

# World Geography 3202

## Answer Key - August 2007

### Selected Response Key

1.	C
2.	B
3	D
4.	B
5.	C
6.	C
7.	A
8.	A
9.	D
10.	C
11.	C
12.	B
13.	B
14.	B
15.	A
16.	C
17.	D
18.	D
19.	A
20.	A
21.	C
22.	C
23.	D
24.	D
25.	C
26.	C
27.	D
28.	A
29.	B

30.	B
31.	C
32.	C
33.	A
34.	C
35.	C
36.	C
37.	A
38.	B
39.	C
40.	B
41.	B
42.	B
43.	A
44.	C
45.	D
46.	A
47.	D
48.	B
49.	B
50.	B
51.	C
52.	B
53.	B
54.	C
55.	D
56.	B
57.	B
58.	C

## PART II

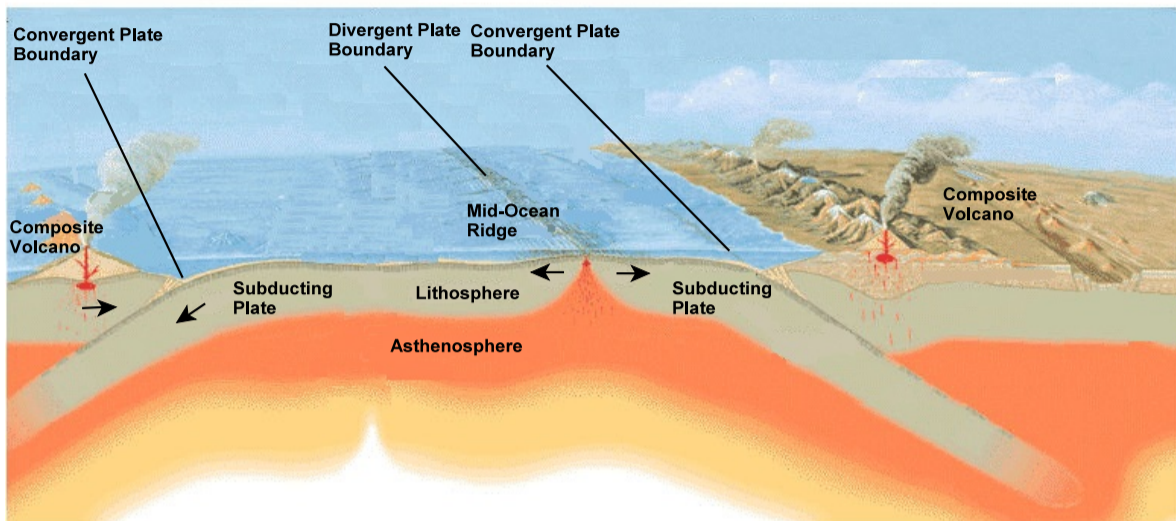
### SECTION A

TOTAL VALUE: 8%

**Instructions: Do ALL questions in PART II, Section A.**

Value

- 4% 59. With the aid of a labeled diagram, explain how compressional and tensional forces are caused.



The underlying factor behind the movement and collision of Earth's plates is the Theory of Plate Tectonics which speculates that the crust of the planet is broken into a series of plates which move in relation to one another due to the heating of the Earth's interior. The boundaries of these plate margins are either constructive in nature, such as the separation of plates at the mid-Atlantic ridge (tensional forces), or destructive (compressional), as is illustrated in the diagram provided.

**2 marks for a well developed diagram**

**2 Marks for an explanation of what causes compressional and tensional forces.**

Value

- 4% 60. Explain two strategies employed in the forestry industry to ensure sustainable development.

1. Selective Cutting
2. Replanting
3. Controlled burning
4. Silviculture (thinning, etc).

**2 marks for each strategy that was clearly explained.**

**1 mark each for listing.**

**SECTION B**

**TOTAL VALUE: 4%**

**Do only ONE of the Units in Section B.**

**Either:** Unit 6 - Population Distribution and Growth  
**Or:** Unit 7 - Settlement and Urbanization

**UNIT 6 - Population Distribution and Growth**

Value

4% 61. To try and reduce its increasing population growth rate, a developing country has decided that couples who have more than one child will have to pay more taxes than those who only have one child. Evaluate this policy giving two reasons for your position.

