

Chapter 11 Globalization and Sustainability



Figure 11-1 This photograph by Canadian Edward Burtynsky is titled *Shipbreaking No. 4*. When ships become too old to be useful, they are sold to recyclers. Shipbreaking is big business in Bangladesh, India, China, Pakistan, and Turkey, where ships are run up onto beaches and dismantled. The steel and other materials are recycled and used in new products. But shipbreaking can have severe effects on the environment and on the health of the workers involved.

CHAPTER ISSUE

To what extent does globalization affect sustainability?

SHIPS ARE VITAL TO GLOBALIZATION, but the lifespan of an average ship is 25 to 30 years. After that, it is cheaper to build a new ship than to try to keep an old one in service. But ships contain many materials — especially steel — that can be recycled.

Because recycling is labour-intensive, it is expensive in developed countries. Globalization has given shipowners an alternative. Obsolete ships are sold to shipbreakers in developing countries, such as India, Bangladesh, and China. Workers there are paid a few dollars a day to dismantle old ships, and the recyclable materials are sold to local companies for reuse.

In 2000, Edward Burtynsky completed a photo essay on shipbreaking in Bangladesh. Visually stunning, his photographs document this activity in a way that words alone cannot. Examine Burtynsky's photograph on the previous page and consider answers to these questions:

- What is the physical setting of this activity?
- What are the workers doing?
- What is happening to the ships?

Sometimes it is as important to think about what photographs do not show as it is to examine what they do show.

- What tools or technologies are the workers using?
- What conclusions can you draw about the safety of the workers?
- What environmental protection measures can you see?
- Why do you think shipbreaking is taking place at this location?

KEY TERMS

ecological footprint

sustain

sustainability

stewardship

flag of convenience

LOOKING AHEAD

In this chapter, you will explore answers to the following questions:

- What does sustainability mean?
- How are globalization and sustainability related?
- Have efforts to promote sustainability been successful?



My Point of View on Globalization

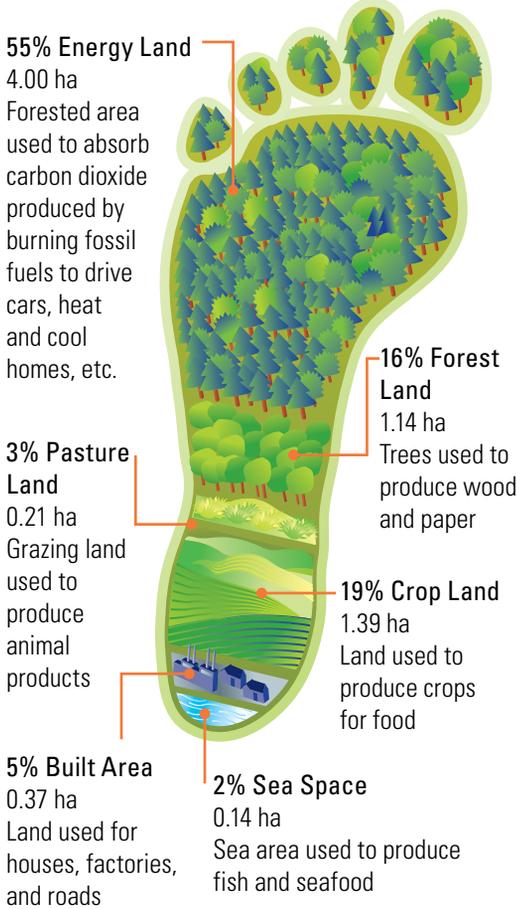
Based on your current understanding, use words or images — or both — to express your current point of view on globalization. Date your ideas and keep them in the notebook, learning log, portfolio, or computer file you are keeping as you progress through this course.



WHAT DOES SUSTAINABILITY MEAN?

Figure 11-2 Components of Canada's Ecological Footprint

7.25 Hectares per Person



People cannot live without having some effect on the environment. Everyone needs

- materials to make homes, clothing, tools, and so on
- fuel for heat and transportation, and to provide electricity
- food to stay healthy
- water for drinking, cooking, cleanliness, and health

Scientists use the term **ecological footprint** to describe the load people impose on nature. Your ecological footprint represents the area of the earth's surface necessary to sustain the level of resources you use and the waste you create.

The ecological footprint of an individual or group is a measure of how much biologically productive land and water resources are needed to keep them alive. Dividing the bioproductive area of Earth by the total population reveals that 1.89 hectares of productive area are available for each person.

Canada's Ecological Footprint

Earth's resources are not shared equally. Canadians, for example, have a much larger ecological footprint — 7.25 hectares per person — than people in most other countries. How does this compare with the amount of bioproductive land available to each person on Earth?

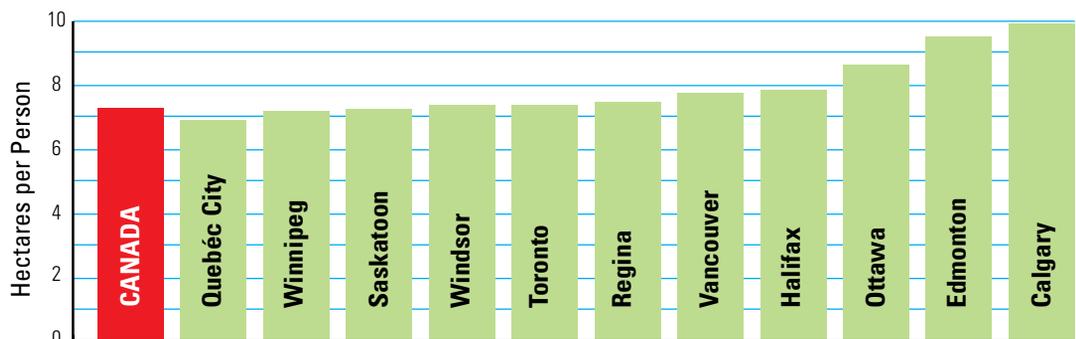
Examine Figures 11-2, 11-3, and 11-4. If everyone consumed as much as Canadians, four more planets like Earth would be needed to meet their needs. Consider the lifestyles of Canadians, taking into account factors such as the climate and how farming and manufacturing are carried out. What are some reasons Canadians have such big ecological feet?

