



FOOD FOR EVERYONE

A Teaching Resource on World Hunger and Agriculture

Sponsored by
National Council for Agricultural Education
and
Bread for the World Institute

Supported by
U.S. Agency for International Development

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A Teaching Resource on World Hunger and Agriculture
for
Agriculture and Social Studies Teachers and Students

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Professional Growth Series



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The National Council for Agricultural Education is a not-for-profit organization that provides leadership, coordination and support for the continuous improvement and diversity of agricultural education.

The Council is committed to promoting healthy lifestyles and strives to achieve a blend of practices and values consistent with the highest ethical standards. The Council also strives to ensure that all instructional materials and services reflect local school and community involvement and cultural context.

The Council developed these materials as a special project of the National FFA Foundation and are distributed through a partnership between The Council and the National Association of Agricultural Educators.



Bread for the World
INSTITUTE

Bread for the World Institute seeks justice for hungry people by engaging in research and education on policies related to hunger and development. The Institute is, in combination with Bread for the World, one of the leading private U.S. agencies involved in policy analysis and development education on hunger.



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Lesson Units: Food For Everyone

A. The Scope and Causes of Hunger

1. **Who In The World Is Really Hungry?** A survey lesson: hunger around the world (including the United States), its major causes, and win-win solutions.
2. **Hunger, The Silent Thief.** The physical symptoms and social effects of hunger.
3. **World Population Growth Is Slowing.** An exploration of the population “explosion” of the 20th century; where and why population growth is slowing.
4. **Hunger Is Related To Poverty.** Hungry people nearly always lack the opportunity for a steady job at decent pay or access to resources for self-employment.
5. **Is Hunger More Than A Lack of Money?** Political, social, cultural, and environmental factors often make hunger worse, or better.

B. Overcoming Hunger

6. **Making Markets Work For Everyone.** Market based economies work better than others to overcome hunger, but only if they create opportunity for everyone.
7. **Two Ears Of Corn.** Agricultural technologies in industrial and developing countries; their role in increasing productivity and farmer incomes.
8. **Can We Produce Enough Food AND Sustain The Environment?** Balancing the gains and risks of using, or not using, high tech agriculture.
9. **Not Everyone Can Be A Farmer.** Rural development: creating farm and off-farm opportunities in rural areas to slow the rush to urban slums.
10. **International Partnerships In Agricultural Trade And Investment.** Opportunities and challenges associated with increasing international agricultural trade and investments.
11. **Doesn't International Agricultural Assistance Create Competition For U.S. Farmers?** The surprising result of 50 years of development assistance: more markets and gains in U.S. farm productivity.
12. **If the U.S. Can Produce It. . . Should We Feed The World?** International food aid and domestic food programs to meet emergencies and help families toward greater self-reliance wherever appropriate.
13. **So Where Do I Fit In?** Careers in international agriculture; international aspects of U.S. agricultural careers; the role of good citizens.

The Authors

The following instructional materials were written by Don Reeves with assistance from Jashinta D'Costa. Over the last several years Mr. Reeves has contributed to Bread for the World Institute's annual report on the state of world hunger, and more recently served as co-editor. Meanwhile, he has maintained an active management interest in his Nebraska farm.

Jashinta D'Costa wrote the Country Profiles, created the maps and most graphics, assembled the Basic Indicator tables, and provided research assistance for most of the teaching units. Ms. D'Costa received advanced degrees in urban geography from University of Dhaka, Bangladesh and Michigan State University. She has been a consultant to the United Nations Development Program and Save the Children-U.S., as well as serving as research associate with Bread for the World Institute.

Bruce White has coordinated this project as a staff member for the National Council for Agricultural Education. Mr. White has served in various capacities dealing with international agriculture and food security issues, based in both the United States and Africa.

Advisory Committee

We thank our advisory committee for their assistance in providing direction and scope for this initiative. Early during the process, the advisory committee met and provided guidance on how to present the topics to maximize their effectiveness in the classroom. Committee members, who brought a wide range of expertise to the process, include:

Richard A. Hoehn, Director, Bread for the World Institute
Curtis Reintsma, US Agency for International Development
Richard Bernsten, Michigan State University
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Financial Support

We thank the Office of Private and Voluntary Cooperation in the Bureau of Humanitarian Response at the U.S. Agency of International Development for their commitment and support of our efforts to provide instruction to the U.S. audience of students and teachers on world hunger issues. For more information on U.S. foreign assistance programs to alleviate hunger and other development issues, please contact:

U.S. Agency for International Development
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To learn more about the Bread for the World Institute or obtain any of its many printed materials on world hunger including its annual reports on the state of world hunger, please contact:

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About The Materials

The Council and Bread for the World Institute began preliminary discussions about this project in the fall of 1997. It has been evident for quite some time that even though alleviating hunger is the most basic application of agriculture, historically there has been little or no detailed instructional information about this subject for U.S. high school and post-secondary classrooms below the university level. Food security and related development issues are important aspects of global agriculture and, as the following lesson units indicate, also are inter-linked with U.S. agriculture. In an effort to help prepare students to contribute to agriculture in the 21st Century, or just to become well-informed citizens, The Council and Bread for the World Institute find it important to help teachers and students gain a deeper understanding of these issues.

Over the years, leadership in agricultural education has pointed to the importance of the globalization of agriculture and the need to prepare young people for a knowledge and interest in agriculture beyond our borders. Attend almost any event where someone from agribusiness is speaking and you will most likely hear about international issues. Increasingly, the agricultural industry is operating in the international market place, with offices overseas and markets reaching all over the world. Our U.S. agricultural production is now directly linked to the international marketplace. As economies grow around the world, they import more agricultural products, including those from the United States. Additionally, when these countries experience economic turmoil, our markets are directly affected with impacts reaching down to the farm level. People often forget that the most of U.S. markets overseas were once food aid recipients. Under the Marshall Plan, the United States spent a vast amount to feed and rebuild Europe after the devastating effects of World War II. Now Western European countries comprise some of our largest markets. Japan and other countries in the Pacific Rim, as well as many emerging markets in Latin America, Asia, the former Soviet Union and Africa, began as recipients of food aid and basic development programs.

Alleviating hunger is also a moral issue. At the dawn of the new millennium, emerging technologies hold great promise for increasing the comfort and prosperity of most people in the developed world and many in the developing world. But more than 1 billion people live in grinding poverty, without adequate diets. At the 1996 Rome World Food Summit, 186 nations reaffirmed access to food as a human right. What are the moral implications of this for the business of agriculture? For United States citizens?

Hunger Education: pursuing common interests

Bread for the World Institute has been involved in public education on world hunger issues since its inception. However, bringing its wealth of knowledge to high schools and post-secondary institutions is relatively new. Bread for the World Institute's involvement in this effort serves as a way to share their expertise to a whole new audience. Additionally, Bread for the World Institute is keenly aware of the role of agriculture in alleviating hunger around the world, therefore its partnership with The Council is seen as beneficial to both organizations. The *Food For Everyone* instructional materials project is, hopefully, only the first of a series of collaborative projects with The Council.

These instructional materials were developed to be applicable for social studies as well as agriculture classrooms. Some units will also apply to math and science studies. This cross over benefit will enable these materials on an important agricultural subject to reach new audiences of students across several disciplines.

The Council and Bread for the World Institute's partnership with USAID has enabled us to turn this idea into a reality. We found that even though USAID has been involved in foreign assistance to the world's hungry and impoverished, their efforts often go unnoticed in the U.S. Perhaps these materials will enable more people to become aware of the important work they and others do.

Preliminary Edition

Under the terms of the USAID grant, *Food For Everyone* has been developed quickly, and should be regarded as a preliminary edition. Consultation during the process has confirmed our sense of the need for additional supplemental resources and periodic updates. Both The Council and Bread for the World Institute are committed to continue this effort through The Council's website: www.agedhq.org/. The extent of these supplements, and a later edition of the complete resource, will depend on additional funding. We welcome evaluative comments on these current materials and, particularly, supplemental resources and activities that have excited your students or helped them better understand the issues. Please direct your comments to The Council at the address provided above.

Organization of *Food For Everyone*

Food For Everyone is organized in 13 units, plus an Appendix. It can be taught straight through as a three week course, although several of the units can be easily expanded to more than one classroom period. Each unit is intended to stand alone, not dependent on another unit having been taught first, although most units contain cross references to other units. The Appendix contains items useful in several or most units: a table of basic indicators; a glossary of frequently used terms, a list of commonly used abbreviations and acronyms, and four Country Profiles.

Each unit contains three major divisions: an Issue Brief (student reading), a Lesson Plan, and one or more Supplements. Each Lesson Plan and Supplements series are separately numbered to permit later insertion of additional materials.

Each Lesson Plan is built on the following outline (not all segments are pertinent to every lesson):

Introduction

- Purpose
- Key Concepts
- Learning Objectives

Getting Ready

- Subjects
- Material(s)
- Advance Preparations

- Supplemental Resources

Teaching the Lesson

- Presentation
- Discussion/Quizzes
- Activities/Extension

Follow Up / Evaluation

General Suggestions for Using *Food For Everyone*

Make A Plan. After surveying the resource, plan how many of the units you will use, with which classes, and in what sequence. Ordering some supplemental resources and some of the suggested activities require several weeks advance planning (see Advance Preparations, below).

Prepare A Student Reader. We strongly recommend that you assemble a student reader, especially if you plan to use several or all of the units. You may wish to duplicate and distribute such a reader as you begin, or provide students with a ring-binder or folder to which items may be added as assigned. Such a reader should contain: the Issue Brief for each unit you plan to use; the Basic Indicators, Glossary, Abbreviations/Acronyms, and Country Profiles from the Appendix, and the three maps from Units 1 and 2: (Supplements 1.2, 1.3, and 2.11).

Advance Preparations/Special Reports. The activities suggested for Units 5 (Hunger is More Than Lack of Money), 6 (Making Markets Work), 10 (International Partnerships), 11 (Development Assistance), 12 (Food Aid), and 13 (Careers) will require more than a regular 1-3 day advance assignment:

Unit 5: Gathering employment data; and background on current civil wars

Unit 6: Gathering current agricultural export data from your state

Unit 10: Inviting a panel of local resource people as guests to explore international linkages

Unit 11: Exploring programs of development assistance

Unit 12: Interviewing Local Anti-Hunger Food Providers

Unit 13: Exploring careers in international agriculture (if you invite a panel for Unit 10, students should have the career exploring assignment before the panel presentation)

The activities for units 6, 11, and 12 could be assigned as special reports – oral or written – with greater expectations than a single-day assignment. The class might be divided into small teams, with each team being assigned, or selecting, one of the topics.

Video or Library Resources. The video, “*Hidden Harvest*,” jointly developed by the National FFA and the United States Agency for International Development, was sent to each FFA Chapters in 1997. We recommend its use with Unit 7 or 11. (If your copy has been misplaced, please contact The Council). Other videos are recommended for units 4, 5, 7, 8, and 9 (See descriptions under Supplemental Resources, in each instance). Allow two to three weeks for securing these videos or library resources. Discussions of the geographic locations of hunger and trade patterns will be greatly facilitated by a large world map which shows country names and other details not possible on the maps included here. Many of the Supplements would lend themselves to use as overhead transparencies.

Cooperative or Team Teaching. Many of the units lend themselves well to cooperative or team teaching. Unit 3 (Population) is built on math exercises; Units 2 (Nutrition), 7 (Technology), and 8 (Environment) would fit into science instruction; each of the remainder deal with one or more social science themes – hunger, economics and trade, history, development, development assistance, food aid. The course might provide a fresh opening for cooperative teaching with social science teachers.

Class or School Project/Consciousness-raising. Many classes, schools, and communities sponsor a special hunger-focused activity, often timed around World Food Day in October or Thanksgiving. Nearly all

use the occasion to raise consciousness about hunger. Many use the event to raise money for hunger relief. Some use it as an occasion for public policy education or advocacy. An activity of this sort might be undertaken by your class or chapter, or might be the basis for a cooperative event with homemaking or other classes, international or other school clubs, or religious or hunger-related groups in your community.

Suggestions for such activities are easily accessible on the Internet. Almost every religious or service group can be accessed through the Interaction website, www.interaction.org/member. Detailed plans for a Hunger Banquet or a Fast can be found at www.oxfamamerica.org/BANQ.HTML or www.oxfamamerica.org/FAST.HTML. Oxfam suggests a 5-8 week timeline for a major activity. CROP WALK suggestions are available at www.churchworldservice.org/crop.html.

Additional Resources Several of the units list websites or additional print resources relevant to that topic. More information or details are almost certainly available on any topic through a web search, which might be a special assignment for venturesome students with ready access to a PC. Your library probably has subscriptions to news magazines and at least one national newspaper; current editions are often online without charge; for subscribers, their archives are available for searching for a small additional monthly fee. Your library probably has one or more encyclopedias on CD-ROM, which can be easily searched by topic. Don't overlook people in your community who have worked or traveled abroad – e.g. missionaries, Farmer-to-Farmer volunteers, and former Peace Corps volunteers.

Stay In Touch. The Council expects to put a version of this resource online, and to add to it regularly – especially proven links to additional resources and tested activities to engage and excite students. Your evaluative critiques and suggestions for helpful additions will be welcomed and appreciated by other teachers. Email: pgs@teamaaged.org; Internet: <http://www.teamaaged.org/>.

Thanks in advance, and good luck in your efforts to increase interest and understanding of global food security and its potential benefits for the United States and U.S. agriculture.

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UNIT 1:

Who in the World is Really Hungry?

A survey lesson: hunger around the world (including the United States),
its major causes, and win-win solutions.

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Issue Brief 1a

1a. Who In the World is Really Hungry?

It is the sense of Congress that the United States reaffirms the right of every person in this country and throughout the world to food and a nutritionally adequate diet . . .

U.S. Congressional Resolution 76-138, adopted, 1976

I am cooking now and I don't know when next I'll cook a proper meal and when I'll be able to live in a proper place.
Shirley Jupiter, a single mother of eight in a squatter settlement in Georgetown, Guyana

"Hey Mom, I'm hungry. What's for supper?" does not represent real hunger for most of us.

Hunger is serious only when there is not enough food for the next meal, or the next several meals, or ever. Around the world, nearly a billion people (one out of every six) can't be sure of *enough food to provide the nutrients they need for productive, active, and healthy lives*. They are sometimes, or always, hungry. They lack *food security*.

Globally, enough food is grown that if it were equally distributed, it would supply every person alive with a minimum diet. Obviously, it is not – What's wrong?

Who's Hungry? Where?

Most hungry people live in poor countries. The Food and Agriculture Organization of the United Nations (FAO) estimates that in 1994-96, 828 million people in 92 developing countries were chronically *undernourished*. They are short enough on food that they can't work or play normally. Children's growth and learning are permanently set back.

About 170 million children, 30 percent of all children worldwide, are underweight. The largest numbers of hungry people are in South Asia and in East/Southeast Asia. Hunger in Sub-Saharan Africa is the highest in proportion to its population and growing rapidly. Large numbers of people are hungry in Latin America and the Near East/North Africa.

Hunger shrank slightly in absolute numbers and dramatically as a share of population everywhere except Africa from 1970 until about 1990. During the 1990s the number of hungry people has increased in South Asia and the Near East/North Africa. An unknown number of people are newly hungry from the

economic turmoil in Southeast Asia beginning in 1997. Hunger has increased in Eastern Europe and the former USSR, as they have changed from centrally planned to market economies.

Not all hungry people are in poor countries. Rich countries, as well, have poverty and food insecurity. In the United States, the U.S. Department of Agriculture (USDA) estimates that in 1995, people in 800,000 U.S. households (0.8 %) suffered severe hunger. Those in more than 3 million households (3.3%) suffered moderate or occasional hunger, and nearly 8 million more households (7.8%) had to worry sometimes about having enough good food. (See Issue Brief 1b.)

Food Emergencies

Famines – severe shortages of food leading to starvation – tend to get news coverage. Historically, these were mostly weather-related – drought or floods. Loss of life from famines from natural causes is increasingly rare in an age of electronic news coverage. Both national governments and the international community tend to respond in time to prevent the worst disasters. The FAO has developed a good early warning network to anticipate famine or severe food shortages.

Recent instances of large-scale deaths from hunger are mostly man-made. In a few weeks in 1994, 300,000 people were killed in Rwanda and more than 2 million fled their homes and were hungry within a few days. Civil war has raged in Sudan off and on for 43 years, with both sides deliberately destroying food, crops, livestock, and denying access to international relief. Altogether, about 15 million refugees have fled across national borders, and even more have moved within their own country as a result of fighting. Most refugees are hungry at least part of the time.

Severe hunger is sometimes related to bad political decisions that don't result in warfare. Nearly 30 million Chinese people starved to death after the "Great Leap Forward" in the 1950s. This ill-fated experiment promoted village-level industrialization at the expense of agriculture, and was complicated by drought. In the 1990s, at least 10 % (2.3 million) of North Korea's population starved. An inflexible economic system broke down. Soviet aid ended, drought hit hard, and the government was too proud and secretive to accept international food assistance.

Hunger and Lack of Opportunity

But the vast majority of hungry people don't suffer from famine or other emergencies. They are hungry because they don't control the resources to raise their own food or earn enough to buy what they need. Their political and economic systems don't provide opportunity for farms or business ventures or generate enough decent-paying jobs. In many countries, notably in Latin America, a few wealthy families control most of the wealth and income.

Hunger follows poor people wherever they go. In the past, poor nations have been primarily rural. Farmers go hungry if their crops fail or the land wears out. Increasingly, however, the majority of rural people don't have access to land, so they depend on small businesses or working for someone else. Or they migrate to the cities. By 2005, more than half the world's population will be urban. There, everyone depends on cash incomes and a steady supply of food. A city of 10 million people – Manila, or Cairo, or Mexico City, for example – needs to import 6000 tons of food each day.

The first move to improve food security is to create opportunity for hungry and poor people, wherever they are, so they can grow or buy the food they need. Democratic and sustainable development are key concepts. (See Issue Briefs 4-11.)

The second move to improve food security is to provide safety nets of food or resources while new opportunities can be created. Safety nets will always be needed for some who will never be able to earn or grow enough to be food secure – children, elderly, and handicapped, for example. (See Issue Brief 12.)

Why Should I Care?

The United States and U.S. citizens have two strong reasons to be informed and active in efforts to reduce hunger. The first reason is moral. In a world that can grow enough food to nourish everyone, it is immoral not to bend every effort to do so. For many, efforts to end hunger are an expression of religious faith; for others, a strong humanitarian concern.

The 1959 United Nations International Covenant on Economic, Social and Cultural Rights says "Everyone has the right to a standard of living adequate for the health

and well-being of himself and his family, including food . . . [and other basic necessities]." The Rome Declaration, unanimously adopted by 186 nations at the World Food Summit in 1996, reaffirmed this right. The United States Congress adopted a Right to Food Resolution in 1976 (quoted above).

The second reason for seeking food security for everyone is our own self-interest. Hunger and poverty may contribute to political unrest and civil wars, which threaten global security. Resentment against affluence by poor and hungry people may continue to grow in a world linked by instant communication.

In an increasingly global economy, everyone's well-being is linked to that of everyone else. Wages for U.S. workers may be threatened by the movement of U.S. jobs to countries where poor people will work for much less.

On the other hand, growing incomes abroad result in new markets for U.S. exports. U.S. agriculture, especially, has a large stake in reducing hunger and poverty in poor countries. The fastest growing markets for U.S. agricultural exports in recent years have been the Asian countries where incomes have improved for most of their citizens – Japan, Taiwan, South Korea, Indonesia, Malaysia, Thailand, and China.

Except for China, each of these nations received U.S. food aid and agricultural development assistance. In addition to aiding new markets, international agricultural research has made a huge direct contribution to U.S. agriculture. Three-quarters of U.S. wheat, for example, includes germ-plasm coming from international research. The annual benefit from such research to U.S. farmers alone is greater than the total of a half-century of U.S. investment.

Overcoming hunger in the world, and even in the United States, will not be easy, or it would already have been done. Thoughtful people disagree about the most promising steps to take. But responsible citizens need to understand the issues, and join the search for win-win solutions. Food security for hungry people in poor countries is obviously good for them. It is also good for the United States, particularly U.S. agriculture.

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Issue Brief 1b

1b. Who In the United States Is Hungry?

Hunger—In the United States?

It seems preposterous that there are hungry people in the United States, one of the richest countries in the world in all history, and one which exports millions of tons of foodstuffs each year. But it is true.

Estimates of the number of hungry people in the United States depends on who are counting, and what their threshold is. By the standards of global hunger (Issue Brief 1a), probably fewer than a million families are so short on food that their children sometimes go hungry.

But as many as 12 million households are concerned enough about hunger that they change their food habits. And in nearly 4 million of these households, at least adults sometimes go short of food. The results of a 1995 USDA study are summarized in Figure 1b.1.

Hunger and Poverty

People in the United States who are food insecure are poor. They can't afford to buy the food they need.

In 1997, 13.3 percent of U.S. families (35.6 million people) lived in households with incomes below the official poverty line, \$16,400 for a family of four.

But the relationship between poverty and food security is not exact. About one third of poor households are food insecure; about one in eight experience actual hunger. About one in twelve families with above-poverty incomes are food insecure. Most of the latter have near-poverty incomes.

Poverty and food insecurity are both higher than average in female-headed households, in households with children, in Black, Hispanic, and Native American households, and in central city areas.

The major reason that relatively few poor people in the United States are severely hungry is the presence of both public and private food assistance programs.

Public Food Assistance Programs

A nationwide survey of hunger in the United States during the late 1950s showed that there were sizable

numbers of people suffering from *undernutrition*, particularly in southern states, among elderly, and in center cities. From this grew a series of federal food assistance programs.

The *Food Stamp Program*, the largest federal food assistance program by far, was started in the early 1960s. Urban legislators voted for farm subsidies in exchange for farm state support for food stamps, most important in urban areas.

Food stamp eligibility is based on family income and family size. In 1994, almost 28 million people got food stamps, one in ten U.S. residents. By 1999, about 19 million. The drop was due in part to the strong economy, but also to reduced eligibility as part of the welfare reform act in 1996, and in some states, an apparent effort to discourage eligible people from applying for food stamps.

Two other large food assistance programs focus on children. The *Child Nutrition Programs* provide lunches, breakfasts, and summer food services through schools. Schools must serve nutritionally balanced meals and promote good dietary habits.

The *Special Supplemental Nutrition Program for Women, Infants and Children* (WIC) was begun in 1972 to help prevent permanent damage resulting from poor nutrition during pregnancy and early childhood. It offers coupons for highly nutritional foods, plus health screening and nutrition education.

Investments in WIC pay off in a big way. WIC kids are healthier, and learn better when they begin school. Even in the short range, each dollar spent through WIC on pregnant women has been estimated to save up to \$3.50 in Medicaid costs. Funding for WIC and enrollment have climbed steadily since it was begun, but WIC still enrolls less than 80% of eligible mothers.

The U.S. government also supplies free or subsidized food through several smaller commodity programs.

State governments have never undertaken large-scale food programs. Before the creation of Social Security

Figure 1b.1: Food Insecurity in the United States, 1995

Degree of Food Insecurity	Definition	Percent Affected (No./Households)
Food Secure	Access at all times to enough food for an active, healthy life, including (1) nutritionally adequate and safe foods; and (2) availability in socially acceptable ways (without relying on emergency food supply, scavenging, stealing, etc)	88.1 percent (88 million households)
Food Insecure Without Hunger	Concern about hunger; adjustment in household management; reduced quality of diets; little or no reduction in food intake	7.8 percent (7.8 million households)
Food Insecure With Moderate Hunger	Multiple instances of reduced food intake by adults in family; no reduction in children's food intake	3.3 percent (3.3 million households)
Food Insecure With Severe Hunger	Reduced food intake by children to extent that they feel hungry; more extensive reduced food intake by adults	0.8 percent (800,000 households)

Source: USDA, 1995 Household Food Security Survey, (Washington: USDA, 1998)

and the beginning of child welfare during the 1930s, states cared for poor people whose families could not meet their needs through such mechanisms as poor houses and old-age assistance. States still try to meet some needs for those not covered by federal programs. Standards for these programs vary widely.

Private Food Assistance Programs

Federal and state assistance programs have never completely filled the needs of hungry people. Religious bodies, particularly, have stressed personal and community responsibility for poor and hungry people for centuries. The Salvation Army has provided food and shelter for more than 100 years.

The same awakening that led to federal food programs in the 1960s, combined with a recession in the early 1980s, led to greater hunger awareness among religious groups. Community food assistance programs virtually exploded, from a few thousand in the early 1970s to more than 150,000 today.

Second Harvest, founded in 1984, is the largest domestic hunger-relief organization. Through a network of 187 food banks, they distribute more than one billion pounds of donated food and grocery products each year to nearly 50,000 local food pantries, soup kitchens, women's shelters, Kid's Cafes and other feeding programs.

The initial jump in the number of private food assistance programs coincided with reduced funding for federal programs during the early 1980s. In addition, real wages (adjusted for inflation) dropped sharply during the 1970s and 1980s. They began to climb slowly during the late 1990s, but remain below their 1970 level. Need for private food assistance has climbed steadily through the long economic expansion of the 1990s. Many of the families needing food have one or more working

members. Some are trying to make the transition from welfare to work.

The Welfare-to-Work Debate

Some citizens and politicians feel that public assistance programs discourage individuals from meeting their own needs and those of their family. They believe that private charities can meet the needs of the truly needy. Others claim that every family has an unqualified right to a decent livelihood, and that nearly everyone takes as much responsibility for their needs as they are able.

The assistance policy debate has been sharpest over the welfare program for families with children. Welfare programs overlap with food assistance, since welfare income can be spent on food, and families eligible for welfare nearly always qualify for food stamps and WIC.

In 1996, Congress passed the Personal Responsibility and Work Opportunity Reconciliation Act. The new law gives welfare money back to the states and froze funding through 2002. Many federal standards were dropped, but some were also added: to receive federal grants, state programs must set a five year lifetime limit on eligibility for receiving welfare benefits, and recipients must start working within two years.

Religious and other hunger-concerned organizations are active in policy debates over public food assistance programs, on such issues as eligibility standards, benefit levels, and finding the right balance between public and private programs. Bread for the World, for example, has about 44,000 members and support from nearly 50 denominational and faith groups. It advocates both adequate standards for public programs and improved opportunity for poor people to earn their own way. Creating new employment opportunities is an important hunger issue.

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Lesson Plan

Unit 1. Who In The World Is Hungry?

Introduction

Purposes

A survey lesson: hunger around the world (including the United States), its major causes, and win-win solutions

To define hunger; to review the scope of hunger in the world and in the United States; understand why hunger is important to the United States and U.S. agriculture; identify goals of sustainable development and food security (*access for everyone to enough food to provide the nutrients they need for productive, active, and healthy lives*)

Key Concepts

Hunger; Food Security (*food availability, food access, food utilization*); Famine; Poverty; Sustainable development; Safety nets; Food assistance

Learning Objectives

- Students should achieve a basic understanding of hunger (lack of food security); be able to name the regions of the world where hunger is most severe; and understand that reducing hunger is an achievable goal that would be good for U.S. agriculture. More specifically:
1. One in six people in the world is chronically or occasionally hungry (food insecure), which is both a moral and practical problem;
 2. Hungry (poor) people may be manipulated in times of political turmoil, or to accept undemocratic leaders; they will work for very low wages in a global labor market, hence may threaten U.S. workers;
 3. Worldwide, enough food is produced that, if it were evenly distributed, each person could avoid hunger; at the 1996 World Food Summit in Rome, 186 nations agreed to try to reduce the number of under-nourished people in the world by half by 2015.
 4. Hunger may result from too little food production (*supply*), but more often it is because people don't have *access* to land to produce food or income to buy it, or because of illness their bodies can't *utilize* food.
 5. Sustainable economic development, so that poor and hungry around the world can afford good diets while protecting the environment, can contribute to new markets for U.S. agriculture.
 6. Domestic safety nets and international food assistance are essential ingredients in achieving food security, but are not by themselves a permanent solution.
 7. Eliminating hunger is a win-win proposition for both hungry people and U.S. agriculture.

Getting Ready

- Subjects** (Primarily a survey; most topics covered in greater depth in later lessons)
1. Personal experience of hunger (if any); distinguishing between real hunger and being impatient for the next meal
 2. Concept of food security (*supply, access, utilization*) (Suppl. 1.1)
 3. Distribution of global hunger (Issue Brief 1a; Global Hunger map, Suppl. 1.2; World Regions map, Suppl. 1.3)
 4. Trends in global hunger, by regions (graph, Number of Hungry People, Suppl. 1.17)
 5. Dimensions of hunger in the United States (Issue Brief 1b)
 6. The major causes of hunger: (poverty, poor or degraded natural resources, large/growing populations, poor distribution systems, weak economies, poor governance, war, natural disasters, cultural factors – You may preview lesson topics, using list of lesson units, p. iii)
 7. Some pragmatic reasons to reduce/overcome hunger (political stability; global economic growth; reduce emigration pressure; potential markets for U.S. agriculture)
 8. Some moral reasons to reduce hunger (people shouldn't go hungry, especially in a world which could feed everyone; gross inequality; discrimination in employment; waste of human resources)
 9. Outline of steps toward win-win solutions to hunger (sustainable economic development; improved economic opportunities and jobs; strong education and health care; domestic safety nets and food programs; international food and development assistance)

Materials

Basic:

1. Copies of Issue Briefs: *1a: Who In The World Is Really Hungry?* and, *1b: Who In the United States Is Really Hungry?*
2. Copies or overhead of "What is Food Security" (Suppl. 1.1)
3. Copies or overhead of Regional Hunger Map (Suppl. 1.2)
4. Copies of "Number of Hungry People," (Suppl. 1.17)

Optional:

5. Copies or overhead of list of lessons (p. iii) if using all or most of the lessons
6. Copies or overhead of discussion questions (Supplement 1.16)

Advance Preparations

Several weeks in advance

1. Preview the entire resource to decide which lessons you will use
2. If you will use supplemental resources (e.g. videos or library resources, order 3-4 weeks in advance

1-2 weeks in advance

If you will use the interview extensions *as part of this lesson* (see Activities, below), hold enough class discussion to make the assignments

1-3 days in advance

Copy, distribute, and assign readings: Issue Briefs *1a, Who In The World Is Really Hungry?* and *1b, Who In the United States Is Really Hungry?*, plus (optional) Global Hunger Map (Supplement 1.2), Map of Regions (Supplement 1.3), List of Lessons (p. iii), and Discussion questions (Supplement 1.16)

Supplemental Resources

Print

United Nations Food and Agriculture Organization (FAO), *Sixth World Food Survey* (Rome: FAO, 1996)

United States Department of Agriculture (USDA), *Household Food Security in the United States in 1995* (Washington: USDA, 1998)

On-line

Food for Everyone (National Council on Agricultural Education):
<www.agedhq.org/ffe/lessons>

Bread for the World Institute: <www.bread.org>

Teaching the Lesson

Presentation

Food Security, Supplement 1.1

Global Food Map: Suppl. 1.2
World Regions Map: Suppl. 1.3
Number of Hungry People Graph:
Suppl. 1.17

Who's Hungry/Global:
Issue Brief 1a
Who's Hungry/United States
Issue Brief 1b

Discussion Questions (below)
(also Suppl. 1.16)

This is planned as a survey lesson. Move quickly through the topics – most are covered in more detail in later lessons. If you are not using the whole series, this lesson can easily be expanded into 2 or 3 sessions: Points 1-4 (below) as one lesson; Points 5-6 as a second; and the Activities as a third.

1. Ask the students to share their own experiences with hunger. What is the longest period they can remember having gone without food? Was it voluntary or involuntary? If the latter, was there no food available in the market or wherever (food *supply*)? Was it available, but they couldn't afford it (food *access*)? Were they too sick to be able to eat or keep food down (food *utilization*)? Or other?
2. Using the Food Security Overhead (or handout), Supplement 1.1, introduce the concept of food security, explaining its three aspects: *availability, access, and utilization*. Link these aspects to the questions they have just discussed – about why they might have gone involuntarily without food. Point out that most technical questions and definitions can be stated fairly simply, but specialists often need to use terms in a very precise way to clarify academic or policy discussions, or to draw attention to new understandings about long-standing problems. Hunger discussions have shifted in recent years from a focus on food supply to much more attention to access to food.
3. Using the Global Food Map (Suppl. 1.2), World Regions map (Suppl. 1.3), and Number of Hungry People graph (Suppl. 1.17), locate the regions of the world where hunger is most severe. What characteristics can students name about the countries in those regions? (e.g. large, growing populations; low ratio of good cropland to population; environmental deterioration; weak educational systems; poor health care systems; weak agricultural research and extension systems; weak market systems; relatively large military budgets, lack of democracy; relatively young nations – former colonies of western nations; weak, inexperienced, or corrupt governments; failed experiments with centrally planned economies; misguided development plans; caught between the great powers in the Cold War)
4. Introduce the concept of *sustainable development* – the reduction of hunger and poverty in environmentally sound ways (see Glossary in Appendix). Note that it is more than economic development; it includes full development of each human's capacity. While "sustainable" is used primarily to mean environmentally sustainable, it may also refer to whether the overall economy or form of governance or social behavior may be maintained over a long period of time.
5. Do the students consider global hunger an important issue for them? Hunger in their community? Why, or why not? Use the discussion questions, and refer to the student readings. Draw out both the practical and moral considerations.
6. Ask the students to think of the connections between hunger and U.S. agriculture. Why might reducing or overcoming hunger benefit U.S.

agriculture? Cite the strong evidence: nations that have achieved broad-based economic growth over the past 50 years have become good customers for U.S. agricultural exports.

7. Set the context for this series of Lessons, for example: "Concern about hunger is as old as humankind. As a social concern, it is as old as families and clans. Moral concern for hungry people is as old as the Bible. Global hunger has become a political issue within the last century, especially since World War II. Freedom from hunger was included in the first United Nations Universal Declaration of Human rights in 1956. In its Right to Food Resolution in 1976, the United States Congress declared access to food a universal right. The political debate over defining and implementing these declarations continues – notably in the World Food Summit in Rome in 1996 and in continuing debates over eligibility for U.S. food program benefits in almost every session of Congress."
8. Review with the students your plan for using the lessons in this series. If you will use most of lessons, you may want to use copies/overhead of the list of lessons (pp. iii).

List of Lesson Topics (p iii)

Discussion Questions

Discussion Questions: Suppl. 1.16

(These discussion questions are also formatted as a handout/overhead master, for use as a discussion guide or alternative quiz, Suppl. 1.16)

1. What has been your personal experience with hunger? What is the longest period you can remember having gone without food? Was it voluntary or involuntary? How did it affect your behavior; your ability to do other things – e.g. concentrate on school, on work, on athletic performance?
2. In what regions of the world is hunger most widespread? What are the characteristics of the nations in these regions?
3. List several reasons that people are hungry. Which are the most important?
4. Why should world hunger be of concern to the United States and U.S. citizens?
5. In what ways would broad based, sustainable economic development in poor nations benefit U.S. agriculture? Who in the United States would be threatened by such development?

Activities/Extensions

*Interview local food providers
Suppl. 12.1*

The following exercises are designed for use with Units 12 and 11. If you are not using the whole series of lessons, these assignments could be given several days before this lesson, and the results of the student's inquiries shared and discussed as part of this lesson.

1. In class discussion, identify the anti-hunger food providers in your community. In preparation for Lesson 12, or as an adjunct to this lesson, assign students, in teams of two to four, to interview a representative in each: (e.g. Food Stamp office; WIC program; welfare program; school lunch program; meals on wheels; senior center; relief

*Interview international food aid
and development aid providers
Suppl. 11.1*

shelters; church or community food pantries; food banks;) Distribute list of suggested interview questions, Supplement 12.1

2. In class discussion, determine whether or how many students (or their family or church or other group they are part of) have taken part in an international food, relief, or development program. In preparation for Lesson 11, or as an adjunct to this lesson, assign those who can to interview their pastor about their religious group's international efforts. Others may interview a local member or representative of a group such as Oxfam America, Heifer Project International, or CARE. Assign others to do an online web search, based on a general inquiry, or from the list of international food and assistance agencies listed in Supplement 11.1

Quiz

Quiz: Unit 1 (Suppl. 1.15)

Discussion questions (Suppl. 1.16)

1. See Quiz 1: (Suppl. 1.15) 5 multiple choice and 3 discussion questions [Best answers for multiple choice quiz questions: 1-c; 2-c; 3-a; 4-a; 5-c]
2. Part or all of the Discussion Questions (above) may be used as a quiz (in handout or overhead format: (Suppl. 1.16)

Follow Up

Evaluation

What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

What is Food Security?

- Availability**
- + Access**
- + Utilization**

Food Security

When all people at all times
have physical and economic access
to enough food
to provide the nutrients they need
for productive, active, and healthy lives

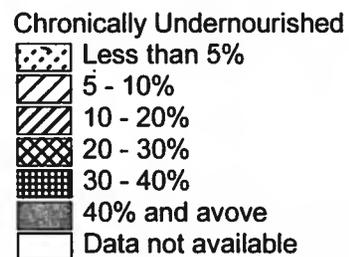
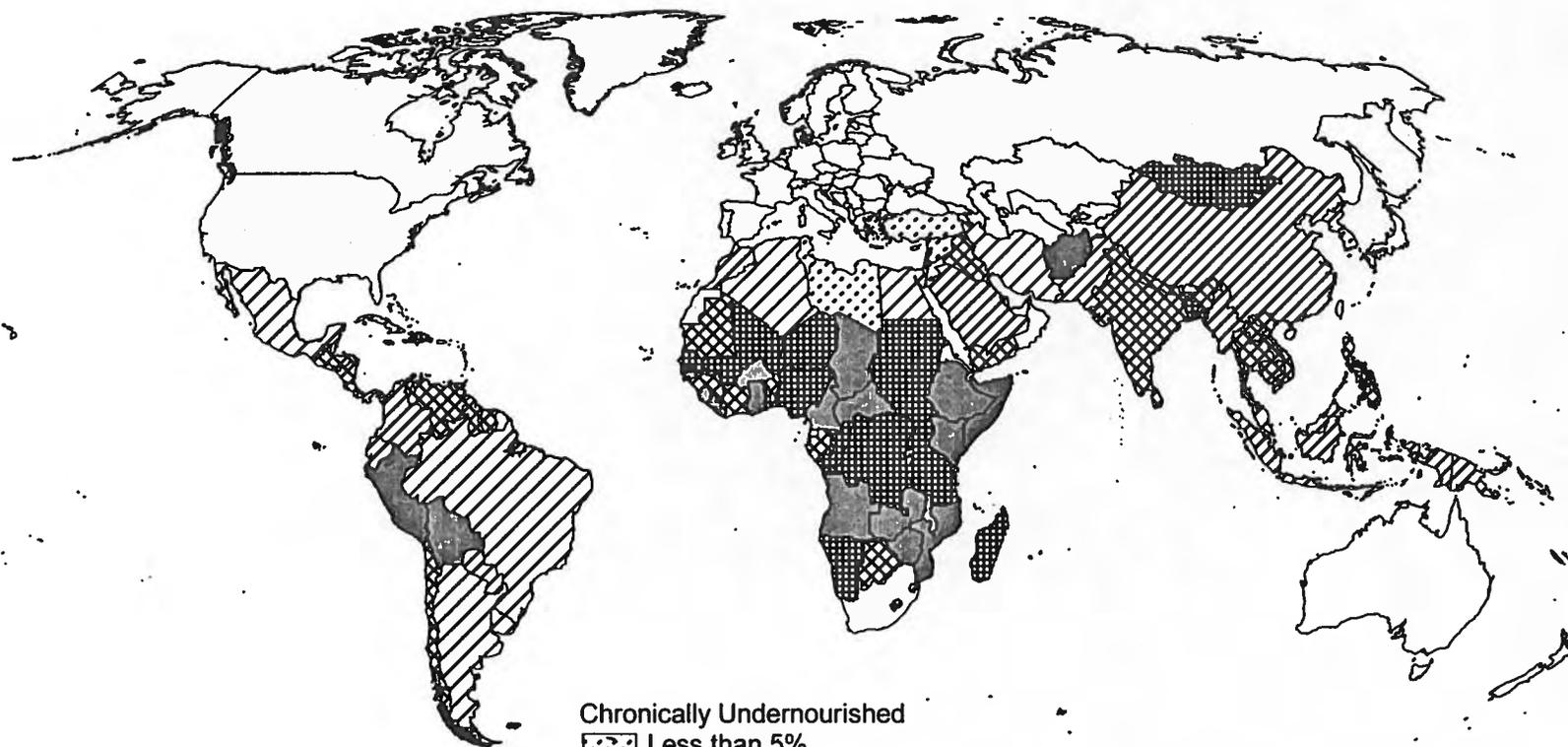
Source: FAO, Rome

What is Food Security?

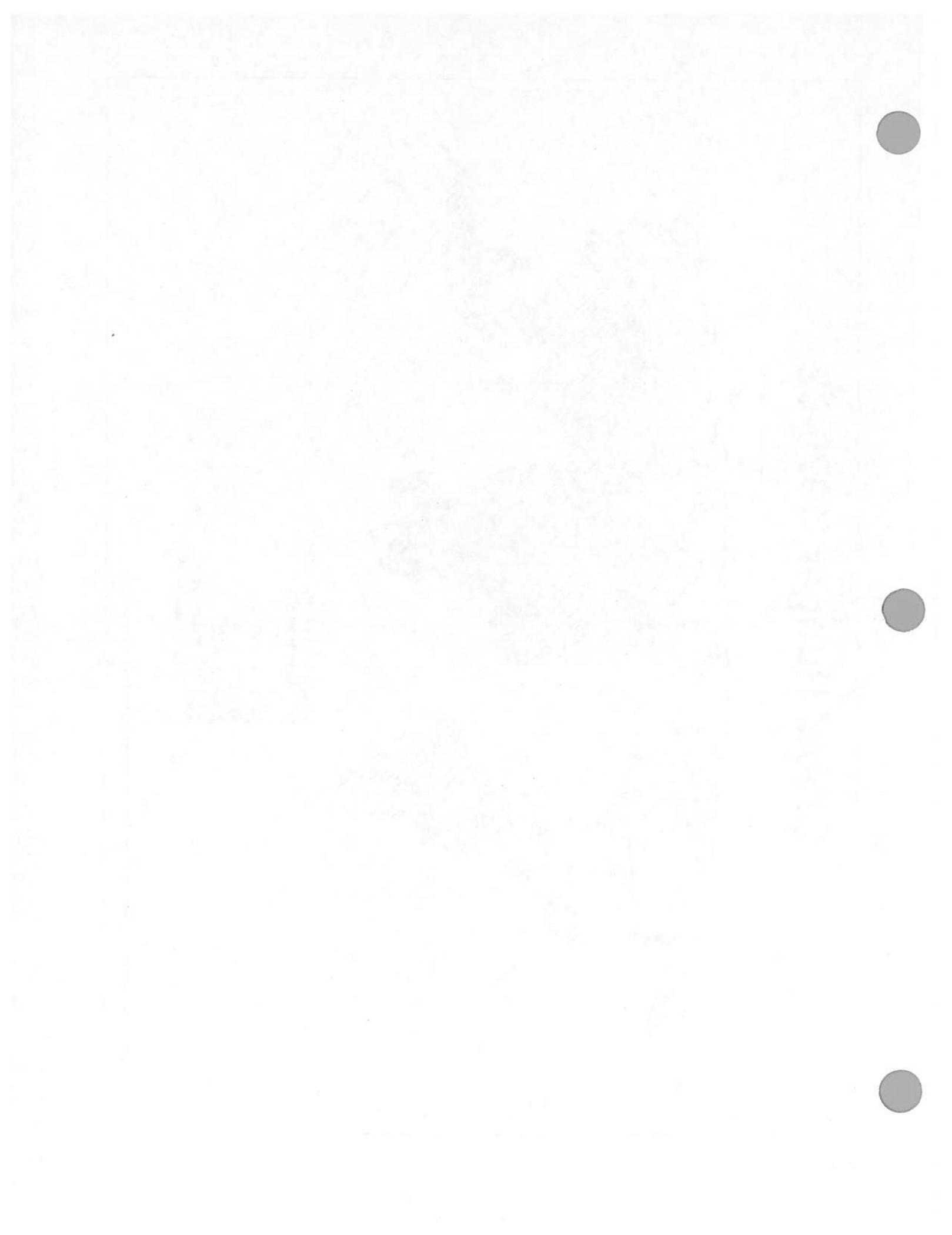
Access
Availability
Stability
Nutrition

What is Food Security?
Availability
Access
Stability
Nutrition

Global Hunger, 1990-92



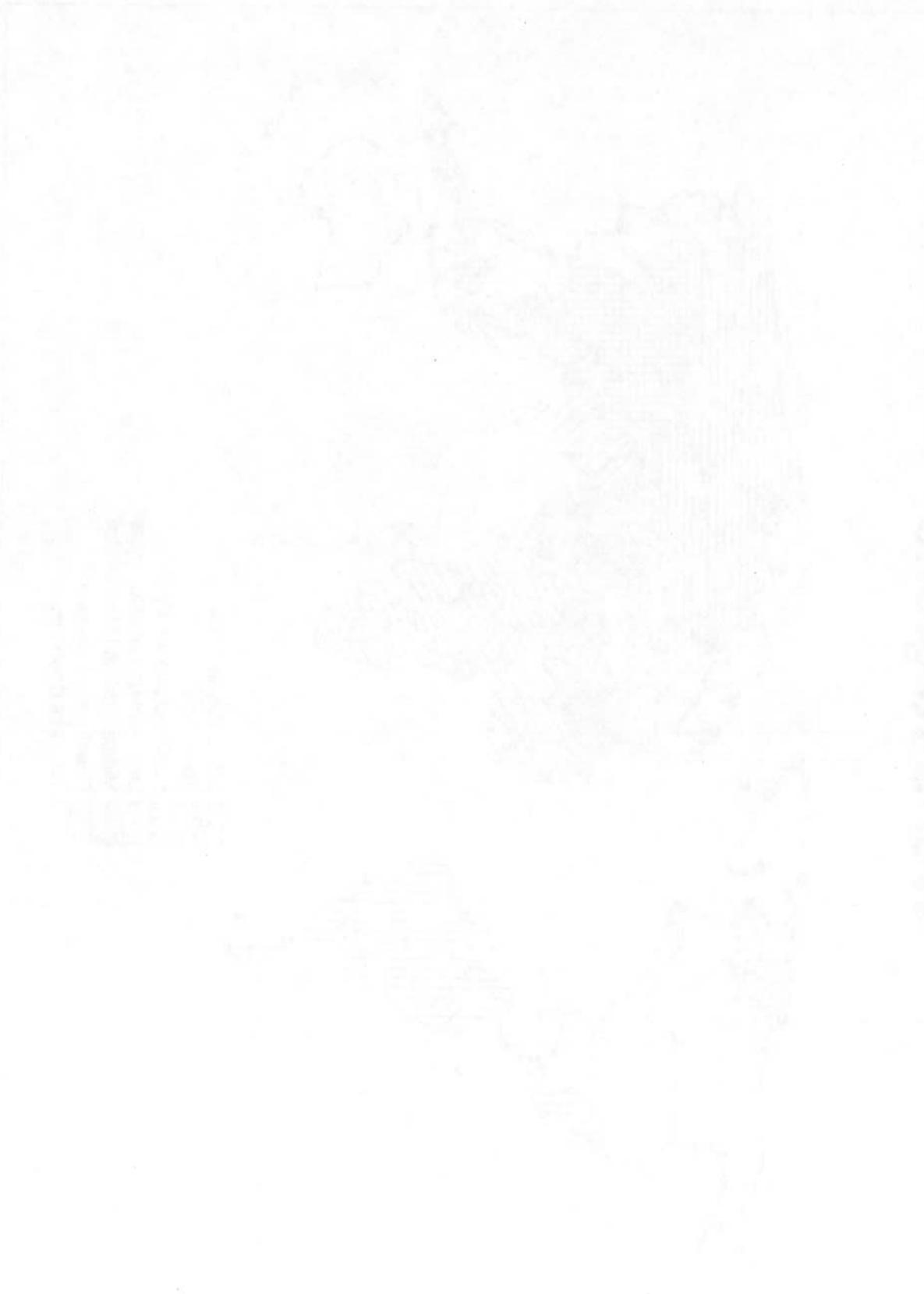
Source: FAO, *Mapping Undernutrition - An Ongoing Process* (Rome: FAO, 1996).



