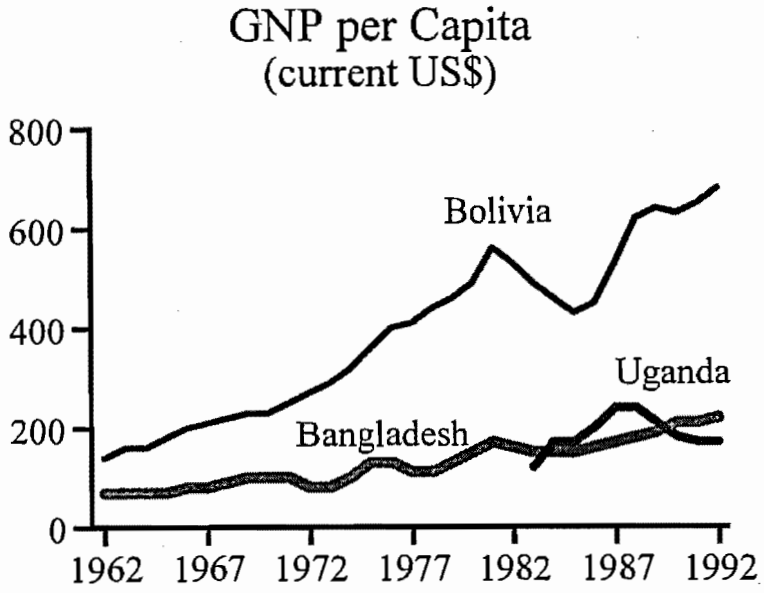
The Infant Mortality Rate or IMR refers to the number of deaths among children between birth and year 1 per 1,000 live births in a given year.

Both Bolivia and Bangladesh have experienced declines in IMR during the entire period. For Bolivia the decline has been sharper in the 1970s and for Bangladesh in the 1980s. Uganda experienced a decline in IMR in the 1960s and early 1970s, followed by a rise during the rest of the period. Note here that until the mid 1970s Bangladesh - one of the world's poorest countries - had a lower IMR than Bolivia which had a per capita GNP about three times higher than that of Bangladesh. It is also useful to note that Uganda has regressed after 1972 to the point where its IMR in 1992 is almost the same as that which prevailed in 1962.

Questions: What factors have contributed to the drop in IMR in Bolivia and Bangladesh? How do you explain the reversal in IMR in Uganda?

Growth and Poverty Case

Graph the GNP per capita growth rate for your country. Now examine the poverty and equity indicators most available for your country. Do you see a link between poverty and growth in your country? Now graph the variable infant mortality rate or life expectancy, along with the GNP per capita growth rate. Do you observe any relationship between these variables?


GNP per Capita
(current US$)
800
600
400
200
0
Bolivia
Uganda
Bangladesh
1962
1967
1972
1977
1982
1987
1992

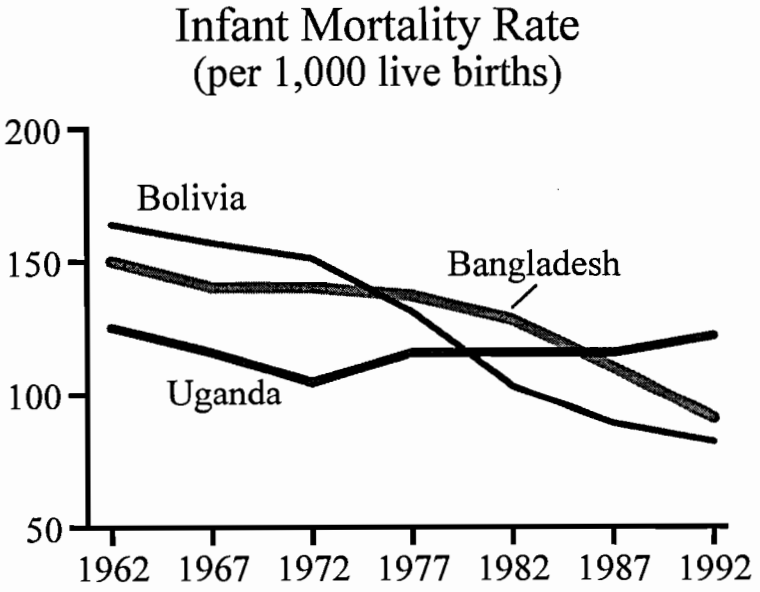
GNP Per Capita

GNP per capita stated in US dollars is at best a very crude measurement of poverty. Using this method, the average output of a country is calculated by taking the per capita GNP, measured in the national monetary unit, and converting it to US dollars using a "suitable" exchange rate. The World Bank uses what it calls the "World Bank Atlas Method" to make this conversion. Simply put, the Bank takes a moving average of the US dollar average exchange rate for the year in question, and for the two preceding years, after adjusting them for differences in rates of inflation between the country concerned, and the G-5 countries (France, Germany, Japan, UK, and US). When average productivity is measured on this basis, we can say that in 1994 Uganda had a per capita GNP of $190, and Bangladesh $ 220, and that both were considered "low income" poor countries. Our third sample country, Bolivia had a per capita GNP of $770 and stood at the very bottom of the "lower-middle-income" countries.

However, per capita GNP is not a very accurate measure of poverty. First, it ignores vast differences in prices among countries. Thus, if a haircut in India costs only, say, one dollar, and a cut in the US costs, say, $10, then the Indian with $1.00 is as well off as the American with $10.00.

The purchasing power parity, or PPP, makes an adjustment for such variations in prices. However, neither this measure nor GNP per capita reveals the actual distribution of income within a country. Neither do they tell us whether a given amount is adequate to attain a reasonable living standard. Thus, we must go beyond average income to get a more reliable measurement of poverty.

other measures



Other Measures

Infant Mortality Rate
Illiterate Population (% of population 15+)
Human Development Index

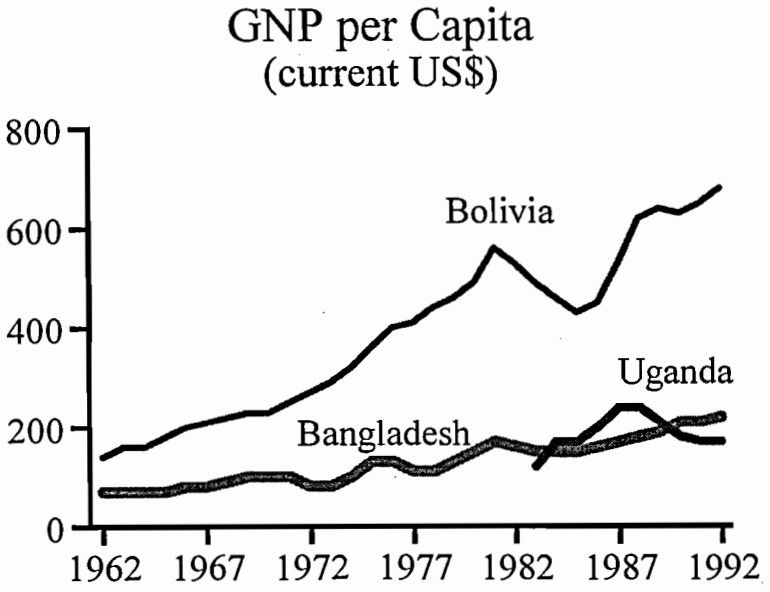
The infant mortality rate or life expectancy at birth and the illiteracy rate are considered as fairly reliable indicators of poverty. These may be further supplemented by indices such as the under-5 malnutrition rate and the child mortality rate.

The United Nations Development Program (UNDP) has developed a "Human Development Index" to measure human well-being. It is a sort of broader poverty index that is published annually in the Human Development Report. The definition of HDI has undergone some changes since it was first constructed in 1990. In its 1996 version it is a composite index made up of life expectancy at birth, adult literacy rate, combined first-, second- and third-level gross enrollment ratios, and the "adjusted" real GDP per capita (purchasing power parity).

The shared feature of our three sample countries is that all have comparatively low HDI rankings. Also their respective rankings roughly match their positions in the GNP-per-capita table. This is an interesting point to note because there are some countries such as Sri Lanka, China, Viet Nam, and Georgia. that have HDI rankings significantly above their GNP-per-capita rankings because of their high levels of school enrollment and life expectancy at birth. There are other countries such as Oman and Gabon that rank relatively high on GNP per capita but have relatively low HDI rankings because of poor school enrollment and low life expectancy at birth.

Comparison of GNP/PPP Case

How adequate is GNP per capita as a measure of poverty in your country? Compare the per capita GNP with the PPP GDP per capita. Do the PPP figures tell you a different story about poverty in your country?

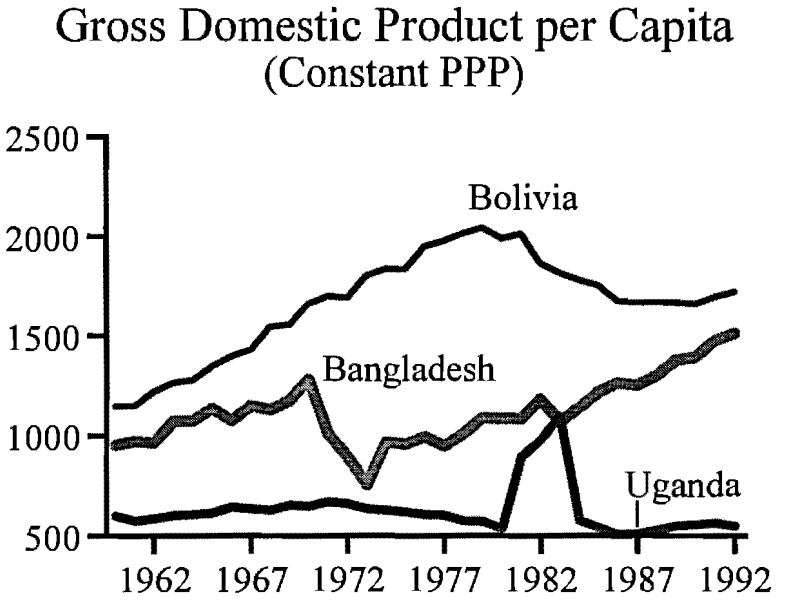

GNP per Capita
(current US$)
800
600
400
200
0
Bolivia
Uganda
Bangladesh
1962
1967
1972
1977
1982
1987
1992

GNP Per Capita

GNP per capita stated in US dollars is at best a very crude measurement of poverty. Using this method, the average output of a country is calculated by taking the per capita GNP, measured in the national monetary unit, and converting it to US dollars using a "suitable" exchange rate. The World Bank uses what it calls the "World Bank Atlas Method" to make this conversion. Simply put, the Bank takes a moving average of the US dollar average exchange rate for the year in question, and for the two preceding years, after adjusting them for differences in rates of inflation between the country concerned, and the G-5 countries (France, Germany, Japan, UK, and US). When average productivity is measured on this basis, we can say that in 1994 Uganda had a per capita GNP of $190, and Bangladesh $ 220, and that both were considered "low income" poor countries. Our third sample country, Bolivia had a per capita GNP of $770 and stood at the very bottom of the "lower-middle-income" countries.

However, per capita GNP is not a very accurate measure of poverty. First, it ignores vast differences in prices among countries. Thus, if a haircut in India costs only, say, one dollar, and a cut in the US costs, say, $10, then the Indian with $1.00 is as well off as the American with $10.00.

The purchasing power parity, or PPP, makes an adjustment for such variations in prices. However, neither this measure nor GNP per capita reveals the actual distribution of income within a country. Neither do they tell us whether a given amount is adequate to attain a reasonable living standard. Thus, we must go beyond average income to get a more reliable measurement of poverty.


Gross Domestic Product per Capita
(Constant PPP)
2500
2000
1500
1000
500
Bolivia
Bangladesh
Uganda
1962
1967
1972
1977
1982
1987
1992

PPP

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While these figures may be more realistic, they are still averages. Thus we have to probe beyond average incomes to get at poverty.

Kuznets

.m45kuznt.rtf

The argument is that in the early pre-development stage there is more equality because almost everyone is relatively poor. However, as growth takes place inequality initially increases for several reasons. First, productivity in the modern sector rises more rapidly than in the traditional sector. This opens an earnings gap between the two sectors leading to greater inequality in incomes. Next, in general, inequality in the modern sector, which is getting relatively bigger in the overall economy, is greater than in the traditional sector. That is due to gains made by capitalists, the prevalence of oligopolisitc and monopolistic businesses and other such trends. Third, public expenditure, unemployment benefits, social services etc., to correct inequalities usually take place with a time lag after a country has reached a certain income level. Figure Five is a graph of real GDP per capita (purchasing power parity (PPP) estimates) for a cross-section of LDCs against an income distribution indicator, the ratio of income of the top 20% to that of the bottom 20%.

more info

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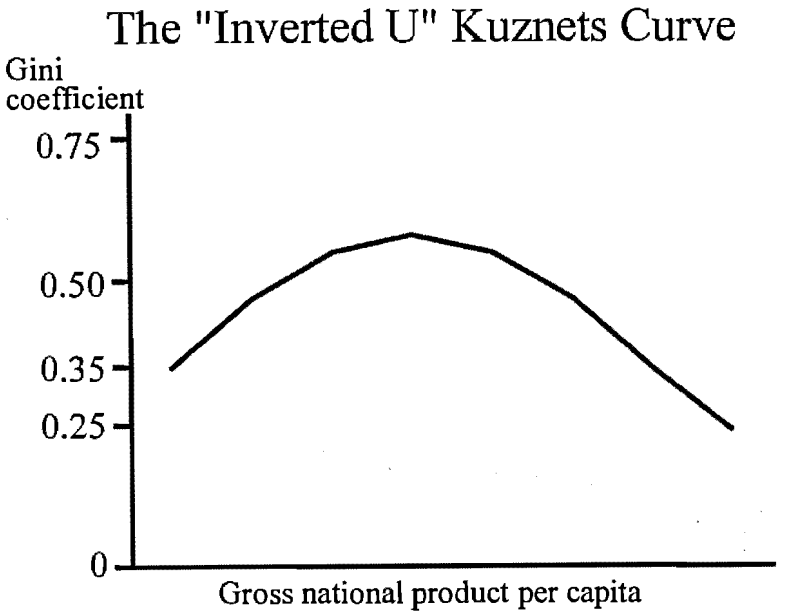

more info in "Kuznets"

Figure ~~Five~~ 5 (poverty)

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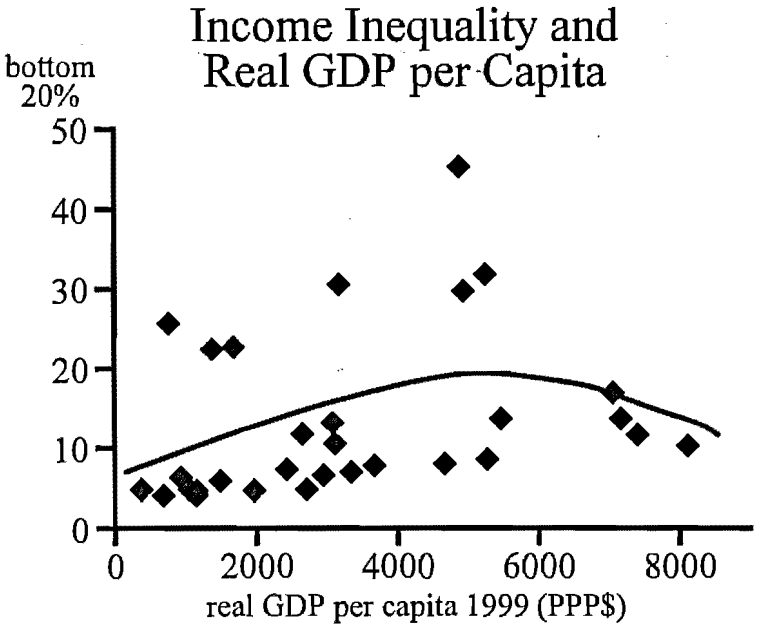


What are some of the lessons learned comcerning poverty and equity?

1. Poverty tends to decrease with economic growth in most countries but not necessarily in all (this suggests the importance of specific policies besides growth).

2. Poverty tends to decrease more often and more rapidly, faster the rate of economic growth. (In other words growth is good for poverty reduction.)

3. The greater the inequality in the distribution of income, the higher the level of poverty.

4. There is no systematic tendency for inequality to increase with economic growth.

5. The faster the rate of economic growth, the faster the reduction in inequality. But this proposition is not yet very firmly supported by evidence. However, there is no firm evidence to the contrary that faster growth increases inequality.

6. There is no evidence to suggest that growth tends to increase inequality in low income LDCs and that growth reduces inequality in high income LDCs. Growth may increase inequality in either setting. That depends on policy.

—**Poverty and Equity Exercise Final** Poverty and Equity Case:

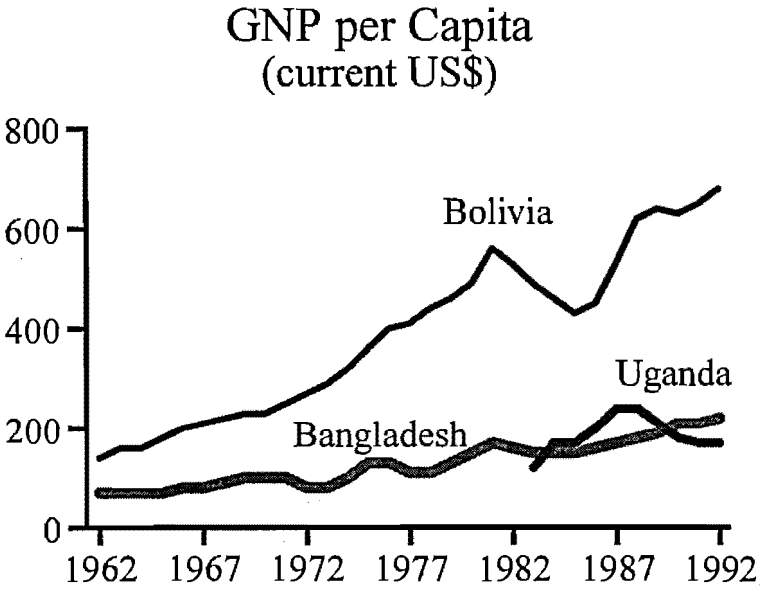
Poverty and Equity Case

Question 1: Examine the variables, Infant mortality rate (or Life expectancy at birth), Child malnutrition rate , Under five mortality rate, Illiteracy rate, and the Human Development Index (HDI) as "alternative" indices of poverty in the three sample countries.

Question 2: Compare the income distribution of the sample countries and explain any significant differences or similarities that you observe.

Question 3: Using poverty lines, review the poverty situation in the three sample countries. What, if any, is the relationship between the poverty level and GNP growth?

Question 4: How adequate is GNP per capita as a measure of poverty in Bangladesh, Bolivia and Uganda? Compare the per capita GNP with the PPP GDP per capita for each of the three countries. Do the PPP figures tell you a different story about poverty in the three countries?


GNP per Capita
(current US$)
800
600
400
200
0
Bolivia
Uganda
Bangladesh
1962
1967
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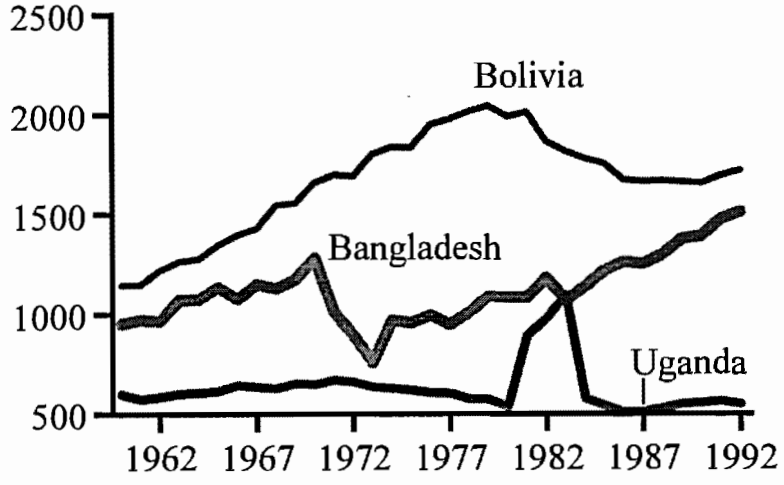
Gross Domestic Product per Capita
(Constant PPP)



PPP

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Second, on the PPP scale Uganda moves slightly ahead of Bangladesh.

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What do PPP figures tell us about poverty? The daily average PPP income of a little over $3.50 in Uganda and Bangladesh, and about $6.50 in Bolivia are a significant improvement on the unadjusted incomes. To these we may add incomes such as home garden food produce that do not get included in the GNP computations but are important in many developing countries. The same is true for domestic services rendered by, say, home-makers, that also do not get counted. Nevertheless, the fact is that even when PPP income is used as a measure these countries, especially Uganda and Bangladesh, come out as very poor countries.

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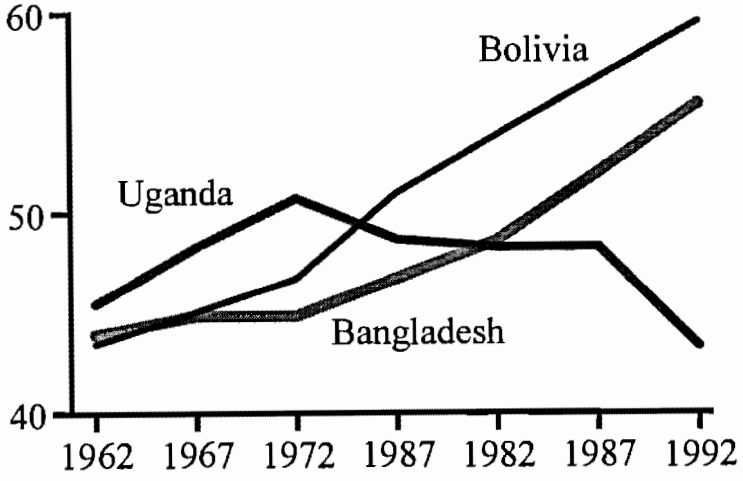
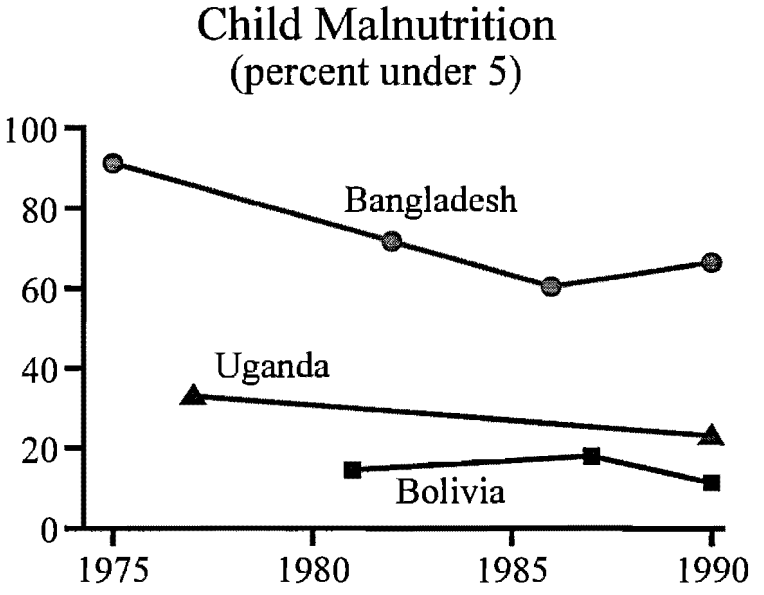
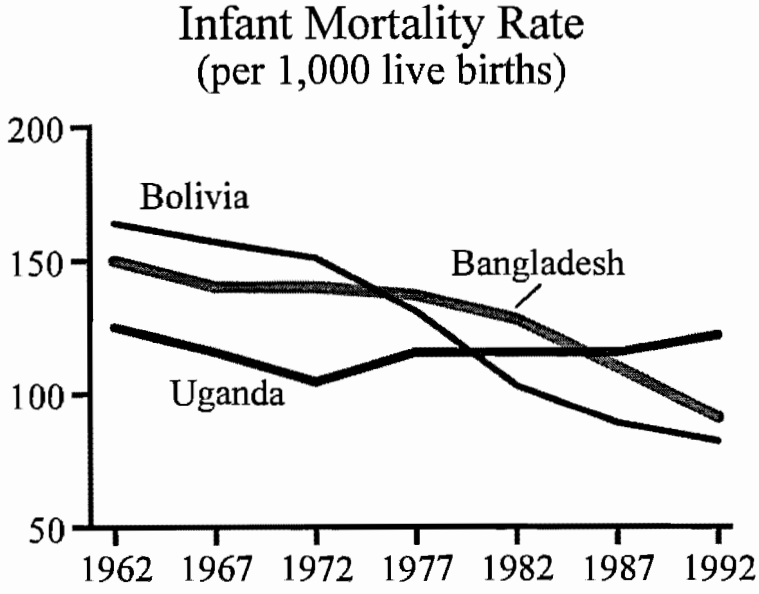
Life Expectancy at Birth




Child Malnutrition
(percent under 5)
100
80
60
40
20
0
Bangladesh
Uganda
Bolivia
1975
1980
1985
1990


Infant Mortality Rate
(per 1,000 live births)
200
150
100
50
Bolivia
Bangladesh
Uganda
1962
1967
1972
1977
1982
1987
1992

Infant Mortality Rate
Illiterate Population (% of population 15+)
Human Development Index

The infant mortality rate or life expectancy at birth and the illiteracy rate are considered as fairly reliable indicators of poverty. These may be further supplemented by indices such as the under-5 malnutrition rate and the child mortality rate.

