

INQUIRY 3: WHAT DO FORESTS DO FOR THE WORLD'S ENVIRONMENT AND ITS PEOPLE?

THE SITUATION: It is important to know where the world's forests are located and where they are expanding and shrinking in size. This was the topic of Inquiry 1. It is also important to understand whether the world's forests are helping to conserve biodiversity. This was the topic of Inquiry 2. Forests provide a range of benefits to people and to the environment. Understanding these benefits is the topic of Inquiry 3.

FAO identified three broad ways that forests provide benefits. The first is called productive because it focuses on the products people take from forests. People take wood for timber and fuelwood, they take food such as nuts, fruits, berries, mushrooms, edible plants, and bushmeat from forests, and people allow livestock to browse in forests. People use plant materials for medicines and dyes, and they take wildlife for a number of purposes.

Forests also provide protective benefits. Examples of protective benefits include protecting soils from wind and water erosion, protecting coastal areas, and controlling **avalanches**. Forests also provide a benefit by filtering the air and water. Filtering rain water helps to keep water supplies clean.

Forests provide social and economic benefits to people and to communities. Social benefits include providing places for people to play and to get away from an increasingly urban life. Forests provide beautiful landscapes and reduce the effects of noise. They provide a place for people to learn about nature and themselves, and they provide inspiration. Forests also provide a living laboratory for scientists to study nature.

Forests are an important source of economic benefits. Many people work in the forest sector,

enhancing either the productive, protective, or social benefits of forests. Examples include work in the timber industry or in the outdoor recreation industry. Some people make their living managing forests for conservation purposes. Forests are an important source of livelihood for people all over the world. FAO and the National Correspondents collected information about how much forest land is set aside in each country to provide these benefits.

REFLECTION SECTION:

If the area of the world's forest decreases, what will happen to the amount of benefit forests provide to people? What does this suggest about how we should manage our forests?



Do you think that anywhere forests are located on Earth they provide productive, protective, social, and economic benefits? Why or why not?

REGION	NUMBER OF HECTARES	% OF FOREST AREA
Africa	205 037	30
Asia	232 754	30
Europe	526 646	52
North and Central America	101 781	14
Oceania	11 656	6
South America	118 295	14
World	1 196 168	30

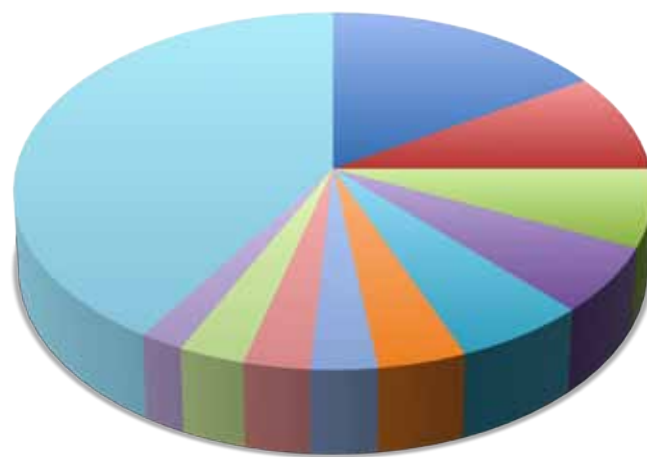
Table 3. Area in hectares and percentage of forest area used primarily for the production of forest products by region, 2010.

WHAT FAO DISCOVERED:

PRODUCTIVE FOREST BENEFITS

Thirty percent of the world's forests are used primarily to produce forest products for people (Table 3 and Figure 31). Another 24 percent of the world's forests are used for the production of products along with other benefits. When forests are used for multiple purposes, it is called "multiple use." FAO found that the amount of forest land used primarily to produce products had decreased slightly in the past 20 years.

Worldwide in 2005, about half of the wood removed from the world's forests was used for fuel. In Africa, more than 90 percent of removed wood is used for fuelwood. Most of this is used for cooking food. The United States of America led the world in the volume of wood removed (Figure 32). Wood products include, for example, lumber for building houses and furniture, and paper made from trees. China led the world in the removals of non-wood forest products. The Chinese collected a large amount of plant products such as oil, seeds, nuts, and bamboo. As you can see, forests provide products that people use every day.



