What Is This Module About?

Look at your surroundings. Have they changed much since you were a kid? Or are they still the same? I am sure you have heard old people say how much the environment has changed. Your parents would even tell you stories about how they could swim in fresh, clean rivers.

Now, what we usually hear on the radio, read in the papers, or watch on television are sad stories. We frequently hear about the destruction of our environment and the depletion of our natural resources. Everywhere, you see the degradation of the environment.

For many years we have continuously exploited our natural resources. We have a responsibility to heal and restore our Mother Earth. There is only one Earth. It is all we've got.

This module will explain environmental degradation and how it affects various ecosystems in the Philippines. These include agricultural, forest, freshwater, marine, and urban ecosystems. The possible remedies for the effects of degradation on the ecosystems will also be discussed.

This module is divided into three parts:

Lesson 1 – *What Is Environmental Degradation?*

Lesson 2 – *The Price We Pay*

Lesson 3 – *Taking Action*

What Will You Learn From This Module?

After studying this module, you should be able to:

- define *ecosystem*;
- describe environmental degradation;
- identify and discuss the effects of environmental degradation on the different ecosystems; and
- identify and explain possible solutions that can be implemented to prevent or reduce environmental degradation.

Let's See What You Already Know

Before you start this module, answer the questions below to determine how much you already know about the topic.

A. What is an ecosystem? Make an illustration of your idea of an ecosystem. Explain your illustration in the blanks provided.

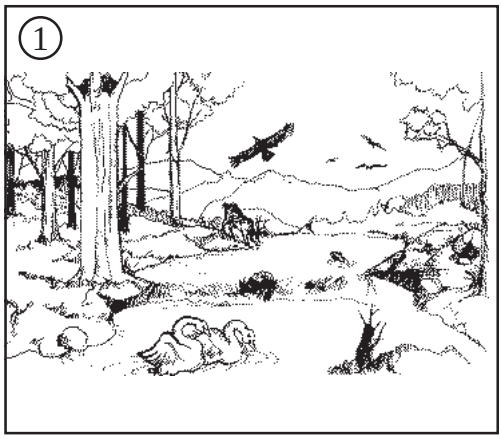
_____

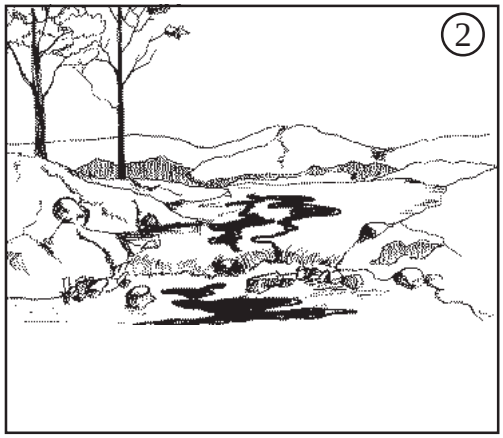
_____

_____

_____

B. Look carefully at the illustrations below. The pictures show the same place at different times. Picture 1 shows a fertile area of land 30 years ago. Picture 2 shows the same land area as it appears today. Can you identify the changes that occurred over time? List them down.





_____ _____

_____ _____

_____ _____

_____ _____

C. You are given a box of words below. Choose from the box the correct word that is referred to by each statement below the box. Write your answers in the blanks provided.

ecosystem	forest ecosystem
deforestation	
recycling	urbanization

_____ 1. A type of ecosystem where large woody plants, especially trees, grow abundantly.

_____ 2. It is a community of organisms interacting with one another and with chemical and physical factors making up their environment.

_____ 3. The process in which a forest is cut down, burned, or damaged.

_____ 4. The process of reusing materials.

_____ 5. It involves the changing of forest areas and habitats into lands for housing, roads and industry.

Well, how was it? Do you think you fared well? Compare your answers with those in the *Answer Key* on page 41.

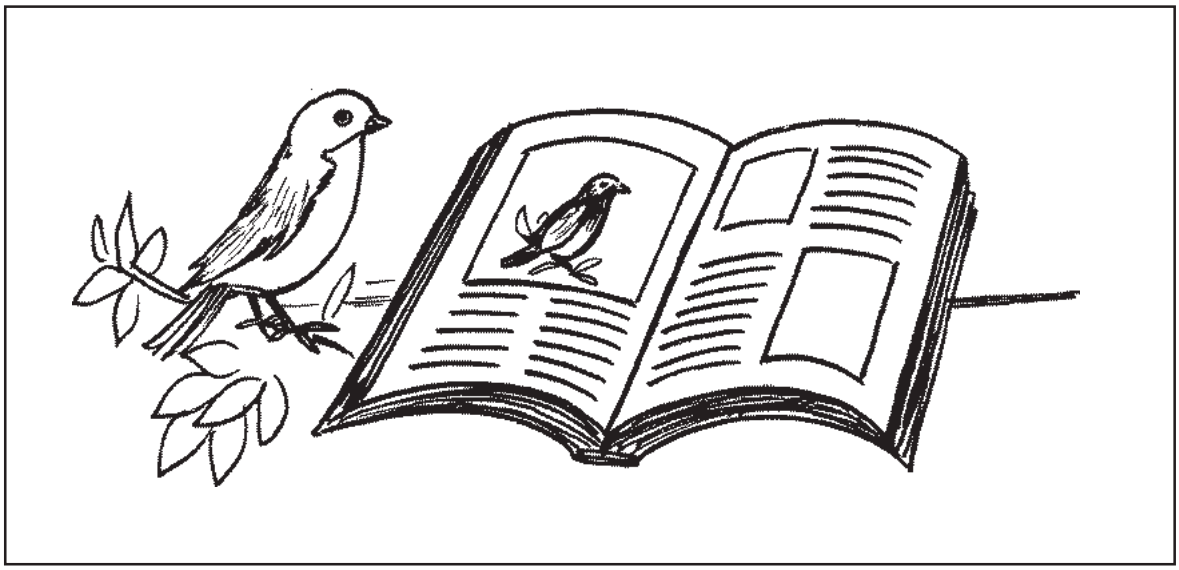
If all your answers are correct, very good! This shows that you already know much about the topic in this module. You may still study the module to review what you already know. Who knows, you might learn a few new things as well.

If you got a low score, don't feel bad. This means that this module is for you. It will help you understand important concepts that you can apply in your daily life. If you study this module carefully, you will learn the answer to all the items in the test and a lot more! Are you ready?

You may now go to the next page to begin Lesson 1.

LESSON 1

What Is Environmental Degradation?



Years from now, we may never see a maya bird again. It's possible that in the future, our children will only learn about the maya from books or stories of older people. Would you want this to happen?

Given the way we treat our environment, this is not far from happening. Destruction of our natural resources is becoming more rapid and widespread. If this continues, even the plants we consider common today might become extinct in the future.

When the environment has been harmed so that it becomes useless, degradation has occurred. Degradation of the environment happens in various forms and affects the different ecosystems.

After studying this lesson, you should be able to:

- define *ecosystem* and *environmental degradation*; and
- identify and describe some forms of environmental degradation affecting the various ecosystems.

Let's Study and Analyze

Study the illustration carefully. Then answer the questions that follow.

1. Identify the organisms or living things in the illustration.

_____

_____

_____

2. What relationships exist among them?

_____

_____

_____

3. What components make up the environment?

_____

_____

_____

4. What are the effects of the environment on these organisms?

_____

_____

_____

5. What effects do the organisms have on the environment?

_____

_____

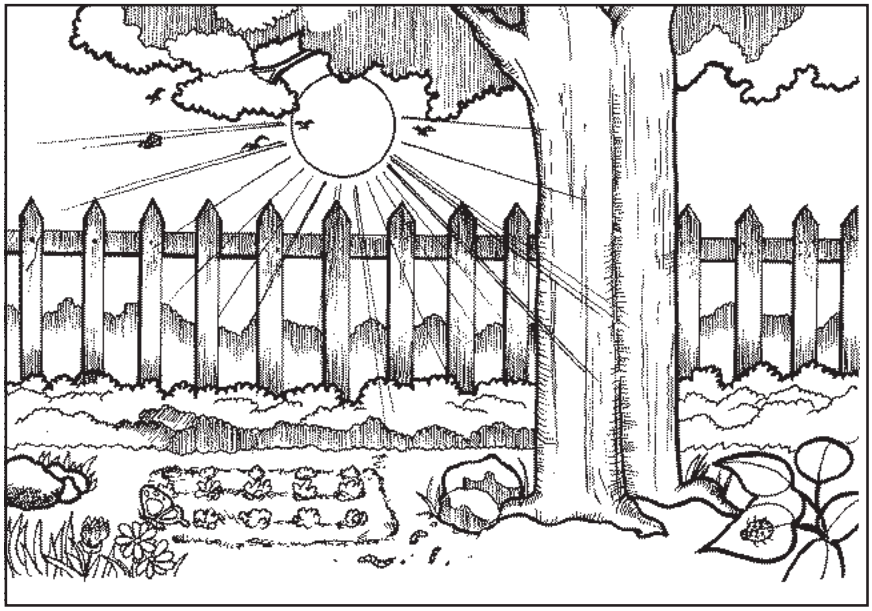
_____

Compare your answers with those in the *Answer Key* on page 42.

Let's Learn

An **ecosystem** is a community of organisms interacting with one another and with chemical and physical factors like sunlight, water, soil and the nutrients in the soil that make up their environment.

An ecosystem is made up of organisms which interact with each other. It is also made up of an environment in which the organisms live. The organisms interact with each other and with the environment. You can see this in the illustration on page 5. An ecosystem can be large, like the forest ecosystem you have just seen. It can also be very small. Look at this picture of a vegetable garden.



In the garden, we see a community of organisms made up of plants, earthworms, and butterflies. Notice that each organism has a role in the garden. The plants produce food for the earthworms and butterflies. The earthworms dig the soil to make it loose, so the soil can easily absorb water that the plants can use. The butterflies help spread the pollen from flowering plants, so new plants can be produced. All these organisms interact with each other. They depend on one another for growth and nourishment.

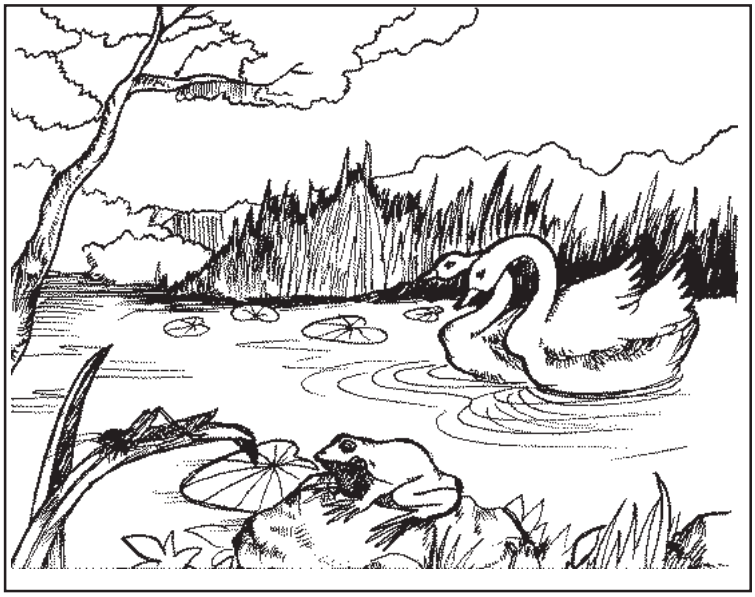
The environment in this vegetable garden consists of the soil and its nutrients, the sun and the climate. When it rains, rainfall becomes part of the environment. This environment helps sustain the life of the organisms in the garden. The plants need good soil, sun, and water to grow and remain healthy. The earthworms and butterflies also depend on the good climate in the environment for them to survive.

The environment also depends on the organisms living in the garden. The soil benefits from the constant burrowing of earthworms because the loosening of the soil helps make it rich.

For more information, you may want to read the NFE A&E module entitled ***The Ecosystem in Retrospect***.

Let's Try This

Identify the ecosystem shown in the picture. Then, explain the interaction among the organisms and the interaction between the organisms and the environment.



