

For Puppies or Children? A Case Study about Global Food Security

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Abstract: This case study is a progressive disclosure case concerning a real famine situation that arose in Kenya in 2006. Students learn about the issue and suggested remedies, consider the influence of demographic factors, and identify key issues and stakeholders. The progressive disclosure format allows the instructor to tailor the case to fit classes varying in length from 50 minutes to 3 hours. Options are presented for adapting the case to different courses. Information is also supplied about significant resources provided by the National Center for Case Study Teaching in Science to support use of case studies.

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Introduction

This case was developed at the May 2006, Case Study in Science Teaching Workshop, for use in courses considering issues in human population and international development. The authors use the case in courses in Environmental Science, General Biology, and General Ecology, although it could be adapted more widely, for example to focus on nutrition. Students may find it helpful to have been exposed to basic human demographic, global agriculture and food security concepts in advance of considering this case.

Scenario in brief: Famine deepened in parts of western Kenya and neighboring Uganda after extended drought, and a New Zealand pet food manufacturer offered a donation of reformulated dry food mix for hungry children in the drought stricken region. Controversy arose with press reports of donated dog food.

The scenario presented actually occurred, and quotes and reactions from involved individuals are as they were reported at the time.

Learning Objectives

After completing this activity, students will be able to:

1. Identify the interactive roles of poverty, economics, environment, population, politics, and ethics in food supply
2. Identify roles of strategic stake holders in global food security issues
3. Recognize and understand useful demographic information associated with food security
4. Develop insights on strategies for promoting global food security

Classroom Management

This case is presented as an interrupted case study. Three parts are included, with Part 1 taking approximately 50 minutes, an additional 15 minutes for Part 2, and with the timing of Part 3 being more flexible, but requiring approximately 50 to 90 minutes.

Part 1

In Part 1, students read the basic information in this interrupted case, and are also provided with some demographic and economic development indicators for Kenya and New Zealand. Major issues and stakeholders are identified in class discussion. Students then work in small groups to role-play the reactions and responses of several involved individuals, and then report out their role responses to the situation, with general class discussion.

Part 1 is handed out for students to read (about 5 minutes). Then have the class respond to the following in general discussion: 1. Identify the main issues from the described scenario; and 2. Who are the key players / stakeholders? We've found it helpful to record responses on the board (about 10 minutes).

Pass out role sheets and assign students to role perspective groups. (Note that you may wish to include or substitute additional role perspective groups that your students identify as particularly important.) Groups of three to five are most effective; instructors in large classes may wish to have multiple groups assigned to each role perspective or to add additional role perspectives identified in the initial discussion. Students should view the scenario from the perspective of their assigned role and prepare a list of talking points, concerns and a position for a press release. Demographic and development data on the reverse of the page should inform the discussions and writing (15 min.).

Finally, ask groups to report their positions and rationales in class discussion. If this is the extent of the case presentation, the instructor would want to spend a few minutes at the end to recap the issues, inform the class about the outcome of the events, and to discuss some ideas toward solutions or assign research based on the case. (15 min.; total time for Part 1 about 45 min.)

Part 2

In Part 2, students receive further information regarding the immediate outcomes of the controversy and are asked to work with their role team again to reevaluate their previous responses in light of new facts and circumstances.

Hand out Part 2 to students in their groups. Allow about 5 minutes for students to read it and then ask them to discuss the assigned questions (10 min.). Wrap up this activity with reports from the student groups and general class discussion (10 min.; about 25 min. total).

Part 3

Part 3 provides information about the final resolution of the immediate issue, and then asks students to conduct a brief research effort to compare patterns of agricultural production, demography and political systems, geography, and/or climate between Kenya and their home state/country. What similarities and differences can be identified between the two regions? How does each aspect affect food availability for the citizens of those regions?

Management of this portion of the exercise is flexible. Those instructors who have sufficient computers and/or reference materials available may wish to assign the research as an in-class activity occupying an hour or two. Alternatively, the activity could be assigned as homework.

Each team or individual students might be assigned to research one of these topics and create a summary presentation to share with the entire class. Whole class discussion can explore answers to the following questions: What would happen to food availability in your state if you were to experience the same kinds of weather conditions that occurred in Kenya? If the class concludes that famine would not result, what differences might account for that result? What ideas can the students develop that might be useful in Kenya and elsewhere to reduce the likelihood of future famines? Instructors may also wish to reinforce basic science skills by directing students to include graphical presentations of data and/or to perform relevant statistical analyses (Time flexible, depending on scope of student inquiries).

