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EARTHWATCH

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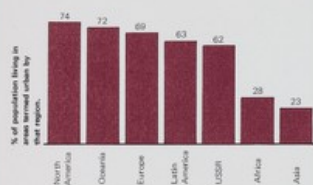
1.83 RESOURCES

Population

additional notes 1

URBAN GROWTH

In 1950 25% of all people lived in towns and cities. By 1982 the proportion was 37%. The diagram below shows the proportion of urban population by region:



Source: 1982 World Population Data Sheet

The United Nations suggest that this trend may continue and that by 2000 half the world will live in and around cities. The pattern of human settlement varies widely from country to country. In some regions of the world, especially in developing countries, a high proportion of the population is becoming increasingly packed into a few large cities. The growth of these cities is due to natural increase but they are also swelled by people who move in from the countryside. The table shows how rapidly some cities of the Third World are expanding:-

	1960	1970	1975	2000
	populations in millions projected			
Calcutta	5.5	6.9	8.1	19.7
Mexico City	4.9	8.6	10.9	31.6
Greater Bombay	4.1	5.8	7.1	19.1
Karachi	1.8	3.3	4.5	15.9
Bogota	1.7	2.6	3.4	9.5
Lagos	0.8	1.4	2.1	9.4
Greater Cairo	3.7	5.7	6.9	16.4

Source: United Nations

Rapid city growth in developing countries has made it very difficult to provide adequate housing and services. As a result, 'uncontrolled settlements' - slums and shanty-towns - have sprung up dramatically. Sanitation and other public services are often non-existent, and there is a constant threat of disease. Already a quarter of the population of many large cities like Baghdad, Mexico City and Rio de Janeiro, live in shanty-towns, and these populations are growing faster than the cities themselves. This means, as time goes on, a larger part of the city dwellers in developing countries will be living in these unplanned shanty-towns.

Cities in the developed world also have problems. Many are expanding outward, often merging with other cities. The eastern seaboard of the USA, for example, has urban areas stretching almost continuously for 960 kilometres from Boston to Washington. Outward expansion often leaves the hearts of cities to decay: the poor are forced to congregate in these centres of broken-down houses where social services are poor and unemployment is high.

Unplanned bigger city populations leads to poor living conditions. Noise, water and air pollution is worsening and in the Third World deforestation around cities spreads as demand for fuelwood increases. Fertile farm land is often taken up as cities spread. For instance, together the USA and Canada cover

4,800 sq. km. of prime farmland under buildings, roads and reservoirs every year.

MIGRATION

Migration for work is becoming more common.

a) In the developing world, movement of workers from the countryside to the towns is often a matter of survival:

* The use of machinery on farms reduces the number of jobs. This and the unequal distribution of land together with population growth, leads more and more landless labourers to look for work in cities.

* In some areas soils become exhausted and enough food cannot be grown to support the people who live there.

* In Asia and Latin America, smallholdings divided amongst sons means each has too little to survive - some heirs must forgo their land rights.

* The chance to get work and activities like education, health services and entertainments are mostly found in cities.

The effect is rapid city growth and growing demand for housing, public services etc. while in the countryside the population still continues to increase faster than available jobs.

b) National boundaries do not stop people who want work. At present about 20 million people migrate to other countries, 12 million of these are from developing countries. This massive migration is a sign of the differences in income and employment opportunities and, to some extent, of the constraints in the flow of capital and trade between countries.

Advantages of migration

a) gains to sender countries, e.g. Mexico, Jordan, Turkey, S. Asia, Mozambique.
* solves unemployment problems;
* provides foreign exchange;
* gains from training and skills of returning workers.

b) gains to receiving countries, e.g. USA, W. Europe, Middle East, S. Africa.

* gains recruits for unpopular jobs;
* keeps their manufacturing industries more competitive and keeps costs down in construction and service industries;
* skilled migrants have saved training and education costs.