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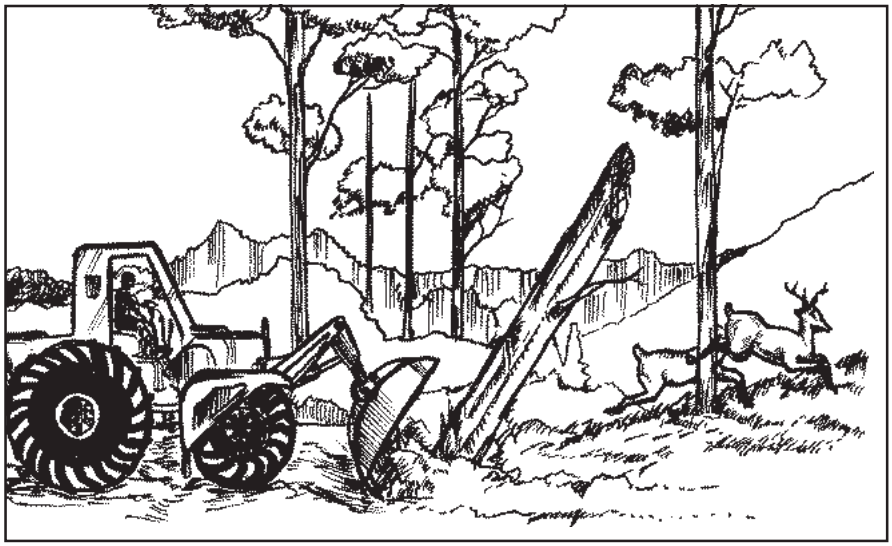
Compare your answers with those found in the *Answer Key* on page 42.

Let's Think About This

Ecosystems depend greatly on the environment. A healthy environment ensures the survival and growth of the organisms living in the ecosystem. Proper treatment of the environment by the organisms helps maintain life in the ecosystem. With these conditions, balance is maintained.

What do you think will happen if organisms, like men, neglect or abuse the environment? Study the picture below and write your ideas in the blanks provided.



_____

_____

_____

_____

Read on to find out if your ideas are correct.

Let's Learn

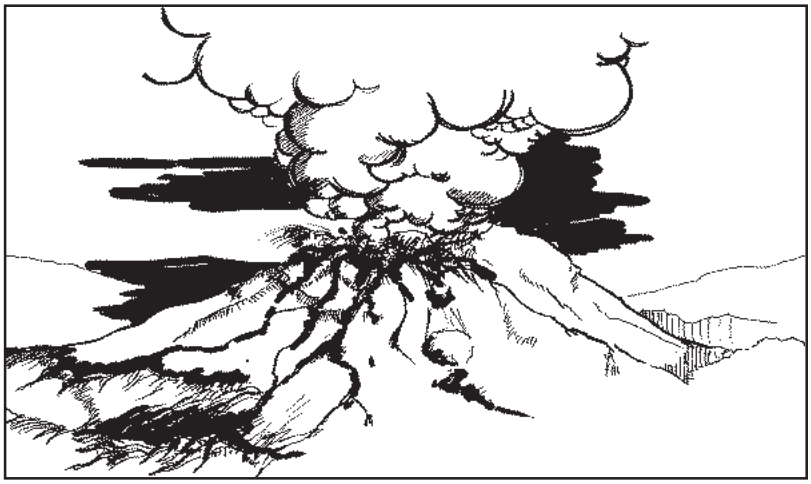
The picture you have just seen is an example of environmental degradation.

> **Environmental degradation** happens when the environment becomes damaged. It is either a natural or a man-made change to the environment that upsets or destroys the balance in the ecosystem.

Environmental degradation occurs in different forms and it affects the various existing ecosystems. One form of man-made environmental degradation is urbanization. In urbanization, agricultural lands are changed into lands for housing and

commercial purposes. Many plants, especially trees, are removed and many animals lose their homes or even die. Shortage of food occurs because of the transformation of these farmlands. Also, there is possible flooding because few or no trees are left to absorb excess water during heavy rains.

Volcanic eruption is a form of natural environmental degradation. The lava flow destroys everything in its path—from the tiniest plant to the largest man-made structure. The smoke that comes out of the volcano usually contains substances that are harmful to man and other organisms. The smoke may even cover a large part of the sky and prevent the entry of sunlight. Without sunlight, the plants that escaped the lava flow may die, and many organisms, including man, may face a food shortage. It will take a long time for the areas surrounding the volcano to be restored. There will also be areas that will be permanently damaged.



Other forms of natural environmental degradation are floods, earthquakes, landslides and typhoons.

Let's Try This

Identify the forms of environmental degradation shown in the following pictures. Write their effects in the blanks provided.

1. _____

_____

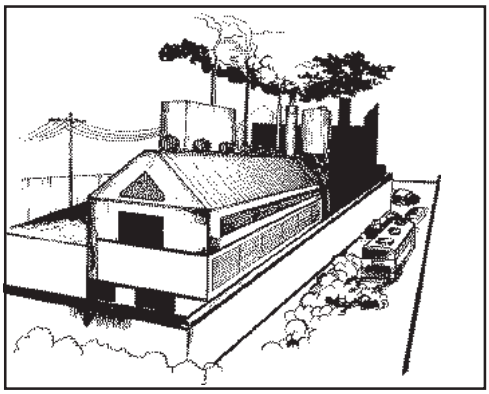
_____

_____

_____

_____

_____



2. _____

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3. _____

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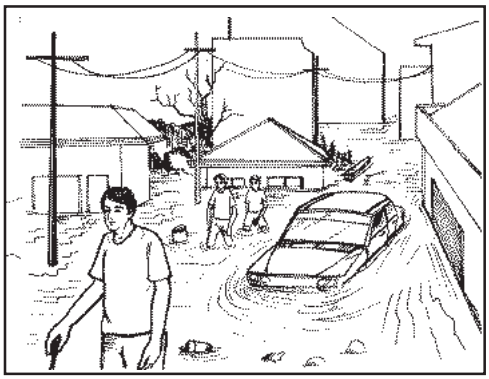

4. _____

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_____

5. _____

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_____

_____

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_____

_____

Compare you answer with those in the *Answer Key* on page 42.

Let's See What You Have Learned

Answer these questions.

1. What is an ecosystem?

   _____

   _____

   _____

2. Give three factors that make up the environment.

   a. _____

   b. _____

   c. _____

3. What is environmental degradation?

   _____

   _____

   _____

4. Give three forms of natural environmental degradation.

   a. _____

   b. _____

   c. _____

5. Give three forms of man-made environmental degradation.

   a. _____

   b. _____

   c. _____

Compare your answers with those in the *Answer Key* on page 43.

Let's Remember

- An ecosystem is a community of organisms interacting with one another and with physical and chemical factors like sunlight, water and soil that make up their environment.
- Environmental degradation is a natural or a man-made change to the environment that upsets or destroys the balance in the ecosystem.

The Price We Pay

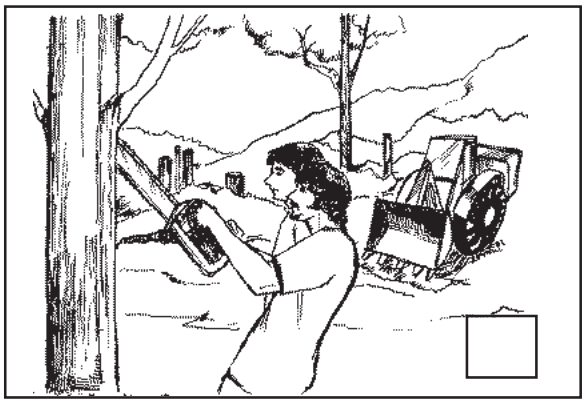
The previous lesson gave you a glimpse of the effects of environmental degradation. This part of the module will give you a more detailed description and explanation of the various forms of environmental degradation and their effects on four different ecosystems—forest, marine/coastal, freshwater, and urban ecosystems.

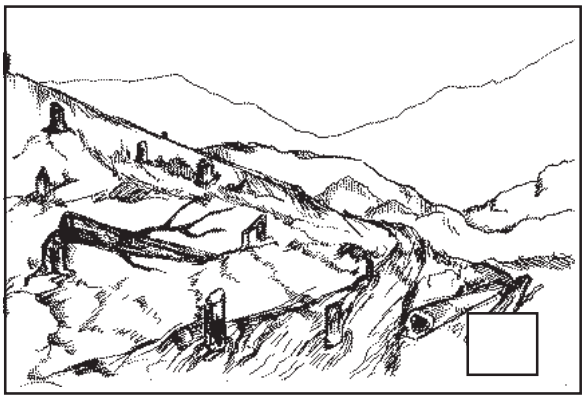
After studying this lesson, you should be able to:

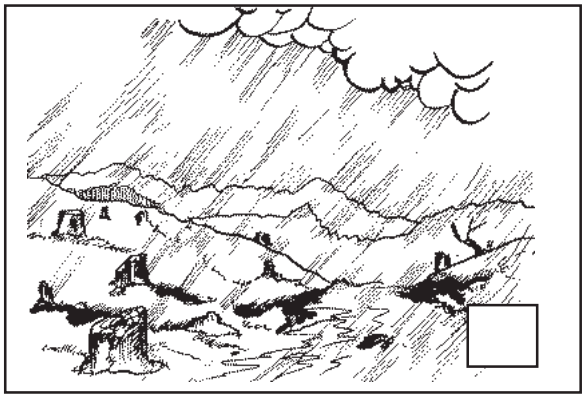
- identify forms of environmental degradation that affect different ecosystems; and
- explain the consequences of widespread destruction of the environment on each ecosystem.

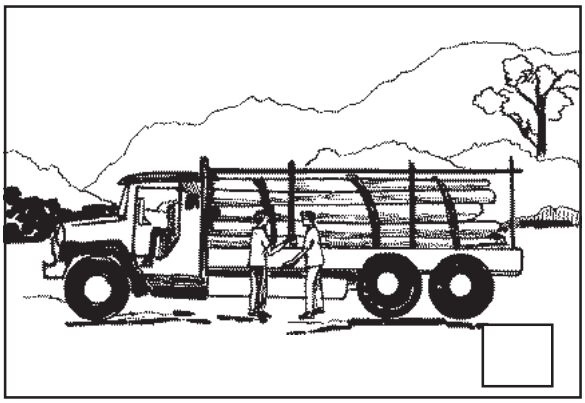
Let's Try This

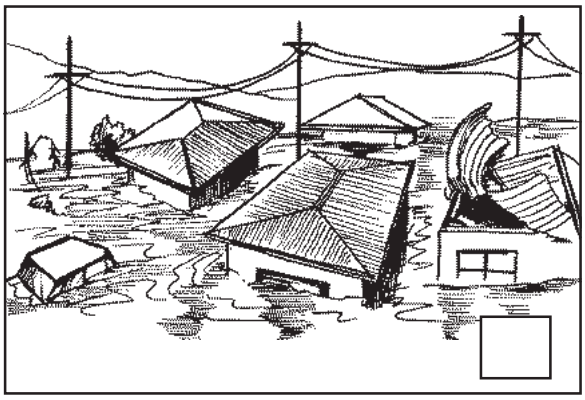
The pictures below and on the next page show a sequence of events. Arrange and number the following pictures in their proper order. In the small box on the lower right corner, write 1 if the picture comes first in the series, 2 if second, and so on.











Compare your answers with those in the *Answer Key* on page 44.

Let's Study and Analyze

Environmental degradation in the forest ecosystem

A barangay captain keeps record of the number of trees in the forest near his area. Loggers often get wood from this forest.

Below are his findings for the years 1995 to 2000.

Year	Number of Trees*
1995	
1996	
1997	
1998	
1999	
2000	

* Each tree represents 100 trees. For example, there are seven trees for 1996. So, there were 700 hundred trees in 1996.

1. How many trees were there in 1995? _____
   How many trees were there in 2000? _____

2. What do you notice about the number of trees as the years passed?

   _____

   _____

3. Why do you think the number of trees decreases year after year?

   _____

   _____

   _____

4. What will happen if this pattern continues?

   _____

   _____

   _____

Compare your answers with those in the *Answer Key* on page 44.

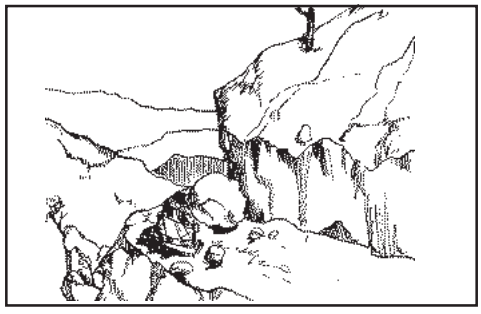
Let's Talk About This

Deforestation is a serious form of environmental degradation. Trees are cut and lands are cleared for agricultural or commercial purposes. Many forests are destroyed and are used as farmland for crops and grazing cattle. Forests are also destroyed because of urbanization. In urbanization, forested areas are paved for the building of towns or cities. *Kaingin* is another method of deforestation where trees are slashed and burned to create farmland.

When trees are continuously cut down or slashed and burned, many negative effects will be experienced by the entire forest and other ecosystems that interact with it.

Some common effects of deforestation are landslides and floods.

