McGill

2nd McGill Conference on Global Food Security:

Impacts of the Global Financial Crisis on Food Security

SUMMARY, KEY FINDINGS AND RECOMMENDATIONS

OCTOBER 5-7, 2009

MONTREAL, CANADA

2nd McGill Conference on Global Food Security

CONFERENCE REPORT

SUMMARY, KEY FINDINGS AND RECOMMENDATIONS

www.mcgill.ca/globalfoodsecurity
globalfoodsecurity@mcgill.ca

SPONSORS

syngenta foundation for sustainable agriculture

IDRC CRDI

Dr. Donald McQueen Shaver, O.C.

Erin Hogg

Agriculture, Pêcheries et Alimentation Québec

McGill
OFFICE OF THE VICE-PRINCIPAL
RESEARCH AND INTERNATIONAL RELATIONS

Relations internationales Québec

NOVA SCOTIA
Agriculture

McGill
FACULTY OF AGRICULTURAL
AND ENVIRONMENTAL SCIENCES

SUPPORTERS

Barbara Johnson
Bill Ritchie
Roland McC. Greenbank
Anton Angelich
Macdonald Branch of the
McGill Alumni Association
Ville de Sainte-Anne-de-Bellevue

Table of Contents

Page

EXECUTIVE SUMMARY

Rapidly rising food and fuel prices in 2007 and 2008 followed by the worldwide financial crisis in the fall of 2008 worsened food security in developing countries and threatened economic and political stability in countries around the world. At the peak of the global food crisis in mid 2008, the FAO food price index was up over 60% from January 2007. In many countries food prices increased by 3 or 4 times pre-crisis levels and violent riots and demonstrations were reported in at least a dozen countries. Governments in Egypt and Pakistan faced serious threats over their inability to maintain a steady supply of subsidized food to impoverished populations.

The number of hungry people rose from 850 million in 2005 to 925 million in 2008 to over one billion in 2009. The causes underlying the food security crisis included relatively recent events such as conversion of land to biofuel production, rising oil prices, lower cereal reserves, trade speculation, and droughts in key grain producing countries as well as long term issues such as a growing world population, changing food consumption patterns, international trade policies and reduced national and international investments in the agricultural sector.

The additional impact of the financial crisis has further exacerbated global food security. Credit for agricultural producers has become expensive and difficult to find making it likely that farmers will plant smaller areas and produce less. Remittances to developing countries from people working abroad have dropped significantly as jobs losses in developed countries increase. This has caused further impoverishment of those already struggling against poverty.

The 2nd McGill Conference on Global Food Security examined the effects of the recent financial crisis on global food security, identified investment priorities for the agricultural sector including critical areas for research and capacity building and evaluated the effects of markets and trade, biofuel production and climate change on current and future world food production and the environment.

The conference was convened by McGill University's Faculty of Agricultural and Environmental Sciences and took place October 5-7, 2009 in Montreal, Canada. The Conference was co-chaired by the Principal and Vice-Chancellor of McGill University, Professor Heather Munroe-Blum, and the President of Nestlé Nutrition Canada, Mme. Marilyn Knox. There were 350 participants at the Conference from 19 developed and developing countries with representatives of 20 international organizations. The Public Lecture included an expert panel made up of Hon. Michel Barnier, Member of European Parliament and Former Minister of Agriculture, France; Hon. Michael Chong, MP for Wellington-Halton Hills; Hafez Ghanem, Assistant Director-General, Food and Agriculture Organization of the United Nations; H.E. Professor Iyorwuese Hagher, Nigerian High Commissioner; and Dr. David Malone, President, International Development Research Centre of Canada.

Key messages and recommendations of the Conference were:

- An estimated investment of USD 55 billion per year in the agricultural sector is required to improve food security in developing countries. In addition to governments and international organizations, the private sector needs to be involved either through direct investment or public private partnerships. The impact of aid needs to be tracked and assessed.

- Small holder farmers must play a much larger part of the food security solution. They produce 90% of the food in developing countries and 70% are resource poor. Markets for seeds, fertilizers, finance and extension need to be available for the small holder in order to increase production and local food security. For some products, such as poultry and fisheries (aquaculture), larger scale production is more profitable and creates more job opportunities.

- The gap between crop yields on demonstration farms and national averages needs to be addressed through the application of both existing technology and the development of new technology. Improved use of inputs, crop breeding, appropriate and sustainable land and water management will all contribute to increasing crop production.

- Market development, improved market efficiency, credit availability, and risk management tools will give all parts of the value chain opportunities for profit and inject stability to the agricultural sector.

- Agricultural extension and rapid dissemination of information to producers and other stakeholders in the value chain are critical to the success of sustainable agricultural development.

- Technical capacity building is necessary in all parts of the agricultural sector including producers, buyers, agro-dealers, processors, researchers and bankers.

- International cooperation and trade reorganization are critical to improving the trading capacity of developing countries. Price interventions such as marketing boards and subsidies targeted at the poor may be necessary, but new strategies regarding each must be both supportive of market development and enhance the welfare and reduce the economic vulnerability of the poor.

- In addition to the one billion people who are hungry, there are another billion that are malnourished and one- third billion who are obese. Both obesity and malnutrition have negative health and developmental effects, particularly to children, and will pose serious health care costs for society in the long term. This needs to be addressed through education and capacity building.

Conference participants called on McGill University, in conjunction with national and international partners, to take leadership by creating a McGill Institute on Global Food Security. The proposed Institute would:

- Develop collaborative partnerships with governments, the private sector, international organizations, NGOs and foundations.
- Implement short term training programs to build capacity of farmers, extension workers and scientists involved in food and nutrition.
- Undertake research and technology in the following areas: plant and animal biotechnology; biofuels; water, land and climate; markets and trade; nutrition and food safety.
- Develop a series of advocacy papers on specific topics related to the food crisis, which can be disseminated widely to governments, donors, NGOs and the private sector. Topics include the need to increase investment in agriculture, community nutrition programs to improve child and maternal health, mechanisms for building resilience in vulnerable communities.
- Organize and deliver national and international symposia and conferences in the multidisciplinary area of food security with emphasis on global development.

ACKNOWLEDGEMENTS

We are very grateful to the following sponsors who supported the conference:

Syngenta Foundation for Sustainable Agriculture
International Development Research Centre of Canada
Dr. Donald McQueen Shaver, O.C.
Mrs. Erin Hogg
Agriculture, Pêcheries et Alimentation Québec
Relations Internationales Québec
Nova Scotia Department of Agriculture
Mrs. Barbara Johnson
Mr. Bill Richie
Mr. Roland McC. Greenbank
Mr. Anton Angelich
Macdonald Branch of the McGill Alumni Association
Ville de Sainte-Anne-de-Bellevue
Office of the Vice Principal Research and International Relations, McGill University
McGill Faculty of Agricultural and Environmental Sciences

We would also like to thank the numerous McGill student volunteers who helped throughout the conference. In addition, we thank the staff and students of the McGill School of Dietetics and Human Nutrition who planned, cooked and served all the delicious and locally grown food enjoyed at the Conference.

We are extremely grateful to Helen Cohen Rimmer who assisted with the conference website and all promotional materials.

The staff of the Development and Alumni Relations Office of the Faculty of Agricultural and Environmental Sciences provided significant support towards the organization of the Conference.

