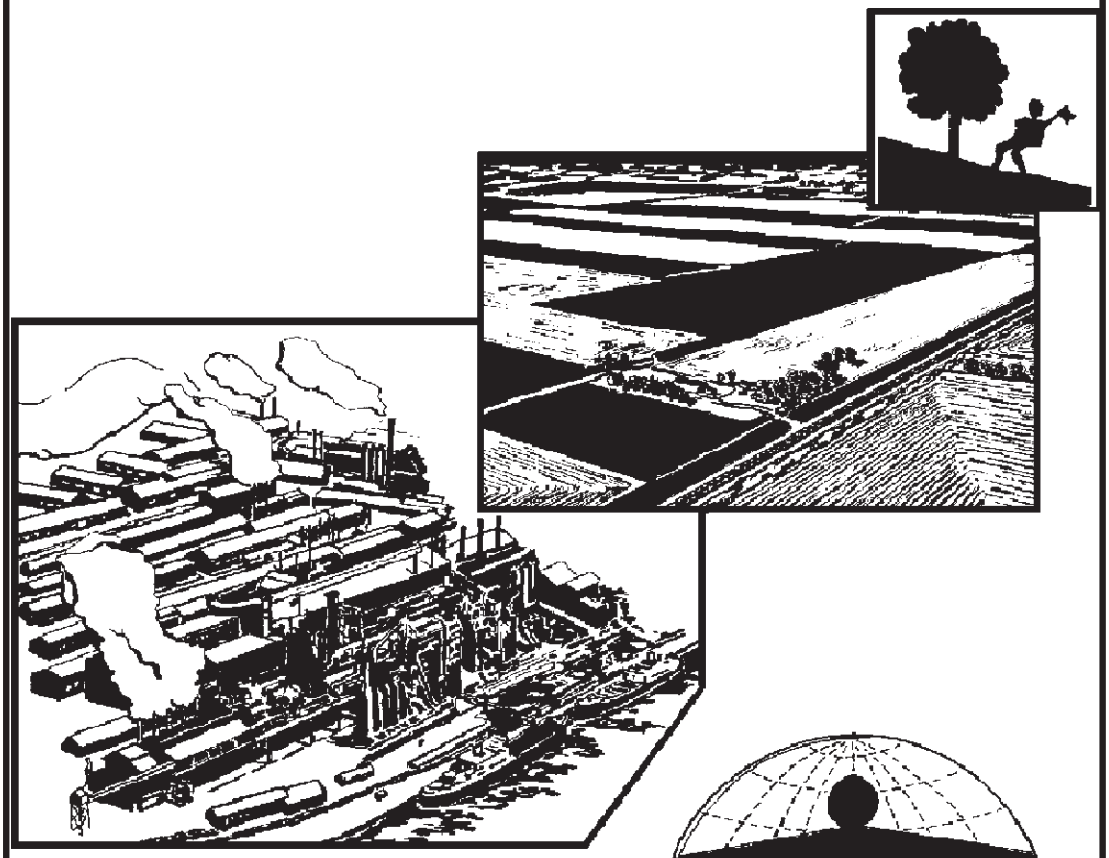
USING RESOURCES



SOCIAL SCIENCE **YEAR 8**

Third Edition 2000.

First Edition 1983, by Margaret Toukoune, Mildred Sope and Charles Pierce

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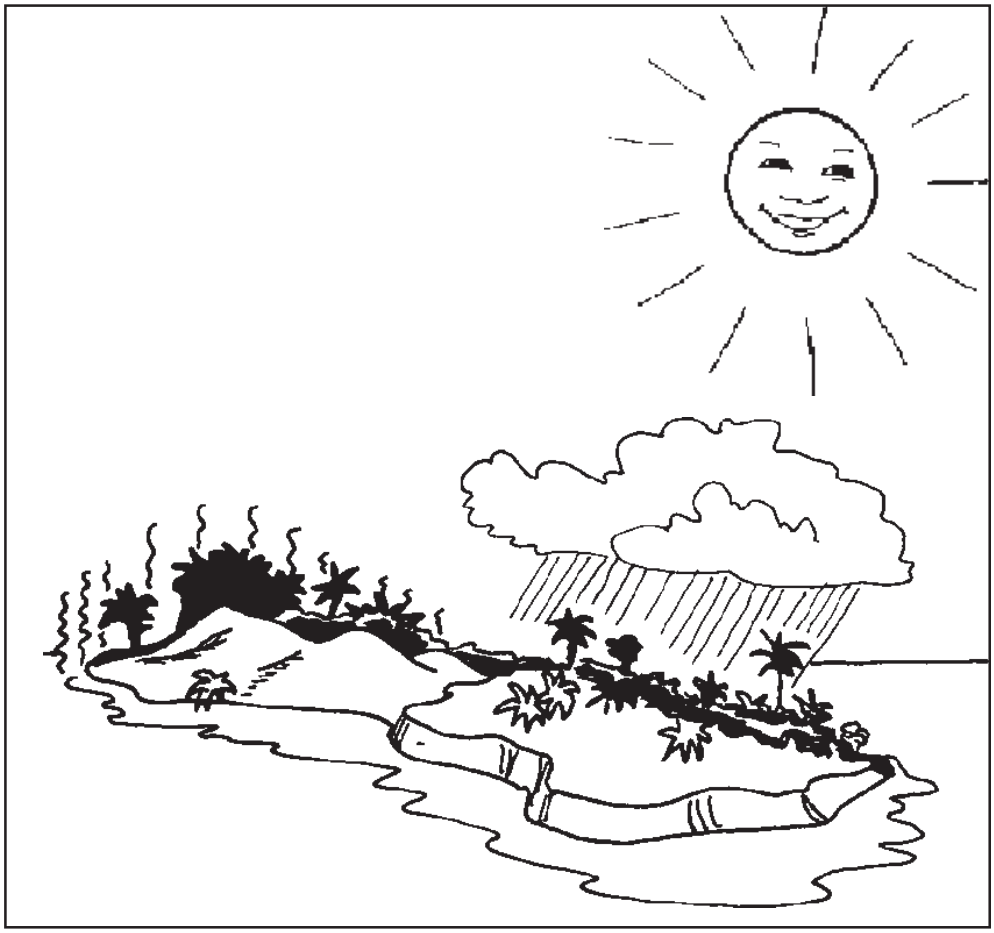
Layout: Raela Ruben

Our environment

Our **environment** means everything that surrounds us - air, oceans, rivers, natural vegetation, soil, rocks, animals, insects, birds, fish, buildings and other people. It also includes the customs, culture, religion, government and technology of the community in which we live.



ACTIVITY: A SURVEY OF THE LOCAL ENVIRONMENT

Conducting the survey

The class should divide into small groups and go for a walk in the area surrounding the school. The total distance travelled should be about 1 km.

Each group should make observations of the environment and complete the questionnaire shown on page 7.

Follow-up work

Each group should make a wall chart to show its findings to the rest of the class.

Environment and resources

In the survey you have just carried out, you found that there are many things in the natural environment that are useful to man. We call these our **natural resources**. Can you give some examples?

There are many ways of using our natural resources. We can use them for subsistence purposes, or we can sell them in order to earn money. We can use them up completely (**exploitation**), or we can save them for the future (**conservation**). We can use them for making a living, or we can use them for **leisure** and recreation.

Can you think of some examples of each of these different ways of using resources?

This booklet deals with the use of the resources in our environment. We shall see that the earth's resources are rapidly disappearing, and are being misused. Because of this, we must take steps in order to conserve our resources for future generations.

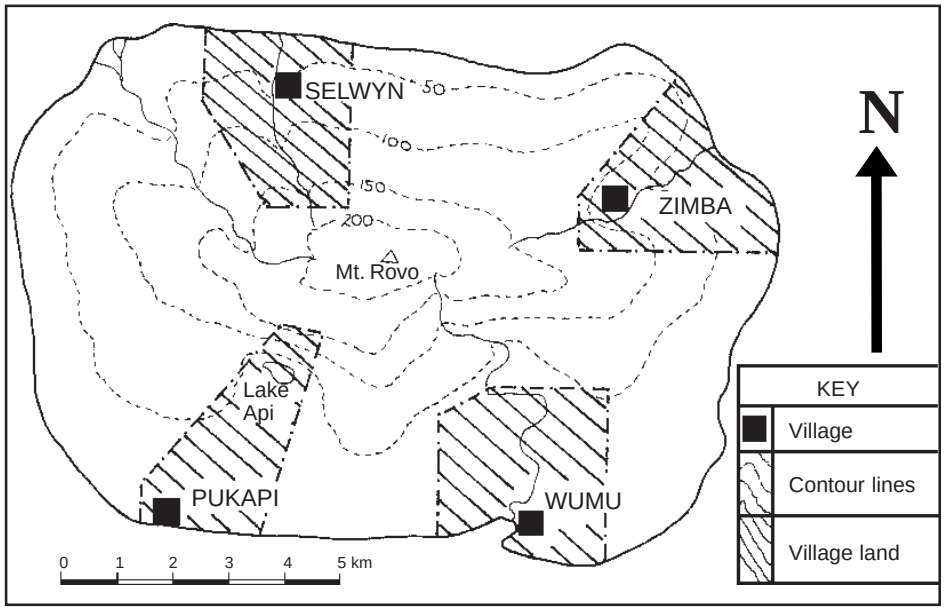
ACTIVITY: THE ISLAND LAND-USE GAME

a. *Read together the story below about the imaginary island of Rovo:*

The island of Rovo lies in the middle of the South Pacific. For many years, the inhabitants of the four villages had lived peacefully together, making a living by farming and fishing. They grew vegetables and coconuts. They gave away what they could not eat themselves. There was always enough food, for the island enjoyed a tropical climate and usually received enough rain and sunshine for crops to grow. Even the occasional cyclone did not seem to cause too much hardship.
However, the oldest person in Zimba remembers that in the year 1899, there was not enough food for feasting, and no feasts were held.