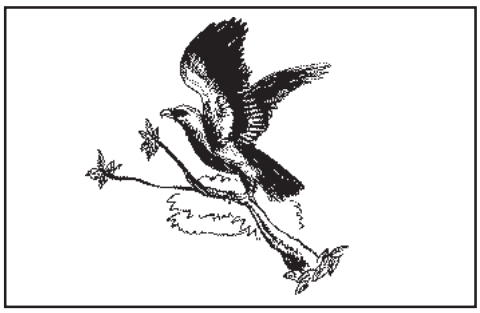
The roots of trees hold the soil to keep it from being washed away by heavy rains. If trees are cut down, nothing will hold back the soil. One potential problem that this might cause is a landslide. Landslides are a major cause of death in deforested areas. Soil slides down onto roads or towns and bury people and houses.

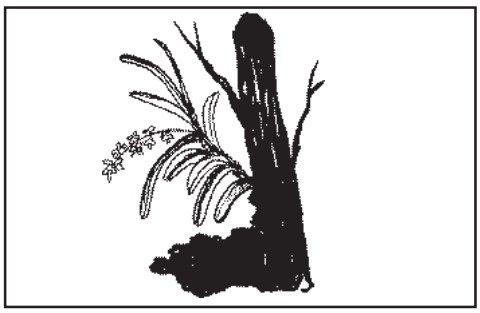


Do you remember the Ormoc tragedy in Leyte? More than a hundred people died because of the heavy flash floods as a result of severe deforestation of nearby mountains in Ormoc. People blamed the illegal loggers for destroying the trees that would have absorbed the excess water when the typhoon came.

Deforestation affects organisms other than man. Have you heard of the Philippine eagle?

The Philippine eagle is one of the endangered animals in the country. It is endangered because there are only a few of its kind which have survived the destruction of its forest home.





There are also some plants that have become endangered because of deforestation. Examples are the Philippine *camia* and the *waling-waling.*

If deforestation continues, the Philippine eagle, the Philippine camia, the waling-waling, and many other animals and plants may eventually become extinct. When an animal or a plant has become extinct, it means that it does not exist anymore.

What would happen if animals and plants become extinct?

_____

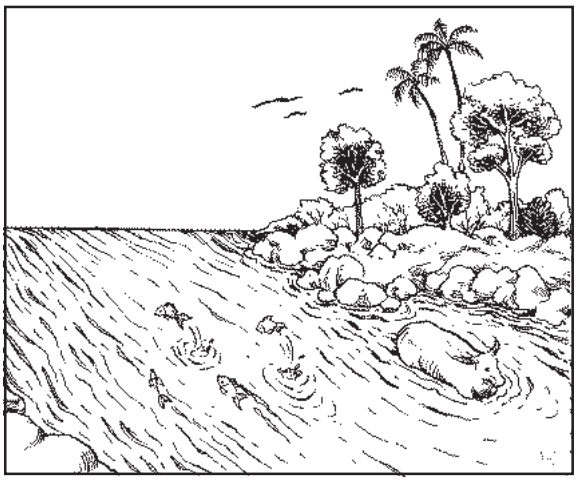
_____

_____

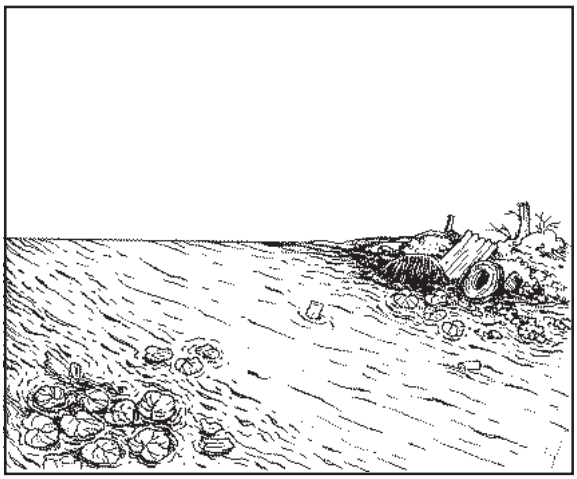
If man continues to destroy forests and bring about the extinction of many plants and animals, he will suffer greatly. He will not have an adequate food supply. Disasters like heavy floods will endanger his life. It is possible that man will also face extinction.

Let's Try This

Study these illustrations of the Pasig River. The first illustration shows the river in 1950 and the second picture shows the river in 1995.



1950



1995

1. Compare the two pictures of the Pasig River. What changes do you see?

   _____

   _____

   _____

2. What do you think happened to the Pasig River that changed it so much?

   _____

   _____

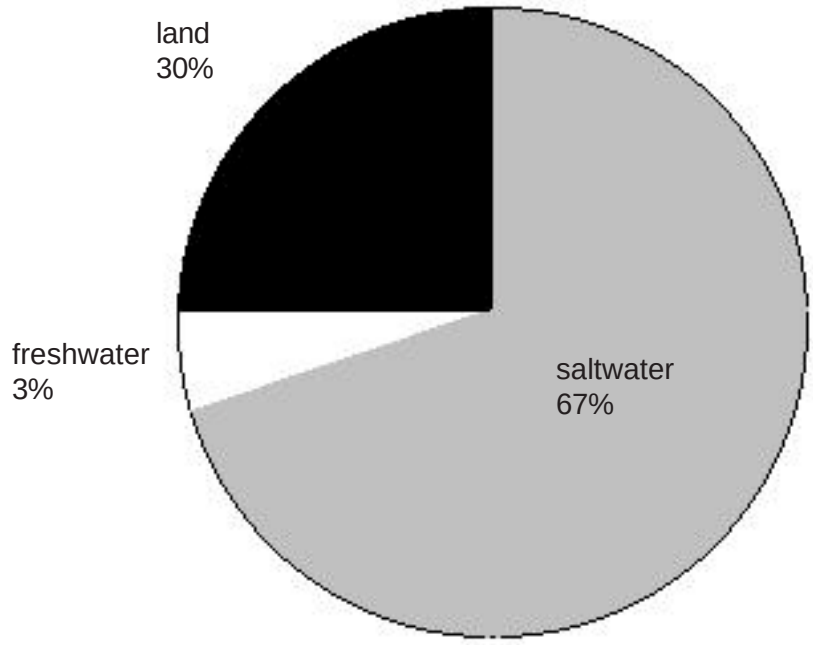
   _____

Compare your answers with those in the *Answer Key* on page 45.

Environmental degradation also occurs in freshwater ecosystems. Read on to find out more about the forms of environmental degradation that seriously affect our freshwater ecosystems.

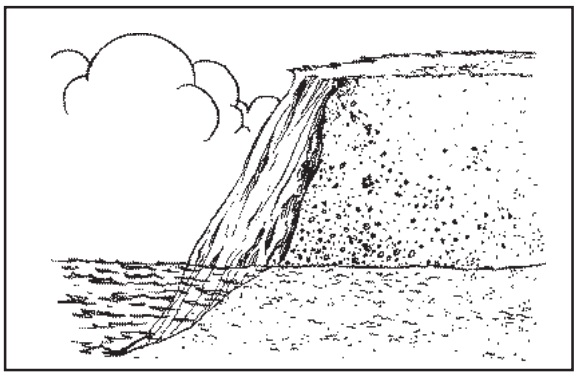
Let's Talk About This

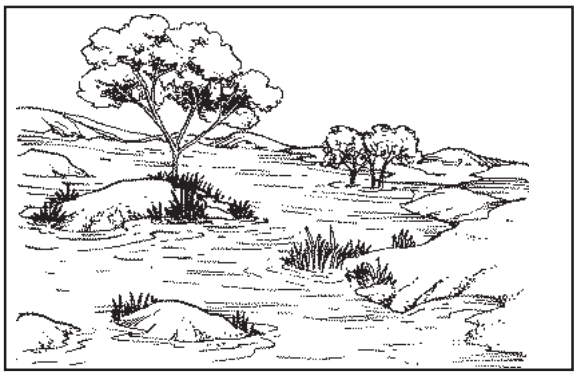
Look at the chart below. It shows the components or parts that make up the earth.



Do you know that two-thirds of the earth is water? Furthermore, saltwater ecosystems comprise the biggest part of the earth. Freshwater systems make up less than three percent of all the water sources. Lakes and rivers are common freshwater ecosystems. Other freshwater ecosystems are groundwater and wetlands.

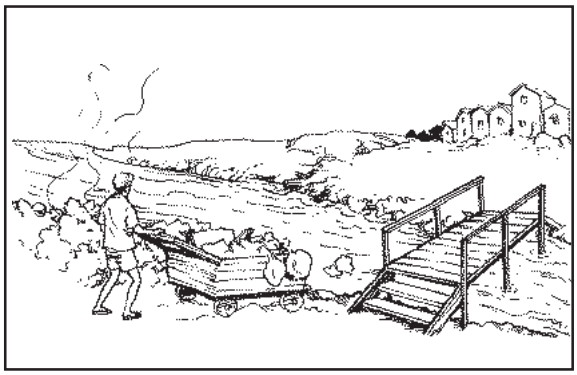
Groundwater exists below the surface of the earth. It is usually held in porous soil or rocky materials.



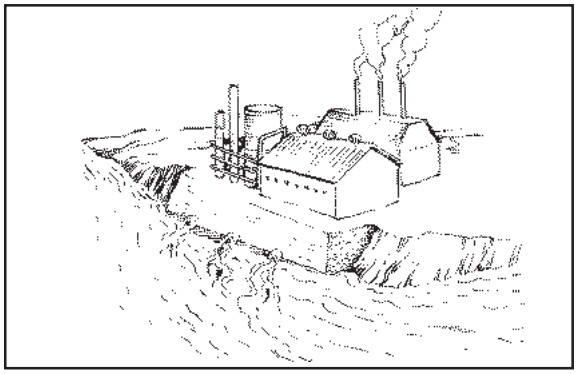


Wetlands have natural supply of water that comes from tidal flows, rivers, or connections with groundwater. They are covered or soaked with water for most part of the year.

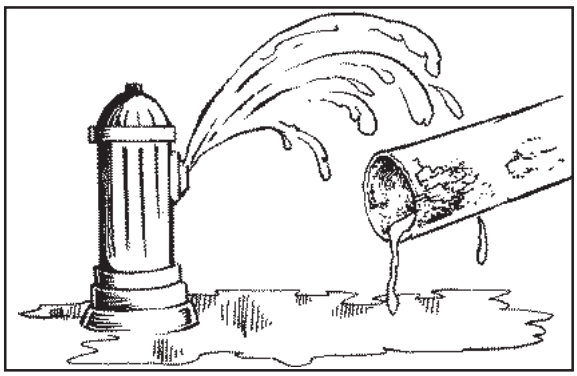
Certain human activities have seriously affected the quality and quantity of freshwater ecosystems. Some examples of these harmful human activities are shown on the next page.



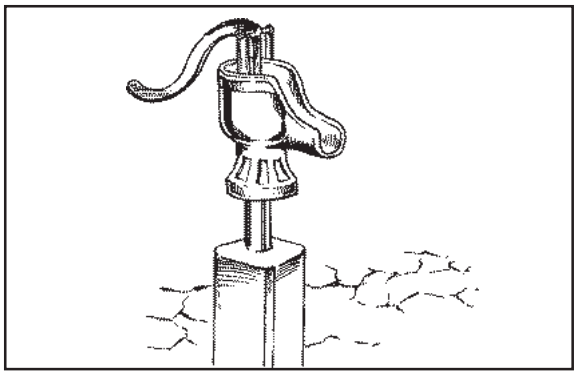
There are people who throw their garbage into rivers, lakes and other freshwater systems.



Some factories dump their wastes in nearby rivers. Some of these wastes are poisonous and dangerous to the organisms living there.



Leaky faucets, water pipes and fire hydrants allow water to be wasted. Rust and dirt also get mixed with the water when pipes are broken.



Overpumping of deep wells uses up available groundwater.

What will happen if all the freshwater ecosystems become very polluted? Write you ideas below:

_____

_____

_____

_____

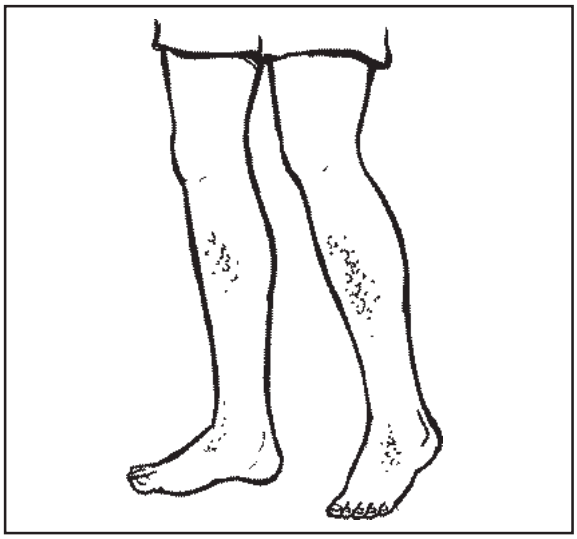
_____

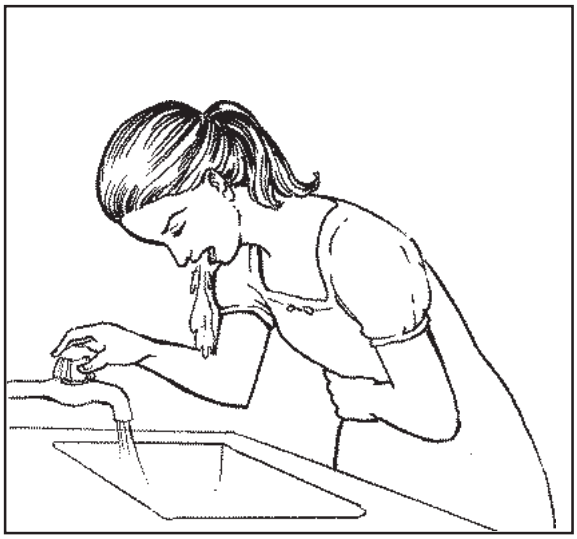
Environmental degradation of freshwater ecosystems has various negative results.