The United Nations Development Program (UNDP) has developed a "Human Development Index" to measure human well-being. It is a sort of broader poverty index that is published annually in the Human Development Report. The definition of HDI has undergone some changes since it was first constructed in 1990. In its 1996 version it is a composite index made up of life expectancy at birth, adult literacy rate, combined first-, second- and third-level gross enrollment ratios, and the "adjusted" real GDP per capita (purchasing power parity).

The shared feature of our three sample countries is that all have comparatively low HDI rankings. Also their respective rankings roughly match their positions in the GNP-per-capita table. This is an interesting point to note because there are some countries such as Sri Lanka, China, Viet Nam, and Georgia. that have HDI rankings significantly above their GNP-per-capita rankings because of their high levels of school enrollment and life expectancy at birth. There are other countries such as Oman and Gabon that rank relatively high on GNP per capita but have relatively low HDI rankings because of poor school enrollment and low life expectancy at birth.

Expert's Response

Answer for: examine the variables, Infant mortality rate (or Life expectancy at birth), Child malnutrition rate , Under five mortality rate, Illiteracy rate, and the Human Development Index (HDI) as "alternative" indices of poverty in the three sample countries.

In principle, all the above variables including HDI should be fairly systematically related to one another and to poverty. That means two things. First, we should expect some correlation between a country's per capita income and these indices of poverty. Second, if the living conditions of the people in general improve we should expect a fall in mortality rates, illiteracy rate, and malnutrition rate, and a rise in HDI. The opposite will be true if incomes fall, poverty worsens, and living conditions deteriorate. Our three sample countries illustrate both situations.

On the first point, we see that in general, after the mid 1970s, Bolivia, that has the highest per capita income level also is ahead of Bangladesh and Uganda on most of the indices.

On the second point, broadly speaking Bangladesh and Bolivia have experienced reductions in mortality rates and illiteracy rates, and improvements in life expectancy, especially from about the mid 1970s. The under 05 malnutrition rate has not moved with the same degree of consistency. However, given the margin of error that can creep into nutrition measurements, relatively small changes between two data points such as that of Bangladesh between 1986 and 1990 may not amount to much.

Uganda offers a sharp contrast to Bangladesh and Bolivia. From the early 1970s mortality rates have risen and life expectancy fallen. These trends are connected to the political instability that prevailed in the country during this period, and the virtual collapse of the economy, and key institutions.

In 1993 the HDI numbers for Bolivia, Bangladesh and Uganda were 0.584, 0.365, and 0.326 respectively. Their HDI rankings were 111, 143 and 155 respectively. This deviated only very slightly from their real GDP per capita (PPP) ranking. All three had slightly higher rankings on the latter meaning that they were not doing as well on HDI variables such as life expectancy and education as one would expect given their income level. This high correlation between per capita income and HDI for our sample countries also suggests that economic growth is an important element in the battle against poverty.

Answer for: compare the income distribution of the sample countries and explain any significant differences or similarities that you observe.

Broadly speaking the richest 20 percent in all three countries seems to enjoy anywhere between 40 percent and 50 percent of the income. and the poorest 40 percent about 15 percent to 20 percent of the income. It also appears that Bolivia is the least equal of the three sample countries. In this Bolivia shares a feature common to Latin America in general which has a reputation for having generally iniquitous societies. As we noted in the answer to Question 2 above, the explanation for this situation must be sought in sociopolitical and institutional factors that exists in that country.

It is also tempting to suggest that our sample favors the hypothesis that income distribution become less equal as per capita income rises, and that it again becomes more equal at a third stage when income rises even further. However, one should caution against jumping to such a conclusion on the basis of such limited data.

In all three countries, over the 1970s and 1980s there has been some movement towards greater equity. Finally, it is useful to note that broadly speaking our sample is fairly typical of income distribution in developing countries in general that have less equal distributions than industrialized countries.

Answer for: using poverty lines, review the poverty situation in the three sample countries. What, if any, is the relationship between the poverty level and GNP growth?

Given the very low GNP per capita in both Uganda and Bangladesh, we would expect a relatively high incidence of poverty in both countries, and the poverty lines confirm that. In the case Bangladesh the poverty line says that about four-fifths of the population lived below that line in the late 1970s, and during much of the 1980s, and that it declined to about one-half by 1990. This decline over the 1980s parallels the growth in GNP that it experienced during that period. It is also useful to note that their is no significance difference in the poverty levels between the urban and rural sectors of Bangladesh.

Uganda's rural poverty level of 80 percent in the 1980s matched that of Bangladesh. However, the 1990 figures suggest that the poverty level had dropped drastically to about one-third of the population. However, throughout the 1980s Uganda had a negative growth rate which reduced the GNP per capita to less than $200. Thus, this casts doubts on the validity of the 1990 poverty data.

About 85 percent of Bolivia's rural population has lived below the poverty line over one decade. That would be about two-fifths of the total population of the country. Given the fact that Bolivia has a higher GNP than our two other sample countries, this shows that there is no particular fixed connection between GNP per capita and poverty, or GNP growth and poverty. The poverty level of thirty percent in the urban areas is only half that of rural areas. Bolivia's situation illustrates the extreme inequality in income distribution that exists in many of the Latin American countries. It is also useful to note that the bulk of the rural population who were identified as being poor were indigenous people. Moreover, unlike say Bangladesh, the rural poverty level has remained virtually unchanged which squares with the fact that economic growth in Bolivia was negative in the 1980s.

The Bolivian case also illustrates the point that explanations for poverty must be sought not only in low GNP per capita, but also in a complex of socio-political and institutional factors such as the distribution of political power, control of productive assets, education and human capital development, and government policy on social welfare.

Answer for: how adequate is GNP per capita as a measure of poverty in Bangladesh, Bolivia and Uganda? Compare the per capita GNP with the PPP GDP per capita for each of the three countries. Do the PPP figures tell you a different story about poverty in the three countries?

The GNP per capita of $ 190 for Uganda and $ 220 for Bangladesh make them two of the poorest countries in the world. According to these numbers the average Bangladeshi has to live on 60 US cents per day, and the average Ugandan on even less, a mere 52 cents. The Bolivians with a per capita income of $ 770 would be a little better off with a daily average income of $ 2.10. Since we know that income distribution is not equal, many would receive even less than the average. Even if that were not so, survival would be impossible on the average income we have computed, if that is all what a person who

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module Intro

Environment

The sobering facts concerning global warming, desertification and declining fish catches worldwide, have all prompted us to reevaluate development projects and reflect upon their impact on the environment. This module explores what we know about the relationship between the environment and development. It also explains our current knowledge about how to measure environmental sustainability.

Desertification in Africa

Description and Learning Objectives
Environment

USAID's own Strategy Papers (1994) state the environmental challenge quite well, condensed and paraphrased in part as follows: The scope of environmental problems increasingly threaten the economic and political interests of the United States and the world. Both industrialized and developing countries are responsible.

Globally, human activities are disrupting life support systems, and threatening physical, economic and social well-being. Greenhouse gases continue to rise. Plant and animal species continue to be lost. Poorly and un-managed urban growth has contributed to varieties of pollution worldwide. Soil erosion and degradation, deforestation, decertification undermine food production, contribute to malnutrition and stimulate migration. competing demands for scarce water supplies cause conflicts among users.

The adverse impact of the environmental problem is showing up in graphic terms in many developing countries. Soil degradation is affecting the struggle to achieve food security. Air-borne pollutants are likely to cause higher level of illness and morbidity in certain parts of the world. Water pollution alone is believed to cause two million preventable deaths each year, and countless illnesses. Environmental losses and degradation can also have a major impact on reducing national incomes.

In short, economic growth and broad-based development cannot be sustained if natural resources that sustain growth are increasingly and irresponsibly depleted.

As signified by the Global Environmental Summit in Rio in 1992, there does appear to be a significantly increased awareness of the problem, its consequences and a commitment to address it. But this is a relatively new area of world-wide human concern, and while new ideas are emerging, they often lack a clear and sound conceptual framework to guide policy. Also, the institutional structures of developing countries are weak in this area and data bases are rudimentary. Both the extent and seriousness of the problem, as well as the limited conceptual and

analytical tools available should be taken into account as you work through the following section on the environment.

In this section, we will first take a look at how has the relationship between the environment and development been viewed over time by economists. Next, we take up the conceptual and definitional question of what is sustainable development? While the answer varies, we will discover that the concept of "carrying capacity" is critical to formulating an acceptable definition. The third major area discussed is how environmental quality is measured. What are the key variables and indicators, and how available and reliable are they? The fourth area examined concerns the economic and social impact of environmental degradation. The balance of the section is taken up with an in-depth examination of the assumptions and policy prescriptions of two groups, the "environmental pessimist" and the "environmental optimists", who hold strikingly different views of the environmental problem and how to address it.

After completing this section and the exercises included, you should:

1. Have a better grasp of what is meant by sustainable development, and the major conceptual and definitional issues involved.

2. Be quite familiar with the key variables and indicators, and their limitations, currently available to measure environmental degradation and progress towards reversing it.

3. Have a good general, if not technical understanding of the major global and regional environmental trends and projections, and the development implications of these trends and projections.

4. Be able to determine the environmental status of a developing country and make a comparative analysis in terms of status and performance with one or more other countries.

5. Have a good general grasp of the relationship and association between environmental status on the one hand and economic growth and poverty level on the other.

6. Possess a firm knowledge and opinion of the main arguments and policy prescriptions of the "environmental pessimists" and the opposing school of "environmental optimists".

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Desertification in Africa

Overview

Environment and Development

State of the Environment

ÿÿÈß good environmental data for developing countries are scare, data collection and analysis are improving.

Major efforts by the UN's Global Environmental Monitoring System (GE MS), World Resources Institute and World Bank are resulting in better environmental indicators.

State of the Environment

Using impact on human health, the most serious environmental problems are

Poor water quality, scare clean water and inadequate sanitation

Increasing air pollution both in urban areas and indoors

Declining agricultural productivity due to environmental degradation.

Loss of biodiversity

State of the Environment Water

More than 3 millions deaths per year are directly related to waterborne diseases

The dominant source of contamination of drinking water is untreated human waste, but industry and agriculture have polluted rivers and seas

State of the Environment Air Pollution

Poor urban and indoor air quality exacts a large human health toll

Estimates are that 65% of the urban population in the developing world or 1.3 billion people live in areas where suspended particulate (smoke and dust in the air) exceed WHO safe standards.

State of the Environment Air Pollution

The amount of smoke and dust in the are in urban areas in the poorest developing countries is roughly 5 times measured levels in rich countries.

Because rural populations rely on fuelwood and animal dung for cooking and heating, they are exposed to poor indoor air quality. Most affected are women and children.

State of the Environment Agriculture

Because agriculture is the dominant source of livelihood for developing country populations, the productivity and fertility of land are important.

Reliable estimates of changes in soil erosion, waterlogging or salinization are not available.

State of the Environment Agriculture

World Bank estimates that almost 11 percent of the earth's vegetated surface have undergone moderate or worse soil erosion.

We have much to learn about the impact of this type of degradation on human health, agricultural productivity and global environmental problems.

Regional Differences Asia

Most of the large industrial cities in rapidly developing Asia face severe urban air pollution

East Asian countries in particular are suffering from the environmental consequences of chemical-intensive agriculture

Regional Differences Sub-Saharan Africa

Rapid population growth and low-productivity agriculture have contributed to declining soil fertility and a rapid expansion of area cultivated.

Expansion of low-productivity agriculture has contributed to deforestation and to biodiversity and species loss due to destruction of habitat.

Regional Differences Former Soviet Union

One of the primary environmental problems in this region is dealing with large stockpiles of industrial and nuclear hazardous waste.

Air pollution is also increasing in urban areas

Policies for sustainable development

Large public-sector investments are required to ensure clean drinking water, adequate sanitation and environmentally sound municipal waste disposal

Cost-effective environmental regulatory agencies that provide incentives for reducing pollution are needed

Policies for sustainable development

Government subsidies for energy, fertilizer and pesticides for example, need to be corrected.

Government action often needed to clarify property rights.

May be necessary to build global environmental institutions to ensure global sustainability.

Text

Environmental Development

In the period since World War II, we have witnessed historically unprecedented global economic growth which has resulted in equally unprecedented improvements in living standards, 'life expectancy', 'education' and the quality of life for billions of people. However, it has also been associated with serious environmental problems. 'Global climate change', acid rain, depletion of the ozone layer, rapid rates of deforestation, and significant increases in the rate of species loss suggests that the costs of global development are rising rapidly. Moreover as we end the twentieth century it is clear that millions of people's 'health and productivity' are adversely affected by environmental problems.

At the national level, deteriorating air and water quality, scarce water and fuel, soil erosion, and deforestation are also exacting a high price.

Until very recently, virtually all models and strategies of development ignored the effect that scale or size of economic activity has on global resources and on the capacity of ecosystems to safely dispose of the wastes generated by economic activity. As long as world population was small and development was limited to a small portion of that population, economic activity did not strain the natural resource base and this assumption was warranted.

This assumption is deeply embedded in the way economics and development have been taught and practiced. In economics, the standard circular flow diagram of market economies has no place in it for environmental considerations.

The explosion of global of population during the last fifty years accompanied by rapid expansion of economies has forced us to reorient our thinking and led us to ask several unsettling questions:

1. Is there an unresolvable conflict between attaining global development and safeguarding the "life-giving" ecosystems in which the world's human population lives?

2. If so, does this mean that there are global or national limits to economic growth? If there are, what are the consequences of these limits for developing countries, developed countries, and the international economy?

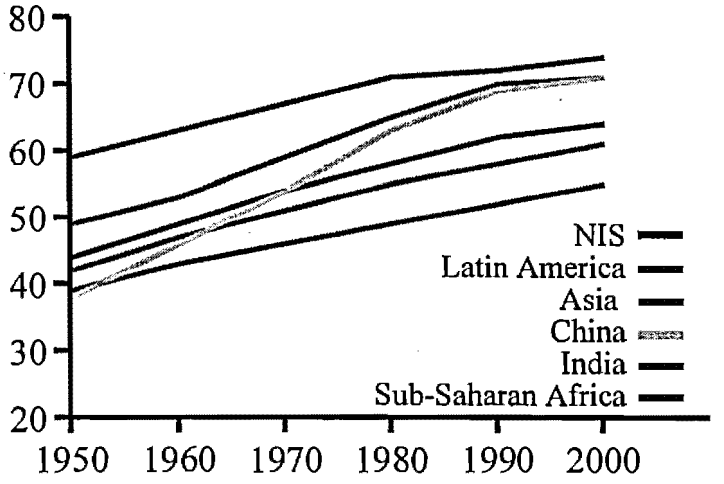
3. Is environmentally sustainable development possible? If it is, how does it differ from development as conventionally defined? What is meant by environmental sustainability? What must we do to attain it?

What happens when ecological carrying capacity is exceeded? The answer that worries environmentalists is that the ecosystem and the life support it provides suddenly collapses. Because we know very little about the operation and functioning of individual ecosystems, including that of planet earth, there is widespread ambiguity both about

life expectancy

m51life.bmp

Trends in Life Expectancy 1950–2000

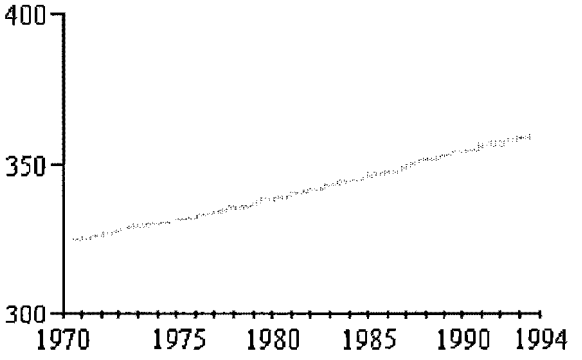


Life expectancy

Life expectancy, or longevity is a good measure of a country's capacity to provide a high quality of life for its citizens. While there are great variations among regions, one of the striking aspects of this graph is the increase in life expectancy for all regions, even low income countries, during the past four decades. In fact countries like China and Sri Lanka, with relatively low incomes, have achieved remarkable high life expectancy as well as low child mortality.

Global Climate chang

Atmospheric Concentrations of CO_2
(parts per million, 1970-1994)



Global climate change

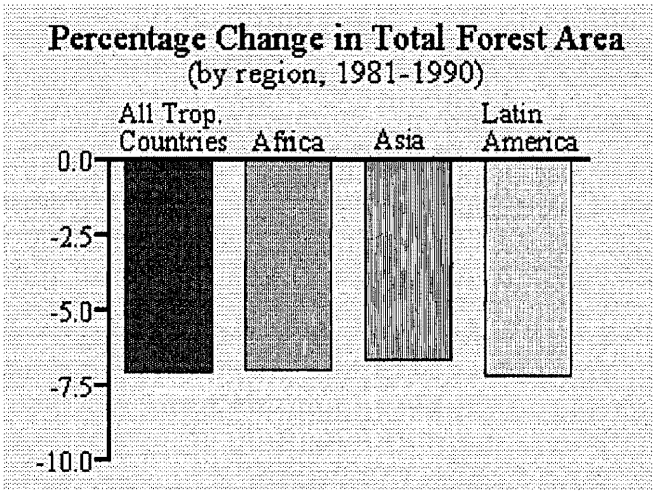
While there are still many uncertainties surrounding the science of global climate change, it is clear that the concentration of carbon dioxide or CO2 in the atmosphere has increased quite dramatically during the past five decades. Carbon dioxide from the burning of fossil fuels is the major gas contributing to what is called the greenhouse effect.

Carbon Dioxide Emissions from Industrial Processes

	per capita (metric tons)		total (mill. metric tons)	
Country Group	1980	1992	1980	1992
Low-Income Economy	0.91	1.30	2,195.1	4,012.9
China	1.52	2.29	1,489.2	2,668.0
India	0.51	0.87	350.1	769.4
Sub-Saharan Africa	0.94	0.88	356.8	478.6
East Asia and the Pacific	1.42	2.18	1,979.2	3,682.4
South Asia	0.44	0.74	395.2	866.5
Latin America & Caribbean	2.39	2.31	857.6	1,047.0
Germany	13.64	10.89	1,068.3	878.1
Japan	8.00	8.79	933.9	1,093.5
United States	20.30	19.11	4,623.2	4,881.3

more info

Rapid Rates

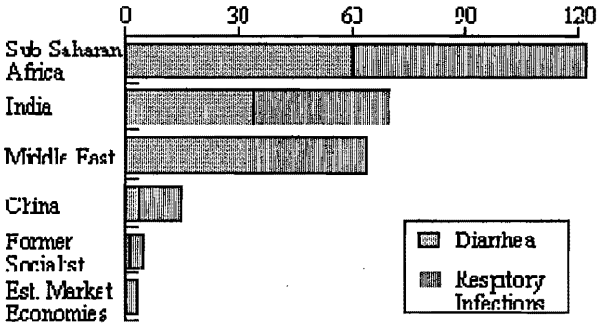

Percentage Change in Total Forest Area
(by region, 1981-1990)
All Trop. Countries
Africa
Asia
Latin America
0.0
-2.5
-5.0
-7.5
-10.0

Rapid Rates

According to the Food and Agricultural Organization or FAO, between 1980 and 1994, tropical forest areas have been shrinking on average about 15.4 million hectares (0.8 percent) per year. The Asia and Pacific region has the most rapid rates of deforestation.

Health + Prod.

Bad Air and Water Take a High Toll on Human Health (DALY loss per 1,000 people)



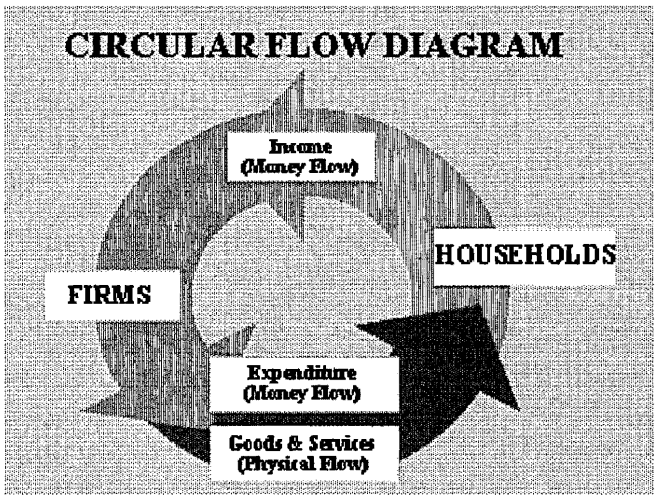
health and productivity

m51hltpr.rtf

One-third of the world's population has inadequate sanitation and one billion have unsafe water.

1.3 billion people are exposed to unsafe conditions caused by soot and smoke 300 to 700 million women and children suffer from severe indoor air pollution from cooking fires.

Source: World Bank, *World Development Report 1972*, p. 2


CIRCULAR FLOW DIAGRAM
Income
(Money Flow)
HOUSEHOLDS
FIRMS
Expenditure
(Money Flow)
Goods & Services
(Physical Flow)

circular flow diagram

ms1diagram.rtf

Households are assumed to be owners of labor, capital and natural resources, which they offer for sale to producers (firms) in markets for these factors of production. Firms combine these factors of production with plant, equipment, and technological and entrepreneurial skills to produce an output for sale in the goods market to households.