United States	16%
India	9%
Brazil	7%
Canada	6%
Russian Federation	6%
China	4%
Ethiopia	3%
Indonesia	3%
Sudan	3%
Democratic Republic of the Congo	2%
Remaining Countries	41%

Figure 32. Ten countries with the largest volume of wood removed by percentage, 2005.

PROTECTIVE FOREST BENEFITS

In the past, FAO concentrated its research on the productive benefits of forests. To better understand the protective benefits of the world's forests, FAO focused on soil and water conservation (Figure 33). When soil and water is protected in an area, the entire ecosystem is healthier. FAO found that soil and water conservation was the primary focus for 8 percent of the world's forests (Figure 34).

This is about 330 million hectares of forest.

An important part of soil conservation is concerned with stopping the spread of sand



Figure 31. Some forests are used primarily to produce products. Here, trees were felled to create lumber for building. Photo by Babs McDonald.

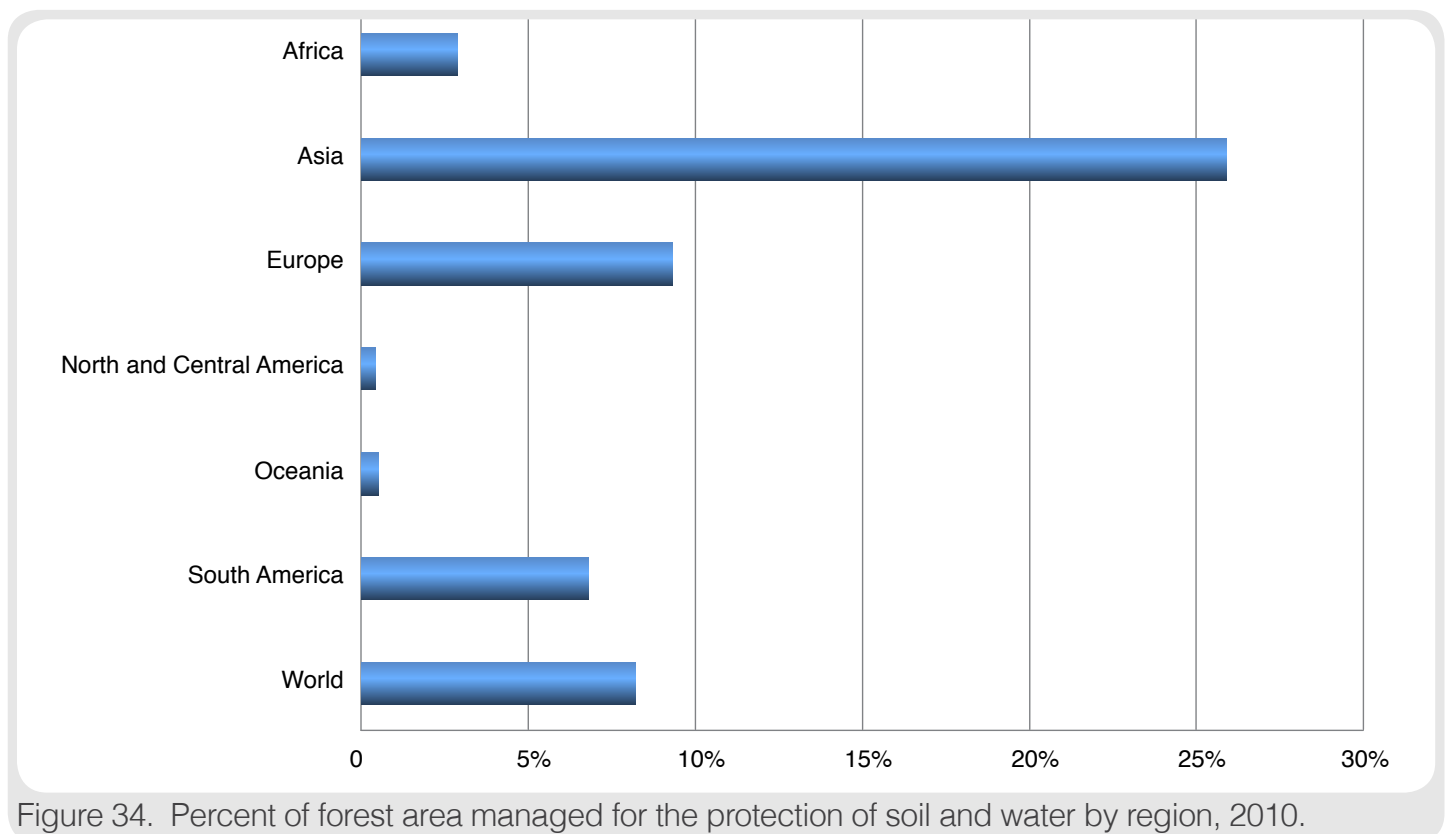
into areas that once had plants or trees. When trees are felled or plants are removed and drought occurs, sand can spread into an area. These areas can become like deserts. When an area becomes like a desert, a number of other things can happen. Less land may be available for grazing animals, less water may be available for people and wildlife, and people's livelihoods may be affected. Forests help to protect areas from the spread of sand. People living in **arid** places use plants and trees to help stabilize desert areas (Table 4 and Figure 35).