World Regions



-  Sub-Saharan Africa
-  South Asia
-  East Asia and the Pacific
-  Latin America and Caribbean
-  Middle East and North Africa
-  Countries in Transition
-  Industrial Countries



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FAO Estimates of Chronically Undernourished People in 93 Developing Countries, 1990-92

Country	Number of undernourished (millions) 1990-92	Percent of total number of undernourished for all countries	Cumulative percentage
China	188.90	22.5	22.5
India	184.50	22.0	44.5
Nigeria	42.90	5.1	49.6
Bangladesh	39.40	4.7	54.3
Ethiopia	31.20	3.7	58.0
Indonesia	22.10	2.6	60.7
Pakistan	20.50	2.4	63.1
Viet Nam	17.20	2.0	65.2
Zaire (Congo, Dem. Rep.)	14.90	1.8	66.9
Thailand	14.40	1.7	68.6
Philippines	13.10	1.6	70.2
Afghanistan	12.90	1.5	71.7
Kenya	11.30	1.3	73.1
Peru	10.70	1.3	74.4
Tanzania	10.30	1.2	75.6
Sudan	9.70	1.2	76.7
Brazil	9.70	1.2	77.9
Mozambique	9.60	1.1	79.0
Mexico	7.20	0.9	79.9
Somalia	6.40	0.8	80.7
<i>Subtotal</i>	678.9	80.9	80.9
Second 20 countries	91.0	10.8	91.8
Third 20 countries	49.8	5.9	97.7
Fourth 20 countries	16.6	2.0	99.7
Last 13 countries	2.4	0.3	100.0
<i>Total</i>	838.7	100.0	100.0

Source: U.S. General Accounting Office, *Food Security: Factors That Could Affect Progress Toward Meeting World Food Summit Goals*, Draft, December 1998.

Quiz - Unit 1. Who's Hungry

Name _____ Date _____

Multiple Choice: Circle the letter in front of the best answer.

1. The world population is about 6 billion and growing. Among these, the proportion (number) who suffer from chronic or occasional severe hunger is:
 - a. nearly one-half (3 billion)
 - b. more than one-quarter (1.5 billion)
 - c. nearly one-sixth (1.0 billion)
 - d. about one-tenth (600 million)
 - e. about one percent (60 million)
2. The *largest numbers* of hungry people are in which region of the world?
 - a. Sub-Saharan Africa
 - b. Latin America
 - c. South Asia
 - d. East/Southeast Asia
 - e. Near and Middle East
3. The *proportion* of people who are hungry is highest in which region?
 - a. Sub-Saharan Africa
 - b. Latin America
 - c. South Asia
 - d. East/Southeast Asia
 - e. Near and Middle East
4. In the United States, about ____ percent of people suffer from chronic or severe hunger
 - a. less than 1 percent (1 million)
 - b. 4 percent (11 million)
 - c. 13 percent (35 million)
5. In the United States, about ____ percent of people have to worry at least occasionally about having enough food?
 - a. less than 1 percent (1 million)
 - b. 4 percent (11 million)
 - c. 13 percent (35 million)

Discussion questions: Write answers on back of sheet.

1. Distinguish between the three aspects of food security: *supply, access, utilization*.
2. Why should United States and U.S. citizens be concerned about global hunger?
3. In what ways might U.S. agriculture benefit from broad-based, sustainable development in poor nations?

CONFIDENTIAL

MEMORANDUM FOR THE DIRECTOR, FBI

DATE: 10/15/68

RE: [Illegible]

Lesson 1: Discussion Questions

1. What has been your personal experience with hunger? What is the longest period you can remember having gone without food? Was it voluntary or involuntary? How did it affect your behavior; your ability to do other things – e.g., concentrate on school, on work, on athletic performance?
2. In what regions of the world is hunger most widespread? What are the characteristics of the nations in these regions?
3. List several reasons that people are hungry. Which are the most important?
4. Why should world hunger be of concern to the United States and U.S. citizens?
5. In what ways would broad based, sustainable economic development in poor nations benefit U.S. agriculture? Who in the United States would be threatened by such development?

1950

The following information was obtained from the records of the Department of the Interior, Bureau of Land Management, on the date of the above mentioned survey.

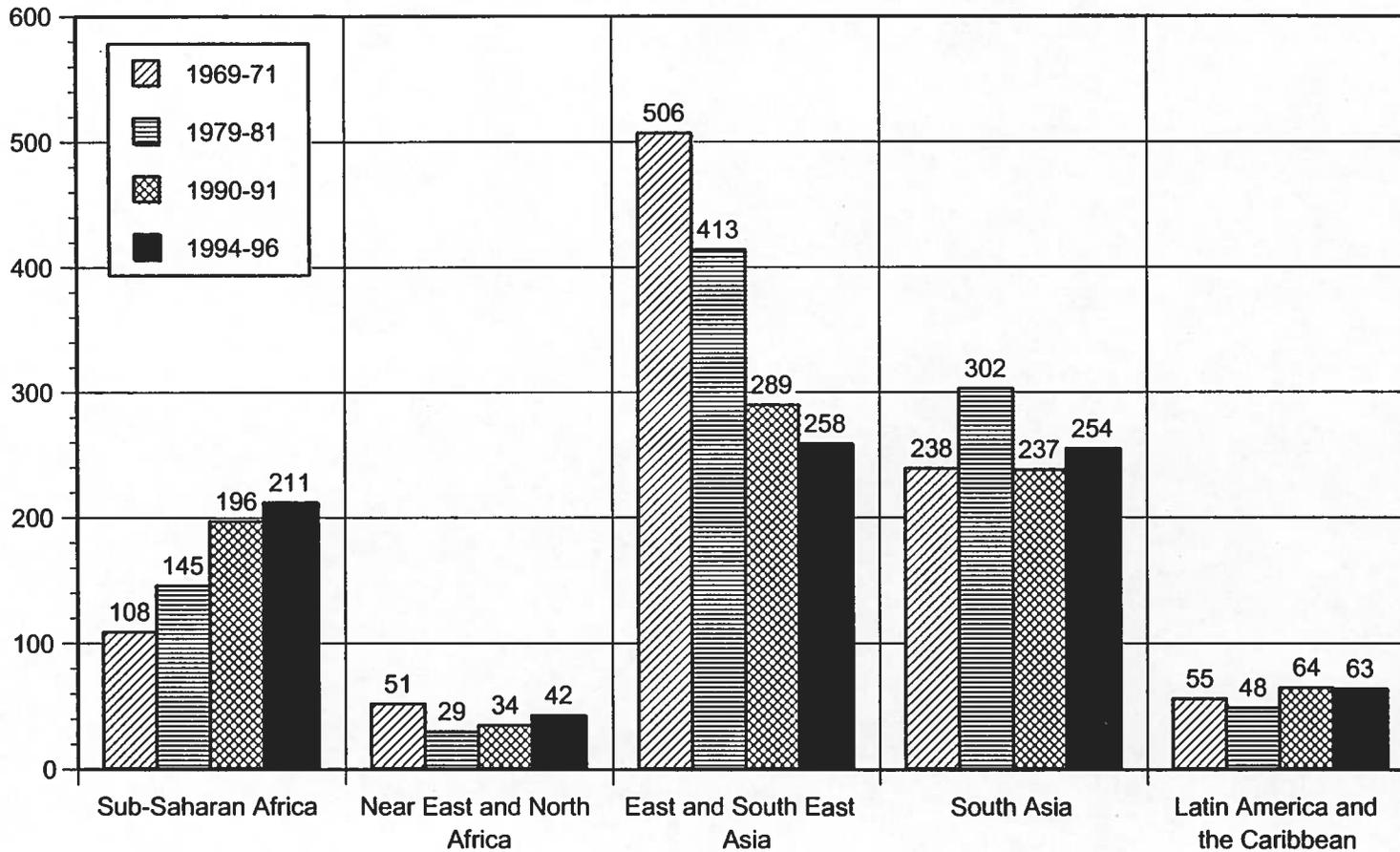
The land described in the above mentioned survey is situated in the County of ... State of ...

Very truly yours,

W. H. ...
Special Agent in Charge

Number of Hungry People in Developing Regions 1969-71 to 1994-96

Number of people (millions)



Source: FAO, *Information Note on Estimation of the Number of Undernourished*, Paper presented at the Twenty-fourth Session of the Committee on World Food Security, Rome, 2-5 June 1998.

1. Name of the person or organization: [Faint text]

2. Address: [Faint text]

3. City: [Faint text]

4. State: [Faint text]

5. Zip: [Faint text]

6. Telephone: [Faint text]

7. Fax: [Faint text]

8. E-mail: [Faint text]

9. Other: [Faint text]

10. Comments: [Faint text]

11. Date: [Faint text]

12. Signature: [Faint text]

13. Title: [Faint text]

14. Organization: [Faint text]

15. Contact Information: [Faint text]

16. Other: [Faint text]

17. Date: [Faint text]

18. Signature: [Faint text]

19. Title: [Faint text]

20. Organization: [Faint text]

FOOD FOR EVERYONE

A Teaching Resource on World Hunger and Agriculture

Issue Brief

2. Hunger, The Silent Thief

One of the most moving of TV images is of a mother and a starving child in an emergency feeding shelter in Central Africa, exhausted by the long trek from their remote rural home. Neither has enough energy to brush away the flies.

Images of starvation move people and governments to action – sometimes too late, and often too little.

But of equal or even greater consequence in the long run are less dramatic scenes of children and their parents who don't get all the food they need for productive and healthy lives. Like a silent thief, hunger robs them of the full potential of their lives, and robs us all of their full contribution to their communities and the world.

Undernutrition

One in three children in the developing world are *undernourished*. They don't get enough nutrients from their diet to grow to normal size or fully develop mentally. Children are said to be *stunted* if they have failed to reach normal height for their age, or *underweight* if seriously below normal weight for age.

Underweight and stunting usually result from not enough of the macronutrients – carbohydrates, fat, protein, and water.

The *dietary energy supply (DES)*, measured in *calories per day*, is the most common basis for judging whether individuals or a whole nation get enough food.

Individual dietary energy supply needs range from about 1500 calories for young children or inactive adults up to more than 3000 calories for active growing teenagers or adults working hard in cold climates. The most common figure used for minimum average DES needs is 2250 calories per person per day. National averages for DES less than about 2600 calories are associated with hunger, because some people always get less than the average. National DES of less than 2300 calories is an almost certain sign of widespread hunger.

Carbohydrates, fat, and sugar supply the majority of needed energy. Cereals – wheat, rice, and coarse grains such as corn and sorghum -- supply the largest share of carbohydrates around the world. Roots and tubers are important in some regions, notably cassava in much of

Africa. Sugar is usually a cheap source of energy, but is often described as “empty” calories because it is low in protein and micronutrients. Fruits and vegetables, although somewhat more expensive as a source of energy, provide important complex carbohydrates and micronutrients.

Protein, essential for growth and for many body processes, is often the most deficient macronutrient. Slow growth and impaired development may occur even though overall calorie needs are met. Cereals supply some protein, but not enough, and not usually of a wide enough variety. Tubers such as cassava are nearly pure starch. Legumes and nuts are important plant sources of protein. Eggs, milk, meat, and fish are important sources, but nearly always more expensive. Wealthy people prefer the latter, sometimes to excess.

Hidden Hunger

Even when people get all the required calories and protein, they may still suffer from serious or life-threatening conditions because they do not get enough vitamins and minerals. Iodine deficiency disorders, lack of vitamin A and iron-deficiency anemia are typical of the *hidden hunger* that undermines the health and productivity of poor people. Such *micronutrient* malnutrition claims up to 5 percent of national income in some developing countries, due to disability and lost lives and productivity.

Insufficient iodine can lead to goiter (an enlarged thyroid gland) and mental retardation. In 1995, 760 million people worldwide suffered from goiter. The Chinese Bureau of Public Health recently reported that iodine shortages during infant brain development have left 10 million Chinese people mentally retarded.

Vitamin A deficiency can cause blindness and even death from infectious diseases. It afflicted nearly 3 million preschool children in 1995, half of them in Southeast Asia.

Inadequate iron intake is one cause of anemia, which reduces work and school performance and increases susceptibility to disease. Up to 84 percent of pregnant women in Southeast Asia and up to 64 percent in the Eastern Mediterranean suffer from iron-deficiency

anemia. They are at increased risk of death in childbirth or bearing low-weight babies, who in turn are vulnerable to disease and impaired development. Altogether, anemia affects nearly 2 billion people worldwide.

Low-cost public health interventions can minimize "hidden hunger"; iodizing salt; encouraging eating more vegetables rich in Vitamin A; Vitamin A capsules; fortifying sugar and cooking oil with Vitamin A; and encouraging pregnant women to take iron sulfate tablets. Bangladesh increased salt iodization from none to 100% in just 10 years. "We use iodized salt so we don't get goiter," said a mother attending a village health clinic.

In Indonesia, 250,000 community-based health posts provide vitamin A and iron supplements, immunization and other preventive health measures to preschool children. Between 1973 and 1993, undernutrition fell by half, with the health centers accounting for half the reduction. Broad-based economic growth was also a significant factor.

Utilizing Available Nutrients

Even if the supply of energy, protein, and micronutrients is ample, and everyone has access to enough food by growing it, buying it, or receiving it as a gift, utilization by the body is not assured. Three additional factors must be considered: water, disease, and parasites.

Water is itself a major nutrient. It is used in building body tissues and in body processes. But it can easily be a carrier for infectious diseases and parasites, both of which can prevent or interfere with the body's use of nutrients. The importance of clean water and good sanitation in nutrition cannot be overstated.

Physical and Social Effects of Hunger

Undernutrition of varying intensity seriously affects at least a billion people around the world, with both physical and social effects. The effects are intertwined, and reinforce each other in a downward spiral.

Undernutrition leads to slowed growth and development. Children have too little energy to be attentive and learn well, or their mental abilities may be permanently damaged. Adults have too little energy, or are not well prepared, to be fully productive at work. Because productivity is low, wages and incomes remain low. Continued poverty contributes to poor diets and poor health care, perpetuating the cycle of undernutrition.

Women as mothers, homemakers, and care-givers experience this cycle more intensely than men. Women who lack adequate nutrition during pregnancy have more low birth-weight babies, who in turn are more susceptible to disease. Undernutrition during lactation further slows development. Many societies discriminate against girls in education and early employment. Especially if women marry young, they begin the cycle all over again.

Breaking the Cycle of Undernutrition

These downward or perpetual spirals of undernutrition can be most effectively broken by intervention with children, and with mothers during pregnancy and lactation.

Many countries have successful public programs to remedy micronutrient shortages, often linked to programs of childhood vaccinations and health education for the children's mothers. Some of these draw on the resources of international agencies such as UNICEF, the World Health Organization and the United Nations Development Program.

Both governmental and private relief and development agencies sponsor programs of nutrition assistance and health education for prospective and nursing mothers. The Special Supplemental Nutrition Program for Women and Children (WIC) in the United States is a model for some of these programs.

Costs of these special intervention programs are minuscule, compared to the returns in lower health costs and long range improvement in education and work productivity. The United Nations Development Program estimates that \$40 billion per year would provide adequate food, safe water and sanitation, basic health care, and basic education for everyone plus reproductive health care for all women. This might be compared to \$17 billion spent each year on pet food in the United States and Europe, or \$35 billion spent on business entertainment annually in Japan, or global expenditures of \$780 billion each year on armies and armaments.

But there is little prospect for such an effort. In fact, resources for aid shrank through the 1990s.

What is more feasible, and would be better for everyone in a longer time frame, is for each nation to set its own course for sustainable development. The goal would be that families could meet their nutritional needs through their own efforts.

In the meantime, priority for use of whatever resources are available for assistance should be given to programs focused on the nutritional needs of children and their mothers.

FOOD FOR EVERYONE

A Teaching Resource on World Hunger
and Agriculture



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A Teaching Resource on World Hunger and Agriculture

UNIT 2:

Hunger, The Silent Thief

The physical symptoms and social effects of hunger.

Hunger, The Thief

Sponsored by



Bread for the World
INSTITUTE

With Cooperation from

National Council for the Social Studies

and

Financial Support from



FOOD FOR EVERYONE

A Teaching Resource
on World Hunger
and Agriculture

Lesson Plan

Unit 2. Hunger, The Silent Thief

Introduction

Purposes

To help students recognize the physical symptoms and understand the social effects of long-term undernutrition

Key Concepts

Patterns of hunger: chronic, seasonal, acute, life cycle, being at risk for hunger;

Undernutrition: energy, protein and micro-nutrient deficiencies;

Physical symptoms of hunger: underweight, stunting and wasting;

Social and long-term effects of hunger: lethargy, impaired learning, low productivity, self-perpetuating cycle of hunger across generations

Learning Objectives

Students should become able to recognize several of the more common disorders caused by chronic or periodic undernutrition, and discuss their developmental and social impacts; more specifically, to:

1. Recognize the names of several malnutrition disorders and be able to match each with its basic cause:
 - underweight (caloric and protein deficiency)
 - stunting (chronic under-nutrition)
 - wasting (severe short-term under-nutrition)
 - anemia (mineral shortage, usually iron)
 - beri-beri (B Vitamin shortage)
 - impaired vision (Vitamin A deficiency)
 - goiter (Iodine deficiency)
2. Discuss, in narrative, several of the major long-term effects of severe hunger:
 - impaired physical development
 - increased susceptibility to all illnesses
 - impaired mental development; slow learning; short attention span
 - lethargy; low work productivity
 - increased misery; susceptibility to political manipulation
 - undeveloped potential for human betterment
 - missed markets for U.S. agriculture
3. Extend their understanding of the regions where undernutrition is most severe

Getting Ready

Subjects

1. Patterns of hunger
2. Energy, protein, and micro-nutrient deficiencies
3. Physical symptoms of severe or chronic undernutrition
4. Social and long-term effects of severe and, especially, chronic hunger
5. Breaking the cycles of undernutrition
6. Degrees of calorie deficiency
7. Foods to prevent or offset nutritional diseases

Material

Basic:

1. Copies of Issue Brief: 2. *Hunger, The Silent Thief*
2. Copies of Food For Everyone Basic Indicators, (Appendix)
3. Copies of "Dietary Energy Supply," Suppl. 2.11

Optional:

4. Copies or overhead of "Undernutrition Disorders," (Suppl. 2.12)
5. Overhead of "Numbers of Stunted Children," (Suppl. 2.13)
6. Overhead of "Food Security Calendar," (Suppl. 2.14)
7. Copies of Quiz: Undernutrition Disorders," (Suppl. 2.15)

Advance Preparations

1-3 days in advance

Copy, distribute, and assign readings: Issue Brief 2. *Hunger, the Silent Thief* and "Dietary Energy Supply," Suppl. 2.11, plus (optional) "Undernutrition Disorders," (Suppl. 2.12), and "Food For Everyone Basic Indicators," (Appendix).

Supplemental Resources

Print

FAO, *Food Security and Food Assistance*, Technical Background Document No.13, Vol. 3 (Rome: FAO, 1996)

United Nations Food and Agriculture Organization (FAO), *Sixth World Food Survey* (Rome: FAO, 1996)

United States Department of Agriculture (USDA), *Household Food Security in the United States in 1995* (Washington: USDA, 1998)

On-line

Bread for the World Institute <<http://www.bread.org>>

Food for Everyone (National Council on Agricultural Education)
<<http://www.agedhq.org/ffe/lessons>>

Teaching the Lesson

Presentation:

FFE Basic Indicators: Appendix

*Food Security Calendar:
Suppl. 2.14*

1. If it was not distributed as part of the advance assignment, distribute the "Food For Everyone I Basic Indicators" (Appendix). Ask students to keep it available for later lessons. Help them become familiar with the table, and learn to use it. Urge each student to use a straight-edge (ruler or sheet of paper folded lengthwise to about the same width).
2. In the Basic Indicators table, ask students to find the average calorie availability, in the column "Food available," for each region – Sub-Saharan Africa, South Asia, East Asia/Pacific, etc.. Then help them find the average proportion of undernourished people in each region. (See related activity in Activities/Extensions, below.) Ask students to find a few specific country numbers to learn what other information is in the table, e.g.:
 - Which African nation had the highest proportion of undernourished people in 1990-1992? (Somalia, which was having a civil war)
 - Which are the two most populous nations in the Asia and East Asia/Pacific regions? (India and China)
 - Which Latin American country has the highest per capita GNP? (Argentina)
 - Compare the percentage of people having safe drinking water in Nigeria and the United States. (49% and 99%)
3. Engage the class in a discussion of patterns of hunger. Use the graphic "Food Security Calendar," (Suppl. 2.14), to begin the discussion. The graphic is based on the experience of a primarily rural people, whose food security is tied to seasonal harvests (*seasonal hunger*), with the main harvest coming in October. This seasonality affects virtually everyone, but not the same. A fairly small minority is only inconvenienced for a few months. Nearly half the population worry about having enough food most of each year, and are desperate for several months. Illustrate the following patterns of hunger:
 - Chronic hunger – continuously short of food, as a family depending on very low wages, perhaps intermittent, in either a rural or urban setting
 - Seasonal hunger –see above
 - Acute hunger – intense hunger, usually based on food scarcity, and often related to flood, drought, or war
 - Life cycle hunger – the cycle of hunger which carries over from one generation to the next; often tied to the low status of women in their roles as mothers, homemakers, or farmers
 - At risk of hunger – living so close to the line that any emergency may trigger actual hunger
4. Note that food security and shortages are usually measured in availability of calories. Protein is the other category of macro-

*Undernutrition Disorders:
Suppl. 2.12*

Issue Brief: 2. Hunger . . .

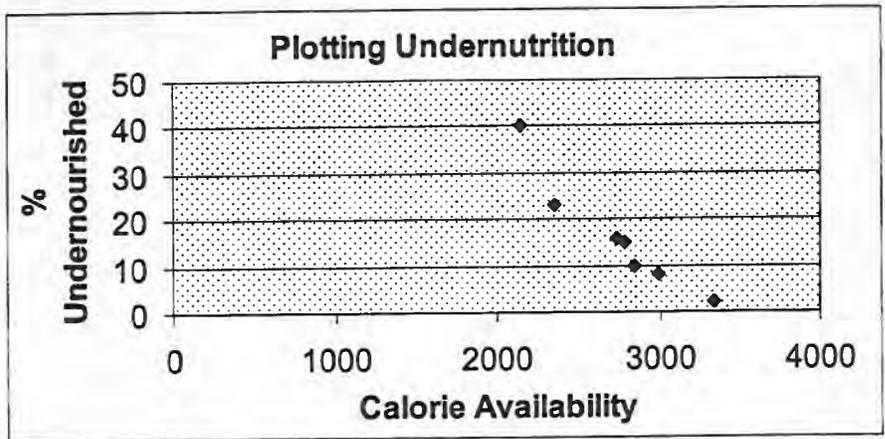
*Discussion Questions
/Quizzes:
Suppl. 2.15*

nutrients that are often in short supply, and may be short even if people get enough calories. Ask students to name foods rich in protein (meats, dairy, fish, legumes, nuts). Water is sometimes counted as a nutrient, and if so, is a macro-nutrient.

5. Using the graphic "Undernutrition Disorders" (Suppl. 2.12), ask students if they know anyone who is, or might be, suffering from any of these disorders. Note that the first three on the list (*underweight, stunting, and wasting*) are the result of *macronutrient* deficiencies. Help students understand the somewhat subtle distinctions among these. (See Glossary in Appendix)
6. Repeat the question framed as knowing anyone with *micronutrient* deficiencies. Many students will know someone who has suffered from anemia, for example, but fewer will know people suffering from the others. One reason is the fortification of common foods. Ask students to name foods they eat to which micronutrients have been added (milk – vitamins A & D; flour, most breads, pastas and cereals – B vitamins; some cereals – iron; salt – iodine.)
7. In discussion, or in a written quiz, ask students to discuss the downward spiral of undernutrition noted under "Physical and Social Effects of Hunger" in Issue Brief 2. *Hunger, the Silent Thief*. If you have "Undernutrition Disorders" on your overhead, you may want to leave it up during the discussion – for the list of long-term effects on the bottom half the page.
8. Review some approaches to overcoming undernutrition:
 - Raising incomes so people can buy food
 - Health education so people will select food more wisely
 - Promoting vegetable gardens, and encouraging traditional diets where these are healthful
 - Fortifying common foods with important vitamins and minerals
 - Distributing supplements at health clinics for mothers and young children
 - School lunch and food assistance programs
9. List some of the actors in overcoming undernutrition
 - National, state and local governments
 - Schools
 - International development agencies
 - International and local non-governmental groups

See Quiz 2 (Suppl. 2.15). Matching quiz based on names and symptoms of undernutrition disorders, plus two discussion questions on social impacts of undernutrition.

[Answer key for matching questions, Quiz 2: 1 – g, n; 2 – f, q; 3 – c, s; 4 – a, p; 5 – b, r; 6 – d, o; 7 – e, m]



Activities/Extensions:

FFE Basic Indicators (Appendix)

1. Related to Items 1 and 2 in Teaching the Lesson, above, plot a rough graph on the chalkboard or overhead. Use "Food available" for the X axis (horizontal) and "Proportion undernourished" as the Y axis (vertical). Enter the data point representing the value for each regional summary: Sub-Saharan Africa, South Asia, East Asia/Pacific, etc. The result should look approximately like the sample graph above. Divide your students into four groups, including in each group one or more students likely to be handy with tables and graphs. Ask each group to graph one pair of data for the same six countries: Ethiopia, India, China, Colombia, Egypt and Germany. When the groups report back, ask each group to sketch their graph on the board, and draw (a) conclusion(s) from their graph
 - Group 1: "Food available" and Proportion children stunted"
 - Group 2: "Food available" and "Under-5 mortality"
 - Group 3: "GNP per capita" and "Proportion undernourished"
 - Group 4: "GNP per capita" and "Proportion children stunted"

2. Ask students to bring to class (or copy) two food labels which illustrate fortification of common foods with micronutrients

Follow Up

Evaluation

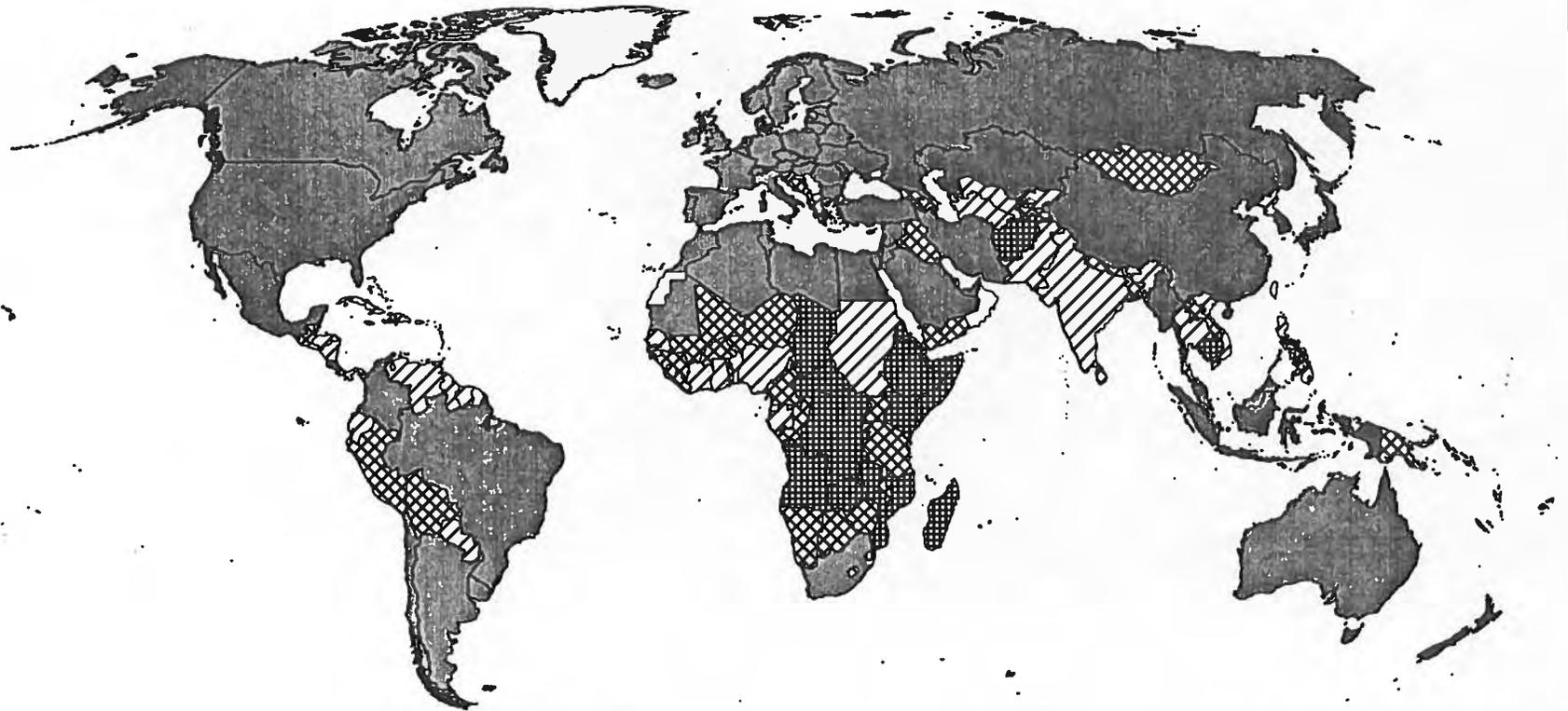
What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

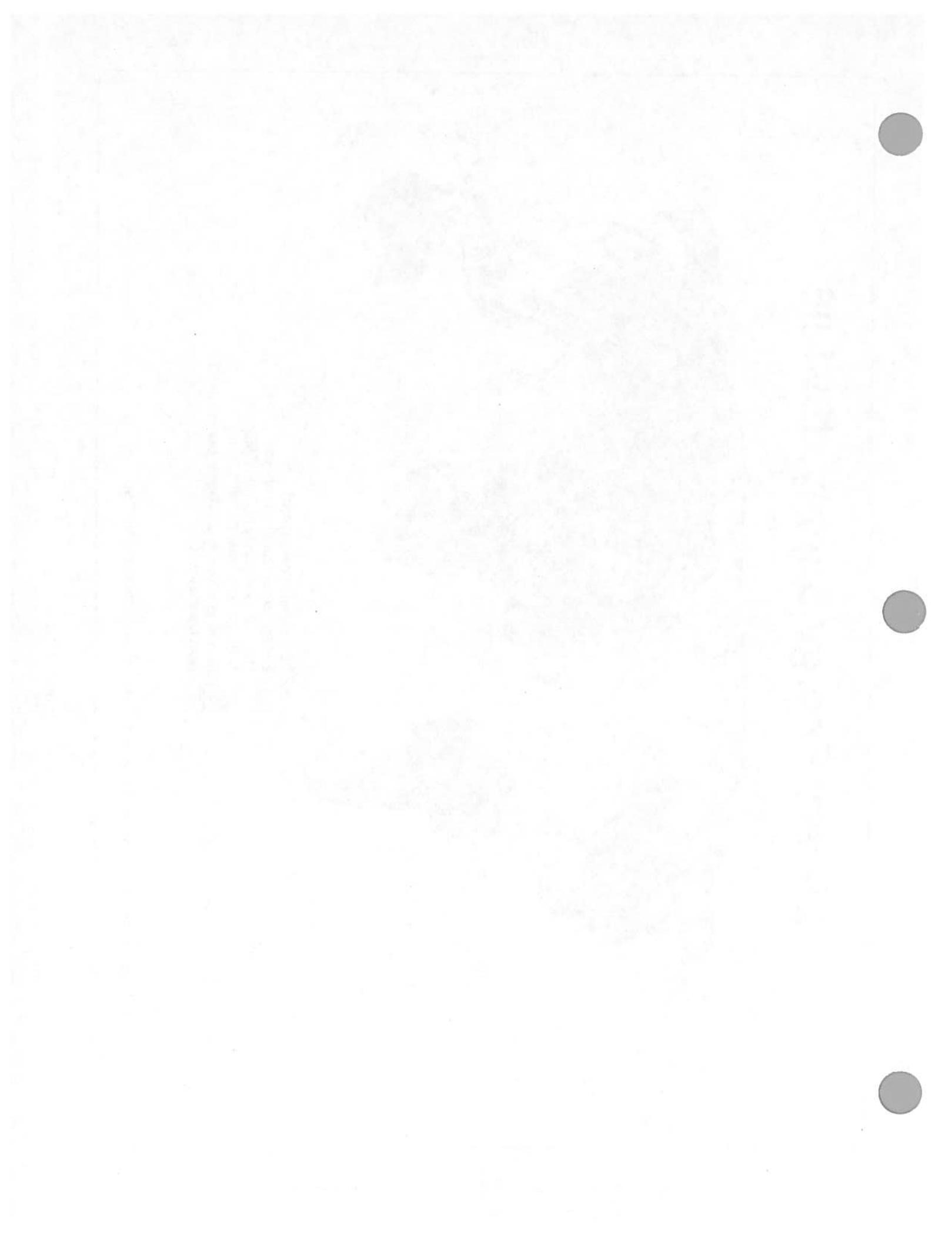
Dietary Energy Supply, 1994-96



Daily DES (calories/per person)

- Enough to eat (2,600 and above)
- Marginal food supply (2,300-2,599)
- Widespread hunger (2,000-2,299)
- Severe food supply shortages (Below 2,000)
- Data not available

Source: FAO. Reports and statistics posted at www.fao.org, accessed December 10, 1998.



Undernutrition Disorders

To accompany Food For Everyone Unit 2

Undernutrition Disorders, Symptoms, Causes

Malnutrition Disorder	Symptoms	Cause
Underweight	Low weight for age	Calorie and protein deficiency
Stunting	Low height for age	Chronic undernutrition
Wasting	Low weight for height	Severe short-term undernutrition
Anemia	Fatigue, pale tissues	Mineral shortage, usually iron
Beri-beri	Fatigue, abdominal and chest pain	Thiamine (Vitamin B-1) shortage
Impaired vision	Blindness; chronic poor vision	Vitamin A deficiency
Goiter/Impaired brain development	Swollen thyroid; mental retardation	Iodine deficiency

Social Effects of Long-term Undernutrition

- Impaired physical development
- Increased susceptibility to all illness
- Impaired mental development; slow learning; short attention span
- Lethargy; low work productivity
- Increased misery; susceptibility to political unrest
- Undeveloped potential for human betterment
- Missed markets for U.S. agriculture

THE UNIVERSITY OF CHICAGO

DEPARTMENT OF CHEMISTRY

RESEARCH REPORT

1. Introduction

2. Experimental

3. Results

4. Discussion

5. Conclusions

ACKNOWLEDGMENTS

REFERENCES

1. J. D. ...

2. ...

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4. ...

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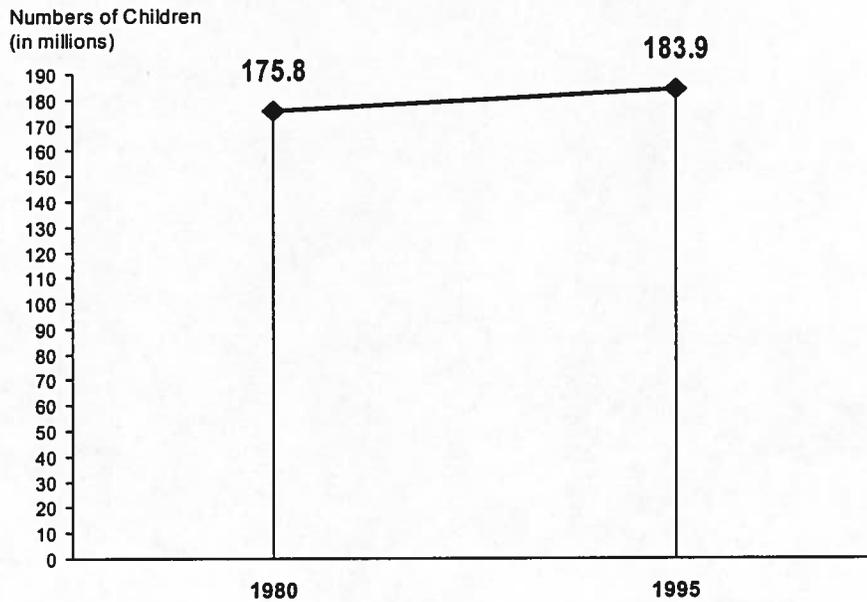
10. ...

11. ...

12. ...

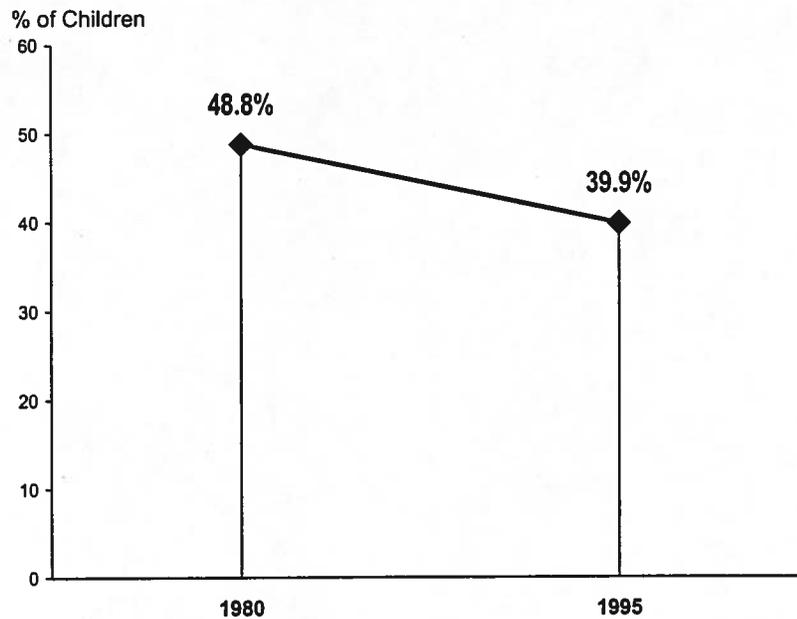
13. ...

Number of Stunted Children World, 1980-95



Source: ACC/SCN. *The Third Report on the World Nutrition Situation*, December 1997.

Proportion of Stunted Children World, 1980-1995



Source: ACC/SCN, *The Third Report on the World Nutrition Situation*, December 1997.

Library of the
University of California



Food Security Calendar

for an Average Year
Passoré, Guinea

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
I. Most food secure (+/- 10-15% of population)	★	★	★	★	★	★	★	★	★	★	T	T
II. Medium food secure (+/- 35-40% of population)	★	★	★	★	★	★	T	T	●	●	●	●
III. Least food secure (+/- 40-50% of population)	★	★	★	★	T	T	T	T	●	●●	●●	●



Period of Abundance: "We eat until we've satisfied our hunger"



Period of Transition (the ration is reduced)



Hungry period (Two dots indicates period of exceptional difficulty)

Source: Karen Schoonmaker Freudenberger, *Rural Rapid Appraisal and Participatory Rural Appraisal: Notes to Accompany an Introductory Workshop for Development Professionals*, January 13-15, 1998, The World Bank, Washington, D.C.

Food Security Worksheet
FOR GRADE 5
FOOD SECURITY

Item	Quantity	Unit Price	Total Price
100 lbs of wheat	100	1.50	150.00
50 lbs of corn	50	1.00	50.00
25 lbs of soybeans	25	1.20	30.00
100 lbs of rice	100	1.80	180.00
50 lbs of flour	50	1.00	50.00
25 lbs of sugar	25	1.20	30.00
100 lbs of oil	100	1.50	150.00
50 lbs of meat	50	1.00	50.00
25 lbs of fruit	25	1.20	30.00
100 lbs of vegetables	100	1.50	150.00

Quiz: Unit 2. Undernutrition Disorders, Causes, Symptoms

Matching questions:

For each undernutrition disorder listed, place the letter of the matching Cause and the matching Symptoms opposite the name of the disorder.

	Cause	Symptoms
1. Underweight		
2. Stunting		
3. Wasting		
4. Anemia		
5. Beri-beri		
6. Impaired vision;		
7. Goiter / Impaired brain development		

- | Cause | Symptoms |
|-------------------------------------|--|
| a. Mineral shortage, usually iron | m. Swollen thyroid; mental retardation |
| b. Thiamine (Vitamin B-1) shortage | n. Low weight for age |
| c. Severe short-term undernutrition | o. Blindness; chronic poor vision |
| d. Vitamin A deficiency | p. Fatigue, pale tissues |
| e. Iodine deficiency | q. Low height for age |
| f. Calorie and protein deficiency | r. Fatigue, abdominal and chest pain |
| g. Chronic undernutrition | s. Low weight for height |

Discussion Questions: Write answers on back of this sheet.

1. List, and briefly describe, three social effects of chronic undernutrition.

2. What actor (i.e. national government, international agency, school, citizen group, etc.) could most effectively deal with one of the nutritional disorders? Defend or explain your choice.

Counting Calories

An Exercise to Accompany Unit 2 – Hunger, The Silent Thief

Name _____ Date _____

Purpose: To help personalize undernutrition

Materials:

- A log for recording the following details on one day's meals: and snacks (attached):

Meal	Time	Foods Eaten	Calories for Each Item	Calories per Meal

- A list of common foods and corresponding calorie content.

Exercise:

1. On the attached log, record every item you eat for one day, including all snacks and beverages besides water.
2. For each food item, enter its calorie content. The calorie content of packaged foods are listed on the container. Your teacher or home economics teacher may provide a list of the calorie content for common foods. A "Calorie and Fat Gram Chart" for a thousand foods may be found at www.ntwrks.com/~mikev/chart1.html. (18 pages, if you want to print it out for class use). A calorie calculator (somewhat cumbersome) may be found at www.caloriecontrol.org/cgi-bin/Enhanced_calcalc/enhanced_calcalc.cgi. Be sure to adjust serving size for large or small helpings.
3. Total the calories for each meal, snack, and for the day.
4. At what time of day did you reach each of the following calorie thresholds?
 - _____ 1700 calories – stay alive, but lose weight, lose energy, etc.; the approximate *average* calorie intake in Ethiopia or Eritrea
 - _____ 2350 calories – the most commonly accepted minimum threshold for normal living; the approximate *average* calorie intake in Pakistan
 - _____ 2720 calories – approximate minimum necessary for vigorous activity or work; world *average* calorie intake
5. If your food were limited to the first or second threshold, how would this affect your concentration on school work, physical activities (sports, work, household chores)?
6. What percentage of your calorie intake came from meat, eggs, or dairy products – calorie and protein sources beyond the means of most of the world's undernourished?

MEAL AND CALORIE LOG

Name _____ Date _____

Meal	Time	Foods Eaten	Calories for Each Item	Calories per Meal
Breakfast				
Snack				
Lunch				
Snack				
Dinner				
Snack				
Total Calories for the Day				
Calories from meat, eggs, dairy				% of Total

FOOD FOR EVERYONE

A Teaching Resource on World Hunger and Agriculture

Issue Brief

3. World Population Growth Is Slowing

The Food-Population Race?

The food-population dilemma is often posed as a race. Can food production keep up with population growth, or will growing population overwhelm the food supply, and lead to even more widespread hunger than already exists? "Winning the Food Race" is the title of a recent *Population Report* from the Population Information Program at Johns Hopkins University.

Some observers fear the worst – that as the world's population grows from its present 6 billion to around 9 billion people in 2050, not enough food can be produced. Practically no new good cropland exists, and the environmental quality and productive capacity of much farmland is declining. Water supplies are short. Some are polluted. Pessimists point out that countries that have the most hunger also tend to have higher birth rates. These people advocate measures to reduce the number of children families have. Most prefer voluntary measures. Some would offer strong incentives for small families. A few advocate mandatory controls.

Other analysts, however, point out that the fear of too little food for too many people is not new. Thomas Malthus, an English economist, wrote in 1798 that poverty and distress are inevitable because population increases faster than the means of subsistence. When he wrote, the world's population was about 1 billion people.

Two hundred years later, enough food is raised that it could provide an adequate diet for 6 billion people. The proportion of people who are hungry is smaller than when Thomas Malthus wrote (although the number is larger). Family size and the rate of population growth are declining, especially wherever people feel secure about their own and their children's future. Most analysts concur that a global food shortage is unlikely in the next couple of decades. Optimists among them are confident that technology and better food distribution can overcome hunger indefinitely. Some don't see population as an important issue at all. (See also Issue Briefs 7-8)

Why Populations Grow

Population growth is primarily determined by the interaction of birth rate (the number of births compared to the total population) and death rate (the number of deaths/population). Subtracting the death rate from the birth rate gives the rate of population growth (or loss), after usually minor adjustments for migration.

Through most of human history, death rates were comparable to birth rates, although much more variable from year to year, due to disease, famine, or war. World population grew very slowly from the beginning of civilization until quite recently. It actually shrank at various times. For example, the bubonic plague (Black Death) swept Europe and Asia during the 14th century, killing as many as three-quarters of the people. Global population reached 1 billion about 1800.

In countries with a high proportion of women in child-bearing years, weak education systems and little family planning, birth rates may be near 50 children for each 1000 population (5%). Death rates may be 15-20 for each 1000 people (1.5-2.0%), with a growth rate around 30-35 per 1000 (3.0-3.5%). The net population growth rate has dropped to a range of 15-30/1000 people (1.5-3.0%) in most developing countries, and 0-7 per 1000 people (0.0-0.7%) in the industrial countries.

Death rates began to drop first. Just before 1800, an English physician, Edward Jenner noticed that milkmaids often escaped from epidemics of smallpox, and developed a smallpox vaccine from cowpox. Late in the century a French chemist, Louis Pasteur, advanced the germ theory of infection. He perfected the process of pasteurization to reduce disease risks from milk, and discovered vaccines for anthrax and rabies.

Development of near-universal education, at least in Western nations, also contributed to an understanding of

disease and habits of sanitation. More children lived to maturity. Adults lived longer. Death rates dropped. Populations grew faster. The global population reached 2 billion people in 1930. It doubled in 130 years, a growth rate of just under one-half percent per year for the period.

With the gradual spread of vaccinations and improved education, and particularly after the discovery of penicillin and other antibiotics during the 1930s and 40s, death rates dropped dramatically around the world, while high birth rates continued in many areas. Global population reached 4 billion in 1975. It doubled in only 45 years, at a growth rate of more than one and one-half percent per year.

The next doubling – to 8 billion – is expected about 2025, in a 50 year period. Population reached 6 billion in 1999.

Falling Birth Rates

But a second phenomenon is also occurring. Birth rates are coming down almost everywhere, dramatically in many countries. Several factors are involved. Child mortality rates have dropped dramatically in most countries. Even recently in some areas, 300 to 400 out of each 1000 children born died before their fifth birthday. By now, the child mortality rate has dropped by about half even in the poorest countries, and by 90 percent, to around 25 to 40 child deaths per 1000 births, in developing countries with decent health care.

Even in countries where children are the primary means to old age security, the need for large families is reduced, because more of the children grow up. Fewer children are needed as workers or farm hands. Especially as families move to cities, children are less an asset.

Parents are determined that their children should take advantage of educational opportunities, and can't provide these for large families. They want to have fewer children. Contraceptives and family planning assistance are available in more and more places.

Education is a critical factor. If children attend school, or stay in school longer, they tend to marry later. They are better prepared for work, and earn more, so can afford better care for their own children. They are better informed, and want to continue the cycle of improving life for their children. They have fewer children. The single social factor most closely corresponding to lower birth rates is the educational level of girls and women.

A long-term measure of population is the *total fertility rate*, the total number of children each woman has in her lifetime. If women, on average, each had 2.1 children, the population would neither grow nor shrink from one generation to the next. The total fertility rate has dropped below the replacement rate in all the 23 industrial countries of the world, excepting Israel, and in all the formerly communist Eastern European countries.

Stabilizing Population Takes Time

There is always a time lag between falling death rates and falling birth rates. It may be as short as a few years but more commonly requires at least a full generation. It takes time: to develop education and health care systems, for parents to gain confidence in realizing the hopes for their children, and for women to assert themselves. It especially takes time for cultural customs to change. Having many children has long been a mark of prestige for both men and women in most cultures and most religions.

Other factors may enter into continued high birth rates. Civil war may take many lives, but usually slows progress toward reduced population growth. Warfare consumes resources, and disrupts education and health care delivery systems, including the availability of family planning assistance (Afghanistan, Ethiopia, Rwanda, and Burundi). Strengthening education systems, especially for girls, has lagged in many African countries. Religious beliefs and a somewhat lower status for women have kept birth rates high in several Middle Eastern countries.

Even if total fertility rates drop to replacement level, populations will continue to grow for more than a generation. In many poor countries, nearly half the population is under 15 years old. If these girls averaged no more than 2 children, the population would continue to grow as their children are added while their parents and grandparents are still alive. This lends special urgency to providing education and opportunities for stable livelihoods, so that the leveling-off can begin.

What Actions Are Possible?

Three kinds of actions can help slow population growth, and help ensure that the world's population might level off by 2050 or so. The balance among them will vary from country to country, but to be "owned" by all, needs to be set through democratic processes:

- Improving education, especially for girls;
- Creating employment or business opportunities for everyone, as a basis for hope for their children; and
- Providing health education and family planning services.

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UNIT 3:

Population Growth Is Slowing

A more in-depth review of where hunger is increasing and decreasing;
links to population growth.

