

Food Equity, Sustainability, and Quality: The Challenge of “Good” Food

Chapter Summary

Hunger is endemic to many nations. About 795 million people in the world are hungry, a majority of which live in developing nations. In the United States, one of the top 20 richest countries in the world, over 17 million households are food insecure. Access to nourishing foods can be limited by a variety of factors including weather events, wars, unequal distribution, overpopulation, and local conditions such as agricultural practices, lack of infrastructure, and disease. Climate change also threatens global food security.

Severe acute malnutrition (SAM) is caused by inadequate energy intake and leads to wasting, stunted growth, and an increase in maternal and infant mortality. Micronutrient deficiencies in impoverished nations lead to preventable diseases and a variety of socioeconomic problems. Limited access to nourishing food can actually promote obesity. This can lead to the nutrition paradox whereby stunting and overweight/obesity coexist in the same region, the same household, or even the same person. Researchers are studying the poverty-obesity paradox and looking in to various theories including whether poverty exacerbates obesity because less expensive foods are energy-dense.

Although most consider fresh fruits and vegetables “good” food, if we consider “good” as whether the food is equitably produced and sold, than much of the produce we eat each day does not count. Contingent agricultural workers and food service employees are poorly paid and have little to no benefits. Industrial agriculture has increased food security but threatens our environment. The Green Revolution improved seed quality, fertilizers, pesticides, and farming techniques but has caused significant environmental harm. As a result of the monopolization of agriculture the American diet has lost its variety.

There are many global, national, and local initiatives that are looking for ways to maintain global and regional food security. Sustainable agriculture seeks to develop local, site-specific farming methods that improve soil conservation, crop yields, food security, and food diversity in a sustainable manner. Everyone can promote “good food” by supporting food security, purchasing fair trade goods, and choosing foods that are healthful for you and the environment.

Nutrition Myth or Fact addresses the question: Preserving Bone Mass: Meat consumption and climate change: Tofu to the rescue?

Learning Objectives

After studying this chapter, the student should be able to:

1. Compare and contrast levels of food insecurity globally and in the United States (pp. 628-630).
2. Discuss several ways in which human behavior contributes to food insecurity (pp. 630-632).
3. Explain what climate change is and how it is affecting the world's food supply (pp. 632-633).
4. Describe the health and societal problems associated with undernourishment (pp. 633-635).
5. Explain how obesity can result from limited access to nourishing food (pp. 635-638).
6. Identify inequities in agricultural and food-service labor, and their effects on workers and consumers they serve (pp. 638-639).
7. Discuss the effects of industrial agriculture on food security and the environment (pp. 639-641).
8. Explain how the food industry has influenced the quality and diversity of our food supply (p. 641).
9. Discuss international, governmental, philanthropic, corporate, and local initiatives aimed at increasing the world's supply of and access to "good" food (pp. 642-644).
10. Identify several steps you can take to promote production of and access to "good" food (pp. 645-646).

Key Terms

cash crops	global warming	poverty-obesity paradox
climate change	Green Revolution	severe acute malnutrition
crop rotation	high-yield varieties	stunted growth
fair trade	infant mortality	sustainable agriculture
famines	maternal mortality	wasting
food diversity	nutrition paradox	
food insecurity	overpopulation	

Chapter Outline

I. How Prevalent is Food Insecurity?

- A. Food insecurity is unreliable access to a sufficient supply of nourishing food.
- B. About 795 million people worldwide are hungry
 1. Ninety-eight percent of these people live in developing nations.
 2. The highest prevalence in sub-Saharan Africa and Asia.
- C. Over 17 million American households are food insecure.

1. 6.8 million had very low food insecurity meaning that they had to not only reduce the quality, variety, or desirability of their food choices but also the amount they were able to eat.
2. Factors that contribute to food insecurity include poverty, chronic disease, disability, depression, addiction, and divorce.

Key Term: food insecurity

Figures:

Figure 16.1: Although people throughout the world—including in North America—are undernourished, Asia and sub-Saharan Africa have the greatest prevalence of undernourishment overall.

Figure 16.2: Prevalence of food insecurity and very low food security in U.S. households, 2013.