CONFERENCE ORGANIZING COMMITTEE

The members of the conference organizing committee were:

Chandra Madramootoo (Chair), Caroline Begg, Julie Fortier, Helen Fyles, Ron Henry, Kristine Koski, Anwar Naseem, Vaughan Reid, Aly Shady, Don Smith, Doug Sweet, Cindy Westcott

1. Background to the 2nd Global Food Security Conference

Soaring food prices in 2007 and early 2008 pushed up the number of undernourished people in the world from more than 850 million in 2005 to 925 million in 2008 and provoked social unrest and political instability in countries around the world. In the fall of 2008 a worldwide financial crisis resulted in huge monetary and job losses and reduced the availability of credit throughout the world. In September 2008, McGill University's Faculty of Agricultural and Environmental Sciences convened a high level, international conference to examine the underlying causes of rapidly rising food prices and to address the fragile state of global food security. The First McGill Global Food Security Conference was attended by 400 participants from 17 developed and developing countries, with representatives of 18 international organizations, a host of student participants, as well as academics and representatives of industry. Details of the 2008 conference can be found at www.mcgill.ca/globalfoodsecurity/2008conference.

Since that first conference, the number of hungry people in the world has increased by over 100 million to reach a staggering total of over 1 billion. Although world food prices have fallen from their 2008 peaks (Figure 1) prices remain well above long-term norms and the food crisis has not disappeared.

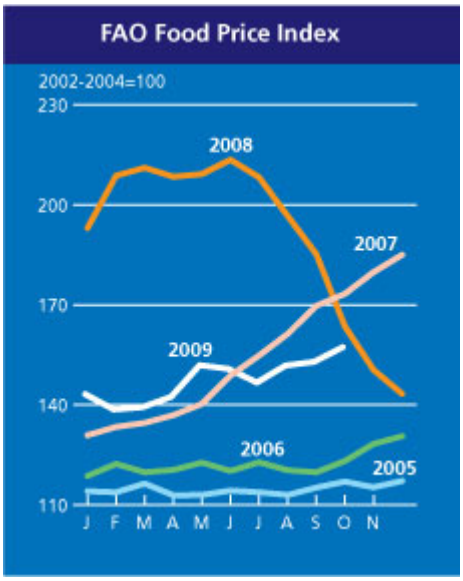


Figure 1. Food price index (Source: FAO 2009)

Underlying trends show that global agricultural production cannot keep up with rising demand without support and investment. Food prices started to rise again in 2009 possibly due to reports of lower crop production resulting from severe droughts in several grain producing countries and from fewer crops being planted due to lack of credit.

Although the Food Price Index has declined in international markets, domestic prices in developing countries remain generally very high and in some cases are at record levels. Observers from the World Bank, US Department of Agriculture (USDA), International Food Policy Research Institute (IFPRI), Organization for Economic Cooperation and Development (OECD), and the FAO expect prices to remain high for some time.

The proportion of people who suffer from hunger in the total population remains highest in sub-Saharan Africa, where one in three people is chronically hungry. Of the 17 countries listed by FAO as having a population with chronic hunger over 35%, all but one (Haiti) are in Africa (Figure 2). By virtue of their size, China and India combined account for 42% of the chronically hungry people in the developing world. At the same time, several of the countries that have achieved the steepest reductions in the proportion of undernourished are also located in sub-Saharan Africa. They include Ghana, the Congo, Nigeria, Mozambique and Malawi.

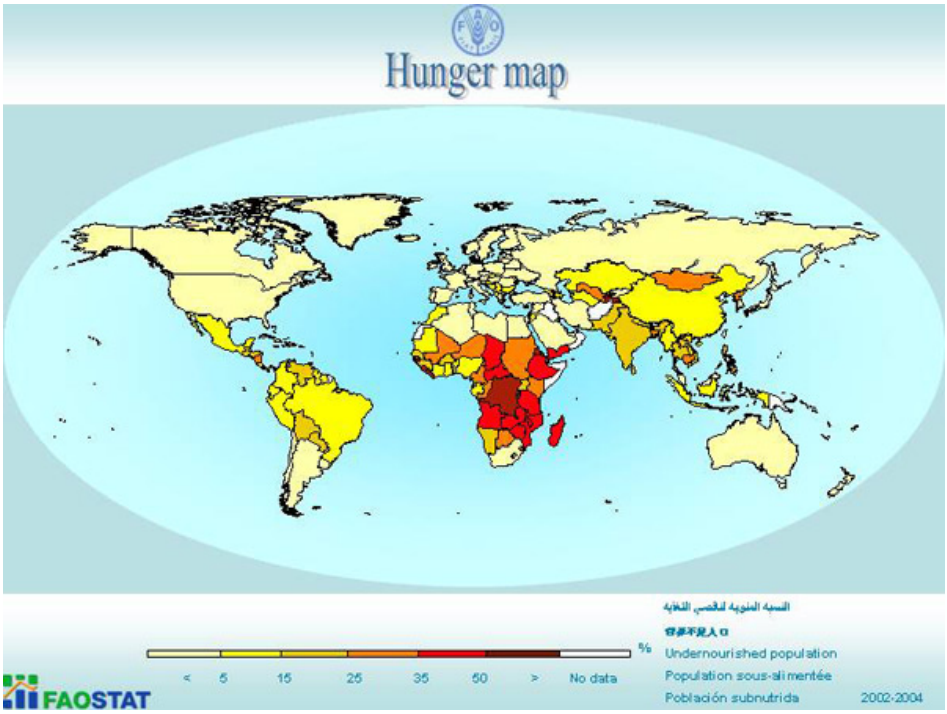


Figure 2. World hunger map (Source: FAO 2004)

World wide efforts to address the food crisis were rapid. In April 2008, the UN Secretary General set up a High Level Task Force on the Global Food Crisis to develop a response of UN organizations and other international agencies. At the G8 meeting in July 2009, world leaders endorsed the L'Aquila Food Security Initiative which emphasized the need

for food security, nutrition and sustainable agriculture to remain a priority issue on the political agenda and to address it at global, regional and national levels. It included:

- A comprehensive approach to food security including: increased agriculture productivity, stimulus to pre and post-harvest interventions, emphasis on private sector growth, smallholders, women and families, preservation of the natural resource base, expansion of employment and decent work opportunities, knowledge and training, increased trade flows, and support for good governance and policy reform. The approach must be coupled with adaptation and mitigation measures in relation to climate change, sustainable management of water, land, soil and other natural resources, including the protection of biodiversity. Priority actions should include
    - improving access to better seeds and fertilizers,
    - promoting sustainable management of water, forests and natural resources,
    - strengthening capacities to provide extension services and risk management instruments
    - enhancing the efficiency of food value chains.
    - Investment in and access to education, research, science and technologies at national, regional and international levels.
- Coherent policies to foster economy-wide growth, which is inclusive and environmentally sustainable, pursued in conjunction with social protection mechanisms such as safety nets and social policies for the most vulnerable.
- An urgent requirement for sustained and predictable funding and increased targeted investments to enhance world food production capacity.
- Access to adequate and affordable nutritious food through emergency assistance and long-term, government led, cash based social protection systems and targeted nutrition interventions to support the poorest populations. All countries need to remove food export restrictions or extraordinary taxes, especially for food purchased for humanitarian purposes, and to consult and notify in advance before imposing any new restriction.
- Reduced trade distortions and restraint from raising new barriers to trade and investment and from implementing WTO-inconsistent measures to stimulate exports. This includes a comprehensive and balanced conclusion of the Doha Development Round and call for renewed, determined efforts to bring it to a timely and successful conclusion.
- Improved global governance, built on existing International Organizations and International Financial Institutions, making use of their comparative advantage, enhancing their coordination and effectiveness and avoiding duplications.