Agree: Limit family size  
Decrease pressure on economy/infrastructure  
Decrease pressure on ecosystem  
Less strain on healthcare

Disagree: Take away choices to have large family  
Encroaches on individual morals and rights  
Treats all family situations the same regardless of circumstances  
Encourages families who prefer a certain sex to put children up for adoption, etc.  
In long term, may create greying population

**No mark for position taken.**  
**2 marks awarded for each reasons given and developed.**

**UNIT 7 - Settlement and Urbanization**

Value

4% 62. Explain two factors that contribute to the selection of a site for settlement.

1. Sheltered Harbour site
2. Peninsula site
3. Confluence site
4. River island site
5. River meander site
6. Acropolis site
7. Resource site

OR

Most suited to farming: good soil, flat, etc.  
Most suited to fishing: shelter, close to grounds

**Any 2 factors described - 2 marks each.**

## Part II

### Section C

TOTAL VALUE: 28%

Instructions: Do ALL questions in PART II, Section C.

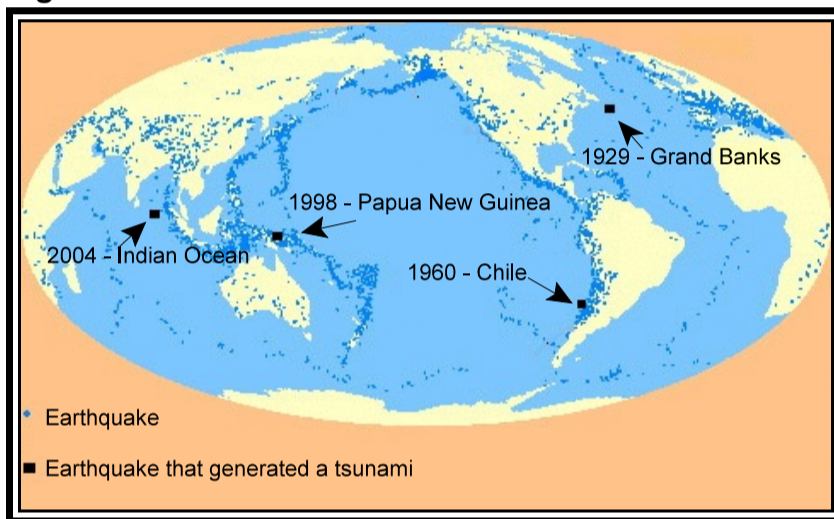
### CASE STUDY 1

#### Units 1-5

#### Tsunami

A tsunami is a wave train, or series of waves, generated in a body of water by a disturbance that vertically displaces the water column. Earthquakes, landslides, volcanic eruptions, explosions, and even the impact of cosmic bodies, such as meteorites, can generate tsunamis. Tsunamis can savagely attack coastlines, causing devastating property damage, loss of life, and environmental destruction.

Figure 1



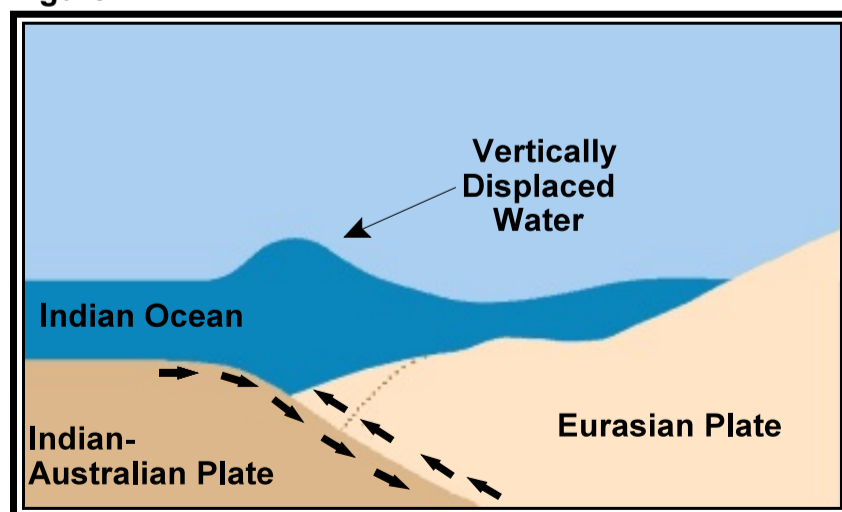
Tsunamis do not have a season and do not occur regularly or frequently. Yet they pose a major threat to the coastal populations of the Pacific. Nothing can be done to prevent them, but the adverse impact on the loss of life and property can be reduced with proper planning.