While this model implicitly recognizes that production generates pollution and uses part of the stock of natural capital, this standard diagram assumes that neither places any limits on economic growth. Development consists of an ever-expanding virtuous circle in which profit-maximizing owners of firms reinvest profits in new capital and technology which increases labor productivity. This increase then contributes to an increase in household incomes, which provide the basis for an expanding demand for the goods and services produced by firms. This encourages firms to invest even more, renewing the ever-expanding circle. Subsequent amendments to this closed economy model have ultimately resulted in the extension of this national model to the global economy.

It is now clear that the basic circular flow diagram needs to be amended to account for the impact of large-scale global economic activity on the environment. This can be accomplished by placing the circular flow within an ecosystem that interacts with the scale of economic activity in two ways. First, the ecosystem is a source of raw materials such as air, water, fossil fuels, precious metals, and forests that are used to produce marketable goods and services. Second, all economic activity generates waste (pollution). Because this waste cannot escape the ecosystem, the ecosystem acts as a sink to absorb and reprocess pollution.

We are only beginning to consider the implications of this revised circular flow for how we think about development.

environmental sustainability

msl envsu.rtf

Historically, the term sustainability was applied to harvesting regimes for specific renewable species such as a particular species of fish in a fishery or a particular tree type in a forest. Applied to individual species, the concept is fairly easy to grasp. In fisheries, for example, if the harvesting rate (the catch rate) of a particular species, say Northwest coho salmon, exceeds the growth rate of the stock of salmon, eventually the salmon will be fished into extinction. Sustainable yield (SY) occurs when the catch rate of salmon in a particular fishery equals the rate of growth of the salmon in that fishery. Maximum sustainable yield (MSY) occurs when the catch rate equals the maximum rate of growth of the stock.

Subsequent to this stage, ecologists adopted the term to refer to the status and function of ecological systems, such as the Amazon rain forest. While this move from a sustainable harvesting rate for a single species to the functioning of an ecological system is intuitively appealing, it is quite problematic. There is no real equivalent for sustainable yield of an ecosystem. In its place, we refer to ecosystem carrying capacity. Carrying capacity refers to the ability of an ecosystem to absorb and process the waste dumped into it. This concept of carrying capacity can best be portrayed by way of an example of a simple ecosystem (a fish pond) developed by Paul Hawken. As he states, "Ordinarily, as fish create wastes and die, detritvores decompose the waste into inorganic products that feed the algae population and invertebrates, that become in turn food for the stable fish populations." (Paul Hawken, *The Ecology of Commerce,* New York, New York: Harper Business, 1993).

As long as this stable closed system is not disturbed, a self purifying ecological cycle is at work. Wastes from one step in the cycle become necessary raw material for the next stage in the cycle. But what development does is disturb this steady state. When this happens, as when chemical fertilizers drain into the pond, "...the influx causes the algae to bloom faster than it can be consumed by the slower breeding fish. As the algae dies, the decomposition uses up much of the available oxygen, causing a die-off in the oxygen deprived fish. The dead fish are more waste, creating more algae, since the fish are not consuming it. The increased levels of decomposition lower the oxygen levels even further and what was once a carefully constructed and balanced closed system collapses under the burden of rapid and accelerating growth. Today we face similar prospects on a global level. Because of potential interactions and feedback loops within the global climate system, a global warming cycle, once begun, may well progress on its own, regardless of whether we continue to combat fossil fuels..."

ecosystem carrying capacity and the response of individual ecosystems to exceeding that capacity.

This idea of carrying capacity is critical to definitions of sustainable development. This is because sustainable development refers to some intergenerational idea of human well-being.

Assessing whether development is sustainable or unsustainable is not easy. Important environmental baseline data are scarce. Time-series data which permit the identification of trends are even less available. The relationships between baseline data points (single observations), trends in environmental indicators and sustainable development are unclear. But both data collection and analysis are getting better. The World Resources Institute, the United Nations Environment Program's Global Environmental Monitoring System (GEMS) and the World Bank are developing impressive point estimates and time-series data for a large number of environmental indicators. Micro-level models of resource extraction in renewable and non-renewable resources make it possible to estimate sustainable yields. Empirical work on the linkages between air and water quality and human health and productivity make it possible to set appropriate environmental standards.

At the macroeconomic level, the United Nations System of National Accounts (SNA) is being revised to accurately reflect environmental degradation and the depletion of the resource base. The so-called "greening of the GNP"

Measuring environmental quality

Categorizing environmental problems from country to country and region to region in the developing world is a difficult task. Good environmental data for developing countries are appallingly scarce. Time-series data sufficient to permit the identification of trends are even scarcer. While there is an increasing quantity of biophysical data for more and more countries that indicate deterioration in the environment in developing countries, it is not always exactly clear what these data mean.

Despite these problems, both data collection and analysis are getting better. Four of the most reliable and comprehensive variables are: 'access to safe water', 'access to sanitation', 'change in forest area', suspended particulate matter and 'carbon dioxide' (CO2) emissions per capita. Three of these, access to safe water and sanitation and change in forest area, are available in the data base.

Environmental Development Exercise Access to Sanitation Case:

Environmental Development Exercise Access to Safe Water Case:

intergenerational

m51intrg.rtf

This is exemplified by the Brundtland Commission definition of sustainable development as "....development that meets the needs of the present generation without compromising the ability of future generations to meet their own."

greening of the GNP

m51green.rtf

Green GNP

Resource accounting is a method for adjusting the United Nations System of National Accounts (SNA) to reflect the depletion of a country's natural resources (natural capital). A given country's GNP growth rate can then be modified to reflect the yearly change in its natural capital. We call this adjusted GNP, the Green GNP. This adjustment is particularly important for developing countries which are heavily dependent on economic activities, such as farming and mining, which are based on natural resources.

The starting point for calculating this Green GNP is the concept of sustainable income, also known as Hicksian income. How is "sustainable income" defined? Any return on an asset (natural capital) which is not dependent on depleting that asset is considered to be sustainable. So if one considers renewable assets, such as fisheries and forests, sustainable income is defined as such activities which do not leave the stock of the asset depleted.

For non-renewable assets such as oil, the problem of sustainability is more complicated. The only sustainable income from this asset is where the consumption stream from the sale of part of the stock can be sustained in perpetuity. This means that some of the income from the sale of the nonrenewable asset must be invested in a man-made capital which can then be substituted for the nonrenewable stock. An example of an attempt at this sort of substitution would be Brazil's use of tax revenues to promote the substitution of methane fuel (from sugar cane) for gasoline for passenger vehicles.

Recent studies have taken into account the natural resource base in calculating the Green GNP growth rates for the U.S. and Indonesia. In the U.S. a study by Daly and Cobb suggests that Green GNP per capita growth rates have been negative since 1970. This would mean that the improvement in standard of living has come at the expense of our country's natural capital. Since it is not possible to continue such growth forever it is argued that current growth rates are not sustainable. The traditional estimate of growth in Indonesia from 1973 to 1984 is 7.1% per year. After deducting from each year's GDP that part of the income which comes from drawing down the stock of natural capital--depletion of oil, forests and soil --the revised estimate of real GDP growth from 1973 to 1984 is 4% per year. This is almost 45% lower than conventional estimates.

The concept of sustainability at the micro level is nothing new for millions of producers in today's world. The owner of an orchard in fuelwood-scarce central Chad knows, for example, that in the short run income could be maximized by cutting down large trees & marketing the wood. But such practices would not be sustainable. The challenge now is for larger bodies, such as national governments and multilateral lending agencies (i.e. World Bank & International Monetary Fund) to modify their accounting procedures so as to include the Green element. Would, for example, a development project involving the exploration and drilling for oil in Cameroon actually prove feasible in terms of Green GNP? Or would it simply facilitate the depletion of natural capital while giving a temporary boost to the non-green GNP?

There is considerable debate over which economic indicators are the most appropriate for determining the sustainability of an economy, but there is growing consensus that the standard GNP method is not adequate.

Source: H. Daly and J. Cobb, For the Common Good (Boston: Beacon, 1989) and R. Repetto, et al, Wasting Assets: Natural Resources in the National Accounts (Washington, D.C.)

access to safe water

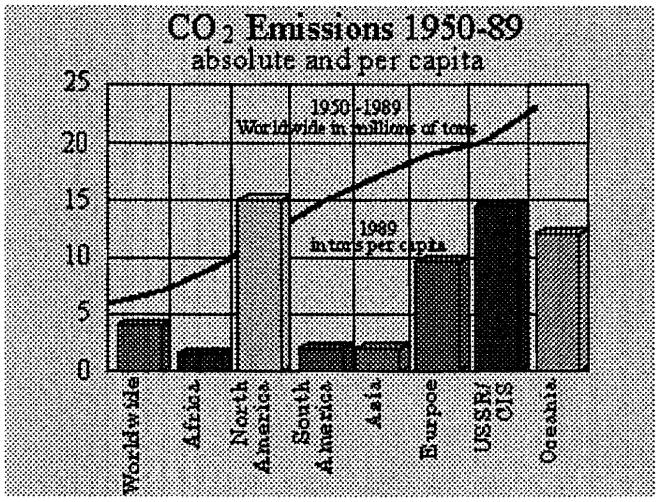
m51water . rtf

Three million people, mostly children, die each year from diarrheal illness caused by unsafe water. Millions more suffer from other water-related illnesses. Poor people tend to be most at risk.

access to sanitation

m51sanit.rtf

1.7 billion people in the developing world (1 of every 3 persons) lack access to adequate sanitation, and of these, 1 billion lack access to safe water. The percentage of people with access to safe water is lowest in Sub-Saharan Africa (World Bank, Environmental Data Book, 1993).

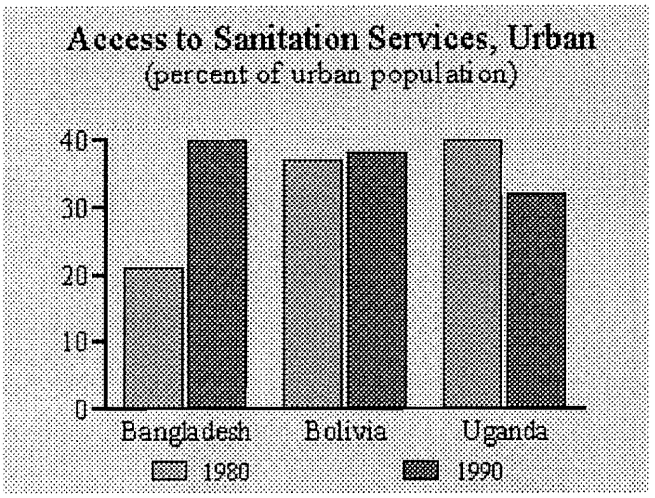

CO_2 Emissions 1950-89
absolute and per capita
25
20
15
10
5
0
1950-1989
Worldwide in millions of tons
1989
in tons per capita
Worldwide
Africa
North America
South America
Asia
Europe
USSR/ CIS
Oceania

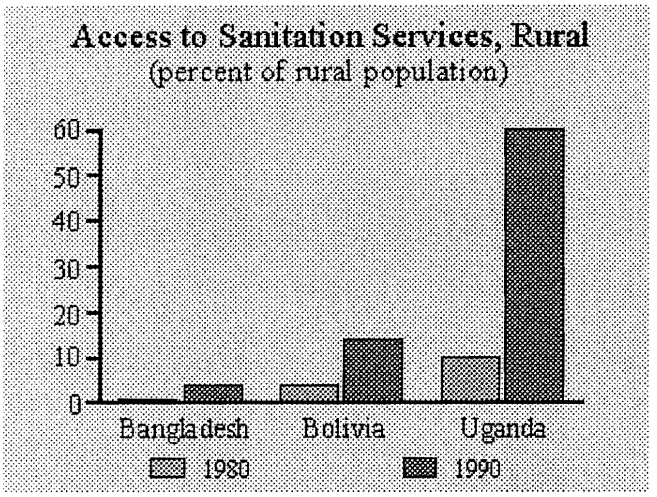
Carbon Dioxide

Emissions are an increasing threat to the environment. Traffic emissions are a main cause of global air pollution. Motor vehicles account for 60 percent of the carbon monoxide, 42 percent of the nitrogen oxides and 18 percent of the CO2 emissions from fossil fuels. As this graph shows, despite international agreements, emissions of the Greenhouse gas CO2 are continuing to increase.

Access to Sanitation Case

Graph the variables access to sanitation, urban, and access to sanitation, rural. What are the trends in these two variables. Is there a gap between rural and urban access in your country?


Access to Sanitation Services, Urban
(percent of urban population)
40
30
20
10
0
Bangladesh
Bolivia
Uganda
1980
1990


Access to Sanitation Services, Rural
(percent of rural population)
60
50
40
30
20
10
0
Bangladesh
Bolivia
Uganda
1980
1990

Access to safe water (rural)
Access to safe water (urban)
Access to sanitation services (rural)
Access to sanitation services (urban)

Access to safe water and sanitation is an issue with many facets. It is an economic issue for two reasons: first, resources are required to ensure the provision of safe water and sanitation; and second, access to safe water and sanitation is an integral part of economic development. It is also a health issue: sage water and sanitation are basic requirements for a healthy life. It is an environmental issue as well. The availability of sources of clean and safe water can be jeopardized by environmental pollution. In turn, the lack of sanitary facilities can pollute the environment, and put at risk, among other things, safe sources of water. And safe water and sanitation go hand in hand because normally, and especially in urban areas, the provisions that ensure safe water and sanitation facilities are coupled together.

The methodology of collecting data on access to safe water varies a great deal from country to country. The World Bank notes as well, that the definition of safe water has changed over time. Thus, these figures generally must be taken as, at best, rough orders of magnitude. Even in cases where a broad trend is seen, it must be noted that there is a gap of ten years between 1975 and 1985 for which no data are available.

Access to sanitation refers to "the percentage of population with at least adequate excreta-disposal facilities that can prevent human, animal, and insect contact with excreta."

According to our graphs, rural Bangladesh is in a better situation than Bolivia and Uganda with regard to safe water. But for sanitation its position is the worst of the three. As of 1990 a higher percentage of the rural population of Uganda is reported to have had access to sanitation facilities.

For urban areas, Bolivia has the best access to safe water, followed by Uganda and Bangladesh, in that order. For sanitation in urban areas, as of 1990, there is little difference among the three countries. All three report that about one-third of the urban population had access to sanitary facilities.

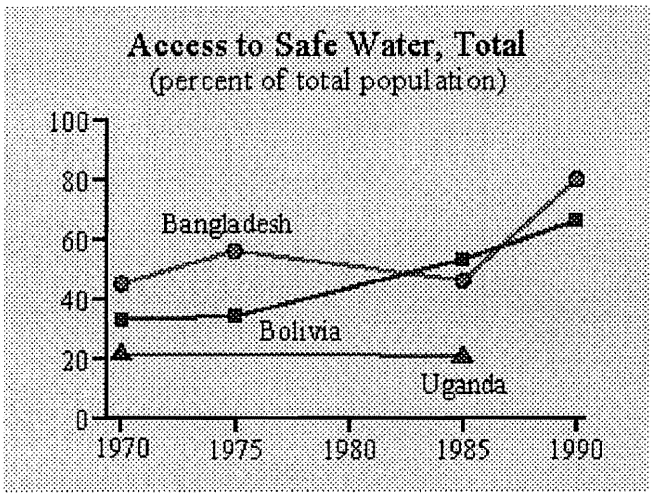
Uganda's figures are interesting for the connection we can make between that country's economic and political crisis and the variables under consideration. For the rural population there has been no improvement in access to drinking water, which has remained at less than 20 percent. In the urban areas, it has plummeted from over 80 percent to about 30 percent. In the case of sanitary facilities, the urban percentage has dropped slightly, but the rural percentage has shot up in one decade from around 10 percent to 60 percent. The latter number is hard to explain by anything other than an estimation error. In the case of the dramatic drop in the percentage of the urban population with access to safe water, it is possible that a large influx of refugees into urban areas is partly responsible.

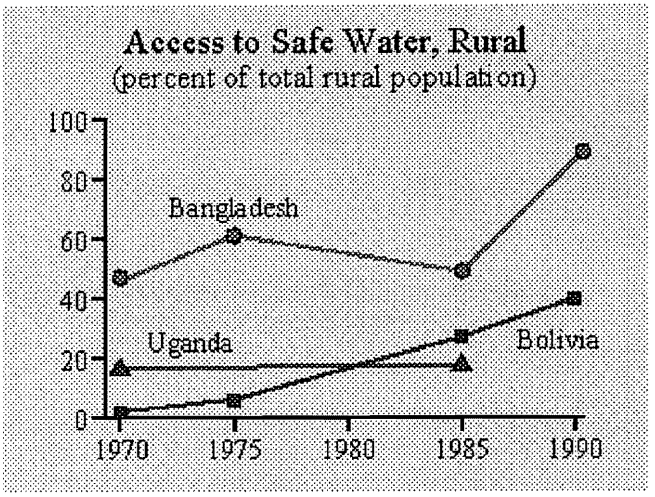
In general, rural populations have less access to safe water than do urban populations: However, it is hard to explain how rural Bangladesh could significantly outperform rural Bolivia. Bolivia has a considerably higher per capita income than Bangladesh. A casual visitor to the Bangladesh countryside is struck by the scarcity of clean water sources. It is possible that the Bolivian figures are roughly accurate but that the Bangladeshi
figures are an overestimate.

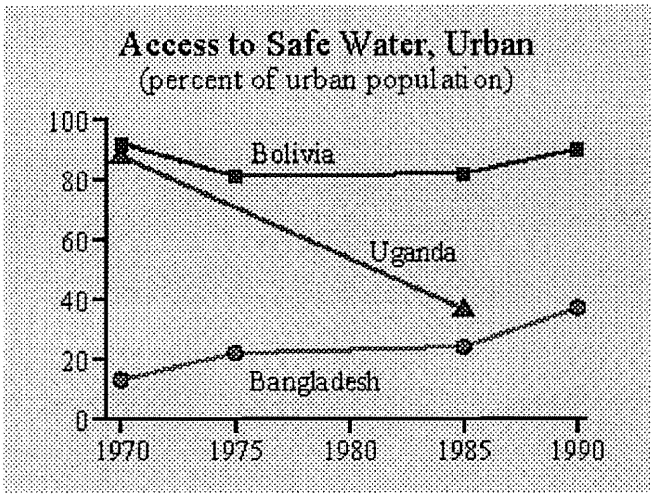
The urban figures for both countries are more credible, with Bolivia having a very high access rate. The sharp decline in Uganda's access rate probably reflects the influx into towns of war refugees from the countryside who then had no access to clean water and other amenities. In both rural Bangladesh and rural Bolivia, not only is the percentage of the population with access to sanitation very low, but it has shown little improvement in the 1980s.

Access to Safe Water
Case

Graph the variable access to safe water, total. Is this variable increasing or decreasing over time for your country. Now graph the variables access to safe water, urban, and access to safe water, rural. Are the values of these variables moving in the correct direction, i.e. increasing over time. Is there a difference in the value and trend rural and urban areas in your country?


Access to Safe Water, Total
(percent of total population)
100
80
60
40
20
0
Bangladesh
Bolivia
Uganda
1970
1975
1980
1985
1990


Access to Safe Water, Rural
(percent of total rural population)
100
80
60
40
20
0
Bangladesh
Uganda
Bolivia
1970
1975
1980
1985
1990


Access to Safe Water, Urban
(percent of urban population)
100
80
60
40
20
0
Bolivia
Uganda
Bangladesh
1970
1975
1980
1985
1990

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Access to sanitation services (rural)
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Change in forest area measures the increase or decrease in forest and woodland area (during a period of time, usually one year) expressed as a percentage of that area at the start of the period. This is an important variable because:

a) Forests enrich and hold the soil, collect and recycle water, help regulate climate, absorb carbon dioxide and release oxygen.

b) Forests and woodland are decreasing more rapidly in developing countries where most tropical and dry forests are located.

c) During the 1980s, the Latin America and Caribbean region lost the most forest area in the world.

In the database are several variables which measure change in forest area: 1) forest, extent; 2) habitat, moist forest; and 3) deforestation rate, annual %. A percentage change in the deforestation rate of -4.8% or worse is considered to represent a rapid loss of trees.

Two additional variables which are important environmental indicators are common pollutants and carbon dioxide emissions. CO2 emissions measure the tons of carbon a country releases into the atmosphere per year. Carbon dioxide is a greenhouse gas and it accounts for the largest share of the global warming effect that is linked to human activity.

What are the health and productivity impacts of environmental degradation?

Different environmental problems have very different impacts. Some, such as urban air quality, impact on human health of urban residents today. Others, such as greenhouse gas emissions or deforestation of tropical rain forests, affect global climate change. The impact of this on ecosystems and on human health is much harder to assess. Moreover, these impacts are more likely to be global rather than local. These differences require us to make hard choices about what is important. We have decided to do this by focusing discussion of the environmental problems in poor countries on current human health impacts.

Using the human health criterion, what are the most serious environmental problems in the developing world? Recently, the World Bank analyzed this problem. While the World Bank's poor environmental record gives good reason to doubt the validity of this study, it is the best we have. That study ranked developing country environmental problems in the following order of importance:

1) poor water quality, scarce clean water and inadequate sanitation;
2) increasing air pollution (both indoor and in urban areas);
3) declining agricultural productivity; and
4) loss of biodiversity.

poor water quality

ms1prwqu.rtf

Poor water quality and lack of access to safe drinking water exact a high human health toll in the developing world. More than three million deaths per year in the developing world are directly related to waterborne diseases. By one estimate, providing safe drinking water could result in two million fewer child deaths per year from diarrhea alone. While the dominant source of contamination of drinking water is untreated human waste, industrial, mining, and agricultural activity have polluted rivers and seas with toxic chemicals and carcinogenic heavy metals. These pollutants accumulate in seafood, which can make people sick and can kill them. Scattered data suggest that this is an increasingly important problem. For example, data from Jakarta Bay in Indonesia show that 44% of shellfish exceeded the World Health Organization's (WHO) safe level for lead; 38% exceeded that level for mercury, and 76% exceeded the safe level for cadmium.

increasing air pollution

mslairpo.-ff

Poor and deteriorating urban and indoor air quality also exact a large human health toll in developing countries. By World Bank estimates, 65% of the urban population in the developing world, roughly 1.3 billion people, live in areas where total suspended particulate (TSP), smoke and dust in the air, exceed WHO safe standards. Smoke and dust in the air in urban areas in the poorest developing countries is roughly five times measured levels in rich countries, and these levels of pollution are rising. Urban populations in developing countries also suffer from high concentrations of chemicals such as sulfur dioxide and lead in the air. For example, in Mexico City, where automobile gas is still leaded, 29% of all children have unhealthy blood lead levels. Because rural poor people in most developing countries rely on fuelwood and animal dung for cooking and heating, they are exposed to very poor indoor air quality. Several studies show that indoor air concentrations of smoke and dust are large multiples of safe standards, with heath consequence much worse than smoking two packs of cigarettes a day. Most of these continuously exposed to high smoke and dust levels are women and children.

