Name:

What Is an Issue?

Considering the course that you are currently completing is entitled *Geographic Issues of the 21st Century*, it may be practical to define exactly what constitutes an issue.

An issue is a topic that has arisen from a significant event, development, or process and about which there are differing views or perspectives. It is a matter that people discuss and debate.

There are many issues pertinent to the field of geography and there are several issues related to food production.

Issue One: *World Food Distribution*

You learned earlier in this module that food is produced around the world and farming is the world's most common occupation. World food production is led by the European Union, China, and the United States. Where is the world's food being distributed and what areas of the world are experiencing food shortages?

Food availability and distribution is one of the most serious issues in the world. **Famine** has always been an issue facing human society. What marks the lack of food today is its impact on large numbers of people worldwide and its potential for social and political upheaval.

Before we continue, let's look at the vocabulary associated with food production, famine, and hunger.

- **Famine**
  - A famine is an extreme shortage of food that results in the starvation or malnutrition of populations.
- **Calories/kilojoules**
  - Units of energy used in nutrition.
  - Estimated requirements for a daily calorie intake are
    - 1940 calories per day for women
    - 2550 calories per day for men
- **Malnutrition**
  - A medical condition caused by an improper or insufficient diet.
- **Undernourished**
  - People are undernourished if they are not provided with sufficient nutrition to sustain proper health and growth.
- **Starvation**
  - A condition of severe suffering due to a lack of nutrition. Mass starvation is the starvation of a large proportion of a region's population due to drought, warfare, famine, or similar events.
- **Food Security**
  - A situation that exists when a person has access to enough food that is nutritious and safe in order to be healthy. A "food insecure" situation exists when a person does not have access to abundant, safe, and nutritious food.

World food production has tripled since World War II (1939–1945). There is enough food produced in the world to feed everyone. Why then are famine and malnutrition so prevalent and why are certain regions of the world facing food scarcity?

- The World Health Organization estimates that one-third of the world is well-fed, one-third is underfed, and one-third is starving.
- One in twelve people worldwide is malnourished, including 160 million children under the age of five.
- The Indian subcontinent has nearly half of the world's hungry people. Africa and the rest of Asia together have approximately 40%, and the remaining hungry people are found in Latin America and other parts of the world.
- Half of all children under five years of age in South Asia and one-third of those in sub-Saharan Africa are malnourished.
- Every 3.6 seconds someone in the world dies of hunger.
- It is estimated that 800 million people in the world suffer from hunger and malnutrition, about 100 times as many as those who die from it each year.
- In the year 2000, the number of obese people in the world caught up with the number of underfed people, according to the World Watch Institute.

Why Are People Starving?

World food distribution is uneven. The following map shows the percentage of the world's population who are undernourished. You'll notice that the African continent has the most undernourished people and other areas with significant undernourishment include Asia and Latin America.

Factors influencing food scarcity in food-deficient nations include:

- lack of proper food-storage facilities for excess food
- number of people who are so poor that they are unable to buy sufficient food for themselves or their families
- not using agricultural land to grow food for people
  - governments instead grow **cash crops** (like sugar, tea, tobacco, coffee, cocoa) for export
  - agricultural land is used to grow non-food crops like rubber and cotton
  - most of the nation's agricultural land is in the hands of a few wealthy landowners who produce whatever they want (not necessarily food, but rather a crop that will make them the most profit)
- rapid population growth that outpaces food production
- poor land and soil management practices that harm farmland
- ineffective and inappropriate government agricultural and economic policies

Factors influencing food scarcity in developed nations include the following:

- not all agricultural land is used efficiently; land is used for parks, new housing developments, shopping malls, highways, athletic stadiums, and so on
- much of the livestock raised (often for fast-food franchises) eats grains that humans could eat

With one-third of the world population currently lacking food security, world food production will have to double to provide food security for the 8 billion people projected to be alive in 2025. By 2050, when the world population is projected to be over 9 billion, the situation will be even more challenging. At current levels of consumption and without allowing for additional imports of food, Africa, Latin America, and Asia would have to boost their food production by anywhere from 70% to 300% just to provide minimally adequate diets for their people. Even North America would have to increase food production by 30% to feed a projected 384 million people by 2050.