Figure 11-3 Some Factors That Affect Ecological Footprint

Household or Individual Footprint	Town, City, or Region Footprint
<ul style="list-style-type: none"> • Amount of consumer goods bought • Amount of packaging used • Amount and type of food eaten • Extent of recycling and waste reduction • Size of house or apartment • Amount of electricity used • Fuel efficiency of vehicles • Distance travelled by car, transit, bike, and foot 	<ul style="list-style-type: none"> • Waste management and recycling efforts • Population densities • Average household size • Consumer spending patterns • Average energy use • Transportation options • Land-use patterns

Figure 11-4 Ecological Footprint of Canada and Selected Cities

Source: Anielski Management Inc.



Bangladesh's Ecological Footprint

While Canada has one of the biggest ecological footprints in the world, Bangladesh has one of the smallest: 0.6 hectares for each person. In large part, this is because Bangladesh is one of the world's least developed countries. Bangladeshis have little money to spend on consumer goods, large houses, and expensive vehicles. Only 33 per cent of people, for example, have access to electricity. As a result, their consumption of resources is far lower than that of Canadians. And because Bangladeshis consume less, they produce less waste.

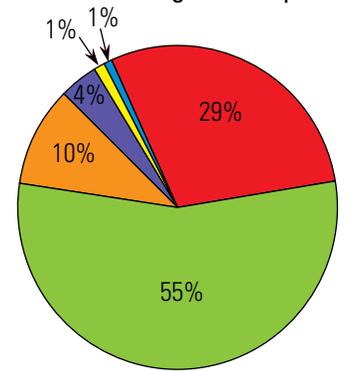
Examine the charts and photographs on this page. Compare these with what you learned about the ecological footprint of the average Canadian. What factors might contribute to the difference in the average footprint of a Bangladeshi and a Canadian?

Figure 11-5 Bangladesh and Canada: A Comparison

Statistic	Bangladesh	Canada
Population (2006)	147 300 000	33 100 000
Population Density	1023 persons per sq. km	3.3 persons per sq. km
Population Growth Rate	2.09%	0.88%
GDP per Person	\$2 200 (U.S.)	\$35 200 (U.S.)
Life Expectancy	62 years	80 years

Source: CIA World Factbook

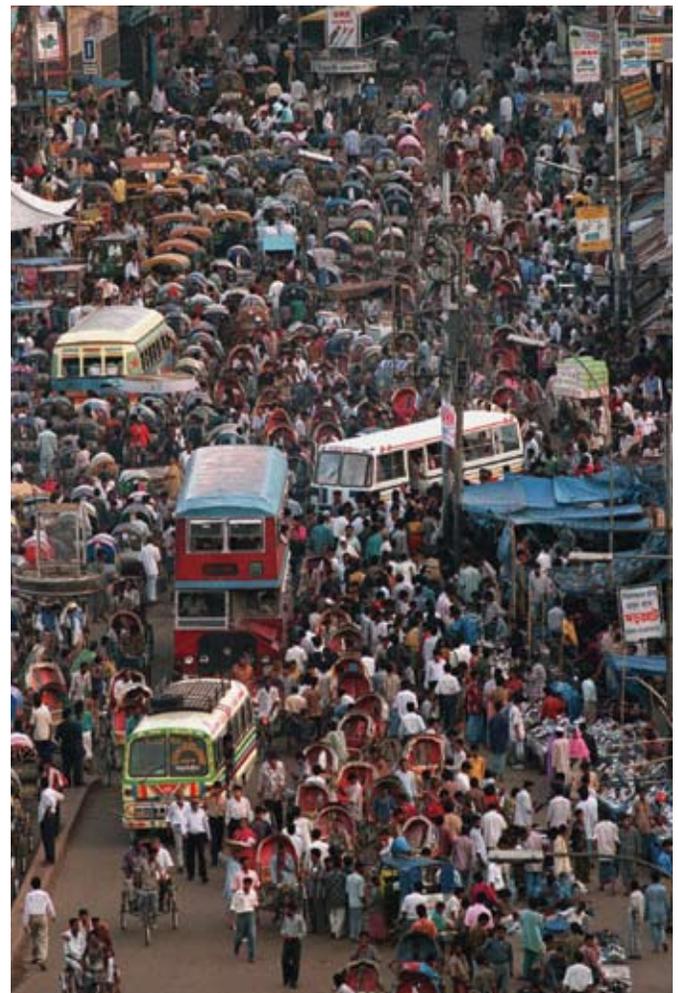
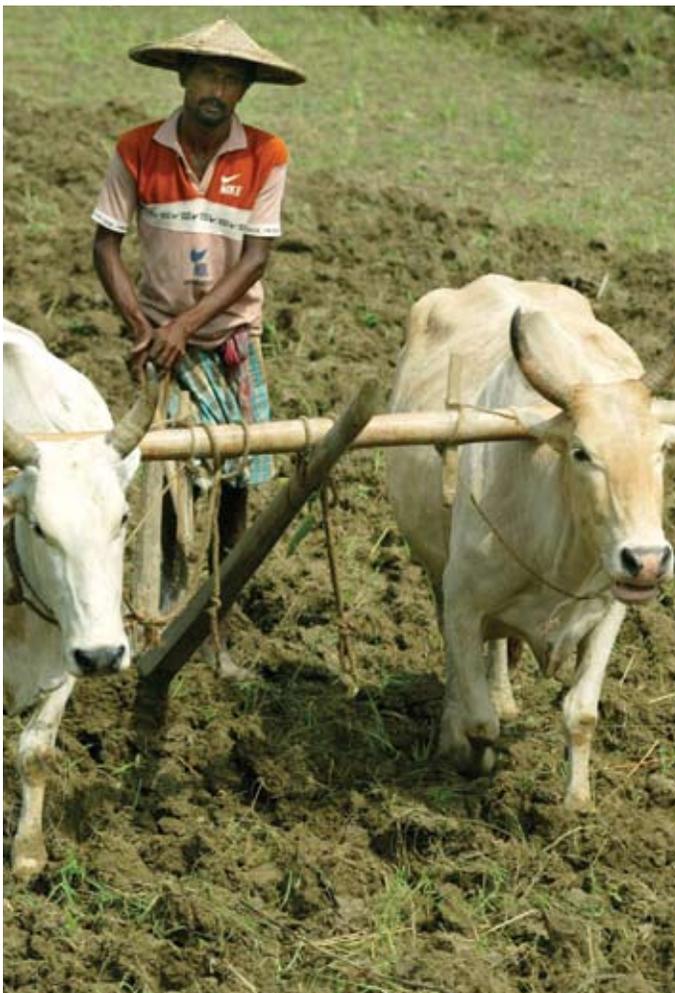
Figure 11-6 Components of Bangladesh's Ecological Footprint