Scientific Background

What is “food security”?

According to the United Nation’s Food and Agriculture Organization (FAO; Economic and Social Department, 2000), “...food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” Currently 2,000 calories a day is considered sufficient. Food-insecure households exist in all countries. The difference, however, is the frequency and proportion of such households in a given community. One school of thought considers food insecurity a direct result of disproportionate distribution of global resources, thus, the surpluses in some areas and deficiencies in others. Another believes that overall food production needs to be increased to meet increased future demand. In nutritional terms, a basic consideration of caloric intake may suffice but “food security” is an

integration of social, cultural and ethical concerns towards meeting dietary needs of various populations around the world.

Various economic indicators may be used to measure the level of self sufficiency in resources. While these may not directly result from increased agricultural production, there is high correlation. Some indicators need to be interpreted with caution, though. For example, a proportionately high rural population in a developing country may represent manpower to produce food by subsistence labor-intensive methods while implying the very opposite in highly industrialized countries that are highly driven by a formal market economy.

Was this drought an unusual event?

Unfortunately, no, this drought was not an unusual event. Kenya and neighboring countries normally experience “long rains” from April to June, and “short rains” from October to December. At the time of the central incident of this case (January, 2006), most of Kenya had experienced three to five seasons of drought, with complete failure of the short rains in the northern and eastern part of the country in 2005 (FEWS, 2006). Many farmers have noted that the rains seemed to be becoming less reliable, an observation that is congruent with predictions of climate models.

Were all people in Kenya experiencing a food emergency?

No, although at the time of this case study, most districts in the nation were classified by the Famine Early Warning Systems Network of the FAO as being under food security “watch”, “warning”, or “emergency” status (FEWSNet, 2006). Only a few regions were considered to be without risk. Malnutrition was increasing, with 26 to 30% of children in the hardest-hit districts being classified as experiencing Global Acute Malnutrition.

Agriculture is the major occupation of 80% of Kenya’s population, with two major forms: farming and pastoralism. Adequate moisture for cultivation is found across less than 20% of Kenya, with the rest being arid or semiarid (Encyclopedia of the Nations, 2007). Farms are small and sugarcane, corn (maize) and a variety of export crops are the major crops.

Pastoralists herd cattle primarily, but also employ camels and donkeys as beasts of burden. The cattle supply meat, milk, hides, and generally support the subsistence of the herding peoples. Pastoralists move their herds seasonally to take advantage of grazing land production. When rains fail, herds tend to stay put, overstressing areas as competition increases and decreasing the carrying capacity of the rangeland and water resources.

Pastoralists were disproportionately affected by the 2005-2006 droughts. Herds experienced significant mortality, which decreased the availability of the animal products to the herding communities and increased malnutrition. The reduced herd size also resulted in a very slow recovery after more favorable rains returned late in 2006 as there were relatively few breeding stock in place.

Why is hunger a chronic problem for so many nations in Africa?

The issue is complex. There seem to be several critical interrelated factors (Plaut, 2006):

1. Underinvestment by governments in rural areas and poor governance. Rural areas have little political clout, and in some nations most resources are directed to urban area. Problems such as corruption and nepotism inhibit development of infrastructure, markets, educational and health care resources in those rural areas as a result.
2. HIV/AIDS is depriving families of their most productive labor, especially in southern Africa where over 30% of sexually active adults are HIV positive.

3. Wars and political conflict, leading to increasing numbers of refugees and instability.
4. Unchecked population growth, with the population of the continent doubling between 1975 and 2005, with a growth rate of about 2.2% per year. Farm families often subdivide their land for their children, leading eventually to plots that are too small to be highly productive or cultivation of unsuitable land, resulting in declining soil fertility and erosion.
5. Increasing drought frequency and severity.