Population

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Lesson Plan

Unit 3. World Population Growth Is Slowing

Introduction

Purpose

To help students understand population growth as one aspect of the search for greater food security

Key Concepts

Birth rates; death rates; population growth rates; growth in food production; compound growth rates; women's lifetime fertility rate; population replacement level; time lag in leveling of population growth

Learning Objectives

Students should understand and be able to discuss several aspects of possible threats from world population growth, some of the factors which contribute to such growth, and some reasons why the threat may be diminishing; more specifically, to understand:

1. The history of population growth
2. The ballooning effect of compound growth rates on population
3. The range and downward trend of population growth rates among developing and industrial nations
4. The goal of bringing women's total fertility rates down to, or below, replacement level
5. Why populations continue to grow for years after the average women's fertility rate drops to replacement level
6. Why education, particularly for women, brings down birth rates
7. Why poor people and poor nations tend to have more children than those where employment and incomes are more secure; and that income and food security contribute to slowing population growth

Getting Ready

Subjects

1. History of the food-population race
2. Why populations grow; the ballooning effect of compound growth rates
3. When and why population growth slows
4. The time lag between falling death rates and falling birth rates
5. Women's total fertility rates and the momentum of population due to the high proportion of young women in most developing countries
6. The importance of education, especially for girls and women
7. The importance of economic opportunity and secure income

Materials

Basic:

1. Copies of Issue Brief: *3. Population Growth Versus World Food Supply*
2. Copies of "FFE Basic Indicators," Appendix
3. Copies or overheads of "World Population Growth," (Suppl. 3.11) and "Population Growth and Agricultural Production," (Suppl. 3.12)

Optional:

4. Copies of "Population Growth Rates, plus other exercises in compound growth," Suppl. 3.13.1-2
5. Copies of "Ten Questions About Population Growth in China and India," with accompanying tables, Suppl. 3.14.1-3

Advance Preparations

1-3 days in advance

Copy, distribute, and assign reading(s): Issue Brief *3. Population Growth Versus World Food Supply*, and, if not already distributed for an earlier lesson, "Food For Everyone Basic Indicators," (Appendix). You may wish to assign as an advance out-of-class exercise "Population Growth Rates, and other exercises in compound growth," (Suppl. 3.13.1-2), or "Ten Questions About Population Growth in China and India." (Suppl. 3.14)

Supplemental Resources

Print

United Nations Food and Agriculture Organization (FAO), *Sixth World Food Survey* (Rome: FAO, 1996)

United Nations Secretariat Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 1998 Revision, Volume I* (New York: United Nations Secretariat, 1998)

Population Action International (PAI), *Plan and Conserve: A Source Book of Linking Population and Environmental Services in Communities* (Washington: Population Action International, 1998)

Population Reference Bureau, *World Population Data Sheet 1998* (Annual)
(Washington: Population Reference Bureau)

On-line

Population Action International <www.populationaction.org>

Population Reference Bureau www.prb.org

United Nations Population Information Network (POPIN)
<http://www.undp.org/popin>

Bread for the World Institute <www.bread.org>

Food for Everyone (National Council on Agricultural Education)
<www.agedhq.org>

Teaching the Lesson

Presentation:

*FFE Basic Indicators:
Appendix*

*World Population Growth,
Suppl. 3.11*

*Population Growth and
Agricultural Production
Suppl. 3.12*

*Population Growth Rates:
Suppl. 3.11.1-2*

1. Spend a few minutes with the students “browsing” through the “FFE Basic Indicators”, especially the first two columns – estimated population (1998) and estimated population growth rate (2000-2005). What numbers catch the students’ eyes?
2. Although no earlier estimates are shown here, these population growth rates are sharply lower than those predicted a decade ago, or even in the mid-1990s. The UN’s population division maintains three projections for future population growth. All three projections were lowered after the 1998 review. Over the last decade, the low projection was the most nearly accurate. Most planners will probably use the new medium-variant projection, which projects a global population of slightly less than 8 billion by 2025 and less than 9 billion by 2050 (Suppl. 3.11). These contrast with fairly recent earlier projections as high as 8.5 billion by 2025 and more than 10 billion by 2050.
3. Note that total agricultural production has steadily risen faster than population since 1961, so that agricultural production per capita has increased about 20% over the past 40 years (Suppl. 3.12).
4. Turn to the “Population Growth Rate” exercises (Suppl. 3.11.1-2). Whether assigned as an out-of-class exercise or done in class, many students will probably need help getting started with estimates of population growth through 2025 for the Democratic Republic of the Congo and Thailand. (You may have a “whiz kid” or two who can help the others.)
5. Some students may already be familiar with the “Rule of 70,” but you will need to be sure that all can use it.
6. The main points of the exercise are three:
 - The absolute number of people added to a country’s population each year depends both on the size of the population and the rate of growth. Note the relative size of the annual population

*Ten Questions About Population
Growth in China and India
(Suppl. 3.11.1-3)*

*Issue Brief 3. Population Growth
Is Slowing*

- increases from the two roughly comparable populations in 2000;
- Small-sounding differences in growth rate mount to large differences over time. Note the differences in final population and in doubling time for the two countries used as examples.; and
 - Rapid population growth reduces the per capita economic growth rates (the main point of the Ghana example in question 4).
7. Turn to "Ten Questions About Population Growth in China and India," (Suppl. 3.11.1-3). You'll probably need to give students some guidance in finding their way through the fairly dense reference tables. Note that the top half of each page is made up of estimates for the past 50 years, and the bottom half is the UN's medium-variant projection for the next 50 years. Each half page is divided again, with the top quarter being the estimates for specific years, and the second quarter being the rate of change in each interval.
 8. Stress to students the importance of noting what units are used for each line: Population numbers are in thousands – add three zeros; changes are in percentages – may need a quick review of decimal places; (crude) birth and death rates are actual numbers per 1000 population – call attention to the box on the front of Issue Brief 3. *Population . . .*
 9. Base a class discussion on questions 8-10 in the China/India exercise (Suppl. 3.12, above). Focus much of the discussion on the long time lag between falling birth rates and slowing population growth, particularly after women stop having more than about 2 babies – the long-term replacement rate. Be sure the following points are raised in the discussion:
 - Death rates from fall first, mostly from reduced disease – people live longer; note the change in life expectancy in China and India over the 100 years covered by the tables;
 - Once women are born, they live through their reproductive years and have their babies while their parents, and even grandparents are still alive; note the significance of the percentage of women aged 15-49;
 - This long time lag, mostly unavoidable, underscores the urgency of bringing the total fertility rates down as soon as possible, if slowing population growth is a policy goal.
 10. Major elements in reducing the total fertility rate, thence population growth rates, include:
 - Creating hope for secure livelihoods – economic opportunity, jobs, businesses;
 - Education, especially for young women; women's educational level is the social indicator most closely correlated with fertility and birth rates; and
 - The availability of health education and voluntary family planning services; (community mores may strongly shape your discussion of family planning services).

*Discussion Questions
/Quizzes:*

No quizzes or discussion questions are suggested beyond the two exercises covered in the lesson presentation.

Activities/Extensions

This unit, perhaps more than others, lends itself to web searches. Students might be assigned to perform a web search such as "Population Growth," "Population Activities," "Population Information," or to combine one of these with a country or geographic region. Their report to the class might include an assessment of the range of activities being carried out by population action groups, or new information that surprised or excited them.

Follow Up

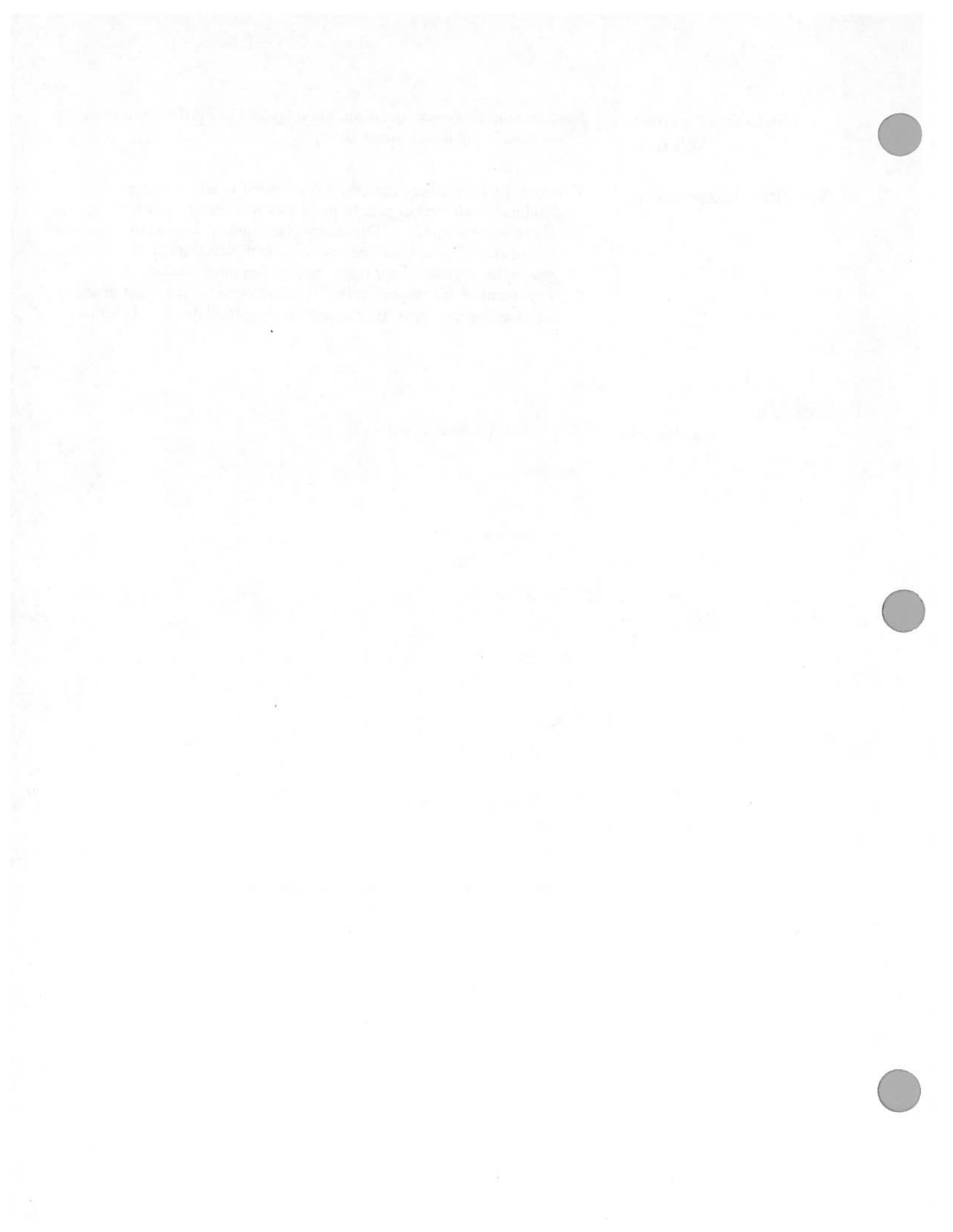
Evaluation

What parts of this lesson went well?

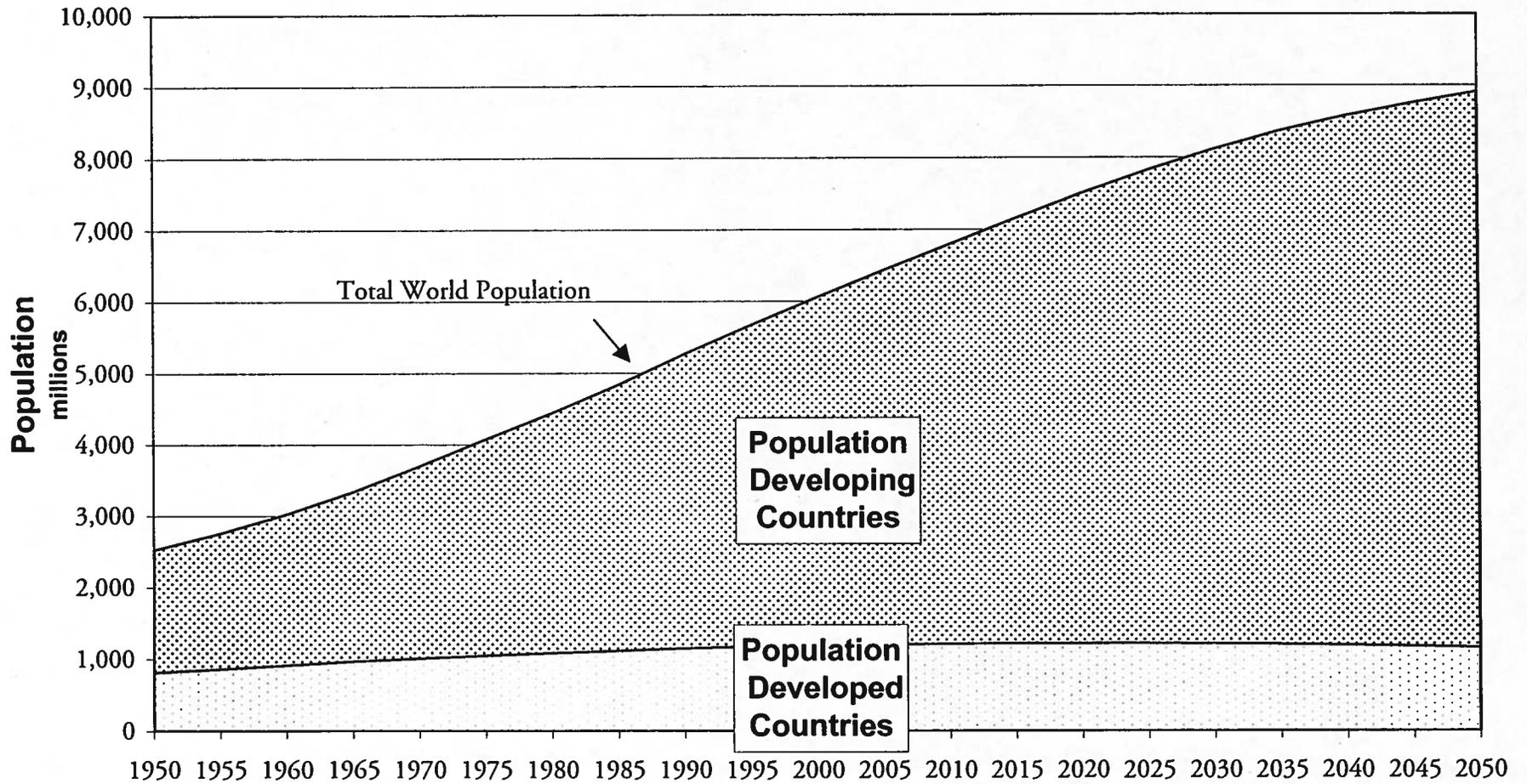
1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

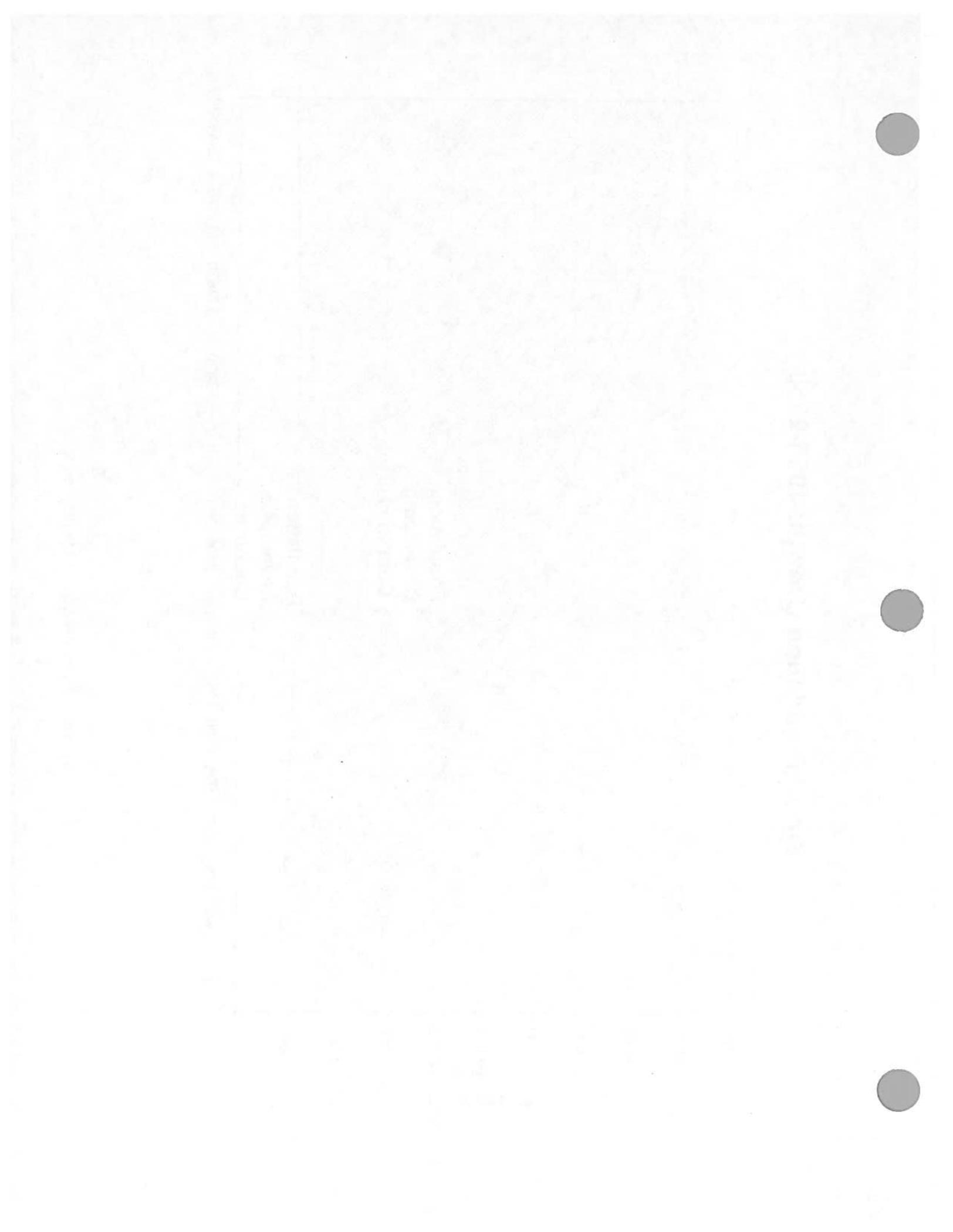
What will you change next time?

What additional resources are needed for this lesson?



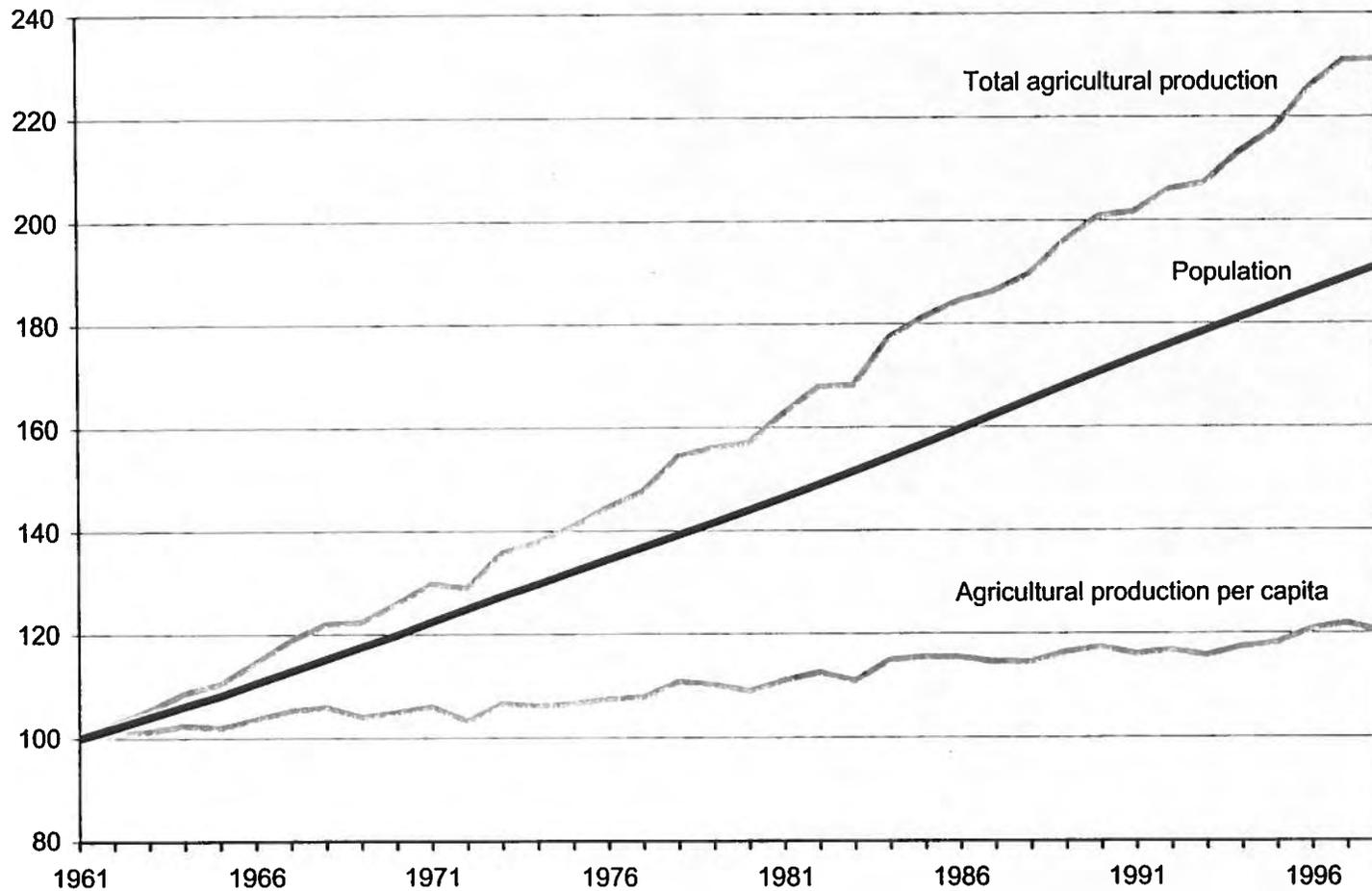
World Population Growth: 1950-2050





Population Growth and Agricultural Production

Indices (1961=100)



Source: FAO, FAOSTAT Statistics Database; UN Population Division.



Population Growth Rates

Plus other exercises in compound growth rates

Name _____

Date: _____

1. Using a calculator, complete the table on the next page – estimate the population for The Democratic Republic of the Congo (DRC) and Thailand through year 2025. (Hint: enter 1.0 plus the growth rate in your calculator memory as the multiplier, e.g. 1.030 for DRC; 1.008 for Thailand)
2. Based on this projection:
 - a. What would their respective populations be in year 2025?
DRC _____ Thailand _____
 - b. In what year will the DRC population surpass that of Thailand?
Year _____
 - c. In what year will the DRC population be double its 1999 level?
Year _____
3. Using the “rule of 70,” in approximately what year would Thailand’s population double at its present rate of growth? (Hint: At a constant 1% growth rate, any number will double in approximately 70 times the time interval – e.g. at 1% per year, it would double in 70 years. Therefore, 70 divided by the growth rate yields the approximate doubling time.)
Year _____
4. Additional exercises in compound growth rates (using the “rule of 70”):
 - a. Ghana’s *per capita* GNP is estimated at \$400 for 1998. If they were to maintain an *overall* GNP growth rate of 10% per year for 20 years (which was the case in China from 1978 to 1998), in what year would they reach \$800 per capita GNP? \$1600 per capita GNP? (Hints: overall GNP growth must be adjusted for population growth – estimated at 2.7%; the “rule of 70” works for the difference in percentages.)
Year to reach \$800 per capita _____ Year to reach \$1600 per capita _____
 - b. At times, Brazil’s inflation rate was 10% per month. At that rate, how long would it take for the currency to lose half its value? (Hint: Review the definition of the rule of 70, above).
_____ (name the period of time)

Population Growth Rates Exercises, p. 2

Complete the following table:

	Democratic Rep/Congo	Thailand
Population growth rate (%) Estimated: 2000-2005 (Use throughout exercise)	3.0 % (.030)	0.8 % (.008)
Estimated population (millions) 1998	49.1 m	60.3 m
Incr. (49.1x.03) (60.3x.008)	1.5 m	.5 m
Estimated population 1999	50.6 m	60.8 m
Shortcut method (50.6x 1.03) (60.8x1.008)	52.1 m	61.3 m
01		
02		
03		
04		
2005		
06		
07		
08		
09		
2010		
11		
12		
13		
14		
2015		
16		
17		
18		
19		
2020		
21		
22		
23		
24		
Estimated population 2025		

Note: The Population Division of the Department of Economic and Social Affairs at the United Nations Secretariat uses a more complex set of assumptions. They estimate that the DRC's population will reach 104.7 million in 2025 (and still be growing at 1.4 % per year by 2050). They estimate that Thailand's population will reach 72.7 million by 2025 (and stop growing between 2040 and 2050). Are your estimates roughly consistent with their projections?

Ten Questions About Population Growth in China and India

To be accompanied by population estimates and medium-variant projections for China and India
 Reproduced from *World Population Prospects: The 1998 Revision*
 Department of Economic and Social Affairs, the United Nations Secretariat

1. What population is estimated for year 2000?
2. What is the estimated population growth rate for the years 2000 – 2005?
3. In approximately what year will population peak?
4. In about what year will India's population exceed China's?
5. In about what year did/will the total fertility rate drop to replacement level (2.1 children per woman)?
6. In what year does the percentage of women aged 15-49 peak?
7. In about what year did/will the crude death rate (deaths per 1000 population) "bottom out?"

<i>China</i>	<i>India</i>

Discuss briefly (use back of the page, if necessary):

8. Why does the population peak come 40-50 years after the total fertility rate drops to replacement level?
9. Why do crude death rates fall during the early years in the tables, then start to rise again?
10. For both countries, compare the number of children under age 15 with the number of people aged 65 or over in 1975 and estimated for 2050. What happens to the ratios between the age groups?

Journal of the American Medical Association

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Year	Volume	Number	Pages
1917	100	1	1-100
1917	100	2	101-200
1917	100	3	201-300
1917	100	4	301-400
1917	100	5	401-500
1917	100	6	501-600
1917	100	7	601-700
1917	100	8	701-800
1917	100	9	801-900
1917	100	10	901-1000

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CHINA (*)

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total.....	554 780	609 005	657 492	729 191	830 675	927 808	998 877	1 070 175	1 155 305	1 220 516
Males.....	288 200	314 727	338 494	375 124	427 348	477 851	514 711	551 305	595 834	628 792
Females.....	266 580	294 278	318 998	354 067	403 327	449 956	484 166	518 870	559 371	591 724
Sex ratio (per 100 females).....	108.1	106.9	106.1	105.9	106.0	106.2	106.3	106.3	106.5	106.3
Age distribution:										
Percentage aged 0-4.....	13.7	16.5	14.2	15.4	15.9	13.6	10.0	9.5	10.3	8.5
Percentage aged 5-14.....	19.9	20.6	24.7	24.8	23.8	25.9	25.5	20.8	17.4	18.0
Percentage aged 15-24.....	18.3	17.2	16.1	16.6	19.0	19.1	19.5	22.2	21.8	18.1
Percentage aged 60 or over.....	7.5	7.6	7.2	7.0	6.8	6.9	7.4	8.1	8.6	9.3
Percentage aged 65 or over.....	4.5	4.6	4.8	4.4	4.3	4.4	4.7	5.2	5.6	6.1
Percentage of women aged 15-49.....	50.3	46.9	45.3	44.5	45.5	45.8	49.0	53.4	55.8	56.5
Median age (years).....	23.9	22.5	21.8	20.4	19.7	20.6	22.1	23.8	25.3	27.6
Population density (per sq km).....	58	63	69	76	87	97	104	112	120	127
	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	
Population change per year (thousands).....	10 849	9 697	14 340	20 297	19 427	14 214	14 260	17 026	13 042	
Births per year (thousands).....	25 370	22 734	26 208	28 780	24 863	20 712	21 017	24 369	21 729	
Deaths per year (thousands).....	14 547	13 045	11 856	8 501	5 539	6 437	6 878	7 452	8 526	
Population growth rate (percentage).....	1.87	1.53	2.07	2.61	2.21	1.48	1.38	1.53	1.10	
Crude birth rate (per 1,000 population).....	43.6	35.9	37.8	38.9	28.3	21.5	20.3	21.9	18.3	
Crude death rate (per 1,000 population).....	25.0	20.6	17.1	10.9	6.3	6.7	6.6	6.7	7.2	
Total fertility rate (per woman).....	6.22	5.59	5.72	6.06	4.86	3.32	2.55	2.46	1.92	
Gross reproduction rate (per woman).....	2.96	2.66	2.72	2.88	2.31	1.58	1.21	1.17	0.91	
Net reproduction rate (per woman).....	1.85	1.79	2.10	2.44	2.04	1.45	1.12	1.12	0.85	
Infant mortality rate (per 1,000 births).....	195	179	121	81	61	52	52	50	46	
Life expectancy at birth (years)										
Males.....	39.3	43.1	48.7	58.8	62.5	64.5	65.5	65.8	66.7	
Females.....	42.3	46.2	50.4	60.4	63.9	66.3	67.7	68.4	70.5	
Both sexes combined.....	40.8	44.6	49.5	59.6	63.2	65.3	66.6	67.1	68.4	

B. MEDIUM-VARIANT PROJECTIONS

	1985	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total.....	1 220 516	1 277 558	1 326 439	1 372 920	1 417 720	1 454 462	1 480 412	1 495 944	1 504 373	1 477 730
Males.....	628 792	657 081	680 727	703 152	724 290	741 197	752 451	758 243	758 708	742 850
Females.....	591 724	620 477	645 712	669 768	693 430	713 265	727 961	737 701	745 664	734 879
Sex ratio (per 100 females).....	106.3	105.9	105.4	105.0	104.5	103.9	103.4	102.8	101.7	101.1
Age distribution:										
Percentage aged 0-4.....	8.5	7.6	6.9	6.7	6.7	6.3	5.8	5.5	5.5	5.3
Percentage aged 5-14.....	18.0	17.3	15.0	13.6	12.9	12.8	12.5	11.8	10.9	11.0
Percentage aged 15-24.....	18.1	15.6	16.4	16.0	13.9	12.8	12.3	12.4	11.7	11.1
Percentage aged 60 or over.....	9.3	10.1	10.8	12.2	14.7	16.6	19.5	23.2	27.2	29.7
Percentage aged 65 or over.....	6.1	6.8	7.5	8.1	9.3	11.5	13.2	15.7	21.3	22.6
Percentage in school ages 6-11.....	11.2	10.2	8.8	8.1	7.7	7.7	7.5	7.0	6.5	6.6
Percentage in school ages 12-14.....	4.8	5.6	4.7	4.3	3.9	3.8	3.8	3.7	3.3	3.3
Percentage in school ages 15-17.....	4.7	4.9	5.4	4.3	4.0	3.7	3.7	3.8	3.4	3.3
Percentage in school ages 18-23.....	11.3	9.1	9.6	10.0	8.4	7.7	7.3	7.4	7.1	6.6
Percentage of women aged 15-49.....	56.5	56.5	56.2	55.2	52.4	48.2	45.2	44.2	41.2	39.8
Median age (years).....	27.6	30.0	32.4	34.5	35.9	37.3	38.9	40.8	43.0	43.7
Population density (per sq km).....	127	133	138	143	148	152	154	156	157	154
	1985-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050	
Population change per year (thousands).....	11 408	9 776	9 286	8 960	7 349	5 190	3 106	843	-2 664	
Births per year (thousands).....	20 245	19 004	19 107	19 519	18 768	17 593	16 846	16 738	16 105	
Deaths per year (thousands).....	8 677	9 068	9 650	10 379	11 247	12 239	13 580	15 727	18 591	
Net migration per year (thousands).....	-160	-160	-160	-180	-172	-164	-160	-168	-179	
Population growth rate (percentage).....	0.91	0.75	0.69	0.64	0.51	0.35	0.21	0.06	-0.18	
Crude birth rate (per 1,000 population).....	16.2	14.6	14.2	14.0	13.1	12.0	11.3	11.1	10.8	
Crude death rate (per 1,000 population).....	6.9	7.0	7.2	7.4	7.8	8.3	9.1	10.5	12.4	
Net migration rate (per 1,000 population).....	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
Total fertility rate (per woman).....	1.80	1.84	1.89	1.90	1.90	1.90	1.90	1.90	1.90	
Gross reproduction rate (per woman).....	0.86	0.88	0.90	0.91	0.91	0.91	0.91	0.91	0.91	
Net reproduction rate (per woman).....	0.80	0.83	0.86	0.88	0.88	0.89	0.89	0.89	0.90	
Infant mortality rate (per 1,000 births).....	41	36	32	28	25	22	19	16	14	
Mortality under age 5 (per 1,000 births).....	48	42	37	32	28	24	22	18	15	
Life expectancy at birth (years)										
Males.....	67.9	69.1	70.3	71.3	72.3	73.3	74.1	75.3	76.4	
Females.....	72.0	73.5	74.7	75.9	76.9	77.9	78.7	79.9	81.0	
Both sexes combined.....	69.8	71.2	72.4	73.5	74.5	75.5	76.3	77.6	78.7	

Population Division, Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 1998 Revision*.

INDIA

A. ESTIMATES

Indicator	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995
Population (thousands)										
Total.....	357 561	395 096	442 344	495 157	554 911	620 701	688 856	767 842	850 785	927 106.9
Males.....	183 306	203 241	228 225	255 886	287 006	321 451	356 665	397 264	439 806	
Females.....	174 255	191 855	214 119	239 270	267 905	299 250	332 191	370 578	410 979	
Sex ratio (per 100 females).....	105.2	105.9	106.6	106.9	107.1	107.4	107.4	107.2	107.0	
Age distribution:										
Percentage aged 0-4.....	15.4	15.8	16.2	15.9	15.6	15.1	14.0	14.1	13.4	12.5
Percentage aged 5-14.....	23.5	23.2	23.6	24.5	24.8	24.7	24.5	23.4	23.0	22.9
Percentage aged 15-24.....	19.4	19.0	18.2	17.7	18.1	18.8	19.4	19.5	19.3	18.7
Percentage aged 60 or over.....	5.6	5.6	5.7	5.8	6.0	6.2	6.5	6.6	6.9	7.2
Percentage aged 65 or over.....	3.3	3.4	3.4	3.5	3.7	3.8	4.1	4.2	4.3	4.6
Percentage of women aged 15-49.....	48.2	48.6	48.2	47.5	47.1	47.4	48.1	48.7	49.4	49.9
Median age (years).....	20.4	20.6	20.4	20.1	19.9	20.0	20.6	21.2	21.9	22.7
Population density (per sq km).....	109	120	135	151	169	189	210	234	259	284
	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980	1980-1985	1985-1990	1990-1995	
Population change per year (thousands).....	7 507	9 450	10 562	11 951	13 158	13 631	15 797	16 589	16 576	
Births per year (thousands).....	16 589	18 235	19 669	21 122	22 448	22 727	24 598	25 418	25 612	
Deaths per year (thousands).....	9 397	9 099	9 108	9 172	9 287	9 101	9 319	9 146	8 867	
Population growth rate (percentage).....	2.00	2.26	2.26	2.28	2.24	2.08	2.17	2.05	1.86	
Crude birth rate (per 1,000 population).....	44.1	43.6	42.0	40.2	38.2	34.7	33.8	31.4	28.7	
Crude death rate (per 1,000 population).....	25.0	21.7	19.4	17.5	15.8	13.9	12.8	11.3	9.9	
Total fertility rate (per woman).....	5.97	5.92	5.81	5.69	5.43	4.83	4.47	4.07	3.56	
Gross reproduction rate (per woman).....	2.91	2.89	2.83	2.78	2.65	2.35	2.18	1.99	1.74	
Net reproduction rate (per woman).....	1.63	1.75	1.82	1.87	1.85	1.73	1.67	1.59	1.44	
Infant mortality rate (per 1,000 births).....	190	173	157	145	132	129	106	93	78	
Life expectancy at birth (years)										
Males.....	39.4	43.5	46.2	48.7	51.2	53.3	55.1	57.7	60.3	
Females.....	38.0	41.7	44.7	47.3	49.3	52.4	54.8	57.8	60.5	
Both sexes combined.....	38.7	42.6	45.5	48.0	50.3	52.9	54.9	57.6	60.3	

B. MEDIUM-VARIANT PROJECTIONS

	1995	2000	2005	2010	2015	2020	2025	2030	2040	2050
Population (thousands)										
Total.....	933 665	1 013 662	1 087 459	1 152 164	1 211 665	1 272 166	1 330 449	1 382 722	1 467 111	1 577 101.8
Males.....	482 333	523 195	560 485	592 793	622 187	651 711	679 905	704 858	743 981	
Females.....	451 333	490 466	526 974	559 371	589 478	620 456	650 544	677 864	723 130	
Sex ratio (per 100 females).....	106.9	106.7	106.4	106.0	105.5	105.0	104.5	104.0	102.9	
Age distribution:										
Percentage aged 0-4.....	12.5	11.3	10.2	9.0	8.3	8.2	7.8	7.4	6.8	6.6
Percentage aged 5-14.....	22.9	22.0	20.7	19.1	17.4	15.8	15.2	14.9	13.7	13.0
Percentage aged 15-24.....	18.7	18.8	19.3	19.1	18.3	17.1	15.7	14.4	14.0	13.1
Percentage aged 60 or over.....	7.2	7.6	8.1	8.8	9.8	11.1	12.6	14.2	17.4	21.2
Percentage aged 65 or over.....	4.6	5.0	5.4	5.8	6.4	7.3	8.4	9.7	12.3	15.1
Percentage in school ages 6-11.....	14.0	13.4	12.4	11.4	10.3	9.4	9.2	9.0	8.2	7.8
Percentage in school ages 12-14.....	6.5	6.4	6.2	5.8	5.4	4.8	4.4	4.4	4.2	3.9
Percentage in school ages 15-17.....	5.9	6.2	6.0	5.9	5.5	5.0	4.5	4.3	4.2	3.9
Percentage in school ages 18-23.....	11.1	11.0	11.5	11.4	11.0	10.3	9.5	8.6	8.4	7.9
Percentage of women aged 15-49.....	49.9	51.3	52.7	53.8	54.3	54.0	52.9	51.6	48.4	45.1
Median age (years).....	22.7	23.8	24.9	26.6	28.4	30.1	31.9	33.5	36.5	38.2
Population density (per sq km).....	284	308	331	350	369	387	405	421	446	465
	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025	2025-2030	2030-2040	2040-2050	
Population change per year (thousands).....	15 989	14 760	12 941	11 900	12 100	11 656	10 455	8 439	6 174	
Births per year (thousands).....	24 783	23 699	22 010	21 275	21 858	21 811	21 293	20 679	20 671	
Deaths per year (thousands).....	8 645	8 800	8 932	9 239	9 622	10 018	10 703	12 102	14 358	
Net migration per year (thousands).....	-140	-140	-138	-136	-136	-137	-136	-138	-138	
Population growth rate (percentage).....	1.64	1.41	1.16	1.01	0.98	0.90	0.77	0.59	0.41	
Crude birth rate (per 1,000 population).....	25.5	22.6	19.7	18.0	17.6	16.8	15.7	14.5	13.8	
Crude death rate (per 1,000 population).....	8.9	8.4	8.0	7.8	7.7	7.7	7.9	8.5	9.6	
Net migration rate (per 1,000 population).....	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	
Total fertility rate (per woman).....	3.13	2.72	2.31	2.10	2.10	2.10	2.10	2.10	2.10	
Gross reproduction rate (per woman).....	1.53	1.33	1.13	1.02	1.02	1.02	1.02	1.02	1.02	
Net reproduction rate (per woman).....	1.31	1.17	1.01	0.93	0.94	0.96	0.97	0.98	0.98	
Infant mortality rate (per 1,000 births).....	72	65	57	50	45	40	37	32	27	
Mortality under age 5 (per 1,000 births).....	89	78	67	59	55	48	43	37	31	
Life expectancy at birth (years)										
Males.....	62.3	63.5	64.9	66.2	67.3	68.8	70.0	71.4	72.7	
Females.....	62.9	64.9	66.9	68.6	70.3	72.1	73.4	75.0	76.6	
Both sexes combined.....	62.6	64.2	65.8	67.3	68.8	70.4	71.6	73.1	74.6	

Population Division, Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 1998 Revision*.

FOOD FOR EVERYONE

A Teaching Resource on World Hunger and Agriculture

UNIT 4:

Hunger Is Related To Poverty

Hungry people nearly always lack the opportunity for a steady job at decent pay or access to resources for self-employment.

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FOOD FOR EVERYONE

A Teaching Resource
on World Hunger
and Agriculture

Lesson Plan

Unit 4. Hunger Is Related To Poverty

Introduction

Purpose

To help students understand that hunger is nearly always linked to poverty and that, for most, escaping from hunger means escaping from poverty

Key Concepts

Poverty; per capita Gross National Product (GNP); income distribution; measuring poverty and income distribution; economic opportunity; secure livelihood; safety net

Learning Objectives

Students should:

1. improve their ability to examine and interpret data as it relates to poverty and income distribution;
2. explore their feelings about relative income inequality around the world and within the United States; and
3. be able to name some approaches to improving incomes

Getting Ready

Subjects

1. The scale of poverty around the world
2. Some of the ways in which poverty and income distribution are measured
3. Patterns of income distribution:
 - In the world
 - Within nations, including the United States
 - Within communities
 - Within families
4. Increasing income disparity in the United States
5. The link between economic opportunity and escape from poverty
6. Approaches to breaking the cycle of poverty:
 - Basic human services – education and health services
 - Creating economic opportunity
 - The role of safety nets

were twenty-five high-income economies with per capita GNP from \$9,700 (South Korea) to \$41,210 (Luxembourg). In between were sixty-seven middle-income economies with per capita GNP between \$770 (Lesotho) and \$8,210 (Greece).

Obviously, if a country's GNP is less than \$400 or so, a majority of its citizens are going to live in poverty. But even in countries with two or twenty or fifty times that much, it is necessary to look at the distribution of income. Poverty and hunger are experienced at the family and individual level, not by some mythical average family.

One tool for measuring the distribution of income is to compare the income of the richest 20 percent with that of the poorest 20 percent. Globally, the wealthiest one-fifth of the world's people receives about 85% of the world's income. The remaining 80 percent of people share 15 percent. The poorest one-fifth try to exist on about 1.4 percent. The ratio between the average incomes of the top fifth and the bottom fifth is 60 to 1.

In the United States, the ratio between the top fifth and the bottom fifth is more than 11 to 1 (1994), and has risen most years since 1980, leaving 35 million U.S. residents in poverty. The ratio for other industrial nations ranges from 4 to 1 in Japan to 10 to 1 in Australia.

Differences in income make a big difference to poor people in developing nations as well. Thailand's per capita GNP is only slightly larger than Brazil's, but the poorest fifth of people in Thailand have more than twice as much purchasing power. In Indonesia, with less than half Brazil's GNP, poor people have nearly twice as much purchasing power. Even in Bangladesh, with GNP less than one-sixth that of Brazil, poor people have 60 percent as much purchasing power.

Poverty Impact of Income Distribution

Country	1996 GDP/capita (US\$)			Ratio
	Real GDP	Income High 20%	Income Low 20%	
Thailand	6,700	17,654	1,876	9.4
Brazil	6,340	20,351	792	25.7
Indonesia	3,310	7,133	1,390	5.1
Bangladesh	1,010	1,914	475	4.0

Source: World Bank (1998)

The Need for 2 Billion Jobs

The route out of poverty for most people is through new economic opportunities – jobs or business ventures. As the world's population grows from 6 billion now to nearly 8 billion by 2025, the global labor force will grow even faster, from 2.7 billion to over 4 billion workers. In addition, the International Labor Organization (ILO) estimates that a billion workers are now unemployed or underemployed. Over half the new workers have already been born, and unemployment increases each year. The challenge, then, is to create 2 billion new jobs or business

opportunities during the next 25 years, mostly in developing countries, where 97 percent of the increase in population and labor force is taking place.

Obviously, economic growth is necessary for creating jobs and reducing poverty. Poverty rates have not fallen in any country without economic growth. But growth alone is not enough. The distribution of the jobs and income is also critical.

The experience of several Asian countries shows that it is possible to have both economic growth and decreasing inequality. In South Korea, for example, where per capita income has grown rapidly, the most affluent fifth of the population has about six times as much income as the poorest fifth. The ratio has narrowed slightly over the past two decades. Poor people have shared in Korea's rapid growth.

In sharp contrast, Brazil's per capita GNP was twice Korea's in 1970. Since then, its economy has grown about half as fast; by 1990 Korea's per capita GNP was twice Brazil's. But the income ratio between Brazil's poorest and richest fifth is twenty-five-fold. Poor Brazilians have scarcely benefited from growth, and remain mired in deep poverty.

The Asian countries reduced, or at least did not increase, economic inequality by providing poor people the incentive and the means to improve their own earning power. Examples are land reform and support for small farmers in Korea and Taiwan; high school education, especially for women, in Singapore; and manufacturing for export that raised the demand for unskilled factory workers, plus a massive affirmative action program for the poorer ethnic groups, in Malaysia.

Recent research shows that relative equality in distribution of national incomes increases the likelihood that economic growth can be sustained. Widespread participation in political as well as economic activity reduces the likelihood of enacting bad policies and permits their earlier correction.

Finally, rising incomes for poor people, in the United States or elsewhere, is good news for U.S. agriculture. Poor people spend much of any added income for food.

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Issue Brief

4. Hunger Is Related To Poverty

Poverty is a mother's milk drying up for lack of food, or kids too hungry to pay attention in school.

Poverty is to live crowded under a piece of plastic in Calcutta, or huddled in a cardboard house during a rainstorm in Sao Paulo, or homeless in Washington, DC

Poverty is watching your child die for lack of a vaccination that would cost a few pennies, or never having seen a doctor.

Poverty is a job application you can't read, or a poor teacher in a run-down school, or no school at all.

Poverty is selling cigarettes one at a time on a street in Manila, or being locked for long hours inside a garment factory near Dhaka or in Los Angeles, or working long hours, but only in some seasons, in someone else's field.

Poverty is to feel powerless – without dignity or hope.

Hungry People Are Poor

Hungry people are nearly always poor. If they had money, they could buy food.

A few poor people who have access to land may not always be hungry, but they are likely to have difficulty in buying the seeds or fertilizer need to make the land productive. Farmers nearly always buy part of their food, and poor farmers find it hard to sell enough of what they raise to exchange for the food or other basic things they need. They are at risk of hunger. They are food insecure.

In only 4 or 5 years during the last 50 has there been anything near a global shortage of food. In other years, production has dropped in some nations or regions, but there has been food to buy in international markets at reasonable prices. Indeed, in most of those years farmers in the United States have been paid to keep farmland out of production.

Today there is a near-consensus that prolonged global food shortages are unlikely in the next couple of decades. Longer-term, serious environmental problems loom, however, such as global warming, soil erosion, water shortages and water pollution. Global food shortages could become more frequent. (See Issue Brief 8.)

For now, however, people are hungry because they are poor. In economists' terms, hunger is a demand problem, rather than one of supply.

Who's Poor, and Where?

About 1.3 billion people live on less than one dollar per person per day (corrected for inflation to 1986 values).

That's one in five of everyone on earth; or one in three of those in developing countries, where the vast majority of very poor people live.

Extreme poverty exists in the same places as the worst hunger. The proportion of desperately poor people is highest in Africa. The largest number live in Asia. A significant number are in Latin America and the Caribbean. Up to 80 percent of the people in Haiti and several Sub-Saharan African countries are poor.

But no place on the globe is immune to poverty. The United States, some European countries, and Australia have large blocs of poor people. With few exceptions, poverty is higher in rural than urban areas, but is gradually shifting toward the latter. Nearly everywhere, women and girls suffer more from poverty than do men and boys. Infants, children, and elderly people are particularly vulnerable.

The Distribution of Income and Poverty

Poverty is not the same in the United States, or Poland, or Zimbabwe. It is important, when discussing poverty, to remember who is measuring, where, and why. The most widely used measure of poverty is the World Bank's estimate of Gross National Product (GNP)—the value of all goods and services produced by a country's citizens in a year, wherever they may be.

The World Bank divides nations into three groups, based on their per capita GNP. Among countries with more than 1 million people, the Bank counted fifty-eight low-income economies with 1995 per capita GNP from \$80 (Mozambique) to \$730 (Armenia). At the other end

Materials

Basic:

1. Copies of Issue Brief 4: *Hunger Is Related To Poverty*
2. Copies of "FFE Basic Indicators," Appendix
3. Copies of "Worksheet on Poverty and Income Distribution," Supplement 4.11.1-2

Optional:

Copies of "Discussion Quiz, Unit 4", Supplement 4.12

[Key to Quiz: Q. 1: Poor people spend a higher proportion of any additional income on food than higher income categories. Q. 2 & 3 ask for subjective opinions and a justification]

Advance Preparations

Several weeks in advance

If you will be using the video, *Nine Voices on 2020*, (see Resources, below), order well in advance.

1-3 days in advance

Copy, distribute, and assign reading(s): Issue Brief 4: *Hunger Is Related To Poverty*. The "Worksheet on Poverty and Income Distribution," (Supplement 4.11.1-2) may be assigned as an out-of-class exercise, or used during the class period. In either case, if it has not already been distributed for an earlier lesson, students will need a copy of "Food For Everyone Basic Indicators," (Appendix).

