McGill

CONFERENCE REPORT

SUMMARY, KEY FINDINGS AND RECOMMENDATIONS

SEPTEMBER 24-26, 2008

MONTREAL, CANADA

McGill

Faculty of Agricultural and Environmental Sciences

McGill Conference on Global Food Security

CONFERENCE REPORT

SUMMARY, KEY FINDINGS AND RECOMMENDATIONS

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Canadian International Development Agency | Agence canadienne de développement international

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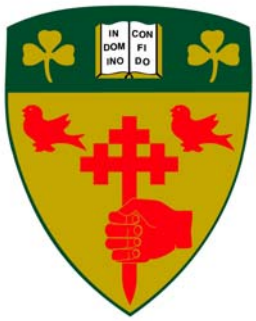

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Canada

EXECUTIVE SUMMARY

In early 2008, the world was hit with a global food crisis. While developing countries were hardest hit because of high food prices, several developed countries also experienced the effects. Rising fuel and fertilizer prices affected agricultural producers in North America and Europe. The conversion of food producing lands for the production of ethanol also led to higher food prices and speculation of corn futures on the commodity trading markets. This sparked a moral debate about the ethics of using corn for fuel production, rather than for meeting food needs. The crisis was exacerbated by droughts in several countries. These factors, coupled with dwindling international cereal reserves, led to chaos, social unrest, and political turmoil in many countries. Long lines for the purchase of rice in The Philippines, street protests in Egypt and Mexico, and the demise of the Prime Minister of Haiti were among some of the highly visible public effects of the food crisis.

Several countries were caught unaware with a response to the crisis, and it was clear that as governments were grappling to find solutions, there was a need for an international conference which brought together all stakeholders - donors, international agencies, international scholars and development workers, government decision makers, researchers, the private sector, politicians, international relief organizations, and non-governmental organizations – in order to define short and long term solutions to the crisis.

McGill University's Faculty of Agricultural and Environmental Sciences took the leadership to convene such a conference from September 24-26, 2008, in Montreal, Canada. The Conference was Co-Chaired by former Canadian Prime Minister and Minister of Foreign affairs, and Professor of Practice at McGill, the Rt. Hon. Joe Clark and McGill's Chancellor, Mr. Richard Pound. There were some 400 participants at the Conference. A high level group of invited speakers and panelists were assembled for the Conference. The Conference was launched with a Public Lecture delivered by Dr. Kanayo Nwanze, Vice President of the UN International Fund for Agricultural Development, and Mr. Nicolas Carpentier, Coordinator of Communications and Marketing with Sun Youth Organization in Montreal.

"The McGill Conference is exactly the kind of event we need to try to address these complex issues that transcend national boundaries and require innovative and international solutions," said the Rt. Hon. Joe Clark "The solutions to the food crisis – and it is a real and important crisis – will not come from individual governments or groups working on their own. The solutions will come from experts at all levels working together, and that's exactly what this conference was able to achieve in a very short time."

Some of the key points raised by Conference speakers and participants were:

- This crisis was looming for several years as evidenced by the decline in investments in agriculture and rural infrastructure by both governments and donors;
- There is no single unique solution to the crisis which is applicable to all countries. Each country will have to develop its own response given prevailing socio-economic and political conditions in the country;
- The number of people affected by hunger and malnutrition increased from 850 million to 925 million. This indicates that the food crisis will not go away soon, and may actually become more severe as a result of the current global financial crisis;
- The impacts of the food crisis on nutrition and child health have not been articulated, and this needs increased attention, given that poor child nutrition will impair cognitive development. The loss to future generations is enormous and unrecoverable;
- Food aid is not a long term solution to the food crisis. Food aid is an urgent humanitarian response during a crisis, but more effort must be focussed on building economic resilience in vulnerable communities;
- Farmers are the backbone of the economy of most developing countries, and more attention must be paid to recognizing the importance of the agricultural sector as an engine of economic growth. Many industrialized countries were built from highly successful agrarian economies;
- Population growth and greater purchasing power, as well as changing patterns of food consumption, and higher calorie intake have all led to increased food demands in the emerging economy countries;
- 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 led to a neglect of local agricultural production systems;

The principal Conclusions and Recommendations from the Conference were:

- Agriculture has been an engine for growth and development in Europe, North America and parts of Asia. Therefore, the importance of the agricultural sector for economic development in developing countries must be reinforced. This will invigorate economies and generate wealth to help combat poverty;
- Investment in the agricultural sector needs to be significantly ramped up and should be made a priority of both governments and donors, in order to boost food production;

- Investments in rural infrastructure viz. roads, power, irrigation, post-harvest storage and distribution, and agro-processing facilities are urgently needed;
- Human technical capacity in research, training and agricultural extension, and improved farmer skills and technologies must be built up in quick order;
- Institutional support for enhanced national, regional and international market opportunities and trading must be put in place by governments.