First of all, our supply of drinking water will be greatly reduced. Water will have to be given to families in limited amounts. We may have no water for days. Imagine having to fall in a long line just to get water for drinking and for your bath!

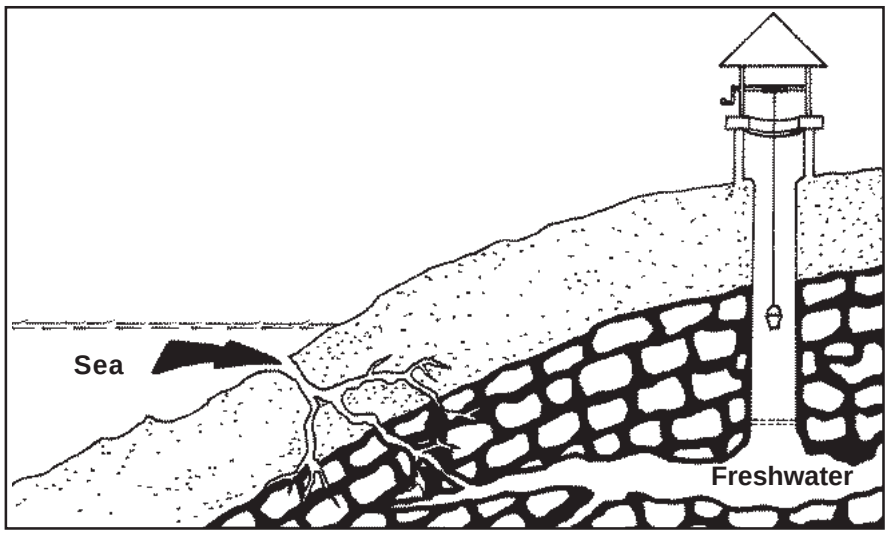
Contamination or pollution of freshwater systems will also lead to the death of many microorganisms in the ecosystem. Eventually, all marine organisms may become endangered, and some may even become extinct.

Unclean water may cause various health problems. Swimming in dirty rivers or lakes may cause skin diseases and allergies. Contaminated drinking water may cause digestive disorders and diseases, poisoning, and even death.





When fresh groundwater resources are used up due to greater demands, saltwater intrusion may occur. Saltwater intrusion is the moving in of saltwater into freshwater sources. This happens in places near the sea or the ocean. When saltwater mixes with the groundwater, contamination occurs.



With the contamination of freshwater by saltwater, there will be limited clean drinking water. The salt in the water will also kill crops and other plants.

Let's Review

Read the following situations and answer the question/s for each situation.

1. Some people in a certain barangay throw their garbage into a river nearby. How will you explain to them the effects of throwing garbage into freshwater sources?

   _____
   _____
   _____
   _____

2. You found out that one of the water pipes in your house is broken, and water is starting to leak. What will you do? Explain your answer.

   _____
   _____
   _____
   _____

3. A factory in the city dumps its waste into a river. What are its effects on the ecosystem, and how will you explain these effects to the owner of the factory?

   _____
   _____
   _____
   _____

Compare your answers with those in the *Answer Key* on page 45.

Let's Try This

Environmental Degradation in the Marine Ecosystem

1. Describe what you see in the picture.

_____

_____

_____

2. What do you think will happen if fishermen continue dynamite fishing?

_____

_____

_____

Read on to find out the effects of environmental degradation on marine and coastal ecosystems.

Let's Learn

Marine and coastal ecosystems are major sources of food. Fishermen earn their income by catching and selling fish. However, some fishermen practice illegal methods of catching fish. There are those who use dynamite to disturb and bring out the fish that hide in the corals. In the explosion, many fish are killed and the corals are destroyed.

Coral reefs are the homes of many marine creatures. Fish lay their eggs there. Coral reefs also help in preventing seawater from flooding populated areas near the sea.

The use of very fine fishing nets also harms marine life. When fishermen use very fine fishing nets, they also catch the small and baby fish which they usually do not sell and just throw away. These small fishes could have grown into adults and could have added to the food supply. If all small or baby fishes continue to be destroyed, then the time will come when there will be no more fish left.

Another illegal and dangerous fishing practice is *muro-ami*. About a hundred boys, aged 9 to 16, are employed to hit corals with rocks or other hard objects. The hitting disturbs the fish in the corals and makes the fish swim towards a wide net set up by the older fishermen.

How does muro-ami endanger the coral reefs, the fish, and the lives of the young boys employed in this fishing method?

_____

_____

_____

_____

You may compare your answer with those in the *Answer Key* on page 45.

Let's Try This

Environmental Degradation in the Urban Ecosystem

Read the different situations below. Then, use your imagination to think of a possible ending or outcome for each of them. Continue the story by filling in the blanks.

1. Nika came from the province. Her parents could no longer afford to send her to college. She went to Manila to work in a candy factory. Because she didn't earn much money, she had to live in a boarding house in a squatter's area. The place was overcrowded and dirty. There were garbage, flies, and mosquitoes everywhere. The safety and cleanliness of the food in the area was questionable, too. After a few months, Nika . . . .

   _____

   _____

   _____

   _____

2. Mang Mario is a traffic officer in the busy streets of Makati. Every day, he stays in the middle of dusty roads to direct the traffic. He doesn't wear a special mask to protect him from the fumes and smoke from various vehicles. After a few months, Mang Mario . . . .

   _____

   _____

   _____

   _____

3. The garbage truck has failed to collect the garbage in a barangay for almost two weeks now. The people dumped their trash in vacant areas. Garbage blocked the sewers. Flies and cockroaches swarmed the area. There was a foul smell everywhere. Without warning, a heavy rain fell. Because trash and garbage have blocked the drainage system . . . .

   _____

   _____

   _____

   _____

Compare you answers with those in the *Answer Key* on page 46.

Let's Think About This

Urban ecosystems are faced with different forms of degradation. One serious problem is the movement of people from the provinces into cities and urban places, such as Manila. This results in overcrowding, shortage of housing, deteriorating quality of water, and excessive pollution in the urban areas.

Have you noticed the noise and pollution in the city? Have you seen the squatter settlements near railroads, under bridges and along riverbanks?

Imagine what will happen if more buildings and factories are constructed, more vehicles are made, and more people from the province migrate into the cities. What do you think will happen?

_____

_____

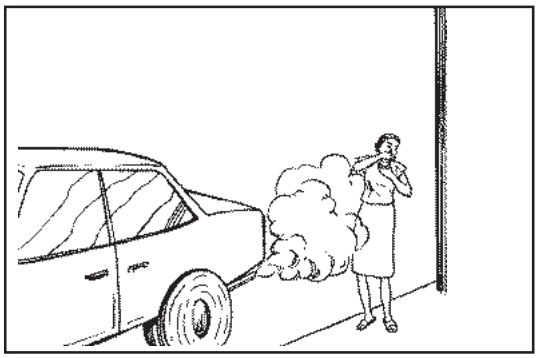
_____

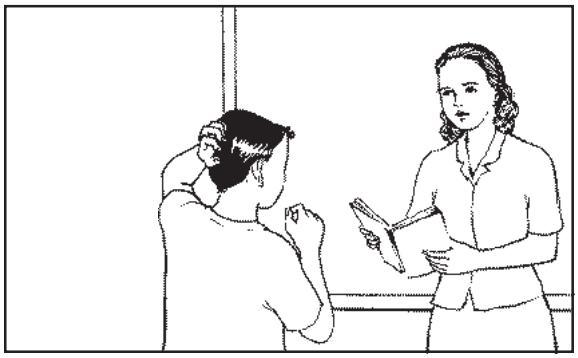
_____

With a large number of people living in a relatively small area, natural resources are easily used up. There is greater consumption and an increase in wastes. Greater consumption also leads to shortage of food, water, shelter and other basic needs.

Since there will be greater output of garbage and wastes, there will be problems in finding safe and environmental-friendly disposal methods for these wastes. Accumulation of domestic and industrial wastes leads to land, air, and water pollution. As a result, urban pollution will have severe effects on man and other organisms.

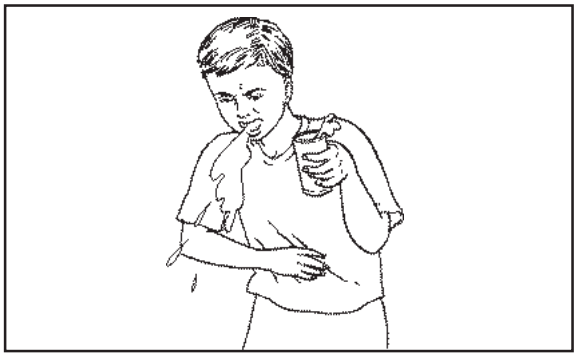
Air pollution may worsen respiratory diseases and cause different allergies.

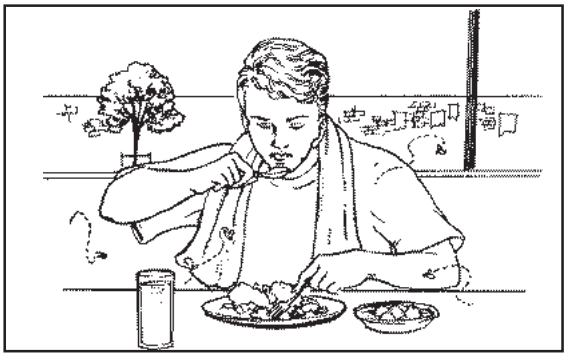




The use of leaded gasoline contributes significantly to air pollution and affects children's mental abilities.

Unclean drinking water may lead to different digestive disorders such as amoebiasis, diarrhea, dysentery and typhoid fever.





Diseases such as hepatitis may result from unsanitary places, unhygienic practices, and dirty food and drinking water. If not treated, these diseases may lead to death.

The moving into the cities of people from the province also increases the population of the urban poor. With limited resources and small income, they settle in unsafe areas like riverbanks, where flooding may occur when heavy rains come. Most of the time, they can only get water that may not be clean and safe. They also tend to throw their garbage into the river. Children living in such areas do not get enough food and medical attention so most of them become sickly.

Environmental degradation in urban ecosystems have very serious consequences. Forest, freshwater, and marine ecosystems are also affected because every ecosystem interacts with other ecosystems in this planet we all share.

Let's See What You Have Learned

A. Match Column A with Column B. Under Column A are different forms of environmental degradation while under Column B are the effects of degradation. Match each form of environmental degradation with its effect by writing the letters in the blanks provided.

Column A	Column B
____ 1. clearing of forests for housing projects ____ 2. overpumping of groundwater ____ 3. dynamite fishing ____ 4. use of leaded gasoline ____ 5. moving of people from the provinces into cities ____ 6. destruction of animals' habitat ____ 7. garbage clogging the drainage system	a. overcrowding in the cities b. saltwater intrusion c. endangerment of wildlife d. destruction of corals e. air pollution f. floods when heavy rains come g. loss of trees that hold the soil

B. Describe what happens to these different ecosystems when the given forms of environmental degradation occur.

1. Deforestation of forest ecosystems:

_____
_____
_____
_____
_____

2. Domestic and industrial wastes in freshwater ecosystems:

_____
_____
_____
_____
_____

3. Muro-ami in marine ecosystems:

_____
_____
_____
_____
_____

4. Air pollution in urban ecosystems:

_____
_____
_____
_____
_____

C. Describe an example of environmental degradation in your barangay and its effects.

_____
_____
_____
_____
_____

Compare your answers with those in the *Answer Key* on pages 46–47.