COUNTRY	FOREST AREA DESIGNATED FOR PROTECTION OF SOIL AND WATER %
Libyan Arab Jamahiriya	100
Bahrain	100
Kuwait	100
Jordan	98
Turkmenistan	97
Kenya	94
Uzbekistan	93
Azerbaijan	92
Wallis and Futuna Islands	87
Iraq	80



Figure 33. This forest in China helps to protect water quality and conserve water and soil. Photo by Robert Haack.

Table 4. Ten countries with the highest percentage of forest area managed to protect soil and water, 2010. You can see that all of these countries, except Wallis and Futuna Islands, are located in arid regions. The countries are found in the Middle East near the Red Sea, the Persian Gulf, and the Caspian Sea. The Wallis and Futuna Islands are located east of Australia in the South Pacific Ocean (Figure 35).



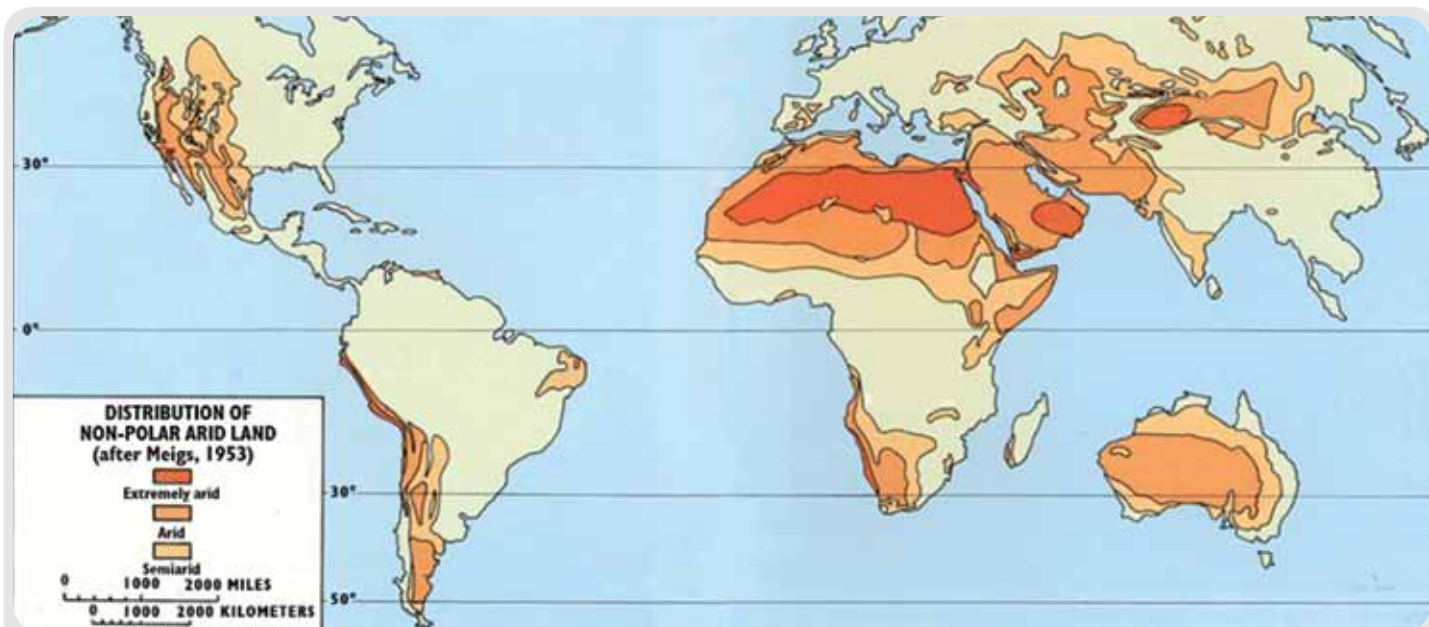


Figure 35. Earth's arid regions. Adapted from <http://www.cartage.org>

SOCIAL AND ECONOMIC BENEFITS

People receive social benefits when they use forests for outdoor recreation, tourism, education, research, and for the appreciation of cultural or spiritual areas (Figures 36 and 37). Although most countries have recognized the importance of these social benefits, few manage forests for social benefits alone. A country might, for example, manage a forest to protect soil and water but also allow people to camp and hike in the forest.

FAO found that some countries do not identify the number of forest hectares providing social benefits. Instead, these countries consider such forests as being “multiple use” forests. FAO, therefore, feels that the number of forest hectares providing these benefits could be much larger than was reported. The United States of America, for example, did not report many forest hectares for the social benefits they offer (Table 5). At least 134 million hectares of United States forest land are however open for public use and enjoyment as “multiple use” forests.

FAO found that 80 percent of the world's forests are owned by governments on behalf of their citizens.

FAO was also interested in economic benefits. The amount of money received from wood removals changes from year to year. In some years it is high and in some years it is low. In the period between 2003 and 2007, the removal of wood brought an average of over US\$100 billion every year.

FAO found that it is difficult to estimate the value of non-wood forest products. Food, such as mushrooms, berries, fruit, and nuts, accounted for 51 percent of non wood forest products removed from forests. Other plant products accounted for 17 percent of the benefit, and wild honey and beeswax accounted for another 11 percent. In 2005, non-wood forest products brought about US\$18.5 billion. FAO, however, believes that this estimate is low. It is difficult to identify and report the use of non-wood forest products because many people collect these for their own use.

