

Essay: Living in a Global Forest

Introduction

Historically, people have used forests as a resource to sustain their basic needs, utilizing wood to cook food, heat homes, and to build shelter. During the late 1800s, predictions of a timber shortage in the United States caused many people to rethink their belief that trees were an unlimited resource. As a result of policy decisions and the resiliency of forests, the grim forecast never came true. Yet, forests around the world currently face considerable pressure. Increasing global population, rising material consumption and a growing gap between nations with high levels of industrial, technological, and economic productivity (developed) and countries with relatively low productivity in these areas (developing) has led to the rapid clearing of forests in many countries. Living in a “global forest” therefore suggests that people around the world must work together to conserve the world’s resources.

Post-World War II

After World War II, many African, Asian, and Caribbean nations gained their independence from European colonial powers. The transition to freedom often led to political and economic instability. Faced with widespread poverty, population increases, and unstable governments, many of the former colonies struggled for survival. People cleared vast amounts of land for farming, used wood for cooking and heating, and sold timber to Western nations – all of which placed considerable strain on their forests.



Figure 1: A young man carries fuelwood in Eritrea (courtesy of FAO/19434/R. Faidutti)

Improvements in technology after the Second World War also affected the world’s forests. The discovery of new oil reserves and advancements in the refinement of gasoline (from crude oil) caused a decrease in the price of the fuel. As a result, the popularity of cars and trucks increased and more American forestland was cleared to make room for highways. Gasoline also fueled equipment such as tractors and chainsaws. Instead of cutting down one tree at a time, people now could harvest many trees with less effort.

Improved medical technology also added to the stress on forests around the globe as the elimination of some diseases and epidemics, and improvements in the quality of medicine, contributed to a surge in global population. With more people being born and living longer lives, the world's resources, including forests, face increased pressure.

Wood Consumption in the United States

The scientific management of forests adopted by many federal, state, and private organizations in the early 1900s, helped ensure that the predictions of a timber famine never came to pass. However, reason for concern about American forests still exists. Today, the U.S. consumes almost as much wood as most other raw construction materials such as plastic, aluminum, steel, and cement combined. On average, people around the world consume about 4 pounds of wood each day, but Americans use over three times this number – 14 pounds – on a daily basis. Increasing wealth in America, along with a population that has tripled since 1900, has led to great demands on forests in the United States.

In 1997, the U.S. exported forest products totaling 17 billion dollars. Canada, Japan, and Mexico bought the most American wood, accounting for over 50% of U.S. forest products exports during that same year. However, despite being the world's second largest exporter of forest products, the U.S. also imports large quantities of wood from other nations. In 1997, the U.S. imported 22 billion dollars of forest products, making America the world's biggest forest products importer. The majority of this wood (over 70%) came from Canada, but other countries such as China, Mexico, Brazil, and Finland, also supplied the United States with forest products.

American Homes

Because of its low cost and abundance, wood was the most popular material for constructing homes during the 1900s. At present, the U.S. construction industry uses approximately 10% of the world supply of industrial wood – most of which is used for building homes. Furniture and cabinets account for over 30% of American lumber consumption and 95% of homes in the United States use wood frame construction.

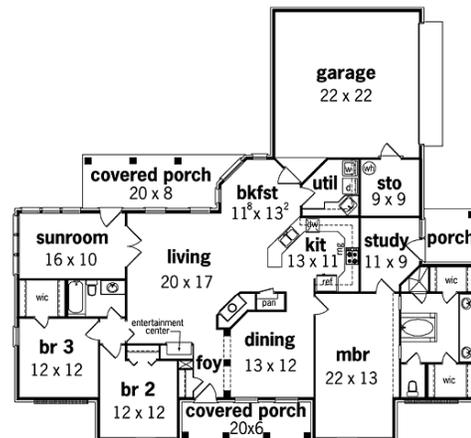


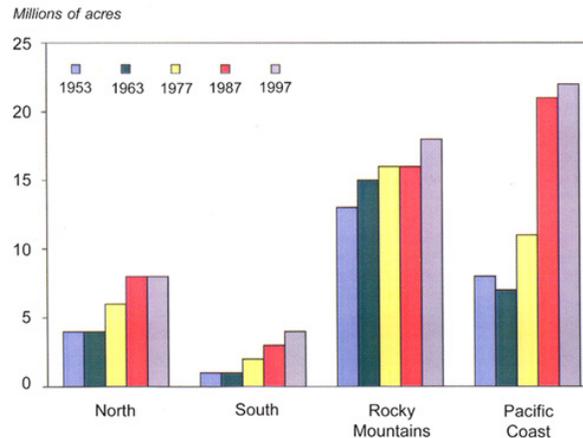
Figure 2: 2000 square foot home plan (courtesy of Globalhouseplans.com)