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 undertake research and training in some select highly vulnerable countries on several topics, including:

- Analysis of policies of food production and trading that may exacerbate food insecurity, and development of ideas which may reduce the harmful impacts of distorted policies;
- Monitoring of food supplies in select vulnerable countries, and develop early warning and alert mechanisms which could trigger short term food production, in order to lessen impending crises.
- Definition of an innovative research agenda which can be rapidly implemented at the village or community levels, in order to increase food availability in the short term;
- Implementation of short term training programs to build capacity of farmers, extension workers and scientists involved in food and nutrition;
- Development of 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 will include topics such as the need to increase investment in agriculture, community nutrition programs to improve child and maternal health, mechanisms for building resilience in vulnerable communities.

Some specific countries in which the proposed Institute would be able to easily work, given existing partnerships are: Kenya, Ethiopia, Malawi, Ghana, Mali, Senegal, Zambia, Guyana, Honduras, Haiti, Cambodia, Bangladesh.

ACKNOWLEDGEMENTS

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

TD Canada Trust
Atoka Cranberries
Dr. Donald McQueen Shaver, O.C.
Canadian International Development Agency
Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec
Ministère des Relations internationales du Québec
Nova Scotia Department of Agriculture
Mr. Roland Greenbank
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Mrs. Erin Hogg
Mrs. Barbara Johnson
Mr. John Nassr
Macdonald Branch of the McGill Alumni Association
McGill Alumni Association
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 conference promotional materials.

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

CONFERENCE ORGANIZING COMMITTEE

The members of the Conference Organizing Committee were:

Chandra A. Madramootoo (Chair), Caroline Begg, Julie Fortier, Helen Fyles, Ron Henry, Kristine Koski, Kathy MacLean, Anwar Naseem, Aly Shady, Don Smith, Doug Sweet.

1. Background to the Food Crisis

Soaring food prices in 2007 and early 2008 provoked social unrest in countries around the world and threatened the political and economic stability of poor nations. UN Secretary-General Ban Ki-Moon called it a global crisis and Executive Director of the UN World Food Program Josette Sheeran said that rising prices pushed up the number of undernourished people in the world from more than 850 million in 2005 to 925 million in 2008. World Bank President Robert Zoellick warned that at least 33 countries faced social unrest as a result of sharply higher food prices.

The first Millennium Development Goal for 2015 of reducing by half the number of people who suffer from hunger will not be met under these conditions of food shortages. Countries with the highest proportion of hungry people are predominantly found in Sub-Saharan Africa, but parts of Asia, and Central and South America also have areas where over 25% of their populations are undernourished (see Figure 1).

