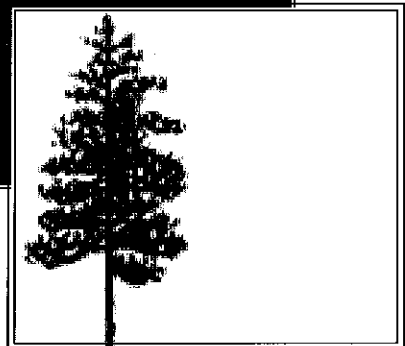
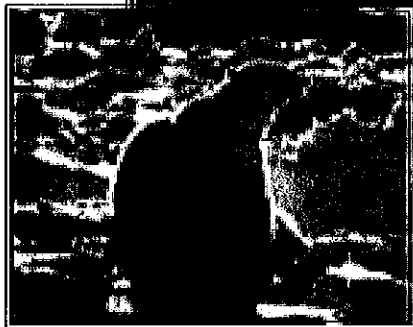


CHAPTER EIGHT: HUMAN GEOGRAPHY



LIST OF TERMS FOR CHAPTER EIGHT

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| 2. Human geography | 56. Water table |
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| 48. Resource | 104. Equalization payments |
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| 52. Freshwater | 108. World Health Organization (WHO) |
| 53. Site and situation | |
| 54. Surface water | |

I. INTRODUCTION

GEOGRAPHY DEFINED AND UNDERSTOOD

Geography is a broad subject that is concerned with analyzing and describing relationships between people and their home - our planet. Geography links the physical sciences with the humanities. Geography helps students to understand and introduces them to the opportunities and dangers our planet presents. Ultimately geography attempts to teach the importance of WHERE, WHY and HOW questions, ideas and concepts. Without addressing WHERE, WHY and HOW questions, geography would be little different from other subjects in school.

WHERE, WHY and HOW questions, ideas and concepts are important when attempting to understand the subject of geography. Put another way, the geographer asks, Where is something located and why is it located in that specific place? These are the questions the geographers ask in order to gain understanding of geographic phenomena and a deeper understanding of the subject area.

To answer WHERE, WHY and HOW questions geographers have developed a number of tools and methods to help them in their pursuit. In this unit, and by studying topics such as population issues, world standards of living and environmental challenges to the planet, students will come to understand the importance of these tools and methods and relationship that develops between people and their home and our planet. In the course of studying these topics, students will come to appreciate the importance of the WHERE, WHY and HOW questions asked of them in geography and also to appreciate the importance of the tools and methods the geographer uses to pursue geography issues.

World population issues, world standards of living and environmental challenges (the core topics in the Social Studies 11 geography curriculum) are all **global issues** and **human geography**. Global issues are topics or events that have the ability to change or alter the way each person on earth lives their day-to-day life. Human geography is a subject that shows how people interact with the environment in which they live. Both of these have WHERE and WHY and HOW questions fixed within them.

With the WHERE, WHY and HOW considerations understood, students are able to understand that population issues, standards of living and environmental challenges are three of the most important factors affecting human life today.

Geography questions of a WHERE, WHY and HOW nature are more deeply understood when students appreciate the **inter-connectedness** of geographic issues in the world in which we live. Marshall McLuhan (a Canadian academic) coined the term the **global village** and it is the ideal linking term when trying to understand WHERE, WHY and HOW questions. The term global village refers to the world and all the inhabitants of planet earth as a small village system. In the global village if one part or aspect of the village is altered or interrupted it has an impact or ripple effect upon the entire village or planet. The term inter-connectedness refers to the close connection all humans, animals and plants have with one another on the planet. This relationship is best understood when students consider population issues, world standards of living and global issues as all interconnected and inter-related in the global village.

II. INTRODUCTION TO POPULATION AND DEMOGRAPHY

This unit will introduce and examine the issue of population and the significance of population changes in the world and within Canada. Please note the following information:

- In 6000 BCE, (Before Common Era, formerly referred to as BC) the world's population was 5 million.
- By 1 CE, the world's population was over 250 million.
- Two hundred years ago, the world's population reached 1 billion.
- In 1960, the world's population was 3 billion.
- Today, the world's population is over 6 billion.
- The United Nations estimates that the world's population will increase to 10 billion by 2100.

The above statistics are significant in that they highlight the **exponential population growth** the world has experienced since 1800 and especially since 1900. Exponential population growth is ultra-rapid population growth that occurs over a short period of time. The trend of exponential population growth is more pronounced in some regions of the world (but not necessarily true for Canada) and population experts believe that exponential population growth could be harmful to the environment, resources and people on planet earth. One down side of exponential population growth is that it can limit the positive effects of the economic rapid growth achieved after the post World War Two economic boom.

DID YOU KNOW?

- The world's population increases by 80 million annually.
- Currently 80% of the world's people live in developing countries. Developing countries are countries that have experienced steady population and economic growth but still lack high standards of living.
- Canada's population is approximately 33 million (2004 census)
- The two nations of China and India are comprised of more than 2 billion people and that is one third of the world's total population.
- If the world population were reduced to a village of 100 people, 60 of the individuals of that village would be Asian, 14 African, 12 European, 8 Latin American, 5 from the USA and Canada and 1 from the South Pacific

This did you know list is not significant in its content, but is important in that it shows a perspective for population issues throughout the globe and promotes asking interesting WHERE and WHY questions.

A. POPULATION AND DEMOGRAPHY

A **population** is a group of people living within a particular region or space with well-established boundaries. From time-to-time population information is collected and analyzed. **Demography**, the study and analysis of population numbers begins with the formal counting of people in a particular region or space. This formal counting of people, called a **census** records population numbers. The census is one of the most basic tools the demographer uses to

answer WHERE and WHY geography questions. The census dates back to ancient times and today governments rely on accurate census information to plan and allocate resources on a national and provincial scale. Canada conducts a detailed census every ten years and a less detailed census every five years. The United Nations defines a census as “the total process of collecting, compiling and publishing demographic, economic and social data pertaining to a particular time, to all persons in a particular country”.

Although the census attempts to collect accurate information, it does have a number of limitations, for example it is rarely completely accurate.

1. CENSUS LIMITATIONS

Although a census is a valuable tool for many countries, it is rarely completely accurate. For example, it is difficult to contact/keep track of individuals who do not have permanent addresses, who live on the streets, or who choose to avoid the census. People may decide to avoid the census because they fear the authorities or want to avoid paying taxes. The most significant factor which skews census results, however, is the fact that in some countries, many births and deaths go unrecorded. The census may be off by as much as 30% because of these errors. Factors such as illiteracy and poor communication networks severely undermine a nation’s ability to maintain accurate records. Unfortunately, with inaccurate records, it becomes even more difficult to combat the problems which lead to the inaccuracies in the first place—such as poverty and illiteracy. This is a circular problem which many developing countries face.

The census also allows demographers to determine the population distribution. Population distribution is how people are spread out or arranged over a particular geographic space. In Canada and in other parts of the world, it is common to have populations of people living in both cities (**urban**) and outlying areas (**rural**). Cities provide citizens a number of services that are not available in the rural or outlying areas. Population distribution allows the geography student to ask WHERE and WHY and now specifically HOW questions. As Canadians we might be very interested in knowing where most of Canada’s population is concentrated and why it might be concentrated in that particular place or region.

DID YOU KNOW?

- Toronto is Canada’s largest and most populated city, with more than 6 million people living there.
- The **Windsor to Quebec City corridor** (an 1100 km corridor) contains Canada’s largest cities (Windsor, London, Hamilton, Toronto, Ottawa, Montreal, and Quebec) and therefore the majority of Canada’s population and industry.

These did you know figures are intended to display a perspective on Canada’s population. It would be a useful exercise for the student to ask himself/herself WHERE, WHY and HOW geography question at this point. Why is most of Canada’s population and industry concentrated along an 1100 km corridor? Is the answer hidden in a history, economic or a geographical answer? Is it a combination of all three of these answers or more?

Demographers are also interested in **population density**. Population density is

the concentration of people living in a geographic area. Population density is calculated by dividing the total number of people living in an area by the actual area they occupy. For example if a city has 10,000 inhabitants living in a 100 square kilometre space and a simple division is performed it would become clear that 100 people per square kilometre live in that city.

To calculate population density:

$$\frac{10,000 \text{ inhabitants}}{100 \text{ sq. km}} = 100 \text{ people per sq. km}$$

There are some places and cities in the world that have very high population densities.

DID YOU KNOW?

- Singapore, an almost entirely urban nation, has over 6000 people per square km.
- Bangladesh has more than 1000 people per square km
- Canada has approximately 3 people per square km
- BC has approximately 4.2 people per square km
- The city of New York has more than 10,000 people per square km
- The downtown peninsula of Vancouver (where the greatest concentration of Vancouverites live) has more than 20,000 people per square km

The demographer is interested in asking WHY and HOW so many live in a particular area and what factors draw people to places to produce such high population densities. Sometimes the answers are geographic, economic and political in nature.

2. VITAL STATISTICS, POPULATION STRUCTURE AND TOOLS OF THE DEMOGRAPHER

The census also collects **vital statistics**. Vital statistics are population numbers that record births and deaths and other significant population related numbers. By recording the numbers of births and deaths in a population, provinces, cities and communities can plan and allocate for necessary resources. The term **fertility** is often closely linked with the term birth rate. Fertility simply relates to population reproduction. **Mortality** refers to the rate at which people in a society die. Both birth and death rates can be easily calculated.

To calculate birth rates:

$$\frac{\text{Total live births}}{\text{Total population}} \times 1000$$

The number 1000 is used to avoid having to use decimal points.

In 2004 Statistics Canada data shows that there were 330,803 births in Canada while the nation's population was recorded at 31,946,316. Through some simple mathematics this would indicate that Canada's birth rate was approximately 10%.

To calculate death rates:

$$\frac{\text{Total deaths}}{\text{Total population}} \times 1000$$

In 2004 there were 233, 087 deaths in Canada while the nation's population was recorded at 31,946,316. Through some simple mathematics this would indicate that Canada's death rate was at approximately 7%

The birthrate in combination with the death rate affects the **rate of natural increase**. By comparing the birth and death rates demographers can determine the rate of natural increase i.e., the sum total a population increases over a period of time. Birth and death rates are tools demographers use to help understand **population structure**. Population structure refers to the general make-up of a population, showing for example the number of males and females in a population as well as different age groupings. A **cohort group** is an age -sex grouping in a region or county (for example - males aged 5-9 living in Vancouver, B.C.)

Demographers are also concerned with **population change**. Population change refers to the changing or altering make-up of a population over a period of time. Both demographers and geographers monitor birth and death rates in order to have the ability to answer WHERE and WHY geography-type questions. Significant questions and analysis is done when the birth rate or death rates soar or decline in a region or place. Demographers and all levels of government are concerned with population structure, population change and rates of natural increase because of the impact these population numbers could have on a nations present and future resources and economics.

The demographer is also interested with **immigration** and **emigration**. Immigration is the process of people moving to another country or region from their country of origin. Emigration is a process of people move away from their country or region of origin to a new country or region to live. Both immigration and emigration affects a population's structure and rate of population change. Significant immigration and emigration are normally internal indicators of social, political and economic changes that may be occurring in a region or country. These internal indicators are referred to as **push-pull factors**. Push-pull factors are events that will pull people towards or pull people away from living in a particular place or region. Issues surrounding push-pull factors are successfully addressed when WHERE, WHY and HOW questions are also considered. Citizens might choose to move away from a particular place or region if a serious environmental or economic catastrophe has occurred.

DID YOU KNOW?

- In 2003 B.C. experienced a net increase of 1,037 in inter-provincial migrants
- In 2004 B.C. experienced a net increase of 7,333 in inter-provincial migrants
- In 2003 Alberta experienced a net increase of 11,903 in inter-provincial migrants
- In 2004 Alberta experienced a net increase of 10,902 in inter-provincial migrants
- In 2003 Ontario experienced a net increase of 637 in inter-provincial migrants
- In 2004 Ontario experienced a net decrease (or loss) of 8,793 in inter-provincial migrants to other provinces in Canada
- In 2003 Newfoundland and Labrador experienced a net decrease (or loss) of 1,683 in inter provincial migrants to other provinces in Canada
- In 2004 Newfoundland and Labrador experienced a net decrease (or loss) of 1,980 inter-provincial migrants to other provinces in Canada.

These did you know statistics are not intended to be memorized by the geography student but are intended to again help you to answer why do some regions in Canada experience a net gain in population while others experience a net loss. Why do these processes take place?

