

- **Water:** Demand for water increases with growing population and developing technology. Worldwide the availability of fresh water per capita has fallen to one third of its previous level. One third of the world's population lives in countries with medium to high levels of water shortages.

- **Cropland:** As population increases, so available cropland decreases. New cropland is not always available. So, people need to increase the food yield of the available land. This is expensive and not always possible.

- **Forest cover:** More than half of the Earth's original forests have disappeared. Between 2000 and 2010, 13 million hectares of forest were lost. Forests are important for global ecosystems, climate, cultures and economies.

- **Food:** In 2000, there were 857 million undernourished people in the world. In 2010, there were 925 million. However, the percentage of world population that is undernourished is slowly decreasing. There is not a shortage of food on Earth; rather, there is a problem of distribution of and access to food.

- **Urbanisation:** More and more people on Earth are living in towns and cities. In 1975, three cities in the world had more than 10 million people; today, there are more than 20 such cities. By 2030, 75% of the world's population will be urbanised. Urban places are growing most rapidly in developing countries. With growing urbanisation comes overcrowding and informal settlements which lack infrastructure. This often leads to a deterioration of people's standard of living.

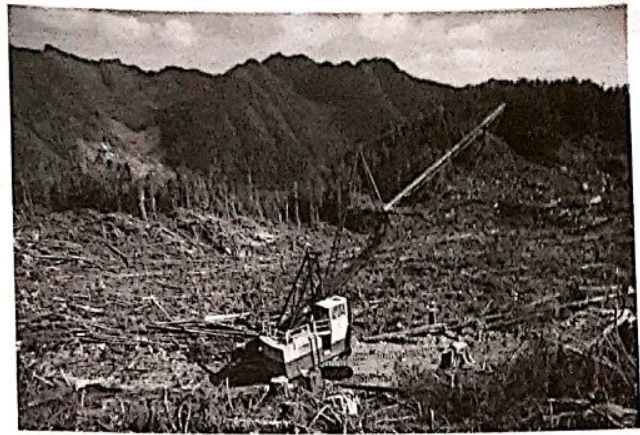


Figure 4.18 Despite their importance to ecosystems, climate and economies, forests continue to be rapidly destroyed by deforestation.

Geo fact

It is estimated that by 2030, the world's population will need the equivalent of two Earths to keep up with the demand for resources and space.

8.3 Are there limits to population growth?

In the third century CE, the Roman author Tertullian wrote, 'We are burdensome to the world, the resources are scarcely adequate for us ... already nature does not sustain us.' At the time, there were about 200 million people on Earth. Today there are 7 billion. Are there too many people on our planet? Can the global population continue to grow? Will there be enough food? These are questions that demographers have explored for years, and they have different opinions about the answers to these questions.

Opinion 1: Limits to growth

Earth's resources are finite, so they have limits and then there will not be enough resources for everybody. Only 11% of the Earth's surface is suitable for growing crops; one billion people suffer from malnutrition; millions die each year from starvation, millions are without homes, illiterate and have no access to medical services. Could this mean there are too many people on Earth?

Opinion 2: No limits to growth

In the 1960s and 1970s, experts warned that due to rapid population growth, the world's population would face widespread famine and run out of resources. Then the Green Revolution increased agricultural yields and mineral deposits remained plentiful. In many cases, food and natural resource prices dropped. So, the world's population can continue to grow and with new technology and inventions, everything will be fine.

Opinion 3: Share resources equally

The Earth has enough resources to support a larger population if people share these resources more evenly. At present most countries in the Northern Hemisphere are economically developed and rich. Most countries in the Southern Hemisphere are economically less-developed and experience degrees of poverty. In the 'North', there is capacity for more people due to abundant resources, wealth and technology. In the 'South', the population explosion has resulted in huge pressure on resources, overcrowding, famine and social problems. If countries worked together to develop the 'South' economically, the population increase in the 'South' would stabilise.

8.4 Malthusian theory on population growth

In 1798, Thomas Malthus published 'An essay on the principle of population'. He argued that in a growing population, the population numbers and resources must reach an equilibrium. A population always increases up to the limits of the available resources. If overpopulation occurs, resources run out and population dies back. He suggested the following:

- The quantity of available resources inevitably limits population.
- Populations usually increase with an increase in the available resources unless there are powerful controls to prevent this.
- The factors that control the growth of populations and keep it in balance are either private, such as birth control, or destructive, such as war, poverty, disease and famine.

Not everyone agrees with Malthus' theory. Demographers say that few countries have followed the Malthusian population cycle. In more modern times, neo-Malthusian ideas are that birth control and family planning on a national scale can control expanding populations. China, India and Singapore have achieved this with varying success, as shown by the following case study.

Geo fact

The five countries with the highest fertility rates are Niger, Uganda, Mali, Somalia and Burundi. In all five of these countries women have an average of more than 6 children.

Case study:

Singapore's changing family-planning slogans

Singapore is a small island state in Asia. All of its population of about 4,7 million is urban. The country is highly developed and advanced. In the 1970s, Singapore started a nationwide family planning campaign by legalising sterilisation and abortion. Large families were taxed more and discriminated against. The family planning slogan in the 1970s was, 'Boy or girl, two is enough'. The population growth rate dropped significantly, eventually worrying the government.