One day, a large boat anchored off Wumu and the captain asked the people for copra. In exchange, he gave them money and food in tins and bottles. The next year, the boat called again. The captain asked if he could buy the surplus vegetables from each village. At the end of that year, the islanders found that they had more goods and money, and they felt rich.

Each year they sold their surplus vegetables and copra to the captain. Finally, the chief of Zimba asked "Can we sell you other things as well?"



Map of Rovo Island

So the people in the four villages began using up land that had been forest or bush. The most fertile ground was divided up for planting peanuts, maize and pineapples, more coconut trees and more vegetables. This was not easy. How much of each crop should they plant? Each village community discussed this problem for a long time. Everyone wanted to make as much money as possible.

The next year, the captain called and bought all the peanuts, maize, pineapples, copra and vegetables that the people could sell. He paid them and said he would come again.

When he had sailed away, the chiefs compared their earnings. Although they all had about the same area of land in crops, they each received different sums of money.

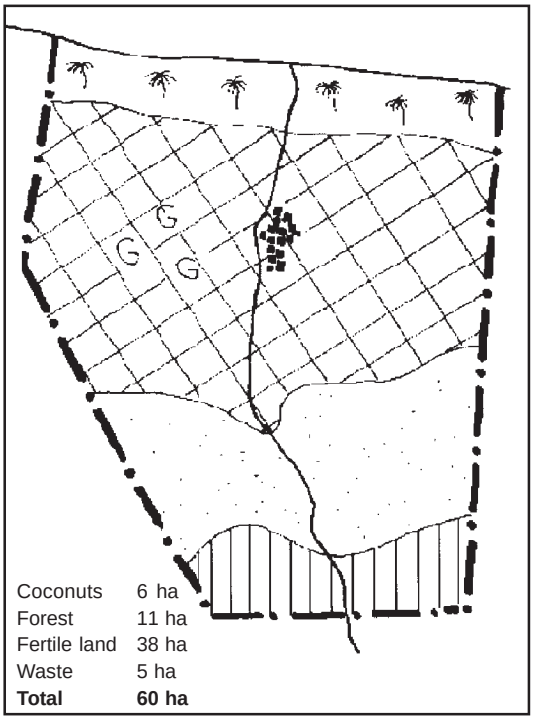
"Why should this be?" asked the chief of Wumu. "We all work equally hard!"

"I think we should study this whole project carefully to see why we get different sums of money, and how we can improve our earnings next year," suggested the chief of Pukapi.

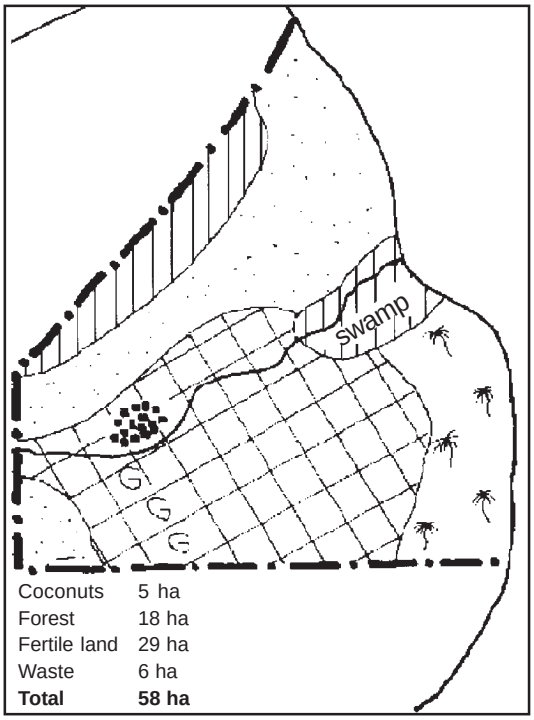
The others agreed.

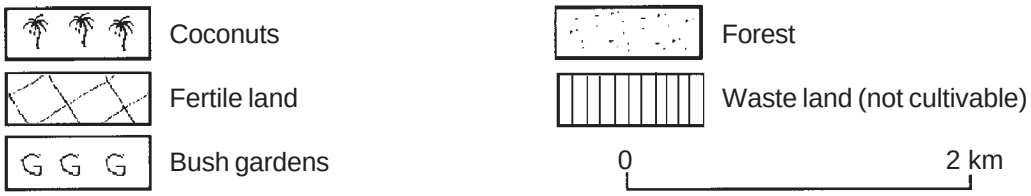
b. Now divide into groups, with four students in each group. Each group will be given a village. There will probably be two group for each village. Each group should make three copies of the 'Profit Sheet' shown on the following page.

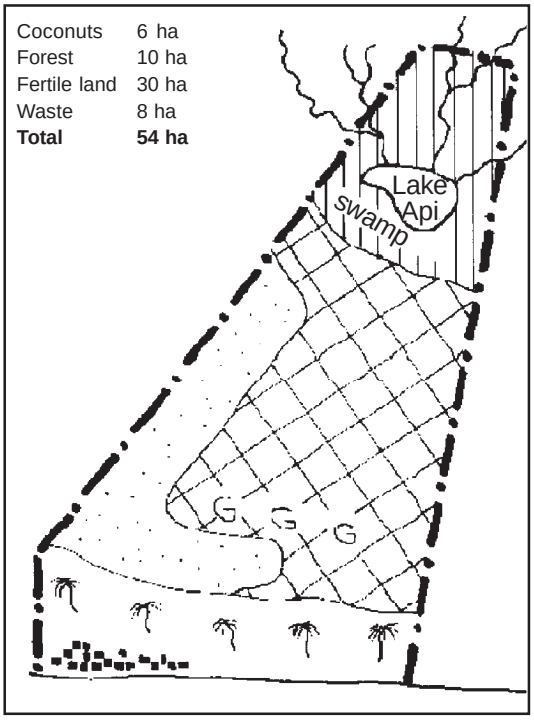
SELWYN



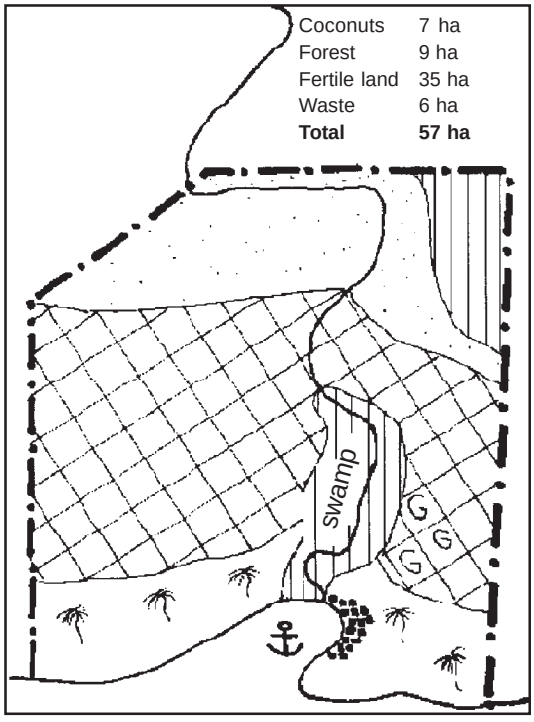
ZIMBA





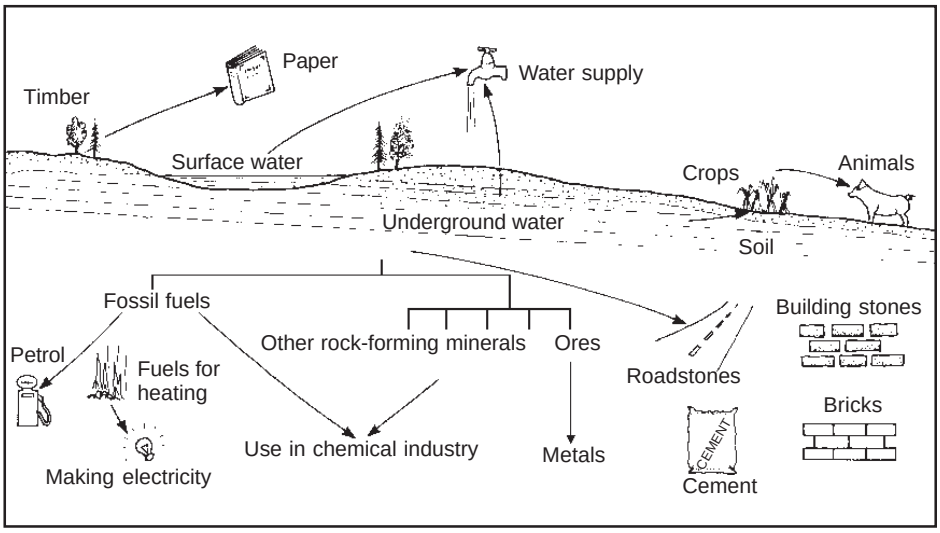


PUKAPI



WUMU

The earth's resources



ACTIVITIES

1. *The diagram above shows some of the earth's natural resources. It also shows ways in which these resources are used.*

   Try to put the natural resources into two groups:

   ***Renewal**: resources that are being formed more quickly than they are being used up.*

   ***Non-renewable**: resources that are being used up far more quickly than they are being formed.*

2. *Are there any resources which can be **either** renewable **or** non-renewable, depending on how careful man is in using them?*