3. THE POPULATION GROWTH RATE

In countries where there are few immigrants, the annual growth rate is made up through the natural increase. However, the population growth rate of a country like Canada greatly depends on immigration rates. Currently, Canada is experiencing fairly low birth rates, thus migration has become the main contributor to our population growth. By combining statistics on the birth rate, death rate, immigration rate, and emigration rate (those leaving the country) a much more accurate picture of Canada's population emerges. Considering all statistics, in 2003, Canada's population increased at a rate of 0.9 %. Note the jump between Canada's rate of natural increase (0.6 %) and Canada's total population growth (0.9 %). The calculation involving all four factors is as follows:

First, determine the **net migration rate**:

Immigration rate (people arriving in Canada) — (minus) Emigration Rate (people leaving Canada) = Net Migration Rate

Then, add the net migration rate to the rate of natural increase:

Birth Rate — (minus) Death Rate + Net Migration Rate = Population Growth Rate

a) Doubling Time

When looking at a statistic, it is important to consider its implications. One way to do so is to put the number in a context to which people can

more easily relate. For example, if we learn that a country's population increases by a rate of 5% annually, the implications of this statistic might not be clear. One method to more clearly express the significance of population growth rates is to look at the population's doubling time. **Doubling time** is the time it takes for a population to double. The following formula is used to calculate doubling time:

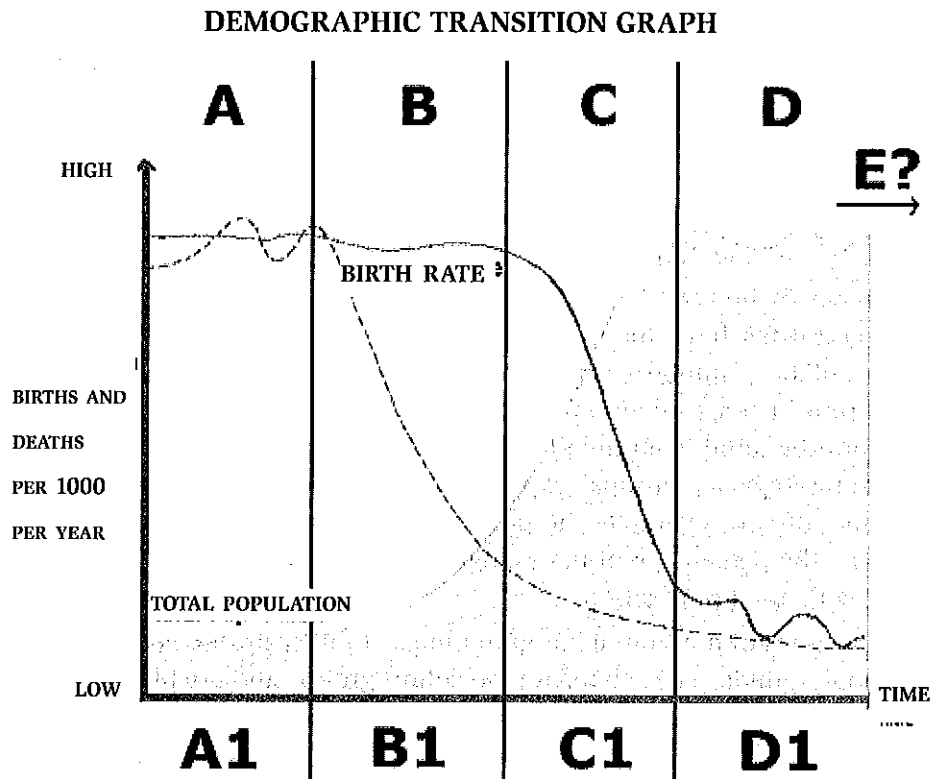
$$\frac{70}{\% \text{ rate of population growth}} = \text{Number of years for population to double}$$

This means that with a current growth rate of 0.9%, Canada's population will double in about 78 years. However, keep in mind that this equation assumes a continued growth rate of approximately 0.9%. What happens if the rate of immigration slows, or the **fertility rate** (average number of live births each year for every woman of childbearing age) drops? Therefore, the doubling time can only give you an indication and a number of factors could cause the actual result to be different.

4. DEMOGRAPHIC TRANSITION MODEL

Demographers who have collected population data over the past century have found that most countries naturally pass through various stages of population growth and development. These stages are best understood through the analysis of the **demographic transition model**. The demographic transition model is another tool the demographer uses to analyze and understand population numbers and chart population change. This model is a detailed line graph showing birth and death rates (per 1000) while also showing economic development over time.

The demographic transition model is divided into five major stages, each revealing birth and death rates and total population in that particular stage.



Stage 1 (A)

High birth and death rates result in small population growth. Disease and malnutrition keep infant mortality rates particularly high. **Life expectancy** (the average lifespan of an individual) is very low. This pattern was widespread a few hundred years ago, and is still common in some developing countries today.

Stage 2 (B)

High birth rates and low death rates result in a population explosion. Death rates fall due to medical and scientific advances such as vaccines and modern drinking water and sewage systems. New technologies such as refrigeration and pasteurization lead to better nutrition. Most developed countries experienced this stage during the 1800s.

Stage 3 (C)

Low death rates and rapidly declining birth rates characterize this period. Social programs, industrialization, and urbanization eliminate the need for large families.

Stage 4 (D)

At this point, the rates of natural increase have stabilized. Low birth rates and low death rates mean the population growth is slow. Many nations in Western Europe are currently at this stage, and it is likely that many emerging industrial nations will soon enter this stage as well. Factors such as the changing role of women (which leads to better education for women) and family planning programs result in lower birth rates. However, in some areas of Africa, although death rates have fallen as a result of better health care, birth rates still remain high. In sub-Saharan Africa, however, birth rates remain high yet death rates are enormous because of HIV.

Stage 5 (E)

In this stage of the demographic transition model the birth rate drops below the death rate and is the next natural stage for population change in the future. (The graph shows this as E followed by a question mark because it is referring to the future). In fact, many European nations and Japan are presently entering this stage where births are low but there is a long life expectancy.

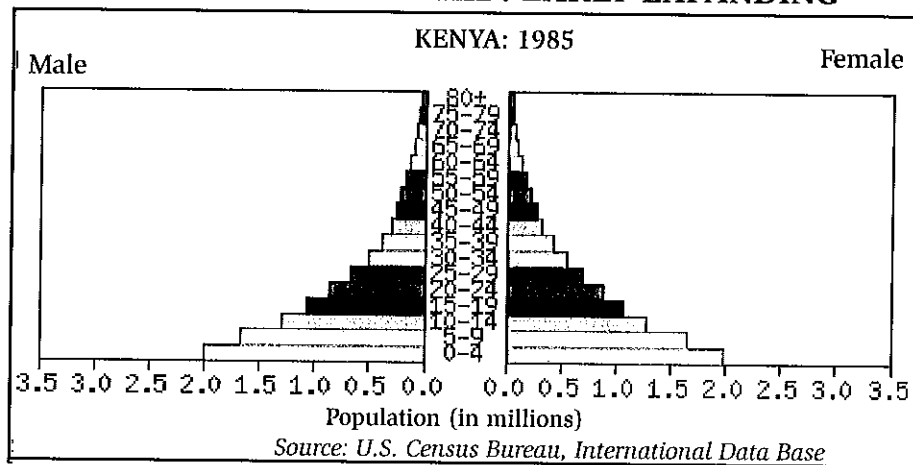
5. POPULATION PYRAMIDS

As most countries have distinctive population and growth development trends, population numbers can more carefully analyzed through **population pyramids**. The population pyramid is another tool of the demographer. A population pyramid is an inverted bar graph showing population data as cohort groups (age-sex groups) expressed as a percentage of that region's total population. For example, the population pyramid for Vancouver, B.C. would show the percentage of males, aged 15-19 expressed as a percentage of Vancouver's total population.

Graphing a series of horizontal bar graph lines at intervals of 5 years creates population pyramids. These bars are the cohort groups and are placed back-to-back, male and female. Depending on the general shape of the population pyramid, the demographer is able to classify the pyramid into four major categories.

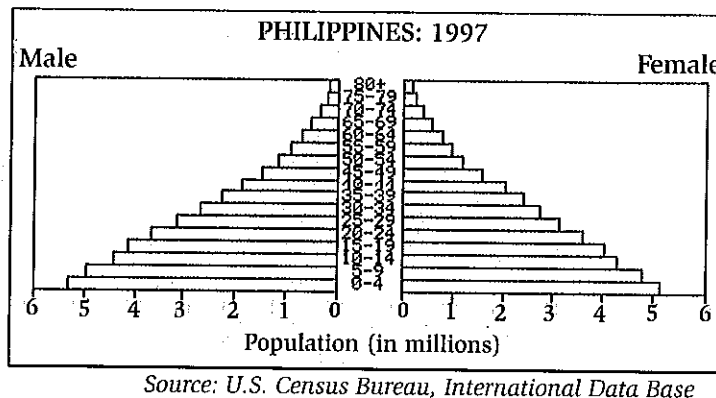
A population pyramid can be classified as **early expanding** when the base of the population pyramid is wide (reflecting a very high birth rate) and decreases towards the top of the pyramid (reflecting a very short life expectancy). Few if any countries are currently classified in the early expanding stage of the demographic transition model. The example below reflects the an early expanding pattern (note the date for Kenya).

POPULATION PYRAMID: EARLY EXPANDING



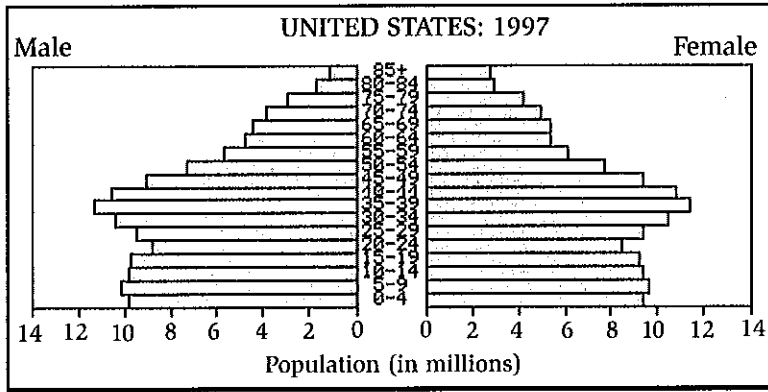
A population pyramid can be considered **expanding** when the base of the population pyramid continues to be wide (still reflecting relatively high birth rates) but the cohort groups begin to enlarge or increase towards the middle of the pyramid. The increase or widening of the cohort groups comes from improved medical care, modern hygiene techniques as well as improved diet. As a result the death rate decreases. The pyramid below depicting the Philippines reflects an expanding population.

POPULATION PYRAMID: EXPANDING



A population pyramid can be considered **stable** when the birth rate falls because of changing attitudes towards family and family sizes. Educational programs, changing societal attitudes and economic factors can cause a decline in the birth rate. As medical care and techniques continue to improve, the death rate continues to fall. The population pyramid below reflects a stable population.

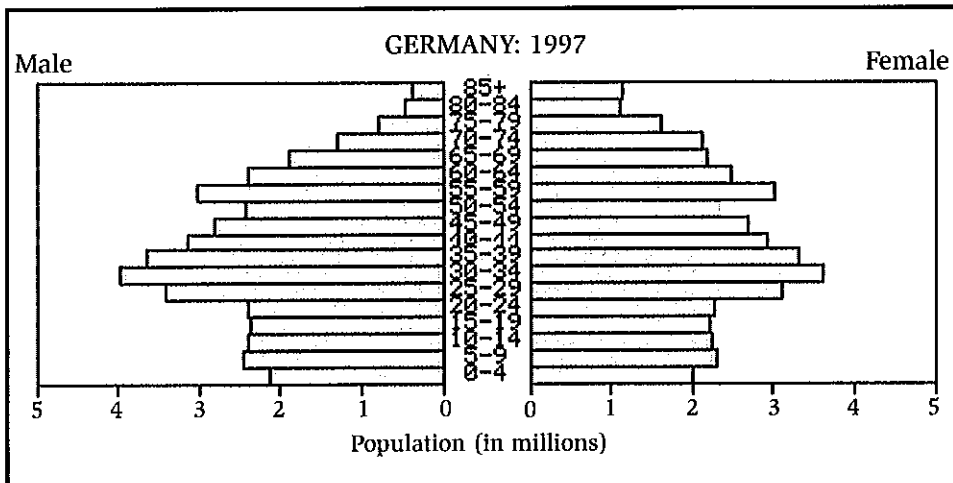
POPULATION PYRAMID: STABLE



Source: U.S. Census Bureau, International Data Base

A population pyramid is considered **contracting** when the birth rate reaches very low levels and the death rate continues to decrease. In this stage the birth rate falls for a variety of socio-economic and cultural reasons. Just to mention a few: the birth rate falls because women may be employed in the workforce, the cost of child rearing may be expensive, contraception programs are very successful, and small families are encouraged by the state. It is also important to note that in this stage the death rate continues to fall and life expectancy rises. The population pyramid below shows a contracting population pyramid.

POPULATION PYRAMID: CONTRACTING



Source: U.S. Census Bureau, International Data Base

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HUMAN GEOGRAPHY
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Population pyramids that are classified as early expanding and expanding generally reflect the population of developing regions. **Developing regions** are places that have had historically uneven economic and population growth levels. Developing regions are moving towards more constant growth in the areas of economics and population but from time-to-time return to unpredictable levels of growth. Population pyramids that are stable and contracting are normally found in developed regions. Developed regions are places that are relatively wealthy (in terms of per capita GDP) and especially stable in economic growth. Regular and uniform population growth rates are common in developed regions and technological advancements are common. The demographer is also concerned with the **dependency** in a population. Dependency is a measure of the population of people that are too old or too young to be employed in the workforce and therefore require governmental support. The dependency ratio is the percentage of young dependents (people below the age of 15) and the percentage of old dependents (people above the age of 64) divided by the percentage of people aged 15 to 64.