The undersea Indian Ocean earthquake that occurred on December 26, 2004, produced tsunamis that were among the deadliest natural disasters in modern history. The tsunamis devastated the shores of Indonesia, Sri Lanka, India, Thailand, and other countries with waves of up to 15 m high, even reaching Somalia on the east coast of Africa, 4 500 km west of the epicenter (point of origin). Over 225 000 people are known to have died as a result of the tsunami.

In the United States, the National Oceanic and Atmospheric Administration (NOAA) oversees the Tsunami Program, with its mission to provide a 24-hour detection and warning system and increase public awareness about the threat of tsunami. It provides warning bulletins to government authorities and the public. The Tsunami Ready Community program was created by the NOAA Weather Service to help communities become prepared for tsunamis through better planning, education and awareness. The program is voluntary and communities must meet certain criteria to receive the designation. The countries impacted by the 2004

Tsunami did not have access to any of these programs.

Figure 2



## General Information about Tsunamis

During a tsunami, waves radiate outward in all directions from the disturbance and can spread across entire ocean basins. For example, in 1960 an earthquake in Chile caused a tsunami that swept across the Pacific to Japan. Tsunami waves are distinguished from ordinary ocean waves by their great length between peaks, often exceeding 100 miles in the deep ocean, and by the long amount of time between these peaks, ranging from five minutes to an hour. The speed at which tsunamis travel depends on the ocean depth. A tsunami can exceed 800 km per hour in the deep ocean but slows to 50 km per hour in the shallow water near land. In less than 24 hours, a tsunami can cross the entire Pacific Ocean.

In the deep ocean, a tsunami is barely noticeable and will only cause a small and slow rising and falling of the sea surface as it passes. Only as it approaches land does a tsunami become a hazard. As the tsunami approaches land and shallow water, the waves slow down and become compressed, causing them to grow in height. In the best of cases, the tsunami comes onshore like a quickly rising tide and causes a gentle flooding of low-lying coastal areas.

In the worst of cases, a bore will form. A bore is a wall of turbulent water that can be several meters high and can rush onshore with great destructive power. Behind the bore is a deep and fast-moving flood that can pick up and sweep away almost anything in its path, such as what happened in Papua New Guinea in 1998 when more than 2 000 people were killed and villages destroyed. Minutes later, the water will drain away as the trough of the tsunami wave arrives, sometimes exposing great patches of the sea floor. But then the water will rush in again as before, causing additional damage.

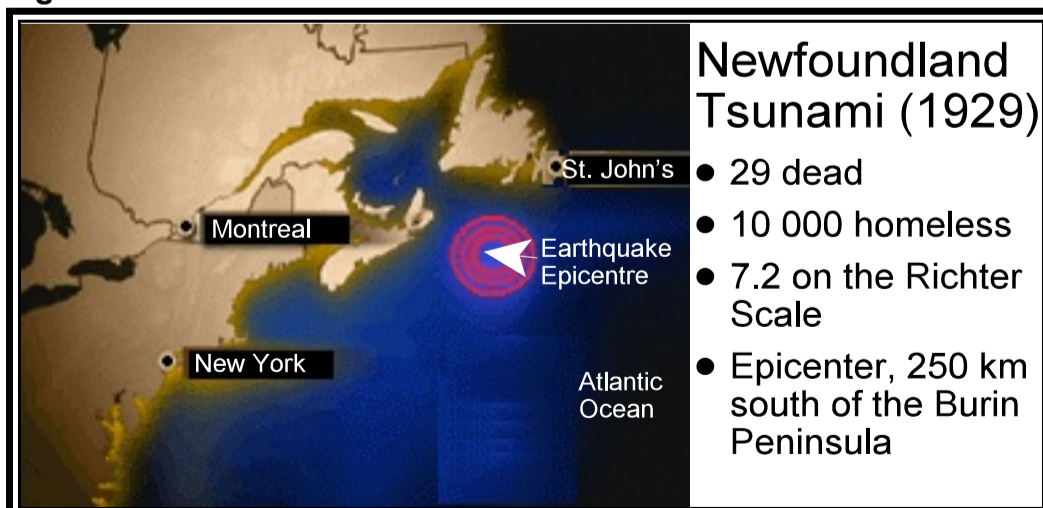
**Figure 3**



This destructive cycle may repeat many times before the hazard finally passes. Persons caught in the path of a tsunami have little chance to survive. They can be easily crushed by debris or they may simply drown. Children and the elderly are particularly at risk, as they have less mobility, strength and endurance.