Let's Remember

In this lesson, you have learned that:

- There are many forms of environmental degradation in the various ecosystems.
  - — Deforestation is the most common form of environmental degradation in forest ecosystems. This results in the shortage of natural resources, possible extinction of wildlife, landslides, and severe floods when heavy rains come.
  - — Domestic garbage and industrial wastes are some forms of environmental degradation that severely affect freshwater ecosystems. Contamination and saltwater intrusion are some of the effects of environmental degradation in freshwater systems.
  - — Muro-ami and dynamite fishing contribute to the environmental degradation of marine and coastal ecosystems. Coral reefs are destroyed and marine life is endangered.
  - — Air, water and land pollution have negative effects on urban ecosystems. Many health problems result from these forms of environmental degradation.
- Environmental degradation in one ecosystem affects the other ecosystems because they are all connected to one another.

Taking Action

For more than 40 years, our planet earth has been sending out distress signals. Everywhere we look, we see polluted rivers, balding forests and damaged coral reefs. The signals are very obvious and clear. Mother Earth needs help very badly.

How have you responded to these distress signals? In what way can people get serious in saving the environment?

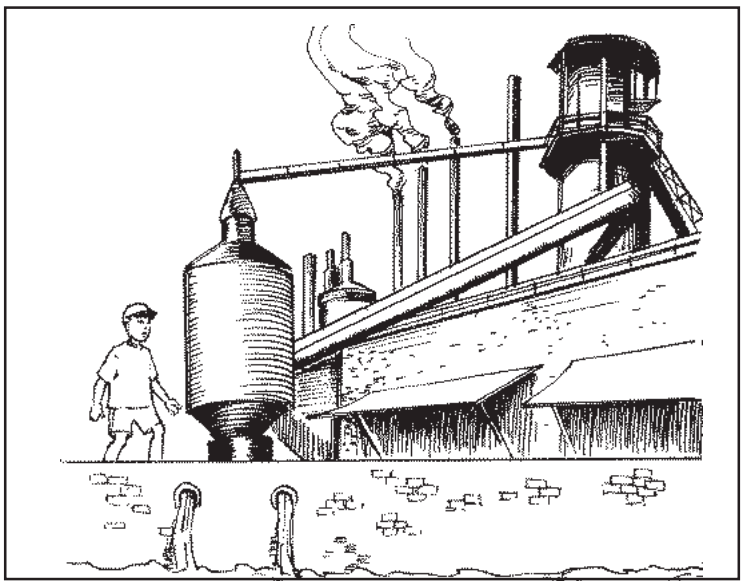
We cannot remain healthy forever in a sick environment. Earth's pain is our suffering. What can we do to ease it?

After studying this lesson, you should be able to:

- identify and explain possible solutions to environmental degradation;
- propose possible measures that may remedy or control environmental problems in the various ecosystems; and
- prepare a plan of action to apply proposed measures to remedy or control environmental degradation in your community.

Let's Think About This

Suppose that there is a cement plant near your neighborhood. It is located along the river that runs through your town. While walking along the road one day, you noticed the pipes that drain wastes and chemicals into the river. You looked up in the sky and saw the black smoke from the factory's chimney.



Complete the statements below about the situation presented to you.

I feel _____

_____

I think _____

_____

I believe _____

_____

Now, state what you will do based on what you have just written.

I will _____

_____

Have you finished completing the sentences? Compare them with the sample answers in the *Answer Key* on page 48.

Let's Try This

How "green" are you? This activity will help you find out how aware and involved you are about different environmental issues. Read the statements, then put a check mark (3) in the right box that describes your actions.

	Always	Sometimes	Never
1. I make sure that I throw my garbage in the trash can, and not just anywhere.	☐	☐	☐
2. I save plastic bags so I can use them again as many times as possible.	☐	☐	☐
3. When using the faucet, I make sure that I don't leave the water running.	☐	☐	☐
4. I save pieces of scratch paper and use them again.	☐	☐	☐
5. I follow the directions carefully when I use insecticides.	☐	☐	☐

Refer to the scale below to grade your responses.

Always	2 points
Sometimes	1 point
Never	0 point

Get your total score for the entire activity. Then, look up its interpretation in the *Answer Key* on page 48. Here, you will find out how "green" or environmental conscious you are.

Let's Think About This

Diesel Dilemma

Smoke belching is often caused by vehicles with old diesel engines that were imported or bought secondhand from other countries. Air pollution is further worsened by cheap, low-grade petroleum that creates toxic levels of sulfur dioxide and lead.

Your challenge: Propose solutions that will reduce smoke belching and air pollution in our country. The solutions should be realistic and easy to implement. Write them below.

_____

_____

_____

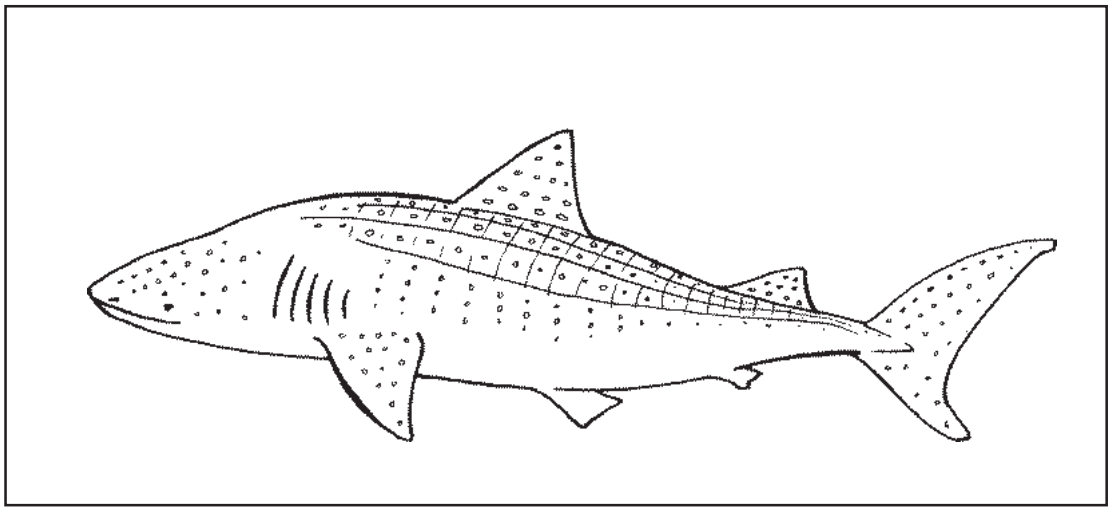
_____

_____

You may compare your answer with the one in the *Answer Key* on page 49.

Let's Study and Analyze

Read the article on the next page about the *butanding*, then answer the questions that follow.



The Whale Sharks of Donsol

Shark fishing had been a way of life for generations of Donsol residents. Families in the tiny village depended on the giant but gentle whale shark for their main source of income until overfishing made the shark increasingly rare. With guidance from the World Wildlife Fund, however, the villagers have created a new income source while also protecting the largest sharks in nature.

What used to be peak hunting season for whale sharks has now become a peak tourist season. Warm seas in December and January bring plankton close to the shore followed by the whale sharks that feed on them. In nearby Legazpi City, hotels are filled with tourists eager to get a glimpse of the whale sharks or even to dive into the waters and swim close to where the sharks are feeding.

Local fishermen are learning to become tour boat operators, and others are being trained as spotters to scan the water for the slow-moving shadows and gray fins. While most tourists prefer the view from the deck, others slip quietly into the water for a close-up view. A code of conduct prevents tourist from touching or interfering with the sharks, which can grow to 60 feet in length and weigh 15 tons.

The flourishing tourist economy has already convinced Donsol residents that there is more money to be made from live whale sharks than dead ones.

Information Sources: Manila Bulletin (April 17, 2000)
Philippine Daily Inquirer (October 24, 2000)

1. What made the whale shark in Donsol scarce?

   _____

   _____

2. What became some of the alternative means of livelihood for the local fishermen?

   _____

   _____

   _____

3. Do you think that the flourishing tourist economy in Donsol actually reduces the risk of environmental degradation of the marine or coastal ecosystem? Why or why not?

   _____

   _____

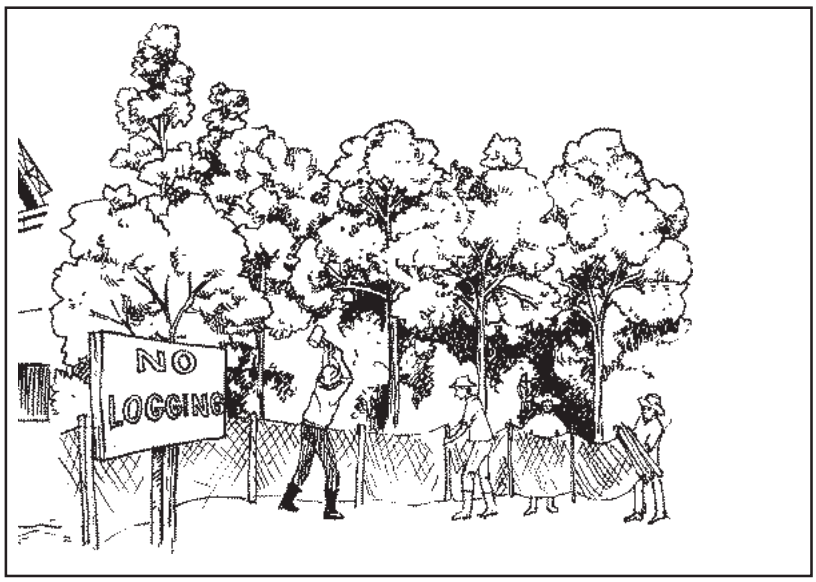
   _____

Compare your answers with those in the *Answer Key* on page 49.

Let's Learn

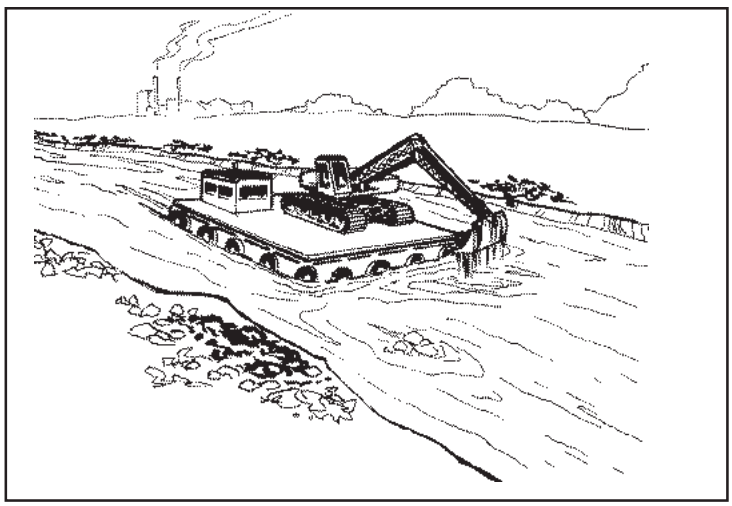
You have learned in Lesson 2 how forest, marine, freshwater and urban ecosystems are destroyed by natural and human activities. It is not enough that you know this. More importantly, you should realize that you play a vital role in saving planet earth. What Mother Earth needs is your action and participation in healing and restoring the ecosystems!

We have discussed that deforestation or the massive cutting of trees is a major cause of forest denudation. Government regulations on logging should be strictly enforced. Forest areas where logging is not allowed should be carefully protected. Furthermore, people in rural communities should be trained on how to properly manage forest resources.



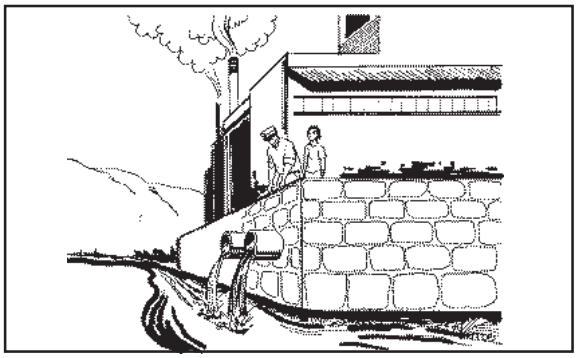
Communities should actively engage in and support reforestation activities. The rate of reforestation should be greater than the rate of deforestation so that there would be a substantial increase in the number of trees.

Look at the picture below.



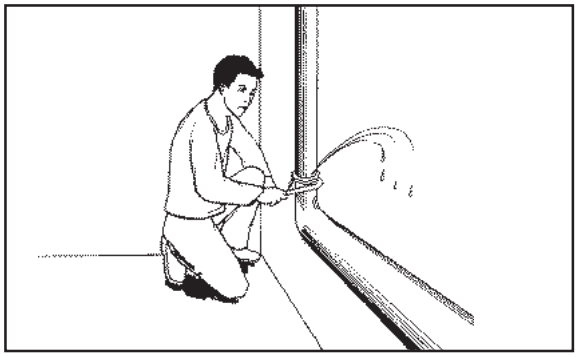
This picture shows a dead river being cleaned by dredging the wastes and garbage that have accumulated. This is only one of many programs or campaigns that are promoted by various government and nongovernment agencies.

