

# Ecosystem Benefits

Real World Ecosystems  
Learner Worksheet Answer Key  
Grade Level: 5-8



Name:

After reading the Ecosystem Benefits Backgrounder, answer the following questions.

## Part A Questions:

### 1. Name four important services provided to humans by ecosystems:

Answers may vary, but the main ecosystem services that humans benefit from include water supply, storage, and purification; waste absorption; food production; air purification; climate control; disease prevention; and erosion prevention. Learners may identify others.

### 2. In November 2004, illegal logging and deforestation in mountainous valleys in the Philippines caused highly destructive mudslides that killed hundreds of people and left thousands homeless. Explain how logging contributed to the mudslides.

Prior to logging, the soils of the forested valleys were anchored by the roots of trees and other plants. The removal of the trees caused the soils to become unstable and susceptible to erosion. Heavy rains washed large amounts of soil down into the valley, along with thousands of tonnes of fallen tree trunks, roots, rocks, and other debris.

### 3. What is a “living machine” and how is it similar to a wetland?

A living machine is an indoor wetland designed to process human sewage. It consists of several tanks containing pond plants, algae, and bacteria. Bacteria start the breakdown process, digesting much of the solid material, reducing it to chemicals plants can absorb. Sunlight and heat in the greenhouse help the plants to grow vigorously, and their roots absorb much of the nitrogen and other substances released by bacteria. Natural wetlands work the same way. Water flows into or through them carrying smaller amounts of waste, which is quickly used as food by organisms, or broken down into chemicals that plants can use to grow.

#### **4. What are the benefits of having many trees in cities?**

Trees absorb large amounts of pollution and filter out dust from the air in cities. They also emit water vapour and create shade, both of which help cool cities. Trees also provide habitat for helpful organisms such as insect-eating birds. Lastly, trees make a city a more attractive place to live.

#### **5. How do ecosystems help humans produce their food?**

Ecosystems are important in human food production. Here are a few of the main food-related ecosystem services:

- a. Pollination of fruit and some seed crops by native insects, a free service.
- b. Soil-building processes that helps fields stay fertile.
- c. Water delivery, storage, and purification, because most water used in agriculture must be supplied from ecosystems.

#### **6. Describe the effect that the boreal forest ecosystem has on the climate of Fort McMurray.**

The climate of Fort McMurray benefits by having the boreal forest. The forest maintains a cooler, moister climate in summer than would exist without it and, conversely, has a slightly warmer climate in winter.

### **Part B: Investigative Questions**

The answers to these questions will vary widely from group to group depending on the river they select. You will have to evaluate their answers based on:

- How well learners conduct their research
- How well they understand the concept of the watershed
- The quality of the maps and references your learners are able to consult
- The amount of time they are given to do the work