Although wood is the major building material for U.S. houses, homes have changed considerably during the previous century. Homes constructed during the early 1900s typically were smaller in size than modern homes despite the fact that more people occupied them. Even though American women had an average of 3.7 children in 1950, as compared to only 2.1 in 2000, the size of homes in the United States continued to expand. From 1970 through 2000, the area occupied by Americans in their homes (more than 72 square meters, or 775 square feet per person) has increased by nearly 80% and the number of homes built has tripled! The larger homes of the 21st century require much more wood for construction.

Reserved Land

Concerns about increased American consumption of natural resources such as wood, encouraged the strengthening of conservation policies during the late-1900s. One aspect of this movement can be seen in the increase of forest land set-asides. By 1997, the government had reserved 52 million acres of land, about twice the acreage set aside by 1953. The federally owned forestland, mainly located in the western United States, is about the size of Kansas. Able to reserve the land because the demand for wood products could be met from private forests and other public lands, the U.S. government prohibited timber harvesting on the new parks and wilderness areas.

Trends in Reserved Forest Land by Region,
1953–1997



(Source: USDA - Forest Service Timber Assessment Report)

Today, the amount of forests in the U.S. remains more stable than in the past. In 1920, the amount of timber harvested exceeded forest growth by 50 %. However, only 32 years later the annual growth was greater than the annual harvest from all American forests. By 1996, timber growth surpassed the removal of trees by 47 %. As well, the improved efficiency of wood harvesting and manufacturing has also contributed to the stability of U.S. forests during the previous 50 years.

Consumption on the Rise

Despite recent efforts to conserve trees, forestland in the U.S. and abroad still faces great challenges. One cause of the uncertain future of forests is the consumption habits (use of goods and services by consumers) of people, especially those living in industrial nations like the United States. For example, Americans use an average of 220 pounds (101 kilos) of materials every day -- this total excludes food and fuel, but includes items such as chemicals in soap and shampoo, wood in newspapers, and metal in appliances and cars. And, whereas the United States leads the world in wood production, it also consumes more wood than any other country. Although the United States represents less than 5 % of the world's population, it consumes approximately 30 % of global resources.

In order to highlight the connection between consumption and the well-being of the environment, some experts use a research tool called an ecological footprint. Ecological footprints measure consumption by calculating the land area necessary to supply a population with its resources and the area needed to absorb its waste. The ecological footprint of the U.S. for instance, is larger than its land area. On average, Americans need about 25 acres (10 hectares) of land to provide all of the resources (food, clothing, houses, cars) they consume and to absorb the waste (CO² emissions, garbage, sewage) they produce. Scientists estimate that if all people had the same lifestyle as the average American, we would need two more earths to sustain the world's population!

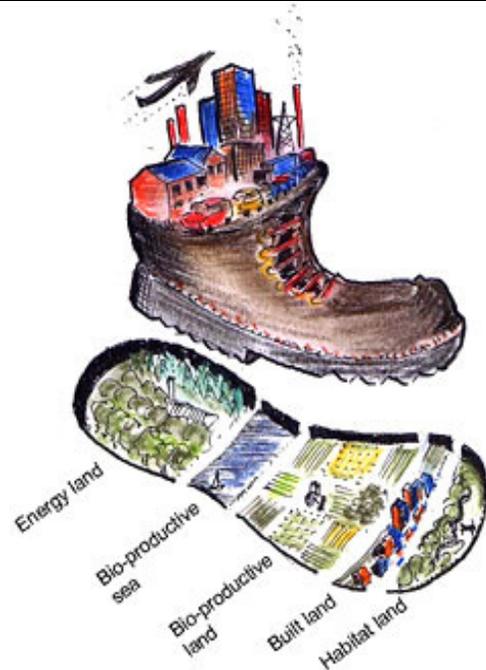


Figure 3: An ecological footprint
(courtesy of joe.ravetz@manchester.ac.uk)

Only in America?

