

JAF03 Unit 10 Ecology and Overpopulation

Task 1 Discuss the following questions with a partner:

1. Why is overpopulation a problem, especially with regard to a country's ecology?
2. What is the connection between a country's population growth and its economic development?

Task 2 Getting the first idea about the article

In the chart below, formulate a question for each paragraph that is missing one. Read the first sentence of the paragraph and formulate a question that you think the paragraph will answer.

1	How quickly did the world's population grow in the past 10, 000 years?
2	
3	What evidence is there that population growth is a danger to the environment locally?
4	What evidence is there that population growth is a danger to the environment at the national level?
5	
6	
7	
8	
9	What complicates the process of finding an effective solution to the problem?
10	

Ecology, Overpopulation and Economic Development

1 Approximately ten thousand years ago, when the first permanent human settlements emerged after about 2 million years of hunter-gatherer society, the total population of the earth was only about 5 million people. Not until the beginning of the nineteenth century did the population exceed 1 billion. During that time, the human species had a negligible influence on the ecology of the planet as a whole.

2 By the beginning of the twentieth century, however, the population stood at 2 billion. By 1950, it was 2.5 billion. Then, in the next fifty years, it more than doubled, to 6.1 billion. According to United Nations' projections, although the rate of population growth will stabilise and may fall in the future, the total population will continue to increase significantly and will reach 9.3 billion by 2050. All this growth will be in less developed countries, which will be home to more than 85percent of the world's people in 2050. Today, as a direct result of population growth, the impact of human activities on the world's ecology is already substantial. In the future, it may be catastrophic.

3 Studies have shown that runaway population growth represents a massive threat to the environment on the local, national and global levels. In areas of Nepal, for example, the pressure of overpopulation and poverty forces farmers into the hills, where they cut down the vegetation to provide wood for heating and construction, food for their animals, and land to raise crops. In a short time, the fertile topsoil is eroded by rain because it is

now without the protection offered by the natural vegetation. The hillside fields then become unproductive, incapable of supporting the people who have settled there.

4 Elsewhere, in the world's tropical zones, to provide employment and earn money from exports, nations like Indonesia, Malaysia, and Thailand have been cutting down their hardwood forests faster than they can replace these valuable resources. Brazil, in a desperate attempt to relieve poverty and create economic growth, has permitted the destruction of vast areas in its Amazon rain forest for agricultural use. The sad irony is that much of the cleared land proves unsuitable for traditional farming after a few years because the destruction of the forest has interrupted the recycling of natural nutrients to the soil.

5 By 2000, at least half the world's tropical forests had disappeared. Their destruction has consequences that cross national borders and are felt globally. First, the burning of the forests releases large amounts of carbon dioxide into the atmosphere – emissions that are contributing to potentially disastrous changes in global climate patterns. Second, as the forest vanishes, so too does its diverse plant and animal life. Thus, the human race may be losing, along with the tropical forests, a vast potential source of scientific knowledge.

6 Clearly, if action is not taken soon, the ecological damage caused by overpopulation and unwise development threatens to run out of control. A partial solution to the crises may lie in the family-planning programs that have been operating in a number of developing countries for some time. In Indonesia, for example, the family-planning program established a large number of village centres that distribute free contraceptives and information about birth control. The program has had considerable success. Between 1972 and 1988, the fertility rate fell by almost 40 percent, and the number of couples practising birth control increased fifty-fold. A reduction in the birthrate has also been experienced by other countries with family-planning programs, including South Korea, Thailand, Mexico and Tunisia. And there is clear evidence, too, that lower birthrates can bring economic benefits to developing nations. According to a 2002 U.N. report, declines in the birthrates accounted for 33 percent of the economic growth in East Asia between 1960 and 1995.

7 As a response to the problem, birth-control programs are necessary but, for at least one good reason, not sufficient. Since a large proportion of the population of developing countries consist of children below reproductive age, the world's population is certain to grow when these children reach adulthood and begin having children. Even if birth control becomes widely accessible and acceptable, therefore, a fifty percent increase in the world's population is inevitable by 2050.

8 According to most experts, the second essential component of a solution to the overpopulation-environment problem is social and economic development. The history of the industrial world clearly shows that birthrates fall and stabilise at a significantly lower level when a society offers the majority of its people an acceptably high standard of living. Prosperity, better educational and career opportunities, especially for women, adequate health care, and relative financial security for people in their old age are probably all factors that have contributed to the low, stable birthrates of the affluent nations. For this reason, most experts believe that the birthrates of the less-developed nations will decline as their populations experience the benefits of economic development.

9 The situation today, however, is more complex than this apparently simple solution would suggest. A first major complication is that one essential component of the solution – namely, economic development – is also one cause of the problem. Birthrates will not fall without economic development. However, most of the danger to the world's ecological systems comes directly from the attempts of nations to pursue economic development. A second complication is that the industrial world must now ask poorer nations to give up the same strategy for economic development that brought it prosperity – the exploitation of natural resources with little thought for the future. Let us remind ourselves of one historical cost of this strategy. In the course of their history, Europeans have destroyed almost 80 percent of the forests that originally covered their continent, and North Americans have destroyed 75 percent of the forests covering North America. Today, Europeans and North Americans are asking the people of developing nations to cease doing what they themselves have been doing for centuries.