The dependency ratio is calculated as follows:

$$\frac{\% \text{ of young dependents} + \% \text{ of old dependents}}{\% \text{ of working aged people}} \times 100 = \text{dependency ratio}$$

This ratio is based on the assumption that children under the age of 15 and adults over the age of 65 do not work, and must therefore be supported by people of working-age. Those who work experience a greater financial burden if their country has a high dependency ratio. In some countries, especially in Africa and Asia, more than 40% of the population is under 15. Based on this information, and synthesizing what we have learned about populations so far, we could conclude that a country such as this has a high birth rate, that it is an expanding population, and that it is likely in the early stages (Stage 2) of the demographic transition model.

Can you estimate the current stage of Canada's population? We have already seen that in 2003, Canada's rate of population growth was 0.9%, and its rate of natural increase was 0.6%. These figures alone, however, do not provide much insight. A more significant statistic pertains to Canada's changing age structure. In 2003, 12.8% of the population was over the age of 65. This percent was up from 10% in 1981, and 5% in 1921. It is estimated that by 2041, 23% of the Canadian population will be over 65. This means that Canadian citizens, on average, are getting older, which affects both government spending (rising cost of health care) and immigration rates. Immigration rates are affected because the government wants to attract more young, skilled workers in order to offset health-care costs, maintain the average age of Canada's population, and prevent Canada's population from shrinking. Taking into account its aging population, it appears that Canada is entering Stage Four of the Demographic Transition Model. Both Canada's birth rate and death rate are considered to be fairly low, and they will likely continue to drop even lower in the coming years. At this point, we can say that Canada's population growth is in the process of being stabilized.

DID YOU KNOW?

- That there is a growing world problem of a shrinking population
- In Austria families are being awarded two years maternity leave with full pay and benefits for the birth of a new child
- In Spain government is allowing foreign immigrants to move to depopulated towns
- France is significantly increasing their immigration levels
- Sweden and Denmark are creating 'flexible work hours' for employees so that they can encourage young workers to have children and still work
- 49% of Europeans are considered dependents – that is they cost the government more than they pay in taxes
- Retirement ages may need to rise to 70 in countries with low birth rates or people may have to accept a decline in their current lifestyles

6. PROBLEMS OF EXPONENTIAL POPULATION GROWTH

Demographers have long warned of the consequences of rapid population growth for centuries. In fact, Thomas Malthus, an English economist and philosopher was one of the first to warn of the dangers of population growth. Malthus was a witness to the poverty of the Industrial Revolution in England (during the 1800s). Malthus argued that if population rates did not slow down, serious consequences would occur. He believed that the rate of food production would not be able to keep up with the rapid growth of population and that quality of life would eventually be destroyed. Though inaccurate during his lifetime, Malthus' predictions would eventually be proven correct in some regions around the world.

When considering population statistics it is important to consider all the implications.

7. POSSIBLE SOLUTIONS

The above section mentions one possible solution to the problem of overpopulation, which entails seeking outside help. Other possible solutions lie in increasing the resource base internally, improving technology, or reducing the population growth rate. The following section describes the rather dramatic steps one nation took to combat overpopulation.

a) Case Study: The Fertility Revolution in China

China is perhaps the most intriguing case study with regards to population control. In the early 1970s, China had one of the highest population growth rates in the world, and was home to nearly 1 billion people (one fifth of the world's population at the time). The Chinese government decided to develop a rather aggressive policy towards reducing the country's birth rate. At the time, women in China had an average of nearly six children each. The government decided to implement a program geared towards reducing the number of children to two per family. This campaign was named the "**later, longer, fewer**" campaign, and it involved encouraging later marriages, longer intervals between births, and fewer children. This was a difficult policy for many families to accept, particularly since Chinese culture traditionally favoured large families. Although the "later,

longer, fewer" program met with some success, the government felt that stricter controls were necessary.

(i) China's One-Child Policy

In 1979, the Chinese government introduced a new campaign to lower birth rates. At this point, the number of births had been reduced to 2.7 children per woman. In order to enforce the **one-child policy**, the government began offering rewards to compliant families such as free medical care, monthly wage bonuses, preferential housing, and extra pension income. If a family had a second child, it suffered penalties such as the cancellation of benefits, fines, and even wage reductions.

(ii) Problems With the One-child Policy

Success of this policy has always been greater in urban areas than in rural areas. In rural areas, families tend to rely on their children as labourers, and often value sons above daughters. Some families resort to infanticide (murder) of female babies, while others ignore the one-child policy in order to achieve their desired family structure. Urban families are more likely to comply because of the financial benefits. In the long run, unless rural youths migrate to the cities and/or greater consistency is achieved, this discrepancy could mean a shortage of young people in cities to care for their elderly parents .

(iii) Current Status

As of January 2004, the average number of births for each Chinese woman has remained steady at 1.8. The nation's total population is expected to be controlled within 1.3 billion by the end of 2004. However, the problem still remains that birth rates vary significantly in rural and urban regions. In the upcoming years, officials intend to focus on supporting rural households who have practiced effective family planning, and managing better migrant services.

b) Birth Control and Population

Perhaps the most significant factor in successful population control has been the improved status of women in many countries. Empowered, liberated and healthy women who have easy access to contraception (birth control) and family planning are best suited to make decisions regarding reproduction by themselves.

III. INTRODUCTION TO ENVIRONMENTAL CHALLENGES

In recent years significant **environmental challenges** are threatening the existence of plants, animals and humans on the both in Canada and the entire globe. These environmental challenges could be potentially damaging to human and economic systems if controls are not effectively put in place and monitored.

One environmental challenge called **global warming** has increased recorded global temperatures creating serious environmental concerns for humans on the planet. The loss of portions of the stratosphere's **ozone layer** has also had a detrimental effect upon people's lives while the depletion of **freshwater** stocks and freshwater supply has become a national and international concern for many governments. This section will address the environmental challenges facing

Canada today focussing on global warming, ozone layer loss and freshwater quality and supply.

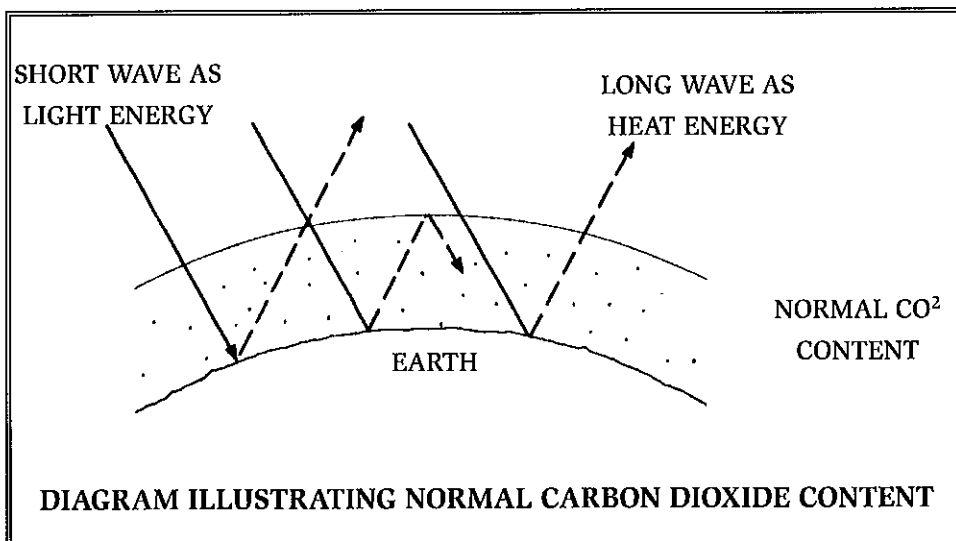
When reading about environmental issues students should acknowledge the role technology can play in both exaggerating and solving environmental issues. Students should also understand that unlike previous centuries, national governments today play a significant role in helping to reduce environmental damage through effective policy making. Conversely, these decisions can also exacerbate (make worse) environmental challenges because of poor policy choices.

Finally, the inter-connectedness of the earth's systems remains significant when trying to comprehend the complex nature of environmental concerns. In many ways environmental issues are interrelated and linked to one another and understanding one of the issues must come with understanding all of the issues. Important WHERE and WHY questions should also be considered when attempting to study these topics.

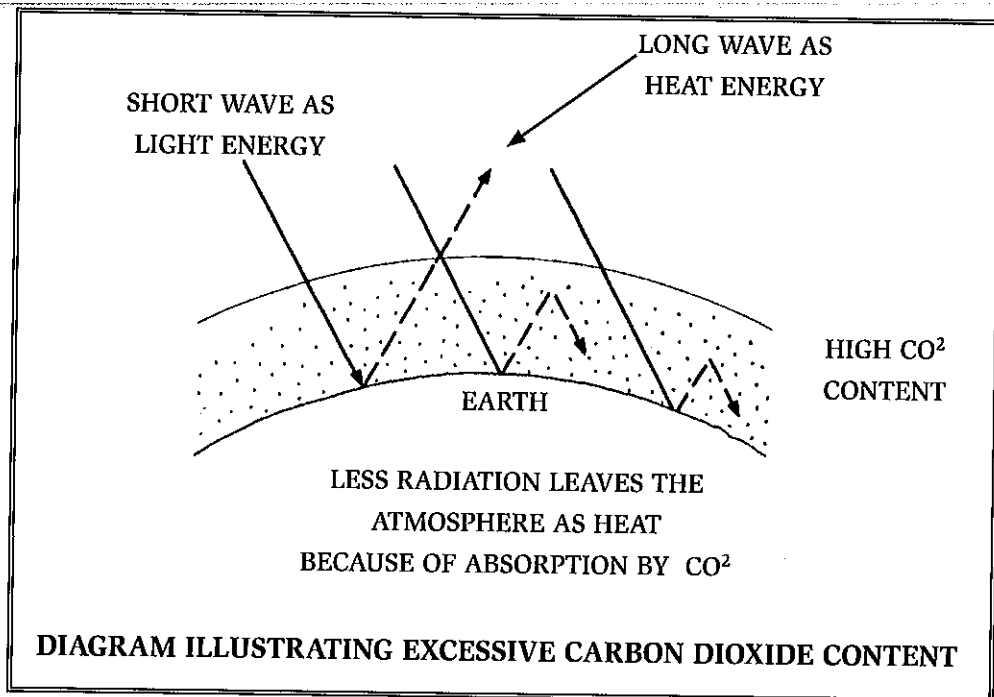
A. GLOBAL WARMING

Global warming, or the increase in global temperatures, is a serious global issue. Global warming is being experienced in many places, regions and countries (including Canada) and across the globe. Global warming is a complex process that happens because of abnormally high levels of carbon dioxide concentrated in the atmosphere.

The process of global warming unfolds as follows. The sun emits rays called **short-wave radiation** or light energy. Carbon dioxide, a naturally occurring gas in the atmosphere, is transparent to incoming short-wave radiation that allows the radiation to reach planet Earth. This incoming short-wave radiation strikes the earth and is either absorbed on earth's surface or is reflected back into space. Under normal circumstances and where there are normal levels of carbon dioxide in the atmosphere the following process unfolds.



When there are high levels of carbon dioxide in the atmosphere (usually caused by the burning of fossil fuels and the burning of tropical rainforests) the following process illustrated below occurs.



In this process less radiation leaves the atmosphere as heat because carbon dioxide absorbs **long-wave radiation** (rays that are reflected from the earth's surface) and thus consequently heating the surface of the earth. This process of keeping more heat in the atmosphere is commonly called the **greenhouse effect**. The greenhouse effect is a process that heats up the surface of the earth causing serious environmental issues and causes global warming. To understand the greenhouse effect think about a greenhouse that we use for growing things like tomatoes. We build these structure entirely with glass so that the sun rays can heat the air inside. But then the glass does not allow the heated air to escape. The effects of global warming and the greenhouse can and will have a negative effect on Canada if not addressed or solved.

1. THE EFFECTS OF GLOBAL WARMING IN CANADA

In Canada's Arctic regions the sea ice is shrinking, causing sinking shorelines and the death of some Arctic animals. Warmer weather causes increasing numbers of forest fires throughout Canada, and more droughts in prairie areas. In British Columbia, the survival rate of salmon has decreased by about one-third since the early 1990s. While there are many reasons for this, it is generally agreed that increasing water temperatures have contributed to this decline. Because of increased surface temperatures, fewer nutrients are brought to the surface by the movement of cold water from deep in the ocean. These nutrients support and maintain zooplankton, which is very near the beginning of the food chain for sea life. Scientists studying the Arctic Ocean are afraid that the world famous polar bear has already been negatively affected by global warming. The oceans on which they hunt seal freeze up later in the fall and thaw earlier in the spring and thereby greatly reducing the time they can hunt.