The countries represented at L'Aquila committed to a goal of mobilizing USD 20 billion over three years through this coordinated, comprehensive strategy focused on sustainable agriculture development, while keeping a strong commitment to ensure adequate emergency food aid assistance. To catalyze coordination and collaboration between stakeholders, while ensuring accountability, a proposal titled "Partnering for

Food Security: Moving Forward" was presented at a meeting hosted by the UN Secretary General and the US Secretary of State in September 2009

2. Objectives of the McGill Conference on Global Food Security: *Impacts of the Global Financial Crisis on Food Security*

Rapidly rising food prices in 2007 and 2008 and the financial crisis in late 2008 caused a sharp increase in the number of hungry people and drew attention to the fragile state of global food security. Although these crises raised awareness of the problem, global food insecurity is not a recent phenomenon. It is the result of complex interactions over the short and long term, between social, economic, and environmental factors that include 30 years of underinvestment in food production, agricultural infrastructure and research and development; population growth and greater purchasing power; changing patterns of food consumption; trade policies and higher energy costs. The uncertain impacts of rising biofuel production and climate change on future food production undermine the efforts of securing a global food supply. The recent financial crisis resulted in credit for farmers becoming expensive and difficult to find, potentially causing fewer crops to be planted and exacerbating food shortages. In addition, commodity market prices have declined more rapidly than production costs, yielding tight margins for producers.

The overall goal of the 2009 McGill Conference on Global Food Security: *Impacts of the Global Financial Crisis on Food Security* was to review what has happened in developing countries over the last year and examine the response of regional and international agencies. Specifically, the conference:

- Reviewed the food security situation in key affected regions since 2008
- Studied the response of various international agencies to the work of the UN High Level Task Force
- Examined how regional and international agencies are responding to the challenges of food insecurity
- Explored investment priorities for development of the agricultural sector
- Studied the impacts of markets and trade, biofuels and climate change on food security in 2009

<u>Purpose of the Conference</u>

I. To provide a forum for direct exchange between international experts and scholars, policy makers from developed and developing countries, NGOs and the Canadian public, to establish a basis for long term solutions to declining world food stocks and rising food prices.
II. To use the inputs and discussions emanating from the Conference to chart out a future engagement of policy makers, development experts, food and agriculture specialists, and civil society, in deriving solutions to the global food crisis.

III. To explore the appropriate Canadian mechanism that will have broad based Canadian and international participation and stakeholders, and which will monitor trends in agriculture and food production, and the associated influencing external drivers of climate, world markets, commodity prices, changes in land use, water resources, labour, and agricultural inputs.

The conference website (www.mcgill.ca/globalfoodsecurity/) contains full details about the conference program and speakers. The website has all the conference presentations and a live webcast of all sessions.

3. Conference Organizer and Host: McGill University

The oldest university in Montreal, McGill was founded in 1821. It is one of Canada's best-known institutions of higher learning and one of the leading research-intensive universities. McGill is recognized around the world for the excellence of its teaching and research programs. It is ranked as #1 medical-doctoral university in Canada by Maclean's and #18 in the Times Higher Education Supplement. Its professors lead the country with the highest average research funding and publications. McGill is a bustling university with two campuses, 11 Faculties, 10 Schools, some 300 programs of study, and more than 33,000 students. The student body is the most internationally diverse of any Canadian university, with students from about 160 countries. The University partners with four affiliated teaching hospitals to graduate over 1,000 health care professionals each year.

In addition to a stellar faculty of 1600 professors, McGill is known for attracting the brightest students from across Canada, the United States, and abroad. McGill students have the highest average entering grades in Canada, and the University's commitment to fostering the best has helped students win more national and international awards on average than their peers at any other Canadian university. The prestigious Rhodes Scholarship has gone to a nation-leading 128 McGill students.

There are 11 Faculties at McGill including: Agricultural and Environmental Sciences, Arts, Dentistry, Education, Engineering, Law, Management, Medicine, Music, Religious Studies, and Science.

The Faculty of Agricultural and Environmental Sciences is a world leader in fields related to agriculture, food, nutrition, and the environment. Since its founding in 1907, the Faculty has played a significant role in increasing productivity in the agricultural and food sectors while, at the same time, finding better ways to protect the environment in Quebec, across Canada and internationally. Now in its second century, the Faculty, located on the Macdonald Campus, is playing a critical role in promoting environmental management, sustainable agriculture and improved human health through better food and nutrition.

The Faculty is home to seven academic units (Plant Science, Animal Science, Food Science, Bioresource Engineering, Natural Resource Science, School of Dietetics and

Human Nutrition, Institute of Parasitology) and several internationally recognized units that promote sustainable use of agricultural land and water resources, and food and fuel security. The Green Crop Network brings Canada's top plant researchers together with the federal government and industry partners to come up with new ways to use crops to reduce greenhouse gases, provide alternative energy sources and mitigate climate change. Using a multidisciplinary approach, the McGill Network for Innovations in Biofuels and Bioproducts (McNIBB) offers a unique and valuable opportunity to generate the scientific insights, new technologies and policy instruments critically needed to develop the biofuels and bioproducts sector into a reliable and sustainable energy source. McNIBB's mission is to promote, facilitate and support research and innovation related to responsible and sustainable conversion of biomass to biofuels and bioproducts, thus helping to build a viable bioeconomy. The Brace Centre for Water Resources Management draws together agricultural, environmental and engineering experts to undertake teaching, research and specialized training that ensures water resources are managed in a manner that is both sustainable and supports economic and social development in Quebec and throughout the world. Professors in the Faculty are well known across Canada and internationally for their expertise in developing more efficient irrigation and water conservation systems to improve crop yields in the dry arid regions of the world, particularly in Egypt, India, Pakistan and Central Asia. The School of Dietetics and Human Nutrition is the leading teaching and research institution in Human Nutrition in Canada. Health promotion in relation to food choice and physiological status is the unifying theme within the School and nutrition in developing countries, community nutrition, and nutritional toxicology are important areas of research.

4. Breadth of Conference Participation

The conference provided an important forum for direct exchange between experts, scholars and policy makers from developed and developing countries, NGOs, farmers' organizations and the business community that provided the basis for sustainable solutions to declining world food stocks, rising food prices and reducing the number of hungry people.

The Conference drew 350 participants from 19 developed and developing countries, with representatives of 20 international organizations, and a host of student participants, as well as academics and representatives of industry. There were 45 speakers in total and all speaker biographies are available at: *www.mcgill.ca/globalfoodsecurity/speakers*

Conference attendees were as follows:

- *International agencies*: UN Food and Agriculture Organization (FAO), International Development Reserach Center of Canada (IDRC), Consultative Group on International Agricultural Research (CGIAR), Organization for Economic Cooperation and Development (OECD), UN World Food Program (WFP), International Food Policy Research Institute (IFPRI), Inter-American Institute for

Cooperation in Agriculture (IICA), International Commission on Irrigation and Drainage (ICID), US Farm Foundation, International Crop Research Institute for the Semi-Arid Tropics (ICRISAT), Africa Development Bank, Promotion of Rural Initiatives and Development Enterprises (PRIDE Africa), World Bank, International Fund for Agricultural Development (IFAD), World Vegetable Centre- AVRDC

- *Non-governmental organizations and think tanks*: Canadian Food Grains Bank, Centre for International Studies and Cooperation, International Agriculture Alliance, Syngenta- Foundation for Sustainable Agriculture, Smithsonian Environmental Research Centre, l'Union des producteurs agricoles (UPA)
- *Policy makers and specialists* involved in the agriculture and food sectors from: Brazil, Costa Rica, China, Ethiopia, Ghana, Haiti, India, Kenya, Nigeria, Taiwan, Uzbekistan, Zimbabwe
- *Major companies and retailers* including Nestlé Canada, The Aquaculture Communications Group
- *Government officials* from Africa, Central Asia, South America, Canada, Europe, US.
- *International scholars* from Africa, South America, Canada, China, India, US
- *Graduate and undergraduate students*
- *Members of the public*