Tsunamis typically cause the most severe damage and casualties very near their source. There the waves are highest because they have not yet lost much energy to friction or spreading. In addition, the nearby coastal population, often disoriented from the violent earthquake shaking, has little time to react before the tsunami arrives. The largest tsunamis, however, can cause destruction and casualties over a wide area, sometimes as wide as the entire Pacific Basin. These types of Pacific-wide tsunamis may happen only a few times each century.

**Figure 4**



Value

4% 63. Using Figure 2, explain how tectonic forces create a tsunami.

1. Underwater earthquakes occur as pressure is built up along the boundary between the Indian-Australian plate and the Eurasian plate.
2. This pressure is created by compressional forces.
3. When the pressure between the two colliding plates is released it causes the Eurasian plate to be forced upward over the Indian Australian plate.
4. This causes a wall of water to be vertically displaced upward. This wall of water then moves outward from the fault line reaching land in many areas of South-east Asia and as far west as the east coast of Africa.

\*May explain the concept of subduction

**1 mark for each key point**

Value

4% 64. Describe two impacts tsunamis have on ecosystems.

1. Shoreline erosion. Organisms along shoreline disrupted or destroyed.
2. Fish Habitat close to shore disrupted - especially short term
3. Trees and other vegetation destroyed.
4. Wildlife habitat and wildlife itself destroyed.
5. Flooding creating still water points which will breed disease.
6. Massive damage to human property and loss of human life.
7. Etc.

**1 each for listing + 1 each for explanation**

Value

6% 65. Identify and explain three ways that a coastal Newfoundland community may reduce the potential impact of a tsunami.

1. Tsunami warning system such as the one that NOAA proposes in case study.
2. Education programs which will increase public awareness.
3. Tsunami preparedness such as that used for hurricanes. Evacuation plans, etc.
4. Emergency team in place to respond to clean up and medical issues.
5. Special tsunami training and what to do to lessen the impact of the tsunami.

**1 mark to identify + 1 mark for explanation (2 x 3 reasons = 6 marks)**

## CASE STUDY 2

### Units 1-5

#### Case Study: Mexico and its Capital City

#### TO BREATHE OR NOT TO BREATHE?

Mexico City's air has gone from among the world's cleanest to among the dirtiest in the span of a generation. Novelist Carlos Fuentes' first novel was set here in 1959 and was entitled "Where the Air is Clear" -- a title he has said is ironic considering the city's now-soupy environment.

Situated in a valley surrounded by mountains that prevent winds from clearing the air and with 105 721 tons of contaminants per day from 4623 factories, 48% of its residents suffer some chronic air pollution symptoms.

Average visibility of some 11 kilometres in the 1940's is down to about 1.6 kilometres. Snow-capped volcanoes that were once part of the landscape are now visible only rarely, and levels of almost any pollutant like nitrogen dioxide now regularly exceed international standards by two to three times.

Levels of ozone, a pollutant that protects us from solar radiation in the upper atmosphere but is dangerous to breathe, vastly exceed the maximum allowable daily limit. And this occurs several hours per day every day. "Mexico City's air pollution is a criminal act against the city's population," says Humberto Bravo, a scientist at the National Autonomous University who has studied air pollution.

The city is in part a victim of its geography, sitting at the bottom of a bowl-shaped valley that prevents wind from sweeping away fumes from 3.5 million cars and its thousands of factories. Mexico City is also about 2240 metres above sea level. The lower atmospheric oxygen levels at this altitude cause incomplete fuel combustion in engines and higher emissions of carbon monoxide and other compounds. Intense sunlight turns these into higher than normal smog levels.

Thirty percent of the cars are at least 20 years old and many still use leaded gasoline. Outdated diesel buses service the cities' citizens. The state-run oil monopoly, Pemex, could reformulate its fuel to meet California's strict emissions standards but has shied away from the project due to the price tag: \$4.9 billion. That may sound like a lot, but how many billions will it save in future health care costs? Many say that there is a lack of leadership by the authorities and that public officials simply sit on their hands and hope nothing too bad will happen on their watch.