Disadvantages of migration

* status of migrants is often precarious. Receiver countries control migrant numbers (e.g. length of stay) to suit their needs and sender countries have been buffeted by fluctuations in demand for migrant labour and in the money they send back home.

* sender countries have lost skilled and semi-skilled manpower which they badly need.
* migrant workers suffer from unequal status and poor conditions in receiving countries.
* ethnic groups of unskilled and semi-skilled migrant workers become targets for racism in hard times.



A Delhi shanty-town, India

Earthquake/Sanjay Acharya

additional notes 2

POPULATION DENSITY: ASIA IS OVERTAKING EUROPE

The distribution of man on the planet's surface is changing fast. Europe remains the most densely populated area of the globe, with 96 inhabitants to the square kilometre. But South and East Asia is not far behind and will soon be the most crowded region on earth. The United Nations estimates that Asia could have three times Europe's density of population within 100 years. In 1970 Asia contained 2000 million people. By the end of the century it is expected to have 3500 million.

But the rate of population growth in Asia is falling, as people choose to have smaller families. The same is not generally true in Africa, the world's fastest growing continent. Its population of 486 million will double by the early years of the 21st century. And though parts of the continent are relatively lightly populated, in some arid areas such as the Sahel or in countries such as Rwanda, the existing population is putting a strain on productive land. Latin America is also growing fast, particularly in the crowded cities, and uneven land holding is forcing poor peasants onto marginal land.

FERTILITY: SIGNS OF DECLINE IN THE DEVELOPING WORLD

The World Fertility Survey, begun in 1972, is the largest social science research project ever undertaken: it has covered 41 developing and 19 developed countries. Among the findings to emerge so far four conclusions stand out:

- * Childbearing is declining in many developing countries, though most women, even in urban areas, are having more children than those in developed countries.
- * Age at marriage is increasing in some Asian countries but changing very little in Latin America.
- * About half of all married women of reproductive age want no more children, but about half of these women do not have access to effective methods of family planning.
- * More than 80% of all married women in every country except Nepal have heard of contraception, but the percentage who have ever used contraception varies widely, from 10% in Pakistan to 82% in Costa Rica.

GOVERNMENT POPULATION POLICIES

Many governments are concerned about the economic and ecological impacts of rapid population growth. They are finding their efforts to increase saving for investment, to reduce unemployment, to provide education, to protect forests and croplands are overwhelmed by swelling human numbers. Rapid population growth is not the only cause of failure to meet development goals. However, it frequently makes things worse. In fact, according to the International Planned Parenthood Federation (IPPF), government support for family planning is growing in every region of the world. An up-to-date count shows that 86 governments, in the world's 143 countries with populations of over a quarter of a million, actively support the provision of family planning information and services. More than three-quarters of the world's population live in these 86 countries.

However, of these 86 governments, only 35 have the reduction of population growth as one of their stated aims in providing contraceptive information and services. They include countries such as China, India, Bangladesh and Indonesia, with very large and growing populations and well established family planning programmes. Other countries such as Mexico, Kenya and Ethiopia have only recently become publicly concerned about the speed of population growth and are now more actively supporting family planning. Other countries support family planning mainly for health reasons.

In many countries private organisations work side by side with governments in providing family planning services. In some cases they step in to fill the gap when government services are not available. IPPF has member family planning associations in 117 countries which provide services, as do other privately funded agencies.

About half the 143 governments find their population trend acceptable and 23 are concerned that their fertility level is too low. This last group includes some European countries where the average family size is less than two children. As a result the total population will get smaller in at least 11 European countries.

DEVELOPMENT AND FAMILY PLANNING

Debate over the best way of bringing down soaring population growth rates was, for some time, polarised between those who emphasised two different strategies.

1. **Strategy based on economic and social development:** The population problem will largely take care of itself when the world's poor enjoy the fruits of development.

2. **Strategy based on family planning programmes:** While not denying the importance of development progress, rapid population growth is hampering that progress. These differences are disappearing with a greater understanding that family planning is itself an essential part of social development. It is a key element in maternal and child health and makes a major contribution to the condition of women and the quality of life of the family and entire communities. At the same time family planning succeeds best when it is part of a general process of change and when delivered alongside other community activities.