5. Program Overview

The Conference included a Public Lecture and nine sessions held from Monday October 5 to Wednesday October 7, 2009. It concluded with a plenary session to formulate key messages and recommendations to overcome the effects of the financial crisis on food security and improve global food security. Each session consisted of experts delivering an invited presentation, followed by a lively and thought provoking question and answer period**.** All conference presentations can be found at www.mcgill.ca/globalfoodsecurity**.**

The Monday session opened with remarks from the Conference Co-Chair, ***Mme. Marilyn Knox,*** *President, Nestlé Nutrition Canada,* emphasizing the ongoing and deepening global food security crisis in the developing countries. The long-term and serious affects of inadequate nutrition are felt particularly by about 300 million pregnant women and children under two years of age. In order to meet the increased global demand for food, the FAO estimates that US $30 billion will have to be spent annually. The recent financial crisis, more frequent droughts and floods, lack of access to markets and effective trading, dumping of cheaper food products onto markets in developing countries and biofuels all undermine efforts to achieve global food security

Mrs. Erin Hogg, a Macdonald alumna, dedicated her sponsorship of the Conference to honouring the global achievements of the great, Russian plant geneticist Nikolai Ivanovich Vavilov who developed the world's largest seed gene bank for agricultural breeding. Under Stalin, his advanced science and ideas were questioned and he was arrested in

1940 and died in 1943. Since the 1970's his legacy has been restored and the Vavilov Centre for Plant Industry in St. Petersburg is again a major research centre into the diversity, conservation and use of plant species. He is considered a world hero. See Appendix 1 for the complete address by Erin Hogg.

Conference Co-Chairs

Professor Heather Munroe-Blum, Principal and Vice-Chancellor, McGill University
Mme. Marilyn Knox, President, Nestlé Nutrition Canada

Public Lecture
Monday October 5, 17h00-16h30

Global Food Security: Effects of the Global Recession and Future Prospects

Moderator: René Provost**,** Faculty of Law, and Director, Centre for Human Rights and Legal Pluralism, McGill University

There were five high level panelists:
Hon. Michel Barnier, Member of European Parliament and Former Minister of Agriculture, France
Hon. Michael Chong, MP for Wellington-Halton Hills
Dr. Hafez Ghanem, Assistant Director-General, Food and Agriculture Organization of the United Nations
H.E. Professor Iyorwuese Hagher, Nigerian High Commissioner
Dr. David Malone, President, International Development Research Centre of Canada

Conference Sessions

Monday October 5 13h30-16h00

Food Security in a Challenging Economic Environment: Representatives of developing and emerging economy countries spoke on their specific country experiences and the impacts of the financial crisis on food supplies.

Session Chairs**:** ***Marilyn Scott***, Director, McGill School of Environment and ***John Kennelly***, Dean, Faculty of Agricultural, Life & Environmental Sciences, University of Alberta

Speakers:
Abdul-Karim Adam, Senior Planning Officer, Nanumba North District, Ghana
Harmel Cazeau, Ministère de l'Agriculture, des Ressources Naturelles et du Développement Rural, Haïti

Dereje Biruk Gebremedhin, Team Leader, SWHISA Project, Ethiopia
Victor Dukhovny, Interstate Coordination Water Commission of Central Asia
M. Gopalakrishnan, Secretary General, ICID
Daniel Uza, Vice-Chancellor, University of Agriculture, Makurdi, Nigeria
Dave Conley, Aquaculture Communications Group

Tuesday, October 6

Access to Finance and Agricultural Credit: Problems, Challenges and Opportunities: Finance and credit experts, as well as farmers' organizations, presented their perspectives on the effects of the global economic downturn on access and challenges with respect to agricultural credit

Session Chairs: ***Philip Oxhorn***, Director, Institute for the Study of International Development, McGill University and ***Caroline Pestieau*** , Former Governor, ICRISAT

Speakers:
Aly Abou-Sabaa, Director, Agriculture and Agro-Industry Department, African Development Bank
Jonathan Campaigne, Executive Director, PRIDE AFRICA
François Dagenais, Inter-American Institute for Cooperation on Agriculture (IICA)
Vincent Giard, Vice President, Quebec Operations, Farm Credit Canada

Investments Needed for Agricultural Development: Representatives from international agencies and developing countries articulated the national investments required to overcome food insecurity in the long term.

Session Chairs: ***Anwar Naseem***, Department of Natural Resource Sciences, McGill University, and ***Jean-Paul Laforest***, Doyen, Faculté des sciences de l'agriculture et de l'alimentation, Université Laval

Speakers:
Marco Ferroni, Executive Director, Syngenta, Foundation for Sustainable Agriculture
Mamaru Tsidku Belete , Head, Bureau of Water Resources Development, Amhara National Regional State, Ethiopia
Christopher Delgado, Strategy and Policy Adviser for Agriculture and Rural Development, World Bank
Michael Hamp, Senior Technical Advisor, Rural Finance, IFAD
Mario Renaud, Executive Director, Centre for International Studies and Cooperation, and Co-President, International Agriculture Alliance

Research and Capacity Building: Where are the Priorities?: Representatives of national, regional, and international research organizations discussed the research and development priorities and new technologies required to achieve food security.

Session Chairs: ***Jean Lebel*****,** Director, Environmental & Natural Resources Management, IDRC; ***Yvon Martel***, Agriculture and Agri-Food Canada

Speakers:
Ikenna Onyido, Vice-Chancellor, Michael Okpara University of Agriculture, Nigeria
Said Silim, Director - Eastern & Southern Africa, ICRISAT
Dyno Keatinge, Director General, AVRDC - The World Vegetable Center
Paul Mapfumo, Project leader and Regional Coordinator, CIMMYT-Southern Africa, Zimbabwe
Ephraim Mukisera, Director, Kenya Agricultural Research Institute (KARI)

Response of International Agencies to Ongoing Challenges of Food Security: International development experts and representatives of the UN Secretary-General's High Level Task Force on Global Food Security reported on ongoing food security implementation strategies.

Session Chairs: ***Peter Todd***, Dean, Desautels Faculty of Management, McGill University, and ***Aly Shady***, Senior Water Advisor, CIDA

Speakers:
H.E. Hon. Gabriel Suswam – Governor, Benue State Nigeria
Henk-Jan Brinkman, Senior Advisor, United Nations World Food Programme
Jim Cornelius, Executive Director of Canadian Foodgrains Bank
Christopher Delgado, Coordinator, Global Food Response Program, World Bank
Joe Dewbre, Senior Agriculture Policy Analyst, OECD
Robert Patterson, Senior Liaison Officer, Liaison Office for North America, FAO

Wednesday, October 7

Markets and Trade: How They Affect Food Security: International trade policies and market liberalization have led to increased food imports by developing countries from the developed countries. Many developing countries therefore became dependent on food imports, which are many times cheaper than those produced by local farmers. Reforming trade, price and subsidy policy is, however, not easy given political sensitivities and vested interests. The gains from reforms are considerable and require a better understanding of the adjustment process.