2. THE KYOTO PROTOCOL

The **Kyoto Protocol** is a document that was signed by about 180 countries at Kyoto, Japan in December 1997. The Protocol was an agreement among the industrialized nations of the world to reduce emissions of six greenhouse gases over a certain period of time. Canada was among several industrialized countries that agreed to cut their emissions of greenhouse gases by 2012, to levels 5.2% below 1990 levels. The United States, however, withdrew from the Protocol in 2001, saying that it would combat global warming in other ways. Given that the United States alone was responsible for 25% of worldwide carbon dioxide emissions in 1990, this presented quite a setback for Kyoto supporters. Additionally, critics of the Kyoto Protocol argue that it places restrictions only on the developed nations of the world, and not on developing countries like China, India, and Brazil. Some developing countries did not support the Kyoto Protocol because they thought that they should have the same opportunities for development as did industrialized countries in the past.

The strength of the Climate Change Regime (the group of organizations that pushes for the implementation of environmental regulations pertaining to climate change) is affected by the fact that there is very little scientific evidence relating to the damages caused by climate change, even though scientists speculate that carbon emissions are responsible for warmer temperatures, shortage of freshwater, rising sea levels, and increased energy prices. Additionally, the costs of reducing carbon emissions are huge, and thus, very few states are willing to spend the money.

B. OZONE LAYER DEPLETION

One serious environmental issue brought forth through decades of environmental research has been the assault harmful chemicals have had upon the stratosphere's ozone layer. The ozone layer is a naturally occurring protective shield found in the stratosphere more than 25 km into space. The job of the ozone layer is to act as an umbrella and absorb harmful **ultraviolet radiation** from the sun and thus protecting plants, animals and humans from harmful rays. In recent decades, scientists who have observed and monitored ozone levels have noted that the ozone layer has developed large gaps and holes, allowing harmful ultraviolet rays to reach the earth's surface. Scientists speculate that human activity is largely responsible for the increase of these gaps and holes in the ozone layer. Scientists specifically singled out harmful CFC's. Chlorofluorocarbons (CFCs) are a dangerous gas that chemically bonds to the ozone layer. Once the CFCs have bonded or glued themselves to the ozone layer, the CFCs eat away at the naturally occurring ozone layer, exposing large gaps and holes. CFCs were once used widely in gasses for refrigerators and air conditioners, foams and aerosol sprays.

Scientific proof of a depleting ozone layer has been widespread. Doctors began diagnosing and reporting that humans are experiencing higher levels of skin cancers than in previous decades. Other scientists reported that the genetic structure of plant and animal cells are being altered by excess ultraviolet radiation. The effects of increased cancers in Canada alerts health care officials that cancers are on the rise and that increased funding for cures and treatment will

be needed in future. Marine biologists also noted that the ocean ecosystems are being drastically altered and tiny micro-organisms that live in the ocean are no longer present in their natural habitats. The ripple effect of an altered marine environment can have a devastating impact on industries such as the fishing, tourism and logging in Canada.

When considering WHERE and WHY questions with respect to ozone depletion, students should note that scientists warn all Canadians of the harmful effects of a reduced ozone layer. Impacts on personal health are cited and that the impact upon our natural environment (both on land and in the water) is a constant and real threat. Scientists note that the depletion of the ozone layer could be particularly harmful to the **flora and fauna** (plants and animals) found in Canada's northern regions and Arctic because of the region's ultra-sensitive ecology.

As a result of all of the above, CFCs are currently being phased out. In 1987, all industrial nations agreed to cut their use of CFCs in an agreement known as the **Montreal Protocol**. If international agreements are adhered to, the ozone layer is expected to recover by 2050. It is important to note that it takes many years after changes have been made for the ozone to even begin to recover. The Ozone "Regime" (the group of organizations that pushes for the implementation of environmental regulations pertaining to the ozone layer) is strong because of the evolving scientific knowledge that points to the negative effects that ozone layer depletion has on health and on the earth's aquatic systems. The Ozone Regime is also strong because 30% of CFC emissions can be eliminated by conservation, and an equal amount of emissions can be eliminated through the use of CFC substitutes. Additionally, countries that do not comply with regulations face trade sanctions from the United States, and strong pressure from environmental groups. For these reasons, there has been more progress in implementing regulations to protect the ozone layer than there has been in comparison to other environmental issues.

The depletion of the earth's ozone layer is most noticeable over Antarctica. Over the last few decades scientists have measured the growth of the huge hole in the ozone layer in this southern region. After years of growth, in 2003, scientists reported that the Antarctic "hole" has marginally decreased in size. This is encouraging in the sense that perhaps the steps taken in the last fifteen years are beginning to take effect.

C. ACID RAIN

Acid rain is rain, snow or fog that is polluted by acid in the atmosphere and which damages the environment. Two common air pollutants acidify rain: sulphur dioxide (SO_2) and nitrogen oxide (NO_x). When these substances are released into the atmosphere, they can be carried over long distances by strong winds before returning to earth as acidic rain, snow, fog or dust. (This causes political controversy when acid rain crosses borders). Some areas are less susceptible to damage from acid rain because their soil is high in calcium or other alkalines that neutralize the acid. Damage from acid rain occurs when the environment cannot neutralize the acid being deposited. Some problem areas include most of eastern Canada (the Canadian Shield), the Alps, the Appalachians in the United States, and most of Japan. Acid rain causes the loss of animal and plant life, and even entire ecosystems. It slows the growth of deciduous trees, kills plants,

fish and birds, corrodes steel, and affects lung capacity in human beings. The solution, again, is to lower emissions that cause acid rain, such as the burning of fossil fuels.

The Acid Rain Regime (the group of organizations that pushes for the implementation of environmental regulations pertaining to acid rain) is moderately strong within Western Europe and North America. By 1993, sulphur and nitrous oxide emissions were reduced by 30%. In North America, in 1990, the **Clean Air Act** was signed, which required the installation of **tradeable permits** (meaning that countries could trade their emission quotas with other countries if they weren't going to use them up, and in return, receive larger quotas in another area). In 1991, the **Air Quality Accord** was signed between the United States and Canada, which called for a 50% reduction of sulphur dioxide by the year 2000, and significant cuts to nitrous oxide emissions. While the Acid Rain Regime is weakened because restrictions hurt the lumber, tourism and fishing industries, and it is difficult to enforce compliance with acid rain regulations, the Regime is also strengthened by the increasing number of lakes and forests that are becoming acidified and fishless. In the end, the economic losses that result from material damage may justify the costs of control.

D. RESOURCES

A **resource** is an item or commodity that has some value attached to it. Resources can be divided into two major subgroups. One group of resources called **renewable resources** are items or commodities that can be replaced or replenished over time. Freshwater is an example of a renewable resource. It is renewable because freshwater is abundantly available and replenishable by Mother Nature through precipitation (rain, snow and underwater sources). A **non-renewable resource** is an item that cannot be replaced or replenished once used. A **fossil fuel** such as oil that is made into fuel and other products is the best example of a non-renewable resource. Once gasoline (which is made from oil) is refined, it can no longer be returned to its original state. Once non-renewable resources are completely used up they can no longer be re-produced by Mother Nature in our lifetimes.

E. FRESHWATER QUALITY AND SUPPLY

Freshwater is a resource that is vital for most organisms' survival. **Freshwater**, water that is acquired from natural sources such as precipitation (rain, snow and underwater sources) is one of the earth's most valuable resources. Freshwater is abundant but unevenly distributed on the planet and in Canada. Because of geographical **site and situation** some regions and places on earth are rich with freshwater reserves while other places and regions are without. Site is the term used to describe the specific spot where the resource occurs. Situation is the term used to describe the relationship between the resource and its wider surroundings. Canada has about 20% of the world's fresh water.

Freshwater is commonly acquired from a number of sources. Precipitation in the form of rain and snow is fresh-water. Precipitation from the atmosphere collects in rivers, streams, lakes, snowfields, and glaciers. Water derived from these sources is often referred to as **surface water**. Depending on the rate and intensity of precipitation over time, accumulations of freshwater occur in rivers, streams, lakes, snowfields and glaciers. Human beings use freshwater

resources for a number of day-to-day purposes. Freshwater is used for a drinking, domestic uses in homes, agriculture, and for industrial purposes. Humans rely on a regular, safe supply of water because it is our most important resource and without it human and economic systems would shut down and life as we know it would cease to operate normally.

1. FRESH WATER SOURCES

Aquifers are an important source of clean water. An **aquifer** is underground water-bearing rock, sand or gravel. We can access this water by drilling a well into the aquifer and pumping to the surface for distribution. There are several factors which make aquifers a better source of water than surface water, particularly for farmers irrigating their lands. First, aquifers help to make farming more time and cost-efficient (being in most cases more easily accessible than surface water, and less costly than reservoir storage). In addition, the water that reaches the chambers of an aquifer is usually much cleaner than the water of reservoirs at the earth's surface. Very few bacteria live in aquifers. However, the problem with aquifers is that they recharge quite slowly. The water in aquifers comes from surface water which has seeped through porous rocks such as sandstone or limestone. The process is slowed if water becomes trapped between layers of impermeable rock, which does not allow water to seep through. Some aquifers are kept full in unique ways. The author pumps his domestic water from an aquifer that is filled by the snow/glacier capped mountains around Mount Baker in Washington state some 100 kilometers away. Scientists have proven this by placing dyes in the water at the source and then identifying it when pumped in South Surrey.

DID YOU KNOW?

- Over the next 20 years, the average supply of water worldwide, per person, is expected to drop by a third.
- There are more than five million people who die each year from illnesses caused by poor-quality water supplies.
- Over 50% of people in Africa suffer from water-related diseases.
- Worldwide water consumption has doubled in the last 50 years.
- A child in a developed country uses 30 to 50% more water than his/her counterpart in the developing world.
- Some estimates predict that by 2025, chronic water scarcity will affect as many as three billion people in 52 countries. As a result, many people believe that the wars of the next century will be over water.

a) Groundwater Depletion

In many areas of the world, the need for water has led to the over pumping of aquifers. This means that water has been pumped out of the aquifer faster than rain or seepage from the surface can recharge it. Over-pumping makes the **water table** fall, (the top of the saturated layer of porous rock; well drillers call this the static line) which forces farmers to dig their wells even deeper. If wells are dug too deep, they tap into minerals such as arsenic and fluoride, which are harmful when ingested. In countries facing groundwater shortages, a solution would be for farmers to decide

to change their schedules to coincide with seasonal rains.

b) Possible Solutions

Solutions to the depletion of water resources include water “exports” (transferring supplies of water over long distances) the desalination (removing the salt) of seawater, and basic conservation.

c) Other Water Issues

Canada has large stores of the world’s freshwater resources contained within the Great Lakes while British Columbia is also blessed with abundant reserves of freshwater. Most of Canada’s freshwater is stored in lakes and rivers, ice sheets, glaciers and water bearing rocks. There are some places on earth and in Canada where freshwater is scarce. There are regions of Canada that do not experience significant amounts of precipitation. BC’s Cariboo and Okanagan regions are some of the driest regions in Canada and these areas must take special care and attention to conserve their water resources so that they do not run out. Canada is keenly interested in maintaining the volume and quality of its freshwater resources.

Freshwater supply and quality is placed in jeopardy when climate change, through global warming and ozone depletion and acid rain occurs. Industrial pollution, urbanization and agricultural practices are significant contributor to poor freshwater quality.

F. AREAS OF ENVIRONMENTAL CONCERN

1. EXTRACTION OF MINERAL RESOURCES

Mining, though it affects only a small percentage of the earth’s surface, can be very destructive to the environment. Mining operations strip away natural vegetation, rock, and soil in order to reach the valuable ore deposits. When mines close down, particularly in developing countries, they are often abandoned as opposed to restored, and pollutants are merely dumped into the environment.

2. AGRICULTURE

Agricultural practices, which require farmlands to expand, play a large role in the destruction of natural habitats. When a wilderness area is converted to farmland, entire food chains may collapse, which leads to the extinction of species.

In addition, when farmers till their lands, moisture escapes and much of the fertility of the soil is lost. To compensate, the land is often irrigated (where dry land is supplied with water by artificial means) and artificial fertilizers are used. These processes, however, often make soils too salty to continue to grow crops. In the end, some areas of farmland end up becoming wastelands or desert on which very little can grow or survive.

a) Chemicals in Agriculture

In order to control insects and fungus that attack crops, and to kill weeds, many farmers have resorted to using **pesticides** (poison to kill insects) and **herbicides** (poison to kill unwanted plants). These chemicals poison harmless insects, often harm farm workers, and may eventually seep into nearby streams. Currently, many pesticides are being phased out in Canada. Stores are also stocking an increased supply of organic

products—foods grown without the use of agricultural chemicals or artificial fertilizers.

b) Genetically Modified Foods

Some farmers are now growing crops that have been genetically modified. This means that the crops have been altered by having a spliced gene from another organism added into them. People in favour of **genetic modification** argue that genetically modified crops cost less, use fewer pesticides, and increase the yield of food. In Canada, genetically modified foods that have been approved by the government include corn, canola, soybeans, squash, and potatoes. Opponents argue that no long-term testing has yet been conducted, and that genetically modified foods could present a large health risk.