■ Built Area ■ Energy Land
■ Pasture Land ■ Crop Land
■ Sea Space ■ Forest Land

Source: Globalis

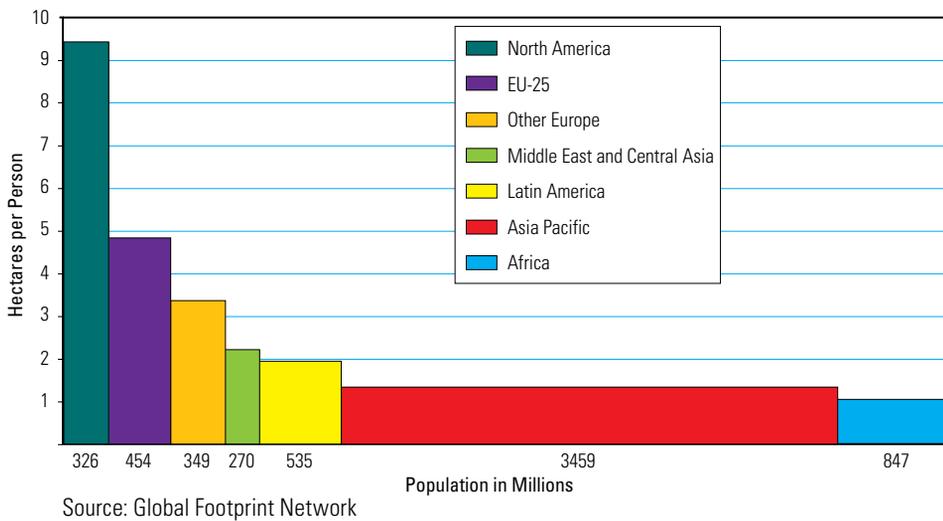
Figure 11-7 The photograph on the left shows a farmer in Bangladesh, while the one on the right shows a street in Dhaka, the country's capital. Identify aspects of life in Bangladesh that affect the country's ecological footprint.



Global Perspectives on Ecological Footprints

The ecological footprint of 70 per cent of the world's people is smaller than the 1.89 hectares available for each person. But the remaining 30 per cent of people take much more than their share — in fact, this remaining 30 per cent consume about 90 per cent of the world's ecological capacity.

Figure 11-8 Average Ecological Footprint by Region



Examine Figure 11-8. The bars show the average ecological footprint by region. The width of each bar is in proportion to the size of the population of each region. Why do you suppose the ecological footprint of North America is so large? What do you suppose would happen if the ecological footprint of the Asia Pacific region were as big as that of North America?

MAKING CHOICES

THE KOGI — AT THE HEART OF THE WORLD

The Kogi, who live in the mountains of northern Colombia, believe they are responsible for looking after this area, which they call the “heart of the world.” Their society has remained largely unchanged for the past 500 years because they have stayed completely separate from the outside world. They allow no outsiders on their land, which they view as sacred. Calling themselves the “Elder Brother,” they refer to the people of the developed world as “Younger Brother.”

The Kogi have been cultivating their fields continuously for more than a thousand years. They believe that their mission is to care for the planet, and their culture is inseparable from the rainforest where they live. Agricultural rituals that are respectful of the natural world play an important part in their religious practices. Crops, for example, are planted according to a timetable determined by astronomical calculations.

Spiritual leaders, called Mamas, control Kogi society and help them make important decisions. The Mamas spend years learning about astronomy, meteorology, and ecology so that they can

preserve the delicate balance between humans and nature. This knowledge is passed down orally.

The ecological footprint of the Kogi is very small. In the 1980s, the Kogi began noticing that less snow was falling and that their rivers were no longer as full. In 1988, believing that the world was in trouble, they allowed the British Broadcasting Corporation to film a documentary about the region. The film, *From the Heart of the World: The Elder Brothers' Warning*, begins with the Kogis' main message: “We Mamas see you are killing [the world] by what you do. We can no longer repair the world. You must.”



Figure 11-9 A Kogi harvests food.

Explorations

1. In what ways would the ecological footprint of the Kogi be different from that of the average Canadian?
2. Explain why a detailed knowledge of the natural world is important to the Kogi.
3. Suppose you are a documentary filmmaker whom the Kogi have allowed to make a film about their way of life. List five topics you would like to investigate in your film. Explain why you chose these topics.

The resource gap

The gap between the resources the earth can reasonably supply — 1.89 hectares per person — and what the people of the world now consume — 2.8 hectares per person — presents a challenge. To meet this deficit, people are using up resources that could be left for future generations. Think about what would happen to a family that spends more money than it earns and borrows to make up the difference. At some point in the future, this debt must be repaid. The same thing is happening with the environment. Most environmentalists agree that people cannot continue to borrow against the future. At some point, the earth will not be able to **sustain** — provide the basic necessities needed to support life — actions like this. The debt will have to be repaid.

Population growth

Over the next four or five decades, the world's population is expected to grow by two to five billion. The earth's resources are fixed, but an ever-increasing number of people will need to share them. How do you think this situation might affect smaller, less developed countries with limited access to natural resources? How do you think North Americans will respond to this challenge?

Examine Figure 11-10. The three population projections shown on this graph are based on different assumptions about the future. What assumptions do you think underlie the high forecast? The low forecast?

Consumption of resources

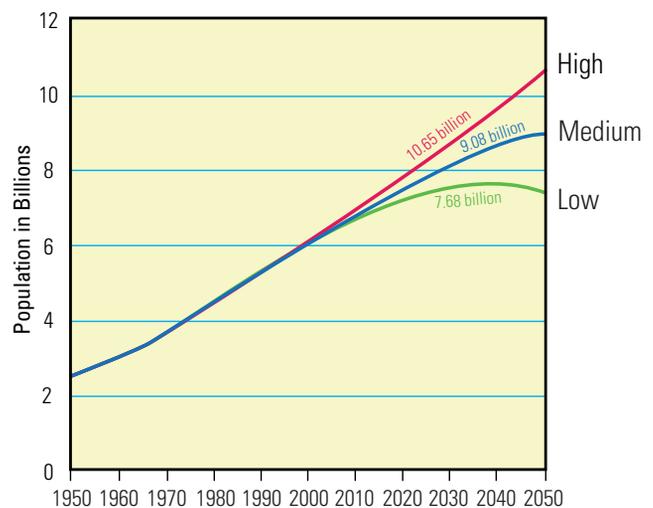
Many of the world's people are striving to improve their material well-being by consuming more goods and services. The more they consume, the larger their ecological footprint grows. At the same time, individuals and groups, such as the United Nations, are warning that this will affect **sustainability** — the ability of the earth to provide the resources necessary to meet people's needs. These individuals and groups are promoting the idea of environmental **stewardship**, which involves accepting responsibility for ensuring that the earth's resources remain sustainable. What would happen if all the world's people were to achieve the same consumption levels as Canadians?