FAMILY PLANNING PROGRAMMES

- * Some 300 million couples use some form of contraception, about two-thirds of them in developed countries and one-third in developing countries.
- * About 70% of couples of reproductive age in developed countries practise contraception where services are generally easily available from doctors, shops, clinics and hospitals.
- * Less than 20% of couples in developing countries use contraceptives. Many are out of reach of clinics or doctors, but various schemes have been tried to distribute services through community channels, fieldworkers, and small shopkeepers. Problems include lack of medical information and back-up, discontinuity of supplies and the difficulty of reaching remote communities.
- * The most popular method is sterilization, the method chosen by one-third of all practising couples. Roughly 20% use the Pill, 15% the intrauterine device and 10% the condom.
- * Results are best in certain developing countries where more than half the couples are using contraception (China, Costa Rica, Cuba, Hong Kong, Mauritius, Panama, Singapore and Taiwan). They are worst in Africa and the Middle East, where 18 countries provide no services, and in other countries such as Pakistan and Bangladesh. The trend is positive in Latin America.

CONCLUSIONS

1. In developing national conservation strategies all countries have to take account of the number and needs of their people.
2. In many countries the rate of population growth is so great that they cannot afford to wait for future affluence to solve their population problems.
3. Such growth puts a strain on national budgets as the number of dependent young people increases. It contributes to persisting malnutrition and adds to the burden of schooling, housing, unemployment and the drift to cities. Thus poverty and rapid population growth reinforce one another.
4. There are some examples where fertility has declined in the absence of family planning programmes (often with widespread resort to abortion). There are also cases, such as Indonesia, where family planning has caught on without substantial inroads on poverty. But it is now widely agreed that the best results are obtained where social development (especially including education and improvements in the position of women) goes hand in hand with family planning. Each helps the other.

additional notes 3

MAN AND OTHER SPECIES

Planet earth is home to over 5 million species of plants and animals. But these are disappearing at the rate of at least one a day as a result of Man's activities. By the end of the century a million species may be lost for ever as their living space is destroyed.

Growing human numbers are partly to blame. Two-fifths of all species are supported by forests, which are being destroyed at an unprecedented rate. The chief reason for this is the pressure of small farmers with nowhere else to go. The rich world's appetite for timber and pastureland for meat add to the destruction of forest habitats.

The same combination of factors - the pressure of many poor farmers seeking to survive on marginal land and the pressure of rich people using up resources with the aid of powerful and often destructive technology - is threatening the survival of animals and plants everywhere.

OVERPOPULATION AMONG ANIMALS

'Overpopulation' may be defined as too many animals. But there are many different cases of 'overpopulation' and before coping with this problem, it is important to find out why an area is overpopulated and in what sense it is overpopulated. Here are some sorts of animal overpopulation:

1. Animals are seen to be overpopulated when their numbers threaten human life or livelihood.
Examples: The World Health Organisation believes the tropics are overpopulated by the *Anopheles* mosquito. This creature is the carrier of malaria. Most sheepmen in Australia who have to scratch a living from drought-prone grazing land consider that the inland plains are overpopulated by kangaroos.
2. Some animals are seen to overpopulate an area when their concentrations keep down the numbers of more favoured kinds of plants and animals.
Example: It was common practice in African national parks 30 years ago to shoot African hunting dogs. It was argued that by reducing the density of the predator dogs the density of more interesting plant-eating animals like the gazelle and dik-dik would increase.