Supplemental Resources

Print

Dalaker, Joseph and Mary Naifeh, "Poverty in the United States: 1997," *Current Population Reports, Series P60-201* (Washington: U.S. Bureau of the Census, 1998)

Weinberg, Daniel, "A Brief Look at Postwar U.S. Income Inequality," *Current Population Reports: P60-191* (Washington: U.S. Census Bureau, 1996)

Weinberg, Daniel, "Press Briefing on 1997 Income and Poverty Estimates" (Washington: U.S. Census Bureau, September 24, 1998) accessed at <http://www.census.gov/hhes/income/income97/prs98asc/4/17/99>

Video

Nine Voices on 2020: Highlights from an International Conference (video): In June 1995 some 500 researchers, policymakers, donors, and development practitioners from around the world came together at the headquarters of the National Geographic Society in Washington, D.C., to discuss the urgent problems of hunger, poverty, and environmental degradation. This video presents thought-provoking highlights of speeches by nine participants from both the developed and the developing world, giving a broad view of current thinking on these crucial issues. (Ordering Information: 1995/21 min./order code

VV3/\$25.00) International Food Policy Research Institute

To Order: IFPRI, Information Program, 2033 K Street, NW, Washington, DC 20006 USA, Phone: (202)862-5600, Fax: (202)467-4439

On-line

U.S. Census Bureau regularly updates its statistics on income and poverty in the United States. It's major annual estimates for the previous calendar year usually occurs in the early fall.

<<http://www.census.gov/hhes/income/>> and

<http://www.census.gov/hhes/www/poverty.html>

Bread for the World Institute <www.bread.org>

Food for Everyone (National Council on Agricultural Education)
<www.agedhq.org>

Teaching the Lesson

Presentation

Worksheet on Poverty and Income Distribution, Suppl. 4.11.1-2

Food For Everyone: Basic Indicators, Appendix

Worksheet on Poverty and Income Distribution, Suppl. 4.11.1-2

1. The outline for the lesson presentation follows that of the "Worksheet on Poverty and Income Distribution," (Suppl. 4.11.1-2), which you may already have assigned, along with Issue Brief 4. *Hunger As It Relates to Poverty*. If you are using it only as an in-class exercise, you might ask students to work in small groups of 2-4.
2. If you used "FFE Basic Indicators" in previous lessons, students should be able fairly quickly to locate and compare per capita GNPs from the six geographic regions and the industrial countries. To draw attention to the range within each group of nations, you might ask them to find the lowest and highest GNP within each group. Some may be surprised to find that the United States is not the wealthiest country, measured by per capita GNP.
3. Ask students to share their responses to, the questions in worksheet item 2, on distribution of income in the United States.
4. Students probably do not need to understand the technical construction of the Gini index (Question 3 on worksheet). By comparing the Gini indices they find through the exercises, they should understand that a Gini index under 0.30 is achievable, and that indices above about 0.35 probably represent growing inequality. (If a student or teacher is especially curious, or gifted in math, they may wish to explore the construction of a Lorenz curve for income distribution. The Gini index is based on the area on a graph between a Lorenz curve and a hypothetical line representing absolute equality.)
5. By the time students work through exercises 3-6 on the worksheet, they should understand that unequal incomes, especially combined

with low GNP, leaves a high proportion of people in great poverty – even in middle income countries.

6. In a closing discussion, based on worksheet exercises 7 and 8, be sure that two points are covered:
 - Very poor people spend a high proportion of any additional income on food – up to 80% in some cases. Middle income people may upgrade their diets from additional income, but are almost certain to already have enough food. Wealthy people spend relatively little of added income on food or other ag-based products.
 - The most rapid expansion of agriculture export markets during the past generation has come precisely in those countries in which a large share of the population has moved from poverty to middle-class – Japan, Korea, Taiwan, Indonesia, Malaysia, and more recently, Mexico. You may wish to review the change in number of hungry people by region (Supplement 1.17).
7. You may wish to anticipate later units on the importance of creating greater economic opportunity for jobs and businesses, and the role of food assistance programs in offsetting poverty.

*Numbers of Hungry People . . .
Suppl. 1.17*

*Discussion Questions
/Quizzes:*

Discussion questions are incorporated into the worksheet.

A separate discussion quiz is included, based on a rephrasing of exercises 7 and 8 in the worksheet, Supplement 4.12.

Follow Up

Evaluation

What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

Worksheet on Poverty and Income Distribution

Name _____ Date _____

1. In "Food For Everyone: Basic Indicators," find the average per capita Gross National Product (GNP) for each of the six geographic regions and the industrial countries.

- Which group of nations has the highest GNP/capita? _____
- Which group has the lowest GNP/capita _____
- What is the approximate ratio between these two? _____

2. The following table shows the share of aggregate income received by each one-fifth and the top 5 percent of households in the United States for selected years from 1959 to 1994.

Percentage Distribution of Aggregate Income

(Household income for median family in each group, *adjusted for inflation to 1994 dollars*)

Year	Lowest Fifth	Second Fifth	Third Fifth	Fourth Fifth	Highest Fifth	Top 5 percent	Gini Ratio
1994	4.2 (7,762)	10.0 (19,224)	15.7 (32,385)	23.3 (50,395)	46.9 (105,945)	20.1 (183,044)	0.426
1989	4.6 (8,391)	10.6 (20,797)	16.5 (34,570)	23.7 (52,292)	44.6 (102,221)	17.9 (165,153)	0.401
1979	5.2 (8,239)	11.6 (19,955)	17.5 (32,900)	24.1 (48,281)	41.7 (86,647)	15.8 (132,146)	0.365
1969	5.6 (7,361)	12.4 (19,260)	17.7 (31,351)	23.7 (43,911)	40.6 (77,184)	15.6 (118,808)	0.349
1959	4.9	12.3	17.9	23.8	41.1	15.9	0.361

Source: United States Census Bureau <http://www.census.gov/hhes/income/incmeq/>

- Which groups of households' share of aggregate income increased? _____
- Which groups' income share stayed about the same? _____
- Which groups' shares of income declined? _____
- What was the ratio between the income share of the top fifth and the bottom fifth in 1969? ____
In 1994 _____
- How do you feel about this shift in income distribution?

(Continue on next page)

3. The Gini index measures the deviation from perfectly equal distribution of a country's income. A Gini index of 0.00 would represent perfect equality – every household would have exactly the same income. An index of 1.00 would represent perfect inequality – one household would have all the income. It gives a better picture of the standard of living in a country than average GNP per capita, which shows only what part of GNP each person would have if it were equally divided.

- Trace the change in Gini index for the United States in the above table. In what year was it lowest (income was more equally distributed)? _____
- In what year was it highest (least equal income distribution) _____

4. In "Food For Everyone Basic Indicators," find the Gini index for the four nations used in the illustration in Issue Brief 4: *Hunger is Related to Poverty*. Copy them here, and in the margin on your copy of the Issue Brief.

Thailand _____ Brazil _____ Indonesia _____ Bangladesh _____

5. Compare the Gini index for the United States with those for the Scandinavian countries: Denmark, Finland, Sweden and Norway? How would you expect their poverty rates to compare with the United States?

6. Compare the Gini index for the United States with those in Latin America and the Caribbean. Are their incomes generally more or less equally distributed than in the United States?

7. Should more equal incomes be a domestic policy goal for the United States? What would be the likely effect on demand for U.S. agricultural products from such a shift in incomes?

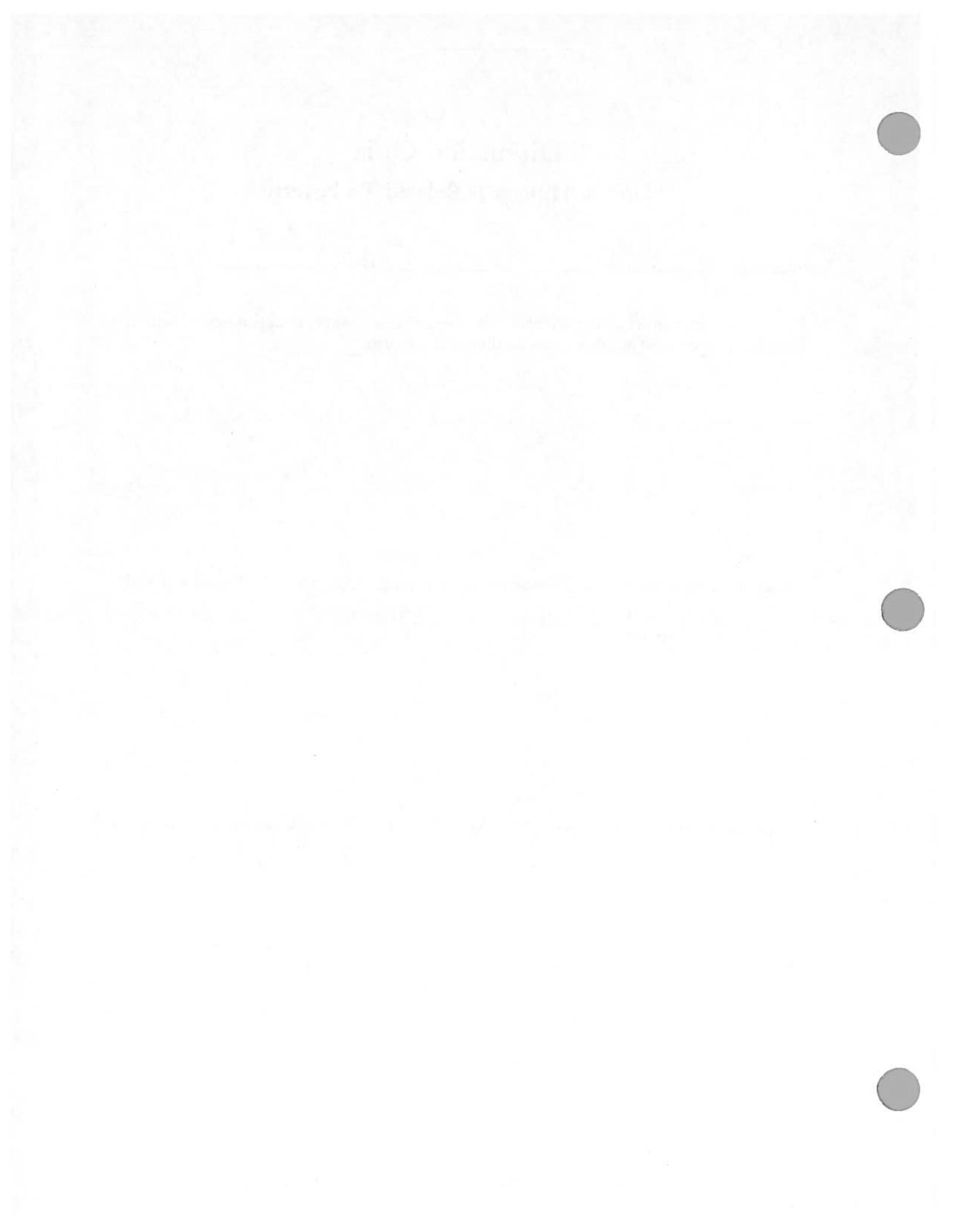
8. Should less disparity in global incomes be a foreign policy goal for the United States? What would be the likely effect on demand for U.S. agricultural products from such shifts in incomes?

Discussion Quiz

Unit 4: Hunger Is Related To Poverty

Name _____ Date _____

1. Compare the proportion of added income that poor, middle-income, or upper-income families are likely to spend on food or other agriculturally-based products.
2. Should more equal incomes be a domestic policy goal for the United States? Why or why not?
3. Should less disparity in global incomes be a foreign policy goal for the United States?. Why or why not?



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UNIT 5:

Is Hunger More Than A Lack Of Money?

Political, social, cultural, and environmental factors often make hunger worse, or better.

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Issue Brief

5. Hunger Is More Than Lack of Money

The day will come when nations will be judged not by their military or economic strength, nor by the splendour of their capital cities and public buildings, but by the well-being of their peoples; by their levels of health, nutrition and education; by their opportunities to earn a fair reward for their labours; by their ability to participate in the decisions that affect their lives; by the respect that is shown for their civil and political liberties; by the provision that is made for those who are vulnerable and disadvantaged; and by the protection that is afforded to the growing minds and bodies of their children.

-- UNICEF, *The Progress of Nations: 1998*

"Equality before the Law" is inscribed on the Great Seal of Nebraska, and on hundreds of U.S. public buildings.

The United Nations and the United States have declared food security a human "right." For rural people this has most often meant having access to land and the other resources needed to grow food. For urban people and an increasing share of rural people it means a chance at a job, so workers can buy food for their families.

The exercise of these rights depends on much more than just the economy. Non-economic factors that affect food security include: history; culture and religious beliefs; prejudice based on race, ethnicity, age, or gender; the strength and fairness of legal and social institutions; civil war; and related to each of these, who writes the rules.

History and Colonial Empires

Most of the developing nations of the world were colonies of industrial nations within the memory of people still alive today. Ancient empires of significance in Western history and thought include those of Egypt, Persia, Greece and Rome. Present China's history dates back to the Han dynasties, beginning about 200 BC.

Global imperialism directly related to the present makeup of the world began when Portuguese sailors successfully sailed around Africa in 1488 and Spain crossed the Atlantic in 1492. These two nations developed and dominated global commerce for most of the next century. Two centuries later, as France and England grew in financial and military strength, they also built empires in Asia and America, and joined the other nations in the slave trade, mostly from Africa.

In a final era of colonization, from about 1850 until World War I, Germany, Italy, Russia, Japan and the United States joined the ranks of colonial powers.

The very concept of empire – that any nation or people should control another – has long been challenged from a moral perspective. Most of the economic benefits from

these empires, if any, went to a small group of traders and governing elites, and seldom to either nation as a whole. The cost to colonies was often very great – continued poverty for most, and depletion of natural resources, for example.

During two world wars, the colonial empires proved difficult and expensive to defend. By the end of World War II, everyone was weary of political and military imperialism. Since 1944, more than 125 "new" nations have declared independence. Many, of course, have political and cultural histories older than those of their former colonialists.

Colonial powers left behind some positive achievements – the civil service in India, for example, or public schools in the Philippines.

But efforts to build new nations and thriving economies have been hampered by several legacies from the colonial era. They inherited great poverty – profitable ventures were dominated by the colonial power or semi-private trading companies. New leaders lacked experience in running businesses or government. A number of colonies were put together from once-rival regions or ethnic groups, and some new leaders have exploited these rivalries. Some have used their offices for personal gain.

In many developing countries, leaders with vision and integrity are helping their people build their self-confidence, even as they strain to create new opportunity within their countries, in part by trying to find their place in global affairs. The history of colonialism supports a strong moral claim that the former colonial powers should be of all possible assistance in this development process.

Civil War

Part of each person's dignity and self-esteem comes from being a proud member of a family, team, tribe, or nation.

Ethnic and religious diversity can enrich human communities, from the local to global levels. But differences may also be a source of tension, subject to manipulation by leaders pursuing personal or ideological agendas. When tensions break into war, the more vulnerable members of society usually suffer hunger and privation. Food itself often becomes a weapon.

In any year during the 1990s at least 20 civil wars were in progress in recently independent countries. The lives of an estimated 100 million people were seriously disrupted. Many had to flee from their homes and communities.

Most current civil wars are part of the process of sorting out who will rule in the young nations. A similar process took nearly a hundred years after independence for the United States, and included our Civil War. Some current civil wars have their roots in the colonial era, when colonial rulers set rival factions against one another as a way to be sure that no one got strong enough to challenge the invader. Others go back to rivalries that pre-date or continued through colonialism.

Many current civil wars are worse because the super-powers bought loyalty of governments or rivals with weapons during the Cold War. Many of the weapons are still there, and being used by governments or rebels against their fellow citizens.

Civil (or international) war always causes hunger. Warring factions loot and destroy crops and livestock herds. They pull workers out of food production and disrupt markets. Transportation systems are taken over for military purposes, or damaged in fighting. Armies always take priority for whatever food is available – often including food intended for relief. Schools, health systems, roads, and ports usually deteriorate for lack of funds, with long-term effects.

So, peacemaking is also hunger prevention. The international community, primarily through the United Nations peacekeeping efforts, has been able to prevent, halt, or at least reduce the intensity of some civil wars through negotiations and other reconciliation efforts. Little by little, confidence in these institutions seems to be increasing.

The World Bank now urges developing country borrowers to reduce their military expenditures in favor of social services such as education and health care. An agreement banning land mines, signed by 130 countries went into effect in early 1999. But other signs of reduced reliance on armies are few. Arms manufacturers still sell their weapons to developing country governments without restraint.

Prejudice and Discrimination

Feelings of superiority/inferiority are not limited to instances of political and military domination. They pervade most of our lives, at many levels – from

international and national levels down through local communities, within families, and in personal relationships.

In almost every nation, some groups of people suffer worse hunger because of discrimination rising from colonial history, ancient rivalries, or long-standing culture and customs. In rich and poor countries, hunger is worse among girls and women; among children and elderly; among racial or ethnic minorities; in rural areas. So an important policy question everywhere is whether it is enough to be sure that equal rights prevail, and equal opportunities are available? Or are special programs or affirmative action required to overcome past injustice?

Participation in Decision-Making

A basic approach to assuring more equal opportunity or protection under laws is to develop or improve mechanisms for everyone to have an effective voice in making decisions.

The processes for participation in decision making are as varied as the needs and habits of particular countries and cultures. Governmental reform is one avenue. Most African nations have created at least the form of a democratic government in the past two decades, after a series of experiments with governments led by popular, but unelected, independence leaders.

Non-governmental organizations play a large role in the movement toward greater participation in decision-making. In Bangladesh, the Grameen Bank has set up tens of thousands of village-level women's councils, as mechanisms for making very small business loans. The councils also serve as a means for women to learn to manage more of their own lives. In Malawi, nearly 3000 farmer-producer cooperatives have developed networks for marketing their produce and buying supplies. These networks out-perform the government's marketing systems, and enable small farmers to compete with larger farmers in national and international markets.

Overcoming historical and cultural prejudices and discrimination are crucial human rights and food security issues. They are also of direct interest to U.S. farmers, insofar as gains in these areas improve global incomes and demand for U.S. agricultural produce.

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Lesson Plan

Unit 5. Hunger is More Than Lack of Money

Introduction

Purpose

To help students understand how warfare, discrimination, and inequitable standing for some groups of people contribute to food insecurity and poverty.

Key Concepts

Effects of war and civil strife; prejudice and discrimination based on race, ethnicity, gender, or cultural and religious heritage; colonialism and lack of experience; weak legal and social infrastructure; powerlessness and political participation; environmental degradation (Unit 8).

Learning Objectives

Students should be able to identify several non-economic causes of poverty and hunger, including most of the following, and discuss several of them in narrative:

1. Effects of war and civil strife
2. Prejudice and discrimination based on race, ethnicity, gender or cultural and religious heritage
3. History of colonialism and consequent inexperience
4. Weak legal and social infrastructure
5. Environmental degradation (Taken up in Unit 8)

Students should explore and be able to articulate some of their feelings about unequal treatment, based on their own experiences or those of people they personally know; then, relate these feelings to several non-economic causes of hunger and poverty.

Getting Ready

Subjects

Non-Economic factors which may contribute to hunger and poverty

1. Effect of war and civil strife:
 - Dislocation of families and refugees
 - Interruption of farming and market cycles
 - Destruction and disruption of transportation and other infrastructure
 - Loss of livestock, equipment, seeds and tree crops
 - Mines and damage to farmland
2. Effects of prejudice and discrimination based on race, ethnicity, gender, or cultural or religious beliefs:
 - Reduced access to quality education
 - Jobs or work-related discrimination
 - Reduced quality or higher cost for public services
3. Lingering effects on developing countries from the colonial area
 - Inexperience in governance and business
 - Weak systems of physical infrastructure – transportation, communication
 - Legal and economic institutions too weak to compete in a global environment
 - Often, depleted natural resources
 - Poverty; limited resources for development and human services
 - Doubts about self-worth and self-confidence
4. Exclusion from decision-making
 - Dominance of political systems and media by politically and economically powerful elites, or the military
 - Weak systems for widespread participation
 - Lack of democratic traditions
 - Discrimination, based on factors listed above

Materials

Basic:

1. Copies of Issue Brief: 5: *Hunger is More Than Lack of Money*

Optional:

2. Copies of activity sheets for whichever activity exercises are planned (See fuller description in Activities/Extensions, below, or full exercise sheets, as noted):
 - “An Exercise In Feeling ‘Pre-judged’;” (Supplement 5.11)
 - “An Exploration of U.S. Incomes, Poverty, and Employment, by Race,” (Supplement 5.12)
 - “Civil Wars, Ethnic Cleansing, and Hunger,” (Supplement 5.13)

Advance Preparations

Several weeks in advance

If you will use the video, *Africa Recovery*, (see Resources, below) order well in advance.

One week in advance

Decide whether you will cover all three major topics in the Unit, and whether you will devote more than one class session to the Unit. Covering all three will acquaint the students with the range and importance of each. If done in a single session, it will require a rather fast pace. Two sessions will permit exploration in greater depth.

If you plan to use the second and third exercises (above), copy and distribute worksheet(s): "An Exploration of U.S. Incomes, Poverty, and Employment, by Race," (Suppl. 5.12), and/or "Civil Wars, Ethnic Cleansing, and Hunger," (Suppl. 5.13).

1-3 days in advance

Copy, distribute and assign Issue Brief 5: *Hunger Is More Than Lack of Money*, and if they have not already been distributed, copies of the Country Profiles (Appendix).

Copy for in-class use "An Exercise In Feeling 'Pre-judged';" (Suppl, 5.11)

Supplemental Resources

Print

Bread for the World Institute, *Causes of Hunger: Hunger 1995* (Silver Spring, MD: BFW Institute, 1994) (Chapters 1,2,5,6,7)

Audio-visual

Africa Recovery (video): This video examines the struggle for progress and equality among peoples who have long suffered the indignities of poverty and oppression. The cycle of drought, famine and political instability make this struggle more urgent than ever. Students learn how deep-rooted and complex the many problems of Africa are, and how the vast resources of the continent are being brought to bear on them through local action and international cooperation. (Ordering Information: E.91.I.33/92-1-100476-4/\$14.95) The United Nations

To Order: Call 800-253-9646

On-line

Bread for the World Institute <www.bread.org>

Food for Everyone (National Council on Agricultural Education)
<www.agedhq.org>

Teaching the Lesson

Presentation

An Exercise/ Feeling "Pre-judged," (Suppl. 5.11)

An Exploration of U.S. Incomes, Poverty and Employment (Suppl. 5.12)

Issue Brief 5: Hunger Is More Than Lack of Money

Country Profiles (Appendix)

1. The sequence of the four topics may vary, depending on the inclinations of the teacher and which exercises are being used. The sequence suggested here is to begin with the topic of "prejudice and discrimination", which everyone will have experienced or observed. This might be followed by the topic of "colonialism," "civil war," and "participation in decision-making", as a partial response to all three preceding topics. In depth exploration of more than two topics would require more than one classroom period.
2. Ask students to divide themselves into groups of 2-4. Distribute to each student a copy of "An Exercise In Feeling 'Pre-judged,'" (Supplement 5.11). Ask them to spend 5 minutes reflecting and making notes about their own experience and feeling. Each student should then share one experience and how she or he felt, or still feel, with his or her small group. At the end of 15 minutes, ask each group to select one person to share an experience with the whole class, hopefully one related to the third question – whether or how their experience may have helped shape their own opportunity for growth, or learning, or family well-being.
3. If some students have been assigned the exercise, "An Exploration of U.S. Incomes, Poverty, and Employment, by Race," (Supplement 5.12), have them report briefly. Does the class link the differences in employment, income, and poverty to the "pre-judgment" discussed in the first exercise?
4. Begin a discussion based on Issue Brief 5: *Hunger Is More Than Lack of Money*, and the Country Profiles. Draw out the differences in the history of the four nations. Help the students gain a sense of being a young nation, trying to catch up with the rest of the world in almost every respect. – to develop a government, a legal system and an economy that work; to build education and health care and transportation systems; to develop tax systems when there is little wealth or income to tax; to try to create employment in a competitive global economy; to gain experience in running their own affairs without making too many mistakes.
5. Do students feel that nation-building is made even more difficult by some of the negative legacies of colonialism: feelings of resentment at having been dominated for many years, even centuries; lingering feelings of self-doubt and lack of self-confidence; and ethnic or tribal differences, some of which may predate the colonial era, but which may have been used by colonial powers to help maintain control.
6. Can your students relate their own experiences of having been "pre-judged?" to the feelings of people in nations with a fairly recent history of having been colonized? With the position of indigenous groups throughout Latin America, or minority or subjected ethnic groups in Africa, or Asia?
7. A discussion of the effects of civil strife probably need not be long. You may have a report from (a) group(s) on their advance assignment,

*Civil Wars, Ethnic
Cleansing, and Hunger
(Suppl. 5.13)*

*Discussion Questions
/Quizzes:*

Activities/Extensions

or proceed from the discussion in IB-5: *Hunger is More Than Lack of Money*. Students can probably imagine fairly easily the disruption of farming, transportation, and markets due to fighting. They may need to be reminded of the longer-term tasks of replacing livestock and machinery destroyed or looted. Attacks may be deliberately timed to prevent timely planting, or to destroy crops nearing harvest – blatant uses of “food as a weapon” of war. Armies nearly always take priority in use of whatever food is available.

8. Most recent civil wars have been based, or played heavily, on ethnic differences. Can students relate their own experiences of prejudice with such ethnic-based fighting, or “ethnic cleansing?” If you assigned the civil war/ethnic cleansing exercise (Suppl. 5.13) to some or all of the students, begin with their report(s).
9. Conclude with a brief discussion of the importance of people being able to take part in the decisions that affect their lives. Such participation may not always take the same form as U.S. democracy. But people must “own” public policy decisions if they are expected to help carry them out. Broad participation in decision-making may help prevent poor decisions, and help with early correction of inevitable mistakes. It may seem important to point out that the present U.S. system does not work perfectly. Many feel left out, or discouraged that large campaign contributors seem to have undue influence with policy-makers.

No separate discussion questions or quizzes are offered for this Unit.
Exercises might be turned in for credit, whether or not graded.

Three activities for small groups of students are offered. The first is an in-class exercise, with no advance preparation required. The other two require out-of-class reading or research, to be reported in class, or in writing. Each might be assigned to part of the class.

“An Exercise In Feeling ‘Pre-judged’;” small group sharing of feelings about being treated unfairly because someone was seen and treated not as an individual but as a member of a group about which others were prejudiced. (Supplement 5.11)

“An Exploration of U.S. Incomes, Poverty, and Employment, by Race,” research into on-line statistics maintained by the U.S. government. (Supplement 5.12)

“Civil Wars, Ethnic Cleansing, and Hunger,” a review of a current civil war selected by the teacher or students, to be based on current or recent periodicals and newscasts, recent publications such as encyclopedia yearbooks, and online contacts with international relief agencies. (Supplement 5.13)

Follow Up

Evaluation

What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

An Exercise in Feeling “Pre-judged”

The Exercise

1. Work in small groups of 2-4 people.
2. Spend the first five minutes in quiet, recalling an experience you or someone you know well has had in being “prejudged.” – in which the judgment was based not on individual ability or merit, but on someone else’s expectations about you (or your friend) because of your being a member of some group or class. Such groupings as the basis for “pre-judging” might be based on age, gender, race, ethnicity, religion, political affiliation, income or poverty, behavior, or other characteristic.
3. The questions below may help you think about the experience. Make notes if that is helpful – your notes need not be shared or handed in.
4. After a few minutes, share your experience and your feelings about it with the small group, and listen carefully to others’ sharing.
5. Near the end of the small group time (about 15 minutes), select one from your group who is willing to share his or her experience with the class.

Suggestions for thinking about an experience of being “prejudged”

1. Recall an experience in which you, or someone you know well, was unfairly judged because of your/their membership in some group, rather than because of your/their individual ability or merit.
2. How did you feel about the experience at the time? Do you still feel the same way about the experience?
3. Did, or how did, this experience affect your ability or opportunity to perform, or learn, or relate to those around you? Were you motivated to do better? Did you hold back? Were you not given a fair chance to show your ability? Or--??

A Review of the History of the United States

The history of the United States is a complex and multifaceted story. It begins with the early Native American civilizations, such as the Mayans, Aztecs, and Incas, who built great empires in the Americas. The arrival of European explorers in the late 15th and early 16th centuries marked the beginning of a new era. The Spanish, French, and British established colonies and fought wars of conquest. The American Revolution (1775-1783) led to the birth of the United States as an independent nation. The 19th century was a period of westward expansion, industrialization, and the Civil War (1861-1865), which resolved the issue of slavery. The 20th century saw the rise of the United States as a global superpower, the Great Depression, and the Second World War (1939-1945). The Cold War (1947-1991) followed, characterized by the rivalry between the United States and the Soviet Union. The end of the Cold War led to a period of relative peace and economic growth, but also the 9/11 attacks and the War on Terror (2001-2011).

The United States has a rich and diverse cultural heritage. It is a melting pot of different ethnicities, religions, and languages. The American dream, the idea that anyone can achieve success through hard work and determination, is a central theme in the country's history. The United States has also been a leader in many areas of science, technology, and culture. It has produced many world-famous artists, writers, and scientists. The United States is a country of great opportunity and freedom, but it also faces many challenges. It is a country that is constantly evolving and changing. The history of the United States is a story of resilience, innovation, and the pursuit of a better life for all.

The United States is a country of great opportunity and freedom, but it also faces many challenges. It is a country that is constantly evolving and changing. The history of the United States is a story of resilience, innovation, and the pursuit of a better life for all. The United States is a country of great opportunity and freedom, but it also faces many challenges. It is a country that is constantly evolving and changing. The history of the United States is a story of resilience, innovation, and the pursuit of a better life for all.

An Exploration of Income, Poverty, and Unemployment in the United States, by Race

Name _____ Date _____

1. Download the current "Table A. Comparison of Summary Measures of Income by Selected Characteristics: [for recent years]," from the U.S. Census Bureau website:
[http://www.census.gov/hhes/income/income\[latestyear\]/](http://www.census.gov/hhes/income/income[latestyear]/).
2. Download the current table, "People and Families in Poverty by Selected Characteristics: [recent years]" from the U.S. Census Bureau website:
[http://www.census.gov/hhes/poverty/poverty\[latestyear\]/](http://www.census.gov/hhes/poverty/poverty[latestyear]/)
3. Download current unemployment data from the Bureau of Labor Statistics (bls) website (from the menu at "Labor Force Statistics from the Current Population Survey," select "Unemployment Rate – Civilian Labor Force," "Unemployment Rate – Civilian Labor Force White," "Unemployment Rate – Civilian Labor Force Black," and "Unemployment Rate – Labor Force Civilian, " or other series of interest): <http://146.142.4.24/egi-bin/surveymost>
4. Summarize below your findings about income, poverty, and unemployment among racial groups in the United States. If requested by your teacher, prepare a brief oral report for your class.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY

REPORT OF THE
COMMISSION ON THE
STRUCTURE OF THE
ATOMIC NUCLEUS

BY
R. F. B. AND
J. J. J.

CHICAGO, ILLINOIS
1955

Civil Wars, Ethnic Cleansing, and Hunger

Work in small groups of 2-4 people.

Select a current or recent instance of civil strife in which ethnicity, race, or religion – or some combination of these – appears to be a major cause of the strife. (In spring, 1999, an obvious example would be the struggle over Kosovo between ethnic Albanians, mostly Muslim and Serbians, mostly Christian. Other instances might include the Kurds in Turkey, or Tutsi and Hutu in Central Africa.)

As assigned by your teacher, prepare a written or oral report, covering the following points, plus others you may discover:

- Who are the parties to the conflict (may be more than two)?
- Is the conflict recent, or does it arise from long-standing differences?
- What is the impact of the conflict on ordinary citizens – particularly on the more vulnerable members of society: children, women, and elderly? Note especially instances of hunger, and whether denying access to food is being used as a “weapon” in the conflict.
- What is the effect on farming in the conflict area, and on business more generally?
- What efforts are being made by outside parties to resolve the conflict?
- What efforts are being made to relieve human suffering? By whom?

Resources to search may include:

- Files of current or recent newspapers or news magazines in your school library.
- Recent issues of many national newspapers are available online; for example:
- www.washingtonpost.com; www.nytimes.com; www.latimes.com; www.csmonitor.com; www.usatoday.com
- If your school has a subscription to any of these national papers, they may also have online access to archived issues, as well.
- In a major conflict, many international relief agencies almost certainly have a related program, and a website. The broadest point of entry for most of these is through www.ineteraction.org/members; which has a link to most of its 159 member agencies. Most of the larger agencies are also members of International Service Agencies. Their website www.charity.org/isa_charity.html has a one-page description of each member, plus a link to their website.

THE HISTORY OF THE UNITED STATES

The history of the United States is a story of growth and change. From the first settlers to the present day, the nation has evolved through various stages of development. The early years were marked by exploration and the establishment of colonies. The American Revolution led to the birth of a new nation, and the subsequent years saw the expansion of territory and the growth of industry.

The American Civil War was a pivotal moment in the nation's history, leading to the abolition of slavery and the strengthening of the federal government. The Reconstruction era followed, a period of significant social and political change. The late 19th and early 20th centuries saw the rise of industrialization and the emergence of a new middle class.

The 20th century was a time of great progress and challenge. The United States emerged as a world superpower, leading the world in the development of nuclear energy and space exploration. The civil rights movement of the 1950s and 1960s was a landmark in the struggle for equality. The Vietnam War and the Watergate scandal were major events that shaped the nation's identity.

The 21st century has brought new challenges and opportunities. The September 11 attacks and the War on Terror have defined the early part of the century. The global financial crisis of 2008 and the COVID-19 pandemic have tested the nation's resilience. The ongoing struggle for social justice and equality remains a central theme in American history.

The United States has a rich and diverse heritage. The contributions of immigrants from all over the world have shaped the nation's culture and identity. The American dream of opportunity and success continues to inspire people from all backgrounds. The history of the United States is a testament to the power of human ingenuity and the pursuit of a better life.

The future of the United States is bright and full of potential. As the nation continues to grow and evolve, it will face new challenges and opportunities. The American people have the strength and resolve to meet these challenges and build a better future for all. The history of the United States is a story of hope and possibility, and it is a story that will continue to inspire generations to come.

The United States is a land of freedom and opportunity. The American dream is a dream that has inspired millions of people around the world. The history of the United States is a story of courage and sacrifice, and it is a story that will continue to inspire people for generations to come. The United States is a land of hope and possibility, and it is a land that will continue to grow and prosper.

FOOD FOR EVERYONE

A Teaching Resource on World Hunger and Agriculture

Issue Brief

6. Making Markets Work for Everyone

The economic history of the 20th century will be written in large measure as the story of competition between centrally planned economies and capitalism.

Our present system of markets originated in food fairs in feudal Europe, where peasants gathered to exchange whatever produce they had left after the feudal landlord had taken most of their crop as rent. These markets broadened as independent craftsmen came to sell their products. They grew rapidly with the introduction of mass-produced goods from the industrial revolution, beginning about 1750.

Industrial manufacturing processes resulted in great gains in productivity and lower price for many mass-produced goods. But the system also had many flaws. Workers, including children, often worked long hours in unsafe and miserable conditions for low pay, while factory owners and merchants grew wealthy. Some firms were able to develop monopolies on products such as oil (kerosene) or services such as railroads.

Nations responded to these flaws in radically different ways. The communist economic approach was based on government ownership of land and factories plus government plans that dictated what would be produced and what prices would be. The other, often called state capitalism, continued to rely primarily on markets, but set limits on how companies could operate, and added numerous programs of direct social services.

Centrally Planned Socialist Governments

Between 1910 and 1970, nations with more than one-third the world's people adopted or were forced into undemocratic, communist centrally-planned economies – Russia, China, Eastern Europe, Central Asia, Vietnam, Cuba, and many of the newly independent nations of Sub-Saharan Africa.

In all these nations, the government owned and ran heavy industry. They owned the farmland. Farming was done mostly on huge factory-like collective farms or closely regulated cooperatives. Government corporations controlled the marketing and international trade of agricultural produce.

Communist governments, at least in the beginning, often improved conditions for the poorest people. Prices for basic foods were set low; available supplies were more evenly distributed, although not always plentiful. Basic health care was more widely available, free or at very low cost. School enrollment soared; nearly all communist nations adopted a goal of universal literacy.

Much of the improved well being from these social service programs has persisted. The United Nations Development Program uses its Human Development Index (HDI) to measure each nation's well being, based on life expectancy, education, and income. Most of the former centrally planned economies rank higher on the HDI index than other nations with similar incomes.

But productivity dropped under central planning. Farms and factories failed to meet their quotas. Manufactured goods were shoddy. Food spoiled in the fields for lack of storage or transportation. These nations could not maintain even the basic level of social services they had undertaken, let alone bring prosperity to their people.

China returned farming decisions to small family clusters beginning in 1979, and let local markets flourish, once modest rents were paid to the state. Food production soared, and became the base for remarkable economic growth since then. Vietnam turned toward markets in 1986. African nations abandoned their centrally-planned approaches at various times beginning in the late 1970s. Six eastern European countries escaped from Soviet control in 1989 and the Central Asian Republics by 1991. All these nations have changed to market-based economies, or keep adding market-oriented reforms.

Twentieth Century State Capitalism

Meanwhile, largely in reaction to the extremes of 19th century capitalism, two rounds of reforms took place in the United States and the other industrial nations of western Europe. In 1887, largely due to pressure from farm groups who blamed the railroads and grain companies for their low income, the United States began to regulate railroads and, later, other transportation. The United States forced the breakup of firms, such as Standard Oil, which had developed a monopoly in petroleum production and marketing.

Secondly, the global depression of the 1930s triggered more active intervention by governments in markets. Many programs of direct assistance began in this era -- Social Security for elderly and disabled people, aid to poor families with children, unemployment insurance, and farm price support programs. Total expenditures by government -- federal, state, and local -- grew from about 10 percent of GNP in 1929 to about one-third by 1970.

In addition to the role of direct assistance to needy people, the governments of industrial countries took more direct control over the level and direction of economic activity, and tried to level out the economic booms and busts which characterized 19th century capitalism. The Federal Reserve System more actively controlled interest rates and the amount of money in circulation. Public works programs, tax breaks, and direct subsidies were used to stimulate overall economic growth, or growth in certain sectors.

Still other steps were taken to protect consumers, farmers and workers. Food safety and inspection laws were enacted. Cooperative businesses were encouraged. The National Labor Relations Act of 1935 strengthened the rights of labor to organize and bargain collectively.

What Markets Can -- And Can't -- Do

Regulation and direct intervention in markets helped bring the productivity of market-based systems to more and more people. Through the 1950s and 1960s, the incomes of middle and lower-middle class people in industrial countries climbed steadily. The cost of many basics goods dropped steadily. The real cost (after inflation adjustments) of food fell by three-quarters between 1950 and 1995. Taiwan, Korea, and other nations in Southeast Asia adopted market-oriented economies, and have grown to middle-income status, with benefits reaching most of their people. Their success helped persuade many centrally planned economies to adopt similar policies. Market advocates would reduce the level of government regulation and intervention.

But the benefits of present market-oriented economies have not reached everyone. The spread between rich and poor in the United States and around the world has increased dramatically over the past 25 years. Real wages for the majority of U.S. workers dropped steadily from 1970 through 1993, and still have not recovered to their 1970 levels.

To make markets work better for everyone, many analysts stress the need for continued or even greater government regulation and intervention. Current market-based economics often does not count "all the costs" of the gains cited. Many fear that present benefits cannot be maintained for future generations, and compare environmental destruction with stealing from your grandchildren. Some would also count cultural losses such as the decline of rural communities, as farms grow

larger and fewer. Others see risks in mass consumerism driven by profits and very powerful advertising. Democracy itself may be threatened by large political campaign contributions from business or labor or farm groups.

The range of discussion about what markets can or can't do, and what governments should do, is more limited than a century ago, but it continues. No existing system comes close to being a totally planned economy. But neither is there any example of a "free" market system. We all live in *mixed economies*.

Enlarging Opportunities

Mixed economies are often very different from each other. But in each, important policy questions remain that affect hunger, poverty, and food security, such as:

- In striving for food security for everyone, what is the best balance among letting people depend on whatever jobs they can find, helping prepare them for better jobs, public safety nets, and private charities?
- How far should the government go in ensuring safe working conditions and fair compensation? What is the best balance between government mandates -- such as minimum wages, workplace safety, and mandatory health care -- and strengthening workers' rights to organize and bargain collectively?
- Should the government help close the gap between rich and poor people? If so, how -- higher taxes, income subsidies, improved education and vocational training, improved work-related services such as child care or public transportation, or other means?
- Beyond prohibiting dishonesty, how far should the government go in regulating advertising? Does, or how does, your education help you separate fact from fiction or fad in advertising?
- Should, or to what extent should, farm prices or income be protected? In what ways should farming be regulated -- regarding soil and water conservation practices, for example?
- Should poor countries protect their agriculture against imports, even at the cost of higher food prices for consumers?

FOOD FOR EVERYONE

A Teaching Resource on World Hunger
and Agriculture

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UNIT 6:

Making Markets Work For Everyone

Market based economies work better than others to overcome hunger,
but only if they create opportunity for everyone.

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FOOD FOR EVERYONE

A Teaching Resource
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Lesson Plan

Unit 6. Making Markets Work For Everyone

Introduction

Purpose

To help students understand that market-oriented economies have demonstrated greater potential for reducing poverty and hunger than alternative approaches, but require regulation and direct intervention to ensure widespread benefits.

Key Concepts

Market-oriented or market-based economies; free markets; centrally planned economies; mixed economies; market regulation; direct government intervention in markets

Learning Objectives

Students should be able to list and explain some of the strengths and weaknesses of market-oriented economies and discuss regulation and direct interventions intended to overcome or offset some of the weaknesses; more specifically, that:

1. After nearly a century of experiments with centrally planned economies, nearly every nation now has some version of a market-oriented, but mixed economy
2. Many centrally planned economies were initially able to increase the general welfare, but could not sustain these gains due to low overall productivity
3. Greater progress against hunger and poverty has generally occurred in countries that have relied on market-oriented economies, with varying degrees of regulation and direct government interventions to safeguard the interests of the general public and future generations; protecting the right of workers to freely organize and bargain collectively has proved an important policy tool
4. Progress against hunger and poverty has occurred when markets have been supplemented by strong programs for education and training, plus safety nets during period of individual transitions, economic downturns, and for those who cannot find opportunity in the economy
5. Vigorous debate continues over the balance between freer markets and targeted regulations and interventions

Getting Ready

Subjects:

1. A brief review of the development of market economies
2. A review of the rise and fall of centrally planned economic systems during the twentieth century
3. The development of state capitalism and mixed economies
4. Examples of regulating markets
 - Food safety and inspection laws
 - Environmental protection regulations
 - Protecting the right of workers to organize and bargain collectively
 - Truth in advertising
 - Registering and protecting title to property
 - Enforcing contracts
5. Direct government intervention in markets
 - Controlling the amount of money in circulation and interest rates
 - Taxation for public purposes
 - Publicly funded education, and training
 - Safety nets: food assistance programs and health care
6. The continuing debate over the degree of government regulation and direct intervention in market-oriented economies

Materials

Basic:

Copies of Issue Brief: 6: *Making Markets Work for Everyone*; Country Profiles; "Bangladesh," "Brazil," "Tajikistan," and "Tanzania" (Appendix)

Optional:

For a student debate, "Arguments For and Against Increased International Trade," (Supplement 6.11); Student "Identity" cards for debate (Supplement 6.12.1-2)

Advance Preparations:

1-3 days in advance

Copy and distribute Issue Brief 6: *Making Markets Work For Everyone*; and "Arguments For and Against Increased International Trade," (Supplement 6.11). Assign, or let students choose, their "identity" for a debate as part of their preparation. Duplicate "Identity" name badges for use during the debate (Supplement 6.12.1-2).

Supplemental Resources

Print

Reeves, Don "Trade, Poverty Reduction & Economic Opportunity," and Renee Marlin-Bennett, "Agricultural Trade & Food Security," in *Hunger in a Global Economy: Hunger 1998* (Silver Spring MD: Bread

for the World Institute, 1997) pp. 32-53.

National FFA Foundation and National Council for Agricultural Education, *Global Vision: A Look At The World's Agricultural Marketplace* (Mount Vernon: National FFA Foundation, 1997)

Audio-visual

Global Vision: A Look At the World's Agricultural Marketplace, National FFA Foundation (accompanies above study resource)

On-line

IFPRI Website: <<http://www.ifpri.org>> (Select – Research Themes, *Trade and Macroeconomics*)

UNDP website: <<http://www.undp.org/tcdc/coop5.htm>>

Bread for the World Institute <www.bread.org>

Food for Everyone (National Council on Agricultural Education) <www.agedhq.org>

Teaching the Lesson

Presentation:

1. , Set up a debate, as outlined under “Activities,” below.
2. See “Discussion Questions,” below

Discussion Questions / Quizzes:

The questions included under “Enlarging Opportunities,” in Issue Brief 6: *Making Markets Work for Everyone*,” may be used either as a written out-of-class assignment, or as the basis for an in-class discussion.

Activities/Extensions

This topic lends itself well to a debate, which might be framed in either of two ways:

- Resolved that: “Developing Nations Better Serve Their People If They Move Quickly to Freer Trade:” or
- Resolved that: “Developing Nations Must Regulate International Trade To Best Protect the Interests of Their Citizens.”

Preparation: Students should be assigned their role for the debate in advance. Primary resources will include Issue Brief 6: *Making Markets World For Everyone*, “Arguments For and Against Increased International Trade,” (Supplement 6.11), and the Country Profiles included in the Appendix.. Students might also be directed to some of the other resources listed for this lesson at “Supplemental Resources,” above, or to more general references such as their economics texts (if offered in your school), or discussions of “markets” or “economic” history in an encyclopedia

The Debate: Assign, or ask each student to choose whether they will speak for or against the proposition, based on their assigned “identity.” Allow

each student three to five minutes to make his or her arguments. Conclude the debate by asking students to drop their “identity” and summarize their own views on the debate topic.

Follow Up

Evaluation

What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

Arguments For and Against Increased International Trade

Possible Gains to Reinforce

Possible Losses to Guard Against

Increased economic growth from gains in efficiency and "comparative advantage"	Greater inequality and inequity from (continued) dominance by powerful economic players
More choices, better quality, lower prices for consumers	Losses in job security, erosion of job quality, from extreme competitiveness
New jobs in poor countries as they take advantage of their most abundant resource – low cost labor	Erosion of worker rights; playing workers off against each other across national boundaries
Greater interdependence, growing trust, reduced misunderstandings	Dependence on foreign decisions; loss of self-reliance; possible trigger for political instability
Greater food security against localized disasters; higher incomes to buy more food	Loss of food security from growing more crops for export, less crops for domestic food supply
Rise in economic well-being, especially for poor people	Human rights may be traded off for economic gains
Potential for higher environmental standards through negotiated agreements	Environmental losses may be incurred for short term gains
Potential for greater international equity and political democracy"	Loss of power by governments and civil society organizations
Overcome stagnation of isolated economies, especially those dominated by local elites	Erosion of local and community identity and values
Access by poor nations to rich country markets	Commercial domination of cultural values; mass consumerism
Greater income from trade – more resources available to improve the lives of everyone and to help those adversely impacted	Large swings in world prices for many export crops, beyond control of developing country exporters
Getting ready to compete in world markets requires investment in people, leading to improvements at home as well	Market recessions or political decisions in dominant countries likely to affect smaller nations as well

Adapted from: BFW Institute, *Hunger in a Global Economy: Hunger 1998* (Silver Spring, MD: BFW Institute) 1997, p. 36.

Report on the First and Second Sessions of the National Trade

Proceedings of the National Trade

The first session of the National Trade was held on the 1st of January, 1900, at the City of London, and was presided over by the Hon. the Secretary of State for the Colonies, Mr. Chamberlain.

The second session was held on the 1st of February, 1900, at the City of London, and was presided over by the Hon. the Secretary of State for the Colonies, Mr. Chamberlain.

The first session was held in the afternoon, and the second session was held in the morning.

The first session was held in the afternoon, and the second session was held in the morning.

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The first session was held in the afternoon, and the second session was held in the morning.



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POLICY-MAKER**



**BRAZILIAN AGRICULTURAL
EXPORTER**



**EUROPEAN UNION
TRADE OFFICIAL**



TANZANIAN POLICY-MAKER



**U.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT**

I. Africa Projects Director

<p>EXHIBIT A</p> <p>STATE OF TEXAS</p> <p>COUNTY OF DALLAS</p> <p>INVESTMENT</p> <p>PROPERTY</p>	<p>STATE OF TEXAS</p> <p>COUNTY OF DALLAS</p> <p>INVESTMENT</p> <p>PROPERTY</p>
<p>EXHIBIT B</p> <p>STATE OF TEXAS</p> <p>COUNTY OF DALLAS</p> <p>INVESTMENT</p> <p>PROPERTY</p>	<p>STATE OF TEXAS</p> <p>COUNTY OF DALLAS</p> <p>INVESTMENT</p> <p>PROPERTY</p>
<p>EXHIBIT C</p> <p>STATE OF TEXAS</p> <p>COUNTY OF DALLAS</p> <p>INVESTMENT</p> <p>PROPERTY</p>	<p>STATE OF TEXAS</p> <p>COUNTY OF DALLAS</p> <p>INVESTMENT</p> <p>PROPERTY</p>



AMERICAN CONSUMER



**American Family
Farmer**



**WORLD TRADE
ORGANIZATION OFFICIAL**



**HUMAN RIGHTS
ACTIVIST**



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FOOD FOR EVERYONE

A Teaching Resource on World Hunger and Agriculture

Issue Brief

7. Two Ears of Corn

In 1930, 40 of each 100 U.S. workers were employed on farms. Today, it is less than three.

