

### A few definitions...

- **Hunger**
  - ✓ Uneasy or painful sensation caused by lack of food
- **Malnutrition**
  - ✓ Failure to achieve nutrient requirements
- **Food insecurity**
  - ✓ Limited or uncertain availability of nutrients/food
- **Food security**
  - ✓ Access to enough food

### Hunger in the United States

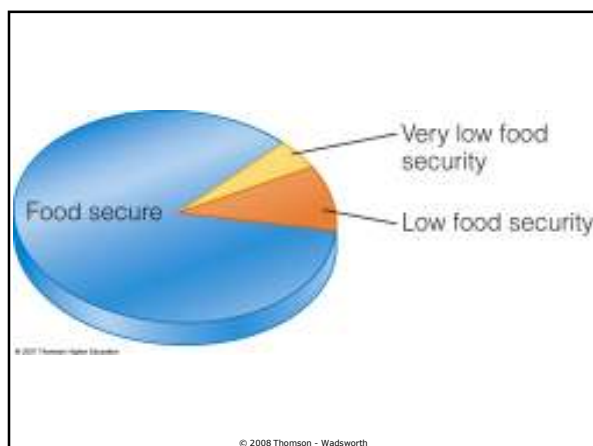
- Hunger and food insecurity are widespread in the United States.
- People living in poverty are especially vulnerable.
- Government and community programs bring some relief.

© 2008 Thomson - Wadsworth

### Hunger in the United States

- **Defining Hunger in the United States**
  - ✓ Food insufficiency is defined as having too little food.
  - ✓ Food poverty is defined as hunger resulting from inadequate access to food.
  - ✓ Food security is access to enough food to support an active and healthy lifestyle.
  - ✓ Food insecurity is limited or uncertain access to sufficient quantity or quality of food to sustain a healthy and active life.

© 2008 Thomson - Wadsworth



### Hunger in the United States

- **Relieving Hunger in the United States**
  - ✓ **Federal Food Assistance Programs**
    - WIC is for low-income pregnant women, breastfeeding women, and children.
    - School breakfast, lunch programs, and child-care food programs
    - Meals on Wheels and congregate meals
    - Food Stamp Program

© 2008 Thomson - Wadsworth

## Hunger in the United States

- Relieving Hunger in the United States
  - ✓ National Food Recovery Programs
    - Second Harvest serves food pantries, emergency shelters, and soup kitchens.
    - Food banks
  - ✓ Community efforts depend on volunteers, concerned citizens, local agencies and churches.

© 2008 Thomson - Wadsworth

## Malnutrition in the U.S.

Prevalence and distribution

- ✓ Linked with economic and social factors



## Malnutrition in the U.S.: Groups at Risk

- Working poor
  - ✓ May or may not qualify for food assistance
- Isolated
  - ✓ Lack access to food resources
- Elders
  - ✓ Economic difficulties
  - ✓ Physical ailments

## Malnutrition in the U.S.: Groups at Risk

- Homeless
  - ✓ Lack consistent cooking facilities
  - ✓ Limited income, if any
- Children
  - ✓ Dependent on family circumstances
  - ✓ Hunger affects school performance
  - ✓ Obesity occurring in the same households experiencing hunger

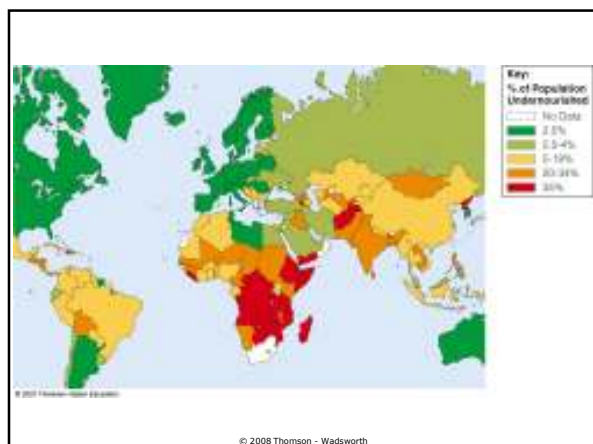
## Malnutrition in the U.S.

- Reducing hunger in America
  - ✓ The Food Stamp program
    - Extends food buying power
  - ✓ Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)
    - Food, nutrition services for pregnant and lactating women, and children to age 5
  - ✓ National School Lunch Program
    - Free and reduced price meals
  - ✓ Child and Adult Care Food Program

## World Hunger

- Extreme hunger and poverty are common in developing countries.
- Natural causes, politics, armed conflicts and government policies have a big impact.
- Technology offers some solutions as does focusing on local food system development.
- Overpopulation must also be controlled.