African Hunting Dog (*Lycopus pictus*)
Credit: Mark Boulton



3. Some kinds of animals are too numerous for their own good. When animals have plenty of living space, they tend to be larger, fatter and healthier than when they live at the maximum density their habitat can support. Some people believe that, for their own good, animals should be hunted each year to give survivors more space for living. This is an argument used by sports hunters.
4. Overpopulation takes place when a population has risen to a level above the carrying capacity of the land and environmental damage is caused. When a population is above its equilibrium level, natural self-regulatory mechanisms come into play to restore the balance between a population and resources. With smaller creatures, like mice, the balance is re-established quite quickly - a plague one year would soon die down. Events move slowly with large

mammals because of the longer generation time. Hence the population may exist at a level above the carrying capacity of the land, and environmental damage may be prevented only by culling the population.

Example: elephant populations have probably been subjected to considerable hunting by man over many hundreds of years and their reproductive rate will have evolved to keep pace with this death factor. The creation of National Parks in Africa has reduced hunting dramatically. But it takes many years for elephant populations to adjust to this: even though the birth rate is reduced once population reaches a certain level, the parents and grandparents will continue to live so that no reduction in numbers will occur for a very long time. Consequently, several national parks are overpopulated by elephants and vegetation is being destroyed as a result. Culling takes place to speed up the restoration of balance between resources and population.

UNDERPOPULATION AND EXTINCTION

a) Underpopulation

Underpopulation may be defined as too few animals. This is a problem if a population sinks so low that it requires management action to build it up again.

The crocodile of the Kabelega Falls National Park suffered from underpopulation. At one time the River Nile below the Falls swarmed with this reptile, but over the years numbers had progressively fallen. The problem was twofold: adults were being removed by poachers for their skins, and tourist launches were disturbing nesting females.

The solution to the problem was clear and simple. The poaching of adults was stopped by the prohibition of trade in crocodile skins. Previously there had been a small legal trade which had been used as an outlet for poached skins. Poaching was no longer a paying proposition and it stopped overnight.

Disturbance of females looking after their young was stopped by making the breeding areas off-limits to tourist craft during the nesting season. Already the restrictions are paying off: young crocodiles of all ages can be seen in the waters of the Nile.

b) Extinction

Sometimes a population may fall so low the plant or animal becomes extinct. Such was the fate of the passenger pigeon in North America.

The passenger pigeon's greatest claim to fame was the gigantic size of its populations: it may have been the most abundant bird ever to exist. Once Audubon, a founder of American ornithology, observed a flock passing over a period of three days at a rate of over 300 million birds an hour.

Early settlers in the United States added passenger pigeon to their diet, and as human population increased, birds were shipped by market hunters to cities like New York. Many more birds lost their nesting sites as oak and beech forests were cleared to make room for people. Pigeon numbers dropped rapidly. In 1878 one hunter shipped some 3 million birds from Michigan, the passenger pigeon's last stronghold, and the last wild bird was seen in that state just 11 years later. The last birds were not killed by hunting because this became unprofitable as soon as the great flocks were gone. When the population sizes of the pigeon became too small to maintain sufficiently large breeding colonies, nesting failure, in-breeding and death by predators must have escalated and pushed the bird to extinction.

TERRITORY HELPS CONTROL

ANIMAL POPULATION

Some animals appear to control their own numbers. These are territorial animals. A territory is an area inhabited by an individual or group of animals of a given type and maintained for the more or less exclusive use of that individual or group.

The otter is usually a territorial animal. Food supply, the density of the otter population, and the habitat dictate the size of its territory. It does not tolerate the presence of other adult otters of the same sex within its territory. Even its offspring are forced eventually to leave their birthplace. The juvenile otter has to travel until it finds a suitable place which does not belong to another otter.

additional notes 4

IMMIGRATION INTO KRUGER

The size of a population in a particular region depends upon births and deaths. But it is also affected by the loss of individuals by dispersal (emigration) and the arrival of individuals from elsewhere (immigration). Emigration may provide a safety valve for a population which is becoming too large for its environment to support. Immigration tends to hasten the day when a population will reach the maximum its habitat can sustain.

In Africa's Kruger National Park the effect of immigration was overlooked until it was too late.