3. *Find out the meaning of these words:*

   a. ***fossil fuels***
   b. ***ore***
   c. ***roadstone***

4. *Can you think of any natural resources **not** shown in the diagram?*

5. *Which do you think is our **most valuable** natural resource?*

ACTIVITIES

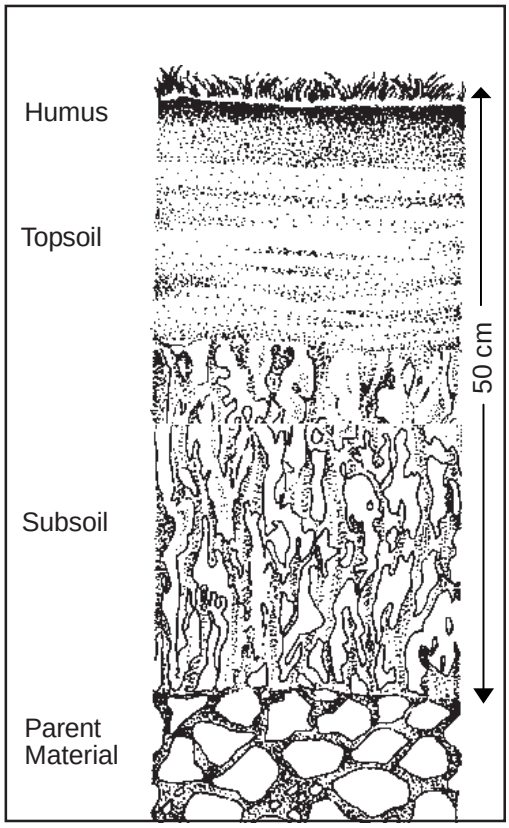
1. *Name three ways of obtaining fresh water **apart from** catching it when it rains.*
2. *State all the ways in which fresh water is used in Vanuatu.*
3. *In which parts of Vanuatu do you think there is the highest water **consumption**? Why is this?*

Soils

Soils are made up of tiny pieces of rock, water, air and living things such as plants, animals, insects and bacteria. Soil takes thousands of year to form from the rock underneath, or **parent material**.

Only about 11% of the earth's surface has a covering of soil. This thin soil **mantle**, which is usually less than 50 cm thick, supports all the earth's plant life. It supports all the animals that depend on plants for food. Soil supports all man's crops.

A good agricultural soil should hold roots well without letting them pull out too easily. It should have a number of important minerals containing elements like nitrogen, potassium and phosphorus, which are necessary for plant growth. The ground
should not slope too steeply.



A typical soil profile

When we clear away the natural vegetation and cultivate crops, we rapidly use up the important minerals in the first few centimetres of topsoil. If we are not careful, the rain will wash away the bare soil on sloping land, and cause **soil erosion**.

4. *Questions a. to d. refer to the photograph on page 17:*

   a. *How is man making use of the soil resources of the area shown?*

   b. *What energy resource is he also using?*

   c. *What must the farmer do in order to make sure that he gets good yields each year?*

   d. *In which part of the world do you think the photo was taken?*

Forests

Forests have been important to man throughout history, but for different reasons.

They are places in which to collect fruit and to hunt wild animals. They are areas which can be cleared for crop cultivation. The trees of the forests provide timber for houses and furniture. The trees can be made into paper. Plants that grow in the forest can be used as medicines. Today, the most important use of forests is as a source of firewood.

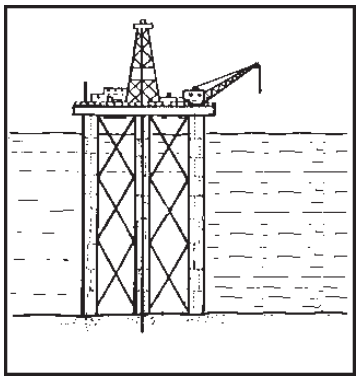
As well as yielding many useful products, forests are very valuable in themselves. They protect soils from erosion. They give off oxygen and water vapour into the atmosphere.

ACTIVITIES

1. *Name 10 species of wildlife that are hunted by man for food.*
2. *Suggest other reasons why people wish to hunt and kill wild animals. Give some actual examples.*

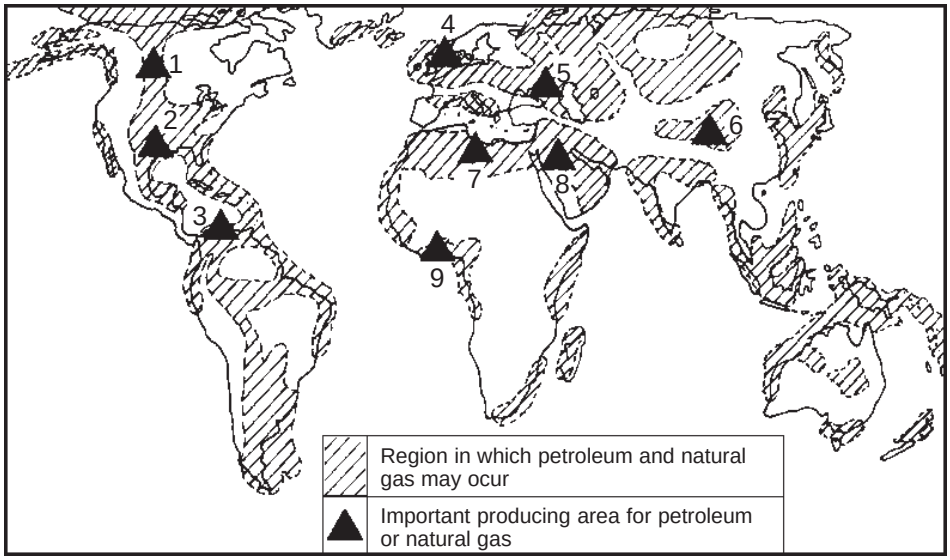
Coal is obtained by digging it up from the surface rocks, or by mining it from under the ground.

Petroleum and natural gas are obtained by drilling a hole down to the layer of rock in which they are found. They then rise to the surface. A lot of petroleum and natural gas occurs in the rocks below the oceans, and must be mined from offshore **drilling rigs**. After extraction, petroleum is sent to a **refinery**. Here, it is changed into substances such as petrol, kerosene, diesel oil and bottled gas.



An offshore drilling rig

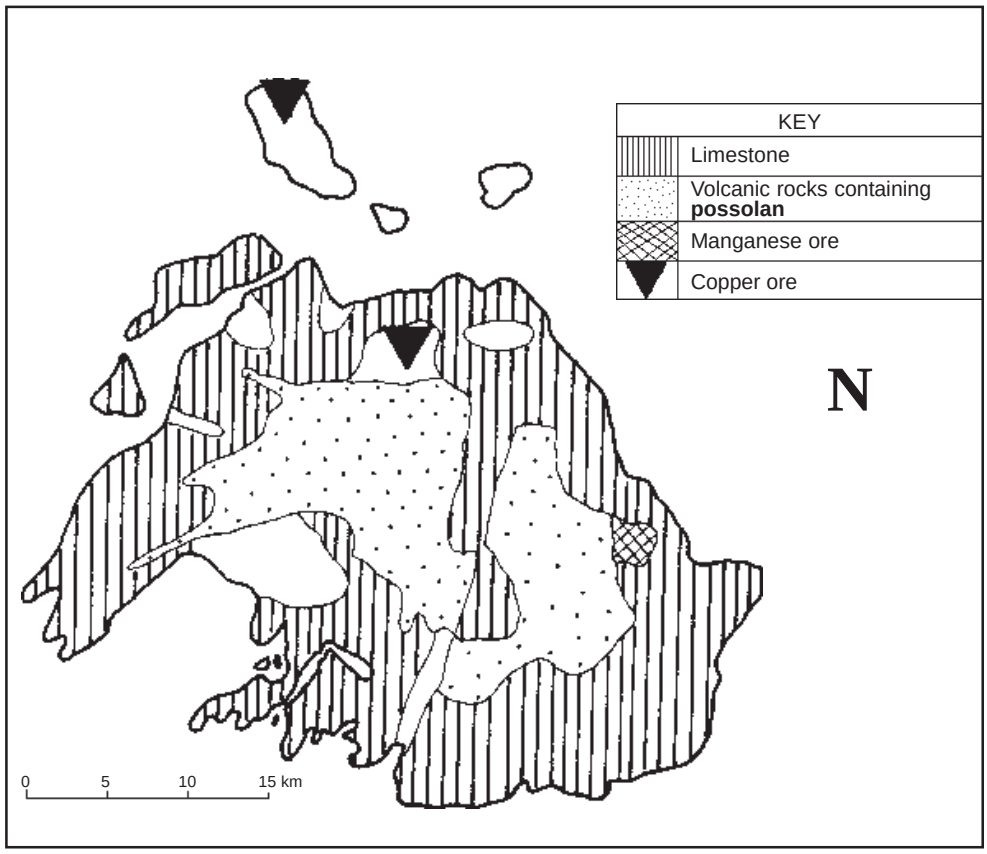
As well as being fuels, petroleum and coal are useful **raw materials**. From them, we can make such things as paint, plastics and clothing.