© 2008 Thomson - Wadsworth



## Malnutrition in the Developing World

- Factors that contribute to hunger and malnutrition
  - ✓ Political disruptions and natural disasters
    - War
    - Refugees
    - Sanctions
    - Floods, droughts, mudslides, hurricanes
  - ✓ Inequitable food distribution

## World Hunger

- Food Shortages
  - ✓ Political turbulence and government policies during famine affect food problems.
  - ✓ Armed conflicts may interfere with humanitarian efforts to get food to people.
  - ✓ Natural disaster areas accept food assistance from other countries.

© 2008 Thomson - Wadsworth

## World Hunger

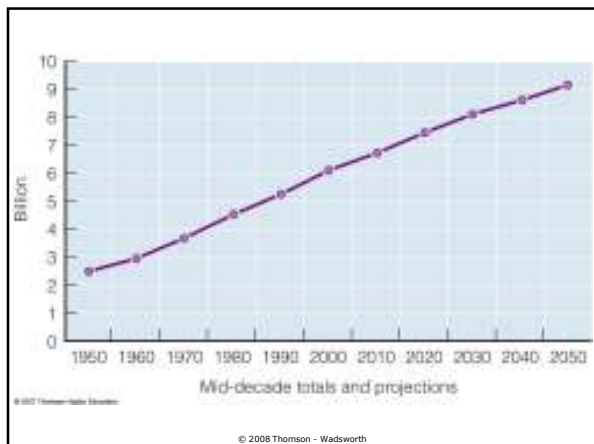
- Malnutrition
  - ✓ Affects 850 million people
  - ✓ Iron, iodine and vitamin A are the nutrients most lacking.
  - ✓ Protein-kcalorie malnutrition
  - ✓ Oral-rehydration therapy (ORT) can reverse dehydration.
- A diminishing food supply is a problem as populations continue to grow.

© 2008 Thomson - Wadsworth

## Poverty and Overpopulation

- Poverty and hunger with more people to feed interrelate to each other.
- To break this cycle requires improving the economy and providing education, health care, and counseling about family planning.
- Population Growth Leads to Hunger and Poverty
  - ✓ Human carrying capacity – the maximum number of people the earth can support
  - ✓ Increasing rate in developing countries where hunger and poverty already exist

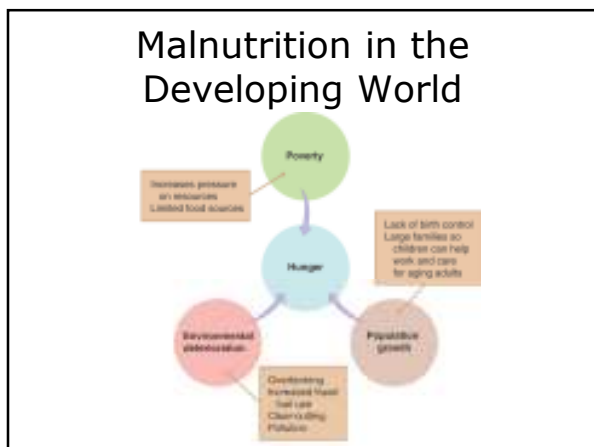
© 2008 Thomson - Wadsworth



## Poverty and Overpopulation

- Hunger and Poverty Lead to Population Growth
  - ✓ Poverty leads to inadequate food and shelter, physical abuse, forced marriages, and prostitution.
  - ✓ Lack access to reproductive care and family counseling
  - ✓ Families depend on children to farm the land, carry water, and care for the elderly.
  - ✓ With high death rates in children, parents may choose to have more children with hopes that some will survive to adulthood.

© 2008 Thomson - Wadsworth



## Poverty and Overpopulation

- Breaking the Cycle
  - ✓ Curbing population growth
  - ✓ Improvements in living standards
  - ✓ Sharing of resources among groups
  - ✓ Education becomes a higher priority

© 2008 Thomson - Wadsworth

## Malnutrition in the Developing World

Protein Energy Malnutrition:

- ✓ Kwashiorkor
- ✓ Marasmus

## Malnutrition in the Developing World

- ✓ Iodine deficiency disorders
  - Most common cause of preventable brain damage

© 2008 Thomson - Wadsworth

## Malnutrition in the Developing World

- Vitamin A deficiency
  - ✓ Leading cause of preventable blindness
- Iron-deficiency anemia
  - ✓ Limits productivity of population