Web Connection

In 2007, Al Gore, a former vice-president of the United States and a high-profile advocate for the environment, won an Academy Award for his film *An Inconvenient Truth*. To find out more about this film and what you can do to reduce your emissions of greenhouse gases, go to this web site and follow the links.

www.ExploringGlobalization.ca

Figure 11-10 Population Projections, 1950–2050



Source: United Nations

REFLECT AND RESPOND

Most Canadians are familiar with the three Rs: reduce, reuse, and recycle. But some believe that a fourth R — refuse — must be added to this list to reduce the size of people's ecological footprint and to move toward the sustainability of the earth's resources. They believe that to steward the earth's

resources, people should refuse to buy things they do not need or that are enclosed in excessive packaging.

With a partner, list "refuse" actions you could take. Explain how each action on your list would contribute to sustainability.

ANALYZING RELATIONSHIPS IN GEOGRAPHY

To understand sustainability, people must be able to make connections between their actions and the health of the natural environment. The study of geography uses tools that focus on these relationships and connections.

Suppose you were asked to investigate answers to this question: Which wood-harvesting method — clear-cutting or selective cutting — is more sustainable?

To answer this question, you will need to investigate the relationship between cutting methods and sustainability. The following steps will help you do this. As you progress through this course, you can use similar steps to respond to other questions.

Steps to Analyzing Relationships in Geography

Step 1: Ask powerful research questions

Asking powerful questions is a crucial first step in any investigation because your questions determine the directions your investigation will take. Your questions may have a variety of purposes that include

- determining cause and effect — understanding causal relationships and finding out about consequences
- comparing — understanding similarities and differences
- predicting — suggesting likely outcomes

Review the purpose of your investigation into wood-harvesting methods and prepare at least three questions to help guide your inquiry. Then choose one or two and make them the focus for your research.

Step 2: Acquire geographic information

To answer your research questions, you need to gather information from a variety of sources. Start by listing the information you need, as well as potential sources. Gathering information may require you to

- identify useful sources, which may include maps, photographs, satellite images, GPS systems, and computer graphics
- locate information
- interpret maps and other graphic representations
- conduct field investigations or interview key people
- record your information

You may wish to include the photographs and illustration on the following page in the information you gather.

Step 3: Organize geographic information

Raw information needs to be organized and filtered to show the relationships that will answer your research questions. Various kinds of information should be separated and classified, perhaps by using headings to create categories. Using a table or chart is often an effective way to structure data. You may wish, for example, to use a chart like this.

Wood-Harvesting Methods		
Type	Advantages	Problems
Clear-cutting	— most economical —	— environmental damage —

Step 4: Analyze information

Analyze the data you have collected by focusing on relationships and connections. As you do this, you will

- look for patterns
- find similarities and differences
- note connections among items
- make inferences based on maps, graphs, diagrams, tables, and so on
- identify biases in your sources.

To help analyze your data, you may be able to use GIS — geographic information systems — technology.

Step 5: Answer geographic questions

Use your analysis to answer the questions you posed when you began your investigation. Be prepared to consider new issues and new ways of viewing the situation. Decide on an effective way of communicating the results of your investigation, using technologies that are appropriate to the task.



Figure 11-11 A Clear-Cut Area from the Air



Figure 11-12 A Clear-Cut Area at Ground Level



Figure 11-13 A Selectively Cut Area at Ground Level

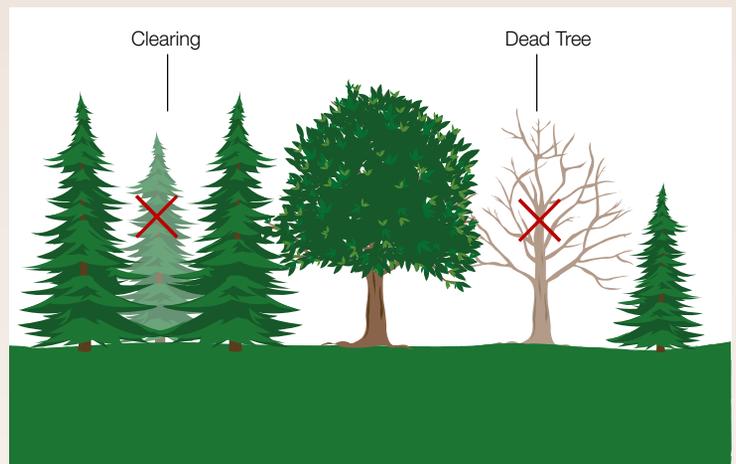


Figure 11-14 How Selective Cutting Works

Summing up

How sustainable are clear-cutting and selective cutting of forests? What is the relationship between cutting methods and sustainability? Suppose you were asked to complete this analysis. What do you think your conclusion might be? Explain your ideas.



CHECKBACK

You read about shipping and containerization in Chapters 2 and 10.

HOW ARE GLOBALIZATION AND SUSTAINABILITY RELATED?

Transportation is an important globalizing force — and shipping is an important element of the globalized transportation systems that move goods and materials between suppliers, manufacturers, and buyers. Following the life cycle of a typical ship reveals one aspect of the relationship between globalization and sustainability.

Where Ships Are Built

In recent years, shipbuilders have been struggling to keep up with the demand for more ships. From 2000 to 2005, shipbuilding grew an average of 8.3 per cent a year, and shipbuilders had a three- to four-year backlog of orders. The rise in global trade, as well as the need to replace older vessels, is driving this demand.

In the 1970s, the shipbuilding industry was dominated by Europe and the United States. But shipbuilding is labour-intensive, and this industry has shifted to Asia, where labour costs are lower. As Figure 11-15 shows, South Korea and Japan now dominate shipbuilding, although Japan's share is slipping rapidly as China — with its low wage rates — emerges as a key player in this industry. How do you think this change will affect environmental sustainability?