Session Chairs: ***Caroline Begg*****,** Department of Plant Science, McGill University, and ***Diane Vincent***, Vice-Chairperson of the Canadian International Trade Tribunal

Speakers:
Neil Conklin, President, Farm Foundation
Henk-Jan Brinkman, Senior Advisor, United Nations World Food Programme
Douglas Hedley, Executive Director, Canadian Faculties of Agriculture and Veterinary Medicine
Christian Lacasse, Président général de l'Union des producteurs agricoles (UPA)
Maximo Torero, Director, Market, Trade and Institution Division, IFPRI

Biofuels: How They Affect Food Security: Speakers discussed biofuel policies, energy security and global biofuel developments. The impacts of biofuels on the diversion of land away from food production, thereby reducing food availability and driving up food prices was presented. Trade-offs between food and energy security was highlighted.

Session Chairs: ***Mark Curtis***, Department of Natural Resource Sciences, and ***Vijaya Raghavan***, Department of Bioresource Engineering, McGill University

Speakers:
Alex Ablaev, President, Russian Biofuels Association
Shi-You Ding, Senior Researcher, National Renewable Energy Laboratory, Colorado
Jose Geraldo Eugenio de França, Executive Director, EMBRAPA, Brazil
Ronghou Liu, Professor, Shanghai Jiao Tong University, China

Climate Change: The Challenges for Food Security: It is estimated that a change in climate could cause food production to drop by as much as 50% in many African countries and by 30% in Central and South Asia. International and national experts discussed the impacts of rising temperatures and changing rainfall patterns on agricultural production and food security

Session Chairs***: Don Smith***, Plant Science Department, and ***Gail Chmura***, Director, Global Environmental and Climate Change Centre (GEC3), McGill University

Speakers:
Galina Stulina, SANIRI, Uzbekistan
Bert Drake, Plant Physiologist, Smithsonian Environmental Research Center
Sam Gameda, Research Scientist, Agriculture and Agri-Food Canada
Bano Mehdi, Brace Centre for Water Resources Management, McGill University

Plenary Session: Formulation of Recommendations and an International Development Strategy to Overcome the Effects of the Financial Crisis on Food Trade Availability

Session Chairs: ***Heather Munroe-Blum***, Principal, and ***Chandra Madramootoo***, Dean, Faculty of Agricultural and Environmental Sciences, McGill University

Speakers:
Marco Ferroni, Executive Director, Syngenta, Foundation for Sustainable Agriculture
Joe Dewbre, Senior Agriculture Policy Analyst, OECD
Caroline Pestieau , Former Governor, ICRISAT
Daniel Uza, Vice-Chancellor, University of Agriculture, Makurdi, Nigeria
M. Gopalakrishnan , Secretary General, ICID
Christopher Delgado, World Bank
Marilyn Knox, President, Nestlé Nutrition Canada

6. Conference Summary

The key points of the Public Lecture were:

- The number of hungry people is getting progressively worse (1996: 830 million; 2006: 850 million, 2009: one billion) indicating that although the recent food, financial and fuel crises made the current problem worse, hunger is a serious, structural, long term problem.
- The problem is attributed primarily to 30 years of inadequate investment in the agricultural sector and is particularly acute in developing countries. The requirement to reverse this trend is an investment of $55 B per year and there is currently a shortfall of $22 B. This is a small investment compared to other investments being made around the world today in other sectors.
- Most of the poor live in rural areas and poverty cannot be solved without investing in agriculture. According to the World Bank, $1 invested in agriculture is 100% effective at reducing poverty.
- Farming is not very profitable in Canada and if the younger generation is to be attracted to work and invest in the agricultural sector, there must be emphasis on improving the economics of farming. Consumers should be ready to pay more for their food.
- Reliance on global trading is not sufficient for achieving food security, but should be accompanied by adequate measures to protect producers and consumers against shocks. Food price volatility must be reduced.
- Using a regional approach, such as the European Union, would be mutually beneficial for food security in Africa and could mitigate the risks of climate change.

Scenes from the Public Lecture

Key points from the Conference Sessions

The key points brought out by the conference speakers and by the questions, answers and discussions that arose after each conference session are as follows.

Current Challenges to Food Security

- Rapid population growth and changing diets are increasing the demand for food. According to the FAO, 70% more food will be needed by 2050.
- In addition to the one billion people who are hungry, there are another one billion that are malnourished and one-third billion who are obese. Both obesity and malnutrition have negative health and developmental effects, particularly to children, and will pose serious health care costs for society in the long term.
- The majority of the poor are small holder farmers who live in rural areas that are often isolated from roads, infrastructure and services, and are therefore difficult to reach.
- Food prices are still very high in many regions. Although there is a significant transmission of the price spike to consumers in rural areas, there is little transmission to producers. In addition, prices of food and inputs continue to be very volatile.

- The relationship between food security, hunger and conflict is very evident in developing countries.
- The recent financial crisis which has resulted in:
  - More difficulties for institutions to find resources resulting in, for example, delays in infrastructure development
  - Lack of remittances from abroad to the general population
  - Less credit for farmers and the population in general
  - Reduced demand for certain commodities with resultant loss of income and jobs
- Floods and droughts are becoming increasingly common, causing reductions in crop production, destruction to infrastructure and increasing food price volatility.
- Water resources:
  - Decline in per capita irrigated area in many parts of the world.
  - Cost of new irrigation developments is high.
  - Instability of water delivery for irrigators due to demands of other users and climatic variability.
  - International and national collaborations need to address the managing and sharing of water resources.
- Agricultural yield is much higher on demonstration farms than the national average. In addition, global average crop yields are increasingly below the15 year average particularly for maize and soybeans. This is due to:
  - Poor technology and management skills
  - Inadequate farm inputs
  - High fuel and fertilizer costs
  - Insufficient public funding for production research
  - Lengthy lag times for research investments (5-15 years for crops)
- Weak institutional linkages including:
  - Poor marketing and distribution systems,
  - Absence of strong retail capacity,
  - Lack of access to credit and insurance schemes,
  - Lack of property rights and clear land tenure so lack of collateral,
  - High transaction costs,
  - Exploitative intermediaries
- Varying levels of needs and capacity across countries.
- Farming is done primarily by women and they need to be involved in the solutions.

Response of International Agencies

- ***UN World Food Program*** rapidly mobilized resources and raised USD 5 billion last year for assistance programs that included school food programs, Work for Food programs, food assistance, cash vouchers where food was available in local markets, nutrition development, and the Purchase for Progress initiative,

designed to shift the market benefits of local procurement to smallholder farmers. The amount of money required for this year's program is USD 6.7 billion but only USD 2.6.billion has been raised.

- ***Canadian Food Grains Bank*** has strengthened its delivery systems and expanded agricultural programs such as small scale irrigation with a focus on building resilient livelihoods for small farmers. It continues to lobby the Canadian government to maintain food security as one of the pillars of its development program.
- ***World Bank*** developed the Global Food Crisis Response Program (GFRP) in 2008 which provides a balance between short run food stabilization and medium/long term measures to enhance agricultural productivity. GFRP is presently a $1.4 billion effort targeted to 44 countries. The Global Agricultural and Food Security Program (GAFSP), requested by the G20, scales up agricultural assistance to low income countries and is driven by these countries. The focus is on raising agricultural productivity; linking farmers to markets and value addition; reducing risk and vulnerability; facilitating non-farm rural livelihoods; and increased public and private capacity.
- ***Organization for Economic Cooperation and Development*** carries out medium and long term programs to promote food security. In the medium term the goal is to increase agricultural productivity and output in developing countries through additional funding for public goods such as research, extension, market information, and infrastructure, and promotion of agricultural trading reforms. Long term policies recognize that inclusive sustainable growth is the only cure for food insecurity and poverty.