II. Why Don't All People Have Access to Nourishing Food?

A. Acute food shortages are often caused by weather events and wars.

1. A famine is a severe food shortage affecting a large percentage of the population in a limited geographic area at a particular time.
2. Famines typically result from a combination of factors, including weather and human miscalculations.
3. Wars induce food shortages by interfering with planting or harvest times, destroying standing crops, or causing populations to flee.

B. The major cause of chronic hunger is unequal distribution of food.

1. The rural poor lack money to buy food but live in areas with limited employment.
2. Unequal distribution also occurs because of cultural biases and can differ by ethnicity and religion.

C. Overpopulation contributes to chronic food shortages.

1. Overpopulation is a condition in which a region's available resources are insufficient to support the number of people living there.
2. Reducing demand for food and slowing population growth is one way to improve an area's food supply.
 - a. One of the most effective ways to reduce birthrates is to improve education of women and girls.
 - b. Increasing food production and importing food are other ways to improve an area's food supply.

D. Local conditions can contribute to chronic hunger.

1. Traditional farming practices, deforestation, overgrazing, and failure to rotate crops have the potential to destroy usable land.
 - a. Use of agricultural land for cash crops may replace land use for local food crops.
 - b. Growing feed for livestock also takes up usable land and feeds far fewer people.
2. Lack of infrastructure like roads and transportation can exacerbate the scarcity of food production.
 - a. Water management including irrigation, sewage systems, and the provision of safe drinking water is another aspect of infrastructure.

3. Lack of resources to fight disease reduces the work capacity of individuals and therefore their ability to ward off poverty and malnutrition.
- E.** Climate change threatens global food security.
1. Global warming is the general term used for the increase of about 1.4° in temperature that has occurred near the Earth's surface over the past century.
 - a. Most scientists agree that it is caused by human activities that have released greenhouse gases into the atmosphere.
 2. Global warming is the most significant factor contributing to climate change, which is a significant change in the measures of climate that occurs over several decades or longer.
 3. Global warming and climate change affect food security in a number of ways.
 - a. Reduced crop yields
 - b. Crop destruction
 - c. Impacts on seafood availability

Key Terms: famine, overpopulation, cash crops, global warming, climate change

III. What Problems Result from Limited Access to Nourishing Food?

- A.** Low energy intake promotes wasting, stunting, and mortality.
1. Wasting, the hallmark of severe acute malnutrition (SAM), is a very low body-weight-for-height.
 - a. Children with SAM also experience stunted growth due to their inadequate energy and nutrient intake.
 2. Increased maternal, neonatal, and infant mortality result from SAM.
 3. Decreased resistance to infection causes death in underweight and nutrient-deficient children and adults.
 - a. Protein and micronutrient deficiencies reduce energy stores and weaken immune response.
 - b. A vicious cycle of malnutrition, infection, worsening malnutrition, and increased vulnerability to infection develops.
- B.** Micronutrient deficiencies lead to preventable diseases.
1. Iron deficiency is the most common nutrient deficiency in the world.
 2. Inadequate prenatal iodine results in irreversible neurological deficits.
 3. Vitamin A deficiency is the leading cause of blindness in children and increases risk of death from severe infection.
- C.** Undernourishment promotes socioeconomic problems.
1. Undernourishment during fetal development, infancy, and childhood can permanently reduce cognitive functioning and an individual's eventual ability to contribute to a nation's economic progress.
 2. Poor work capacity of adults is the result of debilitating weakness and nutrient deficiency.
- D.** Limited access to nourishing food can promote obesity.
1. The prevalence of chronic disease and obesity is increasing worldwide.