Examine Figure 11-15. Why do you suppose shipbuilding is dominated by so few countries? Identify some possible economic, social, political, and environmental effects of the shift in shipbuilding from developed to developing countries. Create a four-column chart with the headings “Economic Effects,” “Social Effects,” “Political Effects,” and “Environmental Effects,” and brainstorm with a partner to fill in the chart.

Environmental impact of shipbuilding

Hyundai Heavy Industries' Ulsan shipyard in South Korea is currently the largest in the world, covering an area of 720 hectares. The large area needed by shipyards increases their potential for pollution. Hazardous materials such as lead are routinely used in the coatings and paints needed to withstand saltwater conditions, and anti-fouling paints, which are designed to inhibit the growth of barnacles and algae, also contain toxic chemicals.

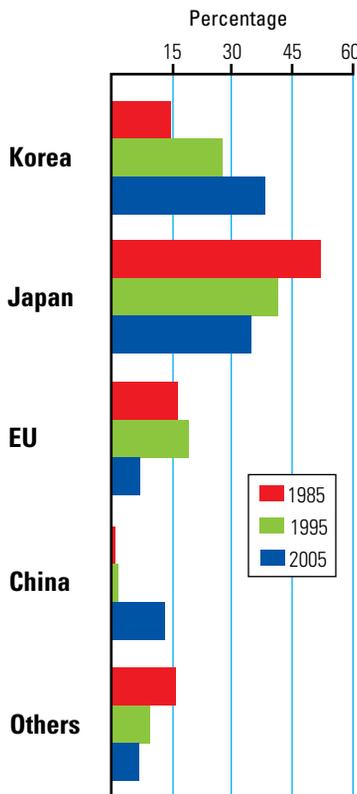


Overall, shipyards make heavy demands on electricity and water supplies and generate large amounts of solid and toxic waste. How would you describe the ecological footprint of shipyards?

FYI

In recent years, Chinese shipbuilding has increased by more than 40 per cent a year. China now boasts 861 shipbuilding centres. Germany, Singapore, Hong Kong, Australia, and Britain are important markets for Chinese-built ships

Figure 11-15 Shipbuilding Market Share, 1995–2005



Source: Korea Shipbuilders' Association

Figure 11-16 This shipbuilding yard in Shanghai, China, shows the size of the site needed to build a ship. Identify some environmental impacts of large shipbuilding facilities.

Ships and the Environment

Ocean-going vessels use just 3 per cent of the fossil fuels consumed globally, but they emit about 15 per cent of the world's nitrogen and sulfur dioxide. This is because ships use bunker fuel, which is cheap and dirty. A single container ship creates as much pollution as 2000 diesel trucks.

In addition, ships carry millions of litres of seawater in their hulls as ballast. This water is pumped around to keep the ship balanced correctly in changing sea conditions. It is also pumped out as ships are loaded and pumped in as they are unloaded.

One study found that ballast water pumped out of ships in Canadian ports contained as many as 12 392 marine creatures per cubic metre. These are sometimes invasive species that cause problems when they are introduced to new environments. Scientists believe, for example, that zebra mussels, a non-native species that has created problems in the Great Lakes, arrived in the ballast water of ships from Europe.

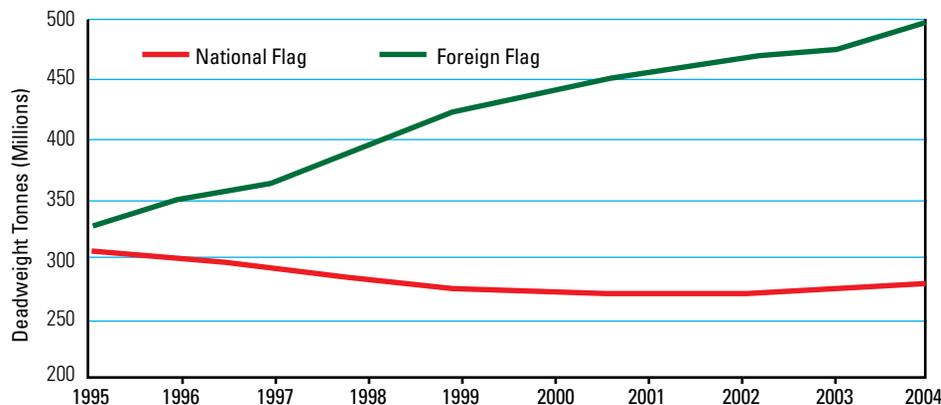
Flags of convenience

Many merchant ships operate under a **flag of convenience**, a practice that is often called flagging out. It occurs when a ship is registered in a country other than that of its owner. Canada Steamship Lines, for example, is a Canadian-owned company, but up to 50 per cent of its ships are registered in — and fly the flag of — countries such as those shown in Figure 11-17.

In 2004, about 64 per cent of the total tonnage of ocean-going ships was flagged out. The advantages of flagging out include

- lower costs — Registration fees and other charges are much lower. The savings can total millions of dollars a year for every vessel.
- ease of registration — Little paperwork is required. In some cases, ships can be registered by fax.
- weak environmental and labour laws — Ships must obey the laws of the country in which they are registered. Environmental laws in countries that offer flags of convenience are often less strict than rules in Europe and North America. Labour laws are also less strict. Working conditions are rarely monitored, and international maritime conventions are seldom enforced.

Who benefits — and who is harmed — by the practice of flagging out? Explain how.



Source: Institute of Shipping Economics and Logistics

Figure 11-17 Some Countries Offering Flags of Convenience

Country	Ships Owned	Ships Registered
Antigua and Barbuda	57	980
Bahamas	186	1119
Belize	153	295
Bermuda	6	108
Cambodia	286	479
Cyprus	127	972
Liberia	73	1465
Malta	63	1140
Netherlands Antilles	10	168
Panama	617	5005

Source: International Transportation Workers' Federation

Figure 11-18 World Merchant Fleet by National and Foreign Flag, 1995–2004

Web Connection



Edward Burzynsky, whose shipbreaking photograph appears on the opening page of this chapter, has also worked on many other projects. To see the range of his work and find out about the award-winning film based on his photography, go to this web site and follow the links.

www.ExploringGlobalization.ca

VOICES



Although the problems might seem insurmountable, there are a number of practical measures that can be taken . . . We need a global partnership of ship owners, shipbreakers, employers, trade unions and, of course, government inspectors who will see that these standards are enforced. This is yet again a test for globalization and decent work.