The health impacts of indoor and urban air pollution on the billions of people in developing countries exposed to unsafe levels of air pollution are not well understood. Rough estimates suggest that if smoke and dust levels in developing country cities were brought down to safe levels, between 300,000 and 700,000 deaths could be averted annually and long-run respiratory damage in urban children under the age of fourteen could be cut by as much as 50%.

declining agricultural productivity

m5lagpro.rtf

Because agriculture is the dominant source of livelihood for developing country populations, the productivity and fertility of land are very important. There is reasonable good data on agricultural productivity (or yields) of agricultural land. But reliable estimates of changes in soil fertility or of agricultural land lost to desertification, soil erosion, waterlogging, or salinization are not available. At least one recent study of erosion suggests that perhaps as much as 11% of the world's vegetated surface has undergone moderate to severe degradation. Unfortunately, we are not able at this time to assess the impact of this kind of degradation on human health, agricultural productivity, or on global environmental problems.

Loss of Bio-diversity

If current deforestation rates of 15 million hectares per year continue, it is estimated that 6 to 14 percent of all tropical closed-forest species could be lost by the year 2015.

There are enormous differences in the environmental problems facing particular developing countries and regions. Most of the large industrial cities in rapidly developing Asia face severe urban air pollution problems. Most of Asia, particularly higher income East Asia, also suffers from the environmental consequences of chemical intensive agriculture.

Both of these problems are less severe in Sub-Saharan Africa. Countries in that region face an equally difficult environmental challenge. Rapid population growth and low productivity agriculture have contributed to declining soil fertility and a rapid expansion of area cultivated. This expansion of low productivity agriculture has contributed to deforestation and to biodiversity and species loss due to destruction of habitat.

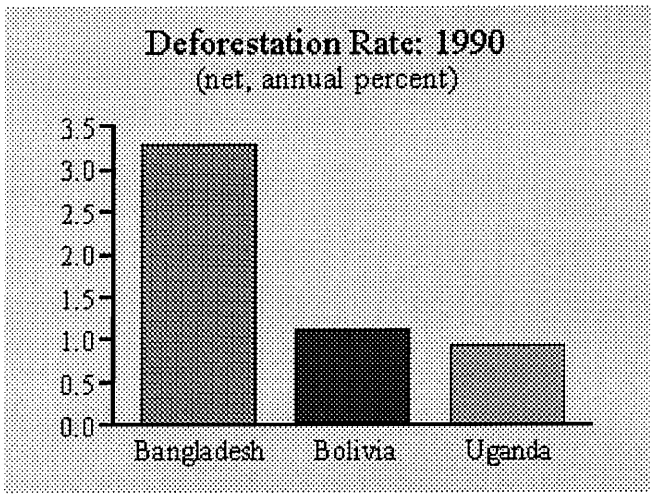
Countries in Eastern Europe and the former Soviet Union face yet a different problem, particularly those related to stockpiles of industrial and nuclear hazardous waste.

Environmental Development Exercise Pop/Growth and Environment Case:

Because there is so much ambiguity regarding ecosystem carrying capacity and the response of individual ecosystems to exceeding that carrying capacity, there is enormous variation in assessments of the prospects for sustainable development. Both the *Bruntland Report* and the *World Development Report 1992* argue sustainable development can be promoted simply by better resource management. Others, such as the Ehrlichs and Herman Daly, believe that the pressure exerted on natural systems already exceed global ecological carrying capacity. They cannot see how already overstressed ecological systems can tolerate the wastes discharged from further expansion in world population and global output. The differences in these outlooks in the policy area that examines the relationship between the environment and development, can be seen in a continuum with what we call the optimists and pessimists at two ends of the continuum. The differences in these outlooks can be captured by way of a simple example. Damage to ecosystems from economic growth can be characterized along two dimensions, the size of the damage and the degree of reversibility in the damage.
Environmental pessimists fear that most of what we are now observing has high damage costs and that it is irreversible, while environmental optimists believe that damages are small and easily reversible.

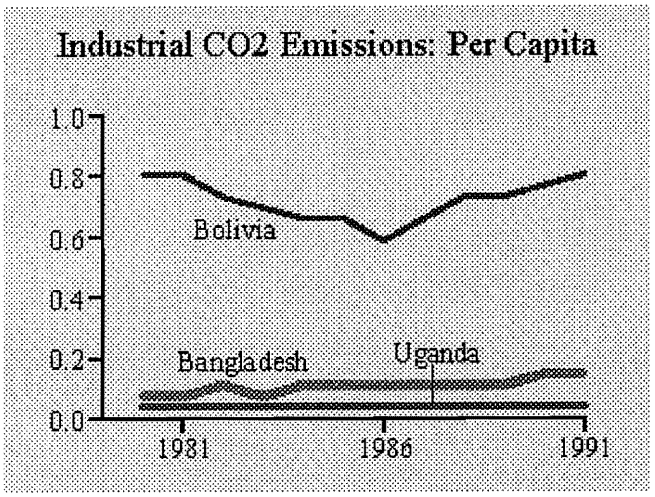
The current and potential impact on the environment resulting from growth and development are hotly debated and neither theory nor evidence gives a clear answer. This is one reason why the current debate about sustainability is so heated. But there are a number of reasons for optimism. First, policies and practices put in place in the developed countries over the last 25 years have shown that it is possible to delink economic growth from both pollution and natural resource use. We have come far in a very short period of time. Extending what we have learned to the developing countries offers substantial opportunities to break the link between global growth and global pollution. Second, the developed countries are rapidly moving from simple

Determine which of the environment variables listed in the data base have data for your country. Using the environment variable you found most available for your country, graph this variable with the population growth for your country. Do you observe a relationship between population growth and the environment? Using your best environmental indicators, graph them against GNP per capita. Do you see a relationship between growth and the environment? Does growth appear to improve or harm the environment?


Deforestation Rate: 1990
(net, annual percent)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Bangladesh
Bolivia
Uganda

Deforestation Rate, net (Annual), 1990

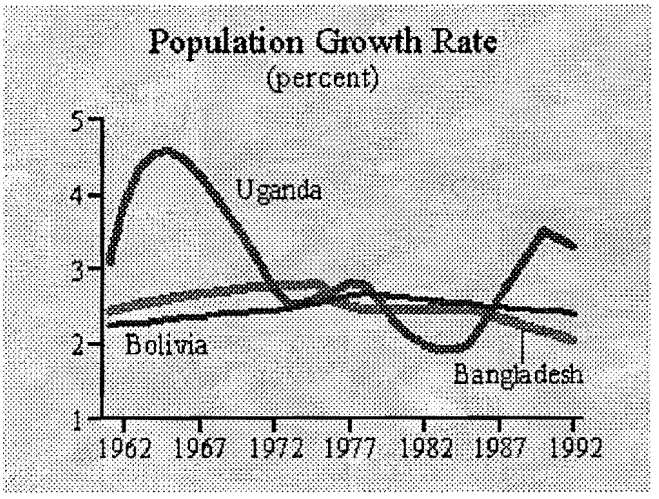
Bangladesh shows the highest annual deforestation rate, exceeding 3 percent, with a loss of about 70,000 hectares of forest per year. Bolivia and Uganda have lower rates of about 1 percent. However, these percentages must be judged against the base forest habitat in each country. For example, it will be seen that only about 8.000 sq. km. of forest habitat remained in Bangladesh by 1989. Thus, the percentage that was deforested in that country represented a critically important proportion of the country's total forest resources. In the case of Bolivia, on the other hand, the country had a much larger forest cover, and the 1.12% deforestation there represented a substantial loss in absolute terms. In all cases, the rate of deforestation must be viewed against population pressure and the economic demands made on the forest lands.


Industrial CO2 Emissions: Per Capita
1.0
0.8
0.6
0.4
0.2
0.0
Bolivia
Bangladesh
Uganda
1981
1986
1991

Industrial CO2 Emission: Per Capita

Generally, this is directly positively correlated to the level of industrialization. The graph shows that Bolivia, which is the most industrialized and comparatively the richest among the three sample countries, also has the highest C02 emission level per capita.

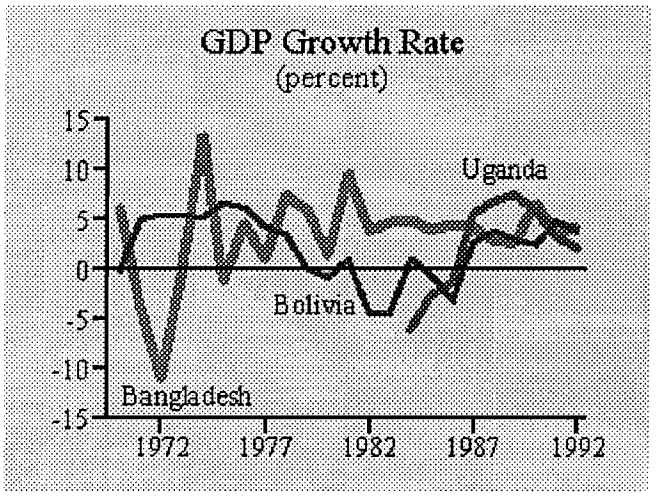
The Graph also shows that C02 emission is sensitive to the business cycle in the short-term, and to economic growth in the long-term. Thus, the emission level in Bolivia fell from the late 1970s to the mid 1980s a period of economic decline. The emission level of Bangladesh shows a rise from about 1983 which coincides with more robust growth.


Population Growth Rate
(percent)
5
4
3
2
1
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

The Population Growth Rate or PGR is an average calculated from mid-year populations expressed as a percent.

Both Bangladesh and Bolivia have experienced mild increases in PGR in the 1960s and 1970s followed by moderate to slow declines in the 1980s and early 1990s. This behavior in PGR is associated with: relatively slow declines in TFR in the first two decades, quite steep declines in the latter period, and continuous declines in IMR throughout the period.

Questions: What explains the mild increase in the population growth rate experienced by both Bolivia and Uganda in the 1960s and 1970s? Do you see any evidence for sustained declines in PGR in these two countries? What factors are responsible for the fluctuation in PGR in Uganda?


GDP Growth Rate
(percent)
15
10
5
0
-5
-10
-15
Uganda
Bolivia
Bangladesh
1972
1977
1982
1987
1992

GDP Growth Rate

The GDP growth rates of Bangladesh, Bolivia and Uganda are a reasonable reflection of the larger growth picture of the three regions to which they belong. Bangladesh was very adversely affected by the first oil crisis, an experience that was common to South Asia as a whole. Economic growth was feeble in the remaining years of the 1970s which dove-tailed into the second oil crisis in 1980-81. From 1981, the country has experienced steadier and positive though not spectacular growth until the mid 1990s.

Bolivia had reasonable economic growth in the 1970s, but experienced negative economic growth in the 1980s. For Bolivia as well as for much of Latin America, the 1980s were the years of the international debt crisis, stagnant or falling incomes and severe inflation. From the late 1980s, under a stabilization program Bolivia has slowly recovered.

Much of Sub-Saharan Africa has not made any substantial gains in national output after the end of the 1960s. Uganda's growth record reflects that reality. In the 1980s the economy was subverted by a severe political crisis. After a stable government was re-established in March 1986, economic growth has recovered.

Environmental pessimists
m5lenvpe.rtf

As pessimists look around the world, what they see is natural systems in rapid rates of decline. They see forests and agricultural land being degraded at the highest rates in history. They see declining productivity of agricultural land alongside an exponential increase in insect resistance to pesticides. They fear that acceleration of these trends could threaten global food supplies. They view with increasing alarm the potential large scale and potentially irreversible effects of expected global population and income growth between 1990 and 2030. They view several products such as organchlorines with great alarm. These compounds of chlorine and hydrocarbons do not appear in nature but were created by human beings. They do not break down easily, are persistent and long lasting, perhaps for hundreds or even thousands of years. Hundreds of millions of pounds of these are released into the environment annually as solvents, fungicides, pesticides and refrigerants. They are building up in the environment and accumulating in our food, our water, and in our bodies. Radioactive wastes are even more alarming. They have a half life of hundreds of thousands of years. They are stored in underground tanks around the country, some of which are leaking. They argue that physical laws severely limit the extent to which pollution can be delinked from future global economic growth, that the degradation we are now experiencing may be irreversible and cumulative and that it may cause ecological collapse. For pessimists, there are potentially large hidden human health risks and the risk of sudden collapses. Because of this they support draconian action now.

Pessimists also tend to believe that in the absence of vigorous action by organized environmental grassroots groups in civil society, organizations of small farmers, fishers and laborers who see their soil being eroded, their forests being cut down by big logging companies, their fish being killed by pollution, governments will not take action now. This is because politics and economics everywhere in the world are shaped by exploitation of natural resources by large vested interests. In most developing countries in particular, those vested interests control the resources and they also control the government. But even in rich countries such as the U.S., vested interests reap huge profits from the profligate use of resources. They do not want to change and they will spend billions to keep from changing. Businesses everywhere in the world have opposed every environmental regulation that has ever been proposed and they have successfully watered down those that have been passed.

These different assessments and assumptions of the potential ecological damage from global growth underlying the views of the pessimists and optimists are reflected in radically different policy prescriptions. If the pessimists are correct and global economic actions, such as the current attempt to extend Western style development to the rest of the world, result in high and irreversible damage to life supporting ecosystems, nothing short of a fundamental rethinking of what we are now doing is required. In the extreme, this requires acting now to prevent the system from overshooting its carrying capacity. Policies that are frequently advocated by this group include.

more info

more info in "Environmental pessimists"

Policies
mSlplics

Achieving zero population growth. This requires giving everyone on the globe an equal right to bear one child. This is just enough to make sure there is no net population growth. These rights could be bought and sold in markets. There must be mechanisms to make sure that people do not have children beyond their entitlement to do so.

The globe cannot sustain further physical economic growth. Growth must approach a steady state. Although moving in this direction requires stopping physical economic growth, growth that is resource using, it does not mean we cannot have qualitative improvements. But limits must be set on what is taken from the earth as a source and what is dumped back into the global sink. This requires setting limits on the use of scarce natural capital. This could be achieved be setting depletion quotas for each resource. These quotas could then be sold in markets. Limits on dumping into the global sink could also be established and the rights to dump could be sold.

Because of high levels of global poverty and income inequality, effective action to protect global living giving ecosystems will require international income redistribution. The present system of inequality is legitimized as necessary as incentives for economic growth. But if growth is stopped there will no longer be acceptance by the poor of their poverty. Therefore, there must be a mechanism for international redistribution of income. There must be minimum and maximum income limits.

environmental optimists

m5|envop.rtf

Environmental optimists do not disagree with pessimists about the environmental and ecological consequences of a linear expansion of global growth. But they do see greater possibilities for delinking growth from pollution and resource degradation. They believe that natural capital, physical capital (plant and equipment), and human capital (educated people) are relatively substitutable. Because of this substitutability, they view most damages to the ecosystem, including potentially large scale damages, such as global warming, as relatively low cost and easily reversible or at least easy to mitigate. As long as investments in human capital, physical capital and technological change can fully compensate for the large-scale loss of natural capital, global sustainable development is possible.

Because optimists view most of the environmental damages we observe in ecosystems, such as the build-up of greenhouse gases in the atmosphere, as relatively low cost and potentially easily reversible, they see the policy recommendations of the pessimists as draconian, destructive of human freedom and virtually impossible to implement. They also see large potential substitutability between human and physical capital for natural capital. Because of this they are more likely to apply standards of economic efficiency and develop appropriate policies based on this assumption, to the sustainability problem.

more info

more info in "environmental optimists"

m5iapropo.rtf appropriate policies

The environment is treated as an economic asset that yields a stream of services. Looked at this way, the task facing managers of sustainable development is to equate the marginal benefits from use of the services of environmental assets with the marginal cost of maintaining the capacity of those assets to provide the services they provide.

Most "environmental assets" such as the air we breathe and the water we drink are not treated this way because of government policy failure and market failure. Policy failures occur when government policies encourage economic inefficiency and environmental degradation. This happens when governments subsidize the use of polluting products such as energy and pesticides without forcing users to pay for the pollution they cause. It also happens when government policies encourage uneconomic and excessive use of scarce commodities such as clean water, or when those policies promote excessive and economically inefficient logging and cattle ranching in tropical rain forests. Policy failures can also occur when governments fail to make public environmental investments with high social rates of return such as investments in water and sanitation, soil conservation, family planning and the education of women.

Market failure occurs because of the lack of clear property rights in most environmental assets. This is the case for the air we breathe, the water we drink, and the forests we cut. When the benefits and costs of using environmental assets do not accrue to clear owners, if property rights are not transferable, or if they are not secure from encroachment by others, these assets will be misused and environmental degradation will occur. The use of most environmental assets are not governed by clear and efficient property rights. Some environmental assets such as air are clearly not owned by anyone. As a result, the costs of polluting the air are generally not borne by either owners of polluting factories or users of fossil fuels. For other environmental assets such as water, property rights are either not transferable or not easily transferable. For many environmental assets such as fisheries, property rights are not secure from encroachment by others.

When property rights for environmental assets are unclear, markets will fail to allocate use of those assets efficiently. Most typically, environmental assets will be underpriced and overused. When this happens environmental degradation occurs. In such instances, governments need to implement policies and investments to correct market failures. Those policies include imposing taxes on emissions and wastes, regulating the disposal of hazardous wastes and placing fees on the extraction of renewable resources such as timber and fisheries.

But these are not the only things that can be done. Policies can also be designed to significantly reduce, if not eliminate, the use of material wastes in production and consumption. This can be done by adopting pollution prevention programs. Consumer durables such as cars and refrigerators could be made to be truly durable and totally recyclable. One way to achieve this is to lease these items from suppliers rather than buy them. When they are no longer useful, the consumer takes them back to the supplier. The supplier would then have an incentive to make these items from recyclable materials.

Paul Hawken suggests how this can be accomplished. It requires an incentive system which sends signals to producers to design goods to emphasize using less material per unit of output, including carbon based fuels.

Optimists believe that sustainable development can be achieved by government policies that: (1) correct policy failures; (2) reduce market failures; (3) provide incentives for producers to reduce, if not eliminate, pollution in production and consumption; and (4) undertake sufficient public and private investments in human capital, physical capital and technology so that those assets can substitute for environmental capital.

environmental regulations to reduce pollution to pollution prevention programs. Several examples of this are quite exciting.

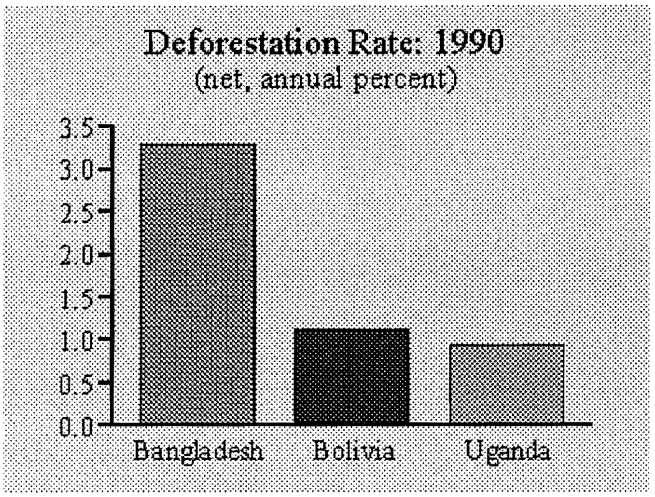
Moves toward pollution prevention are being incorporated in new international production standards in Western Europe. Those standards will require producers in Europe and exporters to Western Europe to demonstrate that their production facilities are equipped with pollution prevention technologies. There is even some evidence that US multinationals are requiring their suppliers to demonstrate that they are operating with pollution prevention technologies. Third, rapid growth in the developing world, most particularly in Asia, will lead to a replacement of virtually all of the electricity generating capacity and all of the industrial plant and equipment in one generation. This provides an historically unique opportunity to make electricity generation and industrial facilities substantially cleaner.

If this happens it may be possible to break the global link between economic growth and pollution and resource degradation. But this will not be automatic. Experience in the industrialized West shows that the private sector will fight environmental regulations. But that experience also shows that growing environmental problems, income growth, and vigorous environmental NGOs can lead to new laws and regulations to reduce and eliminate pollution and environmental degradation. The multinationalization of this experience to the entire globe provides an opportunity to green global growth.

Environmental Development Exercise Final Environmental Development Case:

Question

Identify some of the principal environmental concerns revealed by the graphs and other environmental data that are available for the three sample countries. What action needs to be taken to make development environmentally sustainable?


Deforestation Rate: 1990
(net, annual percent)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Bangladesh
Bolivia
Uganda

Deforestation Rate, net (Annual), 1990

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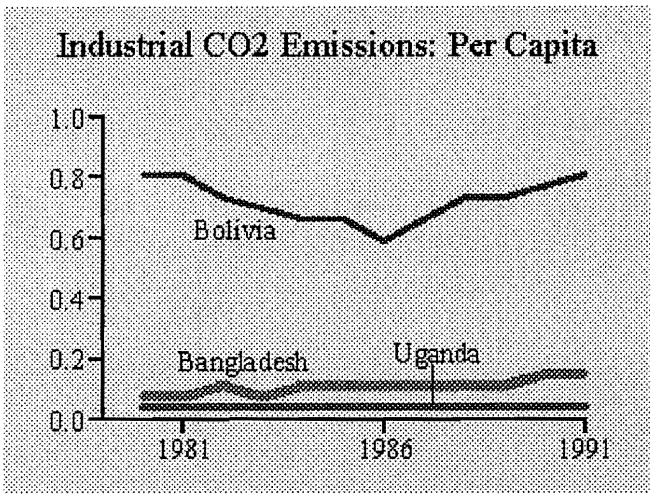
Industrial CO2 Emissions: Per Capita
1.0
0.8
0.6
0.4
0.2
0.0
Bolivia
Bangladesh
Uganda
1981
1986
1991

Industrial CO2 Emission: Per Capita

Generally, this is directly positively correlated to the level of industrialization. The graph shows that Bolivia, which is the most industrialized and comparatively the richest among the three sample countries, also has the highest C02 emission level per capita.

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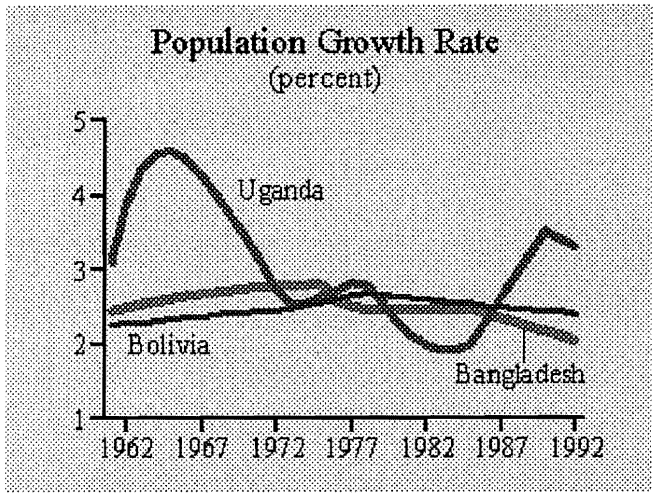
Population Growth Rate
(percent)
5
4
3
2
1
Uganda
Bolivia
Bangladesh
1962
1967
1972
1977
1982
1987
1992

The Population Growth Rate or PGR is an average calculated from mid-year populations expressed as a percent.

Both Bangladesh and Bolivia have experienced mild increases in PGR in the 1960s and 1970s followed by moderate to slow declines in the 1980s and early 1990s. This behavior in PGR is associated with: relatively slow declines in TFR in the first two decades, quite steep declines in the latter period, and continuous declines in IMR throughout the period.