Relevant demographic and development indicators for discussion and student research

Economics/poverty

Gross Domestic Product/Gross National Product, both measures of consumption vs. alternative development indicators (i.e., Bhutan's "Gross National Happiness", or the "Index of Well-Being")

Per capita annual income

Rural subsistence Vs Urban industrialized communities

Environmental resources and weather

Global climate change

Resource conservation

Pastoral practices

Access to safe drinking water

Population

Global trends in population change in developing countries vs. highly industrialized countries

Age structures

Life expectancy and child mortality

HIV / diseases

Food supply

Calorie requirements/ availability

Staple foods – diversity and abundance

Investment in rural agricultural development

Availability of agricultural inputs, especially fertilizers and irrigation

Politics and ethics

Government stability

War

Refugees, both political and environmental

Rural development policy

For more information, see also BBC News (2006b, 2006c), Central Intelligence Agency (2007), National Agriculture Statistics Service (2006), Population Reference Bureau (2007), United States Census Bureau (2007), United States Department of State (2007).

Student Outline

For Puppies or Children? A Case Study about Global Food Security

Learning Objectives

1. Identify the interactive roles of poverty, economics, environment, population, politics, and ethics in food supply
2. Identify positions of strategic stake holders in global food security issues
3. Recognize useful demographic information associated with food security
4. Develop insights on strategies for promoting global food security

Part 1--Dogs, children and a diplomatic nightmare: Issues in global food security

January 31, 2006. The president of Kenya has declared a national disaster because of food shortages, which often follow poor rains across the northern part of the country.

A New Zealand dog food manufacturer, *Mighty Mix Dog Biscuits*, has offered to help the 4 million people hit by drought.

The outcry began when Nairobi's leading newspaper, *The Daily Nation*, picked up a report from *The Press* newspaper in Christchurch, New Zealand, about the offer of 6,000 packets of powdered dog food and splashed it across its front page. Officials in drought-stricken Kenya recoiled with outrage even as the company's founder Christine Drummond said the product was fit for human consumption.

Describing the idea as "absurd," "insulting," "offensive" and "immoral," Kenyan officials vehemently rejected the donation for children threatened by famine and said they would put measures in place to prevent any similar assistance.

"It is immoral, it is unacceptable," said Special Programmes Minister John Munyes, who is coordinating the government's response to the drought that has put up to four million people in the east African nation at risk of starvation.

"Oh no, this gesture is horrible, it is terrible," said Khadija Abdalla, head of the Garrisa Provincial Hospital in one of the worst-hit areas of northeast Kenya where at least 40 people have died of drought-related causes since December.

Francis Opiyo, the coordinator of *Mercy Mission Kenya*, the designated recipient of this donation said, "You [local politicians] can take your time to talk about this...call the press instead of coming out to give your offer of good food and clothes. Why can't you go without food for one meal and feed these hungry kids? Just get in touch if you want to donate...we need clothes, food, shoes, text books, access to clean water, school fees."

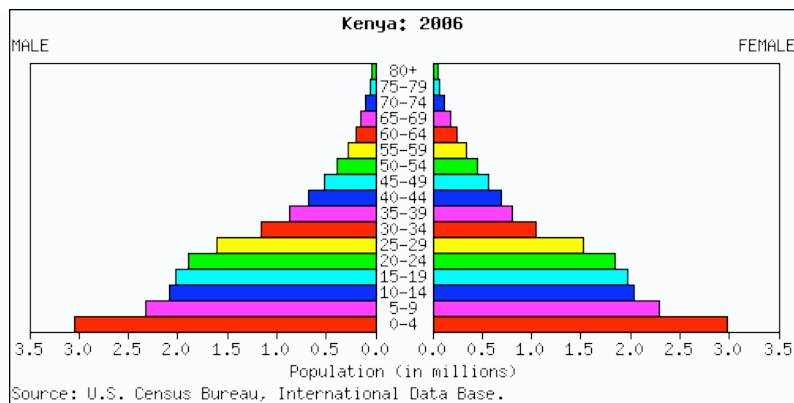
Activity

Following some initial class discussion, the class will be divided into four groups, each assuming one of the following roles. (Note: Your instructor may provide alternatives.) Using information from the fact sheet on the reverse, each group will note down several talking points, concerns, and a position for a press statement. You will then share your position with students representing the other roles. Finally, each group will have a few minutes to present and explain their talking points to the rest of the class.