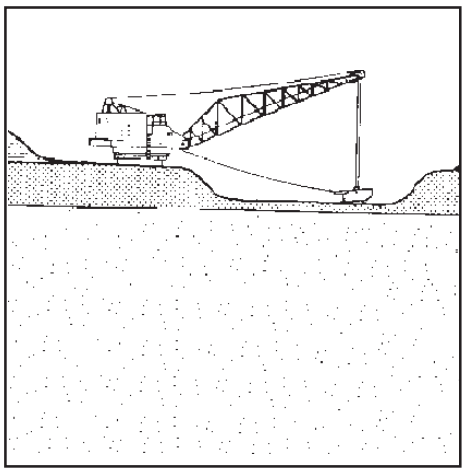
ACTIVITIES

1. *Why are petroleum and coal called **non-renewable** resources?*
2. *List all the ways in which petroleum helps us in our daily lives in Vanuatu.*
3. *Why do you think that the world's petroleum resources are being exploited so rapidly?*
4. *Using the map above:*
   a. *Name the areas 1 to 9. Choose from this list: Middle East, China, USA, Russia, Venzuela, North Sea, Canada, West Africa, North Africa.*

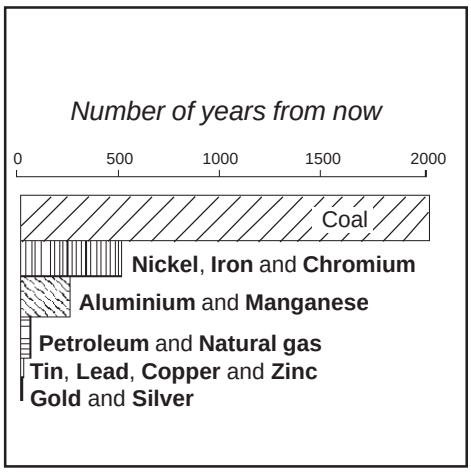
Minerals are non-renewable resources. They are being used up so rapidly that within a few hundred years most of them will disappear altogether!



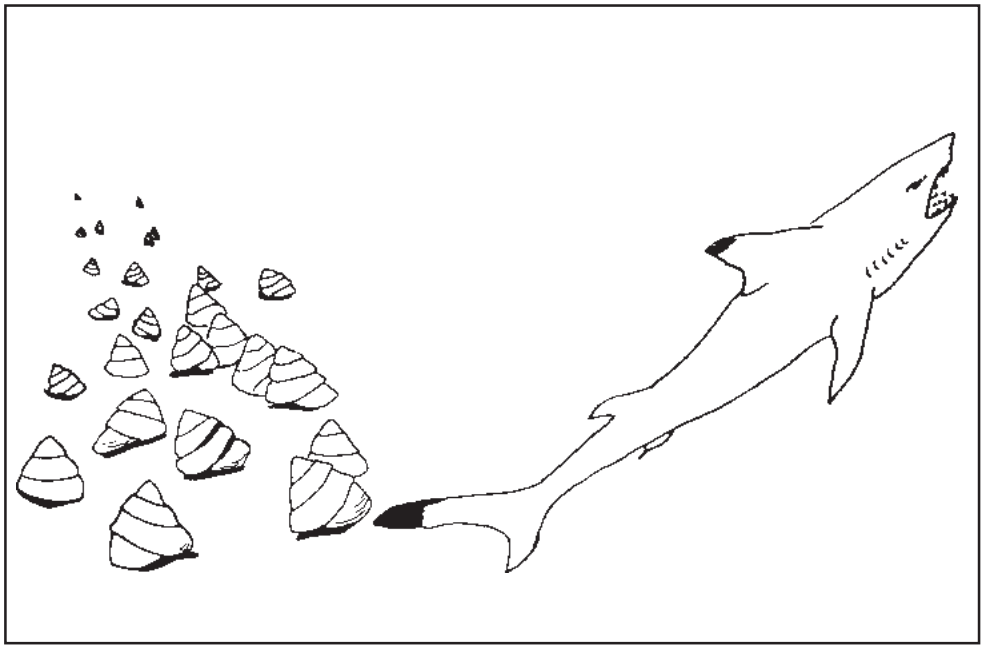
Mineral resources of Efate and offshore islands



Extracting a mineral from the ground surface



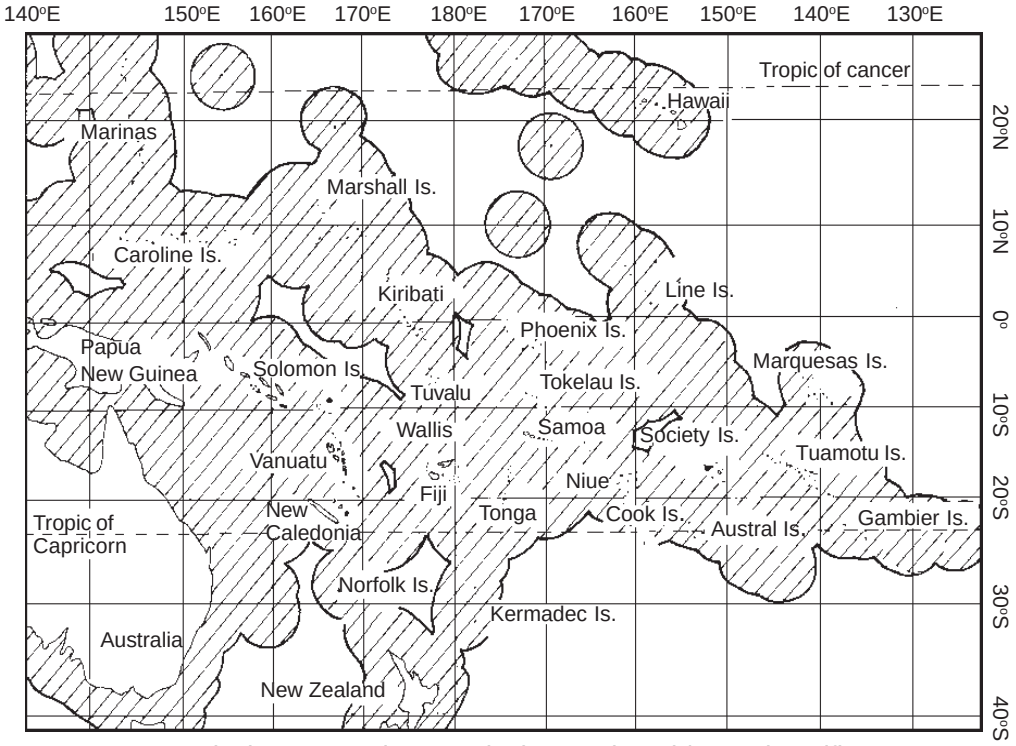
Length of time that some minerals are expected to last



By marine resources, we mean all natural resources found *in* the sea, *on* the sea bed and *under* the sea bed.

The seas and oceans cover three-quarters of the earth's surface. They contain a great store of food, mainly in the form of fish. As it becomes more and more difficult to feed the world's population using the resources of the land, so more and more attention will be paid to fishing.

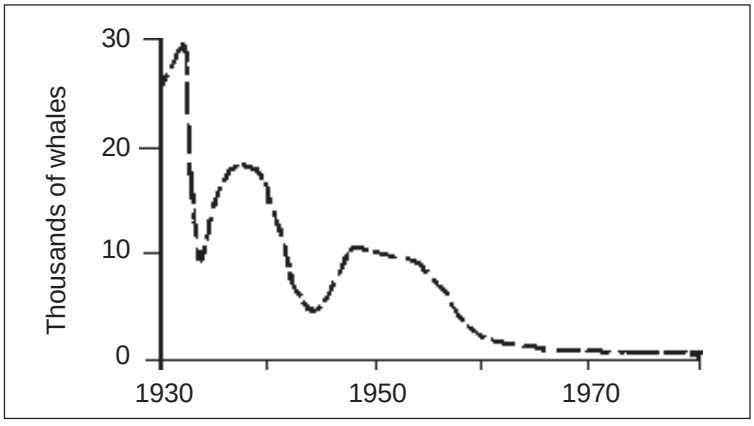
But fishing is really a form of hunting. If we are not careful, we will use up our fish resources more quickly than they can reproduce themselves. This has already happened in the case of the whales, which have been hunted for their meat and oil. Whaling began about 200 years ago, and today, these animals are almost **extinct**. The number of other marine mammals such as turtles and dugong gets smaller every year. So do the populations of fish such as sardines and anchovies.



Exclusive economic zones in the South and /central Pacific

ACTIVITIES

1. *List 10 marine resources of the tropical Pacific islands. Draw a picture of **one** of these.*
2. *What is meant by Vanuatu's "exclusive economic zone"? Draw a sketch map to illustrate your answer.*
3. *Comment on the graph below.*
4. *What do you think is meant by the term "Fish farming"? Why is it important?*



Number of Blue Whales killed, 1930 - 1980

ACTIVITIES

*Choose one island of Vanuatu. Make a list of all the natural resources of this island, under **three** headings:*

- *Resources for farming*
- *Resources for tourism*
- *Resources for secondary industry*

If there is time, you could draw a large map to locate the resources you have listed.

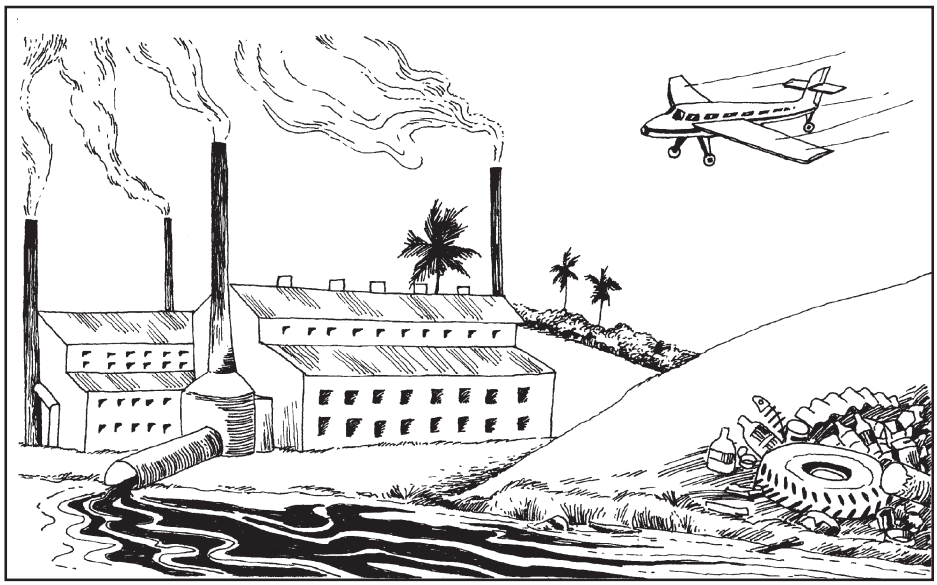
Using and misusing our environment

The earth's natural resources are available for man to use in surviving and making a living. In using these resources, man changes the environment. He cuts down trees for timber, plants crops, **domesticates** animals, and builds houses and cities. Often, however, the results of man's activities have not been good, and the environment has been spoilt.