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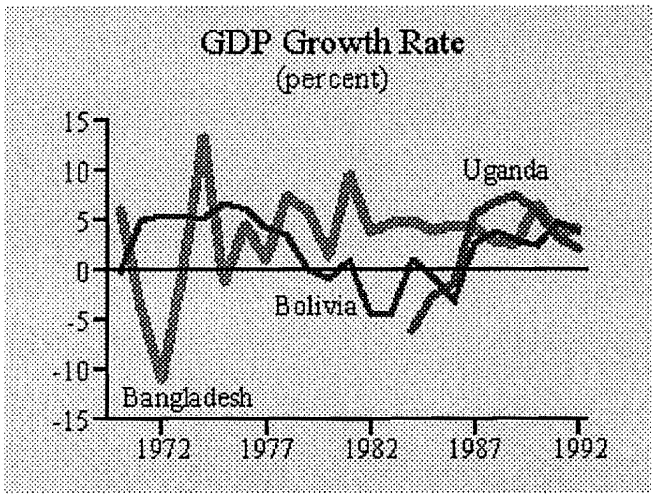
GDP Growth Rate
(percent)
15
10
5
0
-5
-10
-15
Uganda
Bolivia
Bangladesh
1972
1977
1982
1987
1992

GDP Growth Rate

The GDP growth rates of Bangladesh, Bolivia and Uganda are a reasonable reflection of the larger growth picture of the three regions to which they belong. Bangladesh was very adversely affected by the first oil crisis, an experience that was common to South Asia as a whole. Economic growth was feeble in the remaining years of the 1970s which dove-tailed into the second oil crisis in 1980-81. From 1981, the country has experienced steadier and positive though not spectacular growth until the mid 1990s.

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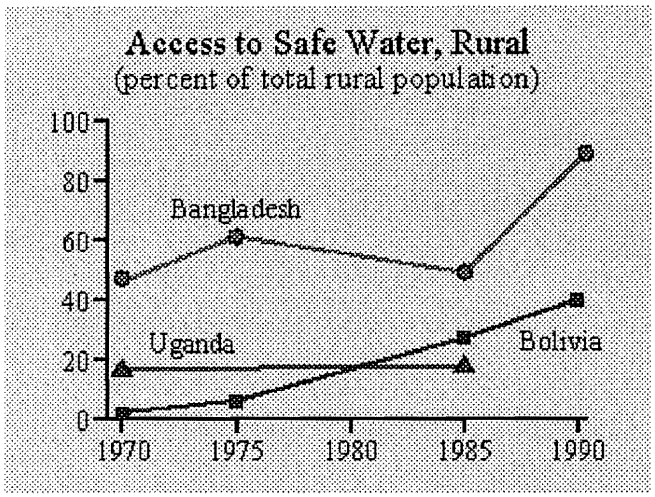
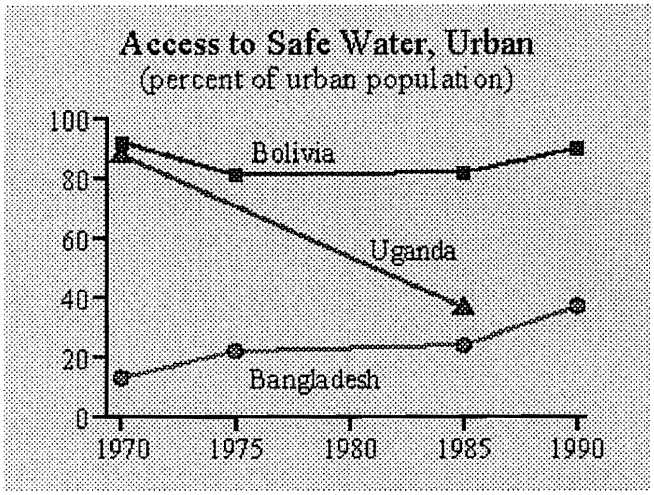
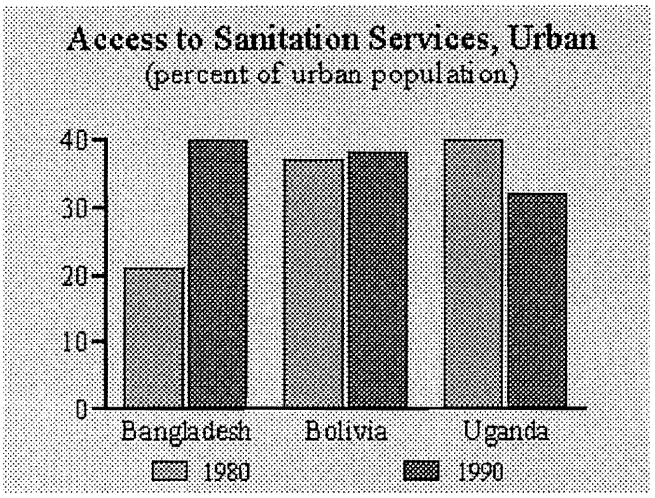
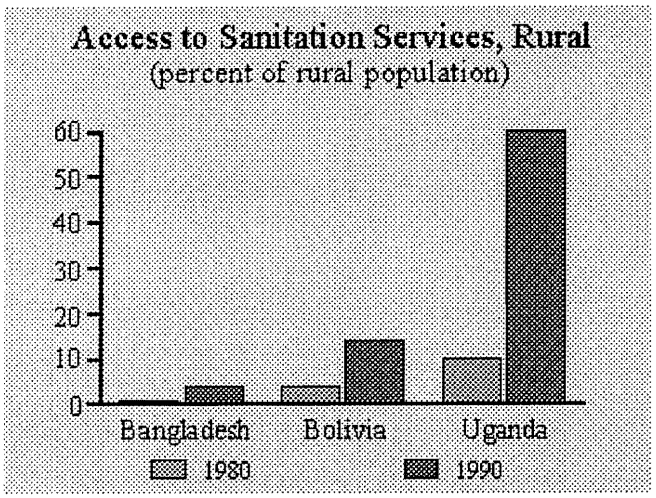

Access to Safe Water, Rural
(percent of total rural population)
100
80
60
40
20
0
Bangladesh
Uganda
Bolivia
1970
1975
1980
1985
1990


Access to Safe Water, Urban
(percent of urban population)
100
80
60
40
20
0
Bolivia
Uganda
Bangladesh
1970
1975
1980
1985
1990


Access to Sanitation Services, Urban
(percent of urban population)
40
30
20
10
0
Bangladesh
Bolivia
Uganda
1980
1990


Access to Sanitation Services, Rural
(percent of rural population)
60
50
40
30
20
10
0
Bangladesh
Bolivia
Uganda
1980
1990

Access to safe water (rural)
Access to safe water (urban)
Access to sanitation services (rural)
Access to sanitation services (urban)

Access to safe water and sanitation is an issue with many facets. It is an economic issue for two reasons: first, resources are required to ensure the provision of safe water and sanitation; and second, access to safe water and sanitation is an integral part of economic development. It is also a health issue: sage water and sanitation are basic requirements for a healthy life. It is an environmental issue as well. The availability of sources of clean and safe water can be jeopardized by environmental pollution. In turn, the lack of sanitary facilities can pollute the environment, and put at risk, among other things, safe sources of water. And safe water and sanitation go hand in hand because normally, and especially in urban areas, the provisions that ensure safe water and sanitation facilities are coupled together.

The methodology of collecting data on access to safe water varies a great deal from country to country. The World Bank notes as well, that the definition of safe water has changed over time. Thus, these figures generally must be taken as, at best, rough orders of magnitude. Even in cases where a broad trend is seen, it must be noted that there is a gap of ten years between 1975 and 1985 for which no data are available.

Access to sanitation refers to "the percentage of population with at least adequate excreta-disposal facilities that can prevent human, animal, and insect contact with excreta."

According to our graphs, rural Bangladesh is in a better situation than Bolivia and Uganda with regard to safe water. But for sanitation its position is the worst of the three. As of 1990 a higher percentage of the rural population of Uganda is reported to have had access to sanitation facilities.

For urban areas, Bolivia has the best access to safe water, followed by Uganda and Bangladesh, in that order. For sanitation in urban areas, as of 1990, there is little difference among the three countries. All three report that about one-third of the urban population had access to sanitary facilities.

Uganda's figures are interesting for the connection we can make between that country's economic and political crisis and the variables under consideration. For the rural population there has been no improvement in access to drinking water, which has remained at less than 20 percent. In the urban areas, it has plummeted from over 80 percent to about 30 percent. In the case of sanitary facilities, the urban percentage has dropped slightly, but the rural percentage has shot up in one decade from around 10 percent to 60 percent. The latter number is hard to explain by anything other than an estimation error. In the case of the dramatic drop in the percentage of the urban population with access to safe water, it is possible that a large influx of refugees into urban areas is partly responsible.

In general, rural populations have less access to safe water than do urban populations. However, it is hard to explain how rural Bangladesh could significantly outperform rural Bolivia. Bolivia has a considerably higher per capita income than Bangladesh. A casual visitor to the Bangladesh countryside is struck by the scarcity of clean water sources. It is possible that the Bolivian figures are roughly accurate but that the Bangladeshi
figures are an overestimate.

The urban figures for both countries are more credible, with Bolivia having a very high access rate. The sharp decline in Uganda's access rate probably reflects the influx into towns of war refugees from the countryside who then had no access to clean water and other amenities. In both rural Bangladesh and rural Bolivia, not only is the percentage of the population with access to sanitation very low, but it has shown little improvement in the 1980s.

Experts Response

Our three countries represent contrasting conditions in regard to environment and development. At one extreme is Bangladesh that has a population of 118 million people growing at an annual rate of 1.7 percent. This population inhabits a land area of 144,000 sq.km. that makes it the world's mostly densely populated country excepting for a few small city states such as Singapore. With an annual per capita income of $ 220 it is also mired in poverty, and is desperately trying to improve the living standards of its people. Only 8,000 sq. km or 5.6 percent of the land area is reported to be under forest cover. The annual rate of deforestation between 1981-90 was estimated at 4.9 percent. Thus, the environment of Bangladesh comes under pressure from two principal sources, population and development demands. This relationship, it must be borne in mind, is mediated by poverty of large segments of the population. Thus environmental stress is caused not only be the simple increases in population, but also by the fact that the poor are forced to do things such as, say, cutting down trees for fuelwood, practicing slash and burn agriculture, and cultivating on slopes leading to soil erosion, that cause environmental damage.

Uganda has a population of about 19 million occupying 236,000 sq. km. The current annual growth rate of population of 3.2 percent is one of the highest in the world. The country is as poor as Bangladesh with a per capita income of about $200. The population pressure in Uganda may not appear to be as severe as in Bangladesh. About 63,000 sq. km or 27 percent of the total land area of the country is reported to be under forest cover. Although the annual rate of deforestation is only 1.0 percent, given the high population growth rate the pressure on the land is quite marked. It is noted that in rural areas marginal land has been colonized leading to high levels of deforestation and soil degradation.

Bolivia is very different. It is somewhat richer than either of the first two with a per capita income of $ 770. More importantly its 7.2 million population occupies a relatively large land mass of 1,099 sq. km with a diverse natural resource base including hydrocarbons, minerals and substantial forest resources. The country still has almost 500,000 sq. km or 45 percent of the total land area under forest cover. The annual rate of deforestation is reported to be around 1.3 percent.

While our three sample countries do show some very contrasting features in basic environmental conditions, they also share much in common by way of challenges that they face to delink economic development from environmental damage, and evolve an environmentally sustainable development model. There are six elements to this challenge.
First, all three countries have a long way to go to improve what the World Bank calls the "environmental quality" of life of the people. The graphs show that in all three countries much has to be done to improve access to safe drinking water, and sanitation. These environmental deficiencies in turn seriously affect the quality of life of the people. For example, in Bangladesh gastroenteritis and other water-borne diseases are common. Those combined with malnutrition and inadequate health services are the principal reasons for the relatively high infant mortality rate of 80 per 1000 live births.

Second, in all three countries there is evidence that environmental damage is undermining economic productivity. For example in the case of Bangladesh many experts have identified

declining soil fertility (especially deficiencies in sulphur and zinc), falling water tables, river bank erosion and siltation of river channels, and degradation of the little remaining forest and wetlands as soon of the more serious environmental problems that are negatively impacting on future economic development..

Third, the developmental policy of all three countries have had some detrimental impact on the environment. Industrial pollution is common to all three countries. Typically in all three untreated toxic waste is discarded into to waterways. In Bangladesh, for example, forest reserves have been over-harvested by pulp and paper mills. In Bangladesh as well as in Uganda biodiversity and forest cover are under serious threat from opening of new land for agriculture. In the former the indiscriminate use of coastal strips for shrimp farming has become a major environmental hazard. In Bolivia 31 National Parks, Wildlife Preserves, and Biological preserves covering about 10 percent of the country's surface area have been created. However, environmentalist point out that these largely remain "Paper Parks" with actual protection.

Fourth, one has to ask the question what policies are required to create an environmentally sustainable model of development. It is known that there are "win-win" policies that are environment friendly and growth promoting. For all three countries, poverty reduction is such a policy. For example, in rural Bolivia and in the Chitagong Hill Tracts of Bangladesh any significant improvement in the living conditions of the native tribal populations will have a beneficial impact on conservation. Improving access to safe water and sanitation will improve the environment and raise living standards.

Fifth, an institutional framework is absolutely necessary make a successful environment policy work. In all three countries, considerable progress has been made in improving the policy framework. Detailed policies have been mapped, and in some cases the legal framework has been strengthened. Even formal governmental agencies - the National Environmental Secretariat (1991), and the National Environmental Fund (1990) in Bolivia, Ministry of Environment and Forestry (1989) in Bangladesh, and the Ministry of Environmental Protection (1991) in Uganda - who have principal responsibility for implementing national environmental policy and action plans have been established. However, there is yet a wide gap between policy on paper and its implantation.
It is noted that in all three countries even the basic task of mobilizing public support for such policies by informing the people the rationale behind environment policies and laws is not performed adequately. For example, in Uganda, a country that three decades ago had a thriving tourist trade largely based on wildlife, people have become apathetic to the sanctity of wildlife. Observers point out that the Ugandan National Parks System has adopted a sound set of policies, but has not yet developed the capacity to manage these resources on a sustained basis.

Sixth, there is considerable international assistance that has been made available to all three countries for the environment. For example, in Uganda USAID has an Action Program for the Environment aimed at maintaining biodiversity. The Program is helping to do policy reform as well as rehabilitation and resource conservation. From the mid 1980s Uganda has been engaged in developing a GIS (Geographical Information System) on natural resources.

In a broader context the United Nations Conference on Environment and Development (Earth Summit) of 1992 led to the formulation of what is called the "African Common Position on Environment and Development", to which Uganda also subscribes. Uganda has also drawn resources from the United Nations Environmental Program (UNEP) and the Global Environmental Fund.

Donors are active in the environment field both in Bolivia as well as Bangladesh. In 1987 Bolivia had the first ever debt-for-nature swap, when $650,000 of debt was used to finance the long-term management of one biological reserve and one forest reserve. In Bangladesh USAID has made substantial commitments to a program of Sustainable Resource Management focused on conservation of biodiversity and tropical forests.

module Intro

USAID Perspective

Humanitarian Assistance

In the last decade humanitarian assistance has become an increasingly important part of USAIDs portfolio of activities. What is a disaster? What do we mean when we talk about a disaster-to-development continuum? And what lessons have we learned from disaster assistance efforts over the past few decades. These and other related issues are examined in this important module.

Section Intro

USAID Perspective

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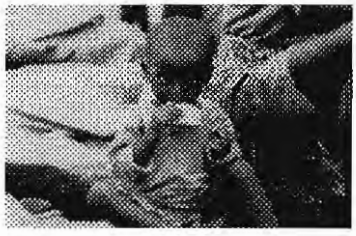
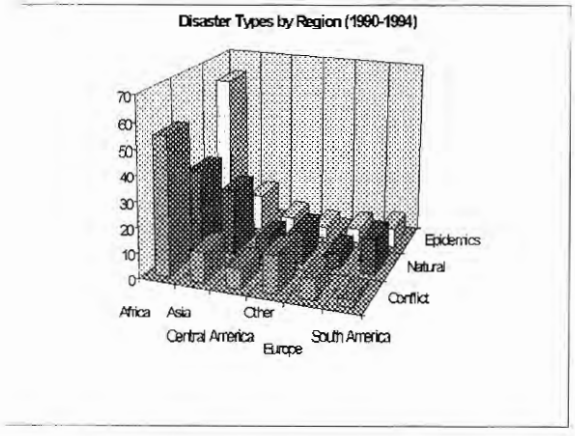
Overview

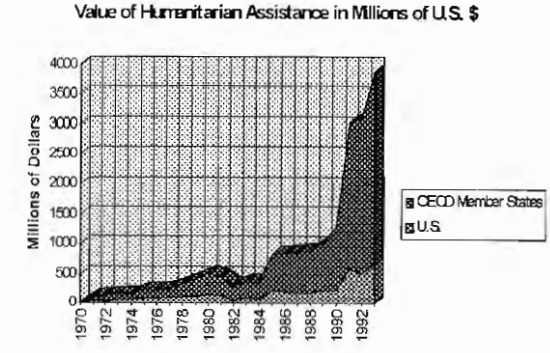
LINKING RELIEF AND DEVELOPMENT



The Problem: Increase in Disasters

- Increasing occurrence of disasters
- Increasing severity and costs of disasters
- Stagnating levels of development assistance
- Development resources more highly focused on areas of low vulnerability to disasters





Source: IFRC, The World Disaster Report, 1995

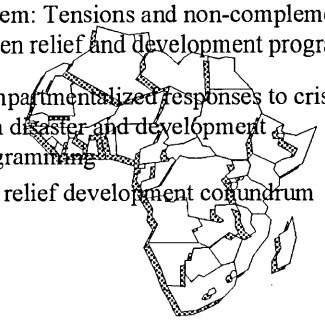
Annual losses from natural disasters now equal the total of official development assistance, so investments in prevention and mitigation promise a significant financial and strategic return."

Strategies for Sustainable Development (March, 1994)

Problem: Relationship between disasters and development

- Disasters and development highly linked through the mechanism of vulnerability
- Which specific dimensions of underdevelopment are most "strategic"
- Disasters retarding development by further increasing vulnerability. Destruction of human and physical infrastructure as well as competion with development resources are key mechanisms

Problem: Tensions and non-complementarity between relief and development programming



- Compartmentalized responses to crises in both disaster and development programming
- The relief development conundrum

Disaster is defined as "situations resulting from an environmental phenomenon or armed conflict that produces stress, personal injury, physical damage and economic disruption of great magnitude, beyond a community's capability to cope.

(Cuny, "Disaster and Development").

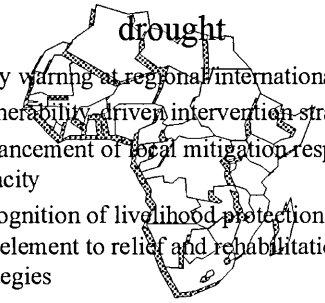
Disasters are usually classified according to their precipitating causes, which can be grouped as follows:

•*Natural disasters*, such as drought, floods, cyclones, food shortage, and pest infestations, which are the most frequent incidents to which OFDA has responded in Africa since 1970.

Health-related or epidemic disasters, such as widespread outbreaks of yellow fever, cholera, meningitis and the recent ebola virus, have from the early 1970s to the late 1980s been the principal cause of disaster mortality in Africa. Although somewhat distinct in nature, the HIV/AIDS epidemic can also be considered a health-related disaster.

Conflict-related disasters, or *complex humanitarian emergencies (CHEs)*, which represent a special class of disaster situations that frequently involve "political, military and humanitarian dimensions and are often also associated with natural disasters, especially drought".

Lessons learned from managing drought



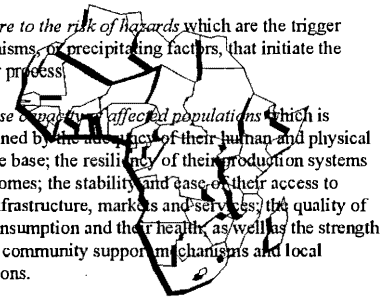
- Early warning at regional/international level
- Vulnerability-driven intervention strategies
- Enhancement of local mitigation response capacity
- Recognition of livelihood protection as a key element to relief and rehabilitation strategies

According to Chambers (1989), *vulnerability* represents "defenselessness, insecurity and exposure to risks, shocks and stress ... and difficulty in coping with them." By this definition, disasters occur, not only as a result of external precipitating factors, such as drought, but also as a result of underlying socioeconomic or political processes, for example, which serve to either increase the degree of exposure to political, environmental or biological risks, or to reduce the capacity of populations to cope with their worst effects.

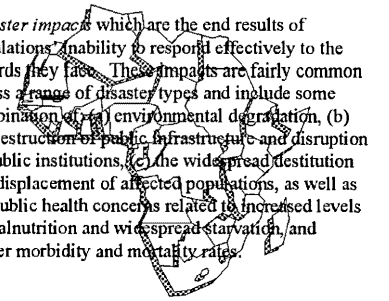
Vulnerability can be seen as having three distinct dimensions:

Exposure to the risk of hazards which are the trigger mechanisms, or precipitating factors, that initiate the disaster process.

Response capacity of affected populations which is determined by the adequacy of their human and physical resource base; the resiliency of their production systems and incomes; the stability and ease of their access to basic infrastructure, markets and services; the quality of their consumption and their health, as well as the strength of their community support mechanisms and local institutions.



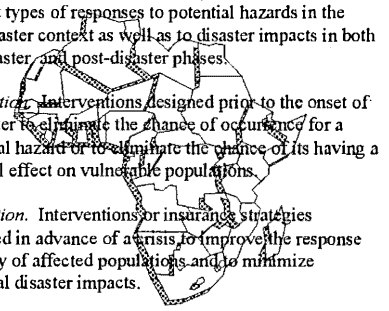
Disaster impacts which are the end results of populations' inability to respond effectively to the hazards they face. These impacts are fairly common across a range of disaster types and include some combination of (a) environmental degradation, (b) the destruction of public infrastructure and disruption of public institutions, (c) the widespread destitution and displacement of affected populations, as well as (d) public health concerns related to increased levels of malnutrition and widespread starvation, and higher morbidity and mortality rates.



Disaster interventions are typically defined by four distinct types of responses to potential hazards in the pre-disaster context as well as to disaster impacts in both the disaster and post-disaster phases.

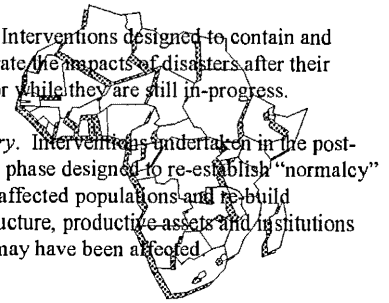
Prevention. Interventions designed prior to the onset of a disaster to eliminate the chance of occurrence for a potential hazard or to eliminate the chance of its having a harmful effect on vulnerable populations.

Mitigation. Interventions or insurance strategies designed in advance of a crisis to improve the response capacity of affected populations and to minimize potential disaster impacts.

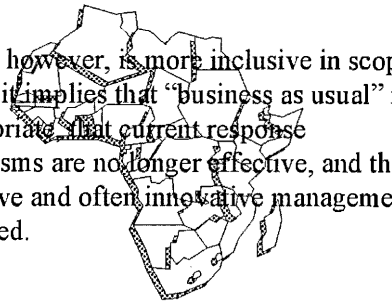


Relief. Interventions designed to contain and ameliorate the impacts of disasters after their onset, or while they are still in-progress.