3. DEFORESTATION

Tropical rainforests purify the air, absorb carbon dioxide, and produce oxygen. With the destruction of these forests, habitats are being destroyed, more carbon dioxide is being released into the atmosphere (which leads to global warming), and the survival of certain species (some of which have yet to be identified) is being threatened.

a) The Brazilian Rainforest

The most publicized exploitation of the rainforest is occurring in Brazil. Over the past 30 years, the Brazilian government has sought to support its people by developing the rainforest through farming, cattle ranching, mining, and lumbering. In the early stages, impoverished farmers were given areas of the rainforest to develop. This was called **subsistence farming**. Unfortunately, these farms were largely unsuccessful. Lumbering in Brazil has proven more successful, and this practice, though still damaging, has become less destructive to the environment. However, reforestation is not always possible, and the removal of the forest cover often results in arid (dry) wastelands. **Deforestation** (the process of clearing forests) also affects nearby bodies of water. Because the soil is no longer covered by the forest it becomes stripped away by rain or snow. This washed-out soil raises riverbeds, which leads to flooding, and clogs reservoirs, which shortens the life of dams. The washed-out soil also contributes to the formation of new islands, which depletes coastal fisheries.

b) Canada's Forests

Canada has one-quarter of the world's temperate deciduous coastal forest, one third of the world's boreal coniferous forest, and virtually all of the world's old-growth pine. Deciduous refers to trees that lose their leaves at the end of the growing season, and coniferous refers to trees that bear cones. Across the country, various factors have contributed to the decline of Canada's forests. Leading factors include forest fires, particularly in British Columbia and Ontario, industrial development, and logging. In British Columbia, the forest industry makes up a large section of our economy, and it has certainly been a challenge to balance economic growth with effective resource management. The effective management of resources, which results in sustainable practice, is called **environmental stewardship**.

G. GOVERNMENT RESPONSES TO ENVIRONMENTAL ISSUES

The issues of global warming, ozone depletion, and freshwater quality and sup-

ply are all important to national and regional governments. Governments are interested in these global issues because they have the ability to impact human and economic systems in a harmful way. In recent decades and as governments have come to realize the importance of a healthy environment, they have taken steps to help clean up and protect the environment in which we live in. Canada has taken steps to help improve and protect the environment through national, provincial and regional laws. Although Canada has been instrumental in helping to draft new environmental laws and suggest protocols and frameworks that stretch beyond international boundaries, Canada's environment is not immune or protected from environmental damage.

H. ENVIRONMENTAL LAWS AND PROTOCOLS

You have undoubtedly heard of many examples of the environmental damage that is caused by human activity. Due to our high rate of consumption of natural resources, pollution is clogging our rivers and skies, acid rain is threatening the survival of our lakes and forests, the ozone layer is steadily depleting, and greenhouse gases are wreaking havoc on our climate. One way the global community has attempted to counter this reality is by pushing awareness of the concept of sustainable development.

1. THE HISTORY OF SUSTAINABLE DEVELOPMENT

The concept of **sustainable development** emerged in 1972 at the United Nations Conference of the Human Environment in Stockholm, Sweden. Sustainable development is a type of development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. This concept requires that people, particularly in developing countries, reduce their consumption of resources, slow their population growth, and practice a more sustainable lifestyle.

a) The Bruntland Report

The concept of sustainable development became popular in 1987 by the United Nations' **Brundtland Report**, also known as **Our Common Future**. This report alerted the world to the urgency of stopping resource depletion and, by doing so, curbing environmental damage. It also suggested that social equity, economic growth, and environmental maintenance are indeed simultaneously possible, but would require changes on many levels.

b) The Earth Summit

In 1992, the United Nations held a Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil. This conference soon became widely known as the **Earth Summit**. During the conference, world leaders signed several important documents, including a statement of action called **Agenda 21**. This document was a blueprint on how to make development socially, economically, and environmentally sustainable in the 21st century. Nations that pledged to take part in Agenda 21 agreed to promote its guidelines at the local and regional levels within their own countries. However, despite these pledges, in the 12 years since the Earth Summit, environmental damage has continued to ensue.

2. ENVIRONMENTAL PROBLEMS IN DEVELOPING COUNTRIES

While it is clear that environmental concerns exist in all countries, most

of the world's most serious environmental problems arise in the cities of the developing world. Energy-efficient, environmentally friendly products are all relatively expensive. Now that developed countries have achieved a certain level of industrialization, they are able to afford to pay for more expensive, but sustainable technologies. However, in order to arrive at their current level of industrialization, developed countries had to go through a stage of development that caused major stress on the environment. Developing countries argue that they shouldn't have to follow the environmental rules set out by developed countries until they reach the same level of industrialization—"if you did it, why can't we?" Some people also suggest that if developing countries could put forward a unified front, then they might be in a position to raise demands for increased foreign aid, in return for an agreement to reduce threats to the global environment.

a) Summary of Environmental Problems in Developing Countries

The most serious environmental problems in developing countries are:

- (i) lack of clean, piped water for homes and businesses;
- (ii) inadequate provision for sanitation and the disposal of solid and liquid wastes; and
- (iii) governments which prove unable or unwilling to penalize polluters and to provide basic services to poorer groups.

b) Attempts to Link the Environment to Development Concerns

The Stockholm Conference in 1972 was the first time that developing countries had succeeded in linking the environment to development concerns. As a group, developing countries sought to promote a joint approach to the environment that allowed them to continue to pursue economic growth. Developing countries saw this as an opportunity to advance a broader agenda of change in the economic relationship between developed and developing countries.

(i) In the area of ozone depletion, developing countries pushed for the creation of a special fund that would be dedicated to facilitating compliance with the Montreal Protocol. In other words, the governments of industrialized nations accepted the responsibility to help developing countries with the technology that they would require to reduce CFC emissions.

(ii) Similarly, the **Global Environmental Facility** (a more comprehensive fund) was created in 1991 to assist developing countries in their efforts to protect the global environment. The GEF provides funds to developing countries to assist them in complying with global warming, pollution, biodiversity, and ozone conservation regulations.

(iii) On the other hand, while developing countries were able to work together to achieve a common goal during the ozone negotiations, this was not the case for climate change. Countries such as Brazil, India, and Mexico had large emissions and predicted dramatic growth. Additionally, major oil exporting countries also opposed limitations to carbon emissions. However, developing countries were divided, as smaller, more vulnerable states favoured strong reductions. For example, the extreme poverty of sub-Saharan Africa made it susceptible to climate changes,

and smaller island states were at increased risk for floods, hurricanes and cyclones. These differences made it impossible for developing countries to find a common ground, and so they were in no position to bargain for concessions from industrialized countries.

3. ENVIRONMENTAL CONCLUSIONS

Although there are many areas of environmental concern, the world environmental regime has had some effectiveness in helping to improve the condition of the environment. There has been a rise in the creation of national parks, and widespread protection for air and water. Additionally, the regulations discussed above may help to slow the formation of new environmental problems. Some people also believe that the possibility of widespread environmental crisis may bring states closer together, as they must collaborate to find common solutions. On the other hand, in *"The Coming Anarchy,"* Robert Kaplan predicts a time when environmental scarcity, combined with overpopulation and disease, will overcome the world. Kaplan proposes that nature unchecked will finally seek its revenge. Certainly, although you might find Kaplan's thesis far fetched, no one can ignore the fact that there are many more improvements to be made.

IV. STANDARDS OF LIVING

Each year, the United Nations ranks and classifies top nations of the world in which to live. Using the UN standards Canada consistently ranks near the top. What factors can you think of that make Canada one of the best places in the world to live?

One of the reasons Canada is considered one of the finest nations in the world to live in is because of its high standards of living. In Canada, citizens experience a long and healthy life, high levels of education, and high **per capita** (national) income levels. The term per capita simply means per person.

A. STANDARD OF LIVING

A **standard of living** is a relative measure, comparing nation to nation on the basis of life expectancy, literacy rates and national gross domestic product (income). Indicators of standards of living (life expectancy, literacy rate and per capita GDP) are deciding criteria for standards of living.

1. INDICATORS

An **indicator** is a tool the geographer uses to compare and contrast societies or nations. Examples for comparison could be number of deaths per thousand or the divorce rate in a particular nation. Indicators are important because they allow the geographer to compare and contrast nations or regions with each other and speculate on why one place or another follows a particular trend or pattern.

Three of the most important indicators that must be understood when attempting to establish standard of living levels are life expectancy, literacy rates and per capita gross domestic product (GDP). These indicators are described below.

a) Life Expectancy

Life expectancy is the length of time an individual can be expected to

live (or a person's life span) in a particular nation or region. On average, a Canadian can live well into their late 70s and early 80s if they are born in Canada. Canadian women have one of the longest life expectancies in the world today. Can you suggest some reasons why Canadian women live long and healthy lives?

b) Life Expectancy

Literacy rates are the levels at which a group of people is able to read and write effectively. Literacy rates are another indicator when attempting to establish standard of living criteria. Literacy rates are determined by calculating adult and youth literacy rates, primary and secondary school enrolment, percentage of children who reach the 5th Grade and the number of students who enrol in math, science and engineering programs at the end of secondary school careers. Again, Canada is a top performer when comparing its literacy rates with those of other developed nations.

c) Gross Domestic Product

The final indicator used to establish standard of living criteria is wealth generated through the nations **GDP (gross domestic product)**. Gross domestic product is the sum total of all goods and services produced over a period of time. The GDP is often used to measure a country's wealth in comparison to other countries, as well as a growth rate of an economy.

B. THE UNITED NATIONS HUMAN DEVELOPMENT INDEX

In the context used in the title above the term index means an indicator or sign of something. In this case the indicators measure standard of living.

The United Nations, an organization and community of nations set up following WW II, currently monitors and reports on standards of living worldwide. The tool used to understand standards of living is called the **UN Human Development Index**. The UN Human Development Index is a tool that measures a countries average achievement in the three areas listed below:

1. A LONG HEALTHY LIFE, BASED ON LIFE EXPECTANCY AT BIRTH
2. KNOWLEDGE MEASURED BY LITERACY RATES
3. PER CAPITA GDP

The UN Human Development Index classifies nations into three broad categories once data has been collected on life expectancy, literacy rates and per capita GDP. Nations can be classified as having high human development, medium human development or low human development capabilities. Over a number of years, statisticians who have collected socio-economic data on nations around the world have found that nations with high levels of population growth, low levels of economic and technological development are labelled as nations with **low human development**. Nations with growing population, with medium levels of economic and technological development receive the **medium human development** label. Countries with low population growth levels but high levels of economic growth and technological developments receive the **high human development** label.

C. DEVELOPMENT

What is development? Many people suggest that the notion of development is

DID YOU KNOW?

- The 2004 UN Human Development Index has ranked the 5 most liveable nations in the world as:
 - Norway
 - Iceland
 - Australia
 - Luxembourg
 - Canada
- The 2004 UN Human Development Index has ranked the 5 least liveable nations in the world as:
 - Niger
 - Sierra Leone
 - Burkina Faso
 - Mali
 - Chad
- Life expectancy in:
 - Japan is 81.2 years
 - Australia is 80.4 years
 - Switzerland is 80.4 years
 - Canada is 80.1 years

strictly economic—moving from subsistence economies to modern industrial economies. On the other hand, there are social, cultural and political factors to consider as well, such as health, education, housing, security, and the protection of human rights.

1. UNITED NATIONS HUMAN DEVELOPMENT REPORT 2003

Since 1990, the **United Nations Development Program** has commissioned the Human Development Report to explore major issues of global concern. The 2003 Human Development Index ranked the level of development in 175 countries using data from 2001. In this particular year of the 175 countries that were evaluated, Norway ranked first, Canada ranked eighth, and Sierra Leone was last. As mentioned earlier the Index measures life expectancy, education and income. Some of the results are as follows:

- a) Almost all of the countries at the bottom of the index are in sub-Saharan Africa.
- b) Roughly half of the countries in Latin America and the Caribbean recorded either a decline or stagnation in income during the 1990s.
- c) Countries in Eastern Europe and Central Asia declined overall in the 2003 Human Development Index as a result of falling per capita income.
- d) In sub-Saharan Africa, the decline in the Human Development Index is due to the HIV/AIDS pandemic. For example, South Africa has fallen 28 ranks from 1990 simply because people are dying younger as a result of AIDS-related illnesses.
- e) However, over the past decade, Bangladesh, China, Laos, Malaysia, Nepal, Thailand, Brazil, Bolivia and Peru, have all improved their positions in

the Human Development Index.

- f) The Human Development Report also measures Gender Empowerment, which shows women's participation in political and economic arenas. In this case, many poor countries often outperform rich countries. For instance, women fare better in Botswana and Namibia, than they do in Greece, Italy and Japan.

2. HOW DOES DEVELOPMENT OCCUR

a) From Traditional to Developed Economies

Generally speaking, economic development occurs in a fairly predictable pattern. As industry develops and technological improvements take place, traditional economies transform into developing economies, which eventually transform into developed economies.

Traditional economies often have a subsistence-type economy that is based on agricultural production. Generally, traditional economies exhibit low productivity, and depend largely on primary industries such as farming. Canada was considered to be a traditional economy during the mid-nineteenth century.