When the Kruger Park was set up in 1905 it contained a herd of 10 elephants of all ages. Despite some poaching, the greater security afforded by the park meant the herd increased in number. By 1960 the population had reached 1,000. Some animals were lost to poachers and occasionally an elephant emigrated from the park into neighbouring farmlands. But these losses were offset by the immigration of elephants into the park from adjoining wild country.

The park managers realised the park could only support a total of 2,440 elephants: every day an elephant eats, on average, plants weighing 4% of its body weight, and so it needs 7.8 sq. km. of park to support it.

To keep numbers of elephants in the park down to a satisfactory level, immigration had to be halted and a strong fence was built to keep migrating elephants out. In addition, some park elephants had to be removed to compensate for the normal increase due to birth.

But elephants broke through fence and into the park, and in the face of increased immigration, the deliberate removal of elephants failed to keep the population at the ideal level. By 1970, the numbers of elephants in the Kruger park reached 8,000.

TOWN GROWTH HALTS PLANT GROWTH

Towns and cities are growing rapidly in most parts of the world. Urban sprawl is eating up valuable cropland and destroying the living space of many animals and plant populations. Take the Cape Province of South Africa as an example. The number of people in that province is increasing by 60,000 each month. And as its cities expand, its plant life dwindles. Near Cape Town, for instance, a valley and hillside were covered with golden gladioli. The lowland populations of this plant were smothered by alien plants introduced by a nearby dune-reclamation scheme. Housing developments covered most of the rest of the plants' habitat. Only a strip 9 metres by 36 metres remained, and this was surrounded and partly invaded by smothering shrubs from the dune project. Bulldozing for gravel almost destroyed the remaining golden gladioli. Finally came pressures from the housing development - paths, picnic sites, trampling, rubbish, and children picking the flowers.

In 1979 there were 113 gladioli plants. A year later only 45 remained. Of these only two flowered: one was picked and dropped and the other flowered early and produced two seed pods. All the rest were seedlings poking frail leaves through the trampled earth.

The future of the golden gladioli is dim - it relies on attempts to propagate it in 'captivity'.

Loxodonta africana - African elephant with dead trees.
Credit: Norman Myers



further reading

- 'How to Save the World: Strategy for World Conservation' *Robert Allen*
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(Kogan Page edition available from World Wildlife Fund, £3.60 inc. p & p.)
- 'Building a Sustainable Society' *Lester R. Brown*
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- Victor Gollancz Ltd., 1974.
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- 'Food First: the Myth of Scarcity' *Frances Moore and Lappé and Joseph Collins*
- Souvenir Press (Educational & Academic) Ltd, 1980.
- 'The Shape of Things to Come' *Eric McGraw*
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- Kay & Ward, 1980 (rep.).

'Global 2000 Report - Entering the Twenty-First Century'. A report commissioned by President Carter, prepared by the Council on Environmental Quality and the Department of State, US - Penguin, 1982; Allen Lane, 1982.

'North-South: A Programme for Survival' - The Report of the Independent Commission on International Development Issues under the Chairmanship of Willy Brandt - Pan Books Ltd., 1980.

'World Development Report' - Oxford University Press for the World Bank, 1982.

'The Mitchell Beazley Atlas of Earth's Resources' - Mitchell Beazley Publishers Ltd., 1979.

'People' - a quarterly population and development magazine, including an 8-page environment section, 'Earthwatch'. Published by the International Planned Parenthood Federation, 18-20 Lower Regent Street, London SW1Y 4PW. Annual subscription £5 (UK only) or US \$15.

organisations

ORGANISATIONS

Centre of World Development Education (CWDE)

Schools Officer:
128 Buckingham Palace Road, London SW1W 9SH.
Tel: 01-730 6532/3.

An independent agency set up to promote education in Britain about development issues and Britain's inter-dependence with the Third World.

A free catalogue lists CWDE publications and visual aids.

Conservation Society Limited

12a Guildford Street, Chertsey, Surrey KT16 9BQ, England.
Tel: Chertsey (09328) 60967.

An independent organisation concerned with the size of population and the use of natural resources.
Publications include 'Conservation News', 'Good Earth' booklets and leaflets.