— Paul Bailey, *shipbreaking expert for the International Labour Organization, 2006*

Disposing of Old Ships

Once ships are 25 to 30 years old, they become too expensive to maintain and are scrapped. Every year, about 600 to 700 ships end up on the beaches of Asia, including Bangladesh. There, workers earning \$1.50 to \$2.50 (U.S.) a day break them down so the metals and other materials can be sold as scrap to recyclers.

Death of a ship

When ships are broken apart, hazardous materials are released into the environment. Ballast water, for example, is simply discharged onto the beach. Insulating materials such as asbestos, as well as fuels and lubricants, escape, as do residues from final cargoes. Machinery, scrap metal, and discarded barrels end up littering beaches. As a result, fishing and farming near shipbreaking beaches become impossible.

Shipbreaking is one of the most dangerous jobs in the world. A lack of safety standards means that workers face great risks. Workers' cutting torches frequently ignite trapped gases and cause life-threatening explosions; grinding tools send toxic, cancer-causing particles such as asbestos into the air that is breathed by workers; and workers are sometimes crushed to death by falling steel beams and plates.

An average of one death occurs in shipbreaking yards every day, and an estimated one in four shipbreaking workers will die of cancer caused by workplace exposure. Why do you think workers would take jobs in shipbreaking yards? What conditions might persuade you to work at a job that you knew was dangerous?



Figure 11-19 This shipbreaking yard is on a beach in Alang, India. Recently, various individuals and groups have focused attention on the environmental and labour practices of some of these yards — and conditions have improved somewhat. Identify some of the problems you see.

The shipbreaking industry raises the issue of whether people in developed countries have a responsibility – or even a right – to demand that industries in developing countries observe the same environmental and labour rules as they do. Here is how three people have responded to this issue.

RUNE LARSEN is a Norwegian photographer who was born into a family of shipbuilders and whalers. His interest in ships led him to visit 15 shipbreaking yards in Chittagong, Bangladesh. The following is an excerpt from his commentary on his photographs.

No effort should be spared in improving the conditions surrounding the shipbreaking industry in Bangladesh. At the same time, the workers relying on the industry for a livelihood must be given a chance to continue making a living. In the long term, minimum standards on environmental and labor conditions in the shipbreaking industry will hopefully be enforced through the United Nations' maritime organization, [the International Maritime Organization]. But who will pay for the cost of improved labor conditions and the environmental effort? Who is responsible? Is it the ship breakers, the shipbuilders, the ship owners or the government?



PAUL BAILEY is a shipbreaking expert with the International Labour Organization. The following remarks were published in *ILO Online*, the organization's electronic publication.

Before shipbreaking, Bangladesh, for example, imported all of its scrap steel. Today the wrecked ships satisfy 80 per cent of its needs. But scrap steel is not the only value imported from the gaping holds of these ships. Lining the streets close to the shipbreaking yards are various shops selling anything from bathtubs and toilets to boilers and generators removed from the ships after they are beached. The shipyard owners estimate around 200,000 Bangladeshis benefit indirectly from this business conducted on their shores. In India, the biggest shipbreaking nation, the figure is half a million.



MARCELLO MAIENTACCHI is the general secretary of the International Metalworkers' Federation. He made the following remarks during a 2006 news conference about his organization's concerns about shipbreaking.

In many countries the state of shipbreaking is an open scandal. The answer is not to shut it down – to call for that is to ignore that it is a vital industry for tens of thousands of people for whom no alternative employment exists. The solution is to reform, train and support.

Negotiations are under way at the [International Maritime Organization] to develop internationally agreed regulations on the recycling of ships. However, adoption of the regulations is not expected until 2009, and proper implementation by 2015 at best, if at all.

Explorations

1. In one sentence for each speaker, summarize the point he is making.
2. How would you answer the questions Rune Larsen asked at the end of his statement? Who do you think should bear the costs of improving conditions for shipbreakers in developing countries? Explain who would be affected if your ideas were adopted.
3. Join two or three other students in a small group and use the three excerpts as the starting point of a brainstorming session to achieve consensus on answers to this question: What two key conditions must be met to make shipping an environmentally sustainable industry?

Proposals to Improve the Sustainability of Shipbreaking

The costs of shipbreaking can be high, for both the environment and workers. In some parts of the world, such as North America, laws govern

how shipbreaking is carried out. This is why shipbreaking companies now operate in a handful of developing countries, where the rules are less strict.



Figure 11-20 These workers are doing their jobs at a shipbreaking yard in Bangladesh. What evidence tells you that they are not well protected?

Ideas

Should all industries and governments be encouraged to adopt stricter environmental protection laws?

The students responding to this question are Ling, who was born in Hong Kong but is now a Canadian who lives in Edmonton; Marie, a Francophone student from Medicine Hat; and Tom, a fourth-generation Albertan who lives on a ranch near Okotoks.

We can't impose our values and standards on people in other countries. We have our own ways of doing things, and our laws are based on these traditions. People in other countries have their own ways that are different from ours. Take Bangladeshi shipbreakers, for example. If we imposed environmental laws on them, workers would lose their jobs. For Bangladesh, shipbreaking, with all its problems, is an important industry. In a way, the steel that they get from the ships is like the metals we get from our mines. It's their raw material.



Ling

The rest of the world should be helping developing countries deal with some of their problems. An environmental problem in one part of the world really affects us all. Developing countries don't have the resources to solve all their environmental and resource problems. It's going to take global co-operation to set standards and find solutions. Developing countries shouldn't have to solve what really are global problems all by themselves.



Marie

It isn't necessary for all countries to have the same conditions. The world needs to have differences. And really, a lot of the good things in our lives come about because people earn less in developing countries. If we made them follow tough environmental and labour laws, the cost of the goods and services we want would rise. These countries should have the same chance to improve conditions in their own time and in their own way as we in the developed world did. They can learn from developed countries, but they should be free to make their own decisions.



Tom

Your Turn

How would you respond to the question Ling, Marie, and Tom are answering? Do you believe that all countries should contribute to a sustainable future by following the same environmental standards? Do you think that requiring sustainable practices would help or hinder the expansion of globalization? Explain your ideas.