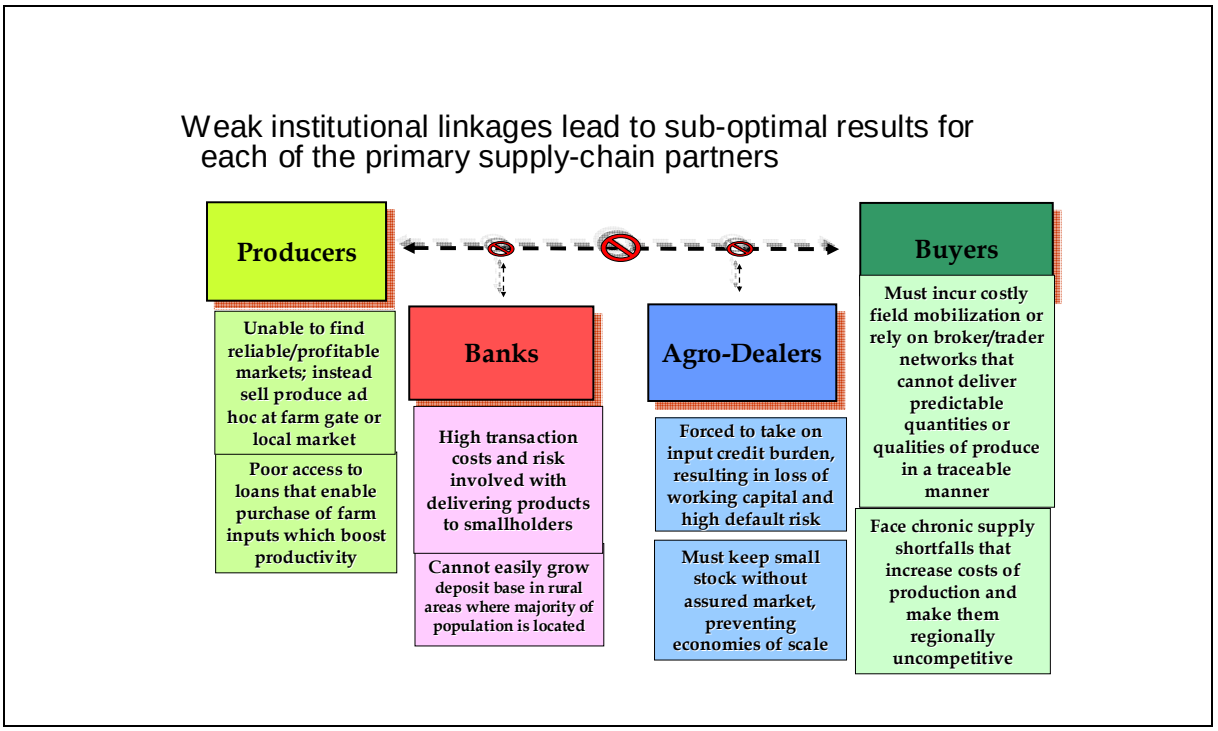
Finance and Agricultural Credit: Opportunities for Agricultural Development

In order to reduce risk and stimulate wealth creation, and economic integration of small farmers, financial, marketing and information transactions must be facilitated (see Figure 3).

- Work to create an enabling environment and policy reform. Strengthen institutions, corporate governance, and commercial courts.
- Develop risk management and appropriate technologies (eg. market information systems via cell phones).
- Link actors across the agricultural chain (markets, finance and information).
- Create bridging mechanisms that are rapid and allow transactions between producers, buyers, agrodealers to take place using mobile phones or email.
- Encourage collaboration between governments and banks.
- Develop an insurance mechanism between banks and farmers.
- Develop a separate insurance mechanism to handle catastrophic events.
- Create pro-poor financial services for rural water/sanitation and agricultural production.

- Farmers living at a subsistence level are risk averse (i.e. use few inputs in case costs cannot be recovered). Develop risk preparedness: access to financial schemes that would allow smallholders to invest in preparatory measures.
- Develop weather index-based insurance.

Figure 3. Characteristics of current market weaknesses in rural Africa



(source: J. Campaigne, PRIDE Africa)

Markets, Trade and Global Food Security

Markets and trade are essential tools to balance the unequal global distribution between supply and demand of food. Agricultural land and water resources are insufficient in many parts of the world where there are dense populations. In addition, although income is rising in the developing world, it is still concentrated in the developed world.

- Promote agricultural trade reform and remove trade barriers (such as export restrictions) and implement Aid for Trade to boost capacity and infrastructure.
- Improve coherence between trade and development policies and develop trading capacity.
- Open markets so that competitive suppliers respond to global price signals but ensure that markets have proper regulations and controls so they can work properly.

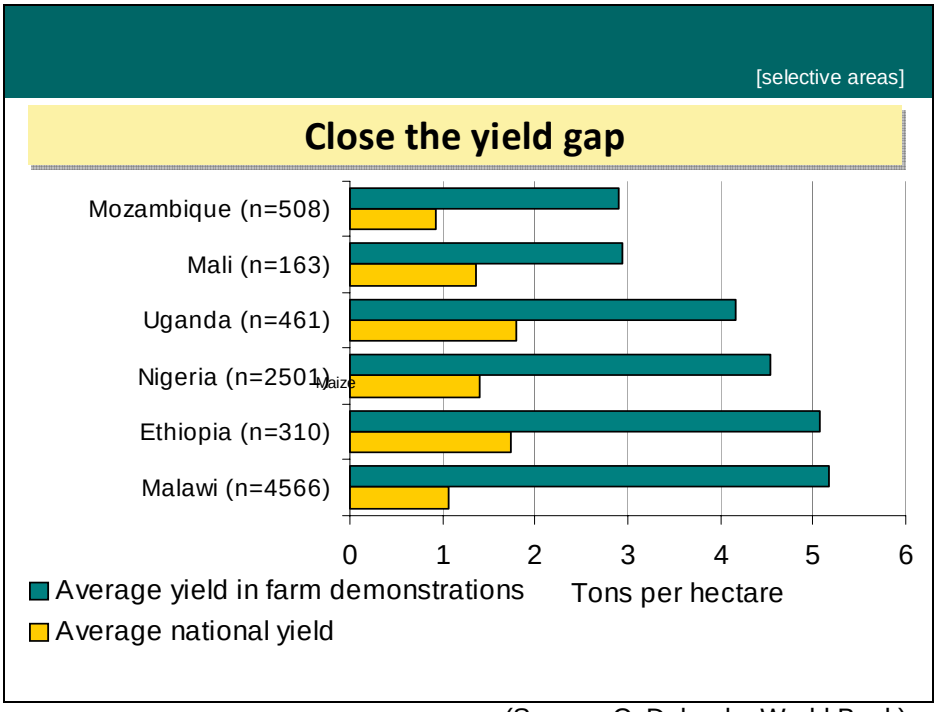
- At the local level, build on markets so hungry poor can take advantage of them. Households need markets to earn income: buy food, sell labour and products.
- Reduce distortions to global markets due to agricultural support policies.
- Reduce market volatility. The poor and their governments cannot afford price speculation. Price interventions such as marketing boards and subsidies targeted at the poor may be necessary but new strategies must be supportive of market development and enhance the welfare and reduce the economic vulnerability of the poor.
- Continue to support Doha round. If it fails developing countries will lose 11% of their agricultural exports.
- Develop complementary markets (finance, labour, inputs, transportation).
- International agreements must recognize that farmers need to improve their revenues. Fair trade can play a role for moving more of the profit margin of the global supply chain to farmers.
- Need to create trust between countries that would allow them to move forward in a mutually beneficial way to improve food security. Food sovereignty does not mean food self-sufficiency and it may be beneficial to create a food reserve stock.