Since 1930, corn yields have quadrupled and wheat and rice yields have tripled.

In 1950, the average U.S. family spent 35% of its income on food; today it is only 10%

Less than 2 million farms grow enough food to feed all U.S. citizens, with 40% of their produce left over for export.

U.S. agriculture is almost unbelievably productive, as measured by output per worker. Such productivity and the low cost of food are the envy of the world.

The unrivaled productivity of U.S. agriculture rests on three factors:

- Rich natural resources: good farmland, temperate climate, and good rainfall over much of the country
- Revolutions in mechanical and genetic technology
- Three overlapping systems of infrastructure: knowledge and education; transport and communication; and legal and business

Rich Natural Resources

The United States is blessed with large areas of nearly level farmland and a higher ratio of arable farmland to population than any countries except Australia and New Zealand. Ample rain falls over much of this land. Additional good land in the Great Plains and West is made productive with extensive irrigation. A temperate climate permits full season crops over much of the nation, with limited semi-tropical and multiple cropping in some southern states. Extensive cattle operations make good use of grazing lands in the arid and semi-arid areas of the Great Plains and Mountain States.

Technological Revolutions

Technological revolutions in mechanics and genetics have led the way to increased output.

The revolution in mechanical technology began in the mid-1800s with the invention of McCormick's mechanical reaper and Deere's self-scouring plowshare. Quantum leaps occurred when internal combustion engines were adapted to farm tractors in the 1920s, when hydraulic systems were added about 1950, and computers

and on-board sensing in the 1980s and 1990s. Power, engine efficiency, and size of machines have increased steadily throughout the century.

A second revolution occurred in plant breeding and genetics. The greatest single breakthrough was in hybridization – the cross breeding of separate inbred varieties that gives an extra burst of productivity in both plants and animals. Hybrid corn and sorghum have benefited most among crops. Crossbreeding programs are almost universal in swine production, and widespread in beef.

Other gains in plant genetics have yielded steady increases in yield, response to fertilizers and irrigation, and resistance to diseases and insects. Gains in livestock breeding have produced turkeys with more breast meat, hogs with bigger hams and loins, and hens that lay more eggs. All livestock grow faster, with less feed.

Genetic engineering – the ability to splice genes from unrelated species into crop and livestock species – seems almost certain to bring another quantum leap in farm productivity. The first of these genetically modified organisms (GMOs) came into production in the 1990s.

One effect of the technology and genetic revolutions has been to shift many tasks from farms to other businesses. Diesel fuel for tractors takes the place of home-raised hay for horses and strong back muscles. Seeds are purchased instead of saved from last year's crop. Purchased chemical fertilizers and pesticides have largely replaced manure, crop rotations and repeated cultivation. So, although the number of farmers has been slashed, many off-farm vocations have been created. Altogether, nearly one-fifth of U.S. jobs directly relate to agriculture, supplying its inputs, and the processing, distribution, and sale of food and other agriculturally derived products.

Strong environmental and social concerns are raised about some aspects of agricultural technology. Some of these are discussed in Issue Brief 8.

Infrastructure of U.S. Agriculture

The adoption of new technologies by U.S. agriculture has been spurred and supported by three infrastructure systems.

Knowledge, education, and research. The U.S. Congress in 1862 established land grant colleges "where the leading object shall be ... to teach branches of learning as are related to agriculture and mechanic arts." These specialized colleges built on nearly universal free public elementary and secondary education. In 1887, agricultural research was added to their mandate. Work done in the basic sciences, particularly plant biology and genetics, was the foundation for the genetic revolution.

An extension system and secondary vocational agricultural training were added in 1914 and 1917. Both programs have worked closely with the land grant schools to help ensure that research results are available to farmers.

In recent years, much basic research and nearly all applied research has been taken over by private companies.

Transportation and communication. United States has a comprehensive and relatively efficient transportation for freight shipment. Water shipment is the cheapest form of transportation for bulky freight, wherever available, but the United States does not depend on rivers and canals nearly to the extent that Europe and China do.

The United States built its extensive rail system between 1830 and 1900. Trucks began to compete for local freight hauling in the 1910s. By now, with super-highways, they compete with railroads for all but long hauls of bulk materials, such as grain, coal, and fertilizer. Many short-haul rail lines have been abandoned.

Airlines compete for light freight, especially when timeliness is crucial.

Telephone service is almost universal, at very low cost. Television and newspapers are a rich source of information for farmers, supplemented by personal computers and access to almost unlimited information.

Legal and business systems. Property titles and business contracts, including loans, are reliably recorded and enforced in the United States. Businesses and credit institutions, including cooperatives, are widespread and usually competitive. By and large, farmers can get what they need, when they need it.

Infrastructure in Developing Countries

Developing countries, in varying degrees, lack the elements that make U.S. agriculture so enormously productive. Many countries have areas of rich farmland, but few so extensive as the United States.

To review the technology and infrastructure which serves U.S. agriculture is almost to recite the disadvantages, and needs, of agriculture in the developing countries.

Significant gains in food production are possible with traditional methods, coupled with improved infrastructure. But to double or treble their food supply without ruining their environment, developing countries must adapt and adopt more productive technologies. They generally lack the knowledge, trained human resources, or capital to do so. Inter-national assistance, including investments by private businesses, can be of great help.

Problems Related to Technology

Broad-based, sustainable development in most poor countries must begin with their agriculture, because it's the largest sector of their economy, and that's where most of the people are. But their agriculture is not presently competitive. Industrial country exporters can deliver grain to coastal cities, and wherever else transportation is decent, at prices that leave traditional farmers poor.

In the short term, neither the farmers nor the nations can save enough from current income to invest in the technologies that would make them competitive. Part of their dilemma is whether to protect their agriculture during a period of transition, at the cost of higher food prices.

U.S. farmers have a stake in this dilemma as well. In the short run, they might lose a few sales as agriculture develops in the poor countries. But experience over the past generation shows that in the longer run, successful agricultural and broad-based economic development in other developing countries will lead to new agricultural export markets. (See Issue Brief 11.)

Both industrial and developing countries face momentous social and environmental problems in the wholesale adoption of new technologies.

Sound basic education is a crucial base for developing the human resources necessary to adapt and use more productive farm technologies. Such education will also serve well for those who will leave agriculture over the next generation or two. Some of the problems of urban United States have roots in families that were forced out of farming over the past three or four generations with poor preparation for other vocations.

How much greater might be the problems of dislocation in poor countries if millions of farmers are forced out similarly unprepared.

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A Teaching Resource on World Hunger
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A Teaching Resource on World Hunger and Agriculture

UNIT 7:

Two Ears Of Corn

Agricultural development in poor countries; combining new technologies and traditional wisdom to increase productivity and farmer incomes.

Technology

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Lesson Plan

Unit 7. Two Ears of Corn

Introduction

Purpose

To strengthen students' appreciation of the productivity of U.S. agriculture, and by contrast, the challenge for developing countries in making their agriculture more productive

Key Concepts

Mechanical revolution; genetic revolution; bio-technology; Green revolution; dimensions of infrastructure : knowledge and education; transport and communication; legal and business; research and extension services

Learning Objectives

Students should understand and appreciate the bases upon which the amazing productivity of U.S. agriculture rests:

1. The rich heritage of natural resources – good farmland, ample rainfall, low population/land ratio
2. The mechanical revolution which began in the mid-1800s and continues with electronic and satellite communications
3. The genetic revolution which began with hybridization and continues with genetic engineering
4. Three overlapping systems of infrastructure:
 - Knowledge and education
 - Transport and communication
 - Legal and business

Students should begin to grasp the scale of changes required as developing countries try to improve the productivity of their own agriculture

Getting Ready

Subjects

1. The mechanical revolution in agriculture
 - Mechanical reaper
 - Internal combustion engines
 - Hydraulic controls
 - Electronic and remote sensing; computerization
2. The genetic revolution
 - Hybridization
 - Genetic engineering
3. The infrastructure systems that undergird the mechanical and genetic revolutions
 - Knowledge and education
 - Transport and communication
 - Legal and business
4. Some of the problems faced by developing countries as they try to improve the productivity of their agriculture:
 - Cost
 - Lack of trained personnel
 - Weak infrastructure systems
5. The need for international assistance
6. The self-interest of U.S. agriculture

Materials

Basic:

1. Copies of Issue Brief: 7: *Two Ears of Corn*
2. Strongly recommended: Video, *2020 Hindsight: Successes, Failures, and Lessons Learned in Feeding the World, 1970-1995*, from the International Food Policy Research Institute. See description and ordering details in Supplemental Resources, below
3. As an alternative to the above, the video *Hidden Harvest*, might be used here, instead of with Unit 11. See description in *Supplemental Resources*, and *Activities*, Unit 11.
4. Copies of student exercise, "High Tech-Low Tech: A Comparison in Required Skills and Costs," (Supplement 7.11)

Advance Preparations

Several weeks in advance

Order the video, *2020 Hindsight: Successes, Failures, and Lessons Learned in Feeding the World, 1970-1995* from IFPRI (ordering details in Supplemental Resources, below), plus other video or library resources

1-3 days in advance

Copy, distribute and assign Issue Brief 7. *Two Ears of Corn*; Copy for In-class use the student exercise, "High Tech – Low Tech," (Suppl. 7.11)

Supplemental Resources

Audio-Visual

Video: *2020 Hindsight: Successes, Failures, and Lessons Learned in Feeding the World, 1970-1995*. In 1970 developing-country populations were burgeoning, hunger was widespread, and poverty was rampant. The world appeared headed for a food catastrophe. But the Green Revolution, based on high-yielding seeds for staple food crops, helped to avert disaster. Here is the story of both the benefits and the downside of the Green revolution and suggestions for feeding the world's expected 8 billion people in the year 2020. *2020 Hindsight* features striking images from developing countries combined with a clear and informative narration. Comes with companion material containing tables and graphs on aspects of the world food situation since 1970.

(Ordering Information: 1995/12 min./Order Code VV1/\$16.00)

To Order: International Food Policy Research Institute, Information Program, 2033 K Street, NW, Washington, DC 20006 USA, Phone: (202)862-5600, Fax: (202)467-4439

Video, "*Hidden Harvest*," jointly produced by National FFA and USAID, will fit this unit nicely, especially if you do not plan to use it in Unit 11. The video focuses on the adaptation of improved wheat strains to the needs of Ethiopian farmers, and points out that some of the same improved germ plasm is used in U.S. wheat production. (This video was mailed to each FFA Chapter in 1997 – If you have misplaced your copy, contact The Council.)

Teaching the Lesson

Presentation

1. Divide students into brainstorming groups of 3-5 persons. Ask them to work quickly through the worksheet, "High-Tech – Low Tech" (Suppl. 7.11). Encourage them to write down first thoughts about costs and skills rather than bog down in small group debate. Allow a maximum of 20 minutes. You may suggest that some groups start from the bottom of the list and work up, or take the "easy" ones first.
2. Invite each group to share their responses to part of the list of tasks or processes, and other groups to add their responses to each task as it is reported, until most or all tasks/process have been reported on.
3. Ask them to begin to reflect on the question, "Which of the more

productive technologies might be most feasible for poor developing countries to adopt first?

4. Show the video, *2020 Hindsight: Successes, Failures, and Lessons Learned in Feeding the World, 1970-1995*.

5. Continue the class discussion:

- Which technologies were important to the productivity gains from the Green Revolution, as shown in the video?
- For which factors of production are gains in productivity more important in developing countries - more product per hour of labor; per dollar invested; per acre/hectare planted; per unit of water applied?
- Which technologies should have priority in poor developing countries, considering some of the skills and capital you have estimated for the various technologies you listed in the "High Tech - Low Tech exercise, those shown in the video, and the discussion in Issue Brief 7: *Two Ears of Corn?*

*Discussion Questions
/Quizzes*

The questions under 3., and 5., in *Presentation*, above, could be given as a written quiz.

High Tech – Low Tech

A Comparison of Required Skills and Cost

For each task or process listed below, brainstorm two or more examples of high-tech and low-tech ways to accomplish the task or process.

Then, for each, list the skill level or special training required for the most efficient use of that technology. (Don't underestimate the skill required for hand tools, unless you are an expert!).

Then, guess at the initial investment required for each method. Wild guesses are O.K.

Work in groups of 3-5 persons. One example is given to help you get started.

Task	High-Tech	Skill Level	Cost	Low-Tech	Skill Level	Cost
Clearing Forest	Chain Saw	Several days, plus supervision	\$250<\$800	Ax	Copying a "master;" Lots of practice	\$15
	Bulldozer	Several months, plus supervision	\$100,000.	Machete		\$12
Tilling soil						
Seed Selection						
Fertilizing						
Weed Control						
Insect Control						
Harvesting						
Grinding or Milling Grain						
Agro-processing						

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FOOD FOR EVERYONE

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and Agriculture

Issue Brief

8. Can We Produce Enough Food AND Sustain the Environment?

Some say, "We shouldn't use any chemical fertilizers. We should use all organic." I say use all the organic which exists, but there isn't nearly enough to produce the food we need. There's 80 million tons of chemical fertilizer in use. If we were trying to produce the equivalent amount of manure, the world would need about 6 billion more cattle. Then what would happen to overgrazing?

- Norman Borlaug, "father" of the Green Revolution

Can we adequately feed 8 billion people by 2025? Or, 9 billion by 2050? And, sustain the environment?

Thoughtful people give the full spectrum of answers. Some say, "No problem!" pointing to technology advances in the past century, the potential gains from genetic engineering and the capacity of humans to solve new problems as they arise.

Others, equally thoughtful but very concerned, say, "No way!" pointing to depleted and eroded soils, polluted and shrinking groundwater supplies, pesticide-resistant insects, disappearing forests, urban sprawl, acid rain, holes in the ozone layer, and global warming.

Ranged between these polar views are many other thoughtful people who respond with some variation of "Yes, if . . ." or "Probably, if . . ." or "We've got to try."

Among people with these varying perspectives, there is a near consensus on the size of the population challenge. Their widely differing responses reflect differing values and perceptions of risk.

More Food From the Same Land

Food security for everyone implies an approximate doubling the world's food supply by 2050, allowing for about a 50 % increase in population, plus bringing the diets of everyone up to nutritional adequacy. Some regions require more – Africa's food supply must triple.

Nearly all the additional food must come from more intensive farming of present farmland. Some additional areas in South America and Africa might be farmed sustainably. These are at least offset, however, by steep slopes and fragile tropical soils that are now being farmed but should not be, and by continued expansion of cities onto rich farmland. What methods, then, should be used to increase production on good farmland?

Controlling Erosion

The most obvious threat to soil productivity is to lose the soil to erosion by water or wind. Progress is possible. The 1985 farm bill created the Conservation Reserve and mandated a farm conservation plan for each farm to remain eligible for program payments. U.S. soil erosion dropped two-thirds by 1995. Maintaining crop residues on the surface, cover crops, plus contour and terrace cropping are tillage practice useful anywhere.

Improving Soil Fertility

Many soils in developing countries, particularly tropical soils under high rainfall, are seriously depleted of nutrients and soil organic matter.

The quickest, and usually cheapest, way to replace lost nutrients is with chemical fertilizers. They provide nutrients in forms that are available to plants, or convert fairly quickly. But they are also subject to erosion and leaching, hence a potential source of pollution. Good managers try to match the amount of fertilizer with their yield goals, and to apply it as near as possible to the time of actual plant use.

Critics of chemical fertilizers contend that they tempt farmers to substitute fertilizers for good conserving practices. They point out that some fertilizers are toxic to soil microorganisms, and tend to reduce soil organic matter. Purists use no chemical fertilizers at all, relying instead on holistic management of soil and its living organisms to make full use of existing soil nutrients, supplemented in some instances by naturally occurring fertilizers such as manure, legumes, and rock phosphate. They also utilize cover and green manure crops to build up soil organic matter, and deep-rooted crops to draw nutrients up from the deep subsoil.

Maximizing soil organic matter is a point on which good managers across the spectrum can agree. Organic matter helps absorb and hold nutrients from whatever source, and reduces the risks of erosion and leaching.

Insects, Weeds, Disease, and Pesticides

The sharpest controversies between high-tech farmers and those who supply their inputs, on one hand, and ardent environmentalists on the other, surrounds the benefits and risks from the use of pesticides – insecticides, herbicides, and fungicides – on crops and livestock.

The stakes for food security are high. As much as one-third or one-half of potential crop production is lost before harvest. Reduction in these losses is almost “free” as measured by inputs of land, time, fertility and water.

Since the 1940s, synthetic chemical pesticides have largely replaced natural pesticides such as pyrethrum and lime-sulfur. Over the years, these chemicals have become more potent, yet more selective, and with less residual effect. Close to 50,000 pesticides are now registered for use in the United States.

More effective pesticides both contributed to and were required by new farming practices – fewer crop rotations, larger fields of a single crop, more fertilizers, and irrigation. Without added protection, these practices increased the risk of loss from insects, weeds or disease,

A few pests, particularly insects, survive normal doses of a pesticide, and survive to reproduce. Their offspring survive increased dosages, until after many generations, they grow completely resistant, and a new remedy has to be found. Technical optimists feel certain that they can continue to find safer and more effective pesticides.

Some of the earliest and most dangerous-to-people pesticides (i.e. DDT) have been banned in most industrial countries. But they are cheap and still widely used in developing countries.

Biogenetic Engineering

Most genetic scientists are optimistic about potential gains against pests through biotechnology. Resistance to a particular pest can now be taken from one organism and inserted directly into the germ plasm of another, even if the two species are not related. Such results could never be achieved through conventional crossbreeding and selection. Completely avoiding pesticides would be an environmental gain.

The greatest commercial success to date in biotechnology has been in the opposite direction. Tolerance for glyphosate has been inserted into soybeans and corn, so a single spray after the crop is growing usually gives season-long weed control. Energy savings from less cultivation and reduced soil erosion are claimed as environmental benefits.

Many environmentalists fear that the process is moving too rapidly. They fear that introduced characteristics, such as resistance to herbicides, may spread to related wild plants. Drifting pollen has already “infected” other strains of the same plant on neighboring farms, against the neighbor’s wishes. They worry about unanticipated side effects from human or animal consumption of genetically altered crops. As a relevant example, they point to declining effectiveness of, or allergic reactions to, antibiotics used at low levels in livestock feed.

Growth of Organic Food Markets

Many consumers are willing to pay extra for foods grown without chemical fertilizers and chemical pesticides. The U.S. organic foods market has grown 20 percent per year recently. Lower production costs and price premiums from 20 percent up to 100 percent have more than offset lower yields. Some well-established organic farmers feel they could remain profitable even without such large premiums. Transition from chemical to organic farming takes several years, during which profits are usually lower.

Integrated Pest Management

Integrated pest management (IPM) refers to a variety of schemes which have been worked out to reduce reliance on chemical pesticides. IPM practices include crop rotations, inter-planting of species, mechanical cultivation, regular scouting for pests, naturally occurring poisons, and predatory insects, with chemical treatments employed only as a last resort. IPM requires specific training and a high level of management skills.

Developing Country Dilemmas

Farmers, researchers, and policy planners in developing countries face environmental dilemmas as they consider how to increase food security and agricultural production on a sustainable basis. On one hand, chemical fertilizers and pesticides can show fairly quick increases in production. But they are quite expensive for poor farmers with poor credit and marketing systems. They raise the financial risk of crop failure, and they may have negative long-term consequences.

Organic systems don’t require as much cash investment, are nearer traditional farming methods, and avoid some possible long-term consequences. But such methods have not yet demonstrated their capacity to increase productivity on the scale needed, and probably would result in higher food costs.

Several analysts, including the International Food Policy Research Institute (IFPRI), feel that IPM approaches hold considerable promise for developing country agriculture. Whatever approach, or combination, is chosen, the first steps include more research and education of farmers. In the end, it is they who will choose what methods are most appropriate for their circumstances.

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UNIT 8:

Can We Produce Enough Food AND Sustain The Environment?

Balancing the gains and risks of using, or not using, high tech agriculture.

Environment

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Lesson Plan

Unit 8: Can We Produce Enough Food AND Sustain the Environment?

Introduction

Purpose:

To help students understand the necessity of increasing global food supply while protecting the environment, and some of the benefits and risks of differing approaches to this goal

Key Concepts:

Environmental sustainability; soil and water degradation, soil erosion; soil conservation; soil organic matter; organic farming; integrated pest management; chemical fertilizers; synthetic chemical pesticides; biogenetic engineering

Learning Objectives:

Students will identify some of the environmental benefits and risks from competing approaches to increasing agricultural productivity and global food supplies: They will:

1. Name and describe some of the threats to the environment from past and current agricultural practices.
2. Understand the necessity of increasing production on good farmland, as a way to avoid having to use environmentally fragile lands or clear additional forests
3. Explore the environmental benefits and risks from high-tech agriculture, including chemical fertilizers, synthetic chemical pesticides, and biogenetic engineering
4. Explore the environmental benefits and risks from traditional and organic farming methods
5. Describe integrated pest management approaches

Getting Ready

Subjects:

1. Population growth trend
2. Agricultural yield and production trend
3. Necessity of continued growth in food supply
4. Necessity of increasing production on existing crop acreages (essentially no new land available)
5. Potential and risks from increased use of chemical fertilizers
6. Potential and risks from biotechnology
7. Current environmental issues

Materials

Basic:

1. Copies of Issue Brief: 8: *Can We Produce Enough Food AND Sustain the Environment?*
2. Copies or overhead of “Connections” (among agriculture, environment, population, and hunger), (Supplement 8.11)
3. Copies or overhead of “World Population Growth” and “Population Growth and Agricultural Production,” from Unit 3 (Supplements 3.11 and 3.12)
4. Copies or overhead of “World Grain Yield Per Acre,” (Suppl. 8.12)
5. Copies or overhead of “More Fertilizer: More Food, But More Pollution, Too,” (Supplement 8.13)
6. Copies of environmental research assignment worksheet, (Suppl. 8.14)

Optional:

1. Video, *Introduction to the Global Environment* (see Supplemental Resources, below)
2. Download and copy all or parts of the “Environmental Learning Module” from the World Bank website for schools.
<http://www.worldbank.org/index/>

Advance Preparations:

Several weeks in advance

If you plan to use the video, *Introduction to the Global Environment* (see Supplemental Resources, below), order at least 3 weeks in advance.

1-3 days in advance

Give students, in teams of 2-4 (depending somewhat on computer accessibility) their online-based research assignment on current environmental issues, (Supplement 8.14). You may wish to set the context for their research by using part or all of the overheads suggested in materials, above, and in *Teaching the Lesson*, below. Be clear about whether their team report is to be written or oral. In

Supplemental Resources

either case, set guidelines as to length or time.

Print

FAO, *Food Security and the Environment*, World Food Summit Fact Sheet (Rome: FAO, 1996) 2pp.

Jaenicke, Edward C., *The Myths and Realities of Pesticide Reduction: A Reader's Guide to Understanding the Full Economic Impacts* (Washington DC: Henry A. Wallace Institute for Alternative Agriculture, 1997)

Shand, Hope, *Human Nature: Agricultural Biodiversity and Farm-based Food Security* (Ottawa: The Rural Advancement Fund International, 1997)

World Resources Institute, *World Resources 1998-99* (New York: Oxford, 1998) (a biennial report on the current state of the environment as it relates to population and human well-being, resources at risk, and consumption and waste, published on behalf of World Resources Institute, United Nations Environmental Program, United Nations Development Program, and the World Bank)

Yudelman, Montague, Annu Rata, and David Nygaard, *Pest Management and Food Production*, Food, Agriculture and the Environment Discussion Paper 25 (Washington: International Food Policy Research Institute, 1998)

Audio-visual

Introduction to the Global Environment (video): This incisive, informative video offers high school students—and teachers new to the field of environment—an excellent introduction to global change. Providing brief overviews of the interrelated problems of climate change, biodiversity loss, pollution, population growth, and over consumption, this program also suggests some of the social, political, economic, and personal changes needed to solve them. (1994/VHS 10 min./\$12.95) World Resources Institute

To Order: WRI Publications, P.O. Box 4852, Hampden Station, Baltimore, MD 21211, 800-822-0504 or 410-516-6963

On-line

Several websites listed on student worksheet (Supplement 8.14).

Bread for the World Institute <<http://www.bread.org>>

Food for Everyone (National Council on Agricultural Education) <<http://www.agedhq.org/ffe/lessons>>

Teaching the Lesson

Presentation:

1. Briefly set the context for the students' research reports on current environmental issues (you may have opted to do this in connection

World Population Growth
(Suppl. 3.11)
Population Growth and
Ag Production (Suppl. 3.12)

Issue Brief 8. Can We Produce
Enough Food?

Connections (Suppl. 8.11)
Grain Yields (Suppl. 8.12)
Fertilizer Use (Suppl. 8.13)

Discussion Questions
/Quizzes:

Follow Up

Evaluation

with making the research assignments, in a previous period):

- If you used Unit 3, remind them of population trends
 - Remind them of rising per capita food consumption, both as a matter of recent record and hoped-for goal of greater food security.
 - Be sure they got from Issue Brief 8 the point that there is essentially no more good agricultural land available, and that increased food supply has to come almost exclusively from greater production on present farmland.
 - Using the Supplements with this lesson, point toward some of the connections between agriculture and several environmental concerns.
2. Turn then to the students' reports from their research for most of the class session and discussion.

Discussion should flow from the students' reports of the differing perspectives they were asked to research.

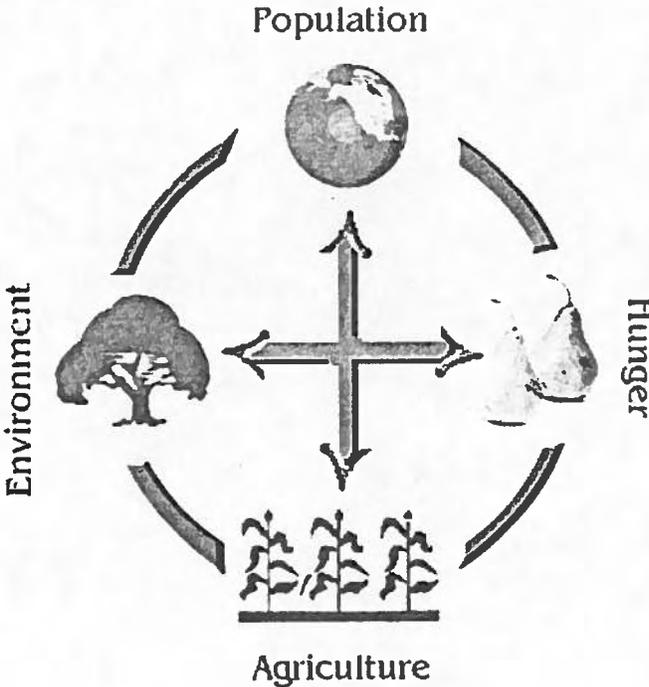
What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

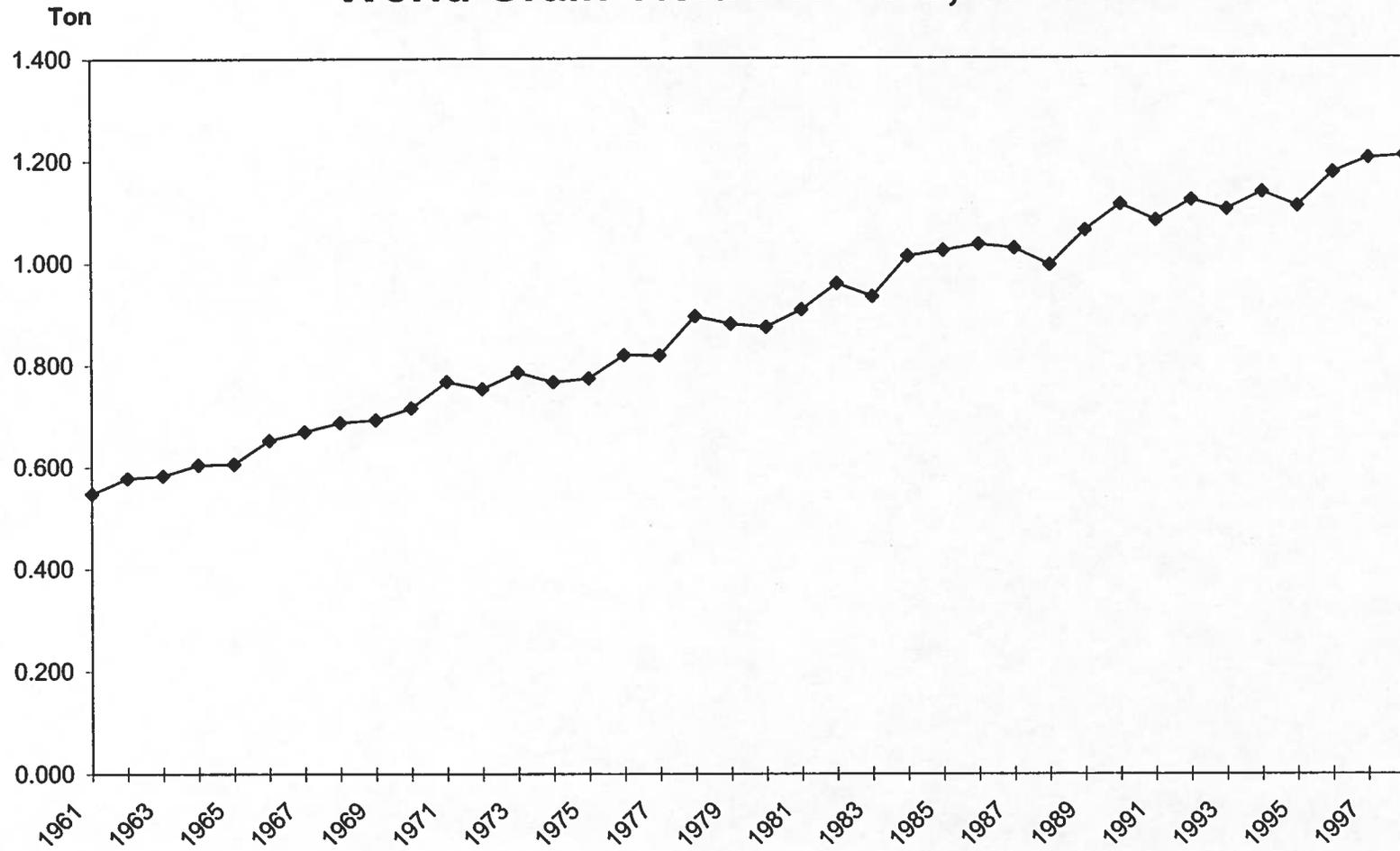
Connections



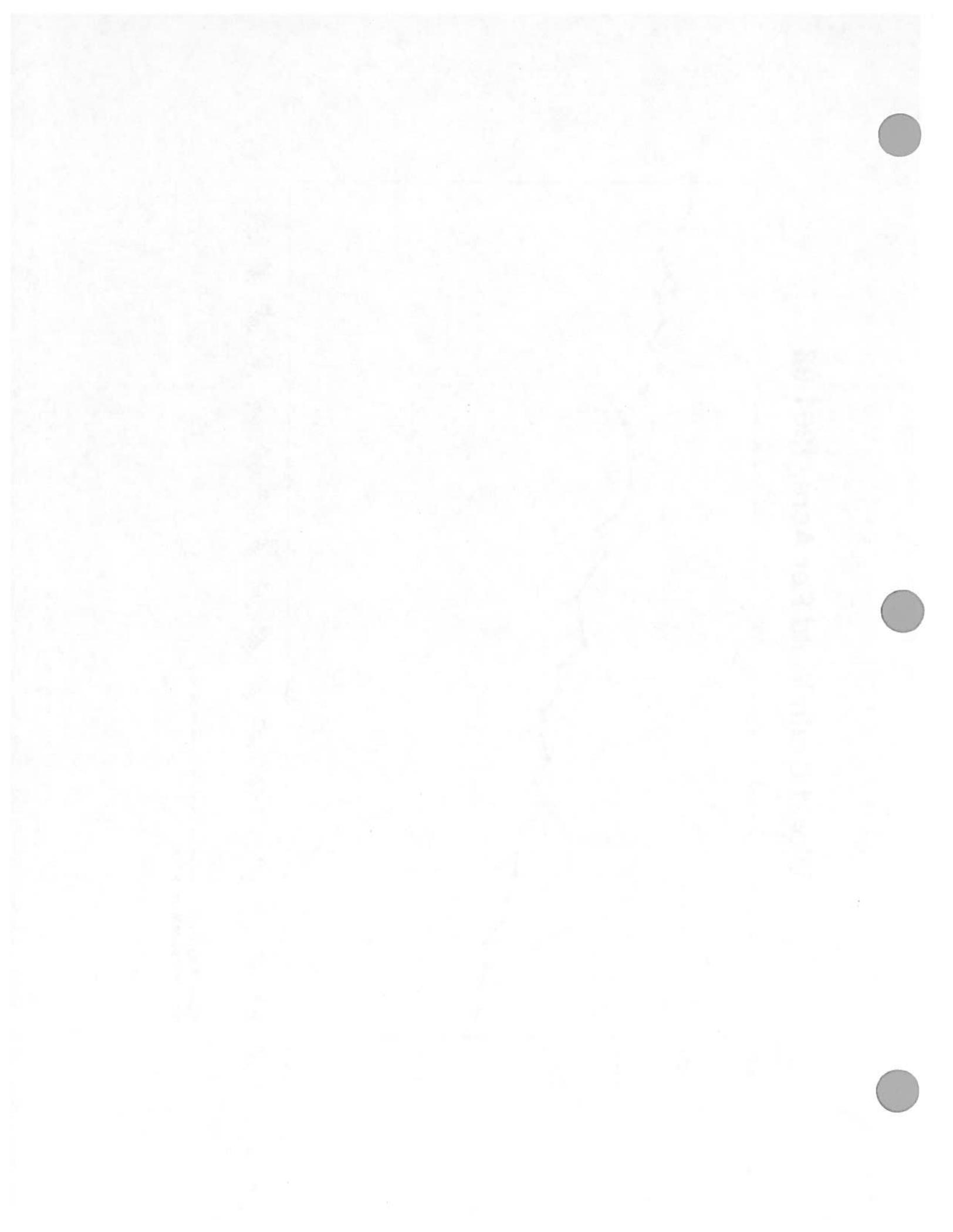
Source: David Beckmann and Arthur Simon, *Grace at the Table: Ending Hunger in God's World* (Silver Spring, Maryland: Bread for the World, forthcoming). Reprinted with permission.



World Grain Yield Per Acre, 1961-98

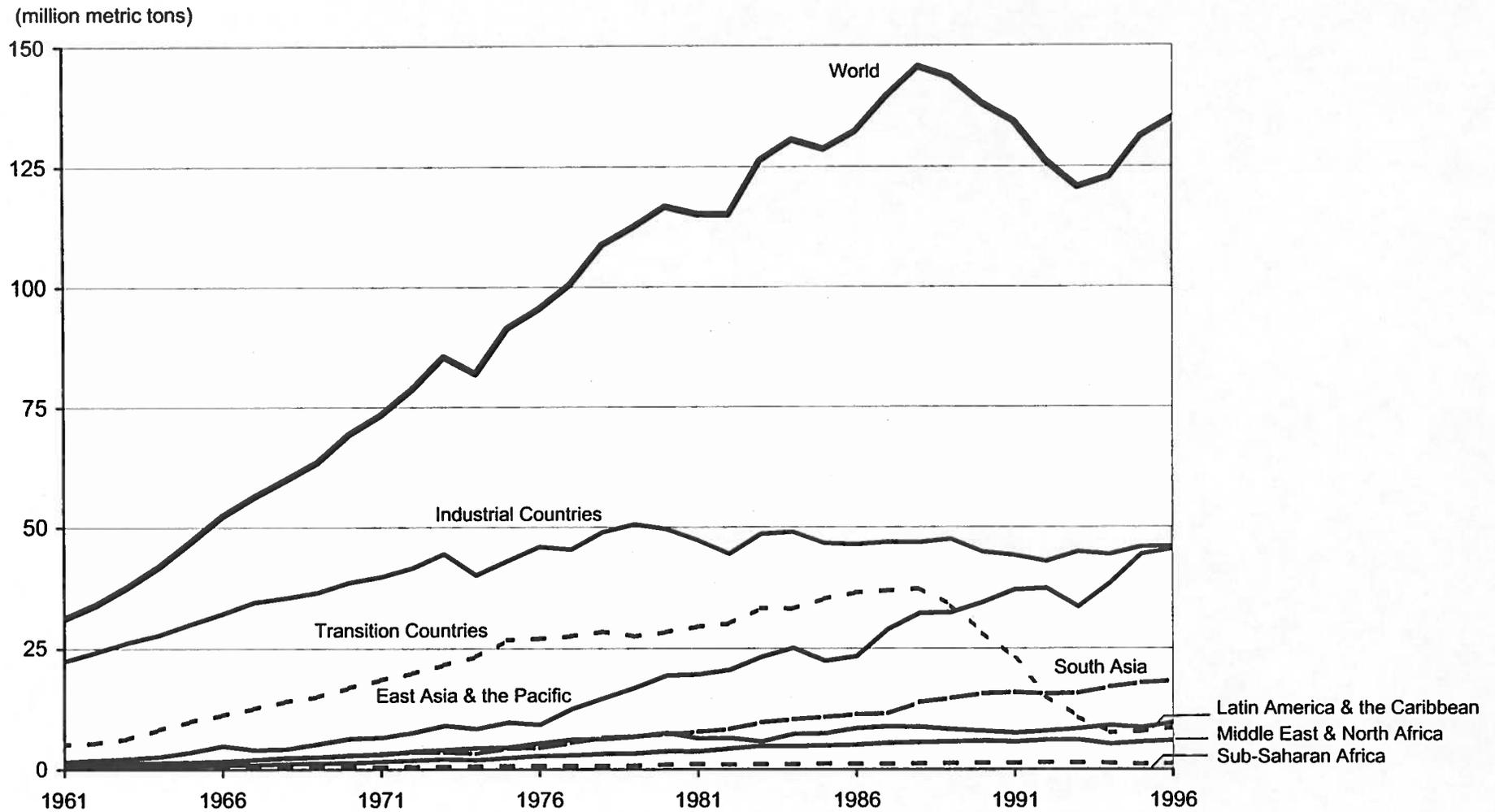


Source: FAO, FAOSTAT Database, posted at <http://apps.fao.org>.
Note: 1998 figure is provisional.

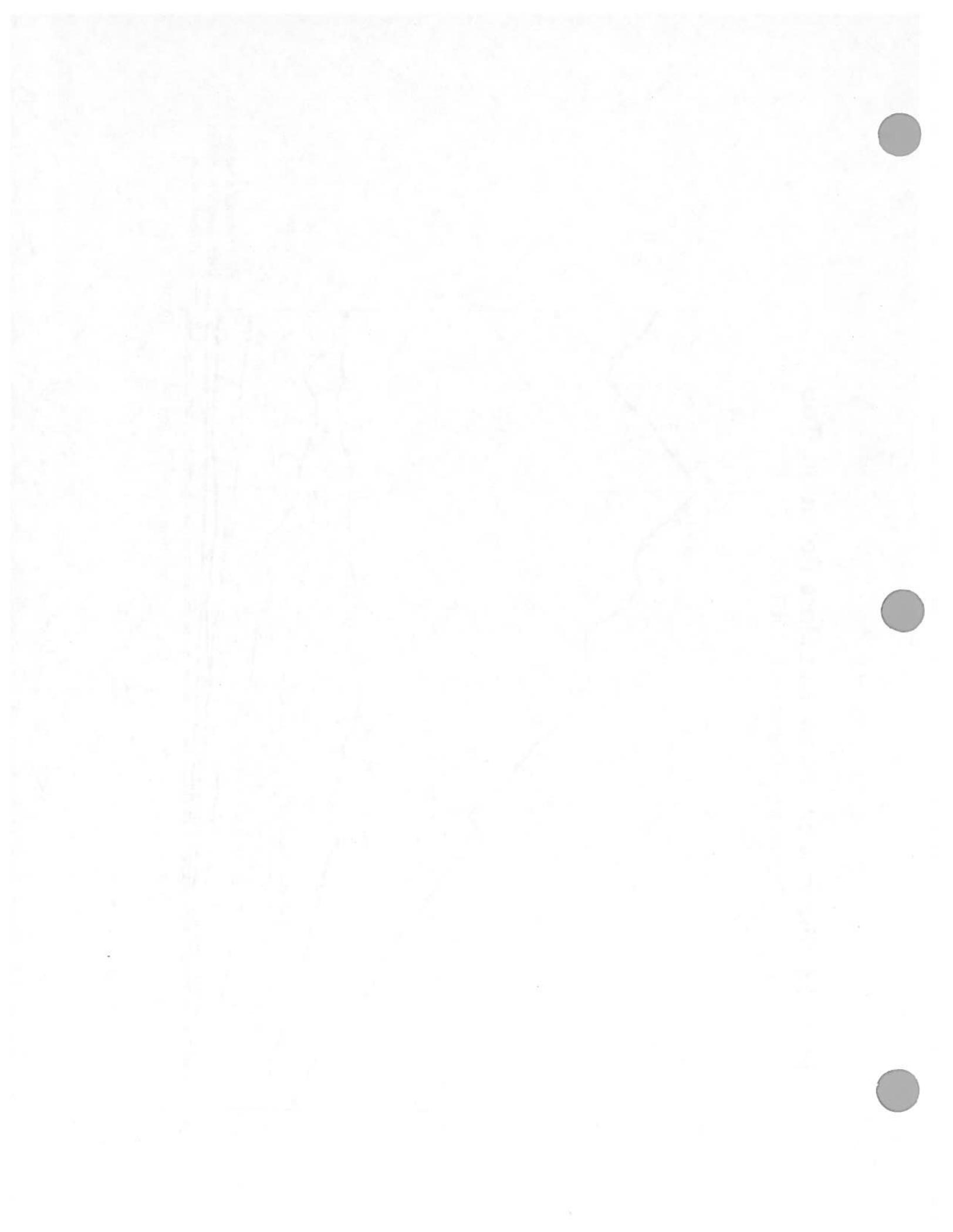


More Fertilizer: More Food, But More Pollution, Too

Trends in Fertilizer Use, 1961-96



Source: FAO, FAOSTAT Statistics Database <<http://apps.fao.org>>, accessed 5/17/99.



Exploring a Current Environmental Issue

To accompany Unit 8: Food For People / *Can We Produce Enough Food AND Protect the Environment*

1. Working in teams of 2-4, visit at least one website in group A, and one in group B.
2. Either by group choice before going online, or after browsing a little while, select an environmental issue related to the theme of Unit 8 about which there appears to be controversy. (For example, in spring 1999, genetically modified organisms (GMOs) and genetic diversity are "hot" issues.)
3. On each site, look for words or phrases related to your chosen issue, or more generic titles such as "Topics," or "Issues". Many websites are set up for a search. Watch also for clues to current interest, such as: "What's New," "Recent Publications," or "Alerts."
4. Make notes, or download relevant brief articles about the issue you have chosen.
5. Prepare a report for your class, according to the guidelines given by your teacher.
6. Some of the points you might want to cover in a report:
 - a) What is the issue? Why is it an important issue?
 - b) Do your sources agree that the issue represents a real problem?
 - c) What groups are taking part in the discussion/debate (or whose sites did you visit)? Are they near together or far apart on their "solutions" or responses to the issue? What are their arguments?
 - d) Did your team members reach any agreement about your own response to the issue that you explored?

Group A: (Environmental Groups)

- World Resources Institute: www.wri.org/
- Worldwatch Institute: www.worldwatch.org
- Rural Advancement Foundation International: www.rafi.org

Group B: (International Corporations, plus a business-supported foundation)

- Pioneer International: <www.pioneer.com>
- Monsanto: <www.monsanto.com>
- Center for Global Food Issues (Hudson Institute): www.cgfi.org

Exploring a Chemical Reaction

The purpose of this experiment is to observe and measure the rate of a chemical reaction. The reaction chosen is the reaction between hydrogen peroxide and potassium iodide.

The reaction is as follows: $2H_2O_2 \rightarrow 2H_2O + O_2$. The rate of reaction is measured by the volume of oxygen gas produced over a fixed period of time.

The reaction is carried out in a conical flask. The volume of oxygen gas produced is measured by the displacement of water in an inverted measuring cylinder.

The reaction is carried out at different temperatures to determine the effect of temperature on the rate of reaction.

The results of the experiment are shown in the table below.

Temperature (°C) | Volume of oxygen gas produced (cm³)

20 | 10

30 | 20

40 | 40

50 | 80

60 | 160

70 | 320

80 | 640

90 | 1280

100 | 2560

110 | 5120

120 | 10240

130 | 20480

140 | 40960

150 | 81920

160 | 163840

170 | 327680

180 | 655360

190 | 1310720

200 | 2621440

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UNIT 9:

Not Everyone Can Be A Farmer

Rural development: creating and preparing for off-farm opportunities in rural areas to slow the rush to urban slums.

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Issue Brief

9. Not Everyone Can Be A Farmer

The Case for Rural Development

Wherever people are poor and food insecure, the single most important strategy is to create opportunity to earn enough – through farms, businesses, or jobs – to meet basic needs and permit human fulfillment.

Of the more than 1.3 billion people trying to live on less than one dollar a day, nearly three fourths live in rural areas. Although urban areas are growing faster than rural, cities cannot grow fast enough or provide opportunities for all these poor people or their children during the next generation. Many social scientists and environmentalists believe that those policies that directly or indirectly encourage urban growth should be reversed.

At any rate, in the short and intermediate term, the majority of poor people in most developing countries will still be rural. In most of the poorest countries, progress against hunger and poverty must begin in the rural areas.

Agriculture First

Most poor people in rural areas try to earn their living from agriculture. But the prospects of decent incomes from agriculture as presently practiced are bleak. In the lowest income developing countries, nearly all in Africa and South Asia, about two thirds of all workers are in agriculture, but they generate only about one-fourth of the GDP. But global food prices have dropped so much that they are poorly paid.

Reducing poverty and hunger in rural areas must begin with agriculture. But it must not stop there. If agriculture and farmers are to prosper, they will adopt or adapt at least some of the technologies discussed in Issue Brief 7, so they will become more productive. Their numbers will also decline.

So, a second challenge is to create non-farm opportunities in rural areas, so people will not be forced to move to cities because there are no opportunities where they live.

Policy Changes to Create Better Jobs

As it turns out, many of the same policies that might improve agricultural productivity and incomes also would support the creation of non-farm rural opportunities.

Each of the following policies and policy shifts would contribute to greater opportunities in rural areas – on or off farms, or both:

- Investing in people;
- Giving more emphasis to agriculture; and
- Creating a framework for rural opportunity.

Investing in People

Health Care and Nutrition. Investments in basic health care and improved nutrition yield huge dividends. Healthier children learn better. Healthy adults work better.

Improved health care begins with greater attention to basic public health measures: nutrition education, clean water and adequate sanitation; vaccination against infectious diseases, prevention of AIDS, distribution of iodine and Vitamin A capsules, and simple techniques of home health care. Delivery of these services can be relatively inexpensive, employing village women with minimum training. These basic services should have priority over urban hospitals and specialized medical training.

In addition to being part of school programs, public health training can be delivered in conjunction with supplemental feeding programs such as the Integrated Child Development Services in India or the Special Supplemental Food Program for Women, Infants and Children (WIC) in the United States.

Education. Investments in basic education complement those in health care and improved nutrition, and yield huge payoffs. Better education for youth, especially girls, leads to improved health awareness and practice for their families on a life-long basis. Learning and other skills improve productivity, enable better management of resources, and permit access to new technologies. They also enhance participation in democracy.

A study of 98 countries for the period from 1960 to 1985 showed GDP gains up to 20 percent from increases in elementary education, and up to 40 percent for increases in secondary enrollment. In allocating resources, the highest payoff is for elementary education, because it reaches the most children.

Agriculture and Food Production

Access to land. Widespread land ownership by small farmers, or other arrangements to assure farmers that they will profit from long-term investments, usually contribute directly to food security and improved environmental practice. The more successful land reform programs, as in Korea and Taiwan, made at least minimum payments to landlords whose land was taken.

Equitable prices for farm produce. Thriving agriculture is basic to successful development in the poorest nations. New savings are necessary to increase agricultural productivity and to help finance rural, non-farm businesses. Much of such savings must come from agriculture, since it is such a large share of the total economy. Also, as their incomes rise, farmers expand their purchases of consumer goods, providing an important source of non-farm employment.