In this section, we shall consider some of the ways in which man has **misused** his environment. Many of these changes happened by accident, but some of them are **deliberate**.

Pollution

Pollution means making something dirty, unpleasant or harmful. In making his living, man often puts substances into the air, water or land that damage the natural resources and spoil the whole environment.



Land pollution

There are three important ways in which the land resources of the earth are being polluted:

- *From the damage done to the land by mining and secondary industries*

  In extracting minerals from the ground surface, the top layers of soil are removed and lost for ever. Rock that is mined but found not to contain ore may be simply dumped on top of the ground as a waste tip. This waste often covers good agricultural land.

In the richer, developed countries of the world, pesticides are often sprayed from an aeroplane. In the Pacific islands, they are usually applied by hand.

Spraying pesticide by hand

Water pollution

Our main sources of *fresh water* are lakes, rivers and underground water. All of them are easily polluted by the careless actions of man. Settlements and industries are usually situated close to a supply of water, and it is convenient to simply dump waste materials and **sewage** into the nearest river, hoping that they will flow away. But things like soap powder, oil, sewage and industrial chemicals lower the oxygen content of the water, and eventually kill the plants and fish living in the river. They also make the water unfit for drinking.

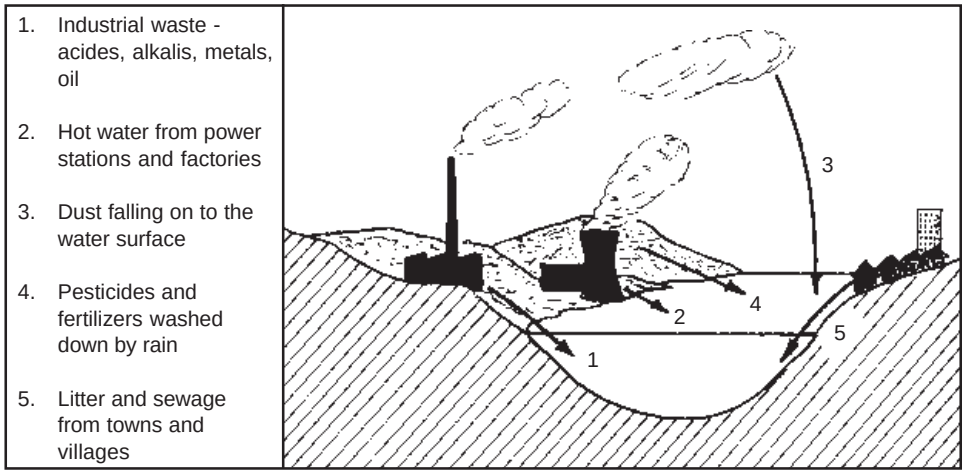


Diagram showing the ways in which water is polluted

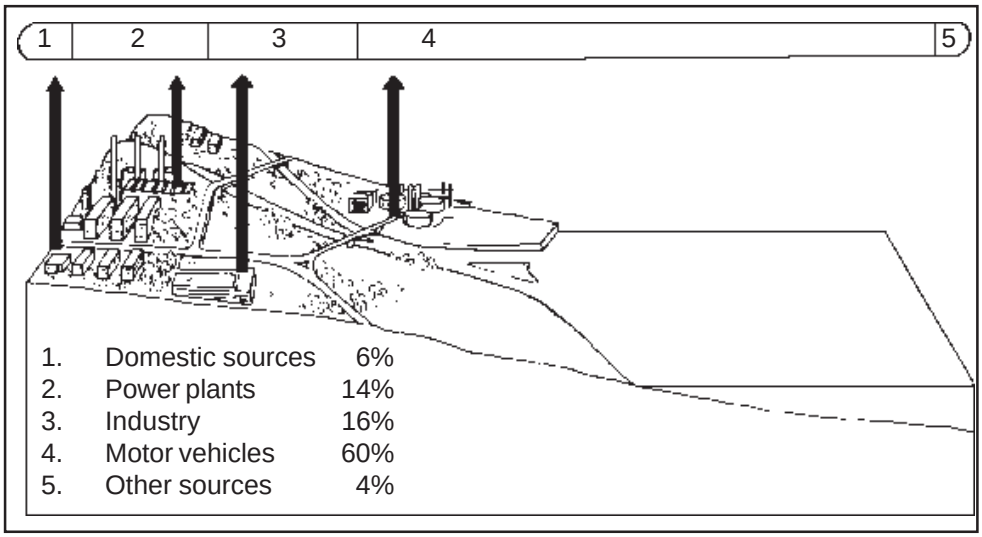


Diagram to show the percentage of air pollution coming from different sources

Pollution from poisonous gases is particularly common in urban areas. In cities like Los Angeles and Tokyo, where there are so many cars, the exhaust fumes, waste gases and water vapour in the atmosphere sometimes combine together to produce **smog**. Walking in smog is like being in wet, smelly smoke. The air stings your eyes and causes coughing, even death.

Smog in Los Angeles

In the richer, developed countries of the world, a new problem that has appeared in recent years is **acid rain**. The burning of fossil fuels has caused the release of large quantities of sulphur dioxide into the atmosphere. This poisonous gas mixes with water vapour and falls down to the earth again as acid rain, which can destroy the leaves and stems of plants and pollute the water over a wide area. In 1984, it was reported that more than one third of West Germany's forests had been destroyed by acid rain.

ACTIVITIES

1. *Go for a walk around your school area and make a list of all the examples of pollution that you can find.*
2. *Copy and complete the following table:*

Types of pollution

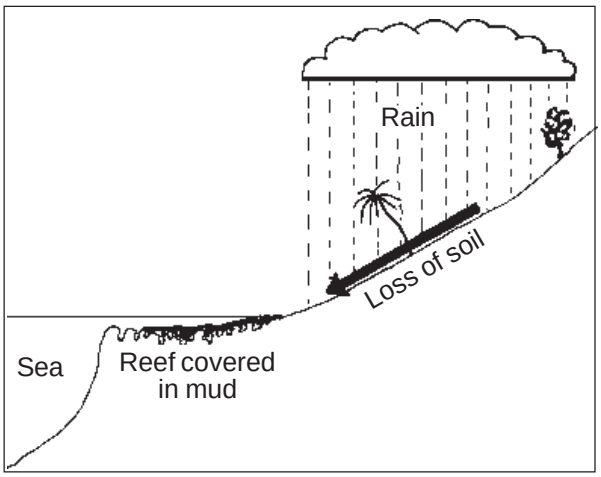
	Land	Water		Air	
		Fresh water	Oceans	Gases and smoke	Noise
Main causes					
Actual example from Vanuatu					
Actual example from outside Vanuatu					

3. *Make a list of all the man-made objects in the picture at the top of page 33. Suggest ways in which they may have got there.*
4. *Can pollution change water resources from being renewable to nonrenewable? Why is this a serious problem for the world?*
5. *Do you think that most kinds of pollution are* ***accidental*** *or* ***deliberate****?*
6. *Suggest ways in which the different kinds of pollution might be stopped.*
7. *Explain the meaning of the cartoon shown on the right.*
8. *Why do the richer, developed countries of the world have greater problems of pollution than the poorer ones?*
9. *Design a poster to try and persuade other people in your environment to be less noisy!*

Erosion of soil and vegetation

Soil erosion means the loss of topsoil from the land due to the action of wind and rain. It occurs naturally in many places, but it can be greatly increased by the actions of man!

The most common cause of soil erosion is deforestation on sloping land. When trees are removed, there are no roots to hold the soil in place, and the full force of the rain drops can wash it down the slope. One more cause of soil erosion is the continuous growing of the same crop on the same piece of land. Another cause is **overgrazing**, which means the keeping of too many animals in one area.



Removal of natural vegetation can cause soil erosion

If soil erosion is allowed to continue, all soil will eventually be removed, leaving bare rock. The dust and mud can pollute streams and water supplies. They can fill up dams and harbours, and kill coral reefs!

All countries of the world are experiencing soil erosion. The map on the following page shows how much of the USA is already suffering from this problem. In the Pacific islands, the destruction of soil resources is occuring rapidly. Studies on the island of Niue show that about 45% of the total land surface has now been spoilt. On small islands with very few resources, such a loss is of great importance.

Soil erosion in New Caledonia

Misuse of the environment in the Pacific islands

The table below shows some of the ways in which people in different Pacific islands are misusing their environment. If the misuse is shown by a large circle (◯), this means that resources have already been affected, or are being spoiled or destroyed at present. A medium-sized circle (○) means that the problem could occur in the future. A dot (•) means that the problem is not likely to happen.