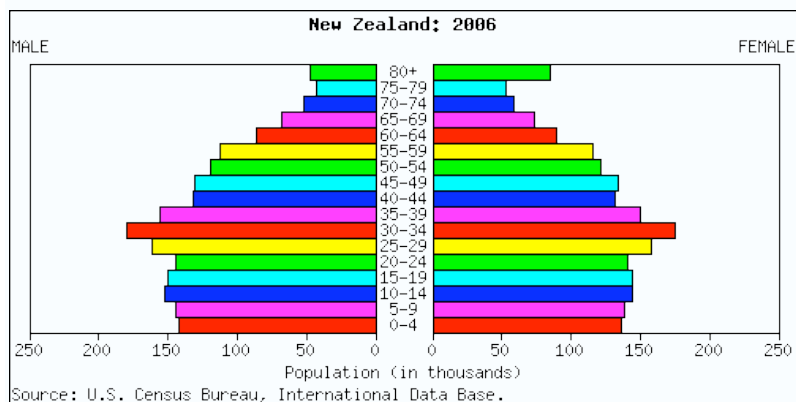
- Christine Drummond, the founder of dog food manufacturer, *Mighty Mix Dog Biscuits*
- Francis Opiyo, coordinator of *Mercy Mission Kenya*, the designated recipient of the donation
- Kenyan Ambassador to New Zealand, John Lepi Lanyasunya

- New Zealand Ambassador to Kenya, Warren Searell
 - **Note:** Ambassadors are the official representatives of their country's governments. As such, their statements reflect the political and economic interests of their countries.

Fact Sheet		
	Kenya	New Zealand
Size	224,960 sq mi (approx. size of Texas)	104,440 sq miles (approx. size of Colorado)
Population	34,000,000 (2006)	4,181,000 (2006)
Per Capita Income	\$530 (2006)	\$25,960 (2006)
Living Below \$2 per day	58.3%	0%
Life Expectancy	Male: 55.24 Female 55.37	Males 76.3, Females 82.3
% of Adults with HIV	6.7% (2004)	0.1%
Literacy, Female	79.7%	99%
Infant Mortality Rate	57.44 deaths/1,000	5.1/1,000
Fertility Rate	4.82	1.79
Birth Rate	38.94 births/1,000	13.61 births/1,000
Death Rate	10.95 deaths/1,000	7.54 deaths/1,000
Population Growth Rate	2.799% (2007 est.)	0.95% (2007 est.)
Calories per Day Produced	300 deficit	1,992 excess
Projected # Needing Food Aid	1.1 million	0
Staple Foods, Total Percentage of Calories	Maize (corn) 73-82%	Meat, Bread, and Potatoes, 53%



Note: data in millions



Note: data in thousands

Part 2--Dogs, children and a diplomatic nightmare: Issues in global food security

A review of several press releases between Jan 30 and Feb 4, 2006, found various statements that helped clarify some facts about the food donation incident.

Under the headline "For starving children of Kenya, 42 tons of dog food ..." the Nairobi *Daily Nation* newspaper heaped scorn on the scheme presented by Drummond, the founder of *Mighty Mix* dog food.

Christine Drummond told the BBC (British Broadcasting Corporation) that she could assure Kenyans that the nutritional supplement she was offering was "definitely not dog food".

In an interview with Television New Zealand, Drummond said the relief food, *NZ's Raw Dry Nourish*, is fit for humans. Her donation product differed from pet food, though made with the same ingredients, and she and her children ate it. She said she sprinkles the powdered supplement on her porridge every morning. It is "a high-powered food full of nutrients. It tastes yummy," she said.

"I have been formulating it for special people like in Kenya, the people who need it the most to keep strong," Ms Drummond told the BBC's "Focus on Africa" programme. But she said that the Kenyan government's reaction resulted from a misunderstanding and her only desire had been to help malnourished children in Kenya.

"I am offering a natural food supplement... I am donating this food out of the goodness of my heart and to try and show that New Zealand is a loving country," Ms Drummond said. She said she was also sending 42 tons of maize (corn) from New Zealand.

The Press quoted her as saying she initially thought of sending dog biscuits to Kenya but decided against it when she discovered the need.

"The first plan was to send dog biscuits and change the vitamins then when I heard there were so many little children I could not send them a bicky [biscuit]," *The Press* quoted her as saying. So she created a powdered form of the ingredients - freeze-dried beef, mutton, pork and chicken, deer velvet, green lip mussel, kelp, garlic, egg, whole grain cereals and cold-pressed flax seed flour - to mix with water.