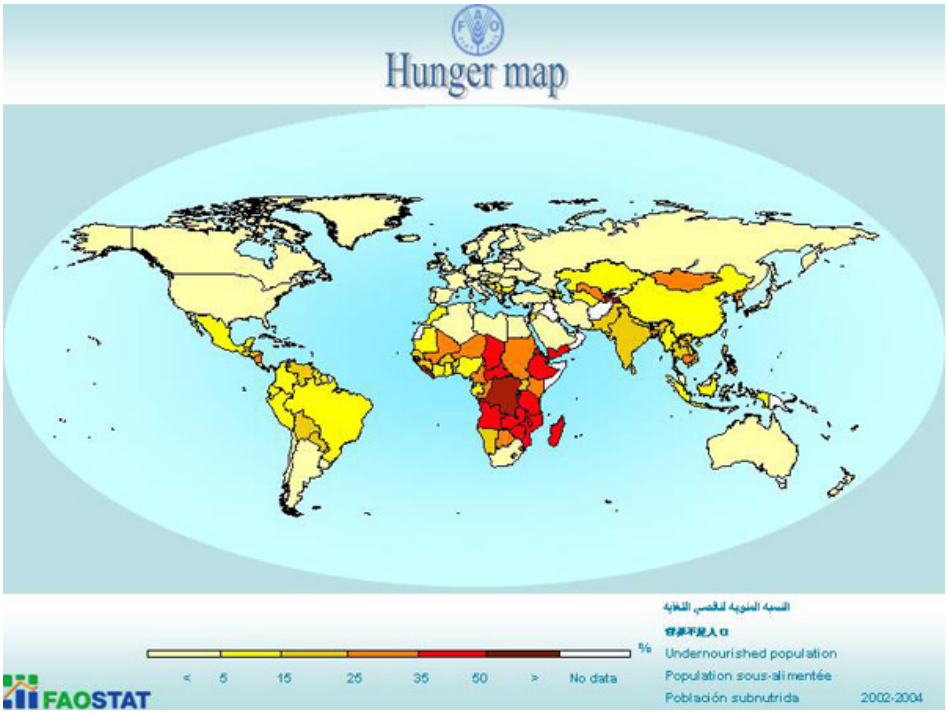

Figure 1. World hunger map (Source: FAO, 2004)

The United Nations Food and Agriculture Organization (FAO) food price index rose by nearly 40% in 2007, compared with 9 % in 2006, and in the first months of 2008 prices again increased drastically. This rising price trend affected nearly

every agricultural commodity. Between March 2007 and August 2008 increases in grain prices were as follows: corn (31%), rice (74%), soybean (87%), and wheat (130%). Dairy products, meat, poultry, palm oil, and cassava also experienced significant price hikes (see Figure 2).

Figure 2. Food price indices (Source: FAO, 2008)

Although the Food Price Index has since declined somewhat, 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 FAO estimated that in developing countries, food costs went up by 25% to nearly $233 billion in 2007 and within those countries the urban poor, who spend over 90% of household income on food, were the most seriously affected. The region hardest hit will likely be sub-Saharan Africa, where many of the world's poorest nations depend on food imports.

Soaring corn prices sparked tortilla riots in Mexico City in 2007 as the price of the flat corn bread, the main source of calories for many poor Mexicans, had recently increased by over 400%. Skyrocketing flour prices destabilized Pakistan, and Egypt's government faced a serious political threat over its inability to maintain a steady supply of heavily subsidized bread to its impoverished citizens; Haiti, Cote d'Ivoire, Cameroon, Mozambique, Uzbekistan, Yemen and Indonesia are among the countries that experienced violent food riots or demonstrations.

Some Causes of High Food Prices

Rising food prices were driven by a complex set of factors including sharply rising fuel prices, historically low levels of grain reserves, droughts in key food-producing countries, higher world populations, increasing demand for meat and dairy products in emerging nations like India and China, biofuel production, market and trade speculation, and agricultural subsidies.

World food stocks:
World carryover stocks of grain (the amount in reserve when the next harvest begins) are the most basic measure of food security. Grain reserves have been declining since1995, by an average of 3.4% per year. According to FAO's forecast, world cereal stocks are expected to fall to a 25-year-low of 405 million tonnes in 2007/2008, down 21 million tonnes, or 5%, from their already reduced level of the previous year. As world food stocks decline below 60 days' reserves, price volatility and price changes become magnified when unexpected events occur. Reduced stocks of grain are also due to changes in government policy in major exporting countries, which have affected the size of reserves held by public institutions.

Although global cereal output reached record levels in 2004, it declined by 1 and 2%, respectively, in 2005 and 2006 when the output in eight major exporting countries, which constitute nearly half of global production, dropped by 4 and 7%. The most visible cause of the fall in world grain production, from 2.07 billion tonnes in 2004 to 2.04 billion tonnes in 2006, was drought. In 2007, however, the world's farmers reaped a record 2.32 billion tons of grain. Despite this jump of 95 million tons, or about 4%, over the previous year, commodity analysts estimate that voracious global demand will consume all of this increase and prevent governments from replenishing cereal stocks.