Misuse of the environment	Island Group																		
	American Samoa	Cooks	Fiji	French Poly.	Guam	Hawaii	Kiribati	Marshalls	Nauru	New Caledonia	Niue	PNG	Pohnpei	Solomons	Tonga	Truk	Tuvalu	Vanuatu	Wallis-Futuna	Western Samoa
Soil destruction	◯	◯	◯	◯	◯	◯	•	◯	◯	◯	◯	◯	◯	◯	◯	○	•	◯	◯	◯
Deforestation	◯	◯	◯	◯	◯	◯	○	◯	◯	◯	○	◯	◯	◯	◯	◯	○	◯	○	◯
Overgrazing	•	◯	◯	◯	◯	◯	•	◯	•	◯	◯	◯	•	◯	◯	?	•	◯	○	○
Loss of animal and plant species	○	◯	○	◯	◯	◯	○	○	◯	◯	○	◯	○	○	◯	○	•	◯	○	○
Loss of traditional farming techniques	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	○	○	○	○	◯	○	◯	○	○	○
Loss of marine resources	○	◯	•	○	○	•	◯	◯	○	○	○	◯	◯	◯	○	◯	◯	◯	?	○
Destruction of land by mining	•	•	◯	○	•	•	◯	◯	◯	◯	•	◯	•	○	•	•	•	◯	•	•
Spoiling of environment by tourism	○	○	○	○	◯	◯	•	○	•	○	•	•	○	•	○	•	•	•	•	○
Air, Sea and water pollution	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	•	◯	○	◯	◯	○	◯	○	?	◯
Pollution by testing of nuclear weapons	○	○	○	◯	○	○	◯	◯	○	○	○	○	○	○	○	○	○	○	○	○
Use of pesticides	◯	◯	◯	◯	◯	◯	◯	◯	◯	◯	○	◯	◯	○	○	◯	◯	○	◯	○
Rapid growth of towns	○	◯	◯	◯	◯	◯	◯	◯	◯	◯	•	○	○	○	◯	○	◯	○	○	○

◯ Already happening ○ Possible problem • No real problems

ACTIVITIES: WITH REFERENCE TO THE ABOVE TABLE:

a. Find all the islands on a map of the Pacific.

b. Which environmental problems are affecting Vanuatu at present? Which may become important in the future?

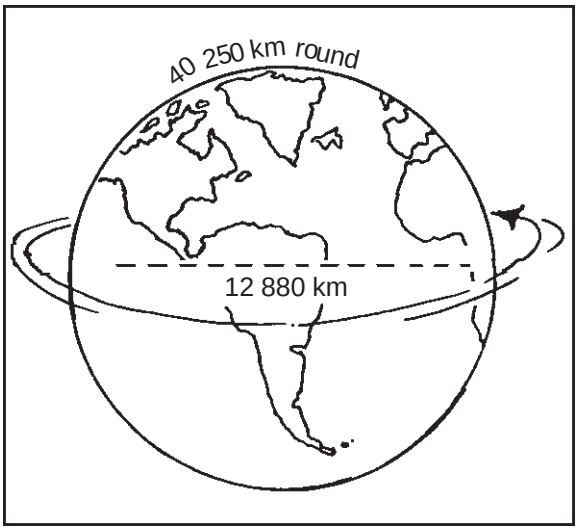
*c. Which island groups are experiencing the **greatest** misuse of the environment?*

d. Which environmental problems are already affecting 75% or more of the islands shown in the table?

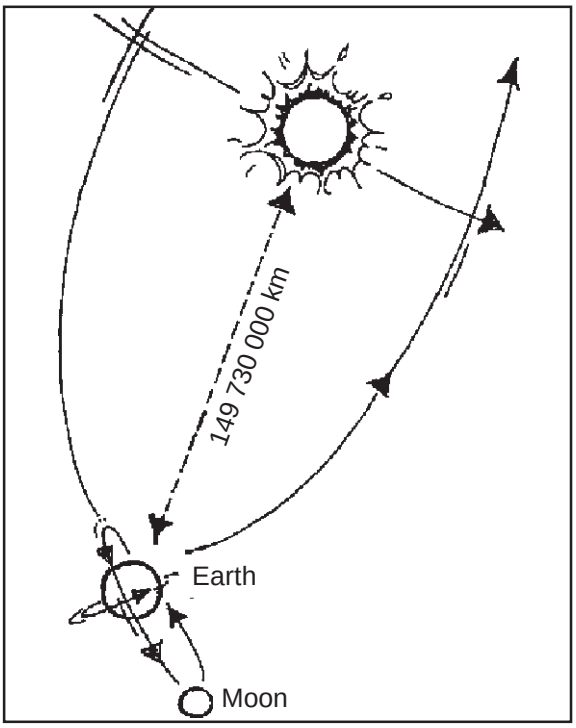
e. Why do you think that Niue, Wallis and Futuna have fewer environmental problems than other islands?

Earth and man

Planet earth is a huge ball with a diameter of 12,800 km, made up of rocks, water and air. It spins on its own **axis**, taking 24 hours to turn around once. Our earth also makes another kind of movement. It travels around the sun, taking one year to make a complete **orbit**. The earth is approximately 150 million km from the sun.



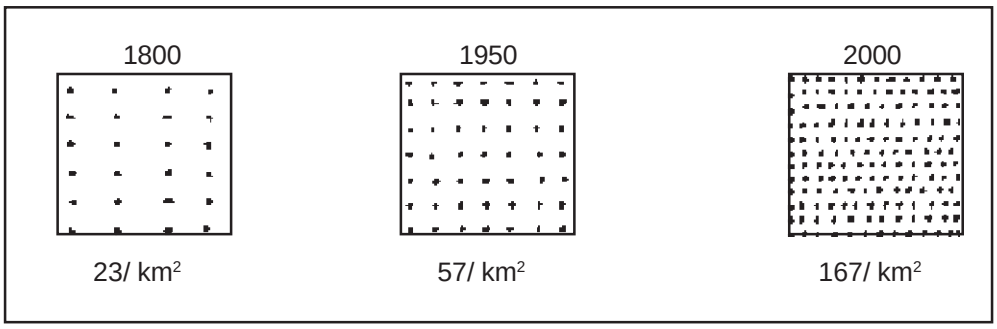
Since the earth travels through space, we can think of it as a large **spaceship**. The resources of this "spaceship" must support the whole human race.



In modern times, the world population has been growing very rapidly. This is mostly due to greater food supplies and better health. The graph on page 45 shows how quickly the population has grown since 1950. We can say that there has been a population "explosion".

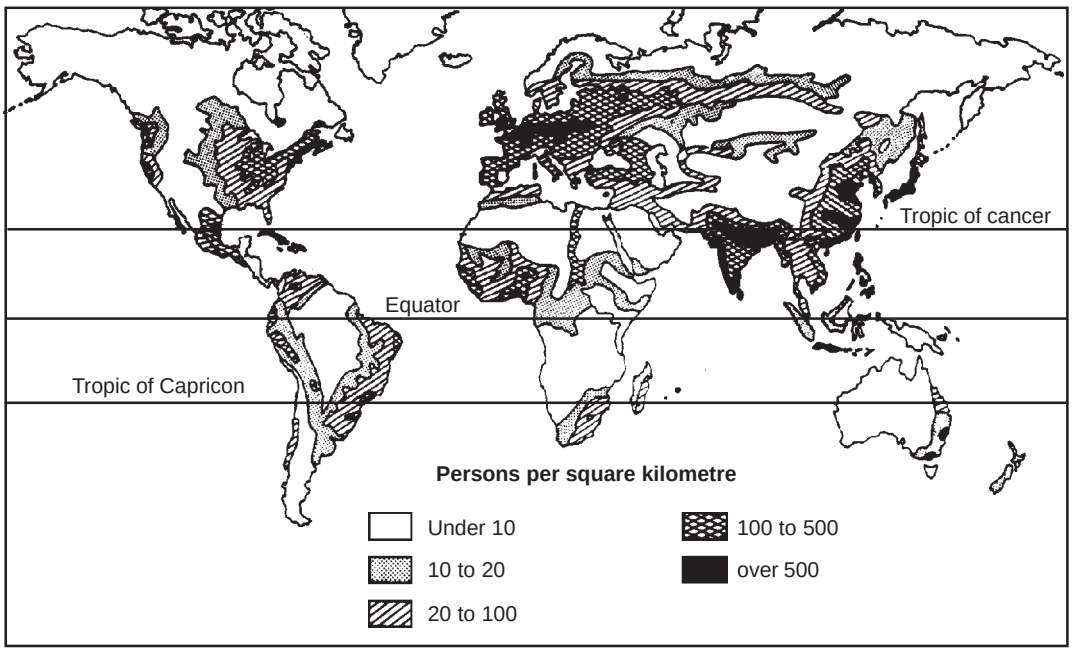
At present, the world population increases by about 75 million people every year. It is doubling every 35 years.

But the size of the earth's land area remains the same - 39,000,000 km^2.
In 1950, the density of population was 57 persons for every km^2 of land.
But by the year 2000, there will be 167 persons to share 1 km^2 of land!