Worldwide, almost 11 million people worked in forest management or conservation in 2005 (Figure 38). Most of these people worked producing forest products, and about 338 000 people helped to manage protected areas.

REGION	PERCENT OF FOREST AREA
AFRICA	0.1
ASIA	1.6
EUROPE	1.9
NORTH AND CENTRAL AMERICA	0.1
OCEANIA	0
SOUTH AMERICA	13.8
WORLD	3.7

Table 5. Percent of forest managed for social benefits by region, 2010.



Figure 38. People around the world make their living working in the forest sector. Photo by Susan Cordell.

Forests are used for education around the world. The Gombe School of Environment and Society, for example, lies in the heart of Tanzania's Kitobe Forest. This school inspires African students to work towards environmental stewardship, community self-reliance, and economic sustainability. The Gombe School uses its surrounding forest as a “school without walls” to provide social and economic benefits to the community (Figure 39).



Figure 39. This child has found a bird's nest near the edge of Kitobe Forest. Photo by Yared Fubusa.



Figure 36. People enjoy the view of this German forest. Photo by Babs McDonald.



Figure 37. One social benefit of forests is the information learned from research. Here, a scientist shows his assistant how to identify a small fish in a tropical forested stream. Photo by Babs McDonald.

YOU DO THE MATH:

According to the International Labour Office, about 3 billion (3 000 000 000) people were employed in 2009. Assume that 11.4 million (11 400 000) people worked in forest management or conservation. What percentage of the world's employed was working in and for the world's forests?

REFLECTION SECTION:



Why the protection of soil and water important to the world's citizens?

What are some of the social benefits you enjoy from visiting forests?

FACTIVITY:

You have learned a lot about the benefits provided by forests. Go back to page 7 and look at the logo developed by the United Nations for the International Year of Forests. Each item in that logo refers to a benefit provided by forests. Think about the benefits provided to you and your community by forests. Create your own International Year of Forests logo just for your community. Share your logo with your class and post the logos on the wall. If you can scan your logos into a computer, you may send them to Jessica@naturalinquirer.org and we will place them on the *Natural Inquirer* Web site. Please include your first name, your age, your school name, and your country name



DID YOU KNOW?



The world's oldest tree is a spruce tree thought to be 9 550 years old and was discovered in Sweden in 2008.

<http://www.sciencedaily.com>

DID YOU KNOW?



A 2 000-year old seed from a date palm was found in the ruins of an ancient palace near the Dead Sea. The seed germinated and the date palm that grew from it is named "Methuselah."

<http://waynesword.palomar.edu>