Many European nations and some Asian countries also consume large quantities of goods. On average, industrialized countries, which make up about 20 % of the global population, consume much more than the rest of the world. For instance, these nations use over 80 % of the world's supply of paper and cars. Although developing nations in Africa, Asia, and South America consume less than industrialized countries, they also impact the world's resources. Human population more than doubled from less than 3 billion to more than 6 billion between 1950 and 2000. Moreover, population projections (based on information from the United Nations and the U.S. Census Bureau) estimate that the world's population will climb to 9 billion by the year 2050. Today, the combined number of people living in Africa and Asia is almost three-quarters of the world's population. During the second-half of the 20th century, fuelwood and charcoal consumption more than doubled – the greatest increase occurred in the developing nations of the world. The sharp rise in population in many African and Asian countries has added even more pressure to regions

already suffering from high levels of poverty. The widespread clearing of forestland for agriculture and the increasing wood consumption for cooking and fuel in many developing nations has caused concern around the globe.

Concerns about the Global Forest

The United Nations estimated that between 1980 and 1995, the earth lost about 445 million acres (180 million hectares) of forestland – an area about the size of Mexico. The majority of forestland lost was in the tropics of South America and in developing African and Asian nations. The United Nations and other international organizations have sponsored meetings to discuss the environmental problems facing the world. One important environmental conference, the Earth Summit (1992), included representatives from developing and developed nations (172 countries in all). The Summit proposed new guidelines to help countries find ways to improve their economies without harming the environment. One of the major agreements passed during the conference, The Forest Principles, emphasized the importance of sustainable management. Sustainable management calls for a balance between economic growth and environmental protection in which countries look for ways to manage renewable resources such as forests to meet the needs of the present without weakening the ability of future generations to meet their needs. Some critics argued that the conference fell short of finding a way to combat deforestation. On the other hand, the Forest Principles did serve as the first *global* agreement about the management of the world’s forests and included suggestions for beginning a global effort to “green the world” through reforestation and forest conservation.

Intelligent Consumption and Individual Choices

Despite the importance of global actions to respond to environmental problems, small changes on an individual basis can also help improve the environment. Educating people so that they can make informed decisions is an important aspect of sustaining the world’s resources for future generations. For example, providing consumers with a product rating system outlining the environmental effects of the production and packaging of items such as clothes, computers, and food, may help people to make intelligent choices when making purchases. Moreover, although the ecological footprint of the United States currently is greater than its land area, individual changes can go a long way in changing this

imbalance. By adopting some simple lifestyle changes (biking; walking; carpooling; choosing products with less packaging; and buying locally grown food and locally produced goods, for example), individuals can help conserve global resources.

No Easy Answers in an Uncertain Future

Globalization describes the growing connection between economies and cultures worldwide. American fast food restaurants in countries around the world, fashion and musical trends that extend beyond national borders, and the ability of the Internet to connect people living in different countries, all serve as evidence of the influence of globalization. Because we live in such an interconnected world, problems that affect one country often influence many others as well. Likewise, when a nation attempts to solve a complex problem, it can affect people a long distance away. For instance, if the United States limited the timber harvest on its own lands in an attempt to conserve American forests, but did nothing else, this simple solution would impact the world. If American wood consumption levels remained unchanged, but the national timber harvest decreased, the United States would need to obtain wood from other countries in order to meet demand. Therefore, even though American forests might benefit from this policy, forests in other nations might suffer.

Realizing that countries around the world are interconnected is an essential part of planning for the future. By adopting measures that allow for economic growth while also conserving for future generations, countries can meet their needs without depleting the world's resources. However, many challenges to sustainable management exist. Rising global population, increased consumption of wood and other natural resources, longer life spans, and confusion about how to implement sustainable management programs, all pose threats to the environment. In the years to come, many difficult decisions will have to be made that will impact the United States and the rest of the world. Intelligent consumption and an awareness of the growing connection between the countries of the world should help conserve the global forest for future generations.

Worksheet 1: Keywords

Part I: Read the essay “Living in a Global Forest” to compose definitions for the six keywords below.

Keyword	Definition
Globalization	
Consumption	
Developing nation	
Developed nation	
Sustainable management	
Ecological footprint	

Part II: Use a separate piece of paper or the back of this page to explain how each of the keywords above is linked to the future of the global forest. (2-3 sentences each)

Worksheet 2: Essay Analysis

Read the essay “Living in a Global Forest” to answer the questions below.