Earthscan

10 Percy Street, London W1P 0DR.

Tel: 01-580 7574

A non-government media agency which produces briefing documents and booklets on a wide range of environmental issues.

Friends of the Earth (FOE)

377 City Road, London N1.

Tel: 01-837 0731.

An environmental pressure group.

Leaflet on FOE and a catalogue of FOE publications will be sent free on receipt of s.a.e.

International Planned Parenthood Federation (IPPF)

18-20 Lower Regent Street, London SW1Y 4PW.

Tel: 01-839 2911.

The largest international private voluntary organisation involved in any aspect of development, founded in Bombay in 1952 to provide an international link for family planning activities. The IPPF today works through independent family planning associations in 117 countries. Funding of about \$50 million annually comes from governments and private foundations.

Publishes quarterly illustrated development magazine 'People' with environmental supplement 'Earthwatch' (annual subscription in UK: £5).

Oxfam

Education Officer

274 Banbury Road, Oxford OX2 7DZ, England.

Tel: Oxford (0865) 56777.

A development agency spending most of its income overseas, but committed to 'development education', which is about change and development in today's world.

A catalogue on Oxfam education and youth material is available.

Population Concern

27-35 Mortimer Street, London W1N 7RJ.

Tel: 01-637 9582.

Under the auspices of the British Family Planning Association, seeks to broaden public awareness in Britain about work population issues and organises fund-raising campaigns to support population and development projects throughout the world.

Publications: 'World Population Data Sheet' 40p inc. p & p; 'Population Today' £1.50 inc. p & p; 'The Shape of Things to Come' £1.75 inc. p & p.

Population Crisis Committee and the Draper Fund

1120 19th Street, N.W., Washington D.C. 20036, USA.

Tel: (202) 659 1833.

Public information on world population problems.
Publications include 'Population Briefing Sheets', 'Draper Fund Reports', 'Country Status Reports'.

Population Reference Bureau

1337 Connecticut Avenue, N.W., Washington D.C. 20036, USA.

Tel: (202) 785 4664.

Private education and research organisation providing information on population issues.

Publications include: 'Population Bulletin' (reports on specific topics); 'Intercom' (international newsletter); 'Interchange' (quarterly review for population educators) and various 'Data Sheets', such as the annual 'World Population Data Sheet', with demographic data from 178 countries.

United Nations Fund for Population Activities (UNFPA)

220 East 42nd Street, New York, NY 10017, USA.

Tel: (212) 754 1234.

The principal source of funding for most population programmes implemented by the various United Nations agencies; provides over \$100 million in population assistance annually.

Publishes quarterly journal 'Populi', and boxed set of data cards 'Population Facts at Hand'.

Worldwatch Institute

1776 Massachusetts Avenue, NW, Washington D.C. 20036, USA.

Tel: (202) 452 1999.

An independent research organisation created to identify and focus attention on global problems. Produces booklets (Worldwatch papers) available singly or in bulk.

World Wildlife Fund - UK

11-13 Ockford Road, Godalming, Surrey GU7 1QU, England.

Tel: Godalming (048 68) 20551.

A voluntary organisation that raises money for the conservation of threatened wildlife, habitats and natural resources throughout the world. The Fund's sister scientific body is the International Union for Conservation of Nature and Natural Resources (IUCN).

Publications list available on receipt of s.a.e. Publications include: 'How to Save the World' by Robert Allen £3.60 inc. p & p; educational bulletins (6) on major habitats covering issues relevant to the 'World Conservation Strategy' 50p each inc. p & p.

Today the number of people in the world exceeds 4,500 million and that figure is increasing by 250,000 every day.

As a result of the growth of reaching standing room only, and the rate at which the population is growing is starting to slow down, but the strain on the earth's resources is still increasing. The depletion of natural resources and the scrambling for raw materials are symptoms of the relentless pressure on people – and their growing demands.