2. The nutrition paradox is an emerging global health concern, characterized by the coexistence of stunting and overweight/obesity in the same region, household, and even the same person.
3. Two key factors behind the nutrition paradox in transitioning nations are:
 - a. A trend toward decreased physical activity
 - i. Increasingly sedentary lifestyles due to changes in work and transportation.
 - b. A global shift in diet toward increased intake of energy-dense foods high in saturated fats and added sugars but low in micronutrients and fiber.
4. The poverty–obesity paradox describes the high incidence of obesity in low-income populations.
 - a. The hunger-obesity paradox occurs when low-income people are obese while often deficient in one or more nutrients, and in some cases even hungry.
 - b. Research into the poverty-obesity paradox is inconclusive but there are several hypotheses.
 - i. One hypothesis focuses on the purchase of inexpensive, shelf-stable foods that are energy dense and less expensive than healthier perishable foods.
 - ii. A second hypothesis suggests that the low-income pick cheap, energy-dense foods for their higher satiety value.
 - iii. Another hypothesis is that high rates of obesity may reflect environment as many obese people live in food deserts where they lack access to fresh, healthy, and affordable food.
 - iv. A final hypothesis is that stress over having insufficient resources can cause the release of cortisol which increases appetite and slows metabolism; it also makes people more likely to retreat to empty-Calorie “comfort foods.”
- E. Fetal undernourishment can lead to adult obesity.
 1. The “fetal origins theory” states that biological adjustments to poor maternal nutrition make a child susceptible to obesity and chronic disease when food is plentiful.

Key Terms: severe acute malnutrition (SAM), wasting, stunted growth, maternal mortality, infant mortality, nutrition paradox, poverty-obesity paradox

Figure:

Figure 16.3: Acute and long-term effects of chronic undernourishment throughout the life cycle.

IV. Is Our Food Equitably Produced and Sold?

- A. Farm labor is dangerous and poorly paid.
 1. Agricultural contingent workers have little job security, no healthcare insurance or other benefits, low wages, and face hazardous conditions in the field.
- B. Food service work maintains the “working poor.”
 1. Low wages and lack of benefits cause many in food service to live below the poverty line.

V. What Factors Influence the Sustainability and Quality of Our Food Supply?

- A. Sustainability is the ability to satisfy humanity’s basic needs now and in the future without undermining the natural resource base and environmental quality on which life depends.

- B.** Industrial agriculture has increased food security but threatens our environment.
 - 1. The Green Revolution refers to the tremendous increase in global productivity between 1944 and 2000 due to selective cross-breeding or hybridization to produce high-yield grains and industrial farming techniques.
 - a. The program has prevented millions of starvation deaths over the years.
 - b. It has also been detrimental to the environment.
- C.** Monopolization of agriculture reduces food diversity, or the variety of different species of food crops available.
 - 1. Subsidies for farmers to grow single crops on a massive scale caused a decrease in amount of small farms and production of fresh fruits and vegetables.
- D.** The food industry influences America’s diet.
 - 1. Lobbying by the food industry influences action on food policy.

Key Terms: sustainability, Green Revolution, high-yield varieties, food diversity

VI. What Initiatives Are Addressing the Challenges of “Good” Food?

- A.** Global, national, and local initiatives increase access to nourishing food.
 - 1. Programs to encourage breastfeeding are among the most important initiatives.
 - a. In developing countries, feeding infants with formula is risky, and breastfeeding provides the best chance for infant survival and growth.
 - b. The WHO and UNICEF have initiated worldwide programs to promote breastfeeding exclusively for the first 6 months and as part of the diet up to age 2.
 - 2. Other international programs assist with food and emergency aid during famines and acute food shortages and help to promote food security by assisting communities with producing their own food.
 - 3. National and local programs promote equitable distribution of food.
 - a. In the United States, several USDA programs help low-income citizens acquire food over periods of time.
 - b. Government can also provide financial incentive to encourage the sale of healthful foods and fresh produce.
 - c. A broad network of soup kitchens and food pantries provide meals to needy families.
- B.** Sustainable agriculture reduces environmental impact and increases food diversity.
 - 1. Sustainable agriculture seeks to develop local, site-specific farming methods that improve soil conservation, crop yields, food security, and food diversity in a sustainable manner.
 - a. Examples include: crop rotation, organic farming, family farming, community supported agriculture (CSA), farmer’s markets, school gardens, and slow food.
- C.** Business and philanthropic initiatives are promoting “good” food.
 - 1. Business and individuals are investing in food technologies to increase food security and preserve human health and the environment.

Key Terms: sustainable agriculture, crop rotation

VII. What Can You Do to Promote “Good” Food?

- A.** Support food security.

1. Avoid or limit energy-dense, nutrient-poor choices thereby reducing consumption and eventually production.
 2. Avoid overconsumption, which leaves more food for others.
 3. Join a community garden or shared farming program.
 4. Donate or raise money for an international agency that works to relieve global hunger.
- B.** Purchase fair trade goods.
1. Fair trade empowers laborers to demand living wages and humane treatment, reduces child labor, and increases children's access to education.
- C.** Choose foods that are healthful for you and the environment.
1. Buy organic.
 2. Buy local.
 3. Choose whole or less processed versions of food.
 4. Avoid empty-Calorie foods.
 5. Ask for nutritional information for menu items when you eat out.