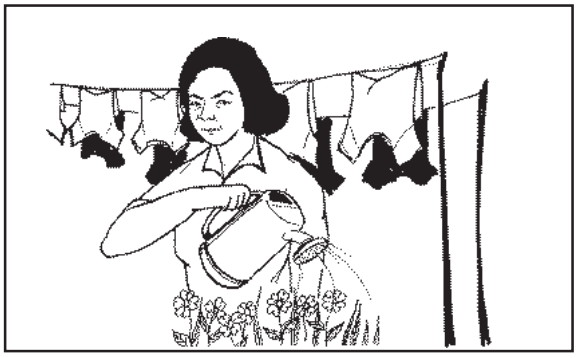
Garbage should not be thrown into rivers, lakes and other bodies of water.



Water pollution control laws should be enforced. The wastes that industrial plants drain off into bodies of water should be monitored and controlled.

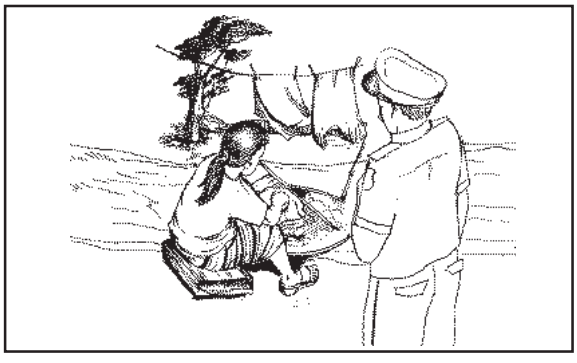
Leaky faucets and pipes should be fixed to minimize waste.

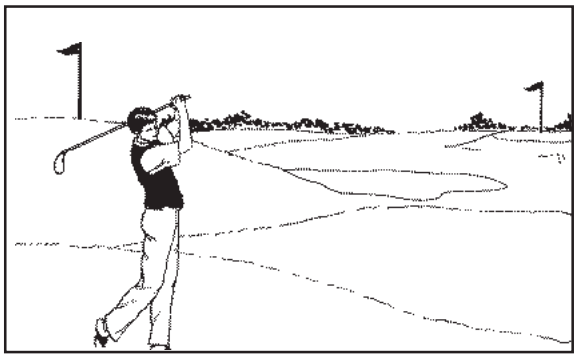




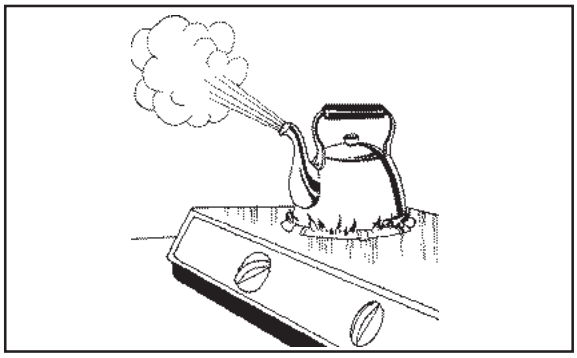
Water should be recycled. Water used to rinse clothes may be used to water the plants.

Avoid washing clothes along the river bank.





Heavy water users, such as golf courses, should be taxed.



To avoid diseases or other health problems, boil drinking water to kill bacteria and other harmful organisms in the water.

Marine and coastal ecosystems also need to be protected from pollution. More importantly, marine habitats should be rehabilitated and protected. Artificial reefs made from bamboo, concrete or rubber tires may be used to speed up the reef's recovery. Big "seed" fishes, shells, lobsters, seaweed and shrimps may be left as parents to lay eggs for future catches and harvests. The areas where these "seeds" are left must be declared as reserves so that these organisms will survive.

Limitations on fishing efforts should also be strictly implemented. Fishing methods that destroy marine and coastal resources should be banned. Workable alternative livelihood projects should be available to the community. Take another look at the article regarding the whale sharks. In it, you read about how the people now get their income from tourism and not from killing whale sharks.

Let's Try This

Which of the following activities help restore or heal the environment? Put a check mark (4) in the box before each activity that protects or restores the environment. Put an X-mark (8) in the box before each statement that contributes to environmental degradation. Then explain your answers by writing the reason in the blanks.

☐ 1. *Fixing leaky pipes and faucets*

_____

_____

☐ 2. *Dumping trash into rivers*

_____

_____

☐ 3. *Planting trees to replace those that have been cut or removed*

_____

_____

☐ 4. *washing clothes along riverbanks*

_____

_____

☐ 5. *monitoring protected forest areas*

_____

_____

☐ 6. *Killing whale sharks and other endangered animals*

_____

_____

☐ 7. *Using old tires, bamboo and concrete to make artificial reefs*

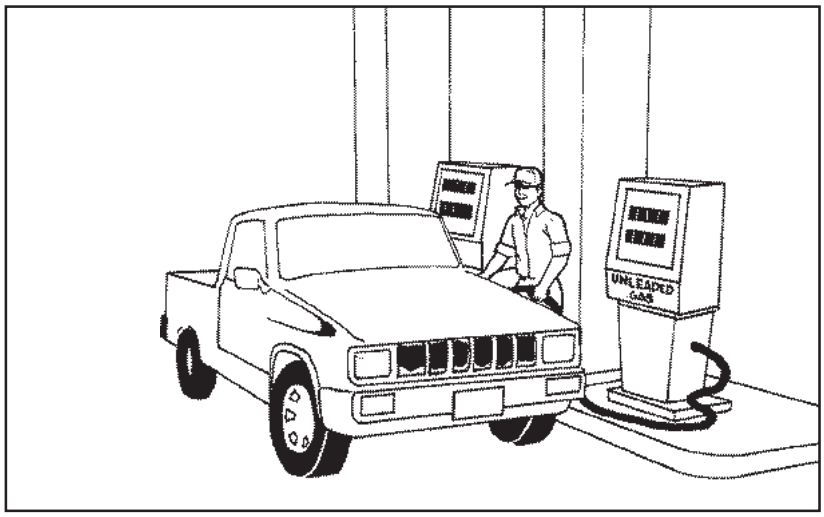
_____

_____

Compare your answers with those in the *Answer Key* on page 50.

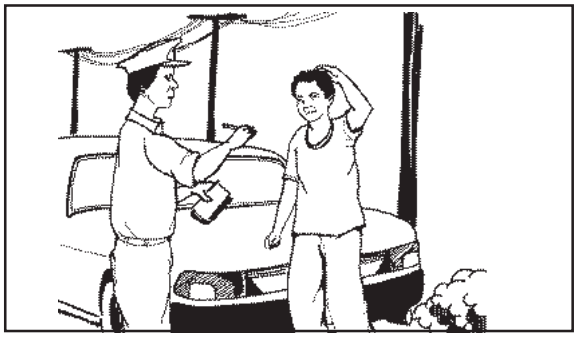
Let's Learn

The previous discussions focused on taking action to restore forest, marine and freshwater ecosystems. Now, let's talk about restoring our urban ecosystems.



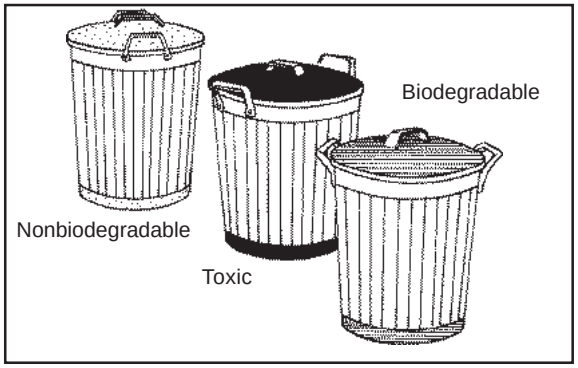
Air pollution may be reduced by phasing out leaded gasoline that contains substances like carbon monoxide which contaminate the air. Phasing out leaded gasoline will reduce the incidence of health problems such as carbon monoxide poisoning and learning disabilities in children.

Smoke-belching motor vehicles should also be impounded and fined. Vehicles should be regularly checked to improve efficiency and reduce emissions from unburned carbon.



Do you see the black smoke that jeeps, trucks, buses and cars emit? Do you know what it will do to our respiratory system when we inhale it? Bronchitis, asthma and sinusitis are among the health problems caused or aggravated by the smoke emitted by motor vehicles.

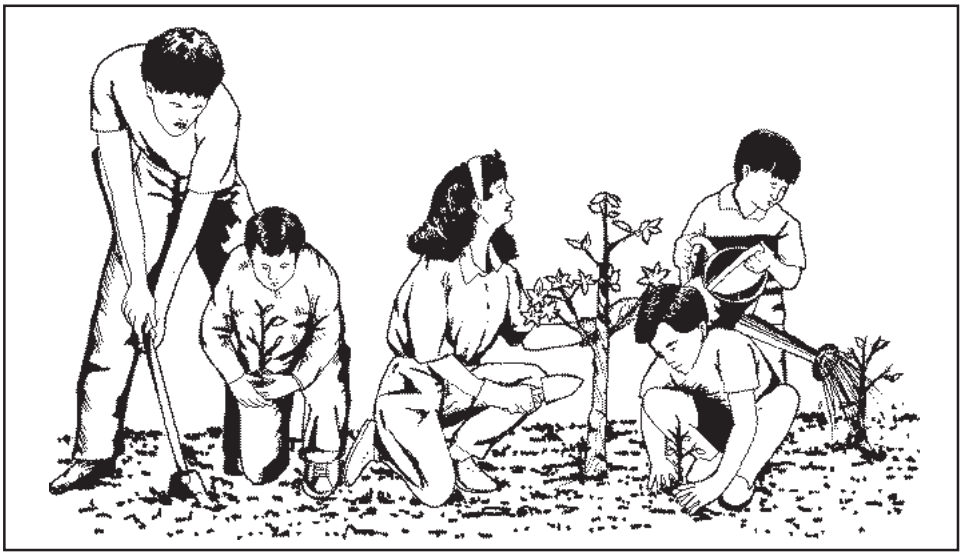
Industrial and domestic waste management should also be implemented. Plastics and other nonbiodegradable materials should be recycled. You should learn to sort your garbage and dispose of them properly. People should follow the schedule of garbage collection and should not dump their garbage just anywhere.



With regard to shelter, low-cost housing projects should be made available to the urban poor. These settlements should be clean, safe and affordable.

However, as long as people from the provinces continue to migrate to the cities, overpopulation will continue to be a problem in urban areas. To prevent or lessen this problem, people in the provinces or rural areas who are jobless should be provided with various sources of income by the government. Livelihood programs by the government should be made available for them in their communities so that they will not see the need to move to the city.

The problems of environmental degradation in the various ecosystems will not be solved if we lack the awareness and the will to restore the environment. We should realize that our environment is facing many dangers. We should also understand that it is our responsibility to care for our planet. There is only one earth. We're living in it, and we must preserve it.



Let's Try This

After reading all these, what have you realized about your role in saving the environment? In your current situation, what can you contribute to the conservation of our ecosystems and Mother Earth?

_____

_____

_____

_____

_____

_____

Show your answer to your Instructional Manager. Afterwards, you can share and discuss it with your co-learners, family and community members.

Let's See What You Have Learned

Match the environmental problems in Column A with their appropriate solutions in Column B. Write the letter of the correct answer in the blank before each number.

Column A	Column B
____ 1. waste management problems	a. boiling water to kill bacteria
____ 2. smoke belching	b. tree-planting projects
____ 3. health problems due to unclean water	c. low-cost housing projects
____ 4. lack of housing	d. finding alternative sources of income for fishermen
____ 5. water pollution due to industrial wastes	e. use of unleaded gasoline
____ 6. deforestation	f. segregation and recycling
____ 7. overfishing	g. monitoring and controlling of the waste disposal system of factories

Compare your answers with those in the *Answer Key* on pages 50–51.

Let's Remember

In this lesson, you learned that:

- There are many possible solutions to environmental problems in various ecosystems.
  - — Reforestation is the planting of trees to replace ones that have been cut.
  - — Rubber tires, bamboo and concrete may be used to make artificial coral reefs.
  - — Seeding is the placing of parent fish, shrimps, lobsters, shells and seaweed in the marine environment to reproduce or lay eggs for future harvests.
  - — Fishing efforts should be controlled and limited, especially in areas where marine life is becoming scarce.
  - — Recycling paper, water, and nonbiodegradable materials will help solve waste management problems.
  - — Impounding smoke-belching cars and fining their owners may discourage motorists from neglecting the environment and these may help contribute to the reduction of air pollution.
  - — Low-cost housing should be provided for the urban poor. Sources of livelihood or income generating programs should be made available by the government to provincial folks so they will not see the need to move to the city.
- Increasing people's awareness about the effects of environmental degradation and about their responsibility in preserving the environment is the key to restoring Mother Earth.