At the same time, organizations such as Greenpeace, the International Maritime Organization, and the International Labour Organization are pressing for more comprehensive international rules and tighter enforcement to persuade the shipbreaking industry to become more sustainable. As Figure 11-21 shows, some regulations now exist, but they are neither comprehensive nor well enforced.

Identify some barriers to creating international laws to control the shipbreaking industry. Who might oppose these laws? What groups are likely to support these laws? Explain to a partner your estimate of the likelihood that these laws will be developed and enforced within the next few years.

Figure 11-21 Some Existing Controls on Shipbreaking

Existing International Laws and Regulations	Problems with Enforcement
Movement of hazardous waste across international borders	Owners are required to notify shipbreaking yards when ships are carrying hazardous materials across international borders. But little effort is taken to ensure that notification has occurred, and this regulation is often ignored by shipbreaking countries.
Discharges of waste from ships	Waste is supposed to be discharged in approved facilities so that it is contained. The person in charge of the ship is responsible for reporting leaks or improper discharges. In shipbreaking yards, leaks and discharges go unreported.
Human rights obligations	Under the Universal Declaration of Human Rights, the dumping of hazardous materials that might affect people nearby is prohibited. A UN report clearly identifies shipbreaking as an important source of pollution.
Safety of workers	The International Labour Organization sets out standards for the safety and health of workers, including shipbreakers. But these recommendations are not legally binding and do not override national laws.
Guidelines that cover normal shipping operations	The International Maritime Organization has drafted guidelines for shipbreaking and shipbreaking countries. But these are voluntary, and a number of important issues are not covered.

REFLECT AND RESPOND

Transportation by ship is crucial to the globalization process, but is the shipping industry sustainable? Create a two-column chart like the one shown to record evidence for and against the sustainability of shipping. Then review what you have read in this chapter so far. You may also wish to consult other sources.

When you finish, share your ideas with one or two classmates and discuss the similarities and differences in your ideas. Based on this discussion, you may wish to add ideas to your chart.

Is the shipping industry sustainable?	
Evidence for Sustainability	Evidence against Sustainability

VOICES 

Last year, 2006, was a lost year for the federal government in contributing to the fight to stop global warming and meeting Canada's international obligations under the Kyoto Protocol. Federal programs were slashed and the importance of the issue downplayed. The last year followed a decade of procrastination, half-measures and delays by the previous government . . . Canada remains an international laggard in reducing greenhouse gas emissions.

— Sierra Club of Canada, "Kyoto Report Card 2007"

HAVE EFFORTS TO PROMOTE SUSTAINABILITY BEEN SUCCESSFUL?

The sustainability of economic activities is a growing concern worldwide. Environmentalists, governments, industries, and individuals are making efforts to improve the sustainability of many economic activities. The success of these efforts can be evaluated by examining examples in three areas: the Kyoto Protocol, the Alberta tar sands, and alternative energy sources.

The Kyoto Protocol

Problem Around the world, increased output of greenhouse gases is contributing to a rise in average global temperatures. A further increase of between 1° C and 5° C is predicted — enough to damage physical systems and cause economic losses of up to \$5 trillion. Developing countries will suffer more than developed countries.

Proposed Solution At a 1997 conference in Kyoto, Japan, 141 countries, including Canada, signed an agreement that became known as the Kyoto Protocol.

Goals The Kyoto Protocol called on countries to reduce greenhouse-gas emissions to 5.2 per cent below 1990 levels by 2012. Canada set a target of 6 per cent.

Actions Countries were free to develop their own plans to meet the targets. In Canada, plans focused on reducing fossil-fuel use. Initiatives included requiring large factories and power plants to cut emissions, federal government partnerships with provinces and municipalities to make infrastructure improvements, support for energy alternatives, and encouraging industries, such as automakers, to take voluntary actions.

Successes A 2006 poll by McAllister Opinion Research found that 77 per cent of respondents believed that Canada should meet or exceed its Kyoto targets. The federal and some provincial governments have adopted strategies to reduce greenhouse-gas emissions; some municipalities have also developed plans; and some industries have taken action. But in 2004, Canada's emissions were 27 per cent higher than 1990 levels.

Barriers Canada has made no progress toward achieving its Kyoto targets. Opposition to Kyoto is strong in some provinces, such as Alberta, and in some industrial sectors, such as the oil industry. Some people say that meeting the targets will mean huge job losses. By early 2007, the federal government had taken no decisive action.

With a partner, find out how the situation in Canada has changed since early 2007. What action(s) do you think Canada should take to slow the process of climate change?

FYI

Over the past 100 years, the world has warmed by 0.6° C, while Canada's average temperature has increased by 1° C.

Figure 11-22 Most Canadians support taking decisive action to reduce the greenhouse gas emissions that lead to climate change. These demonstrators gathered outside a 2005 UN-sponsored climate change conference in Montréal.



Alberta Tar Sands

Problem Though the Alberta tar sands contain an estimated 180 billion barrels of heavy oil, separating the oil from the sand requires a great deal of energy. It now takes one barrel of oil to extract three barrels of usable crude. This energy-intensive process means that the tar sands project is a huge source of greenhouse gases. These problems will increase as the project moves from its current extraction rate of one million barrels a day to a projected five million barrels a day by 2030.

Goals To lower the energy needed to extract oil from the tar sands, to save on production costs, and to reduce greenhouse-gas emissions.

Actions New, more efficient methods of extracting deeper oil are being tried. These include using steam to loosen the oil and allow producers to draw it upward to the surface, and blasting out the oil using compressed air. One initiative works to extract carbon dioxide emissions from exhaust flues.

Successes More than 80 per cent of the tar sands are owned by the Alberta government and are leased to producers. Government agencies oversee the various projects and monitor environmental conditions. Royalties from the tar sands are invested in projects and programs that benefit all Albertans.

Barriers Though Alberta is considered a business-friendly province with minimum regulations, some investors remain suspicious of the tar sands project because of its high costs and unresolved environmental problems. At the same time, the world's supply of accessible light crude oil is running out, and energy companies are turning to dirtier sources such as the tar sands, which have the potential to meet a substantial portion of Canada's energy needs in the coming decades.

Conduct research to find out how an oil company is trying to increase the sustainability of its tar-sands operations. Rate these efforts on a scale of 1 to 5 (1 = more effort needed; 5 = excellent effort).



Web Connection



To find out more about how oil is extracted from the tar sands, go to this web site and follow the links.

www.ExploringGlobalization.ca

Figure 11-23 A conveyer-belt system is used to extract oil at Syncrude's operation in Fort McMurray. What are some environmental issues suggested by this photograph?



