**Population Sustainability: capacity of the environment to support a population in the longer term.**

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This section looks to the future of a population and the issues that are likely to occur. A discussion around the **issues of a youthful population** and their ability to feed, house them all and provide a decent standard of living. Look also at an **ageing population** and the issues this causes. Emphasize that many developing countries will have this problem in the future. Look also at the broader picture – at what level do we expect population numbers to peak, what countries are experiencing the most change and where are issues likely to be felt most? What are issues around food, water and resources? Look at the trend of **urbanization**. How can we cope with more people in cities? What does a sustainable city look like?

**Key Geographic Concept: Sustainability**

**Sustainability** involves adopting ways of thinking and behaving that allow individuals, groups, and societies to meet their needs and aspirations without preventing future generations from meeting theirs. Sustainable interaction with the environment may be achieved by preventing, limiting, minimizing or correcting environmental damage to water, air and soil, as well as considering ecosystems and problems related to waste, noise, and visual pollution.

With total world population of 7.1 billion in 2013 and expected to grow beyond 9 billion by 2050, the pressure the world’s population places on the Earth’s limited resources is set to increase.

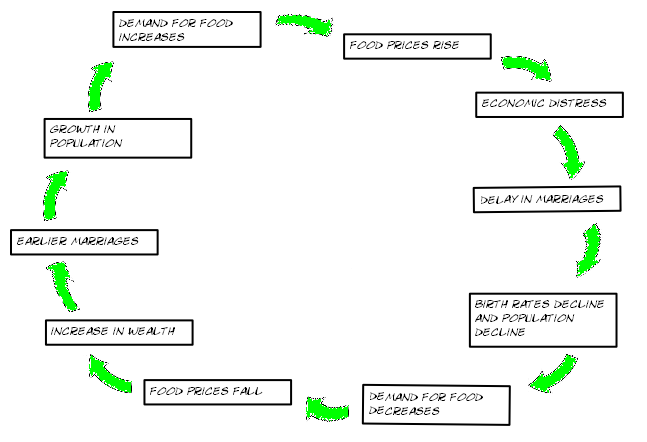
Almost 95% of the world’s population growth is taking place in poorer countries while mostly of the world’s resource consumption takes place in richer countries. It is this combination of population growth in poorer countries and increasing consumption in richer countries, that poses a threat to the sustainability of the planet.

**Doubling rates**

The doubling rate is the time it takes a population to double in size. When a country’s population doubles every 20-35 years, we talk about ‘population explosion’. Population explosion is particularly severe when a country has a large population already.

The nature of the problem can be viewed in one or two ways:

* Some believe there is an optimum population size in relation to the planet’s current resource supplies (e.g. food) and that any increase in population beyond this optimum size will result in a decline in living standards and possibly war, disease and famine. Supporters of this viewpoint suggest that once the optimum population is reached, population checks would ensure the population remains balanced.
* Others believe that people have the knowledge and technology to increase food production and that when a need arises (e.g. food shortages) someone will find a solution. Supporters of this viewpoint point to technological breakthroughs in food production such as the Green Revolution which involved the development of improved seed strains, fertilizers, and irrigation as a means of producing higher yields of rice, wheat, and corn in poor countries with high population growth.



**The carrying capacity of the environment**

The number of people who can be supported by an **environment**, given their consumption of natural resources and use of technology, is referred to as the **carrying capacity** of the environment. A population is said to be unsustainable when its consumption exceeds the carrying capacity of the land that supports it.

The situation where a population’s size exceeds the carrying capacity of an area is called overpopulation. It may be caused by growth in a population or by a reduction in the environment’s capacity. Spikes in population growth can cause problems such as housing shortages, fewer job opportunities and food shortages. The opposite of overpopulation is under-population.

* **Overpopulation** occurs when there are too many people in an area relative to the sum of resources available to sustain an adequate standard of living. Examples of areas that are considered overpopulated include parts of India, China and the northeastern **regions** of Brazil. India, Bangladesh and Ethiopia are also considered overpopulated.
* **Under-population** occurs when there are more resources than is required to support the local population. Canada for example has a population of 33 million but could effectively double its population without compromising its standard of living. Because of this, people who live in countries like Canada enjoy higher incomes and higher standards if living as they are able to export their surplus food, energy and mineral resources overseas.

**Questions:**

1. In what ways do you think that advances in medicine and food production affect the growth of the world’s population.
2. Why do you think that population growth might be a source of concern?
3. What potential environmental, economic and social problems are associated with overpopulation?
4. In your opinion, will the world’s natural resources be able to handle the Earth’s growing population? Why or why not? If not, what can be done to address this problem? What does the Bible say about some countries’ solutions to these issues.

**5:4 Population Controls**

India and China have well over one billion people each already. The Chinese and Indian governments have taken different approaches to population control:

* India is a democratic country where state and federal governments use persuasion to encourage small families.
* China is a communist country where the government has used political power to limit family size.

By contrast Japan, which is a wealthy and urbanized, the government stands back and allows parents to make their own family planning decisions. Most choose small families.

**India – talking down population growth**

India is the second most populous country in the world with 1.2 billion people in 2012. 30% of people were under the age of 15 and just 5.5% over the age of 64. A large youthful population like this has a huge population growth potential. There could be more than 1.8 billion people by 2050.

India’s population has grown rapidly since 1950, doubling in size about every 30 years. India’s population grows by more than a million each month. As each baby grows into an adolescent its energy needs increase from 3,400 KJ per day to 14,700 KJ.