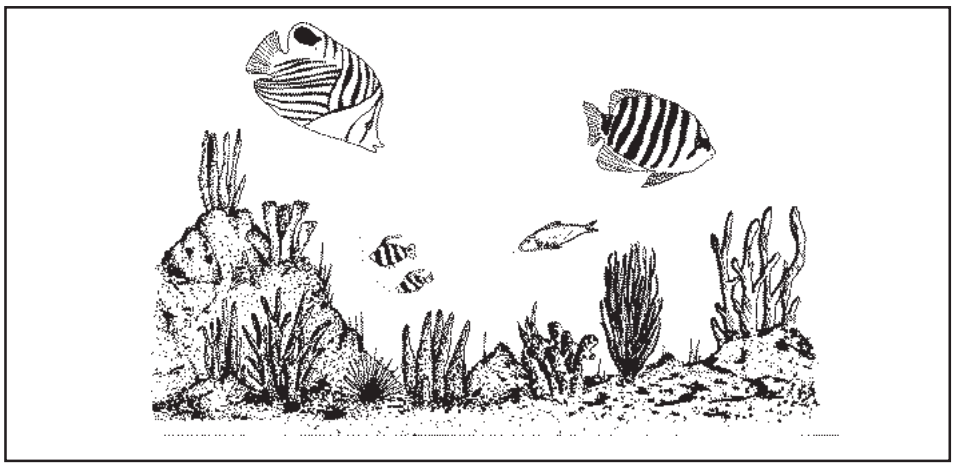
Let's Sum Up

In this module, you have learned that:

- An ecosystem is a community of organisms interacting with one another and with the physical and chemical components of the environment such as sunlight, water and soil. Some examples of ecosystems are forest, marine/ coastal, freshwater, and urban ecosystems.
- Environmental degradation happens when the environment becomes damaged or less useful. It is either a natural or a man-made change to the environment that upsets or destroys the balance in the ecosystem.
- There are many forms of environmental degradation. Examples are deforestation, urbanization, pollution and using up available resources that are difficult to replace or cannot be replaced at all.
- There are various solutions to stop environmental degradation and to heal and restore our ecosystems. Some of them are reforestation, proper waste management, monitoring and controlling pollution, and controlling the use of natural resources.
- We must be aware of our responsibility in healing and restoring Mother Earth. We must not contribute to the environmental degradation that is already happening to our various ecosystems. We must be willing take steps to preserve this one world we call our home.

What Have You Learned?

Study this picture. Then answer the questions that follow.



1. What kind of ecosystem is shown in the picture? Describe the relationships between the various organisms and their relationship with their environment. (2 points)

   _____
   _____
   _____
   _____
   _____

2. Give three forms of environmental degradation that may happen to this ecosystem. (3 points)

   a. _____
   b. _____
   c. _____

3. What possible actions may be taken to preserve this ecosystem? Give three solutions. (3 points)

   a. _____
   b. _____
   c. _____

Were you able to answer all the questions? Compare your answers with those in the *Answer Key* on page 51.

If the number of correct answers you got is:

7 – 8 Very good! You have learned a lot from this module. You may now proceed to the next module.

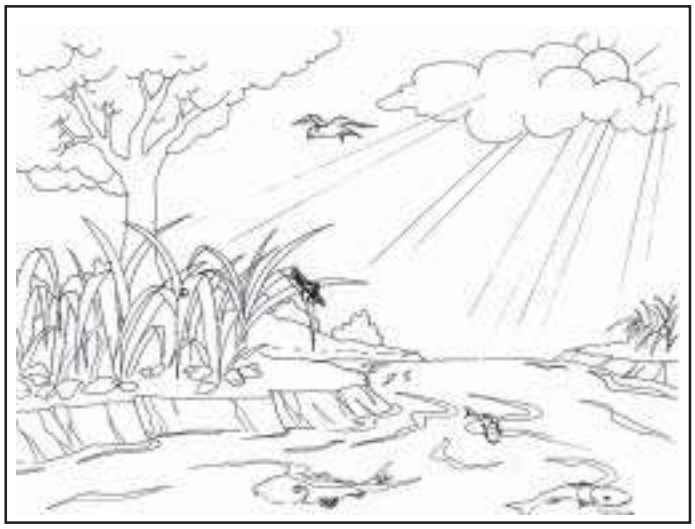
5 – 6 Good! Just review the lessons or parts of the module that you have not clearly understood.

0 – 4 You have to study the whole module again.

Answer Key

A. Let's See What You Already Know *(pages 2–3)*

A. Here are sample answers. Your answers may be different from these. You can show your answers to your Instructional Manager for additional feedback.



An ecosystem is a community of organisms interacting with one another and with their environment. Examples are forests, ponds and communities.

I drew a river ecosystem. The fish live in the river. The sun and the water from the river help the trees and grass to grow and make food for the animals. The grasshopper feeds on the grass. The bird feeds on the grasshopper and small fish in the river.

B. In the first picture, the river is clean. There are many plants and animals. The place is healthy and beautiful. However, in the second picture, the river is dirty and almost dried up. There are fewer trees and plants. There are no animals. Garbage and waste are all over the place, especially in the river.

C. 1. forest ecosystem
2. ecosystem
3. deforestation
4. recycling
5. urbanization

B. Lesson 1

Let's Study and Analyze (pages 5–6)

1. The organisms in the picture are plants, animals and insects.
2. The trees and plants provide the animals and insects with food. The animals and insects help the plants to reproduce by spreading the plants' pollen.
3. The environment is made up of sunlight, water, soil, and the nutrients from the soil.
4. All the organisms benefit from the water and sunlight. The plants especially need the sunlight, water, and the nutrients from the soil in order to grow and produce food.
5. The trees and plants hold the soil to keep it from being washed away when the rains come.

Let's Try This (page 7)

The picture shows a pond ecosystem. The grasshopper feeds on the grass at the edge of the pond. The frog feeds on the grasshopper. The grass, water lilies, and lotus plants need the water and sunlight to grow. The earthworm feeds on the food in the soil and in turn makes the soil more rich.

Let's Try This (pages 9–10)

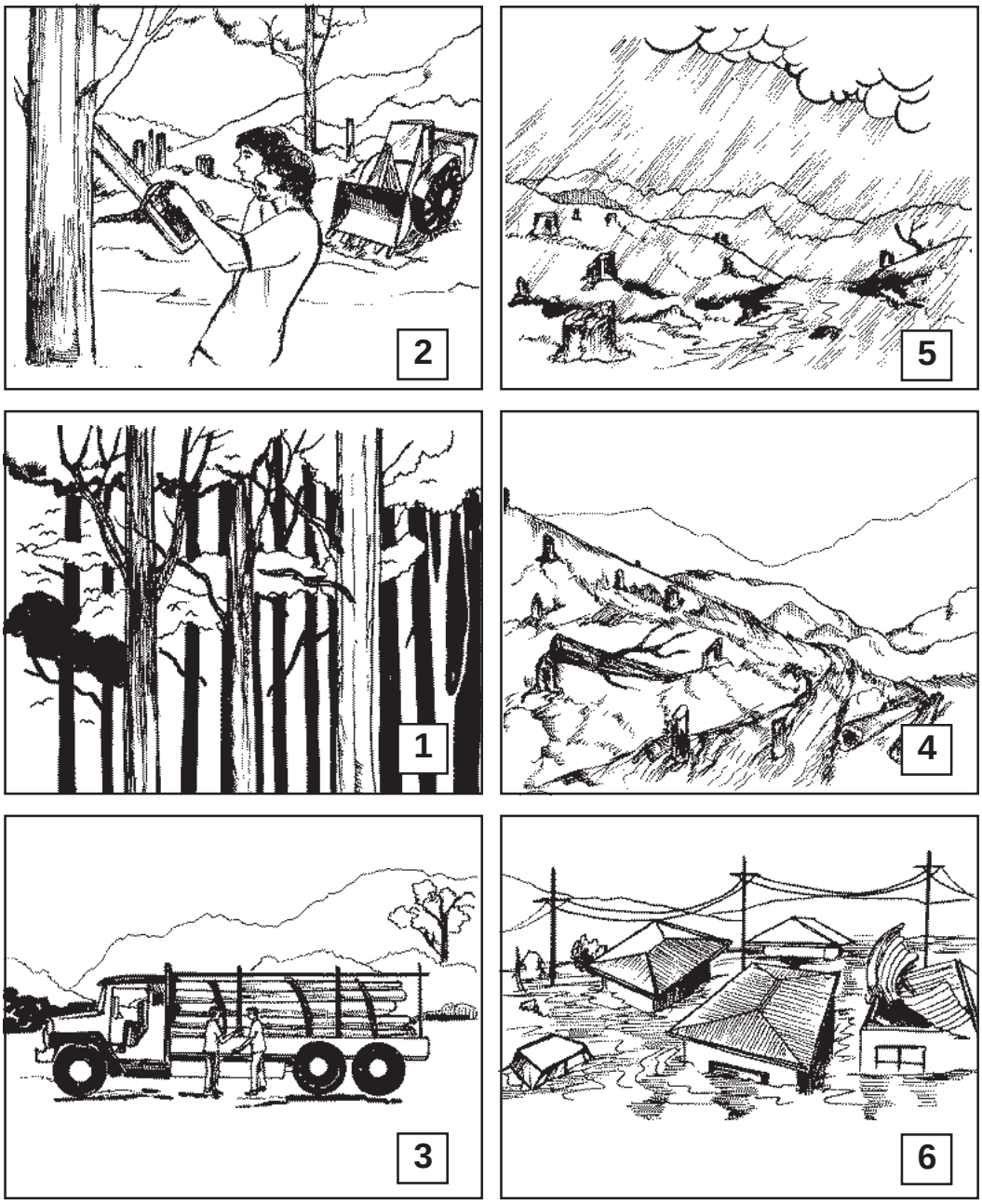
1. The men in the picture are cutting trees, which is a form of deforestation. Without trees, animals may lose their homes and may become endangered many plants may also become endangered. Nothing will hold back the soil, especially when the heavy rains come. Landslides and floods may occur, resulting in lost lives and damaged properties.
2. The factories and cars are contributing to air pollution. Air pollution may cause or aggravate certain diseases, especially respiratory disorders.
3. Flood is a form of environmental degradation that severely affects urban ecosystems. Damage to property occurs, and some people get sick and may even die.
4. The man is throwing dynamite into the water to catch more fish. The explosion does not only kill many fish; it also the destroys the corals where the fish live and lay eggs.
5. The people are throwing their trash into the river. The trash will pollute the water and kill the fish and plants that live there. It will also contaminate the river, which may be a source of drinking water for the people who live in the area.

Let's See What You Have Learned (page 11)

1. An ecosystem is a community of organisms interacting with one another and with the physical and chemical factors like sunlight, water and soil that make up their environment.
2. Here are the factors that make up the environment:
    a. sunlight
    b. water
    c. soil
    d. nutrients in the soil
    e. weather or climate
    f. temperature
3. Environmental degradation is either a natural or a man-made change to the environment that upsets or destroys the balance in the ecosystem.
4. Here are some forms of natural environmental degradation:
    a. floods
    b. earthquakes
    c. landslides
    d. volcanic eruptions
    e. typhoons or hurricanes
5. Here are some forms of man-made environmental degradation:
    a. deforestation (kaingin or cutting of trees)
    b. dynamite fishing and use of fine nets
    c. muro-ami
    d. throwing industrial wastes or domestic wastes into bodies of water
    e. allowing leaky faucets and pipes to go unrepaired
    f. overpumping of groundwater
    g. urbanization
    h. smoke belching

C. Lesson 2

Let's Try This (pages 12–13)



Let's Study and Analyze (pages 13–14)

1. There were eight hundred trees in 1995.
   There were only one hundred trees in 2000.
2. As the years passed, the number of trees kept decreasing.
3. The number of trees decreased year after year because of deforestation. People were continuously cutting trees without replacing them.
4. The environment will suffer. There will be landslides and floods when heavy rains come. The people living in that area will also suffer. The floods and landslides may destroy lives and property.

Let's Try This (page 16)

Here are some sample answers:

1. The first illustration shows a clean and beautiful Pasig River. There are many animals and plants. On the other hand, the second illustration shows a very dirty and polluted Pasig River. There are almost no plants and animals. Waste and garbage are all over the place.

2. I think the people polluted the river. They threw their trash and garbage into it. The pollution killed most of the plants and fish that lived in the river.

   You can discuss your answers with your Instructional Manager for additional feedback.

Let's Review (page 20)

Here are some sample answers. Your answers may be a bit different.