Population growth:
The world's population is believed to have reached 6.65 billion in March 2008 and is projected to reach over 9 billion by 2050. The current growth rate is 1.3% and although this rate is expected to slow, it is anticipated that each year until 2020, the world's farmers must try to feed an additional 70 million people. This growth is concentrated in the Indian subcontinent and sub-Saharan Africa, which are also the regions with the highest levels of poverty, and climatic variability.

Changes in food consumption:
There are three major uses for feed crops: food, feed for animals, and biofuels. Coarse grains, such as sorghum and maize, are being used more and more for feed and fuel. Rising incomes worldwide are enabling some 3 to 4 billion low-income consumers move up the food chain, consuming more poultry, pork, beef, milk, eggs, and farmed fish. World meat production, which climbed from 44

million tons in 1950 to 265 million tons in 2005, increases each year. During this 55-year span, consumption per person more than doubled from 17 kilograms to 41 kilograms. The production of each kilogram of beef requires 7-8 kg of maize, and globally more than 700 mT of grain is used as animal feed. Livestock production, including animal feed production, accounts for one third of all arable land.

Biofuel production:
The emerging biofuels market is now a significant source of demand for agricultural commodities such as sugar, maize, oilseeds and palm oil. These crops, predominantly used as food in the past, are now also used as feedstock for producing biofuels. This production of crops for biofuels diverts land away from food production, reduces food availability and drives up food prices. Significant increases in the price of crude oil combined with concerns about climate change led to the implementation of public policies to support the biofuels sector. Global biofuel production tripled from 4.8 to 16 billion gallons between 2000 and 2007, and production continues to grow at a rate of about 15% annually. Biofuel demand will continue to have an important effect on world food prices although recent declines in petroleum prices may reduce that effect in the short term. Since 70-80% of the cost of biofuels is constituted by the cost of the feedstock itself, feedstock prices also affect the competitiveness of biofuels with fossil fuels.

Oil prices:
Oil prices doubled between 2005 and 2008 resulting in a tripling of fertilizer prices and a doubling of transportation costs. The cost of producing food therefore increased substantially and resulted in rising food prices.

Commodity markets and trade:
Speculators, anticipating future food price increases, invested billions of dollars into commodities on various stock markets, further accelerating price rises. For example, in a single day in February 2007, global wheat prices jumped 25% after Kazakhstan's government announced plans to restrict exports of its giant wheat crop for fear that its own citizens might go hungry.

Farmers in developing countries cannot compete with exports from developed countries that heavily subsidize agriculture and they are often put out of business by cheap imports. In 2002, agricultural subsidies reached $300 billion annually in developed countries allowing, in many cases, production costs to be lower than those in developing countries. Freer trade since 1995 has made countries in the southern hemisphere more dependent on imports and therefore more vulnerable to food price increases.

Climatic effects:
Short term climatic shocks and longer term changes to the climate influence food production and prices. Shortages of food are observed whenever poor weather affects the Midwest US. The Canadian Prairies have suffered several droughts in recent years, and this has reduced Canadian production of wheat and other commodities for export. Current droughts in Australia will have the same effect on reducing the world supplies of food. The impacts of drought on famines, starvation and death in Ethiopia and the Horn of Africa in the recent past are vivid reminders to everyone. Extremes of climate in the forms of drought and floods can have a disastrous effect on food availability, and the buffering capacity in the developing countries is negligible, which makes the populations of these countries highly vulnerable to survival.

Over the longer term, changes to climate resulting in rising sea levels and flooding may reduce the arable land base. Rising temperatures may result in water resource constraints in different parts of the world. The overall impact would likely be lower agricultural yields

2. Objectives of the McGill Conference on Global Food Security

Conference Co-Chairs

Right Honourable Joe Clark, Professor of Practice, McGill Centre for Developing-Area Studies
Mr. Richard Pound, Chancellor, McGill University

Rising world food prices are a long-term, global problem which severely impact countries that import the majority of their food as well as the world's poor. They are the result of complex interactions between social, economic, and environmental factors and the solution lies in deliberate acts and sustained efforts on the part of all stakeholders. For a very long time, investment in agricultural development, technical capacity and infrastructure, have been declining. Research and development of new technologies have slowed down in many developing countries. This trend has to be quickly reversed.

