

## THE WORLD FOOD PRIZE 2006 YOUTH INSTITUTE PAPER TOPIC

### *“Looking Ahead: Sustainable Paths toward Food and Nutrition Security”*

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#### INTRODUCTION TO THE ISSUES

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"The Green Revolution is an ongoing continuum. Millions of people are currently undernourished in the world. The world population for 2025, at a medium fertility rate, is projected to be about 8.3 billion people. I calculate that we will need an additional one billion tons of grain by then. We have to increase yields to feed these people -- more bushels per acre, more tons per hectare. Higher yields are especially important now due to spreading urbanization, which takes away agricultural land. We will need to use both conventional breeding and biotechnology methods to meet the challenges of this century."

*Dr. Norman Borlaug. American Institute of Biological Sciences Interview, 2002*

The Green Revolution in agriculture helped food production keep pace with population growth. It is credited with saving almost a billion human lives. Despite these gains, major problems remain with food insecurity, malnutrition, and unsustainable use of natural resources. These problems are particularly severe in the poorest countries of Africa, Asia and Latin America.

With business as usual, more than 500 million people could be food insecure by 2020, more than 130 million preschool children could be malnourished, and natural resource degradation could worsen. With accelerated action and appropriate changes in policies and institutions, major progress can be made towards sustainable food and nutrition security for all.

The Green Revolution began in 1945 when the Rockefeller Foundation and the Mexican government established the Cooperative Wheat Research and Production Program to improve the agricultural output of the country's farms. Norman Borlaug was instrumental in the success of this program. This produced astounding results, so that Mexico went from having to import half its wheat to self-sufficiency by 1956 and, by 1964, to exporting half a million tons of wheat. This program was continued in India and Pakistan where it is credited with saving millions of people from starvation.

The Green Revolution applied two major technologies. The first is the breeding of higher yielding varieties of a crop by crossbreeding a broad range of strains of the crop to produce the desired combination of yield characteristics in a single variety. The second is the development of new agricultural techniques for use of fertilizers, pesticides and herbicides, irrigation, and farm machinery with these varieties.

A new phase of the Green Revolution began in the mid-1980s in response to the continuing population explosion, discrimination against women, environmental degradation, the loss of crop plant genetic diversity, and global warming. The international response has been that vigorous pursuit of sustainable development through locally appropriate solutions is the best answer to these problems. Interest in sustainable agriculture and food systems that are more energy efficient and less socially and environmentally destructive has grown rapidly in all countries. The Rockefeller Foundation, for example, is promoting proposals, made by Sir Gordon Conway in his work *The Doubly Green Revolution*, which seeks rural development of the world's poorest regions through sustainable farming systems developed with full farmer participation, including women subsistence farmers.

*Reference IFPRI's 2020 Vision*

## How to Develop Your Paper

**Step I. Your Mission:** You will research factors affecting food and nutrition security (*see Step II below*) in a region or country (*see Step III below*) of your choice. You will then prepare your *Youth Institute Paper* with your research findings and suggestions for improving food and nutrition security in the region/country on which you have focused (*see Step IV below*).

**Step II. Family Farm:** The world's small-scale subsistence family farmers and the communities and countries where they predominate suffer the greatest food and nutrition insecurity. These communities and countries are also areas of concentrated poverty containing over 92 percent of the world's households that consume less than one U.S. dollar's worth of goods per person per day.

Addressing food and nutrition insecurity and associated poverty then entails improving the yields of these family farms. Yield improvements depend on agricultural science, preserving natural resources, access to technology, land, and water, open markets, and economic incentives and supporting institutions. Appropriate action must take into account a number of driving factors that are influencing the prospects for global food and nutrition security. The following factors are particularly important:

1. **Agricultural research** into new crop varieties and sustainable agricultural practices for subsistence family farmers;
2. **Sustainability research** into reversing natural resource degradation and adapting to water scarcity and climate change and improving resource management;
3. **Education of family farmers** about results from agricultural and sustainability research and providing these farmers access to technical and financial support for implementing methods from this research;
4. **Economic programs** improving farm marketing infrastructure and institutions and providing access to land and water as well as addressing problems created by globalization and trade policies for subsistence family farmers;
5. **Public health initiatives** addressing ongoing and emerging health and nutrition crises;
6. **Domestic policy initiatives** addressing population growth, rapid urbanization, and gender or cultural discrimination; and
7. **International policy initiatives** for resolving poverty caused by poor governance or conflicts.

