INQUIRY 2: HOW MUCH OF EARTH'S LAND IS COVERED BY FORESTS?

THE SITUATION: You have learned about the benefits forests provide to people and other animals. (If you have not read "Thinking about the Environment," please do so now.) In Inquiry 1, you also learned that people are changing the world's forests. What you did not learn, however, is whether the world's forests are growing or shrinking in size overall.

Throughout history, humans have cut down trees and planted trees to meet their needs (Figure 14). This is one of the benefits of trees! If humans remove more trees than they plant, however, the size of the forest will shrink.

FAO wanted to know whether Earth is losing, gaining, or keeping about the same amount of forests over time. To do this, they asked each country correspondent to provide information for the years 1990, 2000, and 2005. The information they collected included the total amount of forests in all categories for each correspondent's country.

REFLECTION SECTION

Do you think FAO found that Earth is gaining, losing, or keeping about the same amount of forests over time?

If more forests are lost than are being planted, what will happen to the benefits provided by forests?

WHAT THEY DISCOVERED: In 2005, the total amount of forests worldwide was just under 4 billion hectares. This is equal to about 30 percent of the land area on Earth. If every person on Earth were given an equal piece of forest, each person would have 0.62 of a hectare, which is about the size of a soccer field (Figure 15).

Some countries have a large population and a small amount of forest. For those countries, each person might be given an area smaller than 0.1 hectare (about 1/6 of a soccer field). In other countries, there is a large amount of forest compared with the population. In the largest of these countries, each person might be given over 5 hectares of forest, or about 8 soccer fields. You can see that the amount of forests across Earth is not evenly distributed among the world's human population.

Figure 14. Young man watering trees to stabilize sand dunes

The removal of trees and conversion of the land to another use is called deforestation. Most deforestation happens because people remove trees and plant food crops for people and for livestock (Figure 16). Worldwide, 13 million hectares of forests are lost to deforestation every year.

Fortunately, people are also planting trees and helping forests grow back. In addition, some forests have naturally spread over a larger area without help from people.

Because some forests were expanding but more were being lost worldwide, about 7.3 million hectares of forests - an area about the size of Sierra Leone or Panama - were lost every year between 2000 and 2005. While this is not good news, it is better news than in the past. Between 1990 and 2000, about 8.9 million hectares of forests were lost every year.

You Do the Math:
How many fewer hectares of forest land were being lost each year between 2000 and 2005 compared with the decade between 1990 and 2000?

There are 100 hectares in a square kilometer (km^2). How many km^2 did Earth lose per day during 2000-2005?

REFLECTION SECTION

Why is it important to understand whether the amount of forest area worldwide is shrinking, growing, or staying about the same?

Look at Figure 17. Find the region where your home is located.

How does your region compare with the rest of the world?

Why do you think that is?

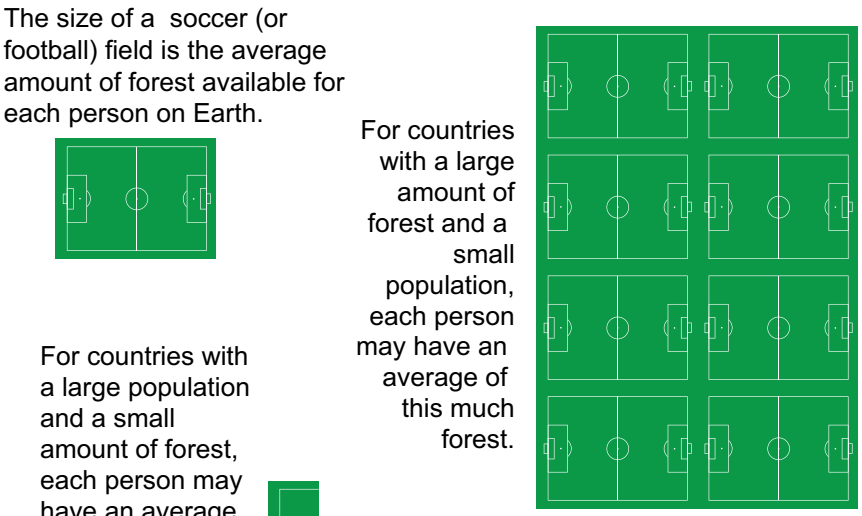

Figure 15. Average amount of forest for every person on Earth and the range of forest from the smallest amount per person to the largest amount per person