Countries move from traditional to **developing economies** as a result of technological innovations and the development of infrastructure to increase productivity such as transportation and banking systems. When Canada built the transcontinental railway in the 1880s, this improvement in transportation infrastructure led to increasing growth in business.

Developed economies are characterized by diverse areas of wealth generation, strong secondary industries, and dominant tertiary industries. Developed economies engage in massive consumption of consumer goods and services, and generally have a market economy based on the supply and demand of capitalism. Canada is now considered to be a developed economy.

b) Development Factors

Countries such as Great Britain, the United States and Canada began the transition from traditional economies to developed economies in the mid-1800s. There are a number of factors that make it easier for a country to develop: an abundance of natural resources, a free and fair political system, high rates of literacy, and an open attitude towards change.

On the other hand, countries in Africa and Asia that began to develop after 1950 are finding it difficult to catch up. The following are some factors that inhibit development: former colonial status, high government debt, past and present conflict, and political corruption.

3. THE GROWING GAP BETWEEN THE RICH AND POOR

In 2001, the **United Nations Human Development Report** compared the income distribution in the richest 20% and the poorest 20% of countries worldwide. It compared the average wealth of the richest people in a country to the average wealth of the poorest people in that same country. Canada ranked 8th among the richest 20 countries. It had a more unequal distribution of income than Norway, Sweden, Japan, Finland, Belgium, Denmark, and Luxembourg, and ranked ahead of countries such as the United States, England, France and Australia. (UNDP)

While there are individuals living in Canada worth over several billion dollars,

in 1998, approximately five million Canadians lived in poverty—about 16% of the population. According to the 2001 Canadian Census, in Vancouver more than 20% of the population lives below the poverty line. The poverty line is defined as the level of income at which an individual must spend 55% or more of his/her income on the basic necessities of life (clothing, shelter,

DID YOU KNOW?

- The Downtown East-Side (a neighbourhood in the city of Vancouver, BC) is one of the most poverty stricken neighbourhoods in all of Canada. People on the Downtown Eastside have the lowest per capita income in all of Canada. Many suffer from health problems, including mental illness and AIDS. The streets are lined with decrepit rooming houses and boarded-up shops. The area also has its share of crime and violence.
- Shaugnessey (a neighbourhood in Vancouver's west-side) is one of the wealthiest neighbourhoods in all of Canada.

food etc.). In 1998, the poverty line was considered to be about \$32,706 for a family of four. (National Council on Welfare)

In Canada in 1996, the top 20% of the population earned an average of \$98,000 after income tax, while the lowest 20% earned approximately \$4,000. This is known as economic disparity. In reading these statistics, it should be emphasized that the bottom 20% of income earners include individuals such as stay-at-home parents who wish only to work part-time, full-time students, disabled people, and those who choose not to work. It also includes people who are willing and able to work full-time but who are unable to find steady work. In Canada, these people are assisted through our social services and income taxes, which attempt to reduce the economic gap between the rich and the poor. It is a source of great political debate whether or not Canadians are doing enough to balance the economic disparity.

Statistics show that economic disparity is occurring worldwide. The top 1% of people in Canada owns almost as much as the bottom 80% (Statistics Canada). Worldwide, the top 20% of the world's population owns more than 83% of the world's wealth (*New Internationalist*). The gap between the richest 20% and the poorest 20% of the world's population has almost doubled since 1970. The trends indicate that the rich continue to get richer, while the poor are getting poorer.

4. THE CONSEQUENCES OF ECONOMIC DISPARITY

(Disparity means a lack of equality with a connotation of being unfair.)

There are a number of consequences of economic disparity—the most important being poverty. Poverty is one of the most important factors affecting human life in Canada and the world. **Poverty** is a shortage, deficit or lack of personal resources. Poverty prevents individuals or groups of individuals from having some of life's basic **necessities**. A necessity is a required personal resource that all citizens are entitled to. Examples of necessities are regular food, shelter, and clothing. Poverty is an indicator of a nation's relative status in the world.

For a variety of reasons some individuals go without life's basic necessities and fall into poverty, sometimes never to escape. Poverty is a relative term meaning that an individual who is considered rich in one country may be considered relatively poor in another. An individual falling below the poverty line in a nation such as Canada might be considered well off in another nation. Levels of poverty vary from nation to nation; however, Canada defines poverty or the poverty line as the number of Canadians who spend 55% of their income on food, clothing and shelter. The reason poverty is considered a relative term is because individual needs and wants vary significantly from place to place. A **necessity** is an item or resource that is required on a daily basis. All human beings require water and food in order to survive. A **want** is an item or resource that an individual desires but is deemed non-essential. Because Canada is a relatively wealthy nation, citizens sometimes want more than they need, leaving a large gap between rich and poor.

Poverty not only affects adults, but often, it is children who suffer the most. Poor children face a number of obstacles: they lack nutritious food which can lead to lifelong health problems; they face poor employment prospects due to low school scores; they are more likely to face abuse; they frequently encounter environmental problems such as poor air quality; they cannot afford the use of a computer; and they often suffer from low self-esteem. This is just a partial list of the problems facing impoverished people in Canada. On the other hand, a person living in poverty in Canada has access to health care, education and other social services. This social safety net does not exist for most of the poor people in developing countries around the world, which amounts to almost 800 million people.

Frequently, poverty can be a trap that can turn into a cycle that individuals fall into and have difficulty coming out of. The **poverty trap** is a cycle that begins with citizens who have limited personal resources, low-income levels, low literacy rates and poor health conditions experiencing hardships year after year. Often these hardships build upon one another and the hardships multiply and become insurmountable.

What causes poverty? There are many causes of poverty. Wars and international conflicts cause hardships because national governments that are involved in large-scale conflicts take resources normally intended for its citizens and allocate valuable resources elsewhere. Natural catastrophes such as earthquakes, hurricanes and plagues cause citizens to suffer because their daily rhythms and routines are interrupted or eliminated all together. Low levels of education don't allow citizens to make wise and informed personal choices, extending and exaggerating the poverty trap. The lack of regular employment (unemployment) or profitable employment is another cause of poverty. Sometimes citizens work long and difficult jobs, but only to be paid sub-standard wages. Mounting debt (personal and national) also causes poverty on both a local and national scale because individuals and governments are no longer able to supply the basic needs to its people.

What can be done to help solve poverty? International organizations such as the UN and NGOs (non-governmental organizations) have considered several strategies that might potentially solve the poverty problems experienced worldwide. These agencies and their policies are discussed below.

5. DEVELOPMENT AND FOREIGN AID AGENCIES

The following section deals with the two institutions developed to manage foreign aid internationally.

a) The International Monetary Fund (IMF)

The **International Monetary Fund (IMF)**, created in 1944, was intended to create economic stability for a world which had just suffered through the devastating effects of a Great Depression and the Second World War. The IMF was supposed to facilitate the expansion and balanced growth of international trade, in order to promote high levels of employment and real income. The IMF was also intended to make it easier to exchange one currency for another when trading across national borders, and finally, it was a "lender-of-last-resort." This meant that it would supply emergency loans to countries which ran into short-term cash flow problems. However, the IMF does not simply give out money, it often forces recipient countries to take extreme measures called **Structural Adjustment Policies** in order to qualify for a loan.

Although the IMF's initial mandate was to provide short-term financing in industrialized countries, in the 1970s it expanded to help developing countries that owed a lot of money, and by the 1980s and 1990s, it became a crisis manager and development agency for developing countries. The **Structural Adjustment** program began in the 1970s. Today, as a condition of receiving an IMF loan, developing countries are forced to adopt **Structural Adjustment Policies**, now called **Poverty Reduction and Growth Facility**.

Structural Adjustment Policies force countries to export more and more primary commodities like metal ores and coffee. There is concern that markets for these primary commodities are nearing saturation (meaning that supply is exceeding demand) and as a result, the price of primary commodities will continue to fall, while the price of imports to developing countries will continue to rise. Many people suggest that **Structural Adjustment Policies** are at the root of the debt crisis in the developing world.

b) The World Bank

The **World Bank**, or **International Bank for Reconstruction and Development**, was created in 1944 to help rebuild the economies of those nations that had been devastated by the Second World War. The Bank is funded by dues from its members and by money borrowed on international capital markets. After the Second World War, the bank poured money into the reconstruction and development of Europe. The Bank gradually turned its interest to the de-colonizing countries of the developing world by funding hydroelectric projects and highway systems throughout Latin America, Asia and Africa.

V. CHANGING PATTERNS

Technically speaking, all of the sections which follow are not human geography. However, the issues covered are important to the Social Studies Eleven curriculum. Rather than create another rather short chapter, it seemed fitting to put them at the end of the chapter that deals almost entirely with human activity in groups. (Some would call this sociology).

A. CHILDREN AND WOMEN AROUND THE WORLD

It would seem safe to say that the circumstances of children and women have improved in the last century. Does that mean they, in terms of equality with men, have reached parity? The author of this book does not think so. An example of improvements in democratic countries (like Canada for example), governments have enshrined equality rights for women in the constitution; laws have been passed to protect children and severely punish those who abuse them. Yet when one takes a more global view, there remain many areas in which improvements can be made. When one studies poverty rates, for example, women far outnumber men in these statistics. We can also read or view reports daily of child labour in many places. When all is said and done, however, the trend or direction has been generally positive in some places, creating reason for hope that further improvement is possible.

1. CHILDREN

The **United Nations International Children's Emergency Fund (UNICEF)** is active in 158 countries around the world. After the Second World War, European children were faced with famine and disease. UNICEF was created in December 1946 by the United Nations to provide food, clothing and health care to the children of Europe. UNICEF soon began a worldwide campaign to work for improved living conditions for children. In 1959, the UN General Assembly adopted the Declaration of the Rights of the Child, which defines children's rights to include protection, education, health care, shelter and good nutrition. By 1989, the **Convention on the Rights of the Child** was adopted by the UN General Assembly, and it entered into force in September 1990. This Convention soon became the most widely- and rapidly-accepted human rights treaty in history.

UNICEF has five key priorities for children. Below is a brief synopsis of the concerns identified by UNICEF under each priority (www.unicef.org).

a) Child Protection

Hundreds of millions of children around the world are victims of exploitation, abuse and violence each year. Children are abducted and recruited into the army; they are forced to work as prostitutes; and they are forced into slavery. According to the International Labour Organization, there are 246 million children engaged in exploitative child labour around the world. Additionally, at any given time, millions of children are without primary caregivers such as a mother or father or relative. It is estimated that 1.2 million children are trafficked into the commercial sex trade each year. Finally, over 300,000 child soldiers are involved in armed conflict at any given time.

b) Immunization

More than 2 million children die unnecessarily each year because they haven't been immunized. In total, over 30 million children are not immunized because vaccines are unavailable, or because families are uninformed.

c) Early Childhood

Each year, more than 11 million children die from preventable diseases before reaching their fifth birthday. In many of the world's poorest countries, child mortality rates have worsened over the last decade.

d) HIV/Aids

In 2002 alone, AIDS-related illnesses killed over 610,000 children. Young girls have been the hardest hit. Among teenagers in sub-Saharan Africa, five or six girls are infected for every boy infected in that age group. Every day, almost 2,000 babies are infected with HIV during pregnancy, at birth, or through breast-feeding. Refer to the following section on world health issues for more details regarding the larger HIV/AIDS pandemic.

e) Girl's Education

Children of educated mothers are more likely to survive and to be healthier because of better nutrition and immunization rates. Educated women marry later and have fewer children. Additionally, a girl's education is an extremely powerful weapon in the prevention of HIV transmission as it contributes to female economic independence (thus lessening the need to enter the sex trade or to rely on men for economic survival), delayed marriage, and an understanding of disease prevention

2. WOMEN**a) Introduction**

The women's movement did not gain momentum until the nineteenth century because most women lacked the educational and economic resources to challenge the prevailing social and economic order. In the nineteenth century, governments began to draft laws that would guarantee equality among men, and many women sought to be included as well. The Industrial Revolution further divided the roles of men and women in society. Whereas men had previously worked in or around the home, they were now seeking employment in factories outside of the home. This split between the home and the "world" solidified the view that women belonged in the home, while men belonged in the public world of employment and politics. The first wave of the women's movement began in the nineteenth century, and lasted until the 1920s, when several countries granted women the right to vote. The second wave of feminism developed during the American civil rights movement of the 1960s.