10 Because all countries have the right to pursue the goal of economic development for their people, two conclusions are unavoidable. First, the traditional development policies pursued by the poorer countries must be fundamentally revised. The policies now in operation will both exhaust those nations' ecological resources and cause serious, perhaps irreversible, damage to the world's ecology. They are, in a word, *unsustainable*. Second, because unsustainable economic development is a clear characteristic of the industrial world, it is the obligation of the most prosperous nations to lead the way. They can do so by modifying many of their unsustainable policies and practices and by offering economic and technical assistance to the poorer countries that are willing to do the same. In this way, there will be supporting, and not undermining, global efforts to encourage sustainable development.

Task 3 Main idea check

Here are the main ideas of each paragraph in the article. Match each paragraph to its main idea.

Paragraphs 1-5

___ A The disappearance of tropical forests – a result of countries' attempts at economic development – is causing great damage to the natural resources and the ecology of those nations.

___ B The destruction of the world's tropical forests will have negative consequences for the entire globe.

___ C Up until two hundred years ago, humans did not have a significant effect on the ecology of planet Earth.

___ D Locally, people respond to the pressures of overpopulation in ways that destroy the ecology of the areas they live in.

___ E Because of the massive increase in population in the last two centuries, damage to the ecology from human activities is considerable and may become much worse.

Paragraphs 6-10

___ F Social and economic development is also an essential part of a solution to the environmental damage caused by overpopulation.

___ G In both developing and developed countries, traditional economic development must be replaced by policies and practices that are sustainable.

___ H Family-planning programs, which have proved successful in some developing countries, could contribute to the solution of the overpopulation problem.

___ I Economic development, which is the answer to the problem of overpopulation, is also the cause of massive damage to the environment.

___ J The number of children currently in the world's population means that birth control cannot be the sole solution to the problem of overpopulation.

Task 4 What factor(s) does the writer identify as contributing to a decline in a nation's birthrate? Circle all that apply.

- a) Increasing prosperity

- b) Poverty
- c) Adequate health care
- d) Financial security for the elderly
- e) Economic development

Task 5 The diagram below represents the process of environmental decline described in this article. Complete the diagram with sentences A-D. Write the correct letter in each box.



- A. Governments pursue traditional economic development, which tends to be environmentally unsustainable.
- B. Regions, nations and the world suffer major ecological damage.
- C. The population is poor and is growing rapidly.
- D. Governments are under pressure to meet the needs of the expanding population.

Task 6 Vocabulary study – synonyms. Find words in the article that are similar in meaning to the following.

1. Very small and therefore unimportant (par. 1)
2. Numbers calculated now but expected in the future (par. 2)
3. Large and therefore important (par. 2)
4. A situation that has the opposite result of what was intended or expected (par. 4)
5. To allow sth. to flow out into the environment (par. 5)
6. To stop changing (par. 8)
7. The use of sth. in order to make a profit (par. 9)
8. To use up sth. completely (par. 10)
9. That cannot be changed back into what it was before – adj. (par. 10)
10. Making sth. weaker at the base or to make sth. less effective (par. 10)

Now complete the sentences with the forms of the words above. In some cases there are more options.

1. Smoking has caused _____ damage to his lungs.
2. Sales have exceeded our _____.
3. Criticism _____ their confidence.
4. Britain's _____ of its natural gas resources began after the Second World War.
5. The findings show a _____ difference between the two samples.
6. The government took measures to _____ prices.
7. The _____ of it is that the new tax system will burden those it was intended to help.

Task 7 Discuss the following question with a partner.

Most experts believe that birth control is a necessary part of a solution to the problem of overpopulation. What obstacles stand in the way of organising effective birth-control programs in countries with overpopulation problems?

(adapted from Pakenham, K.J. *Making Connections*. CUP 2004)

Task 8 Problem words: *adapt* and *adopt*

<i>The same questionnaire used in Chan's (2004) study of urban children was adopted.</i>	<i>Adopt = to accept or start to use something new</i>
<i>Students adapted their reading and writing strategies to cope with assignments in the MBA programme.</i>	<i>Adapt = to change something to suit different conditions or uses</i>

Now complete these sentences with a word from the *adopt* or *adapt* families.

1. The widespread _____ of agricultural technology in the 18th century caused thousands to move into towns and cities.
2. Digital maps are more easily _____ to a user's purpose than maps on paper.
3. The application of new techniques of electricity production or the _____ of existing techniques to local contexts will lead to greater productivity.
4. Gittens (1964) argued that the main purpose of prison is to punish rather than rehabilitate, and many other writers have _____ a similar point of view.
5. All three teams _____ different approaches to the problem.
6. We have had to _____ quickly to the new system.