Figure 16. Land planted for food crops

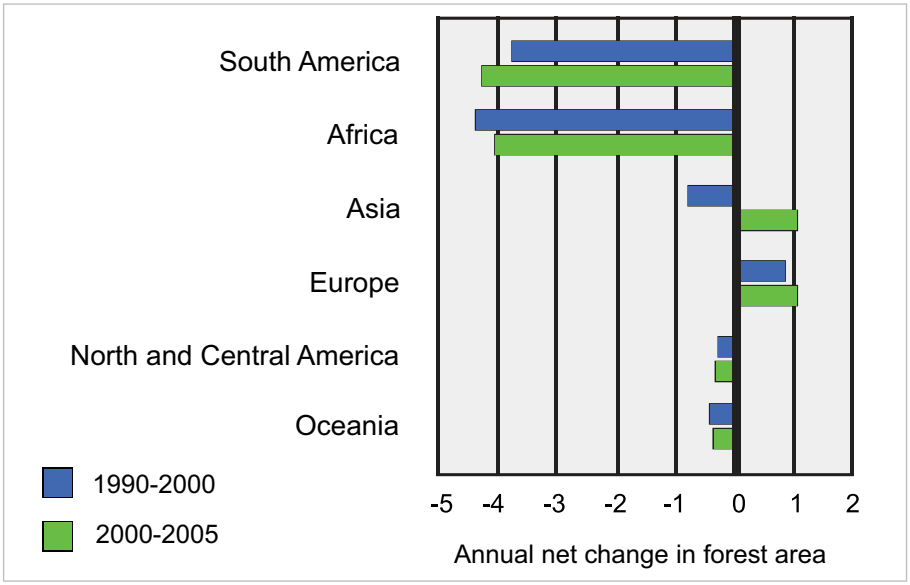

Figure 17. Changes in the amount of forest area by region (million hectares per year)

Between 2000-2005 South America lost more hectares of forests than any other region (Figure 17). Africa also lost a large amount of forests. On the other hand, Asian forests grew by one million hectares every year between 2000 and 2005. Asia's increase in forests was the result of a planned effort to plant trees in that region. Most of the trees were planted in China.

Figures 18-21 show four world maps. The first map (Figure 18) is easy to recognize, because each country is its normal size and shape. The countries within each region are similarly colored. Find your own country and region on this world map. What general color is the region in which your country is located?

The maps in Figures 19-21 are called cartograms. In cartograms 19-21, the country size and shape is *distorted* to show the country's forest area, forest growth and forest loss in relation to the country's size. In Figure 20, the cartogram shows forest growth in