Recovery. Interventions undertaken in the post-disaster phase designed to re-establish "normalcy" among affected populations and re-build infrastructure, productive assets and institutions which may have been affected.



A crisis, however, is more inclusive in scope because it implies that "business as usual" is inappropriate, that current response mechanisms are no longer effective, and that aggressive and often innovative management is required.



explorer page:

Level of development

Political Development

Economic Development

Social Development

Environment

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Level of development

At a very general level societies that are more advanced in terms of achieving broad-based and sustainable development are less vulnerable to man-made and natural disasters. Vulnerability is defined here as the degree of responsiveness to a particular event, i.e. what alternatives are available to the country, how quickly can they be mobilized or implemented and how costly they are . While disasters can happen to any society, societies that have effective governance, advanced infrastructure and economies and highly developed human capital are less vulnerable, particularly to man-made disasters such as conflict or famine. The opposite also holds. Countries that rank low on indicators of growth and development are more likely to experience conflict and are more vulnerable to the effects of natural disasters. For example, approximately 80% of the countries ranked as low income by the World Bank have experienced internal or external conflict in the past decade.

While a diversified economy, advanced infrastructure and high level of human capital are important variables in making these societies less vulnerable, societies that respect human rights, have effective governance systems, are democratic and have a network of strong civil society organizations increases a society's ability to peacefully manage and limit violent conflicts. With a goal of reducing the vulnerability of a society to both man-made and natural disasters and keeping in mind that the political variables

may be central, it is important to understand the relationships between these objectives and how they might mitigate conflict.

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Political Development

Governance implies the ability to set and implement policies and to carry out the basic functions a society requires that no other institution or group can provide (e.g. public goods). First and foremost this means defending and protecting citizens and property from external and internal violence, providing other public goods such as primary education, public health care, infrastructure and sound economic management.

If the government cannot perform these basic functions, other development objectives including the resolution of conflicts. would be nearly impossible. This area of political development then is indispensable to any successful development path and must be developed early in the development process.

It is becoming clear that a flourishing civil society may be a critical factor in determining the sustainability of democracy as well as encouraging good governance. During periods of crisis, whether man-made or natural, civil society organizations can be a key link in relief as well as reconstruction efforts. They can increase a society's capacity for coping with man-made or natural disasters.

Democratic political systems can also mitigate potential conflict by allowing for open discussion and debate as well as allowing for redress of grievances. Civic education programs if designed properly, can also have a major affect on behavioral change leading to reduction in conflict. Democratic systems based on majority rule, however, can exacerbate particularly ethnic tensions if the majority implements policies that negatively impact minority groups or by developing policies which disenfranchise the minority (e.g. language policies in Sri Lanka).

Finally, societies that respect human rights are unlikely to experience internal conflict or if they do, are more likely for these conflicts to be resolved by judicial processes rather than through violent means.

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Economic Development

One of the causal factors leading to conflict in a society is conflict over limited economic resources. It is obvious that if the economic pie is growing and it is shared equitably, then these types of conflicts are unlikely to occur. Growth policies targeted toward minorities or the dispossessed, particularly in ethnically-divided societies can go a long way toward mitigating conflict. Similarly, economic growth that is inequitable can lead to domestic strife (e.g. Mexico). For countries where growth is not forthcoming, it appears that these are the very societies where conflict is most likely to occur. As **Table XXX** illustrates, populations that are at risk of severe political crisis are all countries classified as low income countries. It may be the case then that countries experiencing or likely to experience complex civil conflicts are those that have limited economic resources to solve internal problems. This points to the importance of supporting policies that lead to equitable growth. It also implies that if donors are to have an impact on these countries, appropriate assistance must be forthcoming. Many of the countries listed in table one are countries that USAID either no longer operates in or has plans to disengage. There may be a contradiction then in USAIDs current policies and programs. If the Agency is no longer involved in the countries experiencing or most vulnerable to man made crises then there will be few if any development programs that can reduce the likelihood of either man made or natural disasters.

Social Development

All of the social objectives are strongly related to crisis prevention and indeed reconstruction. Countries where citizens have access to health care, are highly educated, have adequate nutrition and shelter, where wealth is equitably distributed and where women have a strong and equitable place in society are countries that are less vulnerable to man-made disasters and more able to respond quickly to natural disasters. The linkages are many. For example, increased literacy leads to higher productivity, and higher growth thus generating more resources for development and reducing a society's

vulnerability to crisis. Female education and improved maternal health are the most important causal factor in reducing fertility. Countries with declining population growth also have more resources to devote to development. Moreover, women and children currently make up the majority of refugees. Women who are healthier and more highly educated are likely to be less vulnerable and able to respond more quickly to these crises. Countries whose citizens have adequate nutrition are obviously less likely to suffer the effects of famine. Famine disproportionately also hits countries at the lower end of the development scale. Famines can be either man made, the result of natural disasters or a combination of the two. While early warning systems like FEWS have done an excellent job in anticipating, preventing and mitigating crises due to famine, it is nonetheless clear that countries likely to experience famine are low on all four sets of development objectives: they are likely to have poorly functioning political systems, low and inequitable growth rates, low indicators of human development and are often countries whose environments have been degraded, thus contributing to agricultural failures.

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Environmental Sustainability

There are many examples where environmental degradation has led to natural disasters such as floods, famines (Bangladesh, many parts of Sub-Saharan Africa). Unsustainable environmental practices can and have also led to man made disasters such as conflict in countries where there are disagreements over environmental policies (e.g.Nigeria). Many of the policies necessary for environmental sustainability are also policies that encourage other aspects of broad-based and sustainable development such as growth, equity and improved infrastructure. These include policies that 1) provide a better infrastructure for water, sewage and power, 2) policies that encourage the use of environmentally-friendly technology, and 3) policies that regulate and raise the costs of resource use and thus favor labor intensity over resource or capital intensity; and 4) policies that support the structural transformation of an economy from the high impact primary sector to the low impact and highly productive service sectors.

Text

Humanitarian Assistance

Significance and Urgency of Humanitarian Assistance

In the last decade, assistance for humanitarian emergencies or disasters has become an increasingly important parts of all donors activities. The value of humanitarian assistance for all donors increased from about 150 million in 1970 to over 3 1/2 billion in 1993.

There are a number of reasons for the increase in humanitarian assistance and humanitarian or complex emergencies in the last decade in particular, including the increased number of intrastate conflicts and subsequent 'refugees'.

During the Cold War, governments, and in particular non-governmental organizations were reluctant to intervene in what were considered domestic conflicts and problems, unless these conflicts fell into the then East-West sphere of influence and conflict. During this period, the prevailing view was that intervention in international conflicts was presumed illegitimate.

With the end of the Cold War the emerging view is that the international community has a right and responsibility to intervene to prevent conflict and famine, for example. As a result, the sphere for governmental and non-governmental action has increased as the notion of state sovereignty has increasingly been questioned. The balance between the sovereign rights of states and the rights of international organizations to intervene may be presently undergoing a radical transformation. One consequence is a profound changes in the role of humanitarian assistance. USAID has been at the forefront of these changes, both in developing programs and policies and in reorienting thinking toward preventive diplomacy and preventive development.

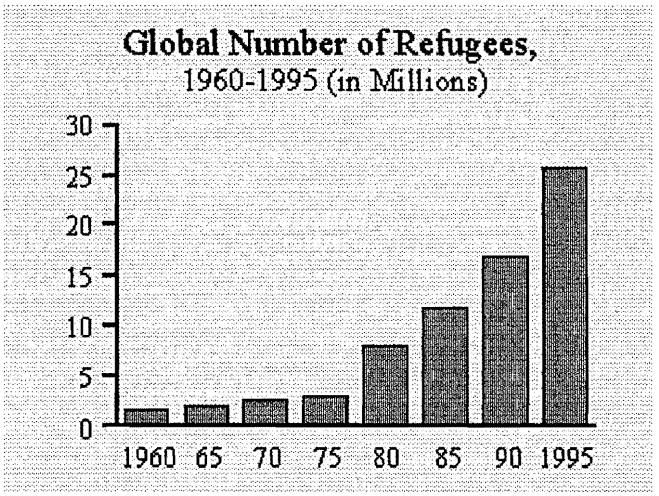
Understanding the Disaster--Development Continuum

Disasters are usually classified according to their precipitating causes which can be grouped as follows:

Droughts, floods, cyclones, food shortages due to natural causes, pest infestations and earth quakes are the most frequently cited 'natural disasters'. In fact, with the exception of earthquakes, the other categories of natural disasters cited above are the most frequent occurrences in Africa, to which The Office of Foreign Disaster Assistance has responded since 1970.

Health-related or epidemic disasters such as widespread outbreaks of infectious diseases such as yellow fever, cholera, meningitis, and the recent ebola virus, were from the early 1970s to the late 1980s the principal cause of disaster mortality in Africa. The HIV/AIDS epidemic can also be considered a health-related disaster

refugee


Global Number of Refugees,
1960-1995 (in Millions)
30
25
20
15
10
5
0
1960
65
70
75
80
85
90
1995

refugees

Since the end of the Cold War, the number in intrastate conflicts and partially as a result, the number of refugees worldwide has increased dramatically. As the graph shows, the number of refugees worldwide has doubled since 1985. This has resulted in increased pressures for USAID to respond to such complex humanitarian emergencies.

more info

Flows of Refugees as a % of Population Growth
(selected countries, various periods)

Country	Period	Total refugee entrants	Refugee entrants percent of pop. growth
Somalia	78-81	1,540,000	421.9
Malawi	84-90	909,000	51.0
Botswana	77-80	37,300	41.0
Gabon	78-81	30,000	28.0
Sudan	77-85	1,003,00	23.0
Iran	78-88	2,771,980	18.7
Pakistan	79-87	3,545,400	15.7
Zimbabwe	83-89	185,500	10.9
Ethiopia	84-89	700,000	9.5
Zambia	81-86	107,500	9.2
Nicaragua	80-83	22,500	7.8

more info

The number for in the table refugees severely underrepresents the total number of people who have been forced to migrate due to conflict or disasters.

These numbers shown do not include the estimated 30 million of displaced people in the world today or the unknown numbers of people who are not counted on any official tally due to their not having any legal status in the eyes of the international community. (UNHCR, 1997.)

Since the early 1990's numerous countries who had accepted refugees in the past have become reluctant to accept the large number of people who have been forced to migrate due to war, ethnic conflict, and natural disasters. Receiving nations have changed the criteria for the way they admit people. Increasingly, people who have been forced to migrate due to violence have been subjected to endure long periods of uncertainly in "safe haven" or refugee camps while they under go a processing to determine their legal status.

The economic and social stress caused by large numbers of people fleeing chaotic or violent situations are overwhelming the capacity to help. A major part of USAID assistance programs is aimed at preventing unwanted migrations before they happen, by introducing and assisting in the internal development of nations.

Top Ten Donor Countries To International Refugee Agencies

Country	Per person	Country	In Millions of US$
Norway	$13.53	United States	397.74
Sweden	$12.12	Japan	150.30
Denmark	$10.70	Sweden	106.69
Netherlands	$5.10	Netherlands	78.54
Switzerland	$4.80	U.K.	78.30
Luxembourg	$4.46	Norway	58.20
Finland	$2.85	Denmark	55.60
United States	$1.53	Canada	43.03
Canada	$1.48	Germany	38.17
U.K.	$1.34	Switzerland	33.63

Refugee Admissions to The U.S.
(total for 1994: 112,682)

Region	Number	Greatest percentage from:
NIS and Eastern Europe	50,947	NIS
East Asia	45,581	Vietnam
Latin America	6,437	Haiti
Near East Asia	5,861	Iraq
Africa	5,856	Somalia

Preventive diplomacy

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It refers to actions that public and private actors take to resolve disputes between contending parties through nonviolent means, if possible. It involves using political, humanitarian assistance, and development tools to prevent the violent resolution of conflicts and to address the root causes of conflicts before chaos ensues. An underlying assumption of this approach is that prevention is more cost-effective than responding to humanitarian emergencies as exemplified by our recent experiences in Rwanda and in Burundi.

preventive development

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It refers to the conscious use of relief and sustainable development resources to strengthen conflict-prone societies' capacities to resolve conflicts nonviolently. Sustainable development initiatives in the areas of humanitarian assistance, economic growth, democracy and the environment are designed--in such a framework--to address the root causes of conflict in violence-prone environments. Special care is also given to ensure that sustainable development initiatives are designed and implemented in a manner that do not exacerbate or create disputes that are likely to become violent.

"Annual losses from natural disasters now equal the total of official development assistance, so investments in prevention and mitigation promise a significant financial and strategic return."

USAID
Strategies for Sustainable Development

Natural Disaster

A natural disaster is not simply a function of the natural event itself. It is evaluated in terms of its actual and potential damage in relation to the human habitat. In general, natural disasters are evaluated in terms of magnitude of the event (e.g. the height of the flood or the intensity of the earth quake), the frequency of occurrence, the duration of the event, the speed of the onset, and its geographical coverage of population.

infectious diseases

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Why are infectious diseases re-emerging as major threats to human health?

The reasons for the resurgence of infectious diseases are complex and not fully understood. Contributing factors include population shifts, increased urbanization and crowding, environmental changes, and worldwide commerce and travel. Some specific causes are

- Increased human *intrusion* into tropical forests (for mining, farming, settlement, and tourism), where people are most likely to come in contact with infected animals carrying microbes that cause diseases in humans. For instance, many scientists believe that the human immunodeficiency virus (HIV), which causes ADS, is a zoonotic pathogen which was transmitted to humans from non-human primates.

- Changes inhuman behaviors which increase the risk of infection.

- Population growth and changes in demographics. By some estimates, more than *50%* of the population of the world is under 15 years of age, and the proportion is increasing. This means that there are an enormous number of susceptible people living in poor and crowded urban areas, where infectious diseases thrive. Population shifts within and between countries, due to changing economic conditions or military conflicts.

- Inadequacy and deterioration of public health infrastructures worldwide, including a lack of communicable disease surveillance and control efforts for and water-borne diseases and vaccine-preventable diseases.

- Erosion of expertise on diseases such as plague, rabies, malaria, yellow fever, and botulism.

- Misuse of antibiotics or other antimicrobial drugs, which can hasten the evolution of resistant microbes. This includes prescribing a drug without proper indications, prescribing the wrong drug or the wrong dose, or having poor patient compliance with treatment regimens.

- Ecological changes due to irrigation projects or deforestation. For instance, formerly dry areas may become excellent habitats for parasite-carrying insects as well as for snails and other animals that serve as parasite hosts.

- Increased trade and expanded markets for imported foods, which occasionally contain bacterial or viral contaminants. Although modern large-scale food technologies generally improve food safety, when contamination does occur, it may affect large numbers of people.

- Long- and short-term or cyclical changes in climate and weather that affect infectious microbes and/or? the insect vectors and animal hosts that carry them.

- Continual evolution of pathogenic microorganisms.

recent ebola virus

m61ebola.rtf

Lessons from Kikwit

It is useful to examine the international team's experiences in Zaire for ideas on how to improve U.S. preparedness for controlling infectious diseases outbreaks in countries with poorly developed health and communications infrastructures. One week into the investigation, the three CDC investigators report that the team's efforts are hampered by difficulties with transportation and communication, and by lack of money and personnel. Because the average incubation time (the time between infection and the appearance of symptoms) for Ebola is 7 days, each week's delay in instituting control measures means that a new generation of the virus has time to spread.

1) Transportation. To investigate suspected Ebola cases, doctors must be able to travel quickly from community to community in an area where there are few paved roads and no pubic transportation. The USAID mission to Zaire, which in past years could be relied on for assistance with logistics and organization, was closed in 1994. The U.S. Embassy and OFDA have provided some help, as the CDC team did not arrive in Zaire with authorization to purchase or rent cars or bicycles.

2) Money. The CDC team in Kikwit has no funds at their disposal to obtain radios, cars, bicycles, or additional medical supplies. An initial $20,000 was spent on essential equipment and medical supplies. A week into the investigation, the team has requested $781,000 to allow six doctors to work in Zaire for three months. In comparison, the team that responded to the hantavirus outbreak in New Mexico in 1994 involved 24 people working for 18 months at a cost of 4.5 million dollars. (Note: On May 23 OFDA allocated $750,000 for the CDC team and USAID's Bureau of Global Programs Field Support and Research supplied another 543,000.)

3) Personnel. The Zairian medical authorities have requested that the CDC send three additional epidemiologists and one operations/logistics manager to provide help with travel, communications, and procurement. In the United States, at CDC's biosafety level-four laboratory in Atlanta, additional technicians are needed to process the hundreds of potentially dangerous clinical samples sent from Zaire. The international team (not only the CDC doctors) are dependent upon the efforts of this unique laboratory. (Update: The funds provided by USAID/OFDA on May 23 will be used to support additional personnel in Zaire.)

4) Communication. To prevent the spread of Ebola fever, medical workers must report all suspicious fever cases to the national health authorities so that appropriate follow-up measures can be instituted. There are very few telephones and no radio station in Kikwit, although radio transmissions are received from Kinshasa. The lack of reliable

communication has hampered the international team members' initial efforts to coordinate with each other and the national health authorities of Zaire.

Poor communication has been a problem from the beginning of the outbreak. Although the first case of Ebola probably occurred as early as December, 1994, the international community only learned about the outbreak in May, after the Ebola virus had nearly 20 weeks to spread. This delay reflects the weak health care systems and the poor state of infectious diseases surveillance in most of Africa. Over the last ten years, with the end of the post-colonial era, the end of the cold war, and the decline of Western interest in tropical medicine, the public health infrastructures in many African countries have deteriorated. Infectious disease surveillance is nearly nonexistent, and emerging and re-emerging diseases frequently go unreported.

HIV and AIDS epidemic

An Epidemic's Global Reach

	Current HIV or AIDS cases	Percent of Population infected	Women as a percent of the infected
Sub-Saharan Africa	14 million	5.6	50 or more
South and Southeast Asia	5.2 million	0.6	30 or more
Latin America	1.3 million	0.6	20
Caribbean	270,000	1.7	40 or more
North Africa, Middle East	200,000	0.1	20
East Asia, Pacific	100,000	0.001	20
Central and East Europe, Central Asia	50,000	0.015	20

m42tb101

m42hiv.rtf

More than 80 percent of those infected with HIV lived in developing countries in 1990. and according to the World Health Organization or WHO , by the year 2000 this will increase to an estimated 95 percent

According to the WHO, by mid-1994 approximately 40 percent of estimated cases of HIV infection were women. By the year 200o the number of women infected will equal that of men and in fact the number of women contracting HIV is growing faster than the number of men worldwide.

Conflict-related disasters or complex humanitarian emergencies (CHEs) which represent a special class of disaster situations that frequently involve political, military and humanitarian dimensions and are often also associated with natural disasters, especially drought.

According to USAID, "annual losses from natural disasters now equal the total of official development assistance, so investments in prevention and mitigation promise a significant financial and strategic return."

Disasters highlight whatever weakness already exists in a society. Disasters also evoke the most visible and morally certain responses from neighbors and nations. From the Office of Foreign Disaster Assistance of USAID to Medicines Sans Frontier of France, there has been an enormous and well publicized focus on the roll of disasters in world politics. Our focus in this module is to build upon a perspective that is at least a decade old.

It is an approach which combines disaster assistance with the notion of longer term development assistance. This approach is best thought of as a continuum which starts at the one end, with immediacy of a sudden disaster such as an earthquake or conflict, and at the other end the longer term elements of development assistance to alleviate poverty.

The primary focus of this approach is the population which is potentially subject to disaster. Our premise is that there are characteristics of a given population, mostly related to their socio-economic status and or place of residence, that predispose them either to the occurrence of a disaster or to more severe impact if a disaster should take place. These populations at risk, or vulnerable populations, are also the groups to which we direct the majority of our development assistance. The interrelationship between disaster and development starts with this concept of the vulnerable population. It is important to identify certain key population parameters in order to clearly understand the magnitude of vulnerability of a population caught in disaster situations.

Those populations who have the smallest amount of financial or educational resources are differentially effected by disasters. The poorer and less educated the majority of the population is, the more likely is it to be effected negatively. Therefore the single most important concept which should be monitored in populations to help prevent or mitigate a disaster is socio-economic status.

Disasters are classified as to primary effects: things that happen rapidly as a direct result of the event, and secondary effects: things that happen as a result of the effects of the primary events. Disasters are further classified as rapid or sudden onset and sometimes considered cataclysmic. There are also human instigated disasters.

Phases of Disasters

conflict related disasters

m61cnflt.rtf

The explosion of ethnic strife and civil war in many parts of the Developing World has had a devastating effect on the ability of the population in affected areas. In the early 1990s there were nearly 50 protracted conflicts in developing countries. During times of conflicts, the security of the civilian population is continuously threatened, the physical infra-structure of the area is often crippled by war and indeed, the livelihoods of the affected population get severely disrupted.

Socio-economic status

m61socio.rtf

Socio-economic status is usually measured by a set of indicators including:

Education
Income
Occupation
Housing

Because of this high correlation with socio-economic status most "disasters" strike between the Tropic of Cancer and the Tropic of Capricorn within the Third World.

Vulnerable populations

m61vulpo.rtf

Vulnerable populations are those human beings who have been adversely affected by the disasters. In certain instances as in Bhopal in India, the affected population do not necessarily move from the area. However, a large component of humanitarian assistance is required for people who flee the area which has been impacted by either a natural or a man-made disaster. The explosion of civil disturbances and ethnic strife combined with scarce resources, and poverty have been compelling people to leave their homes in search of security and survival. The number of such refugees and internally displaced people number about 50 million, of which 20 million are refugees. It is estimated that women and their dependent children account for about 75 percent of refugees and internally displaced people.

In Mozambique, more than 25 percent of the population of 15.7 million people have been displaced inside the country or are refugees outside the country, mainly in Malawi. In Rwanda and Somalia, at least one third of the country is uprooted. In Afghanistan about 50 percent of the population have been uprooted by conflict.

Key Populations

A clear understanding of the extent of the disaster event as it relates to the vulnerable population is important as a base line to understand the potential impact of any disaster. The key population parameters needed to understand vulnerability in this context include:

Population size
Population age and sex breakdown
Population socio-economic status
Special population characteristics (ethnicity etc.)
Spatial distribution of population

Ideally, disaster-associated intervention and development agencies should have these parameters well mapped out in the geographic areas they are responsible for. Thus vulnerable populations could be identified and plans developed to mitigate the major elements which are associated with negative impact on the human populations. Thus the first intervention is proper planning and knowledge on the part of the relief and development organization.

cataclysmic

m61catac.rtf

Cataclysmic disasters are generally large scale events that may cause tremendous amounts of suffering. Natural disasters of a cataclysmic nature include:

a) Earthquakes with related tidal waves (tsunamis), land or mud-slides, fires, and floods;
b) Tropical hurricanes (North Atlantic and South Pacific), cyclones (Indian Ocean) and typhoons (North and Western Pacific) with related mud slides, and floods;
c) Floods
d) Droughts
e) Fires (Natural)
f) Tornadoes
g) Landslides
h) Volcanoes

human instigated disasters

m61hmins.rtf

They include:

a) War
b) Induced starvation or drought
c) Blockade
d) Endemic or epidemic curable disease
e) Industrial disasters

Disasters and their aftermath have been classified into different phases each of which provokes a different response.