In the 1980s, the government started encouraging couples to have more babies. They

introduced long-term tax rebates where they would give money back to couples with two or more children. The slogan in the 1980s was, 'At least two. Better three. Four if you can afford it!'

Despite trying to grow the population, population growth remained low. In 2010, Singapore's population growth rate was at 0,45% with a fertility rate of only 1,2 children per woman. The Singaporean government is now offering cash incentives to people if they have children and longer maternity leave to mothers in the workplace.

Activity 10: Create a family-planning slogan

Think of a family-planning slogan for Singapore for the 21st century.

(4)

Unit 9: Managing population growth

Population growth is an issue around the world. Many countries are trying to slow down population growth as a way of dealing with overpopulation. In complete contrast, some countries show a negative population growth. In these countries, declining birth rates and longer life expectancy have resulted in a population made up increasingly of older people.

9.1 Managing population growth in India

By 2010, India had a population of about 1,189 billion people. This was about 17% of the Earth's population. Other population indicators for India in 2010 were:

| BR per 1 000 | DR per 1 000 | LE (years) | NI (%) | IMR per 1 000 | GDP per capita (US\$) | Literacy (%) | % population urbanised |
|--------------|--------------|------------|--------|---------------|-----------------------|--------------|------------------------|
| 22,2 | 6,4 | 69,4 | 1,50 | 32,3 | \$2 900 | 66% | 28,7% |

Key questions

- How is India managing its population growth?
- What is China doing to manage its population growth?
- Why does Japan have an aging population?

Case study:

Baby Astha: India's one in a billion

The birth of a baby girl named Astha in 2000 symbolised India's population passing the one billion mark. The baby, whose name means 'Faith' in Hindi, was born to Anjana and Ashok Arora in Delhi. Her birth meant India had joined China as the only nations with populations exceeding one billion. With an estimated 42 000 births a day in India at the time, it was impossible to know exactly where the billionth baby would be born. Government officials, in consultation with the UN, decreed that a baby born in the capital's Safdarjang would mark the milestone.



Figure 4.19 Baby Astha and her mother.

However, few were willing to celebrate the achievement. When India gained independence from Britain in 1948, the country had 300 million people. Attempts to curb population growth have met with little success. As a result, the country suffers diminishing natural resources and increasing poverty and illiteracy. Sumitra Mahajan, Minister for Women and Child Welfare, said, 'We welcome Astha, but we should also think whether she will get an opportunity for education and health like millions of other children. Will we be able to get her the resources and the opportunities necessary for her future?'

Projections say India will surpass China as the world's most populous nation by 2030, when it is expected to have 1,5 billion people. Efforts to encourage family planning among the poor suffered a setback in the 1970s when the government sponsored a mass sterilisation campaign in which people were duped or paid to have vasectomies and tubectomies. The emphasis has changed in the past decade towards educating women, raising their status and providing better healthcare. Non-government groups tour rural areas distributing condoms and birth control advice, but schools do not teach sex education.

(Adapted from *Metro* (USA), 12 May 2000)

Geo fact

There are predictions that India will overtake China to become the world's most populous country in 2030, with an estimated population of 1,53 billion. Estimates are that India's population will be the first to reach 2 billion, at the end of the 21st century.

Key words

contraception – birth control

sterilisation – a permanent form of contraception

Birth control is a way of controlling population growth through the prevention of pregnancy. Another word for birth control is **contraception**. There are many types of contraception, such as condoms, birth control pills and intrauterine devices. **Sterilisation** is a permanent form of contraception, because people who have been sterilised cannot have children anymore. A vasectomy is an operation to sterilise a man, while a tubectomy is an operation to sterilise a woman. Different cultures and religions have varying beliefs on the use of contraception.

Activity 11: Investigate India's management of population growth

Read the case study 'Baby Astha: India's one in a billion' and then answer these questions:

1. Use the statistics in the article to calculate the approximate annual increase in India's population, excluding deaths. (2)
2. Why were few people willing to celebrate baby Astha's birth as an achievement for India? (2)
3. Explain why India's natural resources are diminishing. (2)
4. Explore the relationship that exists between poverty, illiteracy and high birth rates. (3)
5. Why did the Minister for Women and Child Welfare doubt that Astha would be able to have the resources and opportunities necessary for her future? (2)
6. Explain how the education of women, better healthcare and the raising of women's social status will contribute towards lowering birth rates in India. (3)

9.2 Managing population growth in China

China is the most populous nation in the world. It was also the first nation to have 1 billion people. By 2010, China had a population of more than 1,3 billion people.

In 1950, China had a fertility rate of 6,2 children per woman. By 2010 this figure had dropped to 1,5 children per woman. In 1985, China's birth rate was 17,8 but by 2010 this had dropped to 12.

Case study:

China marks the anniversary of its one-child policy

China marked the 30th anniversary of its controversial one-child policy with talk of relaxing rules, at least in some provinces, that have slowed down population growth but caused heartache for millions. The one-child policy became official in 1979 when the government started trying to force families to have only one child in order to control China's population growth. This policy gave couples with one child education and health benefits. Couples with more than one child were fined and received no benefits. The policy reduced



Figure 4.20 A Chinese couple with their only child.