There are two types of people who are born when more are born than die. One good condition – space and food for example – an animal population can multiply until it is limited by the availability of these resources. The other type of human unchecked, is known as its biotic potential. If an animal frequently produces many young, it is said to have a high biotic potential.

In natural circumstances, few populations reach their biotic potential: various forces work towards decreasing birth rate or increasing deaths. Predators, diseases, environmental resistance and other factors limit the growth of a population. The natural check on a population is known as environmental resistance. For humans it is not sustained. A habitat in which an animal population lives can support only a limited number of individuals. The carrying capacity of a habitat is determined by the availability of food, cover, water and essentials of life, and it sets firm limits on an animal's population increase. The availability of resources within a habitat determines the carrying capacity of that habitat. The carrying capacity of the environment. No wild animal population can be maintained permanently at a level above the carrying capacity of its environment. If a population grows beyond its carrying capacity to its environment follows and animals die off. Hence most animal populations over time tend to fluctuate around the carrying capacity of their environment.

Human population is still rising. Does this mean the carrying capacity of the planet has not been reached? If it is so, then the earth's resources – forests, agricultural land, fisheries, and other resources – are being used up too fast, and the world's food, shelter and clothing will be in short supply.

Human beings are the only species struggling to stay alive, and why are some of them irreversibly destroying the land and wildlife upon which they depend? And why are they using up the earth's resources so fast? The earth's natural resources when this is progressively making the planet less fit to live on?

[illegible]

spread. Orang-utans and Rafflesia are among thousands of species threatened by the loss of their forest homes. Development is increasingly endangering egg-laying sites of endangered turtles and the home of the wolf.

Figure 1: World Population projections to 2050

Population Growth (1950-2050)

Year	Developed World (Yellow)	Developing World (Orange)	Total World Population (Billions)
1950	1.0	1.5	2.5
1960	1.2	1.8	3.0
1970	1.4	2.2	3.6
1980	1.6	2.6	4.2
1990	1.8	3.0	4.8
2000	2.0	3.4	5.4
2010	2.2	3.8	6.0
2020	2.4	4.2	6.6
2030	2.6	4.6	7.2
2040	2.8	5.0	7.8
2050	3.0	6.0	9.0

World Map Legend:

- Yellow: Developed World
- Orange: Developing World

Family Size Illustrations:

- Developed World: 4 people (2 adults, 2 children)
- Developing World: 7 people (2 adults, 5 children)

Text: A family's growth in the developed world is 4 people (2 adults, 2 children). In the developing world, it is 7 people (2 adults, 5 children). This is why the world's population is growing so fast.

Who did not know for sure how many people are alive in a city knew how many people had died in the process. But by careful detective work in the files of history, experts have estimated how the world's population changed over the centuries. It took a long time when the world seemed big, people were few and population grew slowly.

Like you, the able engineers carried the numbers down the centuries. The numbers changed. Many children failed to survive to adulthood and adults did not live either. Epidemics — the Black Death for example — killed millions.

But soon about 1780, the population took off in leaps and bounds. The numbers changed again, and farming improvements meant that most Europeans were better fed than ever before. Farms were not totally abandoned for slaughterhouses and canneries. Growth continued, but at a slower rate. The meat and dairy industry encouraged lower growth rates by generally associating with the carnage in live farm products.

Improvements in public hygiene — the supply and disposal of sewage, the use of disinfectants — also saved lives and helped prompt the change. Tremendous advances in medicine and medical sciences, especially the use of antibiotics, helped reduce deaths from diseases and other, less reduced problems.

Improving living conditions reduced death rates. People were better fed, better housed, and less likely to die. But the addition of New World farmers to Europe's population was a major factor.

However, yields of other commodities have improved. For example, the use of pesticides and fertilizers has increased crop yields, and mechanization has increased farming efficiency. In fact, agricultural productivity has increased in many of the world's major food-producing regions.