1. List and explain three factors that place strain on forests worldwide.
2. How did the Earth Summit of 1992, and in particular the Forest Principles, propose to help the global forest?
3. Describe the current consumption of wood in the United States. How does this level of consumption contribute to the ecological footprint of the United States? Make sure to explain your answer.
4. How can globalization play a role in environmental problems? How can globalization play a role in environmental solutions?
5. How can individual choices impact the future of forests and the environment around the globe? Make sure to provide at least two examples to support your answer.
6. Name 2 trends illustrated in the bar graph from the essay. Provide some possible reasons for the trends you listed.

Cartoons (Worksheet 3)



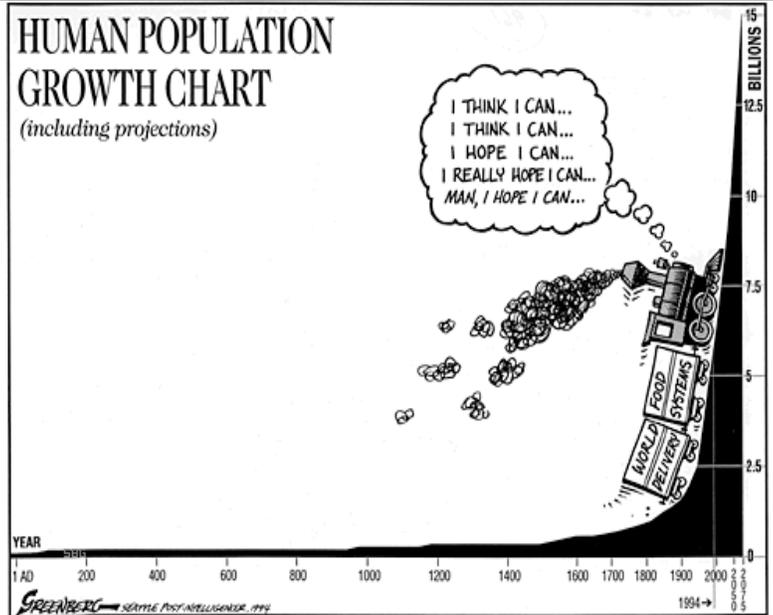
Cartoon #1

*Cartoon courtesy of Chris Madden.



Cartoon #2

*This cartoon is copyrighted by Steve Greenberg and is not in the public domain, and may not be reposted, reprinted, or reused without permission. Posted here with permission.



Cartoon #3

*This cartoon is copyrighted by Steve Greenberg and is not in the public domain, and may not be reposted, reprinted, or reused without permission. Posted here with permission.

Worksheet 3: Drawing a Point of View

Directions: *Part I.* Each of the words and phrases in the first column below are somehow connected to one of the illustrations on “Cartoons.” Choose the cartoon number you believe **best** reflects the word or phrase and provide an explanation defending your opinion. Use the completed example as a guide.

Words and phrases illustrated in the cartoon	Cartoon Number	Explanation
Uncertain future	3	The train carrying the world food delivery systems up the “mountain” of human population seems uncertain it will make it to the top – symbolizing the possibility there won’t be enough food to feed the people of the world in the future.
Diminishing global supplies		
American culture		
“1994” and “over 5 billion”		
Fragile		

Part II.

1. Provide an alternate title for each of the cartoons. Explain the reasoning behind your titles.

2. In your class discussion about political cartoons you learned that artists often use symbols to convey messages or to express a point of view. Provide an example of symbolism used by the artist in each of the cartoons. Make sure to explain what the symbol represents.

3. Use the back of this page or a separate piece of paper to draw your own cartoon about one of the following topics: American wood consumption; paper recycling; wood harvesting in the United States.

Make sure your cartoon includes a title, short caption explaining its message, and one example of symbolism. Note that there can be many possible topics for your cartoon – it’s up to you to decide your own point of view. Use the essay and class discussions to provide the factual basis for your cartoon.