1. I will tell them of the effects of throwing garbage into the river. I will explain that the garbage will pollute and contaminate the river, which may be a source of drinking water for the people. The fish and plants that live in the river will die and this may result in the shortage of fish, which is a source of food. Also, when the heavy rains come, floods may occur. Property may be damaged and people may get sick or die from the many diseases that floods bring.

2. If I find out that one of the water pipes in my house is broken and that water is starting to leak, I will immediately call a plumber to fix it. If I leave the pipe unrepaired, water from our fresh water sources would be wasted. This might lead to saltwater intrusion.

3. I will explain to the owner that his or her method of waste disposal will pollute the river. The pollution will kill the plants and animals that live in the water. Fish supply may become scarce. And, if the river is a source of drinking water for people who live nearby, they might drink this contaminated water and may contract certain diseases.

Let's Learn (pages 21–22)

Muro-ami endangers the coral reefs because the hitting of the corals may eventually destroy them. It also endangers the fish because the young fish are included in the catch when the fishermen use fine nets. Even the lives of the boys employed in this fishing method are endangered. Prolonged stay underwater may damage their lungs and lead to untoward incidents that may cost the boys' lives.

Let's Try This (page 23)

Here are sample answers. Your answers may be different.

1. *After a few months, Nika* became sick. The water she drank was contaminated and she suffered from diarrhea for three days. She had to be rushed to the hospital because she was severely dehydrated.

2. *After a few months, Mang Mario* was rushed to the hospital. He was suffering from severe chest pains. His doctor said that he may have developed asthma.

3. *Because the trash and garbage blocked the drainage system,* a heavy flood occurred. The people had to leave the barangay because the waters were already neck-deep. A lot of property was damaged. Children got sick and some developed pneumonia. Many suffered from skin irritations and allergies.

Let's See What You Have Learned (pages 25–26)

A. 1. **(g)** Clearing forests for housing leads to loss of trees that help hold the soil in place. When heavy rains come, floods may occur because there are no more trees to absorb the excess water. Landslides may occur as a result of this.

2. **(b)** Overpumping of ground water may use up the freshwater reserve. When this happens, saltwater may be pumped in, particularly in areas near the sea or ocean.

3. **(d)** The explosion caused by dynamite fishing may destroy the corals where fish live and lay eggs. This will result in a shortage of fish supply.

4. **(e)** Leaded gasoline produces smoke that contains substances which pollute the air. Inhalation of this smoke causes learning disabilities among children and certain respiratory disorders.

5. **(a)** When too many people from the provinces move into the cities, overcrowding occurs. Overcrowding may lead to waste management problems and shortage of food supply.

6. **(c)**. Destruction of animal's habitat leads to the endangerment of wildlife. If this continues, extinction of certain animals and plants may result.

7. **(f)** Garbage clogging drainage systems may cause floods when heavy rains come. Floods may damage property and cause illnesses or diseases.

B. 1. Deforestation in the forest ecosystem:

Deforestation severely affects the forest ecosystem. There will be less trees, or none at all, to hold the soil and prevent landslides. Floods may occur because no trees will absorb excess water when heavy rains come. Certain plants and animals may become endangered because of the destruction of their forest homes.

2. Domestic and industrial wastes in the freshwater ecosystem:

Domestic and industrial wastes pollute freshwater ecosystems. The pollution will kill fish and plants that live in these ecosystems and may cause a shortage of fish supply. Water from freshwater sources will become contaminated and may cause diseases.

3. Muro-ami in the marine ecosystem:

The muro-ami method of fishing reduces fish supply because even the young fish are included in the catch. These fish cannot be sold and so they are just thrown away.

The constant hitting of the corals to bring out the fish may also eventually destroy the fish's natural habitat. The fish lay eggs in the corals. Destroying the corals will result in a decreased fish supply.

4. Air pollution in the urban ecosystem:

Air pollution is a big problem in the urban ecosystem. The black smoke from factory chimneys and motor vehicles contain poisonous substances that are hazardous to our health. Respiratory diseases may result and children may develop learning disabilities.

C. Here is a sample answer. Your answer may be different from the one given below.

In my community, a serious environmental problem is domestic waste. Garbage trucks only come once a week, so garbage is dumped and piled up on street corners and vacant lots. I will suggest to the barangay captain that garbage segregation and recycling projects be launched to minimize the problem of garbage disposal. The community may coordinate with nongovernment organizations that have recycling facilities. The community members will be asked to collect their paper and nonbiodegradable materials and give them to the barangay councilors or volunteers for recycling. The biodegradable materials can be collected and composted. Also, I will suggest that the barangay captain hold mini-seminars on proper waste management to make people more aware of their responsibility in maintaining a clean and healthy community.

D. Lesson 3

Let's Think About This (pages 28–29)

Here are sample answers. Your answers may be different from these.

I feel worried about what will happen if the factory continues to emit black smoke from its chimney and drain its wastes into the river. The factory is near my neighborhood and people may start to suffer from health problems. The river may become too polluted for it to be a source for water or food. The animals and plants that live in the river may die. The contaminated water may cause diseases.

I think that the factory should be checked regularly by environmental health officials. I also think that it is the responsibility of the owner to use antipollution devices in his factory. The people, too, should take action and report to the proper authorities the industrial wastes being dumped into the river and the pollution caused by the black smoke from the factory's chimney.

I believe that the owner has a responsibility to maintain a healthy environment. The community members also have a responsibility in reporting incidents of environmental degradation.

I will report what I have observed concerning the factory to local officials. I will also write a letter to or personally speak with environmental health officials regarding the specific cases of environmental degradation.

Let's Try This (page 29)

8 – 10 points **Dark Green**	You belong to the rare tropical jungles of the Philippines. Like the forests, your knowledge is precious! Be an environmental leader by educating those around you. Continue doing what you can to help because you are making a difference!
5 – 7 points **Medium Green**	You are the color of the rice fields before harvest. You have some basic understanding of the environment and seem to be concerned about protecting it. But your environmental awareness still needs to grow. Perhaps, you have not clearly realized what an important role you play. Now is the time to take action. Read all you can about protecting our planet and find out what else you can do to make a difference. Keep up the good work!
0 – 4 points **Light Green**	You are like a slippery seaweed. You need to become environmentally aware or you may be washed ashore. It is time to start reading about environmental issues that surround you. Your actions today affect the future of both local and global communities. Why not find out what interests you and choose to make a positive difference?

Let's Think About This (page 30)

Here is a sample answer. Your answer may be different from it. You can show your answer to your Instructional Manager for additional feedback.

Our main problem regarding air pollution in our country is smoke belching. Many jeeps, trucks, buses and cars emit black smoke with substances that worsen the already poor condition of our air. To solve this, vehicles should be required by law to have regular engine tune-up and cleaning. This will help avoid the emission of harmful smoke. During registration of the vehicles, they should undergo a test that evaluates the smoke that they emit. Motorists who do not have their vehicles checked will be impounded and fined and their vehicles impounded.

Let's Study and Analyze (pages 30–31)

1. The whale sharks in Donsol became scarce because of overfishing. The Donsol residents relied on the fishing of whale sharks as their main source of income.

2. Some of the local fishermen learned to become boat operators for tourists who want to see the whale sharks. Others trained as spotters to look for the whale sharks in the waters.

3. There are two possible answers to this question. These are some sample answers:

    a. Yes. This flourishing tourist economy in Donsol actually reduces marine/coastal degradation. The residents have stopped killing the whale sharks and the problem of overfishing has been practically eliminated.

    b. No. The tourist economy may have stopped the killing of the whale sharks, but this only brings in new problems. Tourism may still degrade marine/coastal ecosystems. Many people will be visiting Donsol and new hotels and resorts will be built to accommodate the tourists. Trees along the coastal areas are in danger of being cleared to make way for new resorts. The people will also be producing more waste materials that may pollute the coasts.

    You can discuss your answers with your Instructional Manager for additional feedback.

Let's Try This (page 35)

4 1. *Fixing leaky pipes and faucets*
This prevents water wastage and contamination.

8 2. *Dumping trash into rivers*
This results in water pollution. The animals and plants that live in the rivers may die. The water will be contaminated and will become a source of disease.

4 3. *Planting trees to replace those that have been cut or removed*
This will ensure that there will be trees left to hold the soil and absorb excess water during heavy rains.

8 4. *Washing clothes along the riverbanks*
There may be harmful substances in the soaps or detergents used in washing. This will contribute to water pollution.

4 5. *Monitoring protected forest areas*
This will ensure that trees will not be illegally cut and that the wildlife will be safe from hunters.

8 6. *Killing whale sharks and other endangered animals*
Extinction of certain animals may occur. The balance in the ecosystems where these animals live may be disturbed because these animals are an important part of healthy ecosystems.

4 7. *Using old tires, bamboo and concrete to make artificial reefs*
This will provide homes for fish. The fish can lay eggs in the artificial reefs. Shortage of fish supply may be prevented.

Let's See What You Have Learned (page 38)

1. **(f)** Proper **segregation and recycling** can help solve waste management problems. This reduces the garbage that must be disposed of and minimizes difficulties in looking for dumping sites.

2. **(e)** **Use of unleaded gasoline** reduces smoke belching. This gasoline is free from many harmful substances that pollute the air.

3. **(a)** **Boiling water to kill bacteria** prevents health problems due to unclean water.

4. **(c)** Lack of housing for the urban poor may be solved through **low-cost housing projects**. These housing projects may discourage people from settling in areas near bodies of water and may help prevent further pollution of waterways.

5. **(g) Monitoring and controlling of the waste disposal system of factories** helps prevent water pollution caused by the dumping of industrial wastes into bodies of water. Factory owners may be advised to use anti-pollution devices in their factories.

6. **(b) Tree-planting projects** will help solve deforestation. They ensure that there will still be trees left to prevent landslides and massive floods. Planting trees also ensures that forest animals will not lose their homes and their sources of food.

7. **(d) Finding alternative sources of income for fishermen** helps prevent overfishing.

E. What Have You Learned? *(page 40)*

1. The picture shows a marine ecosystem. The fish feed on the seaweed. They live and lay their eggs in the corals. The water carries nutrients and other organisms that may serve as food for the fish. The temperature in the water helps maintain the life of plants and animals living in the ecosystem. (2 points)

2. Here are the forms of environmental degradation that may happen to a marine ecosystem. Any three of these are corect. (1 point per answer)

   a. overfishing

   b. dynamite fishing

   c. muro-ami

   d. use of very fine nets

   e. pollution caused by industrial and domestic wastes

   f. catching or killing of endangered animals

   g. oil spills

3. Below are possible solutions to prevent environmental degradation in a marine ecosystem. Any three of these are corect. (1 point per answer)

   a. finding alternative sources of income for fishermen

   b. using legal and environment-friendly methods of fishing

   c. proper disposal of industrial and domestic wastes

   d. protecting endangered animals

   e. removal of toxic substances, such as oil spills, as soon as they are discovered

Glossary

Biodegradable materials Materials that can be broken down by bacteria and other organisms

Corals Hard substances produced from the skeletal deposits of underwater animals. Fish live and lay eggs in them.

Deforestation The cutting and removing of trees in forested areas

Degradation The act or event of spoiling or destroying something

Denudation The stripping or making bare of something

Distrees Grat suffering or pain

Dredge To remove unwanted matter from the bottom of a river

Dynamite fishing The use of dynamite in catching fish. The explosions disturb the fish and drive them out of their homes in the coral.

Ecosystem A community of organisms interacting with one another and with the physical and chemical factors that make up their environment

Endanger To cause harm or danger; to bring close to extinction

Environment The conditions affecting certain organisms, including physical surroundings, climate, and influences of other living things

Environmental degradation A natural or a man-made change to the environment that upsets or destroys the balance in the ecosystem

Extinction The complete disappearance of a certain organism, especially one that is already endangered

Freshwater ecosystem Refers to an ecosystem consisting mostly of a river, stream or lake

Groundwater Water that exists below the surface of the earth. It is usually held in porous soil or rocky materials.

Kaingin A method of deforestation where trees are slashed and burned to change a forest area into an agricultural land

Landslide A sudden downward movement of a mass of soil or rocks

Marine ecosystem An ecosystem consisting of seawater and sea life

Muro-ami A method of fishing wherein young boys are employed to hit corals with rocks to drive out the fish. The fish are then made to swim towards fine fishing nets that have already been set up by the older fishermen.

Nonbiodegradable materials Materials that cannot be broken down by bacteria and other organisms

Organism An individual living animal or plant

Pollution Contamination of the environment caused by human activities

Recycling The process of reusing materials

Reforestation The planting of tress in an area that has become bare or spoiled

Salt intrusion The moving in of saltwater into freshwater sources

Scarce Few; not easy to find or obtain

Smoke belching The emission of black smoke by motor vehicles. The smoke contains substances that are harmful to our health.

Urbanization The process in which an increasing number of a country's population becomes concentrated in urban areas

Wetland A permanently wet land area or habitat

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