In the early twentieth century, most women in Europe, Canada and the United States had no legal identity apart from their husbands. Women were prohibited from being a party in a lawsuit, sitting on a jury, holding property, or writing a will. Custody disputes routinely granted permanent custody to the father. In the United States a revival of religion led women to campaign for improvements in the lives of prostitutes and to expand employment opportunities for women. At this time, women also

campaigned to prohibit alcohol. Women in British Columbia were given the right to vote in provincial elections in 1917, and were given the right to vote in federal elections by 1919. American women gained the right to vote in 1920, when amendments were made to the Constitution of the United States. By 1938, courts in the United States lifted all federal legal prohibitions against birth control. Although most of the legal barriers preventing equality had been lifted, the implementation of these changes on a social level was a slow process.

b) Current Issues Faced by Women

(i) Wage Disparity

Although women in Canada are now equal and protected under Canadian law, there are still particular issues which continue to reflect a gender disparity. For example, according to Statistics Canada, the average annual earnings for full-time workers in 2001 in Canada were as follows:

- All education levels: men \$49,198 and women \$34,642
- With university degrees: men \$71,957 and women \$48,257

However, while these statistics clearly reflect a disparity, there may be a number of reasons for the difference. For instance, according to Statistics Canada, men are more likely to enter high-income professions such as engineering, whereas women predominate in less lucrative professions such as social sciences, education and health. Additionally, if women choose to have children, they often take more time off for parental leave than men, and are more likely to return to work part-time rather than full-time in order to be at home to raise their families. For this reason, women are less likely to ascend the income ladder because they tend to have fewer years of work experience. Also, uneducated men often have higher income jobs because they find careers that pay more (e.g. construction worker versus restaurant server). It is also more likely that men in the "All education levels" category have gone to school to learn a trade, which would help to raise their incomes, but would not place them in the "university degree" category.

In order for the above statistics to be more representative of gender disparities, they should compare similar careers and similar years of experience. Additionally, since women are more likely to work part-time, this study does not take into account those women who have high paying professions but do not work full-time. If the income of these women was taken into consideration it would very likely decrease the gender gap.

(ii) Physical Rights

In several countries around the world such as Sierra Leone, Kosovo, the Democratic Republic of Congo, Afghanistan, and Rwanda, men continue to rape women as a weapon of war with little or no consequence. In Pakistan, South Africa, Peru, Russia and Uzbekistan, there are no repercussions for beating women in the home. Due to staggering inequalities, women from the Ukraine, Moldova, Nigeria, the Dominican Republic, Burma and Thailand are bought and sold, and trafficked to work in forced prostitution (Human Rights Watch).

Not only do these practices severely harm women both physically and emotionally, but on a broader scale, they facilitate the spread of the worldwide HIV pandemic. According to Human Rights Watch, many women do not have basic control over what happens to their bodies. Millions of women and girls are forced to marry and have sex without their consent. While most women have access to reproductive health care in developed countries, this is not the case for millions of women around the world. Additionally, continuing practices such as polygamy, forced prostitution, rape, and female genital mutilation, among others, give women little or no control over the circumstances which can expose them to the HIV virus. The gender disparities which are pervasive throughout African countries in particular, make women economically and socially dependent on men, and thus unable to control what happens to their bodies.

(iii) Legal Rights

Women's legal rights are also systematically denied around the world. The governments of Nigeria, Kenya, Zambia, and other African states deny women equal inheritance and property rights. In Syria, a woman is only allowed to marry with the consent of a male family member. While Jordan and Pakistan have condemned domestic violence, they offer reduced sentences to males who commit "honour" crimes against female family members. This does little to discourage men from beating or even killing women who have "dishonoured" the family, perhaps by having a child out of wedlock (Human Rights Watch).

(iv) Status of Women's Rights Today

The extent to which women's rights are protected varies dramatically from country to country, and also within countries depending upon ethnicity and economic class. While women have been granted suffrage rights (voting rights) in many countries, they do not have an equal share in decision-making. For example, in 1994, women headed the governments of 10 countries, but more than 100 countries had no female members in their legislative bodies. In the United States, women hold a mere 8% of managerial positions, and around the world, women make up only 1% of executives. On the other hand, worldwide, women make up approximately two-thirds of the world's illiterate adults, and 70% of the world's poor. Additionally, two-thirds of the 100 million children who drop out of school before completing the fourth grade are girls (www.unifem.org).

However, in some countries, more women have enrolled in colleges and universities than men. While there continues to be gender discrimination in every country, it is evident that the experiences of women around the world vary significantly. Although the women's movement in the United States is often seen to have been successful, it is clear that the benefits women have enjoyed in Europe and North America have not been shared with millions of women around the world.

VI. MORE ECONOMICS

A. ECONOMY AND ECONOMIC ACTIVITIES

1. GENERAL ECONOMIC TERMINOLOGY

a) **Economy**

The **economy** is a system of production, distribution and consumption of goods and services within a country.

b) **Market Economy**

A **market economy** is a system of allocating resources based only on the interaction of market forces, such as supply and demand. It is an economy where most economic decisions are taken by individuals, households and businesses, with no government intervention.

c) **Subsistence Economy**

A **subsistence economy** is an economy in which individuals produce to meet their own basic needs—there is very little internal or external trade. Subsistence economies rely heavily on traditions to decide what to produce and how to produce it.

d) **Economic Activities**

Economic activities are those that help to produce wealth and maintain quality of life. Economic activities are generally divided into the money economy, and the non-money economy.

(i) **Money Economy**

Activities within the **money economy** are all those activities involved in producing, distributing and consuming goods and services. The money economy is split into two sectors: the formal sector, including both private (businesses) and public (government) sectors; and the informal sector including crime and tax avoidance (often referred to as the “underground economy”).

(ii) **Non-Money Economy**

Activities within the **non-money economy** are all those activities for which it is difficult to assess value. For example, all unpaid activities such as housework and volunteering fall under this category. Additionally, the natural environment is also part of the non-money economy, because although its monetary value is difficult to assess, water, plants and minerals help to contribute to a country's economic value.

e) **Gross Domestic Product GDP**

The **Gross Domestic Product (GDP)** is the total value of goods and services produced by a country over a period of time. The GDP is often used to measure a country's wealth in comparison to other countries, as well as the growth rate of an economy.

f) **Primary, Secondary and Tertiary Industries**

By the mid-1990s, primary industries contributed approximately 7% to Canada's GDP, secondary industries contributed 24%, and tertiary industries 69%. It is evident that manufacturing (secondary) and service (tertiary) industries are very important to Canada's economy. However, Canada's natural resources were very important in Canada's development, and remain a vital part of Canada's export economy.

(i) Primary Industries

Primary industries produce raw materials such as wheat, wool and meat, and make use of natural resources such as minerals and forests. In Canada, some of the most important primary industries are hydroelectricity, coal, oil, and natural gas. Hydroelectricity is available across Canada, although there are very few installations in the North, and none in Prince Edward Island. Coal has been mined on the Atlantic coast in Nova Scotia, but Canada's largest coal mines are in the Rocky Mountains and the Great Plains. Alberta is by far the largest oil-producing province, and Alberta, Saskatchewan and British Columbia all have huge quantities of natural gas.

Canada also depends on its primary export commodities such as fish, furs, farm products and minerals. Fisheries are most significant to both coasts, although there are numerous freshwater lakes in the Canadian interior. British Columbia is the leading producer in the forest industry, although the industry is important across the country. Wheat and canola are two main crops produced by the Prairie Provinces.

However, the diversity of agricultural products across the country is huge; Canadian provinces produce an abundance of grain, cattle, dairy, poultry, fruit and vegetables. Alberta is consistently the leading province in mineral production, although Saskatchewan has the richest uranium deposits in the world. Additionally, a wide variety of minerals are produced in British Columbia, and mining has recently become very important in the Northwest Territories where several diamond mines are operating and more are being developed.

(ii) Secondary Industries

Secondary industries are manufacturing industries, where basic materials are turned into products that can be sold, such as the production of clothing from cotton, or manufacturing electronic devices. Since the late nineteenth century, Canada's manufacturing has been concentrated in Ontario and Quebec. The engine behind the Ontario economy is the automobile assembly and automotive parts industry. The Canadian aerospace and garment manufacturing industries are centred in Montreal, and the electronic and technology industries are concentrated in Ottawa and Toronto.

Canada's most important trading partners are the United States and Japan. Almost 80% of Canada's exports go to the United States, and 67% of its total imports arrive from the United States. While Canada has a large **trade surplus** with the United States (it exports more than it imports) Canada has a **trade deficit** with its other trading partners (it imports more than it exports). Overall, Canada has a substantial surplus of exports over imports due to its strong trading relationship with the United States.

(iii) Tertiary Industries

Tertiary industries are those that are concerned with business and the provision of services. This includes activities such as banking and marketing. By the 1990s, the majority of Canada's labour force

was employed in the service sector, and most of these people worked in Canada's urban centres. There are hundreds of service occupations including bus drivers, medical doctors, store clerks, lawyers, and teachers, to name a few.

g) **Agglomeration**

An **agglomeration** is a concentration of particular industries in one place. The Silicon Valley in California is a prime example of an agglomeration of the computer industry.

h) **Economic Core and Periphery**

Within a country, the areas where economic activities are concentrated are called the **economic core**. The **economic periphery**, or areas outside of the core, generally have fewer services, and are not as wealthy as the core areas.

On an international scale, core countries play a dominant, active role in world trade. Core countries almost always have a rich market economy, and are large exporters and importers. In other words, they are highly involved in foreign trade. From an international perspective, the flow of capital is usually from a core country to peripheral countries. For the most part, core countries are found in parts of Europe and North America.

Peripheral countries usually play a secondary or passive role in world trade. Peripheral economies may be market-type or subsistence-type economies. Generally, peripheral economies have an external dependence on other countries for imports, and as lenders of capital. Generally, peripheral regions are found in Latin America, Africa, and some Asian countries.

2. ECONOMIC ISSUES IN CANADA

a) **Regional Disparities**

In Canada, Ontario and Quebec account for almost two-thirds of the national income, while the Atlantic Provinces produce only 5% of the national income. This difference in economic productivity is called a **regional disparity**.

(i) **Dealing with Regional Disparities**

- **Decentralization**

One way to deal with regional disparity is through decentralization. **Decentralization** is the process of moving economic activities from the core to the periphery. The government controls most aspects of decentralization in Canada by moving some of its services away from core areas to be located outside of the major cities. The government can also give tax breaks to businesses that choose to locate in the periphery.

- **Equalization Payments**

Equalization is the federal government's program for reducing fiscal disparities among provinces. **Equalization payments** allow less wealthy provincial governments to provide public services that are comparable to those provided in more prosperous provinces. From 1999 to 2003, the federal government transferred almost \$10 billion a year to receiving provinces. In 2004, there were eight provinces which qualified for equalization payments in descending order:

Prince Edward Island, New Brunswick, Newfoundland, Nova Scotia, Manitoba, Quebec, Saskatchewan and British Columbia.

Equalization payments are only intended to support a province until its fiscal capacity increases. Although some people suggest that equalization payments may be a disincentive for provinces to develop economically, others would argue that generous equalization payments only serve to create the situation in which provinces would eventually become economically viable on their own.

b) Brain Drain

Canada's economy has become increasingly **knowledge-based**. This means that the demand for skilled workers has risen dramatically over the last decade. In fact, the demand for skilled workers has risen worldwide. Along with this, the competition for skilled workers can be fierce. The term **brain drain** is used to describe what happens when a country's skilled professionals decide to move to another area to work.

Brain drain can occur for a variety of reasons. Among any number of personal reasons for moving, there are essentially three main factors that would cause a skilled worker to move to a different location. First, there may be more job opportunities in the area of destination. Secondly, the salaries may be higher, and finally, the taxes might be lower.

Brain drain can occur both within a country, i.e., moving to an area of greater prosperity, or between countries, i.e., moving to a country with better opportunities. Within Canada, brain drain occurs as skilled professionals move from one province to another. Traditionally, people move from the Atlantic region of Canada to find work in Ontario, Alberta or British Columbia. Brain drain also occurs as skilled professionals move to the United States. Typically, it is people who seek employment as executives, health professionals and scientists, who are the most likely to move. Additionally, those who leave are more likely to be the most qualified people in Canada. This is problematic because Canada is losing valuable members of its workforce, and also, the Canadian government has spent a considerable amount of money training people only to have them leave the country. However, despite all of the negative publicity about brain drain, Canada is a net recipient of skilled workers worldwide because as many skilled workers arrive to Canada as immigrants. It is only when it is compared with the United States that Canada loses more skilled professionals than it gains. According to Statistics Canada, in the 1990s, Canada gained four university graduates from abroad for every one it lost to the United States.

3. GLOBALIZATION

Globalization is the trend towards a more integrated world economy. It means bringing down the barriers between countries that hold up the free flow of goods, services and people. Globalization is also a process integrating not just the economy, but culture, technology and governance.

a) Is Globalization Good Or Bad?

While everyone agrees that globalization is occurring, there is substantial disagreement over whether or not it is a good thing. Although the

issue is new, globalization is not—it has been occurring for centuries. People who are in favour of globalization believe that the free market is the engine of human progress; open markets unleash the true potential of human society; and globalization spreads the desire for universal human rights and for democratic government. They also believe that eventually, global integration and cross-cultural understanding will result in a borderless world.

On the other hand, critics of globalization will point out that gaps between rich and poor are widening; decision-making power is concentrated in fewer hands; local cultures are being compromised; biological diversity is being destroyed; regional tensions are increasing; and the environment is nearing the point of collapse.