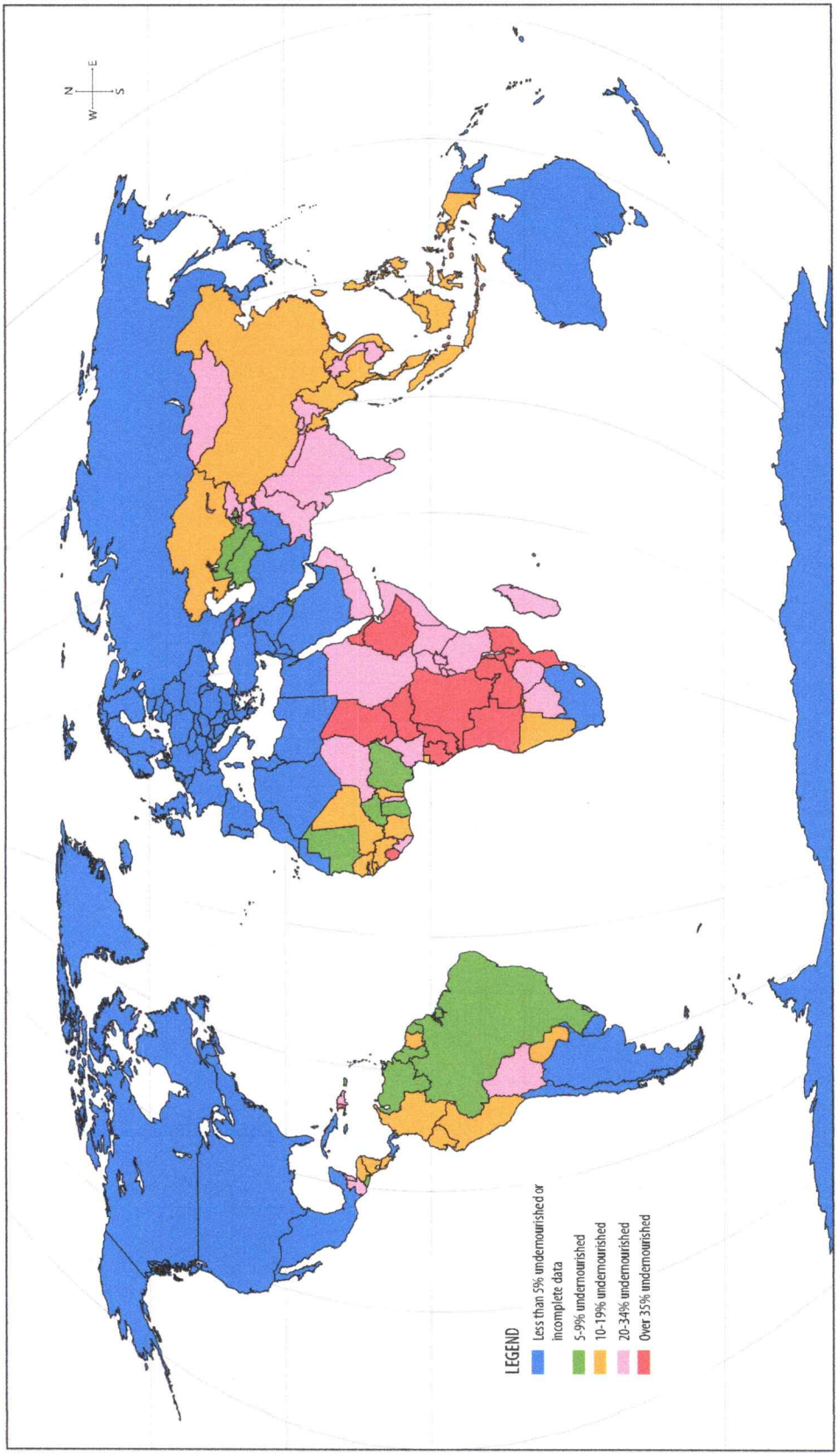
Population growth results in a greater demand for food, but it will also threaten the world's sensitive agricultural lands. As people try to get higher yields (more food) from heavily used natural resources, soil loss will worsen, fresh water will become scarcer, and pollution will increase. As the **developing world** tries to expand food production, valuable and finite agricultural land will shrink.