Key Term: fair trade

Figure:

Figure 16.4: The Fair Trade Certified logo guarantees that the product has been produced equitably without exploitation of workers or the environment.

Activities

1. Prior to the lecture on this topic, ask students to skip a meal or fast for a day to better understand the feeling of hunger. Students with special medical conditions should be cautioned against fasting. At the beginning of lecture, allow students to share their experience. Discuss how their experience compares and contrasts with famine and chronic food shortage.
2. So that students can experience the limited diets of individuals in developing countries, have students volunteer to bring in foods that would be on the menu in one of these countries (as food becomes scarce) and share them with the class. Ideas can be found at the Oxfam Web site listed below. Many children are limited to a thin "porridge" made of the local grain or root vegetables. This could be prepared as an alternative. Discuss the palatability, satiety, and nourishment of this meal.
3. The Oxfam Web site www.hungerbanquet.org has a variety of activities addressing hunger, including a 10-minute interactive experience that could be used to start the class, or students could be encouraged to go to the website and play on their own. Many campuses host Oxfam America clubs. If your institution is one of them, invite a representative to speak. If not, the class could be encouraged to investigate the possibilities. Their experience with the interactive experience, guest speaker, or investigation of the website could be used as a discussion starter during class.
4. In the United States, two of the major excuses for not selecting healthy, nutritious foods are that it is too expensive and that it requires too much time to prepare. Bring in grocery advertisements and have students work in groups to compare prices on nutrient-dense foods versus energy-dense foods. Many students will be able to quote prices on foods that are not listed in the advertisements, and they may want to compare foods from res-

taurants as well. Have them develop a list of convenient, inexpensive, healthy foods and then answer these questions:

- a. Why do people believe it is too expensive and too time consuming to eat healthy?
 - b. What additional cost savings can be included in choosing healthy choices daily?
5. Assign students various aspects of the global nutrition initiatives (farm to table, food banks, changes in agriculture, and so on) to research. Encourage them to explore the web links provided in the chapter and to pay particular attention to news on the topic. Allow them each a few minutes to present their information.

Diet Analysis Activity

6. Using the nutritional assessments previously completed, students should note the following:
- a. Which foods contribute to overconsumption in your diet?
 - b. Which foods could you choose more often to promote food equity and preserve the environment?
 - c. Could you decrease your consumption of animal foods without compromising your nutrition?

Nutrition Debate Activity

7. Below are 12 myths about hunger adapted from the Institute for Food and Development Policy Backgrounder (www.foodfirst.org). Have students discuss these myths in small groups, determining why people believe them to be true, whether any of them have validity, and how to change prevailing opinions on those that are not valid.

Myth 1. There is not enough food.

Myth 2. Nature is to blame for famine.

Myth 3. There are too many mouths to feed.

Myth 4. Increasing food production endangers our environment, limiting food production.

Myth 5. The Green Revolution is the answer to curing hunger.

Myth 6. Larger farms are needed to increase production.

Myth 7. Government deregulation can end hunger.

Myth 8. Free trade reduces hunger.

Myth 9. People are too hungry to act on their own behalf.

Myth 10. More U.S. aid will help the hungry.

Myth 11. We benefit from the poverty and hunger of others.

Myth 12. Civil liberty and ending hunger cannot coexist.

Web Resources

Care

www.care.org

Freedom from Hunger

www.freefromhunger.org

Heifer International

www.heifer.org

National Student Campaign Against Hunger and Homelessness

www.studentsagainsthunger.org

United Nations Children’s Fund

www.unicef.org/nutrition

World Health Organization: Nutrition

www.who.int/nutrition/en

Food Democracy Now

www.fooddemocracynow.org

Slow Food USA

www.slowfoodusa.org/

Fair Trade USA

www.fairtradeusa.org

Meatless Monday

www.meatlessmonday.com/

Environmental Protections Agency’s Sustainability Tips

www.epa.gov/learn-issues/green-living