To understand the factors that led to rising food prices, their impacts on affected populations, and to seek solutions, McGill University convened a high level international consultation from September 24-26, 2008. Views and inputs were solicited from stakeholders in developed and developing countries including the food industry, international organizations, donor agencies, governments, farmers, international scholars, and non-governmental organizations.

Purpose of the Conference

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, that will 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.

A conference website (www.mcgill.ca/globalfoodsecurity/) was developed during the planning stages conveying full details about the conference program and speakers. The website has since been populated with 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 #12 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 and sharply rising food prices.

The Conference drew close to 400 participants from 17 developed and developing countries, with representatives of 18 international organizations, and a host of student participants, as well as academics and representatives of industry. Conference attendees were categorized as follows:

- International agencies: UN Food and Agriculture Organization (FAO), Consultative Group on International Agricultural Research (CGIAR), Organization for Economic Cooperation and Development (OECD), UN World Food Program (WFP), International Rice Research Institute (IRRI), Africa Center (WARDA), International Food Policy Research Institute (IFPRI), Inter-American Institute for Cooperation in Agriculture (IICA), International Commission on Irrigation and Drainage (ICID), Farm Foundation, International Federation of Agricultural Producers (IFAP), International Federation of Red Cross and Red Crescent, International Crop Research Institute for the Semi-Arid Tropics (ICRISAT).
- Non-governmental organizations and think tanks: Canadian Food Grains Bank, Canadian Hunger Foundation (CHF), Carnegie Endowment for International Peace, George Morris Centre, Canadian Agri-Food Policy Institute (CAPI), Pulse Canada, Canadian Centre for Policy Alternatives (CCPA), Sun Youth Organization.
- Policy makers and specialists involved in the agriculture and food sectors from: China, Ethiopia, Guatemala, Guyana, Haiti, India, Kenya, Morocco, Nigeria, West Africa, and Uzbekistan.
- Major food companies and retailers including the Canadian Federation of Independent Grocers.
- Government officials from Africa, Guyana, Canada, Europe, US.
- International scholars from Africa, Canada, China, India, US
- Graduate and undergraduate students
- Members of the public

5. Program Overview

The Conference started with a Public Lecture on September 24, 2008 at the Centre Mont Royal, and then moved to six sessions on Thursday September 25 and Friday September 26. Each session consisted of experts delivering an invited presentation, followed by responses from an invited panel. This provided unique and insightful observations and perspectives on the theme of each session. There was then opportunity for wide ranging questions and discussions from conference attendees.

Public Lecture

There were two keynote speakers who launched the Conference at the Public Lecture on September 24. They were: Dr. Kanayo Nwanze, Vice President of the UN International Fund for Agricultural Development (IFAD) located in Rome, and Mr. Nicolas Carpentier, Coordinator of Communications and Marketing with the Sun Youth Organization, Montreal.

Dr. Nwanze's presentation was entitled: Challenges and Future Prospects. He stressed that IFAD is at the centre of the response to the food price crisis since 75% of the world's extremely poor people live in rural areas and depend on agriculture for their livelihoods. These groups are the most vulnerable to high food prices. Investment in agriculture is critical to solving the food crisis. IFAD is closely involved in the UN Secretary General's Task Force on the Food Crisis, which was set up in response to the rising food prices.

IFAD is one of the largest sources of development financing for agriculture and rural development in many developing countries and supports about 200 ongoing programmes and projects with a total IFAD investment of US$3.2 billion. The full text of Dr. Nwanze's talk can be found on the Conference website.

Mr. Carpentier's presentation was entitled: A Local Portrait of the Food Shortage. Sun Youth provides nourishment for over one thousand families each week, and the focus of this presentation was how the food crisis has affected the homeless and disadvantaged in Montreal. The full text of Mr. Carpentier's talk can be found on the Conference website.

The presentations of all conference speakers can be found at:
www.mcgill.ca/globalfoodsecurity/presentations

Furthermore, all speaker biographies are available at:
www.mcgill.ca/globalfoodsecurity/speakers

Scenes from the Public Lecture

Conference Sessions

Thursday September 25th:

I. ***Voices from the Field:*** speakers addressed specific experiences in Haiti, India, Morocco, China, Kenya, Nigeria, Central Asia, and Guatemala.