The **Green Revolution**. (The introduction of [high-yielding varieties of seeds](http://en.wikipedia.org/wiki/Hybrid_seed) after 1965 and the increased use of fertilizers and irrigation) in the second half of the 20th century increased food supplies (mainly wheat and rice), while modern medicines kept more people alive longer. Life expectancies improved, and the result was population explosion.

There were some environmental impacts however. These strains of rice needed a more reliable water supply, and needed expensive insecticides to protect it from attacks by pests and disease.

**Putting on the brakes**

Some Indians think population growth is a good thing (a huge, well educated workforce can be an asset) but most believe India will never be a major world power unless its growth can be curbed. For this reason India’s federal government has promoted family planning programmes since the 1970s.

* Families are urged to have fewer children.
* Contraceptives and sterilisations are readily available. (sometimes with cash rewards)
* The legal marriage age has been raised to 18 so traditional child marriages are banned.

The Indian government does not force people to do what it wants, and its advice is often ignored. Old attitudes are hard to change, especially if religion supports them. The Islamic religion forbids the use of contraceptives and so most Muslims believe family planning is wrong. Islamic men have complete control over their wives and if they want lots of children, they get them. The Hindu religion gives people more choice. However, in the early 21st century some Hindu leaders noticed that the Hindu population was growing more slowly than the Muslim population, and so advocated a ban on birth control.

Family planning has been most successful in cities among India’s wealthy middle classes. Urban children cost more to rear and a family that wants all the good things in life cannot have lots of children too. Religious leaders have less influence among city families, and women are more often listened to.

As India’s population becomes wealthier and more urbanized, growth rates should continue to fall. But because the population is already large and youthful, total numbers will continue to rise.

**China – population control the communist way**

China had over 1.3 billion in 2012. In contrast to India, the Chinese government makes a decision, people have to obey.

**1949-1979 – A big population is good**

In 1949 Mao Zedong became China’s first communist leader. He said, ‘It is a good thing that China has a big population’, believing that a large labour force would help the country develop and modernize. He encouraged people to have big families, and by 1979 the population had almost doubled.

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| **Year** | **Population (000s)** |
| 1950 | 562,580 |
| 1960 | 650,661 |
| 1970 | 820,403 |
| 1980 | 984,736 |
| 1990 | 1,148,364 |
| 2000 | 1,268,853 |
| 2010 | 1,339,725 |
| 2020 | 1,430,533 |
| 2030 | 1,461,528 |
| 2040 | 1,454,619 |
| 2050 | 1,424,162 |

**From 1979 – a big population is bad**

China did not have enough resources to support such a large population and famines became increasingly common. Even more alarming, there wee many children in China’s youthful society so the population has a huge potential for future growth.

In 1979 the Chinese government realised that the current population growth rates were unsustainable so they introduced population controls in an attempt to reverse the trends:

* Couples had to get official permission to marry, and this was more likely to be given to mature men and women.
* A one child policy was introduced and strictly enforced. Couples needed a permit before starting a pregnancy and were heavily fined if they has more than one child (unless they had twins)
* A second or subsequent child had no legal status (no Chinese citizenship) and no entitlements under the hukou system.
* Family planning advice, contraceptives, abortions and sterilization were free.
* Unauthorised pregnancies were terminated, and one spouse sterilized if quotas were exceeded. Forced sterilisations, abortions and infanticide became common.
* Attractive family planning posters and radio broadcasts helped spread family planning ideas and make them more acceptable.

**Problems relating to the one child policy**

The one-child policy was still operating in 2012, but the government was looking at it closely because of the many problems it has caused. These include illegal infant or foetal deaths, sex selection favouring males, and stress on only-children who will be expected to support their parents and grandparents in the future.

**Infanticide and the shortage of girls**

Over the centuries Chinese families have controlled population growth by killing unwanted newborn babies (particularly girls). This practice has continued in some rural areas, sometimes with the help of government officials.

Chinese families have always wanted boys rather than girls for religious and economic reasons:

* Sons carry on the family line, and assist their parents into the afterlife.
* Rural farming communities allocate land to families relative to the number of sons they have. Families with sons are therefore a lot wealthier than those without, and have more status.
* Sons are strong so can do hard physical work. They stay close to their parents but girls move away when they marry.

When the one child policy was introduced, Chinese parents wanted their one child to be a boy. Many female foetuses were aborted, and baby girls were killed at birth or abandoned to die. This is still happening.

In a normal population there are more females than males because women have longer life expectancies. In 2011 Chinese males outnumbered females by a ratio of 106 to 100. There were 19 million more males in the <15 years age groups and 27 million more in the 15-64 age groups. Only in the <65 year group did women outnumber men by 4.5 million.

The female shortage means millions of men will never find partners in the normal way, and so many do not marry, and kidnapping of women has become quite a common practice. A good woman brings a high price on the illegal marriage market.

**Less security**

Close-knit families have always been very important in Chinese society, acting as a sort of social security system. They shared tasks and benefits, supported each other, and looked after the aged and infirm. In 1949 China’s communist government took over many family roles. The state gave everyone guaranteed work, housing, health, social security and other benefits. People no longer needed their children for security because they knew the state would look after them.

Towards the end of the 20t century the government removed these guarantees and benefits. These included old age pensions, disability benefits and free medical care. Families had to rely on each other again – but there were too few family members left. Each child grows up knowing they alone are responsible for the future welfare of their parents and grandparents. Many have committed suicide under the strain of family expectations.

Since 2000 the government has begun to relax its one child policy a little to allow some families to have more than one child, and make penalties for breaking the rules less severe. Second children are now less likely to be banned from schools and hospitals, and wealthy parents can pay for the privilege of children.