The air also contains dried fecal matter from millions of gallons of sewage dumped near the city in open-air areas and from some 3 million stray dogs. Mexico City is one of the few places in the world where you can inhale a gastrointestinal disease like hepatitis or dysentery.

The Mexican government is finally beginning to recognize the severity of its air pollution problem and is in the process of developing innovative solutions to address it. Whether they will be successful remains to be seen.

#### GDP - composition by sector (2004 est.)

Primary:	4%
Secondary:	26.4%
Tertiary:	69.6%

<b>Mexico City Facts</b>	
<b>Contains 45% of industry in Mexico</b>	<b>60% of residents are born in the city, 40% have migrated there</b>
<b>Population of Mexico City metropolitan area: 18.7 million (2000 est.)</b>	<b>An estimated 50% live as squatters in illegal dwellings</b>
<b>20% of the Mexican population lives there</b>	<b>An estimated population of 30 million by the year 2020</b>
<b>Industrialization from the 1950's to the 1970's relied on rural to urban migration.</b>	<b>Between 19.7 and 20 million people living in the metropolitan area of Mexico City</b>
<b>Contributes about 48% of Mexico's gross domestic product (G.D.P.)</b>	<b>Only 75% of garbage is buried in approved landfill areas</b>



**Beneath the cloud cover, Mexico City is enveloped in a blanket of smog. Above the clouds, where the air is clear, the mountains that surround Mexico City can be seen in the background.**

Value

4%

66. Explain two ways activities in Mexico City have caused local environmental problems?

1. Poor quality fuel for cars/buses cause smog/dirty air, contributes to global warming.
2. Thousands of factories with little environmental controls.
3. Outdated buses and old cars: These run badly and create more pollution.
4. Dried fecal matter from 3 millions stray dogs.
5. Dried fecal matter from open air dumping of sewage.
6. Poor waste management practices.

**1 to list + 1 for explanation for each of 2 ways**

Value

4%

67. In response to air quality issues in Mexico city, a local environmental group is lobbying government to close 1200 of its 4600 factories due to poor environmental track records. Provide an argument for and against such a request.

Not close:

- jobs needed
- if less dollars for people then there is increased poverty
- work out deal with company to improve (gradually) environmental track record.
- families and children will suffer more due to loss of family income.
- need dollars to operate city in terms of infrastructure. Closures will make already bad situation worse.
- out-migration of those who can afford to move leaving more poverty behind.
- government regulations forcing clean-up not closure.

Close:

- environmental problems will be reduced.
- health problems will be decreased.
- less money spent on health care would mean more money for something else.
- cleaner air may actually attract companies more willing to comply with environmental standards.

**2 for argument for + 2 for argument against**

Value

6%

68. What are three actions you could take to achieve improved air quality in Mexico City.

1. Short term could require special filters on factories.
2. Require older buses and cars to be upgraded.
3. Car pools.
4. Produce cleaner fuel for cars/buses to burn.
5. Education/public awareness programs especially among young people about caring for the environment and improving air quality.
6. Stricter government regulations on factory emissions and closure of non-compliant companies.
7. Relocate some industries into less environmentally hazardous areas.
8. Regulate sewage and garbage disposal (landfills, etc.)
9. Try to control stray dog population

**1 to list + 1 for explanation (2 x 3 = 6 marks)**

Do only ONE of the Units in Section D. Note: Both units use Case Study 3 below.

Either: Unit 6 - Population Distribution and Growth  
Or: Unit 7 - Settlement and Urbanization

### CASE STUDY 3

#### Urbanization: A Global Trend

Since the dawn of civilization, most humans have lived in a rural setting. The city, as we know it, is a relatively recent human phenomenon existing for perhaps 8000 to 9000 years. Yet we don't have to go back that far in time to see that cities were not a dominant feature of the human landscape. In the year 1800, the population of the world was 97% rural.

In the past two hundred years we have seen massive global population shifts. Today, approximately 50% of the world's population live in urban areas. According to *Population Reports* in the fall of 2002, urban areas will gain one million new residents every week. The result of this, according to the United Nations, is that by the year 2015 the world will have 21 "mega-cities"- cities of at least 10 million people. At this time it is projected that 3.2 billion people will live in our cities, more than the entire global population of 1967.