## Malnutrition in the Developing World

- Other vitamin, mineral deficiencies
  - ✓ beriberi
  - ✓ pellagra
  - ✓ scurvy
- Overweight and obesity
  - ✓ Differing cultural attitudes
  - ✓ High calorie, low nutrient dense foods

## Agriculture & Environment: a tricky balance

- Positives:
  - ✓ Increase food supplies
  - ✓ Reduced food costs
- Negatives:
  - ✓ Environmental degradation
    - Urbanization
    - Clear-cutting
    - Over-irrigation
    - Soil erosion
  - ✓ Reduced food production
  - ✓ Nutritional consequences

## Environmental Degradation and Hunger

- The limitations in the production of foods reduce the ability to feed the people of the world.
- Environmental Limitations in Food Production
  - ✓ Soil erosion, compaction, and salinization caused by over tillage and overirrigation
  - ✓ Deforestation and desertification caused by overgrazing
  - ✓ Air pollution from the burning of fossil fuels
  - ✓ Ozone depletion

© 2008 Thomson - Wadsworth

## Environmental Degradation and Hunger

- Environmental Limitations in Food Production
  - ✓ Climate changes caused by deforestation
  - ✓ Water pollution caused by sediment, salt, fertilizer, pesticide, and manure
  - ✓ Water scarcity caused by overuse
  - ✓ Extensive overgrazing caused by livestock needs
  - ✓ Over fishing and water pollution

© 2008 Thomson - Wadsworth

## Environmental Degradation and Hunger

- Other Limitations in Food Production
  - ✓ Irrigation, fertilizers, and improved genetic strains are reaching their limits.
  - ✓ Harvests are falling short of consumption needs.
  - ✓ World agriculture produces enough foods to provide each person with 2720 kcal per day.
  - ✓ Distribution is a problem.
  - ✓ Population is a problem.

© 2008 Thomson - Wadsworth

## Solutions

- Governments, businesses, and all individuals have opportunities to make environmentally conscious choices.
- Proper choices may help to relieve hunger, improve quality of life, and generate jobs.
- Personal choices have a great impact also.

© 2008 Thomson - Wadsworth

## Solutions

- Sustainable Development Worldwide
  - ✓ Hunger relief, population stabilization, environmental preservation and sustainable resources must be considered.
  - ✓ Permanently improve the lives of people by helping them to help themselves

© 2008 Thomson - Wadsworth

## Solutions

- Activism and Simpler Lifestyles at Home
  - ✓ Government action to promote sustainability
  - ✓ Business involvement can support hunger and food recovery programs.
  - ✓ Education about hunger and advocates for legislation

© 2008 Thomson - Wadsworth

## Solutions

- Activism and Simpler Lifestyles at Home
  - ✓ Foodservice efforts include the American Dietetic Association (ADA)
    - Conserve resources and minimize waste
    - Fight hunger
    - Conduct research on programs
    - Advocates to legislatures on the local, state, and national levels
    - Support programs that combat malnutrition, provide food security, promote self-sufficiency, respect local culture, protect the environment, and sustain the economy

© 2008 Thomson - Wadsworth

## Solutions

- Activism and Simpler Lifestyles at Home
  - ✓ Individual Choices
    - Joining and working for hunger-relief organizations
    - Lobby for needed changes in economic policies for developing countries.
    - Make lifestyle choices that consider environmental consequences.
      - Food shopping
      - Food choices
      - Food packages
      - Gardening
      - Cooking food
      - Kitchen appliances
      - Food serving, dishwashing, and waste disposal

© 2008 Thomson - Wadsworth

## Organizations

### International

- World Health Organization (WHO)
- Food and Agriculture Organization (FAO)
- Save the Children (also US focused on obesity)

### National

- Food Research and Action Center (DC)
- Community Food Security Coalition (Portland based)
- American Dietetic Association's Hunger & Environmental Nutrition Practice Group

### Local

- Northwest Harvest
- Children's Alliance
- Share Our Strength's Operation Frontline (at Solid Ground in Wallingford)
- Cascade Harvest Coalition

## Great Decisions 2009

- Global Food Crisis feature:

[http://www.fpa.org/topics4707/topics\\_show.htm?doc\\_id=697442](http://www.fpa.org/topics4707/topics_show.htm?doc_id=697442)