"The dogs thrive on it," *Mighty Mix* agent Gaynor Siviter told *The Press*. "They have energy, put on weight. It's bizarre but if it's edible and it works for these people then it's a brilliant idea. It beats eating rice."

Activity

Based on the new information, work in your role group and respond to the following questions. You will share your thoughts with the others in the class later.

1. Identify significant facts that were previously unclear and that are likely to influence the public image and understanding of the incident.
2. Re-evaluate your earlier position about the donation. Do these new facts influence (or change) your perspective about your previous press statement position, and if so, how?
3. What evidence or information, if any, is still missing? What other information would you need to know to come to a conclusion?

Part 3-- Dogs, children and a diplomatic nightmare: Issues in global food security

Days passed and the heat was high, Christine Drummond sent some money to Kenya instead of the offered food donation that was to have included *NZ's Raw Dry Nourish* and corn from New Zealand. The money was used by the coordinator of Mercy Mission Kenya, Francis Opiyo, to purchase corn from regional stocks. The corn was distributed to people in the immediate region of Mercy Mission Kenya. Diplomats from both nations expressed satisfaction that a “misunderstanding” had been cleared up.

But had the underlying problems been solved? Why is hunger a recurring problem in Kenya and other parts of Africa? And, could widespread hunger happen here at home?

According to the United Nation’s Food and Agriculture Organization (FAO), “...food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” Currently 2,000 calories a day is considered sufficient.

Reflection and research

1. Which of the “Fact Sheet” items are most important in understanding the situation of this case? Why?
2. What would happen to food availability in your state if you were to experience the same kinds of weather conditions that occurred in Kenya? If the class concludes that famine would not result, what differences might account for that result?
3. Work with your team to identify one significant factor important to food security in Kenya and in your home area. Research the differences and similarities between Kenya and your state with respect to that factor. What ideas can you develop that might be useful in Kenya to reduce the likelihood of future famines? In your state?

Present the results of your research and analysis to the class for a roundtable discussion.

Your instructor may have an alternative assignment for you.

Notes for Instructor

Teaching this case

Other ways of using this case study include, but are not limited to, the following:

- Another method for teaching this case would be to start by handing out the demographic “Fact Sheet” of the two countries, without naming the countries. Have the students describe each nation using only the demographic and development indicators. Then proceed with Part 1.
- Look at the demographics over time. Have your students “Google” the demographic information; it changes almost annually. Keep the information in a database and have the students compare the current year’s data with previous years. Are the demographics looking better for the Kenyan population, or worse?
- Look at the demographics of different countries. Have your students research and compare data from other more developed to less (or least) developed countries, or compare industrialized to non-industrialized countries.
- Use this case as an introduction to the literature, directing students to databases, library resources and other resources.
- Relate issues identified by the students to major concepts throughout the course. This will reinforce the concepts and also the relevance of the biological foundations of this problem to social, economic, and political issues.
- Modify for use in other courses. For example, this case could be adapted for use in a course on nutrition, or ethics.
- Tie in with a local food drive.

What to do if the discussion gets heated!

- **Step in between the students** who are overly upset with each other. This cools them down considerably. Losing eye contact with their adversary makes it difficult to stay angry.
- If necessary, remind them that they are merely role playing.

We have found that the ethnic background of the students in the class and that of the local region play a large role in how student reaction and response to this case study.

Using case studies

The authors use case studies extensively. Case studies allow students to see connections among biology, economics, sociology, ethics, and other fields. They also allow students to see real-life applications of concepts and to begin to understand that issues involve complexity. In addition cases often facilitate small group work, such as in this case, and we find that it is effective and well-received by students and is especially useful in large classes.

Instructors who are contemplating the use of case studies in their classes, as well as experienced case study teachers, will find resources aplenty provided by the National Center for Case Study Teaching in Science at <http://ublib.buffalo.edu/libraries/projects/cases/case.html>. In addition to a large library of case studies, you will find literature on using and assessing case studies, ideas for cases, tips for writing your own cases, and links to other case study resources. This site really is a comprehensive, useful resource to support teaching with case studies.

Acknowledgements

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