The first phase is the emergency phase, a period that is characterized by actions needed to immediately save lives. The second phase is a transitional or rehabilitation phase which endeavors to bring the impacted population back to a fully functional state. The third phase is generally considered the reconstruction phase. While this typology is useful in a general sense the actual time spent in each phase varies greatly by the actual type of disaster. A tornado will inspire an emergency phase of only hours or days where a volcano may involve an extended period.

Impacts of Disasters

Disasters have impacts on many parts of society:

a) the health of a population
b) the environment
c) politics
d) economics
e) social

Several different elements that should be monitored in the demographic, economic, political, social and human welfare spheres in order to define and understand the impacts of disasters.

Disaster Intervention

Disaster interventions are also typically defined by distinct types of responses to potential hazards in the pre-disaster contexts as well as to disaster impacts in both the disaster and post-disaster phases.

a) Prevention
b) Mitigation
c) Relief
d) Recovery

Food Aid as a Link between Humanitarian Assistance and Development

Food aid when used to improve overall food security if the most important example of the linkage between humanitarian assistance and development. Food security, defined by your Agency in a 1992 Policy Determination (Definition of Food Security, April, 1992) is, "when all people at all times have both physical and economic access to 'sufficient food' to meet their dietary needs for a productive and healthy life." There are three key elements in the attainment of food security: 'availability', 'access' and 'utilization'.

typology

m61typol.rtf

Green (1977) listed the phases of disasters as:

1) A pre-disaster phase requiring preparation and planning;
2) A political phase right after or during an event that can prevent, delay or destroy relief operations;
3) An operations phase where coordination is extremely important; and
4) A reconstruction and rehabilitation phase.

a) the health of a population

m61psoc1.rtf

There are many different effects of disasters which have been studied and classified. These can be best organized and priorities set, again by referring to the populations effected. Perhaps the most visible and publicity inspiring effects are the "medical effects". These include :

Traumatic injuries
Emotional stress
Epidemic diseases
Disease as a result of the disaster

Perhaps the most important thing to note in medical response is that by the time major medical assistance can get to an area of sudden-onset disaster, it is usually too late to deal with emergencies. The ability to deal with major surgical or other immediate treatment of traumatic injury is almost entirely related to the level of development of the vulnerable population.

b) the environment

m61psoc2.rtf

Environmental effects can be long or short term. Potable water supplies, spillage of hazardous wastes are associated with many sudden-onset disasters. Other environmental effects such as the changing global temperatures from volcanic ash or oil spills from human initiated disasters take from months to years to be fully felt. Aside from the direct toxic impact of environmental pollutants the environmental effects are usually in the following categories:

1. Decrease in quality and quantity of potable water.
2. Damage to crops or ability of the environment to support food or future cash stock.
3. Presence of undisposed of human or animal bodies and resultant negative effects.
4. Direct toxic effects of spilled chemicals in the immediate physical environment.

c) politics

m61psoc3.rtf

Disasters can have one of two effects on the politics of a community. Poor response or an organization that serves self-interest can have a disastrous effect on the political structure of a region. Inequities in power and income distribution are highlighted by disasters. On the other hand a well handled response can improve and consolidate political positions. Often in developing country situations, disasters are manipulated to overstate a problem when local and national governments feel international resources may be allocated which could be utilized for other ends. In other cases local polities often understate the problem if, as in the case of famine, it underscores the governments inability to feed its people and as a result may topple current political power structures.

d) economics

m61psoc4.rtf

Disasters disrupt economies but seldom destroy them. The exception is in the subsistence farmers or herders and very small business operations. Even these categories, depending on the particular circumstances, often have skills to survive. Without the resources to bridge a disaster period these entities often fail. Many observers have noted that after large disasters there is an economic boom of sorts which often brings the society to a higher level than it was prior to the event.

e) social

m61psoc5.rtf

Disasters have multiple social effects. Perhaps the most notable is migration. Many disaster conditions create either selective or complete migration, short and long term. Disruption of communication and social systems and a breakdown of law and order often happens during disaster situations. The relationship between social, economic and political effects of disasters is interdependent and highly correlated.

several different elements

m61elmen.rtf

Migration
- Short term
- Long term

Production Loss
- Crop
- Manufacturing
- Tourism
- Service
- Other

Infrastructure Damage
- Housing
- Water
- Transport
- Communications
- Market System

Social Disruption
- Breakdown of law and order
- Breakdown of social norms
- Disruption of Community leadership
- Disruption of formal organizations

Human Welfare
- Morbidity
- Mortality
- Malnutrition

a) prevention

m61preve.rtf

Prevention interventions are designed prior to the onset of a disaster to eliminate the chance of occurrence for a potential hazard or to eliminate the chance of its having a harmful effect on vulnerable populations.

b) mitigation

m61mitig.rtf

Interventions in this phase are designed in advance of a crisis to improve the response capacity of affected populations and to minimize potential disaster impacts.

c) Relief

m61rlief.rtf

Prevention interventions are designed prior to the onset of a disaster to eliminate the chance of occurrence for a potential hazard or to eliminate the chance of its having a harmful effect on vulnerable populations.

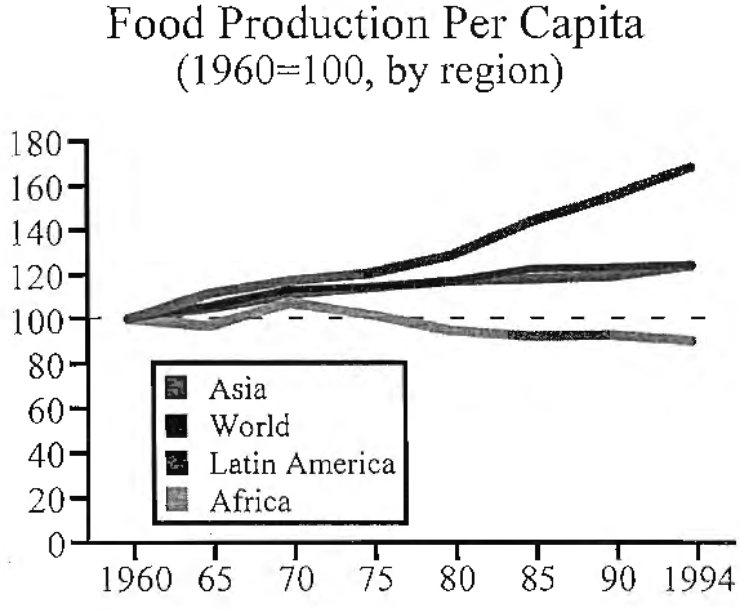
d) Recovery

m61rcvry.rtf

Rrecovery interventions are undertaken in the post-disaster phase and designed to re-establish "normalcy" among affected populations and re-build infrastructure, productive assets and institutions which may have been affected.

Sufficient food.

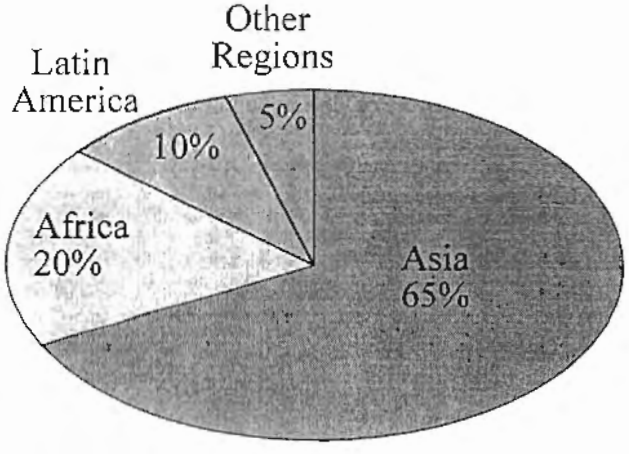
Between 1960 and 1992, per capita food production increased about 4 percent worldwide. Food production in Asia has kept pace with population growth. This is not the case in Africa. Between 1990 and 1992, per capita food production declined by 5 percent.



Source: World Resources 1996-1997

more info

Global Malnutrition



availability

m61avail.rtf

Indicators which reflect availability are estimates of food production, food price measures, measures of political violence affecting supply and NDVI or vegetation indexes of food production.

access

m61acces.rtf

The second most important indicator for food security is that of access. Does a family unit have access to the needed food stuff to maintain a healthy and productive life? Indicators which measure access include: food ratio (expenditure for food/total household expenditure), and the following variables which are often highly correlated with the food available per capita ratio: income, occupation, education, rooms per capita in house, food prices and market basket surveys.

utilization

m61util.rtf

Food utilization or consumption is the most important of the three elements of food security. Indicators of food utilization are the closest to a direct measure of the impact on a given family unit of food availability/unavailability. If available the best indicators are: nutritional status of child and infant population from 6 to 36 months of age measured by anthropometric (wt/ht/age); nutritional status of school age children (at entrance to school) as measured by anthropometric and infant mortality rates.

Humanitarian Assistance Exercise Food Security Case:

Impact of Assistance and Lessons Learned

Careful consideration should be given as well to what has been termed the negative or disincentive aspects of disaster assistance and intervention. These are cases where the massive arrival of goods and personnel change production and consumption or settlement patterns such that a fundamental barrier to reconstruction and rehabilitation is introduced into the system. Likewise, the massive input of assistance that often follows a disaster can obscure longer term development strategies by offering temporary and expensive solutions to chronic problems.

A final concern relates to "entitlement" issues where communities or governments depend upon disaster assistance for long-term subsistence.

A summary of lessons from the past regarding the general relationship of disaster relief and development is useful to illustrate some of the relationships between disaster assistance and development.

Specific lessons learned from USAID in the area of humanitarian assistance and development cover several areas:

a) Prevention and Resolution
b) Political Development
c) Economic Growth
d) Education

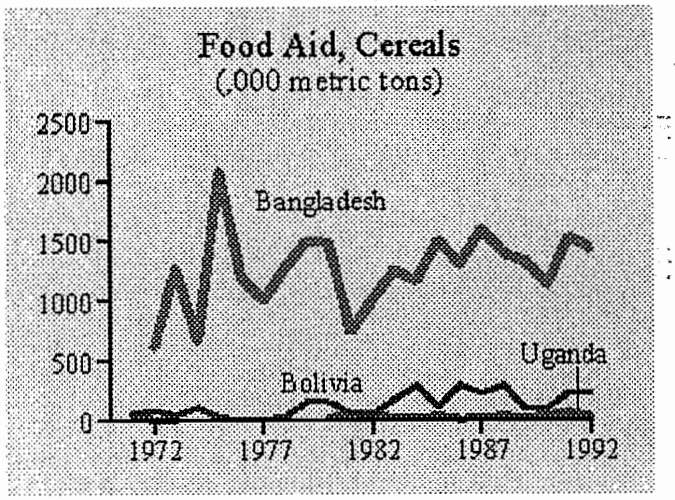
Humanitarian Assistance Exercise Disasters Case:

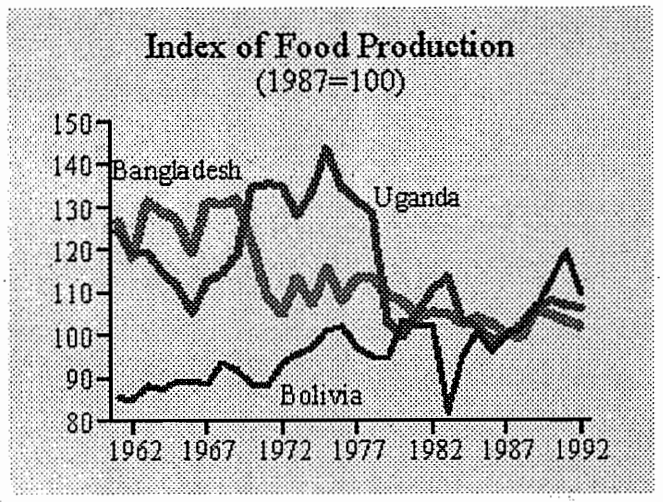
It is interesting and important to regard closely the elements of lessons learned regarding disasters as they might relate to development issues. Almost all of these lessons learned apply equally as well to development as to disaster assistance. The major review of prior studies indicates that in the acute emergency phase of disasters international assistance is largely irrelevant. It is therefore only in areas of planning, disaster mitigation, rehabilitation and reconstruction that disaster relief efforts from developed countries such as the United States make sense.

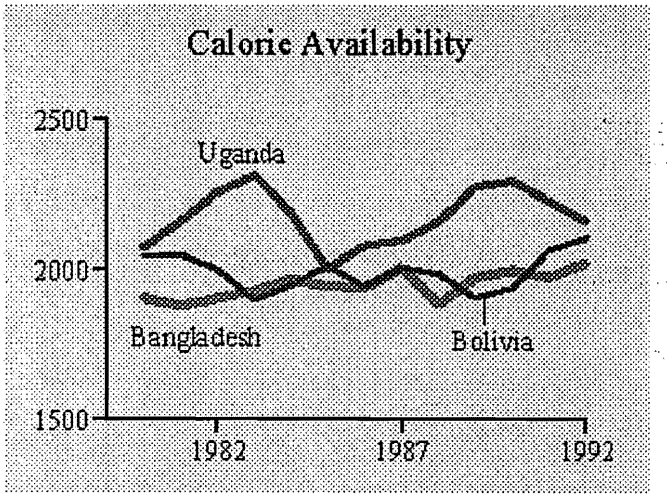
It is critically important that governments and relief and donor agencies have a clear understanding and a set of base-line data on populations vulnerable to disaster, before disasters occur. Thus, the planning phase in disasters includes the important steps of vulnerability analysis or risk mapping. Although this is often done at the national level, the technology and data exist currently to undertake risk mapping at the local level and we believe that the identification of the numbers, characteristics and location of these populations is the beginning of quality disaster planning. It is also precisely the unit utilized to analyze poverty in general and its relationship to general development

Food Security Case

Examine the following variables for your country: index of food production food production per capita, calorie availability, food consumer price index, and food air, cereals. What are the trends in these variables? Is food security increasing or decreasing? Now graph one of your food security variables along with GNP per capita. Does food security improve with better economic growth?


Food Aid, Cereals
(,000 metric tons)
2500
2000
1500
1000
500
0
Bangladesh
Uganda
Bolivia
1972
1977
1982
1987
1992


Index of Food Production
(1987=100)
150
140
130
120
110
100
90
80
Bangladesh
Uganda
Bolivia
1962
1967
1972
1977
1982
1987
1992


Calorie Availability
2500
2000
1500
Uganda
Bangladesh
Bolivia
1982
1987
1992

Food Aid - Cereals
Index of Food Production
Calorie Availability

Food aid is received from the international donor community under two sets of circumstances. One is to meet shortfalls in food requirements caused by failure in domestic food production. For some countries, this can be attributable to an occasional crop failure caused by adverse weather conditions. For others, it can be a persistent problem caused by difficulties in growing one's own food.

The second set of conditions under which food aid is needed relate either to natural disasters, such as floods or earthquakes, or man-made disasters, such as war. Typically these are emergency conditions under which relatively large quantities of food have to be found, transported, and distributed on short notice under difficult conditions.

Bangladesh is an example of a country that has faced a chronic food deficit requiring long-term food aid. Annual fluctuations in the amount supplied partly reflect the availability of food grain from domestic sources which in turn depends on the weather. Moreover the per capita calorie availability has been either below what is required or just the bare minimum.

Uganda is an example of a country which received food aid to meet a shortage partly created by a manmade disaster- the civil war situation in the 1980s.

The Food Aid graph also tells you something interesting about the interpretation of graphical data. Note that the quantity of cereal supplied is shown in absolute terms. Thus, given the supply to Bangladesh which is partly determined by the relatively large size of the population, the supplies obtained by the other two countries appear to be insignificant. However, the amount supplied, say, to Bolivia is considerable relative to its population size.

entitlement

m61 entit.rtf

In circumstances where communities come to depend on disaster assistance, the traditional coping strategies of populations at risk are replaced by external intervention assistance which leads to a completely changed society. While this may be necessary and desirable in some few cases, it most often is not.

general relationship

m6lgnrel.rtf

Lessons from the Past: (Cuny 1983)

Lesson 1: Relief and reconstruction operations should be conducted within the context of development.

Lesson 2: The process through which a family obtains disaster assistance is more important than the actual aid received.

Lesson 3: The people can do it and they know how.

Lesson 4: The people consistently prefer private and informal solutions over public and formal ones, even when the latter may objectively be more adequate.

Lesson 5: When properly executed, intervention can provide a strong stimulus to recovery and a base for positive change.

Lesson 6: The rehabilitation system may constitute a more powerful agent for change than the actual disaster (Bates et al. 1963)

Lesson 7: Activities should be appropriate to the phase of the disaster.

Lesson 8: Organizations that [arrive] on the scene soon after the impact...[are] successful to the degree to which they [fit] themselves into the rescue pattern already established by the local groups (Form and Nosow, 1958)

Lesson 9: The role of intervenors is to support activities that local individuals or organizations cannot carry out themselves.

Lesson 10: The lack of uniform reconstruction standards or policies (or failure of all intervenors to agree on basic approaches to relief) creates undue competition and leads to inequitable distribution of assistance.

Lesson 11: Massive relief can be counterproductive.

Lesson 12: The anticipation of large-scale assistance by foreign agencies makes local organizations reluctant to take relief measures.

Lesson 13: Aid may inadvertently be provided in such a way as to inhibit the recovery process and create dependence.

Lesson 14: Relief efforts may obscure underlying political realities (Cuny et al. 1982).

Lesson 15: Disaster relief may hinder the victims' own efforts to better prepare for a recurrence of the disaster.

Lesson 16: Despite the availability of local resources and solutions appropriate to post-disaster needs, there is a strong and growing demand at all levels in the Third World for "Western," that is technological, response.

prevention and Resolution: m6laidpr.rtf

General Lessons Learned Regarding Prevention and Resolution:

Conflict are likely to be resolved violently when inequality is the "rule rather than the exception" in society and when institutions of government offer no redress for those who are disadvantaged. Therefore, program that are designed and implemented to eliminate unequal access to opportunities in a society and to promote transparency in governance appear to be effective tools for prevention.

Early warning systems can be major tools for prevention. However, information generated trough such systems is useless unless decision-makers are willing to used it to inform timely and appropriate responses to prevent and/or to mitigate violent whereas developmental interventions are most effective during the formative stages of a conflict.

Strategies for prevention must address root causes of conflicts and take into consideration the perspectives of those likely to be impacted by conflict. This requites fashioning development strategies to address locally defined priorities that may differ from those of donors.

The causes associated with one phase of a conflict often change as the nature of the conflict changes. Therefore, donors providing assistance in a conflict prone environment must be able to mend their strategies to respond to the changing nature of conflict in a society.

More is known about the latter stage of a conflict than is known about its formative stage. Many experts believe that it is in the early stages that development and humanitarian assistance resources can be used as cost-effective tools for prevention.

Responding in a preventive manner presents new problems and exacerbates old ones for all actors engaged in prevention. Coordination problems impede the efforts of traditional bilateral, multilateral, and regional actors; those of well established relief and human rights NGOs; and the increasing number of new conflict resolution NGOs.

Avoid situations of high-intensity aggression where program success is unlikely.

Limit conflict resolution efforts to Track I and Track II diplomatic efforts once violence broken out.

Avoid "packaged" approaches to mediation.

Consider both dominant and non-dominant groups, as well as the ways that class, race, religion and other variables affect perceptions of identity.

Monitor issues associated with a conflict long after a specific dispute is resolved.

Keep a long-term perspective when looking for results.

Political Development mblairdpo.rtf

Lessons Learned from Political Development Program:

LEGAL SYSTEMS REFORMS EFFORTS

Use alternative dispute resolution mechanisms to increase ethnic and/or religions groups' access to legal processes.

Implement court and administrative proceedings in the language of those involved.

POLITICAL, CIVIL AND HUMAN RIGHTS PROGRAMS

Use caution when promoting constitutional reform programs, as such reform can either mitigate or exacerbate conflicts that have taken on religious and/or ethnic overtones.

Encourage constitutional arrangements to include ethnic and/or religious issues before an ethnic or religious conflict becomes apparent.

Be aware that definitions of citizenship are strong foci for ethnic and religious group conflict.

Focus on group rights instead of individual rights in certain instances.

Emphasize civic education programs that are essential to the democratization process and to the reduction of ethnic and/or religious conflict.

Promoting districting programs can be one of the most powerful -- and controversial -- policy tools available in reducing conflict.

Emphasizing power-sharing policies can sometimes mitigate ethnic conflict.

Setting up supervised elections may be an important conflict resolution device.

Transferring information on other election systems can benefit new democracies.

DEMOCRATIZATION PROGRAMS

Be alert that decentralization reduce ethnic and religious conflict tensions, but not without generating conflict in the process.

Focus on bottom-up approaches to decentralization as this type of program works best to reduce ethnic and religious conflict.

Consider the location of non-dominant group's regions within the state when designing and implementing programs, because location is an important factor for decentralization program.

b

Remember that decentralization efforts take a great deal of time and require continuous commitment.

REGIONAL AND TRANSNATIONAL PROGRAMS

Examine regional and transnational arrangements as potential ethnic and religious conflict resolution mechanism.

INFORMATION, COMMUNICATIONS, AND MEDIA PROGRAMS

Be aware that the media itself can be an agent for both and against ethnic and religious conflict resolution.

Include international communications agencies in ethnic conflict resolution efforts.

Promote alternative information and communication sources to help mitigate ethnic and religious conflict.

Economic Growth m6laidec.rtf

Lessons Learned Regarding Economic Growth

INVESTMENT PROMOTION PROGRAMS

Promote investment in non-dominant group areas as a way to reduce ethnic and/or religious conflict.

CREATION OF EQUAL ACCESS

Be aware that, while the promotion of equality of economic access can ease ethnic and/or religious conflict, it can also create problems.

LABOR PROGRAMS

Be aware that ethnic divisions of labor complicate ethnic conflict resolution efforts.

LAND SETTLEMENT PROGRAMS

Be cautious of land reform programs that can exacerbate ethnic and/or religious conflict.

NATURAL RESOURCE MANAGEMENT PROGRAMS

Be aware that economic control over natural resources can be a tremendously contentious area.

Education mblaided.rtf

Lessons Learned Regarding Education

PROGRAMS TO SECURE ACCESS EQUALITY

Be aware that effort to secure equality of access to the classroom have produced conflicting results.

Promote the use of "neutral" languages as a way to reduce ethnic conflict.

PROGRAMS TO DEVELOP DEMOCRATIC PRINCIPLES IN THE SCHOOL SYSTEM

Be aware that civic education programs require long-term commitment in order to generate results.

Be cautious of civic education programs that attempt to assimilate ethnic non-dominant groups into the dominant culture.

Note the high potential of school curriculum as a tool for addressing cultural issues.

Use democratic educational structures as role models for conflict resolution.

Promote cultural harmony by carefully selecting and training teachers.

2

Disaster Case

Describe briefly a natural or manmade disaster that might have occurred in your country. If an example is not available from your country, you may use an example from any other country that you are familiar with. What were the immediate and long-term repercussions of the disaster? How did the country and the affected community cope with it? What international assistance, if any, was made available? How useful was it? Did the assistance have long-term development linkages and consequences?

base-line data

im61 bslin.rtf

Core information required of vulnerable groups includes:

1. Population size, location, and ethnicity

2. Age sex structure

3. Socio-economic status

4. Proximity to disaster catalyst (i.e. flood or earthquake zone.)

This minimal set of indicators that we would use to identify vulnerable populations for disasters is similar to those that one would want to know if our interest was in general development or in humanitarian assistance. Most of the basic interventions of development could also be considered as part of the mitigation stage of disaster relief and humanitarian assistance.

f

interventions. The major question in all direct development interventions is who are the most vulnerable individuals and communities in society and how can our interventions, as in health and education, improve their situation.