In many developing countries, state-run marketing boards have taxed agriculture by setting farm prices very low and retaining for the government a large share of the value from farm exports. Meanwhile, the United States and Europe have supported their farmers in ways that generated surplus crops. They also subsidize exports of these crops, driving down prices around the world. Developing country farmers, who are not usually subsidized and mostly still using traditional technologies, cannot match the low prices. Agriculture falters, and with it the whole process of development. Both rich country export subsidies and poor country discrimination against agriculture should be phased out as quickly as possible.

Framework for Rural Opportunity

Access to credit. Equitable access to credit for small farmers and small business people, the majority of whom are women, is probably the highest priority for allocation of domestic savings or outside investment. Training in resource and business management is often part of successful credit programs.

With credit on reasonable terms, and especially if they have access to good roads and markets, small farmers and small business people can create many of their own new income-earning opportunities.

Adequate physical infrastructure. Creating and maintaining an adequate physical infrastructure are essential to growing rural opportunity. Important features include farm-to-market roads and food storage, both oriented first to domestic production then, if appropriate, exports. For all areas, safe water, sanitation, and electricity are important.

Rapidly increasing capacity and falling costs of wireless communication and computer technologies are bringing global communications to even remote rural areas. While commercially sponsored programs may be a mixed

blessing from a cultural perspective, the technologies hold promise of enriched education for school children and adults, and access to the information essential to being part of a global economy.

Stable legal and institutional framework. Sustainable development requires a stable legal framework. This includes assured property titles, enforceable contracts, and equitable access to courts and administrative bodies.

Stable currency and fiscal policies. If people want to save from their livelihood to invest – even in their own businesses – they must feel that the political and economic environment is safe. High inflation or continuing trade deficits, which often go together, discourage needed investment. Wealthy families may send their investments abroad, rather than invest in their own country or communities.

Effective, progressive tax systems. Effective tax systems are key to sustained financing for investments in human resources and public infrastructure. Taxes based on the ability to pay are also key to reducing wide disparities in income distribution in both rich and poor countries. Such tax systems are difficult to enact where a small minority controls wealth and political power.

Incentives for job-creating investments. The Asian countries that have grown so rapidly have all emphasized labor-intensive exports. Some have encouraged joint ventures with overseas partners. Some have invited, or permitted, investments from abroad. Many have subsidized such investments by domestic investors. Public policies could encourage some of these ventures to locate in rural areas.

Democracy and participation in decision-making. These elements of a framework for creating rural opportunity are more likely to serve poor people, and to last, if the people most affected take part in shaping community and national policies. One way international agencies can support this process is to link offers of assistance with a requirement that ordinary people be included in the process of deciding what policies prevail.

As a final note, excepting the rural emphasis, these framework policies are equally applicable in urban settings and in dealing with poverty in developed nations.

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Lesson Plan

Unit 9: Not Everyone Can Be A Farmer

Introduction

Purpose:

To highlight the importance of rural development, farm and non-farm, in increasing the incomes and food security of rural people in developing countries

Key Concepts:

Economic opportunity – jobs and businesses, farm and rural non-farm; unemployment and underemployment; policy framework; investing in people – education and health care

Learning Objectives:

Students should understand:

1. The scale of present and foreseeable unemployment and underemployment in rural areas
2. The problems in massive urban migration, and the desirability of creating opportunities in rural areas
3. A policy framework for creating rural opportunity
 - Investing in people – education, health care, and nutrition
 - More emphasis to security on the land, agricultural productivity and markets
 - Physical and institutional infrastructure – access to credit, transportation and communication, sound fiscal policies, and effective tax systems,
4. The importance of people participating in making the decisions that affect their lives

Getting Ready

Subjects:

1. High proportion of rural people in poorest countries
2. High unemployment and underemployment; cities as “magnets” for migration
3. Investing in people:
 - Basic health care
 - Education as preparation for farm, non-farm rural, or urban opportunities
4. Strengthening agriculture
 - Security on the land
 - Access to markets – physical and institutional infrastructure
5. Framework for rural opportunities: credit, business and legal framework; effective taxation
6. Participation in decision-making

Basic:

1. Copies of Issue Brief: 9: *Not Everyone Can Be A Farmer*
2. Markers, ball of yarn, index cards, pins (for class exercise)

Advance Preparations:

1-3 days in advance

Assign Issue Brief 9: *Not Everyone Can Be A Farmer*

Ask students to bring Issue Brief 7: *Two Ears of Corn* to class with them

Supplemental Resources

Print

Islam, Nurul, *The Nonfarm Sector and Rural Development: Review of Issues and Evidence* (Washington, DC: International Food Policy Research Institute, 1997)

Bathrick, David B., *Fostering Global Well-Being: A New Paradigm to Revitalize Agricultural and Rural Development* (Washington, DC: International Food Policy Research Institute, 1998)

World Bank, *Rural Development: From Vision to Action, A Sector Strategy* (Washington, DC: The World Bank, 1997)

On-line

Teachers, and perhaps students, as a special project, are encouraged to browse the World Bank's website rural development, since rural development is a major Bank emphasis. At www.worldbank.org, select: Development Topics → Rural Development. Summaries and sections of its major publication (above) at on this site.

Teaching the Lesson

Presentation:

Issue Brief 7: Two Ears of Corn
Issue Brief 9: Not Everyone Can Be
A Farmer

1. Ask Students to name two or three processed food items. They need not be complicated products – a hamburger patty or ice cream will do.
2. Select one of the products chosen and ask students to name all of the components needed to bring that item to the consumer. Students may refer to Issue Briefs 7 and 9 as a checklist. Be sure students include less obvious aspects such as policy-making, scientific research, safety regulations, licenses, business contracts, transportation, storage, etc.). List the components on the board as they are named.
3. Have each student choose a different component -- one they consider essential for delivering the product chosen. Pass out index cards, and ask each student to write his or her component on the card and pin it on so others can see it
4. Clear a space in the center of the classroom and have all of the students stand in a circle, shoulder to shoulder. Place the student in the center of the circle that holds the index card with the most basic component necessary for the end product (i.e. a farmer who raised the beef for a hamburger). Give that student the ball of yarn.
5. Have that student hold on to end of the yarn and then toss the ball gently to another student, whose component seems closely related. This process should be repeated until all of the students (components) are holding at least one strand of the yarn. Some students may have several strands of yarn (e.g. “transportation”).
6. When complete, a “spider-web” will have been formed. Point out the strong connections between each of the components linked in the web, and the necessity of all being in place for delivery of the end product.
7. If the circle hasn’t collapsed, ask the students to identify several components most likely to be missing in a developing country. What happens to the “web” if those components try to find someone to take over their function? Or simply drops out?
8. Some concluding discussion questions:
 - How is this web related to agricultural and rural development?
 - If a developing country cannot develop all the components at once, which are the most essential?
 - (Especially if you plan to use Units 10 and 11,) Which components might best be developed with outside assistance? By the World Bank (long-term, low interest loans) By USAID? (Grants, loans, technical assistance), By private businesses (trading, ownership, joint business ventures)? By Non-governmental organizations (Community-level projects)?

Follow Up

Evaluation

What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

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UNIT 10:

International Partnerships In Agricultural Trade And Investment

Opportunities and challenges associated with increasing international
agricultural trade and investments.

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Issue Brief

10. International Partnerships in Agriculture

For breakfast this morning, I enjoyed orange juice from Brazil, tea from South Asia, and a banana from Central America on cereal manufactured in Michigan from grain grown somewhere in the Midwest or Plains States. After breakfast, I put on clothes sewn in the Dominican Republic, Guatemala, Bangladesh and Zimbabwe, and my sneakers, assembled in China, and drove my Japanese-brand pickup, assembled in California with parts from about 15 countries, to try to sell my corn for export to Korea or Taiwan.

We are all traders. We, exchange our time, skills, and income for things we need or want. Virtually everything we trade for crosses at least one political boundary, under greater or less regulation. Trade within the United States is relatively unfettered. But an increasing share of what we buy crosses national boundaries, where barriers are coming down, but are still significant.

International trade has grown faster than the global economy in each of the past four decades. For the world as a whole, the sum of imports and exports as a share of total GDP rose from just over 20% in 1987 to nearly 30% in 1988. Trade as a share of GDP is lowest in the poorest countries, especially in Sub-Saharan Africa and South Asia. It is highest in small rich countries, such as Sweden and Denmark. For all of Europe, trade equals over half of their GDP. For the United States, it is just over 20%, and growing.

U.S. farmers can't expect to sell much more food domestically. If poor people in the United States had more income, they would eat more meat and fresh fruits, which return more to farmers. Most market gains, however, will come from increased industrial uses (not dealt with here), or from growing exports, as people overseas upgrade their diets. U.S. farmers have a strong self-interest in raising living standards around the world.

Benefits of Trade

Trade theory teaches that freer trade benefits "everyone." Each person, or community or nation, produces what they can produce best, or cheapest, and trades it for things others can produce better, or cheaper (*comparative advantage*). Ideally, trade should give everyone more choice, better quality, and lower cost than if each family or community or nation tried to produce everything for themselves. In the real world, this tends to be true.

But small benefits to many often come at the cost of traumatic adjustments to a few. Imports of tomatoes, melons, and strawberries from Mexico have increased under the terms of the North American Free Trade Agreement. They are cheaper than those raised in the United States. They even benefit Midwest corn and wheat growers whose exports to Mexico have risen. But the benefits of NAFTA are painful for farmers and workers in Florida, Texas, or California, whose prices or sales have been hurt by NAFTA.

Similarly, although clothing, television sets, and cars are cheaper for everyone in the United States because of increased trade, it has been a rough adjustment for thousands of U.S. businesses and workers who used to make those products here. They've had to create new businesses, find new jobs, learn new skills, or move.

On balance, the United States and U.S. agriculture gain more than they lose from increased trade. But painful trade-offs are involved, and trade policy discussions need to be sensitive to those whose lives are disrupted.

Trade As Part of Development

Developing countries have traditionally exported natural resource products (gold, diamonds, wood, oil) or crops that require a distinctive climate (spices, tropical fruits, coffee, tea, sugar). In recent years, attention has focused more on products that requires lots of labor (apparel, electronics, off-season vegetables), including the labor-intensive aspects of the knowledge industry (data entry and writing computer programs).

Developing countries giving high priority to rural development must be sure that the political climate and infrastructure will ensure that some of the manufacturing takes place in rural areas.

Poor nations face several dilemmas as they try to develop their agriculture and reduce food insecurity. On one

hand, they may be tempted to focus all their energy and resources on growing all the food they need (food self-sufficiency). At another extreme, it is tempting to focus only on export crops that take advantage of climate, such as pineapple or tea, or abundant labor, such as cut flowers and off-season vegetables.

If world prices are high for their exports, it is to their advantage to raise export crops, and import much of their food at low world prices. But world prices for their exports, which they can't control, frequently plummet. Then their export crops are no longer profitable, and they don't have the foreign exchange to buy needed food. On the other hand, if they try to grow all they need, crops may fail. Without export revenues, importing emergency food can be difficult and expensive.

A better strategy for most developing countries is food self-reliance; trying to boost yields and diversify their crops – some for domestic food purposes and some for export. They can take advantage of their strengths, and will have import mechanisms in place to take advantage of very low global prices, or in case of short crops.

Global markets are very competitive. Developing countries expecting to compete successfully usually must make a host of changes in their own policies and economies. They must improve their roads and ports, for example, and improve their schools. They must adopt new technologies. Investors and traders must have confidence in the currency. Traders nearly always need access to credit on reasonable terms.

Partners in Development

One way developing countries can gain quicker access to the resources and management skills necessary to compete in global markets is to seek overseas partners. These partnerships cover a wide range. Heifer Project International lends breeding stock – a cow, a pig, or a few chickens – through village associations in 40 countries, together with instruction in livestock care and marketing.

The International Cooperative Development Association, sponsored by U.S. farm cooperatives, provides technical assistance to farmer associations in Malawi that have enabled small tobacco producers to compete in national tobacco auctions, and thus in international markets.

Zimbabwe sold two of its unsuccessful government-run cotton gins to Cargill. Cargill pays cash for cotton, based on world market prices, and pays its women workers somewhat more than prevailing wages, on time – quite in contrast to late and often only partial payment to both producers and workers by the former government corporation. Other Zimbabwe cotton gins are being run as joint ventures with European firms.

In India, U.S. firms have been hired to construct large electric power facilities, which they will then operate under contract with the Indian government. China has

negotiated hundreds of joint ventures, large and small, with a very clear agenda of capturing the know-how their foreign partners bring.

The international lending institutions – the World Bank, the International Development Association (IDA), and regional development banks – have long lent money to governments for development purposes. Along with the loans, they have suggested, or insisted on, fiscal and monetary policies that usually strengthen economies in the long run, but often require painful adjustments in the short term. In recent years, they have begun lending for projects that involve partnerships between development country governments and private parties, including NGOs and international corporations.

Countries that take steps to improve their ability to compete find that these changes make their own economy work better as well. In fact, the domestic benefits from preparing to compete in global markets are nearly always greater than the direct benefits of increasing trade. This is true for rich countries as well.

Trade Negotiations

Many political leaders, and most economists, feel that trade protection adopted in the 1920s and early 1930s contributed to the "great depression" of that time and was one cause of World War II. They fear a similar result if countries were to re-introduce trade rules that would offer more protection to their domestic producers. So they continue to negotiate for freer trade, while keeping tuned to the political consequences of each measure.

Since 1947, the General Agreement on Tariffs and Trade (GATT) has been the forum for hammering out global trade agreements. In eight negotiating rounds since 1947, tariffs (taxes on imports) have been reduced from an average 35% of value to about 5%.

Agriculture was included in GATT negotiations for the first time in the 1994 agreement, signed by 123 nations. The protection given farmers by United States, and especially by Europe is being scaled back, but still remains a severe handicap for poor countries trying to develop their own agriculture. GATT rules permit slower phase-out of protection for farmers in developing nations (and exceptions for the poorest countries).

Further negotiations on agriculture will be the topic of the next round of discussions in the new World Trade Organization (WTO) beginning in fall 1999. The WTO also includes a new mechanism for settling trade disputes, which most observers feel is proving quite effective.

Nations have also negotiated about three dozen regional trade agreements, such as NAFTA, and hundreds of bilateral agreements.

Farmers in the United States and in developing countries have a vital stake in the outcome of trade negotiations.

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Lesson Plan

Unit 10: International Partnerships in Agriculture

Introduction

Purpose:

To help students understand some of the challenges to developing countries as they try to develop competitive agriculture, and some positive roles that U.S. private sector partners may play in that process

Key Concepts:

Market-oriented or market-based economies; comparative advantage; global competitiveness; freer trade; trade negotiations; General Agreement on Tariffs and Trade (GATT); World Trade Organization (WTO)

Learning Objectives:

Students should better understand some of the problems facing developing countries as they try to make their agriculture more competitive in their own and global markets, and some of the potential for mutual benefits from partnerships between the U.S. private sector and developing countries. Important topics include:

1. The degree to which global agricultural markets are already integrated into a single market
2. The effects that U.S. (and other industrial country) competitiveness and subsidies to agriculture have on food markets in poor countries
3. The necessity of poor nations trying to make their agriculture more competitive, and some of the challenges and benefits from such an effort
4. Some ways in which U.S. agriculture and private U.S.-based non-governmental organizations (NGOs) might assist the process:
 - Community-level development level projects with peasant farmers
 - Support for farmer associations from U.S. farm cooperatives
 - Business investments in developing country agricultural processing and marketing facilities
 - Joint ventures between-U.S. based international companies and developing country entities
5. The stakes for developing countries and U.S. agriculture in continuing agricultural trade negotiations

Getting Ready

Subjects:

1. Increasingly global markets, for agriculture and other products
2. U. S. (and European) dominance of global agricultural markets, including barriers against processed agricultural goods, and subsidies to agricultural exports
3. The effect of global competition on developing country agricultural and food markets, particularly for coastal cities and areas served by good transportation from ports
4. Challenges to developing countries in trying to make their agriculture more competitive
5. The domestic benefits of steps to increase competitiveness in international markets
6. Some ways in which U.S. agriculture and private U.S.-based non-governmental organizations (NGOs) might assist the process:
 - Community-level development level projects with peasant farmers
 - Support for farmer associations from U.S. farm cooperatives
 - Business investments in developing country agricultural processing and marketing facilities
 - Joint ventures between-U.S. based international companies and developing country entities
7. The stakes for developing countries and U.S. agriculture in continuing agricultural trade negotiations

Materials

Basic:

Copies of Issue Brief: *10: International Partnerships in Agriculture*

Advance Preparations:

Several weeks in advance

This unit can draw on people in almost every community who are already engaged in international agricultural partnerships, as used here. In some instances, the local representative may prefer to invite someone from company headquarters, or elsewhere. Some examples:

- Local farmers who consciously grow for export markets
- Grain elevator managers for companies that sell grain overseas, directly or indirectly
- Agricultural processors whose companies sell processed goods overseas (don't limit your search to large companies)
- Farm equipment dealers, whose companies almost certainly sell internationally, and some of whose equipment is probably

imported.

- Farm input suppliers, such as seed or farm chemical dealers, which are very probably international companies
- Grocers (particularly grocery wholesalers) who regularly purchase vegetables or processed goods grown or manufactured outside the U.S.
- Department or apparel store managers who sell a high proportion of imported apparel (trace the cotton in the clothing; how do the wages of overseas workers affect U.S. agriculture?)
- Representatives from non-U.S. international companies that have located plants or sales divisions in your area
- Retired businesspersons who have worked overseas
- Farmers, journalists, or others who have participated in a Farmer-to-Farmer exchange, or who have traveled abroad in an agriculturally oriented tour
- Returned missionaries or returned Peace Corps volunteers who have taken part in development projects

Invite two or three as a panel, far enough ahead of time that they can call in an expert, if they prefer. But put them at ease regarding your expectations, if they profess they “don’t know enough” – the exercise may be as much a learning experience for them as for you and your students.

You might wish to engage the students in selecting the panel. If so, the above list is included (Supplement 11.1) as a discussion starter. The same list may prove useful in the exercises in Units 11 (Development Assistance) and 13 (Careers).

This exercise might also fit into *Agribusiness in a Global Environment*, if you are using part or all of that resource – also part of The Council’s Professional Growth Series (see under *Supplemental Resources*, below)

1-3 days in advance

Assign Issue Brief 10: *International Partnerships in Agriculture*.

Ask students to review Issue Brief 6: *Making Markets Work For Everyone*

If you plan to use Unit 13 (Careers), copy and distribute the student activity sheet, “How Might My Career Choice Help Overcome Hunger?, (Suppl. 13.11),” on the day before the panel, so that students will have their career choices in mind as they prepare to question the panel/speaker.

You might spend a few minutes with the class on the day before the panel presentation thinking about questions they might have for the presenters.

Supplemental Resources

Print

Reeves, Don "Trade, Poverty Reduction & Economic Opportunity," and Renee Marlin-Bennett, "Agricultural Trade & Food Security," in *Hunger in a Global Economy: Hunger 1998* (Silver Spring MD: Bread for the World Institute, 1997) pp. 32-53.

National FFA Foundation and National Council for Agricultural Education, *Global Vision: A Look At The World's Agricultural Marketplace* (Mount Vernon: National FFA Foundation, 1997)

Audio-visual

Global Vision: A Look At the World's Agricultural Marketplace, National FFA Foundation (accompanies above study resource)

On-line

Agribusiness In a Global Environment, a 10 lesson instructional resource available online, or as a CD-ROM. For more information, contact The Council: 800-772-0939; pgs@teamaged.org; or <www.teamaged.org/pgs>

Bread for the World Institute <www.bread.org>

Food for Everyone (National Council on Agricultural Education) <www.teamaged.org>

Teaching the Lesson

Presentation:

1. Assuming you have arranged for an outside resource, be sure the students are primed to ask good questions., particularly about possible links to hunger and poverty in the poorest countries.

Discussion Questions /Quizzes:

Students might be graded on their participation in the discussion following a panel presentation.

Activities/Extensions

As a special assignment related to this lesson, you might help a small team of students find the official in your state's government who is charged with tracking agricultural trade statistics for your state. Ask them to get the list of all agricultural exports from your state, and the list of agricultural imports. Within the total lists, what are the three to five largest ag exports, and the 3-5 largest ag imports. What is the trend for each of these over the past 5 years?

Follow Up

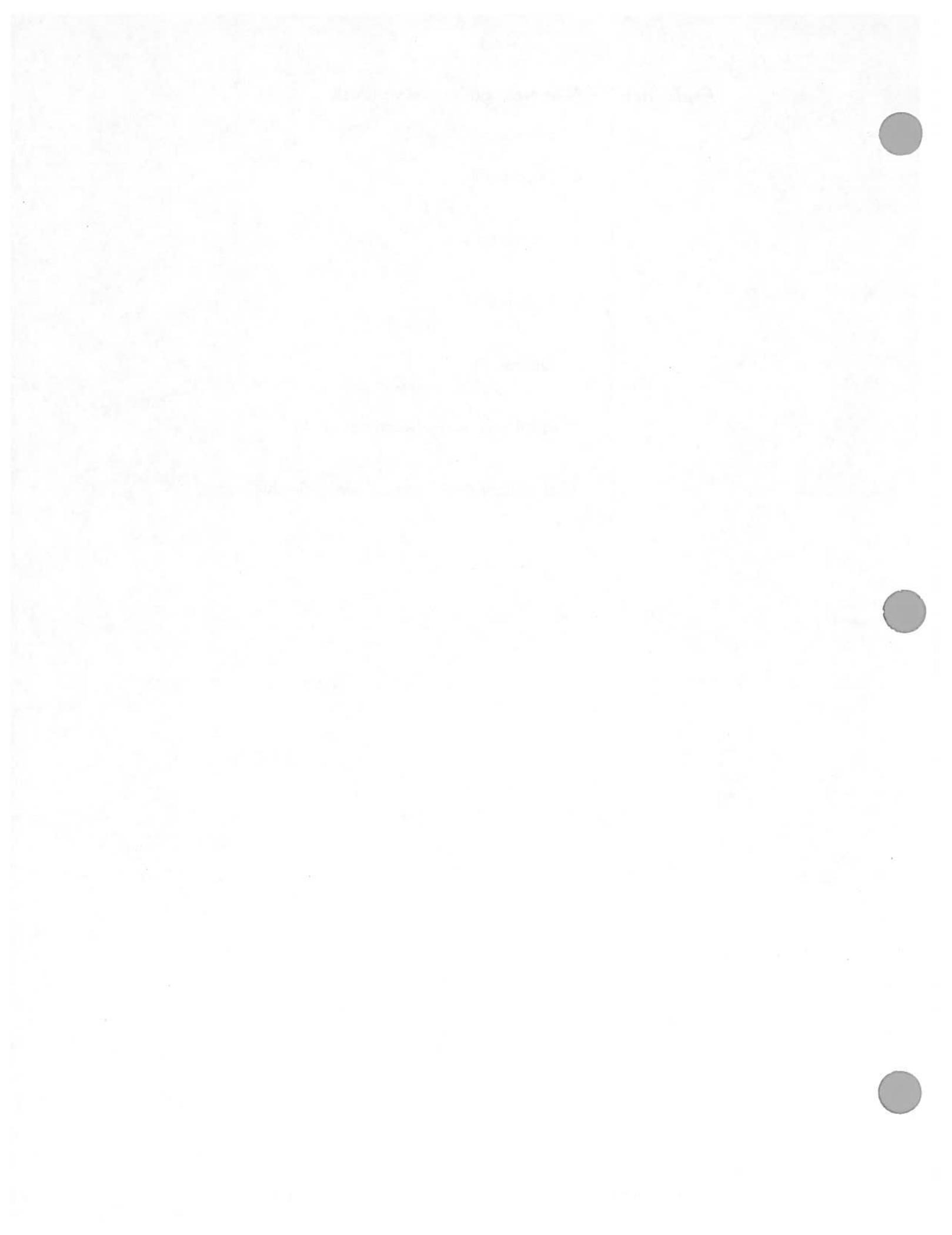
Evaluation

What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?



International Agriculture Partners In Your Community

A Starter List for Units 10, 11, and 13, Food For Everyone

The following are examples of people you might find in your community who could serve as a resource for your study of international business partnerships; international development assistance, or careers in international agriculture:

- Local farmers who consciously grow for export markets
- Grain elevator managers for companies that sell grain overseas, directly or indirectly
- Agricultural processors whose companies sell processed goods overseas (don't limit your search to large companies)
- Farm equipment dealers, whose companies almost certainly sell internationally, and some of whose equipment is probably imported.
- Farm input suppliers, such as seed or farm chemical dealers, which are very probably international companies
- Grocers (particularly grocery wholesalers) who regularly purchase vegetables or processed goods grown or manufactured outside the U.S.
- Department or apparel store managers who sell a high proportion of imported apparel (trace the cotton in the clothing; how do the wages of overseas workers affect U.S. agriculture?)
- Representatives from non-U.S. international companies that have located plants or sales divisions in your area
- Retired businesspersons who have worked overseas
- Farmers, journalists, or others, who have participated in a Farmer-to-Farmer exchange, or who have traveled abroad in an agriculturally oriented tour
- Returned missionaries or returned Peace Corps volunteers who have taken part in development projects

International and National Security Council

Department of State

Washington, D.C. 20520

Reference is made to the report of the Secretary of State dated 1964-01-15.

The following information was received from the Department of State:

On 1964-01-15, the Secretary of State advised that the Department of State

is currently reviewing the information provided in the report of the Secretary of State

dated 1964-01-15, and will advise the Department of State of the results of its

review as soon as possible.

The Department of State is currently reviewing the information provided in the report of the Secretary of State

dated 1964-01-15, and will advise the Department of State of the results of its

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review as soon as possible.

The Department of State is currently reviewing the information provided in the report of the Secretary of State

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Issue Brief

11. Does International Agricultural Assistance Create Competition for U.S. Farmers?

The battle to feed all humanity is over. In the 1970s, the world will undergo famines – hundreds of millions of people are going to starve to death in spite of any crash programs embarked upon now.

At this date, nothing can prevent a substantial increase in the world death rate.”

Dr. Paul Ehrlich in “*The Population Bomb*,” 1968

Since 1968, the percentage of malnutrition has been cut by more than half . . . life expectancy rose more than a decade . . . the percentage of those in absolute poverty has been cut almost in half . . . 5 million fewer children die every year

U.S. Agency for International Development, *Making a World of Difference*, 1998

Development Gains Over 30 Years

About the time of Dr. Ehrlich’s gloomy forecast in 1968 (above), the foreign assistance ministers from 17 countries gathered to coordinate their development assistance efforts. In the 30 years since then, their collective efforts have contributed greatly to remarkable achievements in developing countries:

- Literacy rates have climbed by almost 50%
- The average woman has 3 children, instead of 6
- Infant mortality has been cut 50%
- The percentage of people with clean water tripled, access to sanitation doubled
- Smallpox has been eliminated
- Per capita income has risen by 60%
- Seventy-one nations have moved toward greater democracy

Perhaps the greatest life-saving breakthrough of all was a discovery by an aid-supported researcher in Bangladesh. A simple packet of salt and sugar that costs about seven cents has saved millions of lives when used in oral rehydration therapy (ORT) as a defense against diarrhea.

Education and literacy, especially for women, has helped boost productivity and incomes. Educational gains for women help explain the decline in total fertility rates, increased family planning, and slower population growth.

While these achievements have depended primarily on actions taken by developing countries themselves, development aid has served as a catalyst, and provided technical skills and resources beyond the reach of poor nations.

Development Aid and U.S. Agriculture

Within these larger gains, does development assistance for agriculture create competition for U.S. agriculture? Based on the experience of the last 30 years, the answer, on balance, is “A little, but the gains are much greater.”

In 1997, the Working Group on International Trade and Development, sponsored by the full spectrum of U.S. farm, research and agribusiness interests, concluded:

Economic success abroad is good for agriculture in the United States. Even when U.S. foreign assistance efforts are directed toward increasing *agricultural production* in poor countries, the larger results can still be complementary with the interest of the farm sector in the United States.

Many nations that used to receive U.S. development assistance are now among our best markets for agricultural exports: Japan, Mexico, Korea, and Taiwan. All told, 43 of the top 50 importers of U.S. agricultural products were once U.S. foreign aid recipients.

For some crops, however, some former aid recipients have become competitors with U.S. producers. Brazil is on the verge of replacing the United States as the number one world exporter of soybeans, although the primary assistance for developing Brazil’s soybean production came from Japan after the United States embargoed soybean exports in 1973. Chile has captured a significant share of winter fruit markets. Mexico is increasingly its vegetable exports to the United States under the North American Free Trade Agreement. But agricultural exports to these same countries have nearly offset the new competition and imports.

Overall, 40 % of all U.S. exports, and half our agricultural exports go to developing countries. This share of the market is growing much faster than exports to other developed countries. On balance, U.S. farmers have much more to gain than lose from broad-based economic growth in poor nations, even from agricultural growth. Development assistance is good business.

The Green Revolution

One of the reasons that the famines predicted by Dr. Paul Ehrlich and others never happened was the development of new crop strains in research programs sponsored by aid donors. In a single decade, India boosted wheat yields by 500 % and more than doubled rice production. Around the world, agricultural yields have increased more since 1945 than in the previous 1000 years combined. Much of this work continues in sixteen internationally funded research centers around the world, although funding has shrunk during the 1990s.

From the 1950s through the 1980s, the United States led in global agricultural research efforts, drawing on the unique experience and pool of talents in our land-grant university system. Many developing country universities and research efforts were created through three-way cooperative programs, involving a developing country, a U.S. land-grant university, and USAID.

An important side effect of international agricultural research is the direct benefits to U.S. agriculture. Three quarters of U.S. wheat now contains germ plasm developed at CIMMYT, the international wheat research center in Mexico. The gains from this one improvement are greater than the total investment in that program over 50 years.

Declining Support for Aid

Even though the cost of aid is small – less than one-half of one percent of federal spending -- support and funds for aid have fallen during the 1990s. After inflation adjustments, current U.S. aid is the lowest since the 1950s. Compared to other developed countries, the United States isn't doing its share. In recent years, Japan, France, and Germany have invested more dollars in aid than the United States. Measured as a percentage of GDP going for development assistance, United States ranks last among 21 industrial countries.

Continued progress, built on earlier gains, is at risk.

Part of the declining support for aid is the result of misunderstanding. A majority of U.S. citizens believe that much more is spent on aid than actually is.

Much aid during the Cold War was distributed for strategic reasons, often to undemocratic governments that sided with the U.S. in the Cold War, but did not use aid funds for the benefit of their citizens, or simply pocketed large sums. So, criticism that past aid resources have been wasted and were not always effective is partly right.

USAID has been streamlined during the 1990s. Current programs are more clearly focused on need. More cooperative efforts are being undertaken with U.S.-based international non-governmental organizations (NGOs) that have a record of effective community-level projects. Funds are being granted directly to a growing number of developing country NGOs, as they develop the skills to manage projects. Standards for accountability have been raised for aid partners and recipient countries.

International Agencies

The United States is the largest donor and most influential member of international agencies, which deliver development assistance. It is insisting on higher standards of accountability in these agencies as well.

Concern for Africa

In efforts to improve the effectiveness of aid in Sub-Saharan Africa, USAID since 1997 has put much of its resources for Africa into the African Food Security Initiative. The program's goal is to reduce childhood undernutrition by increasing rural people's incomes. USAID addresses this goal in three ways: by increasing agricultural production, improving markets and access to markets, and expanding trade and investment in agriculture. Recipients are limited to those governments committed to the same goals, and which show signs of being able to effectively use such aid. U.S. farmer cooperatives and African farmer associations are prominent partners in almost every country's program.

To reinforce the concern for effective aid in Africa, Congress in 1998 passed the Africa: Seeds of Hope Act. This measure directs USAID to devote more of its attention and resources to the needs of Africa's small farmers and small rural entrepreneurs, the majority of whom are women. It encourages USAID's support for farmer associations, expanded promotion of very small loans for farmers and rural small businesses, and expanded agricultural research tuned to the needs of small farmers and environmental protection. The bill was passed with leadership from Bread for the World and other religious groups, and support from the U.S. and international agricultural research centers. Bread for the World and other supporters are monitoring its implementation.

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UNIT 11:

Doesn't International Agricultural Assistance Create Competition For U.S. Farmers?

The surprising result of 50 years of helping:
more markets and gains in U.S. farm productivity.

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Lesson Plan

Unit 11. Does International Agricultural Assistance Create Competition for U.S. Farmers?

Introduction

Purpose:

To help students understand that development assistance from the United States for developing country agriculture is in the long-term self interest of United States and U.S. agriculture

Key Concepts:

Development assistance/development aid; official development assistance; broad-based economic development; effects of increasing incomes on poor people's diets; transition from aid recipient to market customer

Learning Objectives:

Students should be able to identify and balance the trade-offs in helping poor countries develop more productive and competitive agriculture. More specifically, they should understand:

1. The large gains in human well-being from development efforts over the past half-century
2. The importance of broad-based economic growth; that economic growth is necessary, but by itself is not a sufficient measure of development gains
3. The significant catalytic role that relatively small investments in development assistance have played in overall development efforts
4. That U.S. development assistance has declined in recent years, and stands at less than one-half of one percent (0.5%) of U.S. federal expenditures; as a fraction of GNP, the United States contributes less to development assistance than any other industrial country
5. That U.S. agriculture has benefited from development assistance in two distinct ways:
 - As poor people's incomes have improved, they have become customers for U.S. agricultural products;
 - Results from aid-assisted agricultural research have been adapted into U.S. agricultural technology, with direct gains far exceeding the U.S. investments in such research
6. That some U.S. producers will be adversely affected by stronger agriculture in poor countries, but overall, it is a win-win situation

Getting Ready

Subjects:

1. Development assistance as a catalyst for developing country efforts
2. The small, and shrinking, investment that the United States is making in development assistance
3. The range of actors engaged in development assistance
4. Benefits to the United States and U.S. agriculture from broad-based, sustainable development in poor nations

Materials

1. Copies of Issue Brief: *11: Does International Agricultural Assistance Create Competition for U.S. Farmers?*
2. Copies or overhead of "U.S. Federal Budget," (Supplement 11.11)
3. Copies of "An Interview on International Agricultural Development Assistance," (Supplement 11.12) should have been distributed a couple of weeks earlier.

Advance Preparations:

Several weeks in advance

Decide whether you will ask all the students to use the exercise, "An Interview on International Agricultural Development Assistance," (Suppl. 11.12). If pressed for time, you might divide the class – asking part of the class to use this exercise, and part to interview local anti-hunger food providers (Suppl. 12.11).

In class discussion, determine whether or how many students (or their family or church or other group they are part of) have taken part in or supported an international food, relief, or development program. Assign those who can to interview their pastor about their religious group's international efforts. Others may interview a local member or representative of a group such as Oxfam America, Heifer Project International, or CARE. Some may be able to interview a local person with experience in international development assistance. (See suggestions in Suppl. 11.12) Assign others to do an online web search, based on a general inquiry, or from the list of international food and assistance agencies listed in the activity worksheet (Suppl. 11.12, below).

One week in advance

Be sure students have found a resource person to interview, and have made or scheduled their interview.

Supplemental Resources

Print

Pinstrup-Andersen, Per, Mattias Lundberg, and James L. Garrett, *Foreign Assistance to Agriculture: A Win-Win Proposition*, Food Policy Report (Washington: International Food Policy Research Institute, 1995)

Pinstrup-Andersen, Per, and Marc Cohen, *Aid to Developing-Country Agriculture: Investing in Poverty Reduction and New Export Opportunities*, 2020 Brief 56 (Washington: IFPRI, 1998) 2 pp.

USAID, *Making a World of Difference: Celebrating 30 Years of Development Progress* (Washington: USAID, 1998) 16 pp. A concise summary of the 30 year record of USAID. Contains descriptions of themes and a sampling of specific programs. Includes several reproducible fact sheets for overhead use.

Audio-visual

Video: (Strongly recommended) *Making a World of Difference* demonstrates 30 years (1968-1998) of development progress in developing countries, highlighting the role of USAID. Development indicators include: reduction in illiteracy, fertility rate, infant mortality, and malnutrition; increases in access to clean water, democratic participation, and per capita income. 20 minutes. Free. A booklet accompanies the video.

Order: 202-712-4810

Video: *Hidden Harvest*, jointly produced by FFA and USAID. The video focuses on the adaptation and introduction of improved wheat varieties to Ethiopian farmers, and points out that some of the same improved germ plasm is used in U.S. wheat production. (This video was mailed to each FFA Chapter in 1997 – If you have misplaced your copy, contact The Council.)

Global Vision: A Look At the World's Agricultural Marketplace, National FFA Foundation (accompanies above study resource)

On-line

See the sites and suggestions which are part of the interview exercise (Suppl. 11.12).

International Food Policy Research Institute (IFPRI) website: www.ifpri.org. Several relevant titles among their policy discussion papers and issue briefs from their 2020 Vision program; briefs and summaries of longer papers may be downloaded.

USAID website: www.info.usaid.gov/, has several reproducible brief handouts:

- "Why Foreign Aid?," 8 pp.
- "The USAID Fact Sheet," 7 pp.
- "Making a World of Difference: Celebrating 30 years of Development Progress," 2 pp.

Food for Everyone (National Council on Agricultural Education)
<www.teamaged.org>

Teaching the Lesson

Presentation:

Hold a brief class discussion, so the points included in Issue Brief 11 are in students' minds as they present and hear reports from their interviews on international agricultural assistance. Refer to *Learning Objectives*, and *Subjects*, above.

As students share and discuss their interviews, watch for ways to link their reports to the theme of the lesson: that, on balance, support for international agricultural development assistance serves both humanitarian interests, and improves U.S. agricultural export markets.

Follow Up

Evaluation

What parts of this lesson went well?

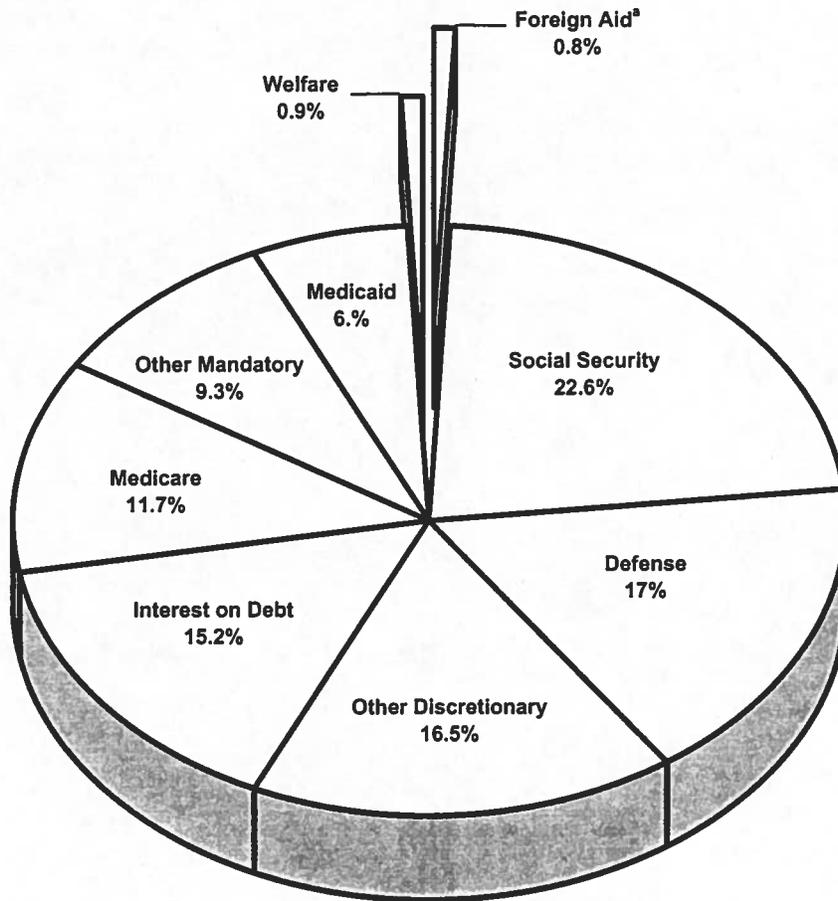
1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

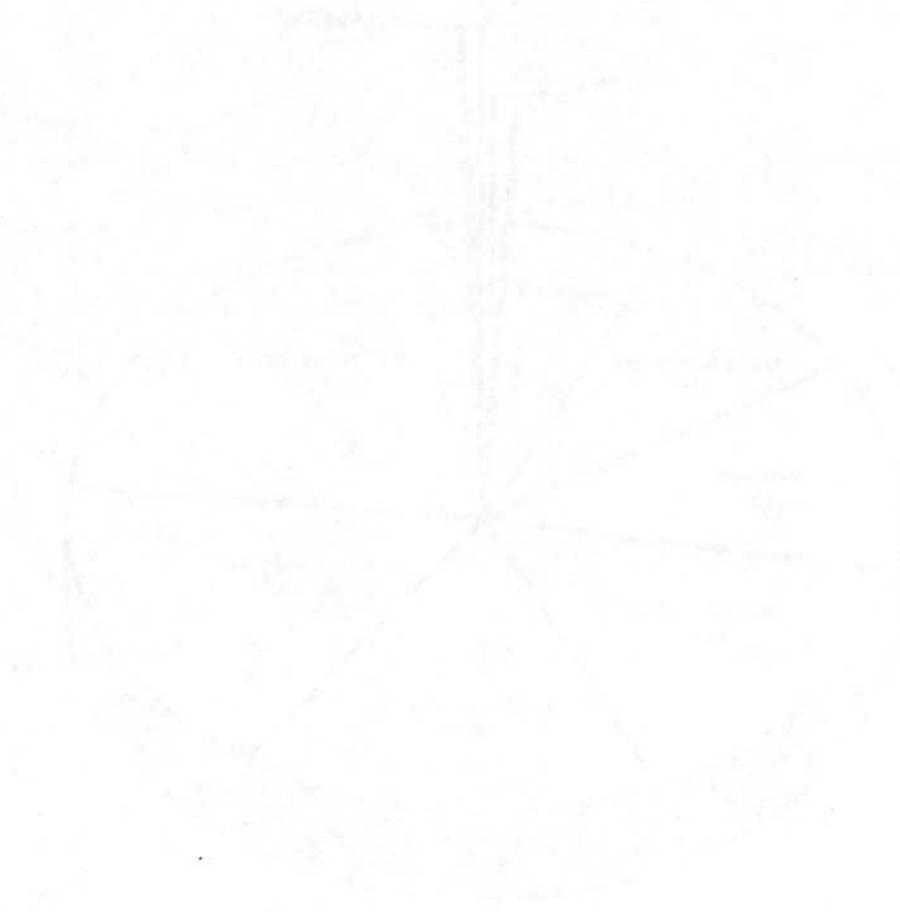
U.S. Federal Budget

Fiscal Year 1997



^aForeign aid includes development aid, export programs, and security aid to Egypt and Israel.
Source: Office of Management and Budget.

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International Agricultural Development Assistance

An Interview Exercise

The first priority for this exercise is for a small group to interview someone in your community who is actively involved in, or actively supporting, a program of international agricultural development assistance. The most likely prospect is the clergy or a lay leader in your family's religious group about your groups overseas relief and development program. If this is not possible, then you may be able to find someone in the community who has actual overseas experience in such assistance, or a local representative of a group such as CARE, Oxfam America, Heifer Project International, or Farmer-To-Farmer Exchange. As a backup, you may conduct an online exploration of one such agency.

More suggestions for finding an interviewee, or a website to visit, are on the next page.

Working in small teams, interview the chosen person (or website). Plan ahead. Make an appointment several days in advance – the interviewee may need time to collect information or materials. Request a 30 minute interview. Decide who will ask each series of questions, and how you will remember the responses. End the interview with thanks for their time.

The questions below may serve as a guide for your interview. You may want to add others, or the interviewee may want to share information not covered here.

As assigned by your teacher, prepare an oral or written report of your interview, covering the areas explored during the interview. Plan for each team member to share in the report.

1. **What is the purpose or mission of the agency?**
 - Does it engage in humanitarian relief or development assistance, or both?
 - If the latter, in approximately what proportions?
 - Is support for agricultural development part of the mission statement?
 - Who supports the agency (especially if not associated with your own religious group)?
2. **When was the agency begun?**
 - How has the agency changed over the years?
3. **Who does the agency serve?**
 - How many countries does the agency work in? Does the program have a regional focus?
 - Within a country or region, what specific groups are targeted? (e.g. small women farmers, homeless street children, pregnant mothers, etc.)
 - Does the agency specifically target small farmers or small rural business persons, the majority of whom are women in many developing countries
 - Are there any restrictions on who may be served?
4. **Describe one or two typical projects from this program.**

Finding an interviewee

International Agricultural Development Assistance

The most likely candidate for an interview is the clergy or a lay leader in your religious group, who can visit, or help get information, about your group's overseas work, particularly in agriculture or rural areas. If someone in your team is handier with online searches than the pastor, you might offer to help the interviewee collect information from their website.

Another group of likely prospects will include a local representative of an agency more broadly-based than your own religious group, such as Oxfam America, Heifer Project International, or CARE. You may need to go to a website to get a telephone number to find out whether the group you select has a local representative, and how to contact them. See the website suggestions, below.

A third group of possible prospects may be people who have had overseas experience in agricultural development assistance, such as business or university people, returned missionaries or Peace Corps volunteers, or farmers who have taken part in a short-term Farmer-To-Farmer exchange or service program. Word of mouth inquiry is most likely to turn up such a person. Your teacher may be helpful in this regard.

Finally, if all else fails, ask permission from your teacher to conduct an online exploration of a specific program.

The following online suggestions may be useful in finding the right agency, or finding out about an agency you have selected.

1. The most comprehensive list of agencies engaged in overseas development work is the membership list of Interaction. All members are listed, together with links to the website maintained by most of the member agencies. www.interaction.org/members. Your religious group's agency is probably listed here, if your or your interviewee want to review their website.
2. You might also want to visit the site of umbrella religious agencies, such as Catholic Relief Services www.crs.org; Church World Service (mainline Protestant) www.cws.org; World Vision (supported by many evangelical Christians www.worldvision.org; or MAZON (Jewish) www.mazon.org.
3. Most of the larger development agencies are members of International Service Agencies www.charity.org/. This site includes a one-page description of each member agency, plus a link to their website. This may be helpful in initial explorations.
4. Your list for exploring might also include other groups:
 - Businesses, including cooperatives, that have development programs
 - Foundations, such as Winrock International.
 - Universities with exchange programs, large foreign student populations, or partner arrangements with developing country universities
 - USAID www.info.usaid.gov
 - International agencies such as the World Bank, www.worldbank.org, or the United Nations Development Program, <www.undp.org>.

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Issue Brief

12. If the United States Can Produce Enough Should We Feed The World?

Could the United States feed the world? Clearly, without breaking a sweat.

Should the United States feed the world? Clearly, the United States, and U.S. agriculture, would be better off if everyone in the world were adequately nourished. It could be done with food aid. But food aid alone is not a complete or permanent solution to hunger. It can help people through emergencies. It can be an effective tool in helping poor people meet their own needs through broad-based development. We can and should be doing more than we are. We've done more in the past.

Three questions about filling the food gap:

- How much food would be required?
- How much would it cost; who might pay?
- How can food aid be used to promote broader development?

How Much Food To Close The Gap?

The United States Department of Agriculture (USDA), in its annual food security assessment, measures the food gap in countries that have recently received, or might need, food aid – 66 countries in 1998. For each country, the food gap is measured in two ways:

- First, how much food would be required to maintain each nation's present food supply (1995-97 average), referred to as *status quo*?
- Second, how much food would be required for each nation to meet minimum nutritional requirements, (*nutritional requirements*)?

By the status quo measurement, 49 of the 66 countries were expected to have a food gap in 1998 equivalent to 11 million metric tons (mmt) of grain. Over the next decade, the status quo food gap would rise, reaching 19.8 mmt in 47 countries by 2008.

To meet nutritional requirements in 1998, 33 of the countries were estimated to need an additional 17.6 mmt of grain. By 2008, 35 countries would need an added 28.4 mmt of grain equivalent.

Thinking Metric:

International grain trade and food aid are measured in metric tons (or tonnes), which U.S. citizens are slowly getting used to. Some helpful comparisons:

A metric ton is 36.7 bushels of wheat, 39.4 bushels of corn, or 22.04 hundredweight of rice.

A million metric tons (mmt) of grain (37-39 million bushels, depending on which grain) would fill 100 grain trains, each over a mile long, or 26 average ocean freighters.

A metric ton of grain would feed about 1700 people for a day, or 4.6 people for a year, if all their calories came from grain. A daily ration of 600 grams (1.3 pounds – about 3 cups of dry grain) would provide about 2100 calories per day.

These food gap estimates are calculated from formulas that include, for each of the 66 countries, estimates for population growth, economic growth, domestic food production (including root crops and livestock), world grain prices, and commercial trade, including food imports. They do not count food aid.

These estimates of the food gap are too low rather than too high. If allowance were made for distribution efforts to reach all the poorest families, or provide more than a minimal 2100 calories per day, the estimates would increase, perhaps by one-third.

Although global food aid was as high as 15 mmt in 1992, it has totaled 5 to 9 mmt in recent years. So, food aid would need to double over recent levels, to nearly 20 mmt per year, to fully meet nutritional requirements.