Research and Capacity Building for Food Security

1. Research needs to be multidisciplinary, in line with national needs and the transfer of results to the farmer accelerated. Research resources must be managed effectively. Research should:

- Define the best way to reduce food waste and implement this across Africa. If the supply chain is more efficient with detailed information on seeds, crop yield, transportation distances, this can make a huge difference to efficiency.
- Raise agricultural productivity to close the yield gap between farm demonstrations and national averages (Figure 4).
- Use inputs (water, fertilizer, pesticides, fuel) and new crop varieties (drought resistant, more nutritious, higher value, pest and disease resistant) more effectively.
- Intensify agriculture through improved irrigation and water storage development.
- Use land and water sustainably to prevent soil erosion and water degradation.
- Develop aquaculture.

Figure 4. Gaps in yield between demonstration farm and national farm averages



(Source: C. Delgado, World Bank)

2. Build capacity in national institutions so that they can offer multidisciplinary education relevant to today's challenges in the agricultural sector.

- Expand access to higher education and mentor young people to be able to tackle higher research (succession planning) in order to counter the brain drain of developing countries.
- Learn to address issues at farm level.
- Build capacity of researchers in areas such as biotechnology, biosafety, agrometeorology, soil science, crop physiology, irrigation and water management.
- Encourage lifelong learning.

3. Build capacity in rural areas to make use of the research and development that comes from universities, research institutions and development organizations. Training, education and skill development are necessary to take advantage of innovations.

- Train people involved at all points in the agricultural value chain to explain how financial mechanisms work.
- Shift emphasis from labour intensive to powered, small farm equipment.
- Train producers to move up the value chain to obtain greater value and find new markets for products.
- Teach quality control to farmers.

- Introduce young people to agribusiness to address unemployment and facilitate succession planning.

Biofuels and Food Security

- Food and energy markets were relatively independent until 2006, but were linked after that.
- Reports about the effect of biofuels on food prices are contradictory and range from1 to 70% in effect.
- The future of biofuels lies in using non-food resources (cellulosic ethanol) which is more sustainable to produce, has a more positive energy balance and reduces greenhouse gases.
- In Russia the drivers for biofuel production are the need to export oil to obtain hard currency, development of rural areas and low-cost job creation.
- In Brazil, biofuels are used for energy security, farmer income and carbon reduction. Their success with biofuels (supply 46% of energy needs) is a result of major investments in agriculture over the last 30 years. Sugar cane supplies 16% of energy needs. Expect to be using 0.91% of their land resources for biofuel production by 2017.
- In China, research on using food for fuel is halted. They are using the nonfood part of crops or forest wastes to generate ethanol, bio-oil or biogas.
- Regarding soil organic matter levels:
    - char generated as a by-product of biomass energy conversion is an excellent soil conditioner
    - sugar cane has been grown in the same fields in Brazil for decades with no apparent effect to soil fertility
    - use of perennial grasses which only involves harvesting the tops will reduce negative soil fertility effects

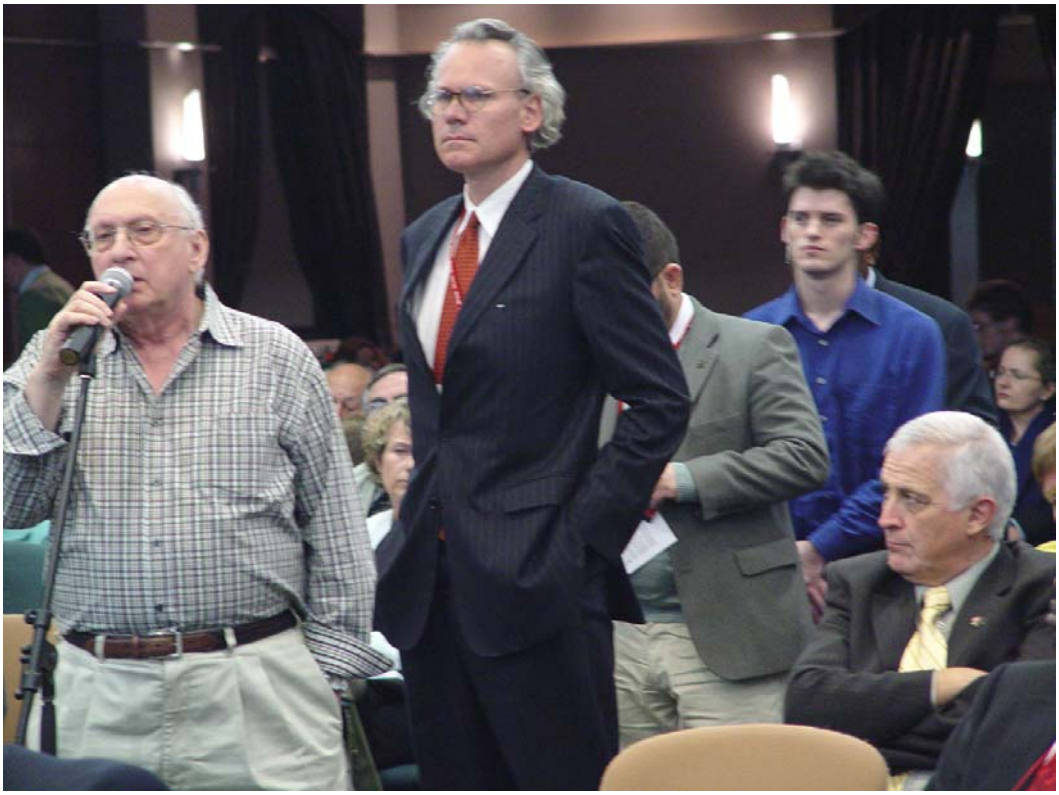
Climate Change and Food Security

- Increases in atmospheric CO_2 stimulate plant growth, but more water, nitrogen, and resources are required. We do not yet know which crops will respond favourably to CO_2 increases.
- Up to 30˚C, plant productivity increases but above 30˚C, crop yields fall. By 2050 it is possible that there will be a 40-60% decline in corn, soybeans, and cotton yields.
- Longer growing seasons will result in changes to the kind of crops cultivated.
- Climate Change Science Compendium 2009 states that climate changes are accelerating.
- Increase in crop damage and yield reduction due to natural disasters will occur. Some crops are already at temperature threshold limits and for these crops any increase in temperature will cause reduced production.

- Production patterns will adjust all over the world due to climate change resulting in more harvests in some regions, less in others and different crops grown. This will be accompanied by land use and management changes which will in turn affect soil and water quality.
- New and unknown interactions among crops, weeds, insects and diseases will occur. The effect on pollination is unknown.
- There is insufficient time for conventional breeding of crops adapted to climate change, and GMOs are necessary. Genes have been identified for water stress.

- In Central Asia
  - Drought frequency cycle has increased from every 4.5 years to every 3 years
  - Average temperature has climbed by 0.3˚ C.
  - The volume of water in the rivers is expected to decline between 2 and 15% by 2050
  - Principal direction of climate change program in Central Asia: public awareness and to train farmers for adaptation; must adapt technology so as to have appropriate farming practices and improve water productivity
- In Canada
  - Potential shift from cool season crops (wheat, barley) to warm season crops (corn, soybeans)
  - Crop water deficit remains low
  - Climate change could be beneficial to annual crop production
  - The main problem will be with year to year variability
- In Ethiopia
  - Projections for agriculture show temperature increases of 2 to 5˚ C beyond optimal ranges for crop production and rainfall declines of up to 50%
  - Onset and rainfall amounts in Africa and Asian monsoons have increased in variability

Some Pictures from the Conference




McGill Conference on Global Food Security


McGILL CONFERENCE ON
GLOBAL FOOD SECURITY
Montreal, Canada


od Security in West Africa
d Parboiling Stove


McGill Conference on Global Food Security
McGILL CONFERENCE ON
GLOBAL FOOD SECURITY
Montreal, Canada
McGILL

7. Key Messages and Recommendations of the Conference

- An estimated investment of USD 55 billion per year in the agricultural sector is required to improve food security in developing countries. In addition to governments and international organizations, the private sector needs to be involved either through direct investment or public private partnerships. The impact of development aid needs to be tracked and assessed.