Homes for Sale*

(Worksheet 4)

	1950	2000
United States population	150 million	270 million
Average home size	1,000 sq. feet	2,000 sq. feet
Average new home price	\$11,000	\$200,000
Median annual family income	\$3,319	\$45,000
Total housing units**	43 million	107 million
% of American households owning a home***	55	66
Number of bedrooms	66% with 2 33% with 3	12% with 2 or less 54% with 3 34% with 4 or more
Number of bathrooms	96% with 1-1/2 or less	7% with 1-1/2 or less 40% with 2 53% with 2-1/2 or more
Garage	41% with 1 car 53% with 0	65% with 2 car

*Information contained in "Homes For Sale" obtained from U.S. Census Bureau and U.S. Department of Housing and Development.

**A house, an apartment or other group of rooms, or a single room, is regarded as a *housing unit* when it is occupied or intended for occupancy as separate living quarters. (U.S. Census Bureau definition)

***A *household* consists of all the people who occupy a housing unit. (U.S. Census Bureau definition)

Worksheet 4: Home Sweet Home

Directions: Use “Homes for Sale,” the essay, and class discussions to answer questions 1-7.

1. Approximately how many people owned homes in 1950? Approximately how many in 2000?
2. If a family living in 1950 with a median income saves 20% of their annual income each year, how many years will it take them to save for the full purchase price of a home? How many years would it take an average family living in 2000 to do the same?
3. Do you think total lumber usage for the average home was greater in 1950 or 2000? **Explain** your answer by using information from “Homes for Sale.”
4. If the construction of a 2,000 square-foot wood-framed home built in the year 2000 required approximately 12,000 board feet of lumber, approximately how many board feet of lumber would have been needed to build an average size wood-framed home in **1950**?
5. By looking at the square footage, number of bedrooms, and number of bathrooms on “Homes For Sale,” would you assume that more people lived in the average home in 1950 or 2000? **Explain.** Does your answer support or contradict the conclusions drawn in the essay about the average number of people occupying homes during these two years? Make sure to use evidence to **support** and **explain** your answer.
6. List at least three ways that the average home built in 2000 would have a greater impact on the environment than the average home constructed in 1950.
7. Use “Home Sweet Home,” the essay, and your class discussion about American homes to complete a “For Sale” advertisement for a hypothetical home constructed in 1950 and a house built in 2000. Your advertisements must include the following: square footage; number of bedrooms and bathrooms; price; garage; amount of lumber used for house (board feet); and an illustration of a home from each period (hand-drawn, downloaded from a computer, or taken from a magazine). Make sure to use facts, but be creative in your descriptions. Use the back of this page or a separate piece of paper to complete your advertisements.

Stepping Through the Forest (Worksheet 5)

Step 1 – The Scenario:

The United States government and the United Nations recently created a “think tank” (a group of experts who provide advice and suggestions about a specific problem or issue) to analyze the topic of *sustainable management*. Congratulations on being invited to participate in this very important project! In order to prepare for the task that awaits you, proceed to Step 2.

Step 2 – The Research:

1. Using the essay and class discussion as a guide, compose a definition for “sustainable management.”
2. Re-read sections of the essay describing the sustainable management of forests. Write down any significant points.
3. Review the information contained in “Discussing Sustainable Management” (next page) to get a better idea of the ways in which countries around the globe have proposed to solve the problems facing the world’s forests. Discuss the important points covered in the three examples listed on “Discussing Sustainable Management.”
4. As a group, decide how far into the future you believe a sustainable management plan needs to be implemented. For example, do you think a 10-year plan would be enough to combat problems like deforestation or would you suggest a longer period of time like 50 or even 100 years. Be prepared to discuss and defend your choice.

Step 3 – The Assignment:

Now that you and the other members of the think tank have a better understanding of sustainable management, you need to complete the following assignment:

*Devise 3 recommendations for achieving the sustainable management of American forests AND 3 recommendations for achieving the sustainable management of the global forest. (Record your suggestions in the spaces provided on **Worksheet 5: Thinking about the Future**).*

Note - When creating your suggestions, you need to make the following assumptions:

1. The U.S. government and leaders from other nations may not reserve any additional land that bans the removal of timber.
2. Global population will continue to rise at a fast rate.

Step 4 – The Meeting:

Once your group has completed its suggestions, it is time to join your classmates in a discussion on sustainable management. Each group will have 5-10 minutes to explain its suggestions for achieving sustainable management in both American forests and the global forest. Time permitting, compare and contrast each of the group’s suggestions and discuss the potential benefits and drawbacks of sustainable management.