Issue Two: *Genetically Modified Organisms*

Since the 1990s, technology has been developed that allows scientists to add new genes to crops. **Genetically modified organisms**, or GMOs, are organisms whose genetic structure has been changed to give them characteristics that seem desirable. Specifically, it means the genes of one organism have been "cut out" and then "pasted" into another organism. For example, a crop may have been altered to tolerate herbicides, ward off viruses, or even survive in harsher climates. With expected advances in the science of GMOs in the years ahead, the floodgates of genetic modification—and GM (genetically modified) foods—could release an extraordinary variety of genetically enhanced products. The issue of GM food is a sensitive and controversial issue.

About 60% of our processed foods contain some genetic modifications, but consumers in Canada would find it difficult to determine what is and what is not genetically altered. As of 2007, in Canada, it was not mandatory for food producers to identify the method in which their food was produced, including if genetic modification was used to develop the food product. However, voluntary method-of-production labelling was permitted, provided it was truthful and not misleading.

World Hunger



It is difficult to have enforceable rules because of the complicated food-growing processes in Canada. For example, farmers can grow different varieties of corn or wheat. Some are modified while others are not. Although farmers try to grow GM crops in separate fields, it is hard to guarantee that the different crops will not get mixed somewhere in the process. It is hard to keep some foods completely GMO-free, which leads to the question: What should the label say?

While some groups call for mandatory labelling of GM foods or other products, others want complete prohibition of GMOs. These latter groups say that the use of GMOs is unnecessary and is an intolerable and unnecessary meddling with the natural environment that may have long-term negative consequences we cannot begin to imagine. They believe that the natural world has evolved slowly over time and are concerned about the potentially negative ramifications—on people and the environment—of such a new science as genetic modification. Still others believe that the whole process of GMOs is ethically wrong. In 2005, the government of Prince Edward Island (PEI) became the first province in Canada to begin work to review a proposal to ban the production of GMOs in the province. PEI had already banned GM potatoes, which account for most of its crops.

It is important to know that not everyone is against the use of GMOs. Many believe that the use of GMOs is a natural step in science as humans learn more and more about bettering the world. They argue that GMOs make food more nutritious by adding ingredients like vitamin A to rice; that Canadian farmers need to modify their crops to remain competitive with other farmers in the world; and that people have been modifying their environment forever, which has resulted in our current high standard of living.

Issue Three: *Freshwater and Saltwater Food Resources*

The fishing industry is the commercial activity of fishing and producing fish and other seafood products for human consumption or for industrial processes. According to FAO statistics, the total fish production in the world in 2001 was 130 million tonnes. In addition to commercial fishing, 37.9 million tonnes of fish were produced in **aquaculture** plants.

Surrounded by the Arctic, Pacific, and Atlantic Oceans, and home to the Great Lakes, Canada boasts the world's longest coastline (244,000 km), representing 25% of the entire coastline in the world. With more than 755,000 square kilometres of fresh water, Canada has 16% of the world's area of fresh water and four of the largest lakes in the world. In Canada, the fishery is divided into two categories: the marine or ocean fishery, which takes places off Canada's coasts, and the freshwater fishery, which takes place in the country's lakes.

Commercial fishing is a very small industry in the sparsely populated Arctic. In the Northwest Territories, the Inuit have fished Arctic char for both human and dog food. Lake trout, whitefish, and Arctic cisco are also fished. The Atlantic fishery accounts for 80% of all fish caught in Canada. The main catches include lobster, crab, shrimp, and scallops. The Pacific fishery accounts for 16% of total landings. The main catches are salmon, clams, groundfish, and herring roe. The fresh water fishery—which takes place mainly in Ontario, Manitoba, Saskatchewan, Alberta, and the Northwest Territories—accounts for 4% of total Canadian fishing. The main catches include pickerel, yellow perch, whitefish, northern pike, and lake trout.

Canada's aquaculture sector continues to increase in importance. Key products are farmed: salmon, trout, steelhead, Arctic char, blue mussels, oysters, and manila clams. New farmed species like halibut and cod are on the way.