- Small holder farmers must play a much larger part of the food security solution. They produce 90% of the food in developing countries and 70% are resource poor. Markets for seeds, fertilizers, finance and extension need to be available for small holders in order to increase production and local food security. For some products, such as poultry and fisheries (aquaculture), larger scale production is more profitable and creates more job opportunities.

- The very wide gap between crop yields on demonstration farms and national averages needs to be addressed through the application of existing research and technology, and the development of new technology. Improved use of inputs, crop breeding, appropriate and sustainable land and water management all contribute to increasing crop production.

- Market development, improved market efficiency, credit availability, and risk management tools will give all stakeholders of the value chain opportunities to make a profit, and inject stability into the agricultural sector.

- Agricultural extension and rapid dissemination of information to agricultural producers and other stakeholders in the value chain are critical to the success of sustainable agricultural development.

- Technical capacity building is necessary for all participants in the agricultural sector, including producers, buyers, agro-dealers, processors, researchers and bankers.

- International cooperation and trade reorganization is critical to improving the trading capacity of developing countries. Price interventions such as marketing boards and subsidies targeted at the poor may be necessary, but new strategies regarding each must be both supportive of market development and enhance the welfare and reduce the economic vulnerability of the poor.

- In addition to the one billion people who are hungry, there are another billion that are malnourished and one-third billion who are obese. Both obesity and malnutrition have negative health and developmental effects, particularly to

children, and will pose serious health care costs for society in the long term. These issues need to be addressed through education and capacity building.

8. The Next Steps and Way Forward

Given the increasing number of hungry people in the world, it is critical that world food security remain an international priority. The two international conferences at McGill University demonstrated that to attain adequate global food supplies, it is not only critical to engage experts from different sectors and diverse regions of the world in discussion and analysis of the complex issues of food security, it is also essential to improve the links between local or regional based organizations and international organizations who are all striving towards similar goals of poverty alleviation.

McGill University is extremely well-placed to take leadership on the complex issues of global food security and bring together world experts to develop solutions. To build on the momentum generated by the two conferences, Conference participants called on McGill University, in conjunction with national and international partners, to take leadership on the topic by creating a McGill Institute on Global Food Security. The proposed Institute would:

- Develop collaborative partnerships with governments, the private sector, international organizations, NGOs and foundations
- Implement short term training programs to build capacity of farmers, extension workers and scientists involved in food and nutrition
- Undertake research and technology in the following areas: plant and animal biotechnology; biofuels; water, land and climate; markets and trade; nutrition and food safety.
- Develop a series of advocacy papers on specific topics related to the food crisis, which can be disseminated widely to governments, donors, NGOs and the private sector. Papers included such topics as the need to increase investment in agriculture, community nutrition programs to improve child and maternal health, mechanisms for building resilience in vulnerable communities.
- Organize and deliver national and international symposia and conferences in the multidisciplinary area of food security with emphasis on global development

The McGill Conference on Global Food Security should become an annual event. It will provide on ongoing forum where experts at all levels of the agricultural sector from international organizations to governments to the famers can meet to further understanding, cooperation and find solutions to the ongoing food crisis.

Appendix 1. Address by Erin Hogg, Macdonald Alumna, at the opening of the Global Food Security Conference. Monday October 5, 2009.

Madame Knox, Dean Madramootoo, distinguished guests and participants, and students: I am honoured to support this important world conference and in so doing, wish to honour the global achievements of the great plant geneticist NIKOLAI IVANOVICH VAVILOV. Vavilov was born in 1887 in Russia. At the age of 30, as the Russian Revolution began in 1917, he was already Head of the Agronomy Department of Saratov University. He was promoted to Director of the prestigious All Union Institute of Agricultural Sciences in Leningrad in 1924. In 1935, he continued in this position, as well as served as Head of the Genetics Laboratory in Moscow until 1940, in spite of tremendous political upheaval during those years. The Institute survived intact through the siege of Leningrad, though one of his assistants starved to death surrounded by millions of edible seeds.

Starting in 1916, Vavilov made more than 100 collecting missions to major world agricultural areas, visiting 5 continents. He bought for example, 31,000 wheat specimens back to his institution. He developed the world's largest seed gene bank, hoping to contribute to the betterment of the human condition through the reduction of famine. Working and studying with leading world scientists, he proposed "8 global centres for plant origin". Vavilov's direction was to harness the characteristics of plants through agricultural breeding.

Under Stalin, his advanced science and ideas became increasingly questioned. Gradually, he fell into disfavor as Stalin promoted the work of a more politically astute peasant, Trofim Lysenko, who discredited Mendel's and Darwin's research.

In 1940, Vavilov was finally arrested, charged with treason and imprisoned. Even there, he petitioned to be allowed to continue his scientific work, but he was forgotten. He died of starvation in 1943 in prison. His family struggled to rehabilitate his name and work. The guilty verdict was rescinded in 1955, and since the 1970's his legacy has been restored. The Vavilov Centre for Plant Industry in St. Petersburg is again a major research centre into the diversity, conservation and use of plant species and he is considered a world hero. Thank you.

Appendix 2. World Summit on Food Security, Rome 16-18, 2009

World leaders unanimously adopted a declaration pledging renewed commitment to eradicate hunger from the face of the earth sustainably and at the earliest date. Details of the declaration are available online at:
http://www.fao.org/fileadmin/templates/wsfs/Summit/Docs/Final_Declaration/WSFS09_Declaration.pdf

Countries agreed to work to reverse the decline in domestic and international funding for agriculture and promote new investment in the sector, to improve governance of global food issues in partnership with relevant stakeholders from the public and private sector, and to proactively face the challenges of climate change to food security. There will be strengthened international coordination and governance for food security through the Global Partnership for Agriculture, Food Security and Nutrition, of which the Committee on World Food Security (CFS) is a central component.

To achieve these objectives, **Five Rome Principles for Sustainable Global Food Security** were developed:

Principle 1: Invest in country-owned plans, aimed at channelling resources to well-designed and results-based programmes and partnerships.

Principle 2: Foster strategic coordination at national, regional and global level to improve governance, promote better allocation of resources, avoid duplication of efforts and identify response-gaps.

Principle 3: Strive for a comprehensive twin-track approach to food security that consists of: 1) direct action to immediately tackle hunger for the most vulnerable and 2) medium and long-term sustainable agricultural, food security, nutrition and rural development programmes to eliminate the root causes of hunger and poverty, including through the progressive realization of the right to adequate food.

Principle 4: Ensure a strong role for the multilateral system by sustained improvements in efficiency, responsiveness, coordination and effectiveness of multilateral institutions.

Principle 5: Ensure sustained and substantial commitment by all partners to investment in agriculture and food security and nutrition, with provision of necessary resources in a timely and reliable fashion, aimed at multi-year plans and programmes.

Faculty of Agricultural and Environmental Sciences
Macdonald Campus, McGill University
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Canada

514.398.7707
www.mcgill.ca/macdonald