Urban populations grow in one of three ways. First, through migration to cities by new residents; second by natural increases due to increased birth rates; and third by the administrative redefinition of areas that were previously considered rural. Of course with better health care available in cities, mortality rates will also decrease as people live longer and thus allow for an even greater growth rate for our cities.

Yet why did urbanization occur in the first place? Factors include declining death rates, more rational management of agriculture, improved transportation and communication systems, stable political governments, and, of course, the industrial revolution. As a result, the trend for humans to gather together in large cities was inevitable. Simply stated, humans now have the capacity to develop the necessary infrastructure to live together in large cities.

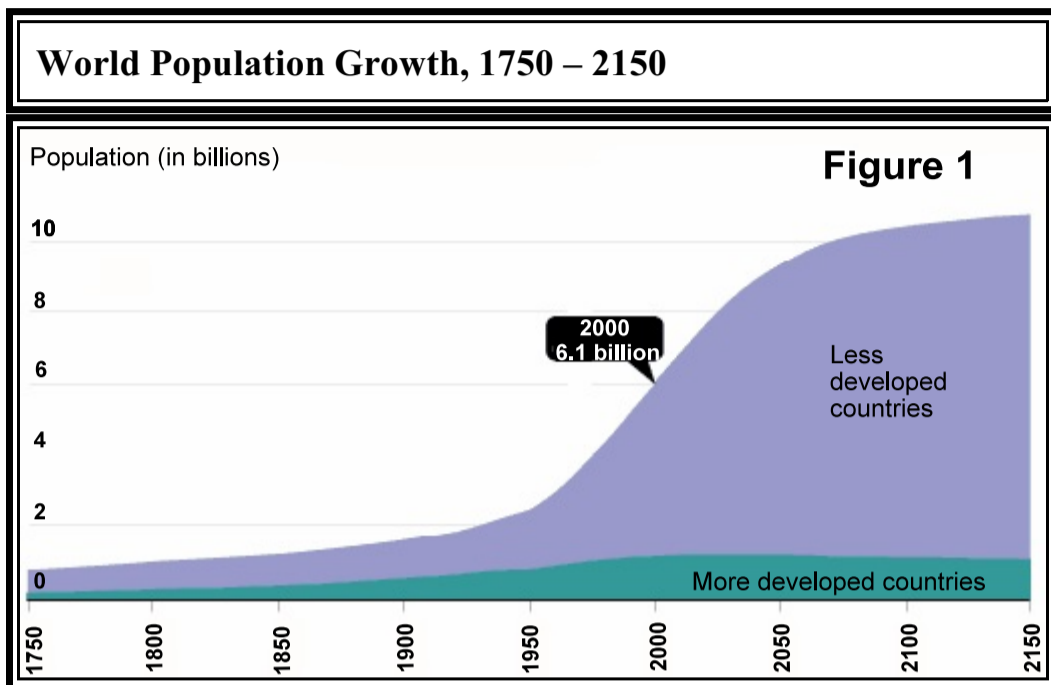
There are regional differences, however, as the rate of urbanization has historically been far greater for developed countries than for developing. Yet, this feature of world urbanization is changing. According to the United Nations, the urban population of developing countries will experience greater population growth than that of developed countries in the future. Given that developing countries have far fewer resources to prepare and accommodate for such population shifts, urbanization will probably lead to increasing health problems, chronically poor living conditions, and an inadequate infrastructure to provide for the needs of their growing urban populations.

#### The Urban Challenge

While urban areas have turned into powerhouses of economic growth in our global economy, there are concerns. Government have to balance the desire for economic growth with the quality of life needs of its citizens. When cities face rapid growth that urban planners are unable to keep up with, many problems result, such as: rising poverty levels, inadequate public services, problems with infrastructure development, shortages in housing, and lack of services and opportunities.