Companies working [in Alberta] say they are making considerable strides in protecting the environment. They are eager to discuss their efforts to reduce air pollution and water use and boast of their post-mining restorations, including one where rolling hills support bison herds ... But critics say the environmental work done so far has been highly experimental and that there is no definitive answer as to the long-term harm tar sands production is doing to northern Alberta.

— Mary O’Driscoll, reporter, *Environment and Energy Daily*, 2005

Figure 11-24 Cattle graze near wind turbines at the McBride Lake East wind farm near Fort Macleod. Creating energy from wind turbines like these is an expanding business in Canada. Identify some pros and cons of wind energy.



Alternative Energy Sources

Problems Alternative energy sources, such as solar and wind power, have fewer environmental impacts and are more sustainable because they do not use up non-renewable resources, such as oil and gas. But alternatives to fossil fuels are developing slowly.

Goals To replace a substantial portion of the fossil fuels that currently dominate Canadian energy supplies with a mix of alternative energy sources. Along with this shift in energy sources would be a focus on reducing energy consumption through conservation measures.

Actions Many organizations and businesses are exploring ways of using alternative energy resources. These strategies include retrofitting existing buildings to use “green” energy resources and developing new buildings with a mix of energy sources. Some governments are calling for greater energy efficiency standards for vehicles. In general, alternative energy initiatives are at the preliminary or experimental stage.

Successes Several wind farms in Alberta have shown that wind energy has potential as a source of clean energy. In addition, the cost of producing solar energy using photovoltaic cells is steadily dropping, making these units more affordable and increasing their potential as an alternative energy source. And several newly developed small-scale hydroelectric plants in Alberta show that hydroelectricity also has potential as a renewable energy source.

Barriers Prices for energy from alternative sources are generally higher than for conventional sources of power. Existing tax structures favour conventional sources, such as fossil fuels, over alternative sources. Solar and wind power do not provide a continuous supply of power and require the development of ways to store energy or to mix energy sources that can be used as needed.

Some observers suggest that people are investing in “green” energy because they are hoping that governments will change their policies. How might government policies affect the development of alternative energy sources? What role do governments play in maintaining the world’s long-term dependence on fossil fuels? In what ways do government policies affect the sustainability of globalization? Use examples to illustrate your ideas.

Individual Initiatives

In many cases, people are not waiting for governments to do something about improving sustainability. Like students in Cochrane, Alberta, who raised the money to install a combined solar and wind project at their school, people are taking steps of their own. Many investors, for example, are directing their money to companies that are developing “green” energy technologies. What purposes might investments like these serve?

Donald McInnes, president of Plutonic Power Corp., noted this trend when he said, “It’s no secret that increasing concerns about the high price of fossil fuels and greenhouse-gas emissions has sparked new life into the alternative energy sector. Investment is pouring into the industry as hopes for new, improved ‘green’ energy technologies are translating into government policy at the local, regional and national level. Clean energy–related investment in North America soared to \$2.1 billion in 2006, almost triple the \$739 million invested in the energy category in 2005.”

Web Connection

Students at Cochrane High School in Cochrane, Alberta, have earned international acclaim for their efforts to improve their school’s sustainability. To find out more about the initiatives they have taken, go to this web site and follow the links.

www.ExploringGlobalization.ca

PROFILE

WANGARI MAATHAI AND THE GREEN BELT MOVEMENT

In Kenya, concern for sustainability is a central issue on the political agenda, thanks in large part to Wangari Maathai. Maathai is the founder of the Green Belt Movement. This internationally acclaimed tree-planting organization works to offset the destruction of African forests and the loss of natural resources. More than 30 million trees have been planted since the movement was founded in 1977.

The campaign has mobilized many people, especially women, to fight unsustainable practices that lead to deforestation, soil erosion, and environmental degradation. The Green Belt Movement operates in more than 600 communities across Kenya, and in 1986, the Pan-African Green Belt Network was established. This network has spread tree-planting programs to several other African countries, including Tanzania, Uganda, Malawi, Lesotho, Ethiopia, and Zimbabwe.

A firm believer in the power of one, Maathai was awarded the 2004 Nobel Peace Prize for her efforts. “The core of the Green Belt Movement is really about empowering people to take charge of the environment,” she has said. “Tree planting is the action, is the symbol, is the focus. But the actual transformation is in the individual.”



Figure 11-25 Kenyan Wangari Maathai, the first African woman to win the Nobel Peace Prize, was born into a farming family in the highlands of Mount Kenya. She earned a doctorate from the University of Nairobi, where she taught veterinary anatomy.

4. Read this excerpt from a newspaper opinion piece by Don Lenihan, Tim Barber, Graham Fox, and John Milloy, who are the authors of *Progressive Governance for Canadians: What You Need to Know*. In their newspaper article, the writers considered the role of government in achieving sustainability.

From a public policy viewpoint, global warming is the mother of all issues. Not just because our fate hangs in the balance, but because it calls for a response that would shake modern government to its foundations.

Rebuilding our society around the goal of sustainable development would force governments to overhaul and align virtually every policy field, from industry to education, transportation to labour, agriculture to health. It would take co-ordination, co-operation and collaboration on a scale we have not yet seen.

If there is a silver lining in this cloud, it is that our governments desperately need this kind of overhaul. They were designed for the 19th century and function as if the world had hardly changed. As a result, they are increasingly ineffective — and risk becoming simply irrelevant

- a) Suppose you are a politician in Canada. How would you respond to this criticism of governments? Do you think that the criticisms are valid? Explain the reasons for your judgment.
- b) Identify and explain three actions that governments might take to improve the sustainability of Canadian energy supplies.

5. Reread the material on Wangari Maathai and the Green Belt Movement on page 275. Explain why you think Maathai was awarded the Nobel Peace Prize for her environmental work.
6. With a partner, compose a letter to the president of a shipping company. Explain your position on flagging out.



Figure 11-26 A large oil tanker. What impact does a vessel like this have on the sustainability of globalization?

Think about Your Challenge

Review the challenge for this related issue. Your assignment is to write a persuasive essay on the extent to which globalization contributes to sustainable prosperity for all people. Review the notes you have been assembling. Prepare an outline for your first draft. You may wish to use the model shown on page 213. Share your outline with a partner or your teacher. Based on the feedback you receive, revise your outline and begin writing the essay.