**Step III. Select only ONE of the regions or countries listed below as the focus of your research:**

**Example:** If you choose "West Africa", your research will focus on food and nutrition security issues in any of these countries: Benin, Burkina Faso, Cape Verde islands, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, São Tomé and Príncipe, Senegal, Sierra Leone, Togo

**North Africa:** Algeria, Canary Islands (Spain), Egypt, Libyan Arab Republic, Morocco (including Western Sahara), Tunisia

**Central Africa:** Angola, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo (Zaire), Equatorial Guinea, Gabon, Sudan, Zambia

**East Africa:** Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mayotte, Mozambique, Reunion, Rwanda, Seychelles, Somalia, Tanzania, Uganda

**West Africa:** Benin, Burkina Faso, Cape Verde islands, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, São Tomé and Príncipe, Senegal, Sierra Leone, Togo

**South Africa:** Botswana, Lesotho, Namibia, South Africa, St. Helena (U.K.), Swaziland, and Zimbabwe

**Caribbean:** Anguilla (U.K.), Antigua & Barbuda, Bahamas, Barbados, Bermuda (U.K.), Cayman Islands (U.K.), Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique (France), Montserrat (U.K.), Netherlands Antilles, Puerto Rico (U.S.), St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago, Turks & Caicos (U.K.), Virgin Islands (U.K., U.S.)

**South America Tropical:** Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, and Venezuela

**South American Temperate:** Argentina, Chile, Falkland Islands (U.K.), and Uruguay

**Central America and Mexico:** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama

**Indian Subcontinent:** Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka

**East Asia:** China, Hong Kong S.A.R. (China), Japan, Democratic People's Republic of Korea (North), Republic of Korea (South), Macao S.A.R. (China), Mongolia, Taiwan

**South East Asia:** Brunei-Darussalam, Burma (Myanmar), Cambodia, East Timor, Indonesia, Lao People's Democratic Republic (Laos), Malaysia, Philippines, Singapore, Thailand, Vietnam

**Middle East:** Bahrain, Cyprus, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen

**Eastern Europe:** Albania, Armenia, Azerbaijan, Belarus, Bosnia/Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Serbia/Montenegro, Slovakia (Slovak Republic), Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

**Australia and the South Pacific:** Australia, Christmas Island, Cook Island, Federated States of Micronesia, Fiji, French Polynesia (Tahiti), Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn, Samoa, American Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wake Island, Wallis and Futuna

**Step IV. Follow these instructions to develop your Youth Institute Paper:**

1. Choose ONE of the important regions above as the focus of your research. (*You may focus on one country in a particular region if you prefer.*)
2. Define a “typical” subsistence family farm in your region: a) family composition, diet, education, and income; b) farm size, crops grown, agricultural practices, and marketing; and c) major barriers to improving food and nutrition security.
3. Select ONE of the important factors (*Step II*) above as the focus of your research.
4. How does the factor you selected contribute to food and nutrition insecurity on your family farm in your chosen region/country? Discuss the following:
  - a.) What role does the factor play in causing your family to not produce enough food or earn sufficient income to purchase food or dietary supplements? In creating environmental or economic problems or gender or economic policy issues?
  - b.) What is the present status for this factor? How severe is the situation? What percentage of the necessary amount of food, nutritional requirements, and income for the family is being attained? Is the environment being degraded or biodiversity diminished? Are women, rural or urban poor, or developing countries disadvantaged?
  - c.) What are the trends for this factor? How are the trends for this factor (*for instance, you might have selected “Sustainability research into reversing natural resource degradation”*) measured? Do these measurements indicate the situation is changing? If so, how? Because of potential change, or no change, is the situation for your farm family getting worse, improving or staying the same?
  - d.) How would improving or resolving this factor increase the amount of food, nutrition, or income available to your family? Preserve the environment or biodiversity in a sustainable fashion? Benefit women, small farmers, or developing countries?
5. Based on your research and, after careful consideration, give your recommendations as to how national governments and other organizations (*United Nations, World Bank, private voluntary organizations, civic organizations and others*) can improve the situation faced by impoverished family farmers in the region/country on which you have focused.
6. Give your suggestions on how the international community, national governments and other organizations can work together on solving food and nutrition insecurity and ensuring the use of natural resources in a sustainable way that will benefit the poor, women, and children now and in the years to come.