Source: Foreign Policy Association

© 2008 Thomson - Wadsworth

## Progress toward Sustainable Food Production

© 2008 Thomson - Wadsworth

## Progress toward Sustainable Food Production

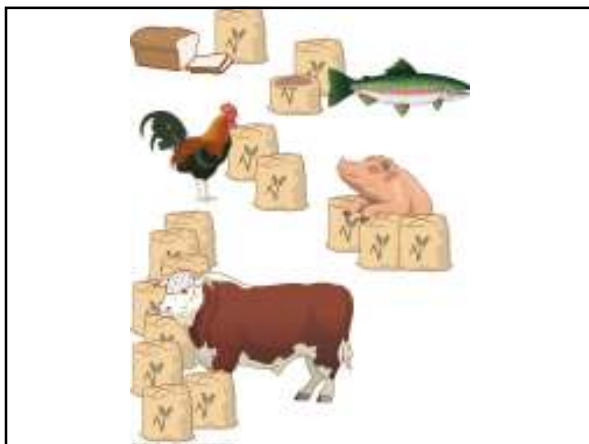
- Large agriculture enterprises are among the world's largest resource users and polluters.
- Techniques are being studied to employ sustainable agriculture.
- These techniques emphasize careful use of natural processes, computer technology, GPS, and biotechnology.
- Consumers can help by buying locally and eating low in the food chain.

© 2008 Thomson - Wadsworth

## Costs of Producing Food Unsustainably

- Resource Waste and Pollution
  - ✓ Planting Crops
    - Soil loses nutrient
    - Apply herbicides and pesticides that pollute water
    - Salts accumulate on the soil surface
  - ✓ Raising Livestock
    - The land pays the price
    - Production of manure and methane

© 2008 Thomson - Wadsworth



## Costs of Producing Food Unsustainably

- Resource Waste and Pollution
  - ✓ Fishing
    - Over fishing and depleted stock
    - Fishing is energy intensive, using fuel for boats, refrigeration, processing, packing, and transport.
    - Bioaccumulation of toxins in fish
  - ✓ Energy Overuse
    - Massive fossil fuel usage
    - Food industry consumes 20% of all the energy of the nation

© 2008 Thomson - Wadsworth

## Costs of Producing Food Unsustainably

- Resource Waste and Pollution
  - ✓The Cumulative Effects
    - Agriculture is the largest single source of nonpoint water pollution.
    - Fails to conserve species diversity
    - Current ways of producing food are not sustainable.

© 2008 Thomson - Wadsworth

## Costs of Producing Food Unsustainably

- From Family Farms to Agribusiness
  - ✓Small family farms face competition from agribusiness.
  - ✓Priorities shift to high and inexpensive production compared to protecting soil, water and biodiversity.
  - ✓Agribusiness prices are lower.

© 2008 Thomson - Wadsworth

**TABLE H20.2** Sustainable Energy-Saving Agricultural Techniques

- Use machinery scaled to the job at hand, and operate it at efficient speeds.
- Combine operations. Harrow, plant, and fertilize in the same operation.
- Use diesel fuel. Use solar and wind energy on farms. Use methane from manure. Be open-minded to alternative energy sources.
- Save on technological and chemical inputs, and spend some of the savings paying people to do manual jobs. Increasing labor has been considered inefficient—reverse this thinking. Creating more jobs is preferable to using more machinery and fuel.
- Partially return to the techniques of using animal manure and crop rotation. This will save energy because chemical fertilizers require much energy to produce.
- Choose crops that require few resources (fertilizer, pesticides, irrigation).
- Educate people to cook food efficiently and to eat low on the food chain.

© 2008 Thomson - Wadsworth

## Proposed Solutions

- Sustainable agriculture
- Low-Input Agriculture
  - ✓Integrated pest management (IPM)
  - ✓Farmers and consumers are better off financially and environmentally

© 2008 Thomson - Wadsworth

## Proposed Solutions

- Precision Agriculture
  - ✓Application of computer technology
  - ✓Global positioning satellite (GPS) used to obtain information about land
- Agricultural Biotechnology
  - ✓Economic, environmental, and agricultural benefits
  - ✓Possible calamities

© 2008 Thomson - Wadsworth

## Proposed Solutions

- Consumer Choices
  - ✓Plant versus Animal
    - Consumers select plant foods that are less costly to produce.
    - Smaller portions of meat
    - Vegetarians
  - ✓Local versus Global
    - Global is energetically costly.
    - Global is socially unjust.
    - Global is economically unwise.
    - Global is biologically risky.

© 2008 Thomson - Wadsworth