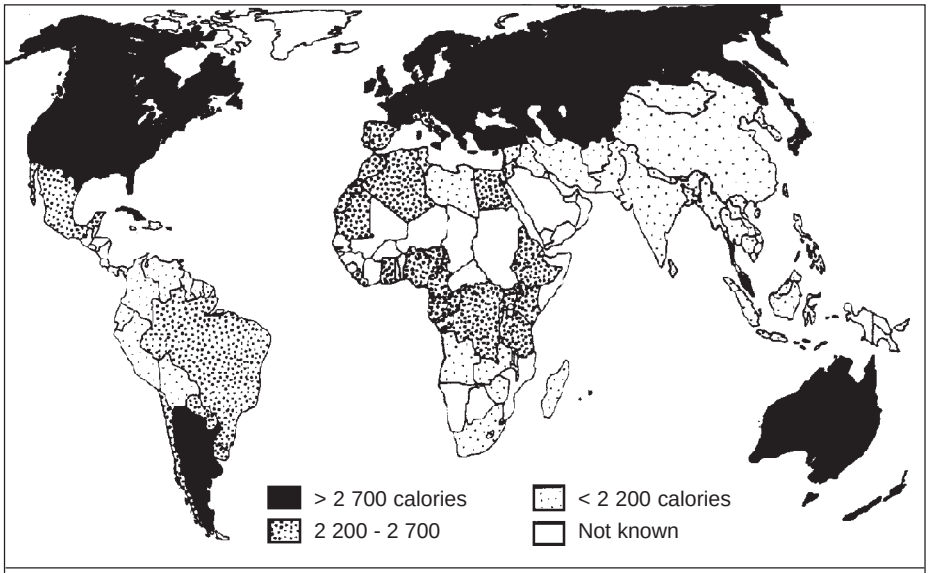


World density of population

The distribution of the world's population is very uneven. You can see this in the map below and in the pie-charts on page 47. About half of the human race lives in South and East Asia.

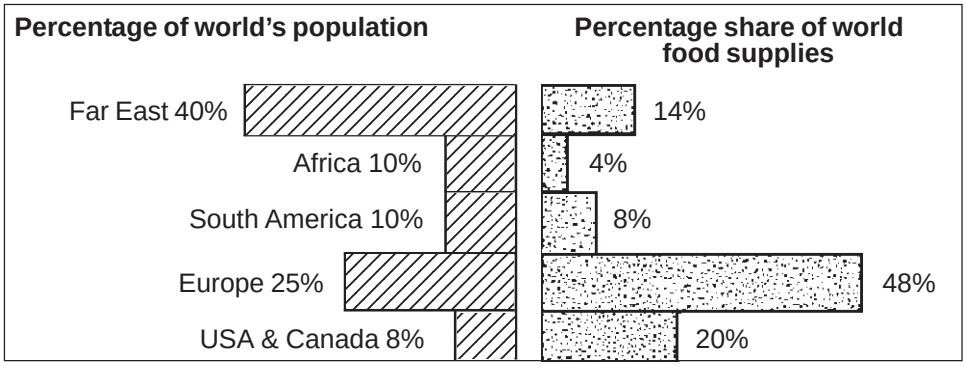


World distribution of population



Calorie intake per person per day

The countries which are short of food are the poorer, **developing** nations of Asia, Africa and South America. It is in these countries that the population is increasing the fastest.



This diagram on the following page shows the difference in food supplies between the richer countries of the world (sometimes called the "North") and the poorer or **developing countries** (the "South"). The black sacks show **cereal** production, which is about the same in the South as in the North. Each black figure means 100 million people. The South has about 3 times as many people as the North. In which area do the people get more to eat - the South or the North?

- Use intercropping and crop rotation.
- Use natural fertilizers and methods of pest control.
- Use breeds of plants and animals that give higher yields.
- Give better agricultural education.

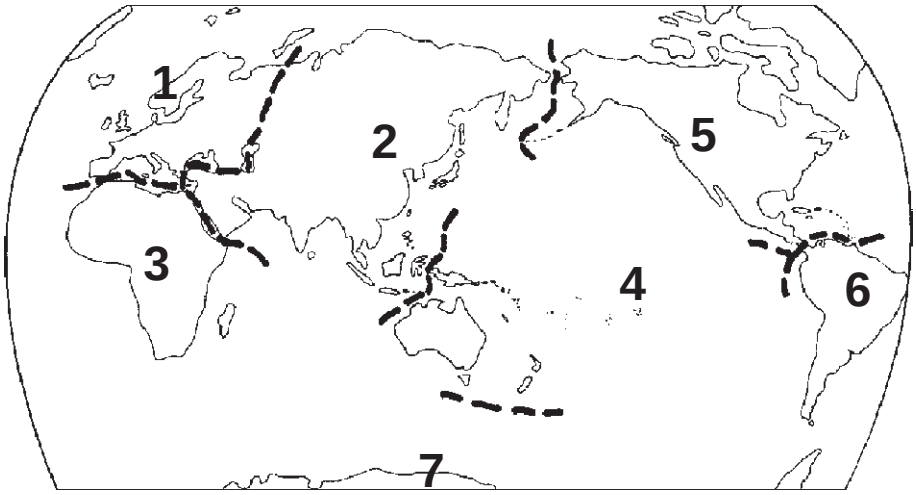
• Reduce population growth in poorer countries. This is done by encouraging people to have smaller families.

• Ask the richer countries to consume fewer resources and to share their wealth with the poorer countries.

ACTIVITIES

1. *Why do we say that the earth is like a spaceship?*
2. *Give two reasons why the resources of "spaceship earth" are rapidly disappearing at present.*
3. *Draw an ordinary line graph to show the growth of world population since 1500. Use a vertical scale of 1 cm to 500 million people.*
4. ***Continents of the world***

   a. *Copy the map below. Then complete a key to the continents of the world using the names shown in the diagram at the top of page 47.*



The seven continents of the world

As with food, the real problem is that the earth's resources are not being consumed fairly. The richer industrial nations are using more enormous quantities of oil, iron ore, timber and agricultural products from the poorer, developing parts of the world. The developing countries try to develop their own resources, but they have less money to do so, and their populations are increasing more rapidly.

The consumption of forests, soils and minerals has already been mentioned. Here are two more examples of the pressure that is being put on our resources.

The following diagram shows how our *consumption of energy* has greatly increased since the Industrial Revolution. Remember that at present, most of our energy is obtained by *burning* our resources of timber and fossil fuels.

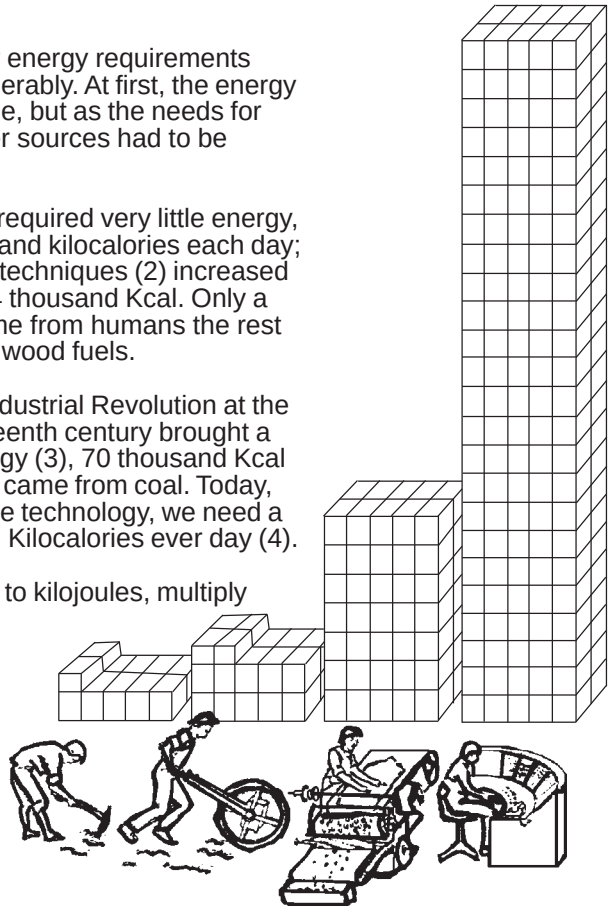
Energy Needs

Over the centuries our energy requirements have increased considerably. At first, the energy was provided by people, but as the needs for energy increased other sources had to be found.

Simple agriculture (1) required very little energy, perhaps only 12 thousand kilocalories each day; but advanced farming techniques (2) increased this consumption to 24 thousand Kcal. Only a part of this energy came from humans the rest was from animals and wood fuels.

The comining of the Industrial Revolution at the beginning of the nineteenth century brought a great demand for energy (3), 70 thousand Kcal per day, most of which came from coal. Today, surrounded by advance technology, we need a colossal 230 thousand Kilocalories ever day (4).

(Note: to convert Kcal to kilojoules, multiply by 4.2)



The information on the following page shows the *species of wildlife that are now in danger of extinction*, or are already extinct. They have been endangered by over-hunting, pollution, or man-made changes to their environment.

ACTIVITIES

1. *Copy the diagram at the bottom of page 51. Then explain what it means.*

2. *a. Why do we use up so much more energy today than in the past?*

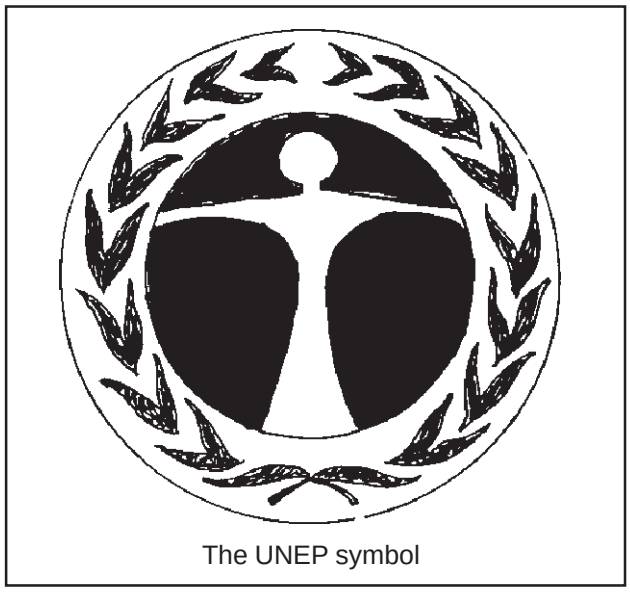
   b. Which parts of the world consume the most energy? Why is this?