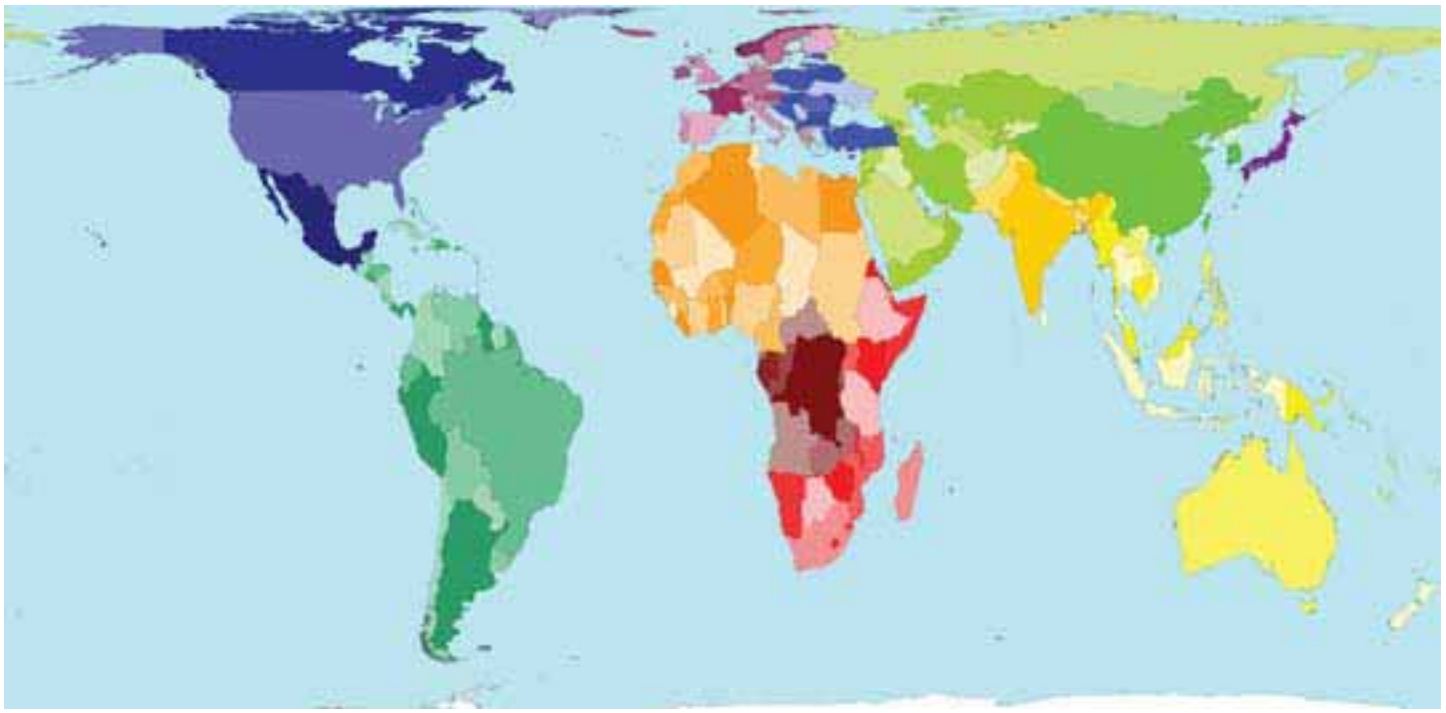

Figure 18. Land area of countries across the world. Map by Worldmapper

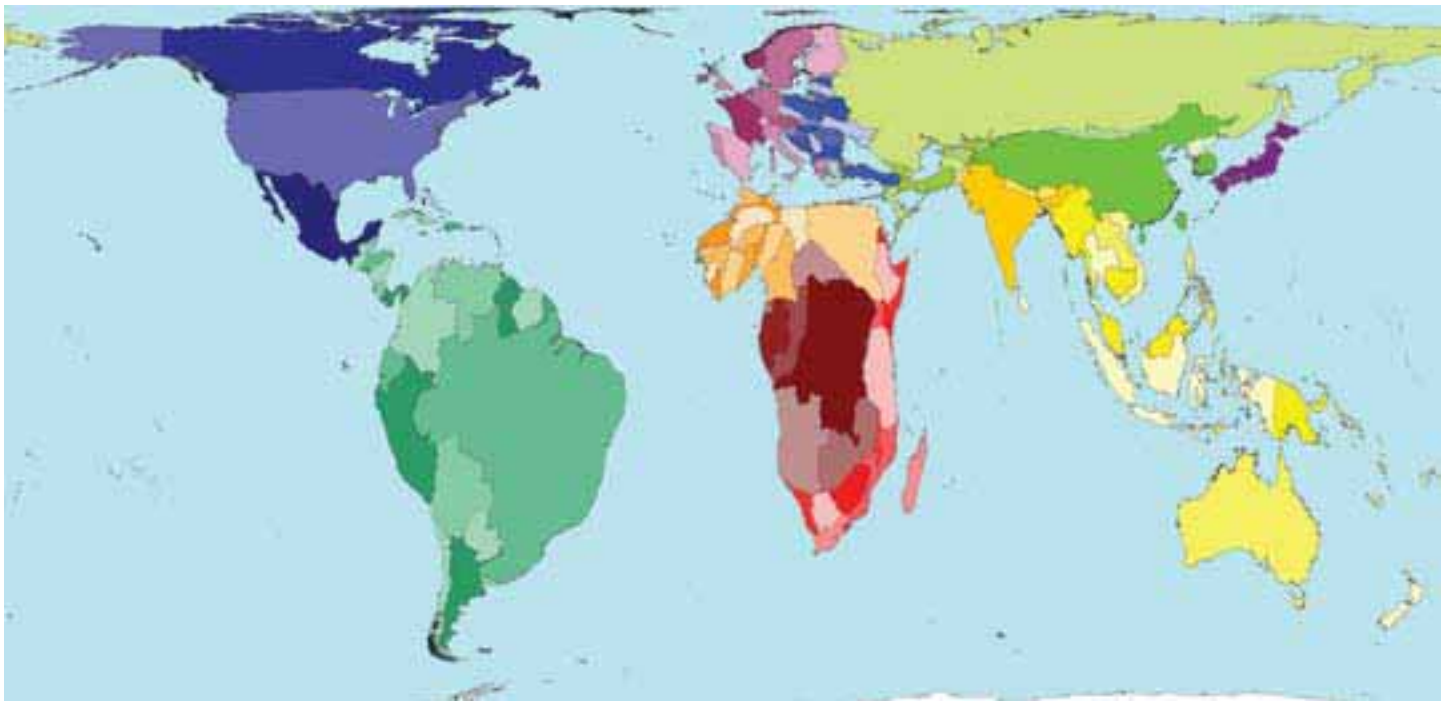

Figure 19. Amount of forest area in each country in 2005. Map by Worldmapper

square kilometers between 1990 and 2005. Compared with their normal size and shape, the larger countries and regions experienced more forest growth during that period.

In Figure 21, the cartogram shows forest loss in square kilometers between 1990 and 2005. Compared with their normal size and shape, the larger and more distorted countries experienced more forest loss. Find your country and region in the cartograms in Figures 20 and 21. Did your country gain or lose forests? Did your region gain or lose forests? Now compare these cartograms with the blue and green bars in Figure 17. What do Figures 17, 20 and 21 tell you about the forests in Asia?

GLOSSARY:

distort: To twist out of a normal shape.