Overfishing has become a serious issue affecting the world's commercial fishery. A third of all fishing stocks worldwide have collapsed; if current trends continued, all fish stocks worldwide would collapse within 50 years. What has caused such a severe drop in the quantity of fish in the world? Simply put: the fish do not stand a chance. The use of modern fishing tools, such as Global Positioning Systems for navigation, sonar for locating fish, and high-efficiency **trawlers** for netting fish are largely to blame. Modern fishing is an industry that is dominated by fishing vessels and techniques that far outmatch nature's ability to replenish fish. Giant ships using state-of-the-art fish-finding sonar can pinpoint schools of fish quickly and accurately. The ships are like giant floating factories with fish-processing and packing plants, huge freezing systems, and powerful engines to drag enormous fishing gear through the ocean. New technologies include sea-floor dredging, which alters the ocean floor and scoops up all living things—including plants—in its path. Much of the sea life that is dredged up is wasted, as dead and unwanted, yet edible, species are thrown back into the ocean.

Overfishing has already led to the collapse of some fisheries. In 1992, the cod fishery off Newfoundland collapsed, leading to the loss of some 40,000 jobs in the industry. Many believe that the cod stocks in the North and Baltic Seas, in northern Europe, are heading the same way and are particularly close to complete collapse.

According to the United Nations, the aquaculture industry is growing more rapidly than all other animal food-producing sectors. However, despite aquaculture's soaring worldwide production rates, more sobering statistics reveal that global marine fish stocks are in jeopardy.

Issue Four: *Aquaculture*

Is aquaculture the solution to the overfishing problem? Most agree that the answer is no. Other than the fact that an ocean empty of fish and aquatic life is a tragedy, aquaculture is not the answer to the world's commercial fishing predicament.

First, let us once again define *aquaculture*: the production and harvesting of fish and shellfish in land-based (or at least shore-based) ponds. It is basically fish farming.

Second, let us examine the history of aquaculture in Canada. As wild stocks of fish began to decline in Canada, aquaculture became an attractive alternative. Commercial aquaculture production in Canada began in the 1950s, when trout and oysters were first cultivated. As time went on, the industry grew into two distinct branches: one for finfish, such as salmon and trout, and the other for shellfish, such as mussels and clams. Aquaculture in Canada takes place mainly in New Brunswick and British Columbia.

Like most new industries, there are pros and cons associated with aquaculture. Here are some of the pros and cons.

Pros include

- Consumers are now able to buy fresh (not frozen) fish year round.
- Fish farms supply consumers with farmed fish in the winter (the off-season) and ocean fish in the summer—the two complement each other.
- Farming fish removes some of the pressures from traditional commercial fishing and may allow fish in the oceans to naturally replenish their stocks.
- Many see aquaculture as the next step in the evolution of the seas—eventually fish will be like cattle and swim in ponds just as livestock graze on the prairies.
- Aquaculture provides an economic boost to the commercial fishing industry, which has been in a crisis due to dwindling fish stocks since the 1990s.

Cons include

- **Feeding the fish:** Because the aquaculture industry is so new, there are no established guidelines as to how much the fish should be fed, what are the best times of day to feed them, and what should be the food and the nutritional make-up of the food. Often, excess feed is not eaten by the fish and settles on the ocean floor as waste.

- **Hormones and antibiotics:** Because disease is an issue with fish farmed in pens, hormones and antibiotics are often added to the feed. In some cases, these drugs have entered the environment. Additionally, the residual presence of these drugs in human food products has become controversial. There also have been no scientific studies about the long-term effects of humans eating farmed fish.
- **Pollution and disease:** Farmed fish are kept in concentrations not seen in the wild (e.g., 50,000 fish in a two-acre area), with each fish occupying less room than the average bathtub. This can cause several forms of pollution. Packed tightly, fish rub against each other and the sides of their cages, damaging their fins and tails and becoming sickened with various diseases and infections.
- **Shoreline and environmental destruction:** Most aquaculture operations in Canada consist of a series of floating sea cages that are connected and anchored to the ocean shore. Many people believe that, along with pollution from feces and drugs, the actual coastline and its physical environment are being destroyed as well.
- **Mixing of farmed and wild fish:** No one is exactly sure how many farmed fish escape from their ocean pens into the wild and what effect they have on wild fish in the oceans.

The "book" on aquaculture is largely unwritten, and some scientists and other organizations have raised concerns about the impact of aquaculture on the environment and on animal welfare.

Issue Five: *The Changing Nature of Farming*

The nature of farming has changed radically over the past century. The introduction of mechanization has resulted in fewer people being involved in farming the land, in farm sizes becoming large, in high farm start-up and maintenance costs, and in a trend in Canada of having fewer, larger farms producing more food than ever before.

As a result of the changing nature of farming, communities on the Canadian Prairies have been affected both socially and economically.