Discussing Sustainable Management (Worksheet 5)

1. The excerpt below comes from the Forest Principles (The agreement that was passed at the 1992 Earth Summit):

Forest resources and forest lands should be sustainably managed to meet the social, economic, ecological, cultural and spiritual human needs of present and future generations. These needs are for forest products and services, such as wood and wood products, water, food, fodder, medicine, fuel, shelter, employment, recreation, habitats for wildlife, landscape diversity and other forest products. Appropriate measures should be taken to protect forests against harmful effects of pollution, including air-borne pollution, fires, pests and diseases in order to maintain their full multiple value.

2. The 12th World Forestry Congress was held in Quebec City, Canada in September 2003. Over 4,000 people from 140 countries met to discuss the future of the global forest. Here are some of the things they discussed and proposed:

- All societies are dependent on forests and trees.
- Countries need to promote planted forests and planting of trees outside forest systems such as urban areas.
- Countries should prevent, manage and combat forest fires, and restore forestlands as appropriate.
- Countries should develop tools for better monitoring, assessing and reporting on the state of forests and on achieving the balance between the needs of people and the planet.

3. In the years following the Earth Summit, many meetings and groups were established to discuss how to accomplish the goals outlined during the global conference. One group, called the Montreal Process, developed a method to measure the conservation and sustainable management of forests. Using a set of criteria (goals) and indicators (measurable signs that goals are being achieved), the Montreal Process, and other groups like it, sought to provide a common definition for and means to attain a sustainable forest policy. At present, many international groups and organizations continue to establish methods to help measure the sustainable management of forests around the globe.

Worksheet 5: Thinking about the Future

Recommendations for achieving the sustainable management of American forests
#1
#2
#3

Recommendations for achieving the sustainable management of the global forest
#1
#2
#3

ASSESSMENT 1: APPLICATION AND INTEGRATION

Introduction: With increased attention being paid to the global forest in recent years, the American public has expressed an interest in learning more about the issues and problems facing forests around the world.

Assignment: After dividing into groups of two, you and your partner are ready to begin your assignment. To help educate the public about the global forest, your group will conduct a mock interview. After deciding who will serve as the reporter and the interviewee, take a look at the tasks below.

Reporter

1. Prepare a short statement that includes a general overview of the global forest and describes some of the issues to be discussed during the interview.
2. Devise one question for each of the subjects listed under TOPICS (below).

Interviewee

1. Be prepared to answer questions about each of the subjects listed under TOPICS (below).
2. Make sure to use evidence whenever possible to support your answers.

Both the reporter and interviewee should use the essay, worksheets, and class discussions to help you prepare for the assignment. When preparing questions and answers, remember that the goal of the assignment is to help people learn about the problems facing the global forest. **Note:** The interviewee should not be told the questions in advance.

TOPICS

1. Sustainable management
2. Ecological footprint/consumption
3. Forest reserves
4. Rise in global population
5. Global conferences (such as the Earth Summit)

Extension: If you have access to video equipment, record your interview so that it can be viewed by your classmates. Additionally, to make the interview more realistic, design props such as images, charts, or graphs to reinforce some of the major issues and problems concerning the global forest.

ASSESSMENT 2: TEST

1. List three differences between an average American home built in 1950 with one built in 2000.
2. Compare and contrast how developing and developed countries impact the global forest.
3. Describe how the United States has attempted to combat environmental problems like deforestation.
4. From which country does the United States import the most wood? What three countries export the most wood to the United States?
5. What are some of the potential benefits of sustainable management? What are some of the potential limitations of sustainable management?
6. How can high levels of consumption (by both nations and individuals) contribute to the strain placed on the global forest?
7. Describe how American wood consumption compares with the rest of the world.
8. How can forestland set-asides help contribute to solving the problem of deforestation? How can forestland set-asides hinder efforts to fight deforestation?
9. Explain the link between American culture and consumption.

ASSESSMENT 3: REFLECTIVE EXERCISE

Write an essay analyzing the sustainable management of the global forest.

Managing the Global Forest

Use the notes below to help you write a cohesive essay.

Paragraph 1: Take a stance.

Can a sustainable management program make a significant impact on the problems facing the global forest? Why or why not?

Body: Provide evidence to support your argument.

Describe how each of the topics below can contribute to a successful sustainable management program:

- Global conferences
- Ecological footprint
- Individual choices and consumption
- Global population

Last Paragraph: Conclusion.

Restate your stance. Summarize your proof. State the long-term consequences of your argument on society.