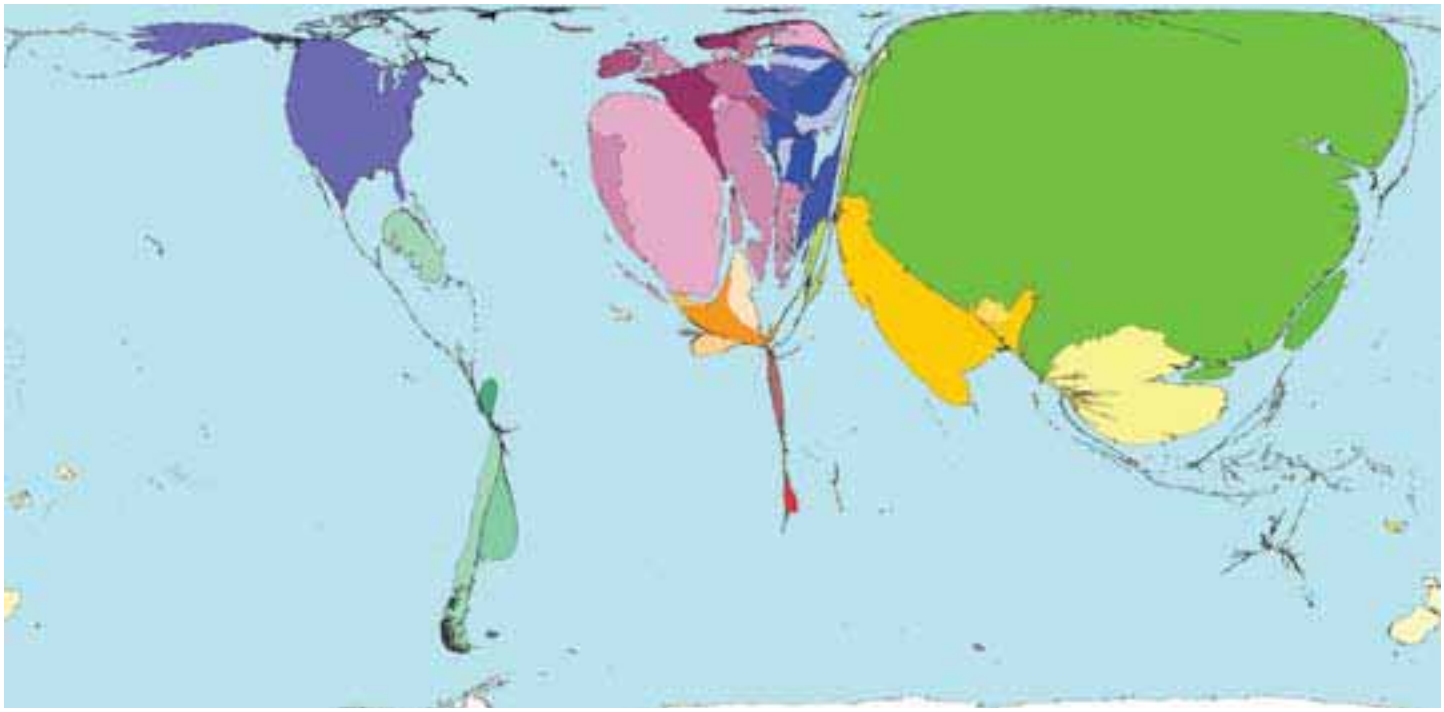

Figure 20. Amount of forest growth in each country between 1990 and 2005. Map by Worldmapper

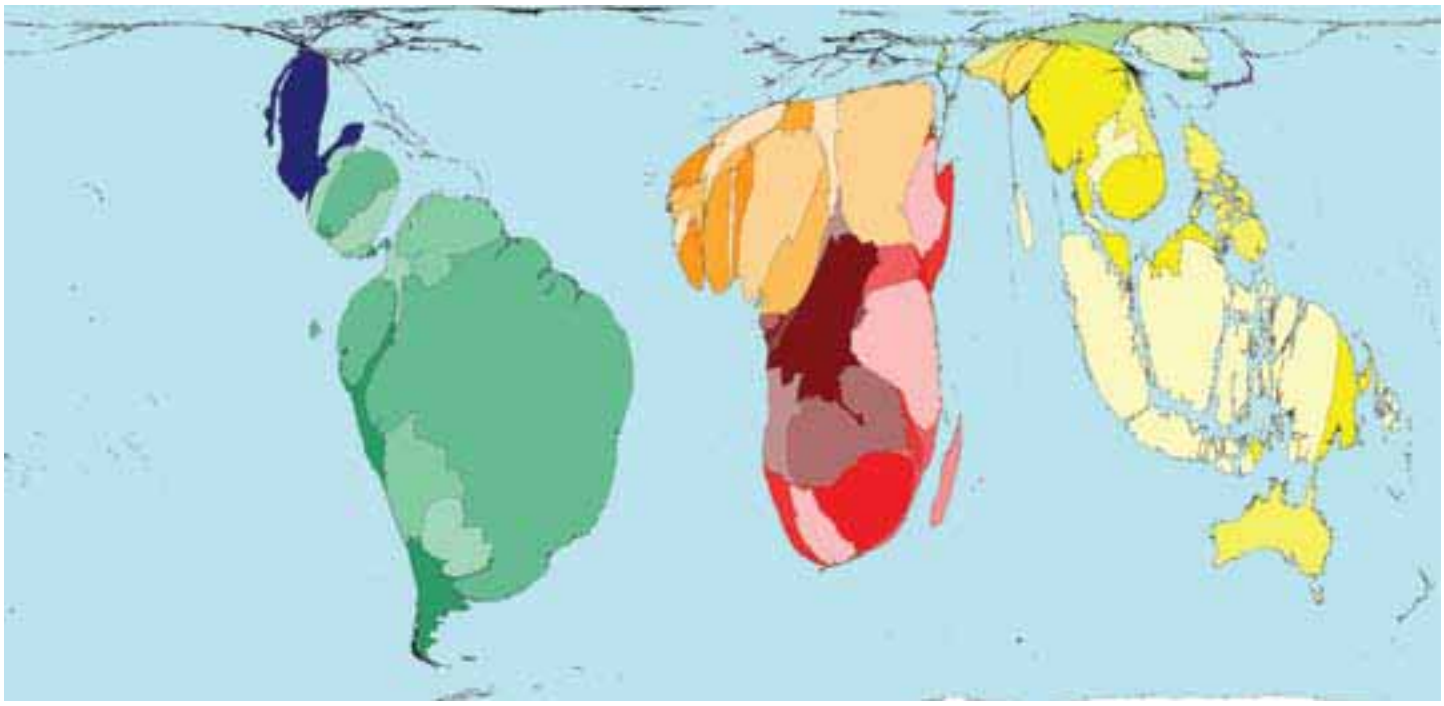

Figure 21. Amount of forest loss in each country between 1990 and 2005. Map by Worldmapper