While production of some raw materials is falling behind population, the effect is not fully realized because permeated substitutes have served as a safety valve when production of natural products has not kept up with demand. Petroleum-based fuels and synthetic dyes have replaced the coloring and dyeing industries, and plastic has substituted wood for paper, cardboard and wire. Kerosene has been used as a fossil-fuel-based diesel. But oil reserves are limited (see diagram), and people are already looking again to living resources to meet their needs.

<ul style="list-style-type: none"> 1. Some countries need to take urgent action to slow population growth. <p>Action needed –</p> <ul style="list-style-type: none"> • Better education, especially for women. • Improved access to health care services, including family planning services. • Benefits of development to reach the poor majority. <p>Everyone must learn to gain a decent livelihood from the earth without undermining its capacity to go on supporting life.</p>	<ul style="list-style-type: none"> • Replant forests after cutting. • Protect wild plants and animals. • Prevent pollution contaminating air, food and water. <p>2. Better off countries and people who use up a high proportion of the earth's resources must be more responsible in their actions.</p> <p>Action needed –</p> <ul style="list-style-type: none"> • Education to increase awareness of misuse and waste of resources. • Development must take account of the needs of people and nature as well as economic factors.
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Experts suggest that each person needs the equivalent of 25 kilograms of grain a year. In some ways if the food production from the world's industrial agriculture at the world's people, everyone would have enough to eat. Involving, however, there are great losses of food throughout the world before and after harvesting. Food harvests are contaminated again by animals, such as pests and birds. Moreover, everyone does not receive equal shares. Resources are unevenly distributed between people of industrialized nations and those living in less developed countries. The agricultural resources – both water supplies – in many of the world's less developed American agriculture to meet its five times the need for the average Indian. Nations in North and Central America are also seriously short of water. The world's resources which would support 6 billion people are unevenly shared among the world's people. For example, Bangladesh 11% of the country's landless and poor people. Even within nations, food supplies are not shared equally. There is not enough food for the urban and working adults to take the children and the elderly and migrant workers are the ones who suffer most.

[illegible]

Food is not scarce. It just goes to people who can afford to buy it. As farming collapses, it can be harder for the world's poor to acquire the food they need.

In the industrial countries of Western Europe, people can afford to eat a lot of food. Their countries do not produce enough food to meet the high demand so food is imported. In future, the production in Western Europe will not be expected to increase much, if they spend less are expected to rise. Food demand will increase as people.

Most developing countries do not grow enough food crops to feed all their people.

to grow needs to be imported. The world's poor, their population multiplies, however, some developing countries, like Thailand or South Africa, grow food – even when some of their people go hungry. They cannot afford to pay for food imports.

China

New HIV infections

Year	New HIV infections
1990	~100
1991	~100
1992	~100
1993	~100
1994	~100
1995	~100
1996	~100
1997	~100
1998	~100
1999	~100
2000	~100
2001	~100
2002	~100
2003	~100
2004	~100
2005	~100
2006	~100
2007	~100
2008	~100

Total HIV infections

Year	Total HIV infections
1990	~100
1991	~100
1992	~100
1993	~100
1994	~100
1995	~100
1996	~100
1997	~100
1998	~100
1999	~100
2000	~100
2001	~100
2002	~100
2003	~100
2004	~100
2005	~100
2006	~100
2007	~100
2008	~100

HIV prevalence by region (2008)

Region	Prevalence (%)
North	~10
South	~10
East	~10
West	~10
Central	~10

HIV prevalence by gender (2008)

Gender	Prevalence (%)
Male	~10
Female	~10

Source: UNAIDS, 2009

Notes: The data is based on the 2008 survey. The prevalence of HIV in China is still low, but the number of new infections is increasing. The prevalence of HIV in China is still low, but the number of new infections is increasing.

Legend: The data is based on the 2008 survey. The prevalence of HIV in China is still low, but the number of new infections is increasing.

[illegible][illegible]

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'1:83 Resources - Population' is the first in a series of bulletins looking at world resources - their use and abuse. The series will include the following bulletins: energy; waste; land-use; pollution, and the importance of wild plants and animals.