3. *Give three reasons why many species of wildlife are in danger today.*

4. *The class should divide into pairs. Each pair should find out about **one** species of wildlife that is disappearing today - where it lives and why it is in danger. A short report should then be given to the rest of the class.*

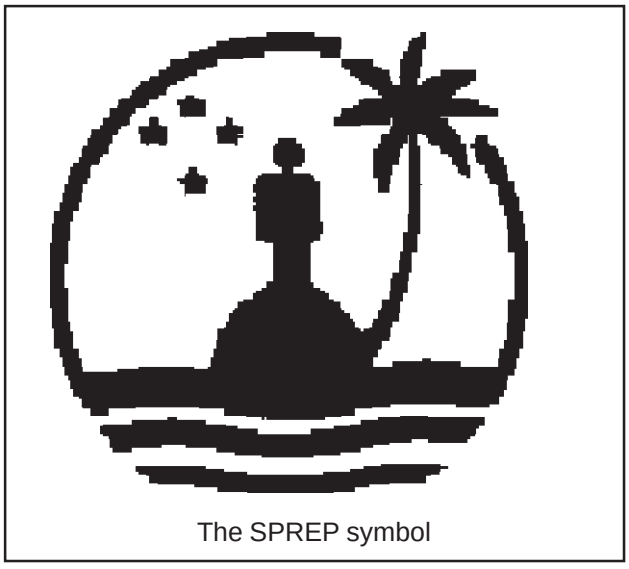
5. *Study the table below, and then answer questions a. to d.:*

Isand	Surface ares (km^2)			Population (1979)	
	Total	Cultivable area	Area already cultivated	Total	Density per km^2
Torres	121	98	11	317	2.6
West Banks[1]	700	178	72	2 027	2.9
East Banks[2]	61	37	34	2 614	42.8
Espiritu Santo[3]	4 248	1 831	725	19 423	4.6
Malakula	2 053	836	235	15 163	7.4
Maewo	300	103	20	1 822	6.1
Ambae	399	173	150	7 754	19.4
Pentecost	499	185	135	9 361	18.8
Ambrym	666	135	130	6 176	9.3
Paama-Lopevi	60	24	30	2 228	37.1
Epi	446	173	88	2 579	5.8
Shepherd[4]	86	59	53	4 444	51.7
Efate[5]	923	600	105	19 819	21.5
Erromango	887	203	10	932	1.0
Tanna-Aniwa	569	319	300	15 717	27.6
Aneityum-Futuna	171	17	16	857	5.0
Total	12 189	4 971	2 114	111 251	9.1



The UNEP symbol

In the pacific, the South Pacific Commission has established the South Pacific Regional Environment Programme (SPREP) to advise island governments about the protection of their environments.



The SPREP symbol

We will now look at some of the most important ways of conserving our resources.

Conservation of cultivable land

To protect soils from losing their fertility and from being eroded, methods such as crop rotation, contour ploughing, terracing of slopes and reafforestation can be used.

Another good way of conserving our trees is for governments to make a law to protect a forested area from exploitation. Such an area is called a **forest reserve**, or a **national park**. Inside a reserve, nothing may be cut down or removed.

Protecting air and water resources

In countries such as USA, UK, France, West Germany and Japan, tough laws have now been made to stop factories from putting their waste materials into the atmosphere and into streams, rivers and lakes. In many countries, you have to pay a fine if your car exhaust pipe is not working properly.

In the Pacific, the South Pacific Regional Environment Programme shows people how to construct better wells and water tanks. It shows them how to avoid polluting water supplies with sewage and pesticides.

Recycling of minerals and waste products

Recycling means using something over again. Litter can be collected up, sent to a factory and made into paper again. The recycling of scrap metal is shown in the photograph below.

Scrap metal waiting to be recycled.
What non-renewable resource is being conserved?

Private organizations such as the World Wildlife Fund are very busy raising money to set up reserves or national parks for the protecting of endangered species. Some of these organizations are shown in the diagram on page 59.

To make sure that the fish resources of the world are not exploited, there are several solutions. One is to *control the size of the fishing nets* that people use, so as to avoid catching baby fish that could grow up and reproduce. A better way is to carry out *fish farming*. This is already taking place in Japan, China and other parts of South East Asia.

Our oceans contain great possibilities for feeding the world's people. We must look after them!

Conservation of mineral and energy resources

We cannot do very much about the huge amounts of metallic minerals that are already being exploited. But we can certainly slow down our consumption of fuelwood and fossil fuels. We need to make much greater use of renewable sources of energy. Many governments are already carrying out important research programmes in this field.

In developing countries, most energy is still obtained from fuelwood. One very good way of obtaining fuelwood without destroying forest resources is to carry out "tree farming" or "tree cropping." This is very similar to reafforestation, but quick growing species of tree are planted, and after only 2 or 3 years, the wood can be harvested. If the fuelwood trees are cut down completely, new ones are immediately planted.

Wood can be harvested without trees being killed. But proper management means serving the fuel needs of the poorest as well as protecting trees.

The fuelwood is either burnt directly, or used in "gasifier plants" that run on wood gas. Schemes like this are already operating in African countries like Kenya and Malawi. Onesua High School's gasifier plant, opened at the end of 1986, is the first of its kind in the Pacific.

VANUATU WEEKLY *20 December 1986*

Gasifier Project opens at Onesua

The Gasifier Project at Onesua High School was opened by the MInister of Lands, Energy and Rural Water Supply, Mr. Donald Kalpokas, on Thursday.

Mr. Kalpokas, in his opening address, said it is a good start for Vanuatu to have such a project.

The gasifier will generate power for the school from burning kassis.

What seems to be needed is greater co-operation between the peoples of the world. Differences of race, colour, religion and political belief have stopped us from working together to share and conserve our resources. Now, we must encourage whatever will bring about international understanding and unity - such things as education, trade, tourism, inter-marriage and cultural exchanges.

Then, when men can get on with their neighbours, mankind as a whole can get on with the job that really matters - the creation of an environment in which *everyone* will be well-fed, happy and free.

ACTIVITIES

1. *What is "conservation?" For **each** of the following, state one country where it is being conserved, and how the conservation is being done:*

forests	***marine resources***
energy resources	***fresh water resources***

2. *Draw diagrams to show each of the following:*

   terracing
   tree cropping
   UNEP symbol

3. *What kinds of energy should be developed in Vanuatu?*
4. *What is **your** responsibility towards the environment?*
5. *Design a poster to persuade people to conserve resources.*

APPENDIX B

REVISION TEST
TIME: 45 MINS.

****

1. Define the following and give an actual example of each:

   a. **resource exploitation**
   b. **renewable resource**
   c. **fossil fuel**
   d. **exclusive economic zone**
   e. **water pollution**
   f. **soil erosion**
   g. **cultivable area** (Marks) (14)

2. On an outline map of the world, mark and name the following:

   a. One area which produces large amounts of petroleum or natural gas

   b. One country where most people rely on fuelwood for their energy

   c. One place where copper ore is extracted

   d. One area with a very high population density

   e. The continent of Europe

   f. One country in which most people do not have enough to eat. (6)

3. State whether each of these statements is **true** or **false**:

   a. Our environment includes both natural and man-made features.

   b. Recycling, tree-cropping and fish farming are all methods of conservation.

   c. The world population is currently about 5 million.

   d. The sun is continually supplying us with new water vapour from outside the earth.

   e. About 75% of the earth's surface has a thin covering of soil.

APPENDIX C
GLOSSARY

(Note: the meaning given below are for the words as they are used in this booklet. You may also find other meanings in your dictionary.)

acid rain	rain containing sulphuric acid, that burns vegetation and poisons rivers and lakes
axis	imaginary line joining north and south poles; the earth rotates once around this axis every 24 hours
cereal	grain, or type of grass whose seeds can be eaten
conservation	protecting something from damage
consumption	using up, or taking in
decibel	unit for measuring the loudness of sound
deforestation	cutting down or clearing of forest
deliberate	planned or meant to happen
developing countries	poorer nations of the world, sometimes known as the "Third World"
domesticate	bring under man's control, in order to provide food or protection
drilling rig	large platform that supports the machinery needed for boring a hole into the ground
environment	everything that surrounds us
exclusive economic zone	200-mile wide area of sea around a country, which is owned by that country
exploitation	using something in order to get what you want from it
extensive	taking place over a wide area
extinct	has died out altogether
forest reserve	area in which forest and wildlife are protected from exploitation
fossil fuel	substance that was a living organism millions of years ago; it can be burnt to provide energy
fragile	easily damaged

pressure of population	very strong effect caused by the increasing number of people
primary forest	natural forest that grows in an area, without any disturbance by man
raw material	natural substance that can be used for making something else
reafforestation	planting of new trees in areas where vegetation has been cleared away
recycling	using something again
refinery	factory where a substance is cleaned or purified and made into a more useful form
refuse tip	place where rubbish is thrown or dumped
renewable resource	resource that is being formed or replaced more quickly than it is being used up
roadstone	coral or other rock that is suitable for making roads
sewage	human waste, consisting of faeces and urine
smelting	removal of a metal from its ore
smog	dense smoky fog
soil erosion	loss of topsoil due to the action of water or wind
spaceship	special vehicle designed for travelling through space
steel	very strong, hard metal made from pure iron mixed with other metals such as carbon, nickel, manganese, etc.
vandalism	deliberate destruction of beautiful or useful parts of the environemnt