Session Chairs: Drs. Don Smith (McGill University) and Tim Ogilvie (Atlantic Veterinary College)

Speakers:
Abnel Pierre, Haiti;
Kulandaisamy Thangavel, Tamil Nadu Agricultural University, India;
Dev Sharma, on behalf of ***Ato Tefera Derbew***, Head, Amhara Regional State Bureau of Agriculture and Rural Development, Ethiopia;
Mohamed Ait Kadi, President, General Council of Agricultural Development, Rabat, Morocco
Zhu Jing, Deputy Director, Department of Economics and Finance, College of Economics and Management, Nanjing Agricultural University, China;
Her Excellency Judith Mbula Bahemuka, Kenya High Commissioner to Canada;
Daniel Uza, Vice-Chancellor, University of Agriculture Makurdi, Nigeria;
Heidi Webber, on behalf of ***Galina Stulina***, SANRI and Scientific Information Center of the Interstate Commission Water Coordination, Uzbekistan
Noel Solomons, MD, Center for Studies of Sensory Impairment, Aging and Metabolism (CeSSIAM), Guatemala.

II. ***The World Food Situation:*** It is estimated that food stocks are at their lowest levels in 30 years. This has led to sharply higher prices, increased hunger and malnutrition, in turn, political, social and economic instability. Information and data on the current food supply and demand situation in the world were presented.

Session Chairs: Drs. Anwar Naseem and Caroline Begg (McGill University)

Speakers:
Anwar Naseem, McGill University
Robert Zeigler, Director General, International Rice Research Institute (IRRI)
Maximo Torero, International Food Policy Research Institute (IFPRI)
Neil Conklin, President, Farm Foundation
François Dagenais, Inter-American Institute for Cooperation on Agriculture (IICA)

Panel:
Douglas Hedley, Executive Director, Canadian Faculties of Agriculture and Veterinary Medicine
Ken Ash, Deputy Director, Trade and Agriculture, Organisation for Economic Co-operation and Development (OECD)
John Scott, Canadian Federation of Independent Grocers

III. ***Underlying Factors:*** There are many different causes for the crisis, including population growth, the rise of biofuel production, commodity prices, climate change, market speculation and changing patterns of food consumption.

Session Chairs: Drs. GSV Raghavan and Grace Marquis (McGill University)

Speakers:
Jack Wilkinson, International Federation of Agricultural Producers
Al Mussell, George Morris Centre
Sandra Polaski, Senior Associate and Director, Trade, Equity and Development Program, Carnegie Endowment for International Peace
Ted Boyle, Canadian Centre for Policy Alternatives
Shellemiah O. Keya, Advisor to Director General, Africa Rice Center (WARDA)

Panel:
Gordon Bacon, CEO, Pulse Canada
Gaétan Lussier, Chairman of the Board, Canadian Agri-Food Policy Institute
John Galaty, Professor of Anthropology, McGill University

IV. ***The International Response:*** Representatives from international agencies spoke about how their organizations have responded to the food crisis, solutions they have developed, and strategies to curb the crisis in the future.

Session Chairs: Drs. Phil Oxhorn (McGill University) and Mohamed Ait Kadi (Morocco)

Speakers:
Ken Ash**,** Deputy Director, Trade and Agriculture, Organisation for Economic Co-operation and Development (OECD)
Henk-Jan Brinkman, Senior Adviser for Economic Policy, World Food Programme
Daniel Gustafson, Director, Liaison Office for North America, Food and Agriculture Organization (FAO) of the United Nations
Mohammed Mukhier, Head, Disaster Policy and Preparedness Department, International Federation of Red Cross and Red Crescent, Switzerland
M. Gopalakrishnan, Secretary General, International Commission on Irrigation and Drainage (ICID)

Panel:
Caroline Pestieau, ICRISAT
Mark Curtis, Professor, Environmental Assessment, McGill University
Sandra Polaski, Senior Associate and Director, Trade, Equity and Development Program, Carnegie Endowment for International Peace

Friday September 26th:

V. ***Getting Food to the People – Success Stories:*** The situation is not all bleak. Some groups have been able to help communities in need and to meet food demands. Speakers shared their experiences and offered insight into what lessons can be learned from the success stories.