An increase of 8-10 mmt per year in food aid would represent about 0.5% of global grain production (around 1,900 mmt in recent years), less than the average annual growth from one year to the next. If it all came from the United States, it would equal 2 to 2.5% of U.S. annual production. U.S., and the world, could close the food gap easily, if we chose.

What Would it Cost to Close the Gap? Who Should Pay?

In the 1998 budget year, the United States spent \$837 million to deliver 2.2 million metric tons of grain to 43 million beneficiaries in 54 countries. At this rate, delivering an additional 8 to 10 mmt of food aid would cost the global community \$3 to \$4 billion. In a period of tight budgets and skepticism about foreign aid, or compared to what the world is now spending on food aid, it seems like a lot.

But developed countries together spent nearly that much on food aid in 1992, in response to emergencies in Africa and a desire to help Eastern Europe make the transition from communism. From another perspective, \$3 billion is 0.01 percent of the \$30 trillion global economy – not a very high price to pay for food security! Or compare it to about \$750 billion per year spent on the world's armies.

In recent years, the United States has borne about 40% of food aid costs worldwide. In a couple of these years, Japan has contributed more – much of it spent to buy U.S. grain, since Japan is a food importing nation. On this basis, the U.S. share of closing the food gap in poor nations with food aid might be \$1.5 to \$2 billion per year. We, and the world, could afford to close the gap if we wanted to, and if food aid seemed the best way to go.

Food Aid for Development

The basic U.S. law governing the distribution of food aid is most often called "Public Law 480" (P.L. 480), the number assigned it on passage in 1954, or "Food for Peace", which reflects a major strategic motivation for its passage during the Cold War era. But it had, and has, other supporters as well. Humanitarians support it as a way to respond to hunger. Farmers support it as a way to help move surplus grain. These latter motives are reflected in its formal name, "The Agricultural Trade Development and Assistance Act of 1954."

Title I of P.L. 480, administered through USDA, provides for long-term low-interest loans for purchase of U.S. agricultural commodities. It has been a strong tool for developing new markets for U.S. agricultural exports. Many early recipient countries, particularly in East and Southeast Asia, have graduated to commercial imports of U.S. farm produce. Some middle income countries, e.g. Indonesia, and Jordan, mix commercial purchases with subsidized-loan imports. Many poor nations, especially in Africa, continue to depend heavily on subsidized-loan imports, often in conjunction with food aid grants, under the other main title of P.L. 480.

Title II of P.L. 480, administered by USAID, provides for donation of U.S. agricultural commodities by the United States to meet humanitarian needs. Food aid for emergencies is granted government-to-government, and through public and private agencies, including

intergovernmental organizations such as the World Food Program. Non-emergency food aid may be provided through non-governmental organizations (NGOs), cooperatives, and intergovernmental organizations.

In some earlier instances, delivery of food aid, even for emergencies, was delayed by slow decision-making or bureaucratic fumbling. Food aid intended for emergencies often arrived just as the next harvest came in, ruining local markets. With the development of an early warning system by FAO, and a modest stock of foodstuffs in the hands of FAO's World Food Program, plus accumulated experience, emergency food response is much improved, and seldom undercuts local agriculture.

Using food aid to promote longer-term development requires very careful management, so that the food may be well used without interfering with local farming and local markets. The problem was most severe during the height of the Cold War, when food aid was often little more than a reward for strategic support, and was just dumped into local markets, with bitter results for local farmers.

Three non-emergency food delivery programs, often run in cooperation with international or local NGOs, stand out as contributing in major ways to longer-term development as well as short-term food security:

- Nutrition programs for children, often connected to schools
- Nutrition programs for infants and mothers, often associated with nutrition education
- Food-for-work programs, in which unemployed poor workers are paid in food for work on public projects such as road construction

Carefully managed, each of these programs can deliver food to families which otherwise would not have access to it, without seriously threatening local markets.

Done right, food aid used for development is a win-win situation for hungry people in poor countries and U.S. farmers. As incomes improve among very poor people, a high proportion of it is spent on food, and some of the new demand finds its way to U.S. exports.

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UNIT 12:

If The U.S. Can Produce It ... Should We Feed The World?

International food aid and domestic food programs to meet emergencies and help families toward greater self-reliance wherever appropriate.

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Lesson Plan

Unit 12. If the United States Can Produce Enough Should We Feed the World?

Introduction

Purpose:

To understand that the United States, with cooperation from other industrial countries, could easily feed everyone in the world, but that providing food is only part of a long-term solution to global food security

Key Concepts:

Food assistance/food aid; food gap; closing the food gap; meeting nutritional requirements; metric measurements; Public Law 480 (PL480); Food and Agriculture Organization (FAO)

Learning Objectives:

Students should understand the relatively small cost of providing as much food aid as can be well used – emergency and humanitarian uses, plus use of food aid as a development tool. They will learn:

1. The standards by which food gaps are measured, and how they are calculated
2. The size of food gaps to maintain status quo, or to meet minimum nutritional requirements
3. To relate food gap estimates to current global food production estimates
4. To understand the relatively low cost of providing as much food aid as might be well used.
5. Some of the ways food aid can be used for longer-term development purposes

Students will develop additional facility in using metric measurements, and in accessing current information related to food needs and global agricultural production

Getting Ready

Materials

Basic:

Issue Brief 12. *If the United States Can Produce Enough Should We Feed the World?*

Exercise: "Interview Anti-Hunger Food Provider" Supplement 12.11)

Optional:

Final Quiz, an "open book" quiz, as a basis for summarizing the Food For Everyone series. You may wish to omit some questions if you have offered only part of the lesson units.

Advance Preparations:

Several weeks in advance

Decide whether you will ask all the students to use the following exercise, "Interview Anti-Hunger Food Providers," (Suppl. 12.11). You may already have decided to divide the class – asking part of the class to use this exercise, and part already assigned to interview someone related to a program of international assistance to agricultural development (Suppl. 11.12).

In class discussion, identify the anti-hunger food providers in your community. Assign students, in teams of two to four, to interview a representative in several (e.g., Food Stamp office, WIC program, welfare program; school lunch program; meals on wheels, senior center; relief shelters or soup kitchens; church or community food pantries; food banks). Distribute the guide for interviews, "Interview Anti-Hunger Food Providers," (Suppl. 12.11). Clarify for students whether their report is to be oral, written, or both, and give guidelines regarding length.

One week in advance

Be sure students are on track with their interviews.

1-2 days in advance

You may wish to assign the "Final Quiz" as a take-home assignment.

Supplemental Resources

Print

Beckmann, David and Arthur Simon, *Grace at the Table: Ending Hunger in God's World* (Silver Spring, Maryland: Bread for the World, 1999)

On-line

Bread for the World Institute <www.bread.org>

Food for Everyone (National Council on Agricultural Education)
<www.agedhq.org>

Teaching the Lesson

Presentation:

The primary classroom activity for this unit will be the presentation and discussion of team interviews with local anti-hunger food providers. Some questions that might flow from the students' reports:

- Did you discover any surprises about hunger in your community?
- Are there more or less hungry people in the community than you had expected?
- Are the hunger needs of your community being adequately met?
- Describe the interests of U.S. agriculture in fully meeting U.S. hunger needs.

You may wish to spend a few minutes (or part of another period) discussing the question which is the title of Issue Brief 12: *If the United States Can Produce Enough Should We Feed the World?*. Students may have comments on this question based on their interviews related to development assistance, since many agencies include both tasks in their programs.

Discussion Questions / Quizzes:

The attached "Final Quiz" (Suppl. 12.12) might be used either as a take-home assignment, or if you have time, an in-class quiz. It may help summarize the themes of the lesson series, and could be the basis for a final in-class discussion of issues raised and learning from the series. It might also contribute to an evaluation of the series and the basis for future planning.,

Follow Up

Evaluation

What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

Unit 12. Interview Anti-Hunger Food Providers

In class discussion, identify anti-hunger food providers in your community. Some examples would include: Food Stamp office, WIC program, welfare program; school lunch program; meals on wheels, senior center; relief shelters or soup kitchens; church or community food pantries; and food banks.

In teams of two to four, interview the director or manager of at least two food programs. You might want to select programs that are not alike – e.g., the Food Stamp office, a community pantry, and a soup kitchen. Plan ahead. Request a 30 minute interview. Decide who will ask each series of questions, and how you will remember the responses. End the interview with thanks for their time.

The questions below may serve as a guide for your interview. Your team may want to add other questions to determine how this program serves hungry people in your community.

As assigned by your teacher, prepare an oral or written report about each program, covering the areas suggested by the following questions, plus other areas you may have explored in your interview. Plan for each team member to share in the report.

1. **Whom does the program serve?**
 - a) What group(s) of people use the services of your program? Describe a typical user of the program. How do people find you?
 - b) Can anyone use the program, or must participants meet certain qualifications? If so, who determines whether they qualify?
 - c) Are there any limitations on the frequency or number of visits by one individual or family?
2. **Who sponsors the program?**
 - a) Does a department of government sponsor the program? If so, is it federal, state, or local?
 - b) If the program is private (non-governmental), who sponsors it?
 - c) Especially if the program is private, where do the funds and food come from?
3. **Who runs the program?**
 - a) Is your program run on a day-to-day basis by paid staff, volunteers, or some combination?
 - b) If partly run by volunteers, what proportion of the work do they do?
 - c) What skills are required of volunteers? Are they given any special training for their work?
 - d) How are volunteers recruited? How much time is expected from volunteers: Are one-time or occasional volunteers helpful, or do you really prefer people who can volunteer regularly?
4. **Assessing hunger needs in this community**
 - a) How long has this program served in this community?
 - b) Can the program meet all the requests for food that it receives? If not, describe the gap between requests and your capacity to meet these requests.
 - c) Does the need for your services vary with the seasons of the year, or other factors?
 - d) Would you describe the need for food assistance in this community as greater, smaller, or about the same as 2 years ago? 5 years ago? When the program began?
5. **Meeting the community's hunger needs?**
 - a) Describe how this program fits together with other food assistance programs in the community. What is its unique role? Do you and other programs refer people back and forth to better meet their needs?
 - b) Do all the programs together adequately meet the hunger needs of the community?

Lab 1: Introduction to the Lab

The purpose of this lab is to introduce you to the laboratory environment and the equipment you will be using. You will learn how to use the oscilloscope, the function generator, and the breadboard. You will also learn how to connect components in a circuit and how to measure voltage and current.

The lab is divided into several sections. The first section is an introduction to the laboratory environment. The second section is an introduction to the oscilloscope. The third section is an introduction to the function generator. The fourth section is an introduction to the breadboard. The fifth section is an introduction to circuit measurement.

The lab is designed to be completed in a 2-hour period. You will be working in pairs or small groups. The lab is designed to be a hands-on experience. You will be using the equipment in the laboratory to complete the lab. The lab is designed to be a learning experience. You will be learning about the equipment and the concepts of circuit measurement.

The lab is designed to be a fun and interesting experience. You will be working with some of the most interesting and useful equipment in the laboratory. The lab is designed to be a challenge. You will be working with some of the most challenging and interesting concepts in circuit measurement.

Final Quiz: Food For Everyone

An Open Book Quiz. You may use Issue Briefs, class notes, etc.

Name _____ Date _____

1. Approximately how many people in developing countries are chronically hungry (food insecure)?
_____ How does this compare with 30 years ago?

How many try to live on less than \$1 per person per day? _____.

2. In what regions of the world are most poor, hungry people found? _____

In what region of the world is hunger still getting worse _____

3. Name and briefly describe two reasons why hunger is worse for some people than others in the same country or community?

4. True or False? _____ Worldwide, people are hungry because there is too little food.

5. (Circle the best answer) The greatest single step toward food security for poor and hungry people would be to:

- a) grow more food in the United States
- b) grow more food in poor hungry nations
- c) educate children, especially girls
- d) create more jobs or businesses

6. Why did you choose your answer in question 5?

7. In what ways would U.S. agriculture be helped by agricultural and economic development in poor countries? In what ways might the United States and U.S. agriculture be threatened?

8. Are the needs of hungry people in the United States being adequately met? Give some evidence to support your answer.

9. Should the United States spend more on international agricultural development assistance? Why or why not?

10. Should the United States give more food aid to hungry people in poor countries? Why or why not?

(Not for grading)

Name one or two things you liked about the Food For Everyone series of lessons?

Name one or two things you didn't like about the Food For Everyone series of lessons?

FOOD FOR EVERYONE

A Teaching Resource on World Hunger and Agriculture

UNIT 13:

So Where Do I Fit In?

Careers in international agriculture; international aspects of U.S. agricultural careers;
the role of good citizens.

Vocations

Sponsored by



Bread for the World
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FOOD FOR EVERYONE

A Teaching Resource on World Hunger and Agriculture

Issue Brief

13. So Where Do I Fit In?

At the World Food Conference in 1974, the U.S. Secretary of State Henry Kissinger declared that "within a generation, no child on earth should go to bed hungry." A generation has passed. The proportion of hungry people has declined by about half, but their number is about the same. A third of the children in developing countries do not get enough food to grow and learn to their full potential.

Food security has improved in some countries and regions, notably East and Southeast Asia, but it is still getting worse in Sub-Saharan Africa.

U.S. Agriculture and Hunger

Four new understandings have emerged about world hunger during this past generation that have strong implications for U.S. Agriculture.

First, now, and for the near and mid-term, hunger is not primarily a result of inadequate food supplies. People are hungry because they are poor. They don't have enough income to buy the food they and their families need.

Second, in the low-income food deficit countries, agricultural and rural development are key to sustainable broad-based development. These are still rural nations. Agriculture is the largest sector of their economies. The nations that have essentially emerged from hunger have all given high priority to a thriving agricultural sector.

Third, thriving agriculture in developing countries has proven not to be a competitive threat to U.S. agriculture in most instances. When coupled with broad-based overall economic growth, it has instead led to new export markets for U.S. agriculture, particularly in Asia.

Fourth, agricultural development assistance, coupled with sound economic policies and stable political climates, has contributed to sustainable development and the growth of U.S. markets. An important side benefit has been the direct benefits to U.S. agriculture flowing from research directed toward the needs of developing countries.

Finally, it is in the interest of U.S. agriculture that development assistance for agriculture in developing countries be increased, rather than decreased, as it has during the decade of the 1990s.

Agricultural Career Choices and Hunger

Almost every agricultural career is linked to international agriculture, and in varying degrees to some facet of overcoming world hunger. Consider:

Production agriculture: U.S. farmers will continue to be an important source of high-quality, low-cost foodstuffs in world markets. Farmer owners, managers, and production workers for every kind of crop will make their contribution.

Agricultural inputs: World class businesses, many international in their control and operations, and farmer owned cooperatives will supply ever more sophisticated equipment, supplies, and services. They will require a wide range of specialists: engineers, chemists, biologists, economists, policy analysts, business managers and accountants, computer and information managers, marketing specialists, and storage and transportation experts, to name a few.

Agriculturally-based consumer goods: As with input suppliers, agricultural processing and manufacturing businesses need the full range of business and management skills as they compete to deliver a variety of products to consumers in increasingly global markets.

As both input suppliers and food manufacturers expand into international markets, they can develop the skills of workers and managers wherever they are.

Education and Research: Good teachers have always come at a premium. Well-trained teachers, both in classrooms and in communities, will be even more in demand as skill levels keep climbing for world-class agriculture.

Education and training in developing countries are among the most pressing needs. Training foreign students in agricultural and social sciences, and cooperative development of strong training institutions are among the largest contributions of the United States to agricultural development in poor nations.

Rigorous research is imperative. Some research, where there may be tension between the public good and private interest, must continue to depend on public support. Environmental science is one such instance.

Affluence, leisure time and specialty crops: With continued affluence, demand grows for horticultural, organic and specialty crops, and people with relevant skills. Some of these crops hold promise for developing countries – non-traditional exports such as cut flowers and winter vegetables have replaced some traditional tropical exports. U.S. importers can help make these ventures work.

Public Policy and Governance: Only public officials can carry out some aspects of agriculture. Elected officials formally set most public policies, but appointed officials carry them out. Businesses depend on contracts being enforced. Small businesses, especially, need access to reliable statistics. Consumers count on food safety and accurate labeling. Sound policy analysis by a range of social scientists is necessary for good public decisions.

Trade negotiations over the next decade are crucial both to U.S. agriculture and developing countries. International food aid and development assistance are set by Congress. Safety nets involve both federal and state officials. Each of these arenas requires well-trained people of integrity.

Media and Communication: Global agriculture depends increasingly on timely and accurate information. Writing and journalistic skills will be in increasing demand, both for business and public reporting purposes. Clear, easy to understand communication can be an important contribution to developing country agriculture and business, since they must deal primarily in a foreign language.

Hunger Relief: National governments, international agencies, and international non-governmental organizations (NGOs) all deliver food aid, often under difficult circumstances. Understanding of different customs, cool heads, and innovative talents are important traits for international relief workers.

In the United States, large public programs for food assistance and other safety nets programs require sensitive and well-trained administrators and careful record keepers.

Direct Development Assistance: The United States, international agencies, businesses, foundations, and non-governmental groups all have programs for direct development assistance, with jobs both in the field and in administration. Many overseas jobs require a high level of skills, great specialization, and extensive experience. Increasingly, these programs focus on training indigenous people to do most tasks. Teaching skills and great sensitivity are required. A few programs, however, can use volunteers and interns, notably the Peace Corps and some short-term assignments by NGOs. In some of these instances, being present and concerned is as great a contribution as technical assistance.

Skills, Training, and Experience

Note the frequency, in the preceding paragraphs, of reference to high level skills and specialized training. This is reality. More and more farms are asking for post-secondary training, even for production workers. College or post-graduate training is now the norm for most management positions. Many firms assist in continuing formal education and require in-service training.

Competition is keen for well-trained or promising potential employees. Many agribusiness firms offer summer internships, with an expectation of a job offer.

Volunteering and internships, most during or after college, are ways to start getting experience that may open doors to some of the more coveted jobs. Applicants for such internships are often screened on the basis of volunteer and community activities during school.

Making Democracy Work

Ending hunger is feasible, in the United States and around the world. Collectively, we know how to grow enough food. We could afford to give hungry people enough to eat, but that is not a long-range solution. Strengthening developing country agriculture and taking steps to create new employment and job opportunities are more difficult. But we have accumulated a great deal of understanding of how to make these happen.

Dialogue will continue about exactly the best approaches to reducing or ending hunger. But the most important ingredient in setting sound public policies is the public will to do so. Over time, elected officials do respond to clearly expressed citizen concerns.

Good citizens can help end hunger in three ways:

- Support hunger relief and development efforts;
- Inform yourself about public policies issues; and
- Communicate your concerns and opinions to your elected representatives.

Volunteering and good citizenship activities, added to a sound career choice, can help reduce or end hunger. Happily, in this instance, responding to a humanitarian concern may also be good business, both for the United States and U.S.

FOOD FOR EVERYONE

A Teaching Resource on World Hunger
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FOOD FOR EVERYONE

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and Agriculture

Lesson Plan

Unit 13. So Where Do I Fit In?

Introduction

Purpose:

To encourage students to explore the wide range of careers that can contribute to increasing food security in the world, particularly those that deal with world hunger and agricultural development

Learning Objectives:

Students should better understand that many of a wide range of agricultural careers might help improve food security; and gain a sense of the skills and training required for those careers of greatest interest

1. Students who have some idea of their career goals should relate their choice to helping overcome hunger and poverty
2. Students who have not yet set goals should explore widely, with the potential for contributing to food security one consideration
3. Students should gain some idea of the range of incomes for the choices they consider
4. Students should be able to cite the education, skills, and experience required for their career choice
5. Students may consider the service aspect of career choices, including internships, public service, and volunteer activities
6. Students may think of good citizenship and political participation as an aspect of their efforts to help improve food security

Students should improve their skills for exploring possible career choices

Getting Ready

Subjects:

1. Exploring the wide range of agricultural careers which might contribute to improved food security; improving search skills
2. Understanding the requirements for a particular career choice:
 - Education; training
 - Skills
 - Experience
3. Relating a career choice to reducing hunger and poverty
4. Considering volunteer activity as part of good citizenship
5. Taking part in public policy decision-making as part of good citizenship

Materials

Basic:

1. Copies of Issue Brief: 13. *So Where Do I Fit In?*;
2. Copies of student activity sheet, "How Might My Career Choice Help Overcome Hunger?, (Supplement 13.11)"
3. Access to computer website

Optional:

Final Quiz, probably as a take-home quiz, as a basis for summarizing the series. May have been assigned or used with Unit 12: (Suppl. 12.12.1-2)

Advance Preparations:

One week in advance

If you invite a guest panel or speaker for Unit 10, distribute the student activity sheet, "How Might My Career Choice Help Overcome Hunger?, (Suppl. 13.11)," on the day before that panel/speaker, so students will have career choices in mind as they prepare to question the panel/speaker.

As you make the assignment, be sure to reinforce, or modify, the instructions on the activity sheet (e.g., if you have limited computer capacity, you might ask students to work in small groups of two or three) You might wish to vary the questions. If students are to make an oral report, they should know the time limit in advance.

Supplemental Resources

On-line

You may wish to combine this lesson with the final lesson in "Exploring Careers in International Agriculture," in the Council's *Agribusiness in a Global Environment*, another in its Professional Growth Series Instructional Materials, available on CD-ROM or online: www.teamaged.org/ . That lesson focuses primarily on agribusiness career opportunities.

Teaching the Lesson

Presentation:

The class period should be given to students' presentations of their career exploration. Within time limits, other students should be free to ask questions, particularly around the theme, "How does this career choice contribute to increased food security?"

Discussion Questions / Quizzes:

You may want to combine the students' career exploration with a summary discussion of the *Food For Everyone* lessons you have used. Depending on time and interest, you might want to take an extra class session. Such a discussion might be based on the "Final Quiz" (Suppl. 12.12), which is suggested as a take-home quiz to help students recall and pull together their thoughts regarding several of the themes of the various lessons.

Follow Up

Evaluation

What parts of this lesson went well?

1. Subjects
2. Presentation
3. Discussion
4. Activities
5. Quizzes

What will you change next time?

What additional resources are needed for this lesson?

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is essential for the proper management of the organization's finances and for ensuring compliance with applicable laws and regulations.

2. The second part of the document outlines the specific procedures that should be followed when recording transactions. This includes details on how to properly categorize expenses, how to handle receipts, and how to ensure that all entries are supported by appropriate documentation.

3. The third part of the document discusses the role of the accounting department in providing accurate and timely financial information to management. It highlights the importance of regular reporting and the need for transparency in all financial dealings.

4. The fourth part of the document addresses the issue of internal controls and how they can be used to prevent fraud and other types of financial misstatements. It provides examples of effective internal control systems and discusses the importance of a strong internal control environment.

5. The fifth part of the document discusses the importance of maintaining accurate records of all assets and liabilities. It emphasizes that this is essential for the proper management of the organization's resources and for ensuring that all assets are properly accounted for.

6. The sixth part of the document discusses the importance of maintaining accurate records of all income and expenses. It emphasizes that this is essential for the proper management of the organization's finances and for ensuring compliance with applicable laws and regulations.

7. The seventh part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is essential for the proper management of the organization's finances and for ensuring compliance with applicable laws and regulations.

How Might My Career Choice Help Overcome Hunger?

An exercise to accompany Unit 13: Food For Everyone

1. Each student should prepare a brief report on an agricultural career, and relate that career “choice” to helping overcome hunger. Students are encouraged to work in small teams (2-3) to share aspects of the search (and to share access to computers, if necessary), but each student should report on her or his individual career “choice.”
2. Ideas about what career to explore may come from:
 - The panel presentation and discussion on international partnerships in Unit 10
 - The reports and discussion of interviews on development assistance, Unit 11
 - The reports and discussion of interviews with anti-hunger food providers in Unit 12
 - Issue Brief 13
 - The list attached to this exercise
 - Other sources
3. Choose an occupation first (e.g. horticulturist, business manager, journalist, politician).
4. Try to find two job descriptions for that occupation with different kinds of employers or organizations (e.g. agribusiness, church agency, school system). You may substitute an interview with someone from the selected occupation or organization. The quickest way to see a variety of job descriptions is via the Internet. Most government agencies, agribusinesses, and non-governmental groups feature job openings or descriptions on their website. Look for words/phrases such as “jobs,” “employment,” “vacancies,” etc. The attached list may help get you started.
5. Cover the following points in your report:
 - How will working at this occupation with this employer contribute to reducing hunger?
 - Briefly describe the skills and experience required for the chosen career.
 - Outline a career path that might get you to your chosen career goal over a several year period – further education, if needed, initial work or volunteer experience, etc.

A starter list of websites for a career “choice”

Peace Corps: <http://www.peacecorps.gov/>

- Working as Peace Corps Staff:
<http://www.peacecorps.gov/employment/vacancys.html>
- Working as a Volunteer: <http://www.peacecorps.gov/volunteer/index.html>

USAID: <http://www.info.usaid.gov/>

- Employment: <http://www.info.usaid.gov/about/employment/>

Food and Agricultural Organization of the United Nations: <http://www.fao.org/>

- Employment: <http://www.fao.org/VA/Employ.htm>

Winrock International: <http://www.winrock.org/>

- Jobs: http://www.winrock.org/HRM/current_job_listings.htm

InterAction: <http://www.interaction.org/>

- Jobs: <http://www.interaction.org/jobs/index.html>

CARE: <http://www.care.org/>

- Jobs: <http://www.care.org/jobs/>

Catholic Relief Services: <http://www.catholicrelief.org/>

- Employment opportunities: <http://www.catholicrelief.org/jobs/index.cfm>

World Food Program: <http://www.wfp.org/>

- Vacancies: <http://www.wfp.org/vacancies/index.html>

International Fund for Agricultural Development of the United Nations

UNICEF: <http://www.unicef.org/>

- Employment: <http://www.unicef.org/employ/>

Bread for the World: <http://www.bread.org/>

- Jobs/Internships: <http://www.bread.org/bfw/jobs.html>

John Deere: <http://www.deere.com>

- Career Partnerships: <http://www.deere.com/ag/agtech/index.htm>

Pioneer Hi-Bred International: <http://www.pioneer.com>

- Employment opportunities:
<http://www.pioneer.com/employment/index.htm>

Glossary of Terms: Food For Everyone

Anemia – lower than normal number of red blood cells in the blood due to mineral deficiency, most often iron; results in fatigue and low birth-weight babies.

Birth rate – the ratio between the number of children born during a year and the total population; usually expressed as the number of live births per 1000 people.

Broad-based economic development – economic and social development in which the benefits are shared by all the population

Comparative advantage – based on natural resources, skills, management, or other factors, the ability to produce goods more efficiently than others, then trade for those more efficiently produced elsewhere, benefiting both parties.

Competitiveness – in an economic sense, the ability of a firm or economy to win business by offering favorable terms.

Daily calorie requirement – the average number of calories needed to sustain normal levels of activity and health, taking into account age, sex, body weight and climate, about 2350 calories per person per day.

Death rate – the ratio between the number of deaths during a year and the total population; usually expressed as the number of deaths per 1000 people.

Developing countries – countries in which most people have a low economic standard of living. Also known as the “Third World,” the “South,” and “less-developed countries.”

Dietary energy supply (DES) – the total daily food supply, expressed in calories per person, available within a country for human consumption.

Donor countries – countries that grant development assistance or food aid.

Economic globalization – The integration of world markets for goods, services, and finance

Famine – severe shortage of food leading to starvation.

Fertility rate – the average number of children borne by a woman during her lifetime; a measure of long-range population changes.

Food Gap – the amount of food needed, in addition to production and normal food imports, to (a) maintain the

present level of nutrition (*status quo*), or (b) meet minimum *nutritional requirements*.

Food security – when people have access to enough food to provide the nutrients they need for productive, active, and healthy lives.

Germ plasm – the hereditary material of plant or animal species.

Gini index – a measure of the deviation from perfectly equal distribution of a country's income that provides an indication of degrees of wealth or poverty within a population

Green revolution – changes in agricultural technology that raised crop yields beginning in the 1950s – improved crop varieties, often combined with irrigation, chemical fertilizers, and pesticides.

Gross Domestic Investment – total investment in new facilities or productive capacity, usually expressed as a percentage of gross domestic product.

Gross Domestic Product (GDP) – the value of all goods and services produced with a nation during a specified time, usually a year.

Gross National Product (GNP) – the value of all goods and services produced by a country's citizens, wherever they are located.

GNP per capita – an average; a nation's GNP divided by the number of its citizens; a useful measure of a nation's capacity to meet its citizens' needs.

Hidden hunger – see **Micronutrient (deficiency)**.

Human Development Index (HDI) – as used by the United Nations Development Programme, a measure of well-being based on life expectancy, education, and income.

Hunger – lack of enough food to provide the nutrients needed for productive, active, and healthy lives.

Industrial countries – countries in which most people have a high standard of living (although there are often significant populations of poor people). Also called “developed countries” or the “North.”

Infrastructure – communication, financial, educational and health the facilities, services, and installations needed so that a community or nation can function, including transportation, care systems.

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20. The Psychology of the Future
by J. M. Cattell

Integrated pest management (IPM) – combining natural non-chemical means to minimize the use of chemical pesticides to control insects, diseases and weeds.

Literacy rate – the percentage of adults who can read.

Livelihood security – the ability of a household to meet *all* its basic needs – for food, shelter, water, sanitation, health care, and education.

Low birth-weight infants – babies weighing less than 2500 grams (five pounds, eight ounces) or less who are especially vulnerable to illness and death during the first months of life.

Market economy – an economy in which prices are set primarily in private markets rather than by government planning or regulation; also “market-based economies,” or “market-oriented” economies.

Microcredit – small, short-term loans to people too poor to borrow from commercial banks, usually to start a microenterprise as a way to raise incomes and standards of living.

Microenterprise – a very small economic venture owned and managed by one entrepreneur.

Micronutrients – vitamins, major minerals, and trace elements needed for a healthy, balanced diet; micronutrient deficiencies are called *hidden hunger*; “Macronutrients” are carbohydrates, protein, and fat.

Organic farming – raising crops or livestock by using all natural inputs, without the use of chemical fertilizers or pesticides

Pesticides – substances, often synthetic chemicals, used to control insects, diseases, or weeds in agricultural production.

Population growth rate – the net annual gain (or loss) in size of population; the net of birth rate minus death rate, plus net migration; usually expressed as a percent.

Poverty – involuntary lack of sufficient resources or income to provide or exchange for basic necessities – food, shelter, health care, clothing, education, opportunity to work and develop the human spirit.

Poverty line – an official measure of poverty defined by a national government. In the United States, it is calculated as three times the cost of the U.S. Department of Agriculture’s “Thrifty Food Plan,” which allows for minimal nutrition.

Protectionism – trade policy that protects domestic producers by limiting imports, as with tariffs or quotas.

Safety nets – programs, usually government-run, to provide food or other basic necessities for people unable to meet their own needs.

Self-sufficiency – producing all the goods and services needed within a nation or community, with no or minimal imports.

Sustainable development – reducing hunger and poverty in environmentally sound ways. It includes meeting basic human needs, expanding economic opportunities, protecting the environment, and promoting democratic participation.

Stunting – seriously below normal height for age due to chronic undernutrition.

Under-5 mortality rate – the annual number of deaths of children under 5 years of age per 1,000 live births; a high rate correlates closely with hunger and malnutrition.

Underemployed – not being fully employed year round; includes unemployed (no work), discouraged (stopped looking for work), and involuntary part-time workers.

Undernourished – not having enough nutrients, often adversely affecting children’s physical and mental development

Underweight – seriously below normal weight for age.

Vulnerable to hunger – having enough to eat most of the time, but susceptible to hunger due to changes in employment, the economy, climate, political conditions, or personal circumstances.

Wasting – seriously below normal weight for height, often the result of severe short-term undernutrition.

The World Bank – an intergovernmental organization that makes loans to the governments of developing nations.

World Trade Organization – an international organization established to enforce international trade agreements, settle trade disputes, and continue trade negotiations.

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Abbreviations and Acronyms

DES	Dietary Energy Supply
FAO	Food and Agriculture Organization of the United Nations
FFE	Food For Everyone
GATT	General Agreement on Tariffs and Trade
GDI	Gross Domestic Investment
GMO	Genetically Modified Organism
GNP	Gross National Product
HDI	Human Development Index
IDA	International Development Association (part of The World Bank)
IFPRI	International Food Policy Research Institute
ILO	International Labor Organization
IPM	Integrated Pest Management
LDC	Least Developed Countries
mmt	million metric tons
NAFTA	North American Free Trade Association
NGO	Nov-governmental organization
ORT	Oral rehydration therapy
P.L. 480	Public Law 480;; The Agricultural Trade Development and Assistance Act of 1954; Food For Peace Act
U.N.	United Nations
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USSR	Union of Soviet Socialist Republics (former Soviet Union)
WIC	Special Supplemental Nutrition Program for Women, Infants and Children
WTO	World Trade Organization

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Food for Basic Indicators

A Teaching Resource
on World Hunger and Agriculture

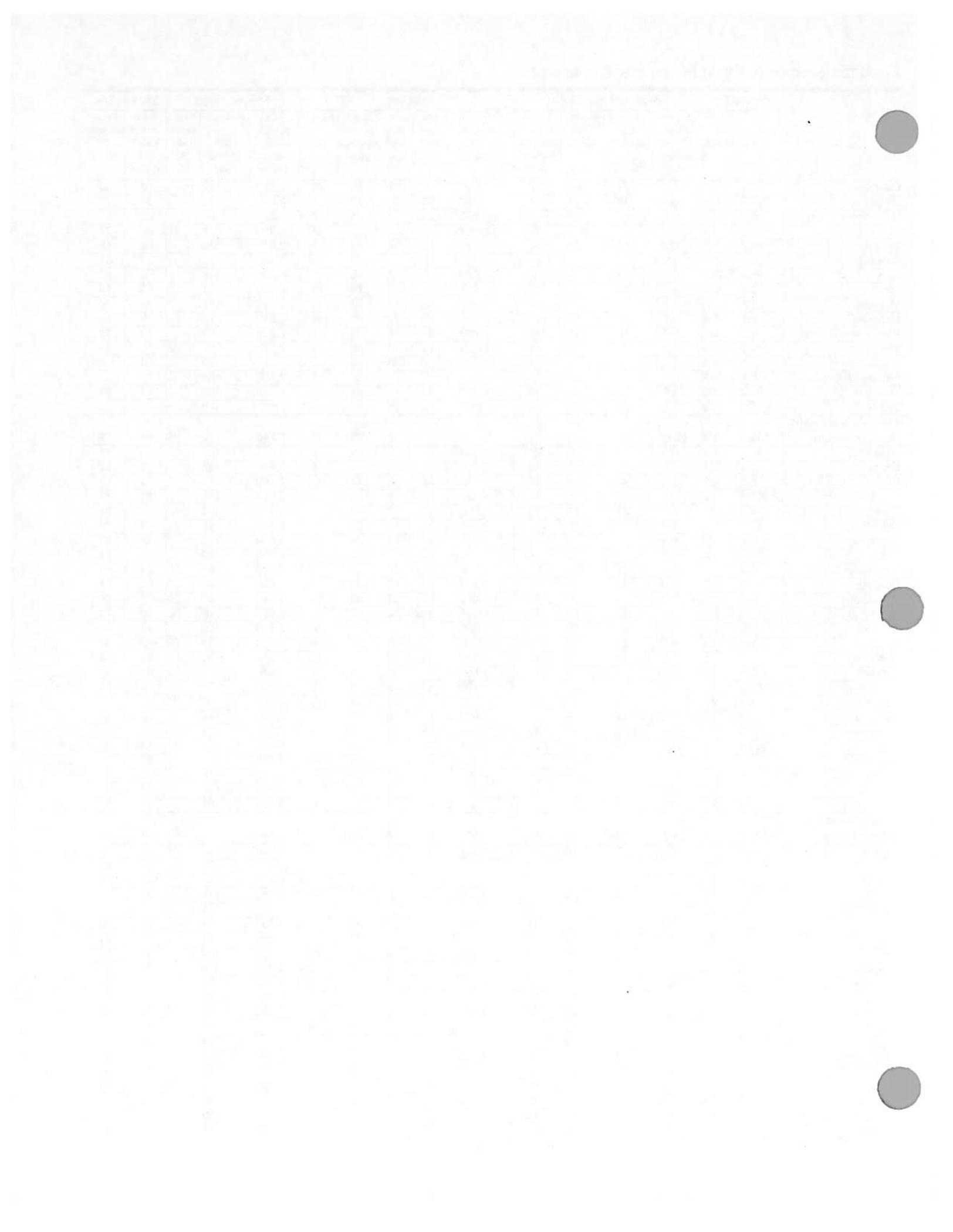
	Population		Hunger and malnutrition				Economy					Food economy			Educ.	Env.	
	Total (million) 1998	Growth rate 2000-05	Number under-nourished (million) 1990-92	Proport. under-nourished (%) 1990-92	Proport. children stunted (%) 1990-98	Under-5 mortality rate/1000 live births 1997	GNP per capita (US\$) 1997	Gini index 1990-97	Share of ag. in GDP (%) 1997	Work-force/ ag. % of total 1990	Aid as % of GDI 1997	Food available (cal/cap/day) 1994-96	Food prod. p/cap (1989-91=100) 1997	Food import-ed (%) 1997	Children reach grade 5 (%) 1990-95	Pop. w/ safe water (%) 1990-97	
Developing Countries	5,054.7	1.4	841.0	20	38	96	..	..	..	..	2,584e	117	10	75	71	
Sub-Saharan																	
Africa	610.5	2.6	215	43	41	170	510	..	18	68	..	2,150l	99	9	67	50	
Angola	12.1	3.1	5.1	54	53	292	260	..	9	75	23	1,930	106	18	34	31	
Benin	5.8	2.6	1.0	20	25	167	380	..	38	64	57	2,360	104	9	61	56	
Botswana	1.6	1.2	0.4	29	29	49	3,310	..	3	46	10	2,250	75	..	90	90	
Burkina Faso	11.3	2.7	3.8	41	29	169	250	48	35	92	61	2,250	95	5	79	42	
Burundi	6.5	2.6	2.9	50	43	176	140	..	53	92	183	1,710	83	3	74	52	
Cameroon	14.3	2.5	5.1	43	24	99	620	..	41	70	34	2,200	99	9	67	50	
Cape Verde	0.4	2.2	..	..	16	73	1,090	..	..	..	75	3,160	89	65	60x	51
Central African Rep.	3.5	1.8	1.9	62	34	173	320	..	54	80	100	1,930	108	6	24	38	
Chad	7.3	2.6	3.5	61	40	198	230	..	39	83	72	1,920	99	7	59	24	
Comoros	0.7	2.6	..	..	34	93	400	..	..	..	68	1,830	94	..	80	53
Congo, Dem. Rep.	49.1	3.0	14.9	39	45	207	110	..	58	68	39	1,880	77	3	64	42	
Congo, Rep.	2.8	2.7	0.8	34	21x	108	670	..	10	49	45	2,130	93	..	54	34	
Côte d'Ivoire	14.3	2.1	2.7	22	24	150	710	37x	27	60	27	2,380	101	16	75	42	
Djibouti	0.6	2.1	..	..	26	156	..	i	..	..	183	1,890	67	..	79	90
Equatorial Guinea	0.4	2.4	..	..	..	172	1,060	..	..	..	5	..	78	..	..	95
Eritrea	3.6	2.5	..	..	38	116	230	..	9	80	46	1,640	90	51	71	22
Ethiopia	59.6	2.4	31.2	65	64	175	110	40	55	86	52	1,780	104	4	55	25	
Gabon	1.2	2.2	0.3	24	..	145	4,120	..	7	52	3	2,500	89	..	59	67	
Gambia	1.2	2.5	0.3	29	30	87	340	48	30	82	57	2,270	72	39	80	69	
Ghana	19.2	2.7	6.2	40	26	107	390	33	36	59	30	2,560	125	9	81	65	
Guinea	7.3	2.4	1.5	25	29	201	550	40	23	87	45	2,130	101	20	54	46	
Guinea-Bissau	1.2	2.1	..	..	..	220	230	56	54	85	198	2,430	97	29	20x	43
Kenya	29.0	1.6	11.3	46	34	87	340	45	29	80	23	1,990	87	28	68	53	
Lesotho	2.1	1.9	0.6	35	44	137	680	56x	11	40	12	2,170	83	42	80	62	
Liberia	2.7	3.6	1.6	59	..	235	..	h	..	..	..	2,100	..	50	..	46
Madagascar	15.1	2.7	3.8	31	48	158	250	46	32	78	201	1,990	86	3	40	26	
Malawi	10.3	2.4	4.8	49	48	215	210	..	36	87	113	2,050	92	9	42	47	
Mali	10.7	2.5	3.3	34	30	239	260	51	49	86	77	2,100	92	5	82	66	
Mauritania	2.5	2.7	0.4	20	44	183	440	39	25	55	130	2,630	87	56	64	74	
Mauritius	1.1	0.8	0.2	18	10	23	3,870	..	9	17	3	2,970	109	..	99	98	
Mozambique	18.9	1.7	9.6	66	55	208	140	..	31	83	119	1,720	101	7	46	63	
Namibia	1.7	1.2	0.5	35	28	75	2,110	..	11	49	26	2,160	104	..	79	83	
Niger	10.1	3.1	2.9	37	40	320	200	51	38	90	170	2,090	95	10	73	48	
Nigeria	106.4	2.2	42.9	38	43	187	280	45	33	43	3	2,550	111	4	80	49	
Rwanda	6.6	2.1	3.4	47	42	170	210	29x	37	92	294	2,060	93	14	60	..	
Senegal	9.0	2.5	2.3	30	23	124	540	54	18	77	50	2,390	93	40	85	63	
Sierra Leone	4.6	2.2	2.4	55	35	316	160	63x	50	67	-311	2,020	87	44	64x	34	
Somalia	9.2	3.6	6.4	72	..	211	..	h	..	..	348 x	1,580	..	16	..	26
South Africa	39.4	0.7	..	..	23	65	3,210	59	5	14	2	2,880	85	..	75	87
Sudan	28.3	2.1	9.7	37	33	115	290	..	..	69	..	2,360	127	8	94	73
Swaziland	1.0	2.7	0.1	13	30x	94	1,520	..	..	..	6	2,530	79	38	87	50
Tanzania	32.1	2.3	10.3	38	42	143	210	g	38	47g	84g	68	2,020	79	1	83	66
Togo	4.4	2.5	1.1	30	34	125	340	..	42	66	54	2,100	113	9	71	55	
Uganda	20.6	3.2	5.8	32	38	137	330	39	44	85	84	2,190	85	2	55	46	
Zambia	8.8	2.1	3.6	43	42	202	370	50	16	75	107	1,940	83	8	84	38	
Zimbabwe	11.4	1.0	4.2	41	21	80	720	57	19	68	20	2,040	90	11	79	79	
South Asia	1,320.1	..	267.9e	23e	52	116	380	..	25	63	..	2,360f	..	..	59	80
Afghanistan	21.4	4.9	12.9	73	52	257	..	h	..	..	..	1,710	..	16	43x	12
Bangladesh	124.8	1.7	39.4	34	55	109	360	28	24	65	12	2,060	100	5	47	95	
Bhutan	2.0	2.7	..	..	56x	121	430	..	..	..	43	..	95	..	82	58
India	982.2	1.4	184.5	21	52	108	370	30	25	64	2	2,390	107	1	59	81	
Maldives	0.3	2.7	..	..	27	74	1,180	..	..	..	..	2,470	89	..	93	60
Nepal	22.8	2.2	5.9	29	48	104	220	37	41	83	39	2,270	99	0	52	71	
Pakistan	148.2	2.5	20.5	17	50	136	500	31	25	52	6	2,390	111	10	48	79	
Sri Lanka	18.5	1.0	4.6	26	18	19	800	30	22	48	9	2,260	107	28	83	57	
East Asia and the Pacific	1,845.9	..	269.0	16	36	52	970	..	18	69	..	2,740	..	..	90	68
Brunei Darussalam	0.3	1.7	10	..	k	2,870	100	..	95	..	
Burma (Myanmar)	44.5	1.1	5.2	12	45	114	..	h	..	59	73	..	2,710	122	60