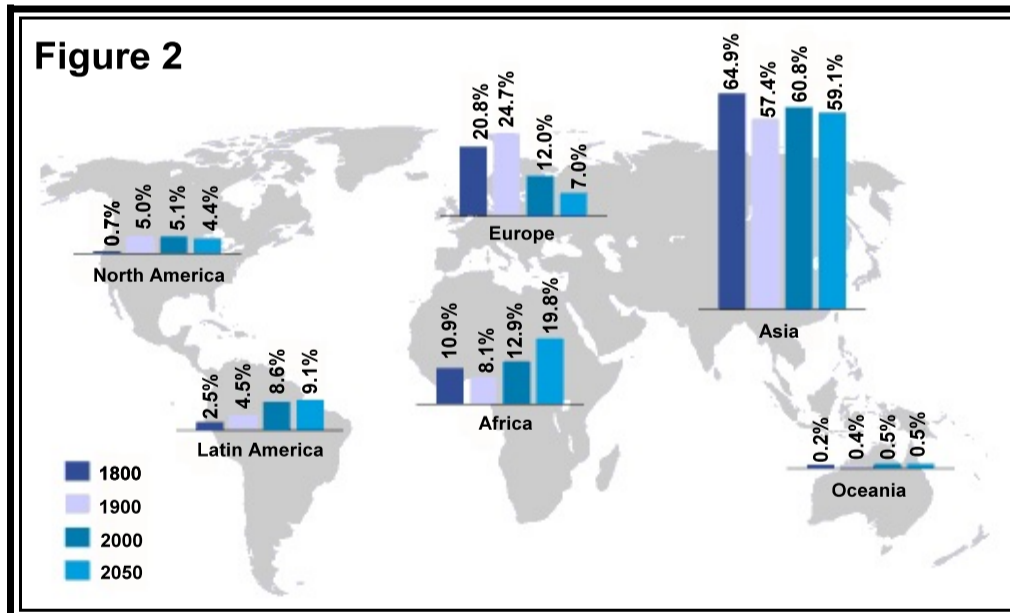
The problem of urban poverty is a major concern for city planners. The average city today has 30% of its population that would be considered to be living in poverty. The United Nations suggest that the worst is yet to come when by 2035, about 50% of our urban dwellers will be living in poverty. Most of these individuals will live in slums, with inadequate housing, poor drinking water, sanitation and health care services. These conditions often lead to many diseases, some chronic causing widespread concern for all urban dwellers.

The trend of urban development is outward and upward, placing demands upon the natural environment. These demands can lead to stress upon the natural environment resulting in the collapse of the local ecosystems.



Source: United Nations, *World Population Prospects, The 1998 Revision*; and estimates by the Population Reference Bureau

### World Population Distribution by region, 1800 – 2050



Source: United Nations Population Division, *Briefing Packet, 1998 Revision of World Population Prospects*.

**SECTION D**

**TOTAL VALUE: 10%**

**Do only ONE of the Units in Section D.**

**Either:           Unit 6 - Population Distribution and Growth**  
**Or:                Unit 7 - Settlement and Urbanization**

**Unit 6 - Population Distribution and Growth**

Value

4%    69.    With reference to the case study, explain one push and one pull factor that contributes to the global trend of urbanization.

Push:

- No jobs
- Poor living conditions
- Lack of medical facilities
- Lack of educational opportunity
- Poor recreation facilities
- Family has moved away
- Etc.

Pull:

- Opposite

**2 for push factor/2 for pull factor. 1 for listing and 1 for description**

Value

6%    70.    Explain three reasons for controlling populations.

- Higher poverty levels
- Inadequate public institutions
- Problems with current infrastructure
- Housing shortages
- Lack of services
- Lack of food supply.
- Overpopulation means more greenhouse gasses
- More disease, migration, famine, civil war
- Strain on medical and educational services

**1 for list + 1 for explanation (2 x 3 = 6 marks)**

## Unit 7 - Settlement and Urbanization

### Value

4% 71. Despite the negative quality of life indicators described in the case study, individuals continue to contribute to the process of urbanization worldwide. Use two examples to explain why this is so.

1. People still see more opportunities in cities in terms of jobs, education, health care.
2. Movement away from primary activities such as agriculture are forcing people out of rural areas.
3. Poverty in rural areas forces people out.
4. Movement towards a cash based economy means that people move to cities to make “some money” no matter how little that may be.

**(2 for each example - must be explained)**

### Value

6% 72. Growing urban centres face many challenges when it comes to rapid population growth. Explain three strategies that could be used to improve the quality of life in a city with urban problems.

Problems include: Rising poverty levels, inadequate public services, infrastructure development, shortages of housing and lack of services and opportunities.

Strategies: Not limited to the following:

- Public housing projects
- More money for the development of infrastructure.
- More emphasis placed on provision of services.
- Enforcement of zoning regulations .
- Increased effort by town planners to control unwanted growth.
- Employment projects aimed at decreasing poverty.

**2 for each strategy - 1 for list 1 for explanation (2 x 3 = 6 marks)**