Social implications involve people and communities. In light of the reduced number of people required for farm labour, smaller towns in Canada that once served a farm area are disappearing as young people move to the cities for employment and education. Farmsteads that have been in families for several generations are being sold off to larger farmers or land is being subdivided for housing developments.

Economic implications involve jobs and money: Farmers on the Prairies have been affected by many negative economic events in recent decades. When the Prairie provinces first became part of Canada (from 1870 to 1907), the federal government decided that the flat prairie lands were ideal for grains. After the drought of the 1930s and the worldwide drop in grain prices, farmers learned to adapt and change with the times.

Since that time, farmers have continued to change the *way* they farm (you read earlier about the use of technology, mechanization, and biochemistry in modern farming) and *what* they farm (you learned about the growing hemp industry in Manitoba) to remain economically viable.

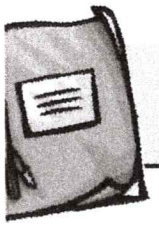
At the beginning of the 20th century, wheat was the most important commodity in each of the three Prairie provinces, followed by oats and barley. Today, signs of diversification are everywhere: in Manitoba, hog farming has become the number one agricultural industry; in Saskatchewan, chickpeas are being grown for an Asian market; and in Alberta, the raising of livestock has overshadowed the growing of grain.

Issue Six: *Food Fashions*

What we eat and how we eat are influenced by fashion. Already, cookbooks and table settings from the 1950s and 1960s look old-fashioned.

Historically, fashions in foods have evolved through a variety of factors: availability, cooking facilities, tools/equipment, skills, and even tradition and religion. In Canada, around the time of Confederation (1867), there were few choices for food. For the poor, lack of money and distance from large centres limited their food choices. The diet of farmers consisted mainly of vegetables that they grew, bread, and meat they slaughtered or could afford to buy. People ate largely what they could obtain in their local area: either by growing it or purchasing it. First Nations people lived off the land and ate what Mother Earth afforded them: wild game, fish, berries, pemmican, and bannock (after they began to trade with Europeans).

By the 1950s, processed food became more common. Canadians tended to live in cities and fewer and fewer people farmed and grew their own food. Mothers, who traditionally did most of the cooking for families, had refrigerators, freezers, and electric ovens for the storing and preparation of food. The choices and availability of food became vast. People began to buy processed food from supermarkets and grocery stores, especially as women entered the workforce and looked for quick and easy meals to cook for the family after a day of work. Families generally sat together for at least one meal per day—usually supper.



Learning Activity 3.5

Contemporary Food-Related Issues: Overview

1. Complete the following organizer. The first issue has been done for you as an example to help you get started.
   a) In the "Overview of Issue" column, summarize the issue for that particular row.
   b) "Social Implications" pertain to people, society, and communities. How does each issue have an effect on society?
   c) "Economic Implications" pertain to jobs, money, and industry. How does each issue have an effect on the economy?
   d) "Political Implications" pertain to governments and the laws they establish for society. How does each issue have an effect on politics?

   e) "Why Care?" is part of Dr. Gritzner's definition of geography. Why should you care about the issue? Whom does the issue currently affect or whom will it affect in the future?

Learning Activity 3.5: Contemporary Food-Related Issues: Overview (continued)

Contemporary Food-Related Issues: Overview					
Issue	**Overview of Issue**	**Social Implications**	**Economic Implications**	**Political Implications**	**Why Care?**
World Food Distribution	World food production has tripled since World War II. There is enough food in the world to feed everyone, yet millions face starvation and malnutrition.	One-third of the world population is lacking food security. Starvation and malnutrition are common in developing nations.	Food may become more expensive as food-producing areas are environmentally degraded and demand for food increases.	Governments—nationally and internationally—will need to meet the requirements to feed a growing world. Civil unrest (wars) may ensue as food security decreases.	Millions face starvation and malnutrition.
Genetically Modified Organisms (GMOs)					
Freshwater and Saltwater Food Resources					

continued

Learning Activity 3.5: Contemporary Food-Related Issues: Overview (continued)

Contemporary Food-Related Issues: Overview (continued)					
Issue	**Overview of Issue**	**Social Implications**	**Economic Implications**	**Political Implications**	**Why Care?**
Aquaculture					
The Changing Nature of Farming					
Food Fashions					