The problem, according to those who believe there is one, is that globalization is happening so quickly that governments are not able to control the consequences. The result is that global opportunities are unequally distributed between countries and between people, and there is an increasing gap between the rich and poor. Thus, the challenge is to create rules and institutions to manage the effects of globalization.

b) Institutions Of Globalization

i) General Agreement On Tariffs And Trade (GATT)

The **General Agreement on Tariffs and Trade (GATT)** established a set of rules to govern global trade. The purpose of GATT was to reduce national trade barriers and competitive trade policies. Seven rounds of tariff reductions were negotiated under GATT, culminating in the final Uruguay Round beginning in 1986.

ii) World Trade Organization (WTO)

In 1994, politicians gathered to approve the **World Trade Organization (WTO)** which was to replace the GATT. Unlike the GATT, the WTO has the official status of an international organization. The WTO has 146 member states and 30 observers. It also includes the General Agreement on Trade in Services (GATS) which potentially affects areas including telecommunications, banking and investment, transport, education, health and the environment. The main functions of the WTO are listed below.

- Administering WTO trade agreements
- Forum for trade negotiations
- Handling trade disputes
- Monitoring national trade policies
- Technical assistance and training for developing countries
- Cooperation with other international organizations

VII. WORLD HEALTH ISSUES

A. INFECTIOUS DISEASES

While the twentieth century has been heralded as one of progress in terms of science and medicine, the rewards are not equally distributed. While life expectancy has increased on a global scale, there are countries where it has recently plummeted by more than twenty years. Many of these countries, located in sub-

Saharan Africa, Latin America and South Asia have experienced an unprecedented rise in infectious disease. Infectious diseases are the world's leading cause of death, killing at least 17 million people every year. However, breaking the chains of transmission is possible. Some diseases are already within range of elimination. For instance, in terms of child mortality, 25% of deaths in the developing world could have been prevented by immunization.

1. HIV/AIDS, TUBERCULOSIS, AND MALARIA

Globally, HIV has infected 47 million people, 14 million of whom have died. In sub-Saharan Africa, infection levels range from 10% up to 70%. The pandemic is expanding into Eastern Europe and spreading throughout India and elsewhere at an alarming pace. Other diseases such as tuberculosis and malaria are reappearing and making inroads into developed countries. Malaria now affects 45% of the world's population, and is likely to affect close to 60% by the middle of the century due to global warming. Additionally, it is estimated that 200 million people who were alive in 1998 will eventually develop tuberculosis.

2. FACTORS THAT FACILITATE THE SPREAD OF INFECTIOUS DISEASES

There are a number of factors that can magnify the effects of infectious diseases such as population growth combined with rapid urbanization that moves millions of people into cities. These people live in overcrowded and unhygienic conditions, which are breeding grounds for infectious diseases. Along with urbanization comes a rise in sex industries, intravenous drug use, and black market access to antibiotics whose overuse or misuse contributes to the emergence of resistant diseases. Additionally, wars, civil turmoil, and natural disasters force millions of migrants or refugees to travel in conditions fertile for infectious diseases. There has also been a rapid increase in international air travel and trade, which means that disease-producing organisms can be transported within hours from one continent to another. This increase in mobility places millions of people at risk from diseases previously limited to a specific geographic area.

In terms of HIV, the virus that causes AIDS, several factors have combined to facilitate its global spread. Although the virus itself has been proven to be over 100 years old, it has spread due to sweeping social changes: African urbanization; intravenous drug use; homosexual activity; and the growth of the blood products industry. Additionally, government denial and societal prejudice has contributed to inappropriate interventions, or inaction.

3. THE THREAT OF INFECTIOUS DISEASES

Infectious diseases are the greatest threat to developing countries. The prevalence of infectious diseases can lead to chronic underdevelopment which may exert a net drag on global trade, and impair global prosperity. Infectious diseases may also exacerbate the economic disparity between developing and developed countries. As a consequence of infectious diseases, premature death erodes worker productivity and undermines state prosperity, fosters internal migration and emigration, threatens a state's ability to defend itself, generates institutional fragility, and undermines the legitimacy of authority structures, thus impairing the state's ability to govern effectively.

4. THE WORLD HEALTH ORGANIZATION

The **World Health Organization (WHO)**, created in 1948, with currently 192 Member States, has contributed in many ways to help curb the spread of infectious diseases. Some of its strategies have included the establishment of surveillance programs and collaborative programs such as UNAIDS. It has also provided technical assistance and implemented vaccination campaigns, yet these efforts are far from sufficient. The WHO is seeking to complete the eradication of diseases that are close to being eliminated such as leprosy, measles, cholera, diarrhoeal diseases, hepatitis and typhoid. It is also tackling old diseases that present new problems of resistance such as tuberculosis, malaria, and dengue, by providing early diagnosis and prompt treatment. Finally, in terms of new diseases, such as HIV and Ebola, the WHO is engaging in research into methods of control and vaccines.

5. THE PHARMACEUTICAL INDUSTRY

However, the WHO in itself cannot curb the spread of infectious disease. There is another obstacle to overcome when combating infectious diseases—the will of pharmaceutical agencies and governments to invest in drugs to address infectious diseases in developing countries. In 1998, 6.1 million people died of preventable diseases because it “doesn’t pay to keep them alive.” Only one percent of medicines brought to market was designed for diseases that most affect developing countries. Most money, research and development have traditionally been spent on lifestyle drugs - in other words, drugs for the rich, e.g. to treat impotence or baldness, as this market is worth billions of dollars. Excessive amounts of money go into advertising and politics, as well as to stockholders, when some of it could be invested into research on tropical diseases. For the most part, money is being siphoned into the cure for toenail fungus and face wrinkles, while the tragic extent of the effects of infectious diseases in the developing world go unnoticed. One exception is HIV which has been the subject of substantial drug company research. But, sadly, the research has focussed only on the developed world, the fruits of which cannot be enjoyed by developing countries because they are too expensive. However, drug companies are not the sole perpetrators, so are governments in developing countries themselves, which invest little in health care, as are governments of the West whose foreign aid and domestic research program budgets have both been slashed.

B. OTHER HEALTH CONCERNS

While heart disease is the leading cause of death in Canada, new studies predict that cancer is about to surpass heart disease. Currently, lung cancer is the leading cause of cancer death in both Canadian men and women. Worldwide, tobacco-related illnesses are estimated to cost nearly \$200 billion a year in direct healthcare expenses and lost productivity. Although death from heart disease and cancer are the most significant health problems in Canada, according to the *New Internationalist*, there are a number of environmental factors that are increasingly leading to increased mortality around the world.

1. CARS AND TRUCKS

Each year, more than 60,000 people in the United States die due to vehicle emis-

sions. In Ontario, the Medical Association predicts that premature deaths due to deteriorating air quality will climb to over 2,500 by the year 2020.

2. AIR AND WATER QUALITY

Nearly four million children a year die of acute respiratory infections resulting from air pollution. Additionally, over 2.5 million children die from diarrheal disease linked to poor water quality.

3. CHEMICALS

Over five million people suffer from acute pesticide poisoning in developing countries each year. In the United States, a billion kilograms of toxic chemicals were released into the environment in 1994, of which 80 million kilograms were known or suspected carcinogens.

VIII. TECHNOLOGY

The development of technology, along with the topic of globalization, is one of the most contested issues of the twentieth century. Does technology make the world more efficient or does it create unemployment? Will technology lead us to unforeseen levels of human progress or will our quality of life diminish? These questions, and many others, remain unanswered. Again, the pertinent question at hand becomes one of regulation.

A. TECHNOLOGY AND MODERN LIFE

Human beings have used a range of technologies over time to mediate between themselves and the world. By taking a simple look around the classroom you will be able to see evidence of many types of technologies that have developed over time: printing, radio, film, television, computers—the list is endless. Technologies have enabled improved communications and have become an integral part of daily life. However, there have been critics of technology throughout history. For example, more than 1,500 years ago, the philosopher Plato was critical of the technology of writing. Plato wrote:

“Those who acquire it [writing] will cease to exercise their memory and become forgetful; they will rely on writing to bring things to their remembrance by external signs instead of on their own internal resources...it shows great folly...to suppose that one can transmit or acquire clear and certain knowledge of an art through the medium of writing, or that written words can do more than remind the reader of what he already knows on any given subject.” (“Computer-Mediated School Education and the Web,” [http://firstmonday.org/issues/issue6_11/Russell])

Additionally, people became uneasy about the ways in which machinery was replacing human labour during the Industrial Revolution in the early years of the nineteenth century. The following article was originally published in the *Edinburgh Review* in 1829, written by Thomas Carlyle:

“Were we to characterise this age of ours by any single epithet, we should be tempted to call it...the Mechanical Age...Nothing is now done...by hand...Our old modes of exertion are all discredited and thrown aside. On every hand, the

living artisan is driven from his workshop, to make room for a speedier, inanimate one. There is no end to machinery...Men are grown mechanical in head and in heart, as well as in hand." ("Computer-Mediated School Education and the Web," [http://firstmonday.org/issues/issue6_11/Russell])

People fear new technologies because they fear the unknown, and they fear change. People also generally don't like to have their lives disrupted. For example, the automobile was an economic threat to companies that built railroads, and newspapers feared a loss of advertising revenue with the development of the radio.

B. COMPUTERS AND THE INTERNET

Jumping ahead, the technology that people talk about most today is the Internet or World Wide Web. First, a brief history. In the 1950s, Pentagon planners envisioned creating a computer system that would withstand a nuclear attack. At this point in history the average computer was big enough to fill a living room. By 1969, the United States spent millions of dollars on the ARPANET—the precursor of today's Internet. The original network had four users. By 1987, NSFnet was created to cater to academic institutions and military researchers. Regional networks were connected to the NSF backbone. By 1989, there were more than 28,000 institutional users connected to the Internet. The system was largely paid for by NASA and the National Science Foundation. Finally, the World Wide Web took off in 1989, developed by a Swiss physicist. In 1993, an American undergraduate wrote a program called MOSAIC which used a hypertext system to link documents to each other. His system eventually became Netscape. In early 1995, the Internet became a commercial operation when the US government turned over the operation to private corporations like IBM. ("A Brief History of the Internet," New Internationalist, December 1996)

By the year 2000, more than half of Canadian homes had a personal computer. Most computers have Internet access, and Canadians engage not only in communication among friends and colleagues, but they shop online and even apply for jobs online. In 1994, only three million people used the Internet around the world. By 1998, 100 million users were connected. By 2005, it is estimated that over one billion users will be connected to the Internet. However, it is a different story in developing countries. Almost 70% of the world's people do not have access to telephones, let alone the Internet. Additionally, low incomes keep individuals and businesses from being able to buy computers. As a result, it is difficult for businesses and individuals in developing countries to keep up with changing technologies, and thus, their ability to compete with the developed world is severely compromised. Once again, the gap between the rich and poor has widened, this time due to the relative accessibility of the Internet.

C. ISSUES RELATED TO TECHNOLOGY

Given the development of technology throughout history, why do people still fear the Internet and other new technologies? If writing, printing and radio were all developed without horrific consequences, why do people continue to fear new

technological developments? The answer is clear but not simple: there are a number of troubling phenomena that have emerged as a result of technological development.

1. INEQUALITY

For instance, at least 70% of the world's population still lacks basic communications technologies. Approximately 50 countries have fewer than one telephone line per 100 people. In 1996, there were more telephone lines in Manhattan than in all of sub-Saharan Africa. (*New Internationalist*, December 1996) Additionally, over 90% of Internet hosts are in North America and Western Europe.

2. SOCIAL CHANGES

Some people believe that technological changes create a wide variety of negative social consequences such as impatience and an obsession with speed. Additionally, a number of authors have suggested that people create artificial communities in cyberspace, escaping for hours the relationships or loneliness of their real lives. As a society, we have also become accustomed to a loss of silence, being surrounded by constant background noise, and a loss of privacy, as we are continuously connected through cell phones, pagers, Blackberries, and the Internet.

3. UNEMPLOYMENT

One of the social consequences that people most fear is that technology will replace jobs, thus worsening worldwide unemployment. Let us consider for a moment a Canadian example—work in the paper industry. Whereas workers once did strenuous manual labour picking wood for the grinders, they now sit at computer terminals. At a mill in southern Ontario, the workforce has declined from 750 in 1980, to 240 today. However, even with a third the number of workers, the mill produces double the newsprint. From 1975 to 1995, more than 20,000 jobs disappeared in the industry in Canada as the total workforce fell by a quarter, from 84,000 to 63,000. (Julie White, "Automatic Unemployment," *New Internationalist*, December 1996) Not only has technology replaced jobs in this sector, but also it has created less-fulfilling types of positions. Based on a typical 40-hour workweek, a rough calculation would suggest that people spend about one quarter of the waking hours of their adult lives at work. However, factories across the country have fewer workers and therefore smaller crews. Whereas there used to be coffee clubs, get-togethers and parties, there are no longer enough workers for these types of social events. The social ramifications of these changes are substantial. With fewer workers, there are also more chances for accidents. If a worker has an accident while working a shift alone, or if his colleagues are not nearby, a routine accident could have life-threatening consequences.

Clearly, there are some legitimate concerns with technological progress itself, and with the inequalities it produces. However, it is clear that the benefits of technology are immeasurable.