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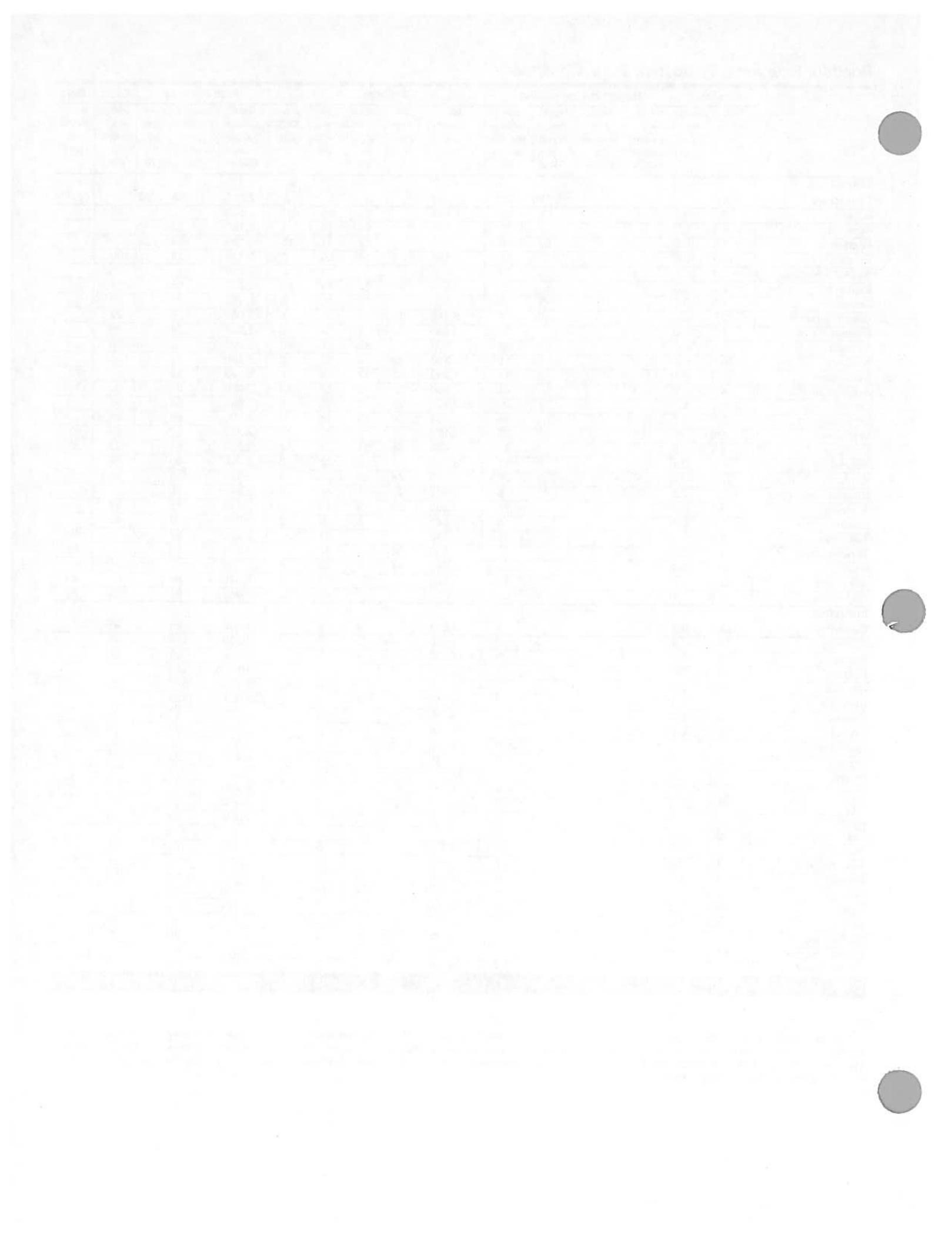
	Population		Hunger and malnutrition				Economy					Food economy			Educ.	Env.
	Total (million) 1998	Growth rate 2000-05	Number under-nourished (million) 1990-92	Proport. under-nourished (%) 1990-92	Proport. children stunted (%) 1990-98	Under-5 mortality rate/1000 live births 1997	GNP per capita (US\$) 1997	Gini index 1990-97	Share of ag. in GDP (%) 1997	Work-force/ ag. % of total 1990	Aid as % of GDI 1997	Food available (cal/cap/ day) 1994-96	Food prod. p/ cap (1989-91=100) 1997	Food import-ed (%) 1997	Children reach grade 5 (%) 1990-95	Pop. w/ safe water (%) 1990-97
Cambodia	10.7	1.8	2.5	29	56	167	300	..	51	74	76	1,980	107	..	50	30
China	1,255.7	0.8	188.9	16	34	47	860	42	19	72	1	2,770	146	..	94	..
Hong Kong, China	6.7	1.1	0.3	5	..	..	25,200	..	0	1	0 x	3,260	34	..	100	..
Fiji	0.8	1.4	..	..	3	24	2,460	..	..	..	17	3,010	98	14	87	77
Indonesia	206.3	1.2	22.1	12	42	68	1,110	37	16	55	1	2,880	110	..	89	75
Korea, North	23.3	1.1	2.0	9	..	30	.. i	..	..	38	..	2,390	..	..	..	81
Korea, South	46.1	0.7	0.3	1	..	6	10,550	..	6	18	0	3,300	118	..	100	93
Laos	5.2	2.5	1.1	24	47	122	400	30	52	78	68	2,100	101	..	53	44
Malaysia	21.4	1.7	1.3	7	..	11	4,530	48x	12	27	-1	2,850	111	..	99	78
Mongolia	2.6	1.5	0.7	32	22	150	390	33	37	32	131	2,010	72	..	..	40
Papua New Guinea	4.6	2.1	0.4	10	43x	112	930	51	28	79	20	2,270	92	..	73	32
Philippines	72.9	1.9	13.1	21	30	41	1,200	43	19	46	3	2,370	107	22	70	84
Singapore	3.5	1.0	..	..	..	4	32,810	..	0	0	-0 x	..	32	..	100	100x
Solomon Islands	0.4	2.9	..	..	27x	28	870	..	..	..	75 x	2,100	88	..	81	..
Thailand	60.3	0.8	14.4	26	16	38	2,740	46	11	64	1	2,330	105	..	88	81
Viet Nam	77.6	1.3	17.2	25	44	43	310	36	26	71	14	2,450	118	2	..	43
Latin America and the Caribbean	503.5	1.4	64.0	15	19	41	3,940	..	8	25	..	2,780	110	36	74	77
Argentina	36.1	1.2	2.9	9	5	24	8,950	..	7	12	0	3,120	117	..	..	71
Belize	0.2	2.1	..	..	..	43	2,670	..	..	..	9	2,840	123	..	70	83
Bolivia	8.0	2.2	2.9	40	29	96	970	42	16	47	48	2,160	115	17	60	63
Brazil	165.9	1.2	9.7	6	11	44	4,790	60	8	23	0	2,880	116	..	71	76
Chile	14.8	1.2	2.9	22	2	13	4,820	57	7	19	1	2,770	118	..	100	91
Colombia	40.8	1.7	5.9	18	15	30	2,180	57	11	27	2	2,740	99	35	73	85
Costa Rica	3.8	2.0	0.4	12	6	14	2,680	47	15	26	0	2,810	112	..	88	96
Cuba	11.1	0.3	1.0	9	..	8	.. i	..	..	18	..	2,350	59	..	100	93
Dominican Rep.	8.2	1.4	2.4	32	11	53	1,750	51x	12	25	2	2,320	94	66	70x	65
Ecuador	12.2	1.7	2.0	19	34x	39	1,570	47	12	33	4	2,530	120	23	85	68
El Salvador	6.0	1.8	1.0	19	23	36	1,810	50	13	36	18	2,540	97	30	77	66
Guatemala	10.8	2.6	2.4	26	50	55	1,580	60x	24	52	12	2,250	99	36	50	77
Guyana	0.9	0.6	0.2	24	10	82	800	40	..	..	108	2,410	169	..	93	91
Haiti	8.0	1.6	4.6	69	32	132	380	..	30	68	116	1,830	81	29	47	37
Honduras	6.1	2.5	1.1	21	40	45	740	54	20	41	21	2,340	95	30	60	76
Jamaica	2.5	0.9	0.6	23	6	11	1,550	41	8	25	5	2,620	107	70	96	86
Mexico	95.8	1.4	7.2	8	22x	35	3,700	54	5	28	0	3,140	107	..	86	85
Nicaragua	4.8	2.7	1.0	25	24	57	410	50	34	28	175 x	2,310	106	23	54	62
Panama	2.8	1.4	0.5	19	9	20	3,080	57	8	26	4 x	2,530	90	..	82	93
Paraguay	5.2	2.5	0.6	15	17	33	2,000	59	23	39	5	2,510	102	..	71	60
Peru	24.8	1.6	10.7	49	26	56	2,610	46	7	36	3	2,260	127	47	76x	67
Suriname	0.4	0.5	0.1	21	..	30	1,320	..	..	..	91 x	2,560	70	..	99	..
Trinidad and Tobago	1.3	0.5	0.1	11	5x	17	4,250	..	2	11	3	2,660	104	..	95	97
Uruguay	3.3	0.7	0.3	8	8	21	6,130	..	8	14	2	2,800	132	..	98	..
Venezuela	23.2	1.8	4.0	20	13	25	3,480	47	4	12	0	2,400	104	..	89	79
Middle East and North Africa	361.1	..	24.1e	8e	24	62	2,070	..	14	35	..	2,990f	..	53	91	83
Algeria	30.1	2.1	2.4	9	18	39	1,500	35	11	26	2	3,020	90	86	94	78
Bahrain	0.6	1.5	..	..	10	22	.. j	..	..	..	1 x	..	97	..	99	94
Cyprus	0.8	0.8	..	..	..	9	.. k	..	..	..	3 x	3,370	103	..	100	100
Egypt	66.0	1.7	3.2	6	25	73	1,200	32	18	40	15	3,280	115	47	98	87
Gaza Strip	1.0	4.0	..	..	..	..	.. al	..	..	..	..	..	74	..	..	..
Iran	65.8	1.0	4.2	7	19	35	1,780	..	25	39	0 x	2,880	111	..	90	90
Iraq	21.8	2.9	4.0	21	31	122	.. i	..	..	16	..	2,260	81	..	72	81
Jordan	6.3	2.9	0.1	3	16	24	1,520	43	3	15	23	2,730	122	..	98	98
Kuwait	1.8	2.3	0.3	16	12x	13	.. k	..	0	1	0 x	3,020	174	..	99	..
Lebanon	3.2	1.4	0.1	5	12	37	3,350	..	12	7	6	3,280	97	..	..	94
Libya	5.3	2.3	0.2	3	15	25	.. j	..	..	11	..	3,140	74	..	..	97
Morocco	27.4	1.6	2.6	10	23	72	1,260	39	15	45	7	3,180	85	37	78	65
Oman	2.4	3.3	..	..	23	18	.. j	..	..	45	5 x	..	82	..	96	85
Qatar	0.6	1.5	..	..	8	20	.. k	..	..	..	..	..	124	..	99	..
Saudi Arabia	20.2	3.0	1.9	12	..	28	7,150	..	6	19	0	2,730	88	..	89	95x
Sri Lanka	15.3	2.5	0.4	3	21	33	1,120	..	..	33	4	3,300	109	..	94	86
Turkey	9.3	1.3	0.2	3	23	33	2,110	40	13	28	4	3,190	112	74	91	98
Turkey	64.5	1.4	1.8	3	21	45	3,130	..	15	53	0	3,560	95	..	95	49
United Arab Emirates	2.4	1.7	0.1	4	17	10	.. k	8	0 x	3,330	163	..	98	97
Yemen	16.9	3.5	3.0	24	39	100	270	40	18	61	31	2,030	85	61



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	Population		Hunger and malnutrition				Economy					Food economy			Educ.	Env.
	Total (million) 1998	Growth rate 2000-05	Number under-nourished (million) 1990-92	Proport. under-nourished (%) 1990-92	Proport. children stunted (%) 1990-98	Under-5 mortality rate/1000 live births 1997	GNP per capita (US\$) 1997	Gini index 1990-97	Share of ag. in GDP (%) 1997	Work-force/ ag. % of total 1990	Aid as % of GDI 1997	Food available (cal/cap/day) 1994-96	Food prod p/ cap (1989-91=100) 1997	Food import-ed (%) 1997	Children reach grade 5 (%) 1990-95	Pop. w/ safe water (%) 1990-97
Transition Countries	413.6	..	..	..	16b	35b	..	..	..	..	..	2,850	74	30	..	..
Albania	3.1	0.6	..	..	..	40	760	..	63	55	57	2,520	..	..	82	..
Armenia	3.5	0.3	..	..	..	30	560	..	41	18	111	2,180	83	46	..	..
Azerbaijan	7.7	0.8	..	..	..	22	510	..	22	31	15	2,130	53	29	..	..
Belarus	10.3	-0.3	..	..	..	18	2,150	29	14	20	2 x	3,110	77	..	100	..
Bosnia & Herzegovina	3.7	1.3	..	..	..	16	..	h	..	11	..	2,200	..	..	..	..
Bulgaria	8.3	-0.6	..	..	..	19	1,170	31	23	13	21 x	2,830	65	..	91	..
Croatia	4.5	-0.1	..	..	..	1	4,060	..	12	16	5 x	2,400	68	..	98	..
Czech Republic	10.3	-0.1	..	..	..	2	5,240	27	..	11	1 x	3,080	79	..	100	..
Estonia	1.4	-1.0	..	..	..	14	3,360	35	7	14	5 x	2,860	54	..	96	..
Georgia	5.1	0.0	..	..	..	29	860	..	32	26	66	2,200	79	40	98	..
Hungary	10.1	-0.4	..	..	..	3x	4,510	28	6	15	2 x	3,360	84	..	98	..
Kazakstan	16.3	-0.1	..	..	..	16	1,350	33	12	22	4	3,120	62	..	..	93
Kyrgyzstan	4.6	0.9	..	..	..	48	480	35	45	32	63	2,400	99	7	92	71
Latvia	2.4	-1.1	..	..	..	20	2,430	29	7	16	8 x	2,800	52	..	96	..
Lithuania	3.7	-0.3	..	..	..	15	2,260	34	13	18	5	2,800	68	..	98	..
Macedonia	2.0	0.6	..	..	..	23	1,100	..	12	22	35	2,370	92	..	99	..
Moldova	4.4	0.0	..	..	..	31	460	34	31	33	14	2,620	64	..	93	55
Poland	38.7	0.1	..	..	..	11	3,590	27	6	27	3 x	3,310	80	..	98	..
Romania	22.5	-0.4	..	..	..	8	1,410	28	20	24	3 x	2,930	109	..	99	..
Russian Federation	147.4	-0.2	..	..	..	13	2,680	48	7	14	1 x	2,810	98	..	..	..
Slovakia	5.4	0.2	..	..	..	11	3,680	20	5	12	2 x	3,020	75	..	97	..
Slovenia	2.0	-0.1	..	..	..	6	9,840	29	5	6	2	3,090	100	..	98	..
Tajikistan	6.0	1.3	..	..	..	76	330	..	..	41	..	2,230	67	40	..	60
Turkmenistan	4.3	1.6	..	..	..	78	640	36	..	37	..	2,580	93	..	..	74
Ukraine	50.9	-0.4	..	..	..	24	1,040	47	12	20	4 x	2,880	67	..	87x	..
Uzbekistan	23.6	1.6	..	..	..	31	1,020	..	31	35	3	2,570	86	..	..	90
Yugoslavia	10.6	0.1	..	..	..	7	..	i	..	30	..	3,040	99	..	100	76
Industrial Countries	846.4	0.2	..	..	..	7	25,890	..	2	6	..	3340i	95	..	99	..
Australia	18.5	0.9	..	..	..	0	20,650	34x	3	6	..	2,980	118	..	99	..
Austria	8.1	0.3	..	..	..	5	27,920	23x	1	8	..	3,380	90	..	99	..
Belgium	10.1	0.0	..	..	..	7	26,730	25	1	3	..	3,570d	114d	..	..	..
Canada	30.6	0.9	..	..	..	7	19,640	32	..	3	..	3,100	107	..	99	..
Denmark	5.3	0.1	..	..	..	6	34,890	25	4	6	..	3,780	102	..	100	..
Finland	5.2	0.2	..	..	..	4	24,790	26	4	8	..	2,990	91	..	100	..
France	58.7	0.3	..	..	..	5	26,300	33x	2	5	..	3,550	103	..	96	..
Germany	82.1	0.0	..	..	..	5	28,280	28x	1	4	..	3,300	89	..	100	..
Greece	10.6	0.0	..	..	..	8	11,640	..	11	23	0 x	3,600	94	..	100	..
Ireland	3.7	0.7	..	..	..	7	17,790	36x	6	14	..	3,620	109	..	100	..
Israel	6.0	1.7	..	..	..	6	16,180	36	..	4	10 x	3,250	91	..	100	..
Italy	57.4	-0.2	..	..	..	6	20,170	31	3	9	..	3,480	99	..	100	..
Japan	126.3	0.1	..	..	..	6	38,160	..	2	7	..	2,900	94	..	100	..
Luxembourg	0.4	0.8	..	..	..	7	..	k	27	..	..	..	c	..	..	..
Netherlands	15.7	0.2	..	..	..	6	25,830	32	3	5	..	3,190	101	..	95x	..
New Zealand	3.8	0.9	..	..	..	7	15,830	..	..	10	..	3,410	115	..	96	97
Norway	4.4	0.5	..	..	..	4	36,100	25	2	6	..	3,320	98	..	100	..
Portugal	9.9	-0.1	..	..	..	8	11,010	..	4	18	..	3,650	95	..	..	..
Spain	39.6	-0.1	..	..	..	5	14,490	33	3	12	..	3,290	103	..	99	..
Sweden	8.9	0.2	..	..	..	4	26,210	25	..	..	..	3,170	97	..	98	..
Switzerland	7.3	0.4	..	..	..	5	43,060	36x	..	6	..	3,260	89	..	100	..
United Kingdom	58.6	0.1	..	..	..	7	20,870	33x	2	2	..	3,210	98	..	..	..
United States	274.0	0.7	..	..	..	2	29,080	40	2	3	..	3,620	110	..	99	..
World	5,901.1	1.2	..	..	36	87	5,180	..	4	49	..	2,720	105	..	78	72

.. Data not available. a. West Bank included. b. Turkey included. c. Data included in Belgium. d. Luxembourg included. e. FFE calculation from primary data. f. Afghanistan included in Middle East and North Africa region. g. Data refer to mainland Tanzania only. h-k. Estimated: h--low income (\$785 or less); i--lower middle income (\$786 to \$3,125); j--upper middle income (\$3,126 to \$9,655); k--high income (\$9,656 or more). l. South Africa is included with Industrial Countries. x. Data refer to a period other than specified in the column heading. 0. Value rounded to zero



Sources for Basic Indicators

Aid as percent of GDI, GNP per capita, Gini index, share of agriculture in GDP, workforce in agriculture: The World Bank, *World Development Indicators 1999* (Washington: The World Bank, 1999).

Children reaching grade 5: UNESCO; UNICEF, *The State of the World's Children 1999* (New York: Oxford University Press, 1998).

Food available: FAO, Press Release 98/70 posted at www.fao.org, accessed December 10, 1998 and FAOSTAT Statistics Database posted at <http://apps.fao.org>, accessed April 14, 1999.

Food imported: USDA, *Food Security Assessment* (Washington: USDA, 1998).

Food production per capita: FAO, FAOSTAT TS software, 1998.

Population, growth rate: United Nations Population Division, *World Population Prospects: The 1998 Revision*, Volume 1, Comprehensive Tables (New York: Department of Economic and Social Affairs, Population Division, 1998).

Population with safe water: UNICEF, *The State of the World's Children 1999* (New York: Oxford University Press, 1998).

Stunting: WHO Global Database on Child Growth and Malnutrition, October 1998; UNICEF, *The State of the World's Children 1999* (New York: Oxford University Press, 1998).

Under-5 mortality: UNICEF, *The State of the World's Children 1999* (New York: Oxford University Press, 1998).

Undernourished population: FAO, *Mapping Undernutrition—An Ongoing Process* (Rome: FAO, 1996) and *The Sixth World Food Survey* (Rome: FAO, 1996).

THE UNIVERSITY OF CHICAGO

Department of Chemistry
5780 South University Avenue
Chicago, Illinois 60637

Dear Mr. [Name]:

I am pleased to inform you that your application for admission to the Ph.D. program in Chemistry has been reviewed and your qualifications are considered excellent.

We have accepted your application and you are invited to join our department as a Ph.D. student for the fall semester of 1998.

Your advisor, Professor [Name], has agreed to supervise your research. We are confident that you will find our department a stimulating and productive environment.

Please contact Professor [Name] at [Phone Number] or [Email Address] to discuss the details of your admission and to arrange for your arrival in Chicago.

We look forward to welcoming you to the University of Chicago and to working with you on your research.

Sincerely,
[Name]

Enclosed are copies of the University of Chicago Catalog and a letter from the Registrar's Office regarding the application process.

FOOD FOR EVERYONE

A Teaching Resource on World Hunger and Agriculture

Bangladesh: A Country Profile



Population:	124.8m (1998); Growth rate: 1.7% (2000-05)
Urban:	19% (1996); Growth rate 4.5% (2000-05)
People hungry:	32% (1994-96) ^e ; 27% (1990-92) ^e ; 23% (1969-72) ^e
Food availability (calories/capita/day):	2,060 (1994-96); 1,990 (1990-92); 2,120 (1969-71)
Under-5 mortality/1000 live births:	109 (1997); 247 (1960)
% Children reaching grade 5:	47% (1990-95); 21% (1980)
GNP per capita; Gini index:	\$360 (1997); 28 (1992)
GDP Growth rate:	4.7% (1990-97)
Agriculture:	24% of GDP (1997); 65% of workforce (1990)
Growth in food production; Cropland:	1.56% (1990-97) ^e ; 0.2 acres/person (1996) ^e
Food imports/food supply:	5% (1997) ^e
Ag. exports/total exports:	2.9% (1997) ^e

Source: UN, FAO, World Bank, USDA, UNICEF, WHO, UNESCO, ^e FFE calculation from primary data.

One day Abdul Karim's eroding and unstable land suddenly collapsed into the river. Abdul Karim's wife Ayesha sold her nose pin to a neighbor for one-fourth the price her husband paid for it. With that money, the family bought some rice and wheat. – IFPRI

BACKGROUND

Bangladesh, in South Asia, is one of the most densely populated countries in the world, with 125 million people (1998) living in an area slightly smaller than Wisconsin. Most of the country lies within the broad alluvial delta formed by the rivers Meghna, Ganges, and Brahmaputra. The terrain is mostly flat, low-lying, and subject to annual flooding. The climate is tropical monsoonal, with 80 percent of its heavy rainfall occurring between late May and mid-October.

Bangladesh has been a food-deficit country since the late 1950s. Before then, farmers produced enough grain to meet the food needs of the population, with the help of imports in times of natural disasters, crop failures, war, etc. Since then, due to high population growth and periodic natural disasters, Bangladesh has never enjoyed national food security. The food supply deficit, about 500,00 tons in the mid-1950s, grew to 1.5 million tons in the 1960s, and has remained about that level. Bangladesh suffered a famine in 1974, a time of widespread drought and high global food prices.

Bangladesh won its independence from Pakistan in 1971. Before that, until 1947, it was under British rule for more than 200 years. Underdevelopment and poverty in Bangladesh are partly a result of its slow growth during its colonial past. Colonial investment in physical infrastructure, transport and communication was unbalanced and inadequate.

Only 38 percent of the population are literate in Bangladesh. Inequalities within households put women at a great disadvantage.

ECONOMY

Bangladesh is one of the least developed countries in the world, with a per capita GNP of \$360 in 1997. The economy is predominantly agricultural, which accounts for 65 percent of employment, but only 24 percent of GDP, a decline from 37 percent of early 1990s but still

the largest sector. Floods and droughts regularly undermine production targets, disrupt the overall economy, and require unanticipated food imports.

Domestic savings and investments have been rising in the 1990s, but they are still low and constrain the country's economic growth and development. Opportunities for diversifying the economic base are limited. Bangladesh has set up two export processing zones to attract foreign investors, but the industrial sector contributes less than 10 percent of GDP. The country continues to run up heavy trade deficits, reflecting its dependence on imports for many essential goods such as machinery, equipment, and petroleum products. Meanwhile real prices have dropped for its traditional exports of jute, jute manufactures, and tea.

In the late 1980s, Bangladesh adopted a policy of progressive liberalization. The reforms have contributed to significant economic progress, such as gaining self-sufficiency in food grain production, reducing the rate of population growth, and boosting export income, especially from the vibrant ready-made garment sector. During the past seven years, the annual GDP growth has been between four and six percent, above population growth, but poverty remains the country's most pressing problem.

Two innovative non-governmental organizations (NGOs) have grown up in Bangladesh and received international praise. The Grameen Bank provides loans to small entrepreneurs, mostly women, primarily in rural areas. Village levels women's councils have run the program and provided training and self-confidence for the borrowers.

According to the World Bank, the incidence of very poor declined from 43 percent in 1991-92 to 36 percent in 1995-96; the incidence of the poor declined from 59 to 53 percent. In rural areas, which account for 80 percent of the population, poverty rates are even higher. The rate of poverty reduction is slow due to

rising inequality, with no net gain between 1983 and 1992.

Bangladesh relies heavily on donor assistance to meet its large trade and budget deficits and shortfalls. The fiscal deficit remains stuck at around 5-6 percent of GDP owing to both expenditure overruns and revenue shortfalls.

FOOD SECURITY

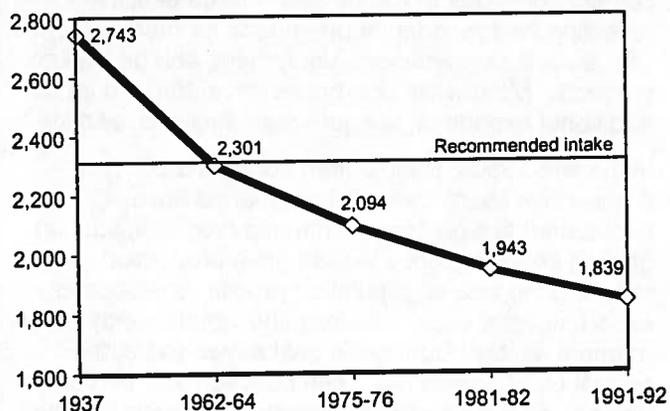
In Asia, Bangladesh is the second most threatened country in terms of food security, after war-torn Afghanistan. Thirty-two percent of its people are chronically undernourished (1994-96), a 9 percent increase from 1969-71. Only 6 percent of the under-5 children are of normal weight for their age. The other 94 percent suffer varying degrees of malnutrition. Fifty-five percent are stunted. One third of all childhood deaths are associated with severe malnutrition.

Sixty percent of the total population suffers from various micronutrient deficiencies. On average, 100 children become blind every day due to vitamin A deficiency. Seventy percent of mothers and children suffer from iron deficiency anemia, which accounts for about 25 percent of maternal deaths. About 69 percent of people are deficient in iodine; 47 percent have goiter.

Widespread and persistent hunger in Bangladesh is a result of consistent decline of calorie intake over the

Food availability, 1937-92

Calories/capita/day



Source: Bangladesh National Nutrition Council, *Bangladesh Country Paper on Nutrition* (Dhaka: BNNC, 1997).

last five decades. In 1991-92, people consumed 88 percent of the recommended intake (2,310 calories/capita/day). Cereals contribute 87 percent of food energy, but fats and oils only 2 percent, a very unbalanced diet.

More children are stunted in urban slums (64 percent) than in rural areas (53 percent). Food intake is substantially higher for the highest income group than the poorest (2,189 vs. 1,360 calories/capita/day). Food intake by women in all income groups is consistently lower than by men. Malnutrition climbs through the monsoon season, peaking in August and again in

October. Landless farmers, day laborers, households headed by destitute women, poor households living in disaster-prone areas, and refugees are the most food insecure.

Several institutional and socio-economic factors hold down the productivity of agriculture and contribute to food security in Bangladesh: fragmented land ownership, soil degradation, little crop diversification, and weak social and physical infrastructure and support services. Farm sizes are declining rapidly and landlessness is rising. Around five percent of farm households own and operate 26 percent of agricultural land. Yields of food crops have declined 50 percent in 20 years.

PROSPECTS AND POLICIES

Achieving national, and especially household food security in Bangladesh is very challenging, with malnutrition so persistent and widespread among the majority of the rural population. Commercial food imports would need to grow 6 percent per year to close the nutrition gap within a decade. This contrasts with an average annual decline of 1.3 percent from 1980 to 1997. Adequate resources to increase imports at this rate seem unlikely.

USDA expects, instead, that the food gap between available foodstuffs and fully meeting nutritional requirements may grow from 1.7 million tons in 1998 to 2 million tons in 2008. Food aid is unlikely to grow two- or three-fold to meet this gap. In fact, 2 million tons would be one-third of global food aid in recent years.

Policies to achieve food security should emphasize agriculture and rural areas. Rural growth tends to reduce poverty and inequality more than equivalent growth in industry and services. Strategies may include diversifying the crop base by adding crops other than rice, investing in agricultural research, improving the marketing system, and promoting rural non-farm employment.

Steps for Bangladesh to reduce poverty will include: maintaining economic growth, promoting education for poor people, especially girls; investing in poor areas; improved targeting of public expenditures and safety nets to better reach poor people; and forming further partnerships with innovative NGOs such as the Grameen Bank.

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Brazil: A Country Profile



Population:	166m (1998); Growth rate: 1.2% (2000-05)
Urban:	79% (1996); Growth rate 1.7% (2000-05)
People hungry:	5% (1994-96) ^e ; 7% (1990-92) ^e ; 16% (1969-72) ^e
Food availability (calories/capita/day):	2,880 (1994-96); 2,790 (1990-92); 2,460 (1969-71)
Under-5 mortality/1000 live births:	44 (1997); 177 (1960)
% Children reaching grade 5:	71% (1993); 47% (1981)
GNP per capita; Gini index:	\$4,790 (1997); 60 (1995)
GDP growth rate:	3.4% (1990-97)
Agriculture:	8% of GDP (1997); 23% of Workforce (1990)
Growth in food production:	4.0% (1990-97) ^e ; Cropland/person: 1.0 acres (1996) ^e
Food imports/food supply:	not available
Ag. exports % of total exports:	31% (1997) ^e

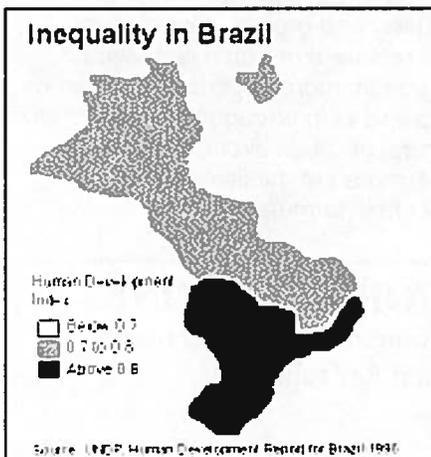
Source: UN, FAO, World Bank, USDA, UNICEF, WHO, UNESCO, ^e FFE calculation from primary data.

Through the \$3 a week Francisco Almedo earns laboring on a plantation the family survives on a breakfast of coffee without sugar and a lunch of flour and water. Dinner they save on by going to bed early. The scene might be typical of a famine-struck African nation but is hard to credit in Brazil, the world's eighth largest economy, and a per capita income of \$4,790. —Financial Times.

BACKGROUND

The Federal Republic of Brazil occupies almost half of South America and, with 170 million people (2000), has the world's fifth largest population. The tropical Amazon River basin in the north and low plateaus in the south and northeast dominate its topography. Vegetation is diverse, ranging from tropical rainforest in the north to semi-arid savannas in the southwest. The population is also diverse, due to successive waves of immigration: Portuguese colonists, the forced immigration of African slaves, and more recent immigrants from Europe. Brazil is one of few countries with good arable land that is not fully used. Until recent years, government policies favored industrialization and other non-agricultural activities.

Brazil has the most unequal distribution of income in the world. Despite its average annual per capita income of \$4,790, 10 percent of the population live on an annual income averaging only \$390 while the richest 10 percent have an income close to \$25,000. Based on the Human Development Index of the United Nations Development



Program there are three "Brazils" in reality, based on income, health and education (map). The South, with 49 percent of the population is most developed. The Northeast, with 33 percent of the population is the least developed.

ECONOMY

Brazil is the eighth-largest economy in the world, with 1997 GDP over \$820 billion. Its economy is highly diversified with large and well-developed agricultural, mining, manufacturing, and service sectors. Brazil's economy outweighs all other South American countries together, and is expanding its presence in world markets. Large industries have been mostly concentrated in the south and southeast. But the northeast, until now the poorest part of Brazil, is beginning to attract new investment.

Until recent years, Brazil pursued its economic development through an import-substitution industrialization (ISI) policy, meaning they tried to grow or manufacture nearly everything they needed. They protected their own producers by prohibiting or taxing imports. Such a policy is more nearly feasible in a large country such as Brazil. Its economy expanded rapidly for three and a half decades after the Second World War, and a large and diversified industrial sector developed. But during the 1970s, the economy began to falter. The protected industries became less efficient compared to other countries. Attempts to maintain growth fueled hyperinflation, led to a collapse in investment and a sharp deterioration in incomes and income distribution.

After several failed attempts to control inflation and draw capital investments back to Brazil, in 1994 they implemented a more successful stabilization program, the Real Plan, named after the new currency introduced at that time. Inflation, which had reached an annual level of nearly 5000 percent at the end of 1993, dropped to 6.4 percent in 1997, its lowest level in over 40 years. Brazil accomplished this through a combination of a strong exchange rates, tight monetary policies, trade liberalization, and privatization – selling off some of the state-owned industries. Brazil's trade more than doubled, from \$50 billion in 1990 to an

estimated \$114 billion in 1997. Agricultural products are a large part of Brazil's exports – soybeans and soybean meal, orange juice, coffee, cotton, sugar, rubber, cocoa, and nuts. The United States accounts for 20 percent of Brazil's trade.

Brazil was hit hard by the effects of the Asian currency crisis in late 1997. Interest rates were doubled in an attempt to keep capital invested in Brazil, after money began to be withdrawn at up to 20 or 30 million dollars each day. Brazil continues to struggle with inflation, and government budget and trade deficits.

The jerkiness and inflation in Brazil's economy have affected its poor people most severely. Their income nearly always lags behind inflation, while the costs of food and other basic necessities climb steeply. Forty-two million people (30 percent) in Brazil are poor. Poor people are concentrated in two areas--the Northeast (45 percent), especially in the rural area, and in the metropolitan areas, including São Paulo and Rio de Janeiro.

FOOD SECURITY

Overall, Brazil is self-sufficient in food, with average food availability of 2,880 calories per capita per day. It has become a leading exporter of agricultural commodities. But because of poor distribution of income, two-thirds of Brazilian households have an inadequate daily calorie intake.

Low purchasing power in rural areas and inadequate infrastructure (e.g. roads and irrigation) are two important obstacles to food security in Brazil.

In rural areas, small farmers and landless people are the most vulnerable groups. Land ownership is a fundamental problem in Brazilian agriculture. About 50 percent of all farms are small and occupy 2.2 percent of agricultural land. At the other end of the scale, 5 percent of the largest farms occupy 69.2 percent of all farmland. This historic distribution of land has led to two almost separate systems of agriculture in Brazil. Policies to improve agriculture have focused mostly on the larger farms, especially those growing crops for export. The principal policy tools for agriculture – income tax breaks and large scale farm credit – have little impact on poor rural families.

In Brazil, food insecurity is most widespread in the northeastern region. This region has extensive areas of good land, but rainfall is scant, and irrigation is expensive to develop. Subsistence farming prevails here, and the land is often overused. Forty percent of the region's population live in degraded land areas. More than 50 percent of the land in the states of Ceará and Paraíba is affected by desertification. It is one of the poorest regions in Brazil. In the drought began in the spring of 1998, about 5 million faced critical food supply problems because of declining food production.

Politics and the allocation of scarce capital resources also play into the region's ability to withstand drought. In the northeastern state of Paraíba, for example, underground water sources might be tapped for

irrigation. But only wealthy landowners can afford to install wells deep enough to tap into these sources. Irrigation projects initiated by the government have been aimed at big exporters rather than small farmers. Small farmers, often uneducated and often not owning the land they farm, have neither the means nor the security to make such improvements for themselves.

National Institute of Nutrition figures show that more than half the 20 million rural population of the Northeast suffer some form of malnutrition. About 25 percent of children in the Northeast are stunted, compared to 11 percent for the whole country. Infant mortality in Brazil's nine northeastern states is 100 per 1,000 (the national average is 60 per 1,000) compared with 15 in Costa Rica. Sri Lanka has higher longevity (72 years) than Brazil (66 years) with a much smaller per capita GNP (\$800 in 1997).

Other issues related to long-term food security include deforestation of the Amazon and the growing slums in large cities. During the 1970s the Medici government encouraged Brazilians, mainly Northeasterners, to settle in the Amazon River basin and clear the land. Large areas of the rainforest were destroyed in a largely failed experiment, and some of the remaining indigenous groups displaced. Preservation of remaining forests is a high priority for Brazil and the world.

Between 1970 and 1988, more than 1.5 million people left the Northeast to settle in the cities. About 13 percent of the urban population are undernourished, compared to 9 percent for all rural areas, but 39 percent in the Northeast.

PROSPECTS AND POLICIES

Brazil's food insecurity is not a problem of overall food supply, but a household and regional problem. Hunger there is in large part a consequence of long-standing unequal patterns of ownership of land and other productive assets and income distribution.

Hopefully, Brazil has found the right policy mix to restore economic stability and growth. Overcoming hunger, however, will require more than just overall growth. Within that growth, more opportunities must be created for poor people to earn enough to sustain their families, whether in rural or urban circumstances. In the short run, at least, more emphasis needs to be given to the needs of small farmers and rural development.

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Tajikistan: A Country Profile



Population:	6.0m (1998); Growth rate: 1.3% (2000-05)
Urban:	32% (1996); Growth rate 2.8% (2000-05)
People hungry:	n/a
Food availability (calories/capita/day):	2,230 (1994-96); n/a (1990-92); n/a (1969-71)
Under-5 mortality/1000 live births:	76 (1997); n/a (1960)
% Children reaching grade 5:	n/a
GNP per capita; Gini index:	\$330 (1997); n/a
GDP growth rate:	-16.4% (1990-97)
Agriculture:	34% of GDP (1997); 59% of workforce (1996)
Growth in food production; Cropland:	-3.9% (1992-97) ^e ; 0.4 acres/person (1996) ^e
Food imports/food supply:	40% (1997) ^e
Ag. exports % of total exports:	26% (1997) ^e

Source: UN, FAO, World Bank, USDA, UNICEF, WHO, UNESCO, ^e FFE calculation from primary data.

BACKGROUND

Tajikistan is a newly independent state in Central Asia, which emerged after the breakup of the Former Soviet Union in 1991. The country is landlocked, about the size of Iowa or New York, and surrounded by Uzbekistan, Kyrgyzistan, China, and Afghanistan. Tajikistan is mostly mountainous, which makes transportation and communication difficult, especially in winter. Its six million people represent several ethnic groups. About 60 percent are Tajiks and 23 percent Uzbeks. Most of the rest of the population are Russian, Kyrgyz, or Tartar.

Tajikistan is a transition economy, in the process of becoming a market economy, after being part of the Soviet centrally planned economy for two generations. It is primarily rural and agricultural, and was one of the poorest republics during the Soviet period. Largely because of its mountainous terrain, per capita cereal production was among the lowest in the Soviet Union, and it depended on food imports from the rest of the USSR. Since independence, it has suffered continuous economic and social decline, exacerbated by the 1992-97 civil war, which left 50,000 dead and a further 500,000 displaced.

ECONOMY

With per capita GNP of \$330 in 1997, Tajikistan is the poorest among the five New Independent States of Central Asia. Agriculture is the main sector of the Tajik economy. It accounts for 34 percent of GDP but employs 59 percent of the labor force. Cotton is the most important crop. The other main agricultural products are silk, vegetables, grains, and livestock. Industrial production contributes 20 percent of its GDP, but is limited to a large aluminum plant, hydropower facilities, and small factories for light industry and food processing, most of which are obsolete. Its mineral resources include silver, gold, uranium, and tungsten, which have recently become targets for development.

From independence in 1991 until 1997, Tajikistan's economy declined severely. New trade and payment systems developed slowly among the former Soviet countries. This, plus the civil war brought the Tajik economy close to collapse. The real GDP fell an average of 15 percent per year between 1992 and 1997, to only about 40 percent of its earlier level. About 85 percent of the population are poor, with the worst poverty in the more remote and war-affected areas.

The Tajik government introduced several economic reform measures in 1995, as part of a loan agreement with the International Monetary Fund. They also received a rehabilitation loan in 1996 from the International Development Association (part of the World Bank). But the civil war started up again, and results were delayed. The Government and the United Tajik Opposition (UTO) signed a Peace agreement in July 1997, and created the Commission for National Reconciliation to help resolve disputes. In 1997, Tajikistan's economy recorded modest growth of 1.7 percent, the first since its independence.

The country depends on aid from Russia and Uzbekistan and on international humanitarian assistance for most of its basic needs. Despite the peace agreement, it faces major problems in integrating refugees and former combatants into the economy. Furthermore, constant political turmoil and the continued dominance by former communist officials have slowed the introduction of meaningful economic reforms.

FOOD SECURITY

Tajikistan is the most food insecure country among the former USSR republics. About 12 percent of the population was significantly undernourished in 1998. Acute malnutrition is low, but moderate levels of stunting were widespread, as most households' incomes were inadequate to provide enough food. The Government has not able to fill the gap for this

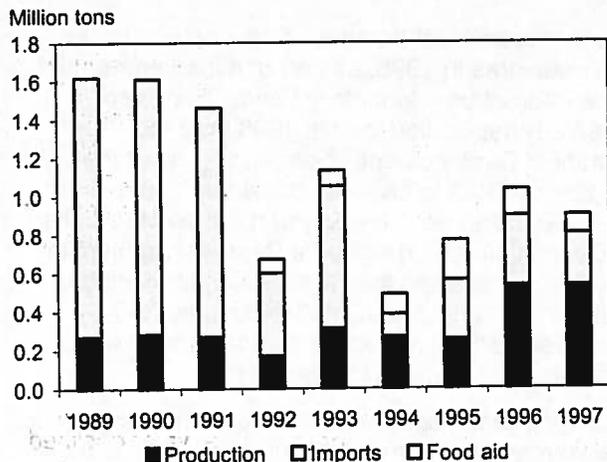
population and seems unlikely to do so in the near future.

The USDA estimates that food aid of 50,000 tons appears necessary for the next few years just to maintain the recent inadequate level of consumption (5 percent of total requirements). More than 400,000 tons would be required to provide enough food to meet everyone's minimum nutritional requirements (32 percent of total requirements). Food aid requirements, by either measure, are expected to increase over the next decade, even with optimistic assumptions about internal peace and increased economic growth.

In the pre-reform era, Tajikistan enjoyed a more than adequate per capita dietary energy supply and relatively diversified diet. An affordable and abundant supply of food for all was a major policy objective of communist governments. This was largely achieved, through extremely low consumer prices supported by heavy subsidies for agriculture.

However, this pre-reform era policy also encouraged more regional specialization of agricultural production. Soviet dictator Joseph Stalin forcibly relocated thousands of Tajiks to the southwest corner of the country to work on huge cotton farms, which still occupy the majority of the best arable land. Some

Sources of Grain



Source: USDA, *Food Security Assessment* (Washington: USDA, 1998).

grain production continued in the mountainous areas, which cover 93 percent of the land. But Soviet Tajikistan shipped cotton to the rest of the USSR and received most of its food in exchange.

The breakdown of the Soviet Union cut off this exchange. Russia and the other republics do not have food to export, and have reduced their imports of cotton. Tajikistan is not competitive in world cotton markets or in its manufacturing efforts. The civil war has further crippled industry and drained money and attention from needed agricultural reforms. Other income-earning opportunities have been slow to develop. People who formerly depended on state welfare payments have had nowhere to turn.

Grain production has increased sharply in the past couple of years as producers have switched areas from cotton to wheat. The increased wheat supply has mostly offset falling food aid receipts. But widespread poverty will remain a problem for the foreseeable future leading to chronically low food consumption for nearly all income groups.

PROSPECTS AND POLICIES

To attain food security, Tajikistan needs to increase its food production or its imports, or both. Just to maintain the present consumption level, it would have to increase its production 3.2 percent annually or its imports 4.1 percent annually for the next decade. Meeting nutrition-based goals would require production to increase to about 5.1 percent or imports by 6.2 percent annually, neither of which seems possible.

Tajikistan needs to maintain domestic peace and step up its efforts toward rehabilitation and development. In such efforts, it could attract cooperation and support from international donor agencies, particularly the international agencies. In its efforts to overcome poverty and hunger, Tajikistan has several assets: its well-educated population, fertile land with the potential to produce for domestic or international markets, a modest industrial base (although now largely idle), and hydroelectric power for industrial growth.

Although there is little prospect of expanding the area under cultivation, there is a considerable scope for increase productivity on some of the best land in Khatlon and Leninabad regions. The World Bank believes that Tajikistan could increase average wheat yields to three tons per hectare and meet its nutritional needs internally. Some reforms are urgent: replacing current low-yielding wheat varieties, which are susceptible to rust disease, with off-the-shelf proven high yielding early maturing varieties; introducing hybrid corn; and encouraging interplanting and double cropping.

Attention to several economic policies is necessary to set a positive framework for agriculture: appropriate price, subsidy, trade, and tax policies; land reform and farm restructuring; competitive agroprocessing; and improved services for agriculture, such as credit and rural financing, business contract enforcement, and improved transportation and communication.

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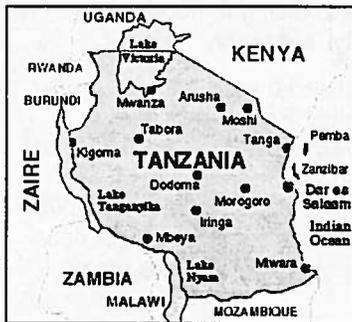
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Tanzania: A Country Profile



Population:	32.1m (1998); Growth rate: 2.3% (2000-05)
Urban:	25% (1996); Growth rate 5.2% (2000-05)
People hungry:	44% (1994-96) ^c ; 37% (1990-92) ^c ; 60% (1969-72) ^c
Food availability (calories/capita/day):	2,020 (1994-96); 2,110 (1990-92); 1,740 (1969-71)
Under-5 mortality/1000 live births:	143 (1997); 240 (1960)
% Children reaching grade 5:	83% (1992); 89% (1980)
GNP per capita; Gini index:	\$210 (1997); 38.2 (1993)
GDP Growth rate:	2.7% (1990-97)
Agriculture:	47% of GDP (1997); 84% of workforce (1990)
Growth in food production; Cropland:	+0.38% (1990-97) ^c ; 0.3 acres/person (1996) ^c
Food imports/food supply:	1.4% (1997) ^c
Ag. exports % of total exports:	56% (1997) ^c

Source: UN, FAO, World Bank, USDA, UNICEF, WHO, UNESCO, ^cFFE calculation from primary data.

BACKGROUND

Tanzania is located on the east coast of Africa, covering an area of 378,640 sq. miles. Mainland Tanganyika and Zanzibar formed the United Republic of Tanzania in 1964. With a population of 32 million (1998), Tanzania is the fifth most populous country in Sub-Saharan Africa. It comprises a fertile coastal belt, the Masai Steppe and mountain ranges to the north, with Mt. Kilimanjaro and Mount Meru, and a high plateau in the central and southern regions.

Tanzania was a German colony until the end of World War I, then was placed under a League of Nations mandate and administered by Britain until it gained independence in 1961. At independence, the country had few exploitable resources, only one major export crop (sisal) and a dilapidated education system. These problems led to a socialist development model with broad state controls under Julius Nyerere's leadership in 1967. The cornerstone of the policy was a series of collective agricultural ventures known as "ujamaa" (community) villages.

Despite enormous achievements in health and education, the program was an economic failure. Government control of prices and marketing resulted in an ever-shrinking share of each crop's value reaching farmers. As the farmers' share of export value fell from 70 percent in 1970 to 40 percent in 1980, production dropped. As agriculture slowed, the whole economy ground to a halt.

In 1986, the newly appointed Mwinyi Government embarked on a broad-based Economic Recovery Program (ERP) supported by the International Monetary Fund (IMF) and the World Bank. An Economic and Social Program was added in 1989. The government dismantled the system of state controls. It promoted private sector expansion, including liberalizing the trade and exchange system, eliminated price controls and most state monopolies, and opened the financial sector to private banks.

ECONOMY

Tanzania is one of the poorest countries of the world, with per capita income estimated at \$210 per year. About 51 percent of its people live in poverty. The Tanzanian economy is heavily dependent on agriculture, which in 1996 accounted for 52 percent of GDP, earned 58 percent of total exports, and employed 84 percent of the labor force, mostly in subsistence and smallholder cash cropping. The whole economy swings up and down with the fortunes of agriculture.

Industry accounts for some 15 percent of GDP, and is mainly limited to processing agricultural products and making light consumer goods. The mining sector has good potential but is relatively undeveloped. Tourism is one of the Tanzania's dynamic sectors and has grown significantly in recent years. The service sector and small private businesses are an increasingly important source of employment.

Under the IMF reforms, schools, hospitals, and roads have all deteriorated due to cuts in spending. The impressive gains in literacy rates and primary school enrollment during early independence have dropped. Between 1976 and 1993, access to safe water declined from 25 percent to 12 percent in rural areas and from 90 percent to 56 percent for the urban population. Hopefully, these losses can be restored if and when the economy thrives.

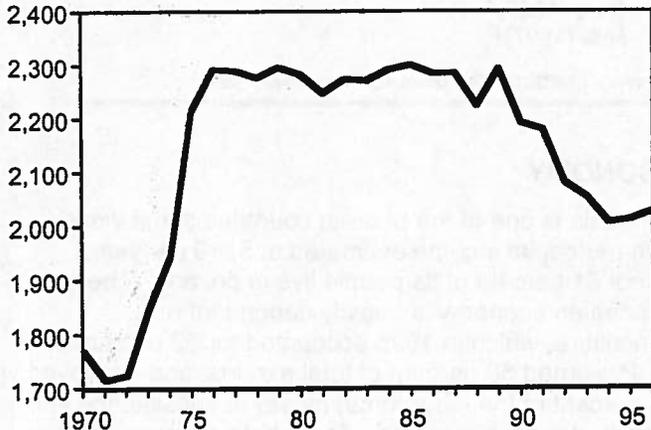
By now, Tanzania appears to be on a path of modest but steady economic growth. The combination of government-led reform and development assistance has helped the GDP grow 4 percent per year over the past 3 years. Agricultural GDP has grown between 2 and 9 percent in each of the past six years. Inflation dropped to 12.6 percent, a 17-year record low, in May 1998. The share of export revenues required to make payments on the \$7.9 billion external debt declined from 31.4 percent in 1992 to 16.0 percent in 1996.

FOOD SECURITY

Tanzania is marginally self-sufficient in foodstuffs, with maize and rice surpluses in some years, but with internal food distribution problems. It is classified as a low-income food-deficit (LIFDC) country. The overall per capita dietary energy supply is 2,020 calories, well below recommended minimum requirements for survival. Forty-four percent of the population are undernourished (1994-96), slightly more than in 1990-92, but much below the 1969-71 level of 60 percent.

Food availability, 1970-96

Calories/capita/day



Source: FAO, FAOSTAT Statistics Database.

Children under five and pregnant and lactating women are the two groups most at risk from malnutrition. Children are particularly susceptible to protein-energy malnutrition; and child-bearing women to micronutrient deficiencies. About 43 percent of all children under five years are stunted. Chronic disease and low food intake are the main threats to nutritional security in urban areas.

Most farming in Tanzania is done by smallholders, for subsistence and some cash income. Yields are low because the peasant smallholders lack access to modern technology and fertilizers. The main subsistence crops include maize, sorghum, millet, cassava, rice, plantains, wheat, and pulses. These crops are highly vulnerable to drought. The major cash and export crops in order of importance include coffee, cotton, tobacco, cashew nuts, and cloves; all grown mainly by smallholders, and sisal and tea which are grown mainly on large estates. Income from cash crops fluctuates wildly with weather conditions and international commodity prices.

Forty percent of Tanzania's population lives in chronic food-deficit regions. Calorie intake differs greatly by regions and by farming systems. The energy intake per capita is higher in the rice growing areas than in the sorghum/millet areas (2,884 calories vs. 1,300 calories/capita/day in 1991). Calorie intake is higher in the maize areas than in the coffee-banana areas.

Seasonal hunger is widespread during the months before the next harvest.

Food security in Tanzania faces several problems. Ninety-eight percent of its agriculture is rain-fed. Every three to five years, on average, there is crop failure in some part of the country due to drought, floods, or both. Maize yields, especially, are highly variable.

Food insecurity is highly localized due to poor markets and poor food storage capacity. Poor roads and infrastructure hinder the movement of food from surplus to deficit regions, often in remote areas. Crop losses due to poor storage, spoilage, and pests are high as 40 percent. Environmental problems, such as loss of soil organic matter and depletion of soil fertility are major concerns.

PROSPECTS AND POLICIES

Tanzania has the resources to achieve food security. Food production needs to increase nearly 3 percent per year (at 2 percent population growth rate in 1997-98) to close the nutritional food gap. Tanzania's development policy must center on stable and sustainable agriculture. It must also create employment and generate higher incomes.

The International Food Policy Research Institute suggests several policies that would support broad-based agricultural growth in Tanzania:

- Build strong national agricultural research and extension systems (both public and private) that take explicit account of low and variable rainfall and low soil fertility and the needs of smallholders, especially women;
- Create and widely disseminate productivity-enhancing technologies;
- Develop a strong infrastructure, especially good road and transport systems;
- Open trade in ways that will improve the income for rural producers;
- Protect the environment;
- Strengthen education and health care;
- Diversify Tanzania's economic base.

International help is essential; especially to help improve technology, support research, and restore and strengthen education and health care systems.

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