There are important linkages between disaster assistance and long terms development that need to be examined and considered when planning and providing for disaster relief.

At a very general level societies that are more advanced in terms of achieving broad-based and sustainable development are less 'vulnerable' to man-made and natural disasters.

While a diversified economy, advanced infrastructure and high level of human capital are important variables in making these societies less vulnerable, societies that respect human rights, have effective governance systems, are democratic and have a network of strong civil society organizations increases a society's ability to peacefully manage and limit violent conflicts.

Political Development

Governance implies the ability to set and implement policies and to carry out the basic functions a society requires that no other institution or group can provide (e.g. 'public goods').

It is becoming clear that a flourishing civil society may be a critical factor in determining the sustainability of democracy as well as encouraging good governance.

During periods of crisis, whether man-made or natural, civil society organizations can be a key link in relief as well as reconstruction efforts. They can increase a society's capacity for coping with man-made or natural disasters.

Democratic political systems can also mitigate potential conflict by allowing for open discussion and debate as well as allowing for redress of grievances. Civic education programs if designed properly, can also have a major affect on behavioral change leading to reduction in conflict. Democratic systems based on majority rule, however, can exacerbate particularly ethnic tensions if the majority implements policies that negatively impact minority groups or by developing policies which disenfranchise the minority (e.g. language policies in Sri Lanka).

Finally, societies that respect human rights are unlikely to experience internal conflict or if they do, are more likely for these conflicts to be resolved by judicial processes rather than through violent means.

Economic Development

Vulnerable

Vulnerability is defined here as the degree of responsiveness to a particular event, i.e. what alternatives are available to the country, how quickly can they be mobilized or implemented and how costly they are. While disasters can happen to any society, societies that have effective governance, advanced infrastructure and economies and highly developed human capital are less vulnerable, particularly to man-made disasters such as conflict or famine. The opposite also holds. Countries that rank low on indicators of growth and development are more likely to experience conflict and are more vulnerable to the effects of natural disasters. For example, approximately 80% of the countries ranked as low income by the World Bank have experienced internal or external conflict in the past decade.

Violent Conflict

With a goal of reducing the vulnerability of a society to both man-made and natural disasters and keeping in mind that the political variables may be central, it is important to understand the relationships between these objectives and how they might mitigate conflict.

Public Goods

First and foremost this means defending and protecting citizens and property from external and internal violence, providing other public goods such as primary education, public health care, infrastructure and sound economic management. If the government cannot perform these basic functions, other development objectives including the resolution of conflicts would be nearly impossible. This area of political development then is indispensable to any successful development path and must be developed early in the development process.

One of the causal factors leading to conflict in a society is conflict over limited economic resources. It is obvious that if the economic pie is growing and it is shared equitably, then these types of conflicts are unlikely to occur. Growth policies targeted toward minorities or the dispossessed, particularly in ethnically-divided societies can go a long way toward mitigating conflict. Similarly, economic growth that is inequitable can lead to domestic strife such as in Mexico. For countries where growth is not forthcoming, it appears that these are the very societies where conflict is most likely to occur. As the 'tables' illustrate, populations that are at risk of severe political crisis are all countries classified as low income countries. It may be the case that countries experiencing or likely to experience complex civil conflicts are those that have limited economic resources to solve internal problems. This points to the importance of supporting policies that lead to equitable growth. It also implies that if donors are to have an impact on these countries, appropriate assistance must be forthcoming. Many of the countries listed in table one are countries that USAID either no longer operates in or has plans to disengage. There may be a contradiction then in USAID's current policies and programs. If the Agency is no longer involved in the countries experiencing or most vulnerable to man made crises then there will be few if any development programs that can reduce the likelihood of either man made or natural disasters.

Social Development

All of the social objectives are strongly related to crisis prevention and indeed reconstruction. Countries where citizens have access to health care, are highly educated, have adequate nutrition and shelter, where wealth is equitably distributed and where women have a strong and equitable place in society are countries that are less vulnerable to man-made disasters and more able to respond quickly to natural disasters. The linkages are many. For example, increased literacy leads to higher productivity, and higher growth thus generating more resources for development and reducing a society's vulnerability to crisis. Female education and improved maternal health are the most important causal factor in reducing fertility. Countries with declining population growth also have more resources to devote to development. Moreover, women and children currently make up the majority of refugees. Women who are healthier and more highly educated are likely to be less vulnerable and able to respond more quickly to these crises. Countries whose citizens have adequate nutrition are obviously less likely to suffer the 'effects of famine'.

Environmental Sustainability

There are many examples where environmental degradation has led to natural disasters such as floods, famines (Bangladesh, many parts of Sub-Saharan Africa). Unsustainable environmental practices can and have also led to man made disasters such as conflict in countries where there are disagreements over environmental policies (e.g.Nigeria). Many of the 'policies necessary' for environmental sustainability are also policies that encourage other aspects of broad-based and sustainable development such as growth, equity and improved infrastructure.

Low income countries in political crises with population at risk: Sub-Saharan Africa

Countries	Affected Population (millions)
Angola	3.7
Burundi	0.9
Ethiopia	4.3
Eritrea	1.6
Liberia	2.1
Mozambique	1.0
Rwanda	4.0
Sierra Leone	1.5
Somalia	1.1
Sudan	3.0
Zaire	0.6

tables

Note that of the 26 countries listed in the tables by the UN, all but three are "Low Income" countries. This raises an interesting question about the relationship between political crises, conflict, and development. Does the relative lack of development cause conflict and political crises? Or does political crisis slow-down or obstruct development? There is no clear answer available to these questions. Researchers have pointed out that in some situations, poverty and low income lead to intense competition for scarce resources that leads to ethnic conflict in ethnically divided societies. For example, it is a fact that in many Sub-Saharan African countries that are listed here, tribal/ethnic groups compete to capture state power, and whoever who succeeds often favors their own in resource allocation.

It is also a fact that in almost every state that is in the tables, the task of nation building is either incomplete or has failed. This in turn has led to weak governance, poor economic management, and unsatisfactory development.

Finally whether, low income and under-development has caused political conflict and crises, or it is the other way around, considerable numbers of inhabitants, mostly members of ethnic minority groups, of these countries have become vulnerable because of violent conflict. In some cases they have been internally displaced and live in refugee camps within the borders of the country concerned. Others have crossed borders and are refugees.

Low income countries in political crises with population at risk: Asia & the Middle East

Countries	Affected Population (millions)
Afghanistan	4.2
Armenia	0.3
Azerbaijan	1.0
Burma	0.2
Cambodia	0.3
Iraq*	1.3
Sri Lanka	0.7
Tajikistan	1.0

Note: * Middle income countries

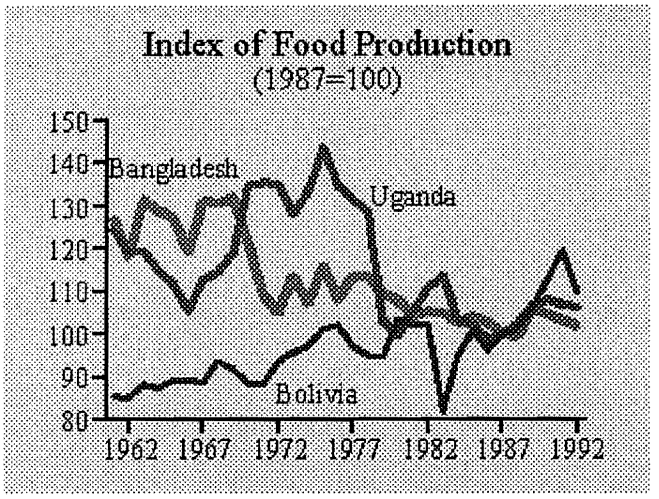
Low income countries in political crises with population at risk: Europe and Americas

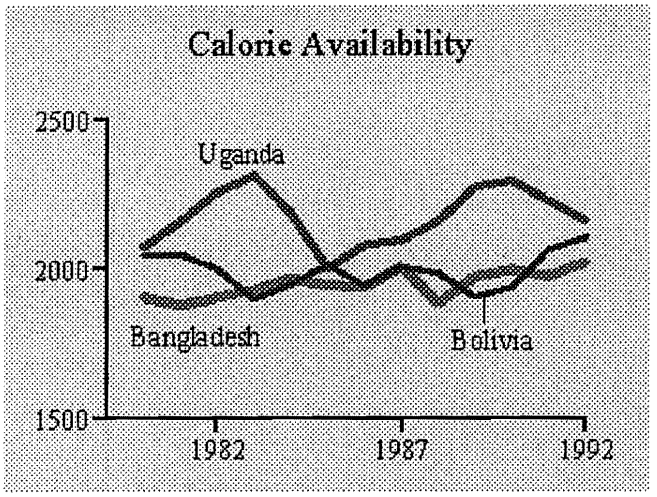
Countries	Affected Population (millions)
Europe	
Albania	0.2
Bosnia	2.5
Croatia *	0.5
Georgia	1.0
Russia (North Caucasus) *	NA
Serbia and Montenegro	0.4
Americas	
Haiti	1.3

Note: * Middle income countries

Effects of famine

Famine disproportionately also hits countries at the lower end of the development scale. Famines can be either man made, the result of natural disasters or a combination of the two. While early warning systems like FEWS have done an excellent job in anticipating, preventing and mitigating crises due to famine, it is nonetheless clear that countries likely to experience famine are low on all four sets of development objectives: they are likely to have poorly functioning political systems, low and inequitable growth rates, low indicators of human development and are often countries whose environments have been degraded, thus contributing to agricultural failures.


Index of Food Production
(1987=100)
150
140
130
120
110
100
90
80
Bangladesh
Uganda
Bolivia
1962
1967
1972
1977
1982
1987
1992


Calorie Availability
2500
2000
1500
Uganda
Bangladesh
Bolivia
1982
1987
1992

Food Aid - Cereals
Index of Food Production
Calorie Availability

Food aid is received from the international donor community under two sets of circumstances. One is to meet shortfalls in food requirements caused by failure in domestic food production. For some countries, this can be attributable to an occasional crop failure caused by adverse weather conditions. For others, it can be a persistent problem caused by difficulties in growing one's own food.

The second set of conditions under which food aid is needed relate either to natural disasters, such as floods or earthquakes, or man-made disasters, such as war. Typically these are emergency conditions under which relatively large quantities of food have to be found, transported, and distributed on short notice under difficult conditions.

Bangladesh is an example of a country that has faced a chronic food deficit requiring long-term food aid. Annual fluctuations in the amount supplied partly reflect the availability of food grain from domestic sources which in turn depends on the weather. Moreover the per capita calorie availability has been either below what is required or just the bare minimum.

Uganda is an example of a country which received food aid to meet a shortage partly created by a manmade disaster- the civil war situation in the 1980s.

The Food Aid graph also tells you something interesting about the interpretation of graphical data. Note that the quantity of cereal supplied is shown in absolute terms. Thus, given the supply to Bangladesh which is partly determined by the relatively large size of the population, the supplies obtained by the other two countries appear to be insignificant. However, the amount supplied, say, to Bolivia is considerable relative to its population size.

Experts Response

Our three sample countries provide interesting examples of food aid in all its complexity. Uganda is a country that has received emergency food aid since the late 1970s and still continue to receive on account of the major political and economic crisis that led to the collapse of the country's food production and distribution system. The Index of Food Production graph clearly shows the sharp decline in food production by about 30 percent between the mid 1970s and the early 1980s. The Food Aid (Cereal) graph shows the elevation of the level of food aid to Uganda in the 1980s that would have played an important role to arrest the drop in calorie availability seen in the early 1980s.

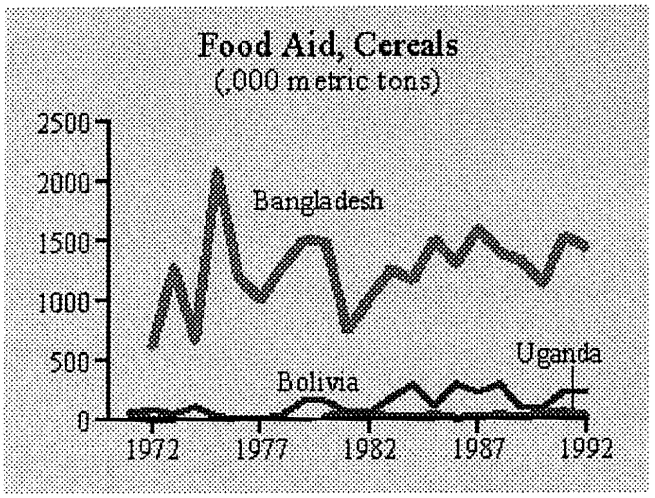
Bangladesh suffers from a chronic food deficit that is aggravated from time to time by natural disasters, most notably floods and cyclones. The food needs of the country are further complicated by the fact that at least half of the population of the country live below the poverty line, and about 30 million who are in "extreme" poverty suffer from severe malnutrition, not being able to afford a daily diet that ensures 1800 calories.

Bangladesh started a public food distribution system (PFDS) as far back as 1943 during the Bengal famine. In a recent "normal" year PFDS accounts for about 13 percent of all food grain consumed in the country. But in an unusually bad harvest year such as 1989 the proportion would higher. Thus in the Bangladesh case food relief is partly for poverty alleviation and partly for relief from disasters.

In the case of Bolivia food assistance is essentially a poverty alleviation measure. Bolivia has one of the worst records for human nutrition in the Western Hemisphere. In the mid 1980s about two-fifths of the children under five were believed to have been suffering from protein-energy malnutrition. It was also estimated that large sections of the population were also suffering from endemic goiter and deficiency from vitamin A, iron, and niacin. Donor agencies have been concentrating on large-scale food distribution programs aimed at high-risk children, infants, pre-schoolers, and lactating mothers.

Donor food relief measures and distribution in all these countries - and this is common to similar programs elsewhere also - have suffered from several shortcomings. Most important, they frequently do not always reach the truly deserving target group. For example, the World Bank estimated that in Bangladesh in 1992 about 25 percent of the total food given via PFDS went to "better-off" groups who were deliberately targeted by government policy. The Bank points out that only about 6.0 million out of 30 million who were severely undernourished and could not afford a daily diet providing 1800 calories got food aid under PFDS. Had the supplies to the better-off been redirected to the truly needy the number of beneficiaries would have risen to around 10 million. The Bolivian food relief program has also been criticized on similar grounds.

In general the experience of all three countries with food assistance, especially under non-disaster conditions, shows the need to have better targeted more cost-effective programs that are linked to primary health care services and nutrition education.


Food Aid, Cereals
(,000 metric tons)
2500
2000
1500
1000
500
0
Bangladesh
Uganda
Bolivia
1972
1977
1982
1987
1992

Policies Necessary

These policies include 1) provide a better infrastructure for water, sewage and power, 2) policies that encourage the use of environmentally-friendly technology, and 3) policies that regulate and raise the costs of resource use and thus favor labor intensity over resource or capital intensity; and 4) policies that support the structural transformation of an economy from the high impact primary sector to the low impact and highly productive service sectors.

Disaster/Development Terminology

Key terms used in the area of disaster relief and humanitarian assistance.

Humanitarian Assistance Case Study Final Humanitarian Assistance Case:

Key terms

Access survey

The identification of disaster-caused bottlenecks that will prevent or hamper search and rescue operations or delay other response activities. The survey would include the identification of landslides closing roads and the inspection of bridges to ensure that they can be crossed following an earthquake or a flood. See **Disaster Assessment.**

more info

Accountability
The structuring of programs to increase control and participation by persons in the affected community.

After-shock
continued shaking after a sizable earthquake, which may be as powerful as ordinary shocks. A large after-shock may originate closer to a center of population and cause more damage than the main earthquake.

"Circle of Fire"
The circum-Pacific belt of active volcano activity. Small-scale maps showing active volcanoes and epicenters of large earthquakes illustrate a similar distribution.

Coping mechanisms
Those means by which societies, unassisted from the outside, meet relief and recovery needs, and adjust to future disaster risk.

Critical facilities
Those structures critical to the operation of a community and the key installations of the economic sector. Examples are hospitals, roads and railways, air strips, fuel storage depots, food storage facilities, water supply systems, government administrative buildings, central data processing centers, and police stations.

Damage Assessment
The determination of the extent of physical damage to buildings and manmade structures. Two types of damage assessment are normally carried out. The first is to determine the gross damage to a community so that reconstruction planning can determine the aid level required. The second is a detailed structural analysis of typical buildings to determine the causes of failure and methods for modifying the structures so that during reconstruction, suitable steps can be taken to make the building safer. See **Disaster Assessment.**

DAST
An acronym for Disaster Assessment Teams. DAST units are provided by the United States Army to assist in the initial disaster assessment.

DEC
An acronym for Disasters Emergency Committee. DEC is the main coordinating body for the largest British charities. Members include the British Red Cross, CAFOD (Catholic Fund for Overseas Development), Christian Aid, OXFAM, Save the Children Fund, and War on Want.

Disaster assessment
Surveys carried out to determine the effects of disaster on a community and a society. Disaster assessments has three sub-activities: **Needs assessment, damage assessment** and **access survey.**

Disaster "Continuum"
A conceptual framework for depicting disasters and showing how one phase leads into the next.

Disaster-resistant construction
Used to denote the degree to which a structure can be made more resistant (or safe) to certain natural phenomena. The term recognized that no building can be made totally safe, but that certain steps can be taken to improve performance, or survivability.

Disaster response
Refers to those activities that occur in the aftermath of a disaster to assist disaster victims and to rehabilitate or reconstruct the physical structures of the society.

Disaster Spectrum
A means of visualizing disasters, showing how pre-disaster and post-disaster activities relate to each other.

Earthquake focus
The point of first release of the energy that causes an earthquake.

Epicenter
The point on the earth's surface that lies directly above the focus of an earthquake.

Fault
A fracture along which the opposite sides have been displaced relative to each other.

Fault zones
A zone thousands of meters wide, consisting of numerous interlacing small faults. Earthquakes tend to occur near fault zones.

Hazard
A threatening event in nature such as an earthquake. Hazards are of two types, primary and secondary. A primary hazard disrupts human settlements. A secondary hazard occurs in the aftermath of a primary hazard and contributes to further suffering or loss.

Hazard mapping
The process of establishing geographically where certain phenomena re likely to pose a threat to human settlements. Hazard maps identify areas that are subject to natural phenomena, such as earthquakes, hurricanes, and tornadoes, and areas that could be threatened by manmade disasters. For example: areas surrounding nuclear power plants, chemical disposal sites, or areas (such as refineries) subject to threat from explosion or fire.

Housing modification

The process of altering the design of a structure before it is built to make it more disaster-resistant.

Intensity
A subjective measure of the force of an earthquake at a particular place as determined by its effects on persons, structures, and earth materials. Intensity is a measure of effects as contrasted with magnitude, which is a measure of energy. The principal scale used in the U.S. today is the Modified Mercalli, 1956 version.

Isoseismals
Map contours drawn to define limits of estimated intensity of shaking for a given earthquake.

Landslides
Mass movement or sliding of hillsides caused by the ground shaking of earthquakes.

Lifelines
Those facilities that are crucial to life support and that should receive high priority for protection or restoration following disasters. Lifelines include water systems, electrical systems, gas systems and transportation networks.

Liquefaction
Transformation of a granular material (soil) from a solid state into a liquefied state as a consequence of increased pore-water pressure induced by earthquakes.

Magnitude
A measure of earthquake size that describes the amount of energy released.

Mercali Scale
A rating scale for classifying the degree of ground shaking at a specific location. The scale is graded by roman numerals from I to XII.

Microzonation
Risk mapping on a very small scale. Within any particular area, there are numerous geological variations that make certain areas safer or more hazardous than others. Microzonation delineates each of these areas so that communities can select the safest possible sites for development or the location of critical facilities.

Mitigation
The taking of actions that reduce the harmful effects of a disaster. Mitigation accepts the occurrence of extreme natural phenomena, but attempts to limit both human and property loss.

Monitoring
Surveys of on-going activities to determine their progress and effectiveness.

Needs assessment
The determination of the needs of the victims. These are usually divided into immediate and long-term needs.

Pre-disaster normal
The conditions, life-style, and standard of living that exist prior to disaster impact. An understanding of the pre-disaster normal is essential in the formulation of emergency programs.

Pre-disaster planning
The process of planning actions that will prevent, mitigate, or prepare for a disaster. Pre-disaster planning includes the tasks of disaster prevention, disaster mitigation and disaster preparedness.

Preparedness
The attempt to limit the impact of a disaster by structuring the response and affecting a quick and orderly reaction to the disaster. Preparedness is unique among all pre-disaster planning activities in that it addresses actions in both the pre-disaster phase, for example, warning and evacuation, as well as the post-disaster phase.

Prevention
Activities to prevent a natural phenomenon or a potential hazard from having harmful effects on either persons or property. Disaster prevention includes such activities as cloud seeding to control meteorological patterns, the construction of dams or dikes to prevent flooding and attempts to reduce tectonic tension by such measures as pumping water in to earthquake faults.

Quick and dirty programs
Programs designed to provide a quick-response with massive material aid. The objective of this approach is to saturate an area with relief items in order to create a high impact with as little "entanglement" as possible. The prime criterion of this type of program is speed of delivery. Quick and dirty programs usually have very little long-term effects on recovery.

Remote sensing
The acquisition of information or measurement of some property of an object by a recording device that is not in physical or intimate contact with the objects under study.

Return Period
The time period (years) in which there is a good statistical probability that an earthquake of a certain magnitude or a hurricane will recur.

Richter Magnitude Scale
A measure of earthquake size that describes the amount of energy released. The measure is determined by taking the common logarithm (base 10) of the largest ground motion observed during the arrival of a P-wave or seismic surface wave and applying a standard correction for distance to the epicenter.

Risk
The relative degree of probability that a hazardous event will occur. An active fault zone, for example, would be an area of high risk.

Risk mapping
The process of identifying high-risk areas. This is done by correlating a hazard, such as an earthquake, to the terrain and to the probability that such an event will occur. The results of these analyses are usually presented in the form of *risk maps*, which show the type and degree of hazard represented by a particular natural phenomenon at a given geographic location. Risk mapping is usually the first step in vulnerability reduction.

Search and rescue (SAR)
The first activities normally conducted following a disaster, the intent being to locate disaster victims and to ensure their physical safety. SAR activities can include locating victims trapped in collapsed structures, removing victims from perilous locations surrounded or threatened by flood waters, or evacuating families or even whole communities from areas subjected to secondary effects of disasters.

Seismic
Pertaining to earthquake activities.

Seismicity
The worldwide or local distribution of earthquakes in space and time; a general term for the number of earthquakes in a unit of time, or for a relative earthquake activity.

Surveillance
An epidemiological survey or the health monitoring of the affected community.

Tectonics
The study of earth's broad structural features;

Tsunami
A sea wave produced by large-area displacements of the ocean bottom, the result of an earthquake or volcanic activity.

Vulnerability
A condition wherein human settlements or buildings are threatened by virtue of their proximity to a hazard, the quality of their construction, or both.

Humanitarian Case Assist.

Discuss the nature and scale of emergency food assistance and relief supplies that have been made available by the international community to the three sample countries in the last two decades.