China's population by an estimated 400 million. It also led to the abortion and killing of girl babies. Today, Chinese men outnumber women by 39 million.

With a population expected to peak at 1.65 billion in 2033, China has been cautious about dropping a policy originally intended to last one generation. 'If population control reaches the

expected goal, Guangdong province is likely to let couples have a second child after the twelfth Five-Year Plan,' Zhang Feng, Director of Guangdong Population and Family Planning Commission, said. Zhang said that after 2030, any Guangdong couple could have two children.

(Adapted from an article in the *Cape Times*, 2010)

Son preference is a form of gender discrimination where parents prefer to have boys rather than girls. It is common in countries such as India, China, South Korea, Pakistan and Bangladesh. Son preference can lead to female infanticide, where people kill girl babies at birth, aborting female foetuses and simply neglecting girl babies so that they die during early childhood or grow too slowly. It also leads to gender imbalance, where a country's male population is much bigger than its female population. In China, men outnumber women by more than 39 million. Even in economically developed countries such as the USA, 86% of men and 59% of women said they would prefer a boy if they had only one child.

Activity 12: Investigate China's management of population growth

1. Explain what China's 'one-child policy' is. (2)
2. Why would this policy 'cause heartache for millions'? (2)
3. Do you think a country's government has the right to tell people how many children to have? Motivate your answer. (2)

Geo fact

In 2011, Monaco was the country with the highest life expectancy. For men the life expectancy was 89,73 years and for women it was 93,84 years. So, Monaco's average life expectancy was 91,79 years.

9.3 Managing population growth in Japan

In 2011, Japan had one of the highest life expectancies in the world. The life expectancy for men was 78,96 years and for women it was 85,72 years. So, the average life expectancy for Japan was 82,25 years.

Case study:

Japan's aging population

Japan has the highest proportion of elderly people in the world. One person out of every four people in Japan is more than 65 years old. By 2055, 40% of Japanese people will be more than 65 years old. Japan's population may drop from about 127 million in 2011 to 95 million in 2050. Figure 4.21 shows what Japan's population pyramid may look like in 2055. It clearly illustrates the dominance of older people, with fewer young people.

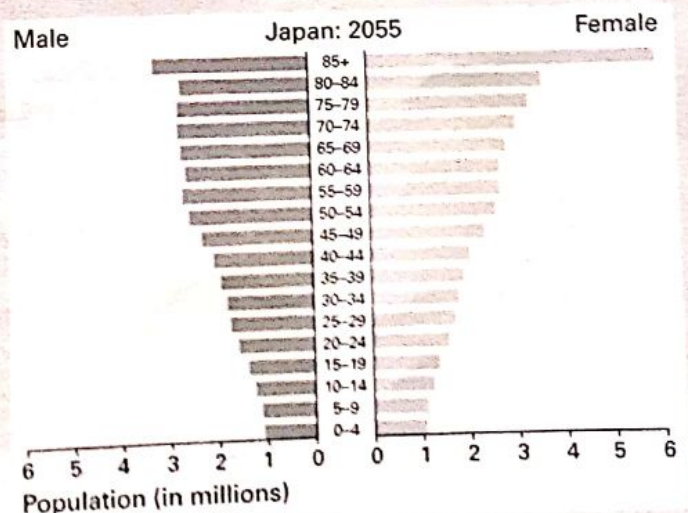


Figure 4.21 Projected population pyramid for Japan in 2055.

What caused Japan's aging population? A decrease in birth rates and death rates, longer life expectancy, low natural increase (which is currently negative) and a low fertility rate of around 1,2 children per woman have all led to a high proportion of older people living well into their 80s. This was, in turn, the result of factors such as the following:

- A high standard of education and healthcare
- Widespread use of contraception, including legal abortions
- Women playing an important role in the workforce
- Women marrying later in life
- A high cost of living, with Japan being one of the world's most expensive places to live.

Demographers have highlighted Japan's aging population as a cause for concern. Their reasons include:

- More elderly people will need to be cared for and more pensions paid. This is expensive and will place a strain on hospitals, old-age homes and the state.
- There will be fewer people in the workforce, which means that there will be less income from taxes and an increased dependency ratio. This can lead to a decline in the country's economy.



Figure 2.22 Japan has the highest proportion of elderly people in the world. This sign appears in a village in Japan, cautioning people about the elderly.

However, because of Japan's aging population, the government will need to spend less on schools and healthcare for children.

Activity 13: Compare South Africa's population indicators with Japan's

The following table shows some population indicators for South Africa and Japan in 2010:

| Population indicator | South Africa | Japan |
|-----------------------------|--------------|-------|
| % population under 15 years | 28,48 | 13,12 |
| % population over 65 years | 5,69 | 22,88 |
| Average life expectancy | 49,33 | 82,25 |
| Fertility rate | 2,30 | 1,21 |

Use the information from the case study on Japan to explain these demographic differences between South Africa and Japan.

(4 × 2)