Session Chairs: Drs. Gaetan Lussier (CAPI) and Daniel Gustafson (FAO)

Speakers:
Jim Cornelius, Executive Director, Canadian Food Grains Bank
Zhu Jing, Deputy Director, Department of Economics and Finance, College of Economics and Management, Nanjing Agricultural University, China
Hon. Robert Persaud, Minister of Agriculture, Republic of Guyana
Carole Robert, President, Biotechnology for Sustainable Development in Africa Foundation (BDA)
M. Gopalakrishnan, Secretary General, International Commission on Irrigation and Drainage (ICID)

Panel :
Jean-Paul Laforest, Doyen, Faculté des sciences de l'agriculture et de l'alimentation, Université Laval
Tim Ogilvie, Dean, Atlantic Veterinary College, UPEI
Sheri Arnott, CHF-Partners in Rural Development; Canadian Food Security Policy Group

VI. **The Way Forward – Elements of a Framework for Managing the Crisis**:

Session Co-Chairs: Session Co-Chairs: Dean Chandra Madramootoo (McGill Faculty of Agricultural and Environmental Sciences) and Dean Nicholas Kasirer (McGill Faculty of Law)

Guest Speaker: Hon. Michael Chong, MP, Wellington-Halton Hills

This final session of the Conference was comprised of three parts. Firstly, Dean Chandra Madramootoo presented some of the key messages which arose from the conference presentations and discussions in the 5 preceding sessions, as well as from the Public Lecture. Next was a feature presentation by the Hon.

Michael Chong, Federal Member of Parliament for Wellington-Halton Hills. Finally, there were invited wrap up comments from selected conference participants and speakers, who were asked to give their perspectives on what they saw as the key outcomes from the Conference. These together with comments from the floor were used to develop a Framework for Action that could be implemented by McGill University, as it moves forward with a public policy and research agenda on global food security.

Panel:
His Excellency Professor Iyorwuese Hagher, High Commissioner of Nigeria to Canada;
Her Excellency Professor Judith Mbula Bahemuka, Kenya High Commissioner to Canada;
Jim Cornelius, Executive Director, Canadian Food Grains Bank;
Paul LaFlèche, Deputy Minister, Nova Scotia Department of Agriculture
Daniel Gustafson, UN Food and Agriculture Organization;
Rt. Hon. Joe Clark, Conference Co-Chair .

The key points of Mr. Chong's presentation were:

- There are two broad threats to food security around the world:
  - Lack of water resources and lack of sustainable practices with respect to the way the land and crops are managed. These affect long-term viability around the world;
  - The economics of food production and challenges faced by those involved in primary production, with an apparent low return on investment.
- No issue is more important than environmental sustainability because many issues are inextricably linked to this;
- One of the fundamental challenges for agricultural sustainability is the threat that urban sprawl presents. Prime agricultural land is being destroyed, biodiversity is reduced, and fresh water resources are degraded as urbanized areas expand;
- Profitability in agriculture is one of the impediments to greater food production. We need to address the issue of the unprofitability of agriculture and set up an economic regime where farmers have an incentive to grow food;
- Cultivators of the earth are the most valuable citizens. They are tied to their country by the most lasting bonds;
- Too often, we focus on the technology of agriculture. Canada has always been at the forefront of research. We need to focus on putting money into the economics of agriculture. How can we make farming profitable? It is important that universities begin to discuss these issues.

Conference Participants and Speakers

Speakers and Representatives of Kenya and China

6. Conference Summary

Following are the key points brought out by the speakers, panellists, and in the discussions from the floor.

Understanding the present global food crisis and its effects

- The current crisis will not go away soon, and there is no single unique solution for all countries affected by the food crisis. Each country will have to develop its own solutions, given the socio-economic and political conditions prevailing in each country.

- Food insecurity is not a new global issue. The world has experienced similar situations of food insecurity and unavailability in the past; for example in the late 1950s and in the mid 1970s, as a result of persistent famines in many parts of Asia and south and Central America. In 2003, before the recent food price increases, over 800 million people in the world did not have enough food to meet basic dietary needs.

- While food prices are high, we must remember that farm incomes are quite low. Over 900 million people in the world do not earn enough money to allow them to have an adequate diet. Hunger both results from and causes poverty. We need to frame the food crisis in the broader context of breaking the cycle of poverty.

- Vulnerability to rising food prices is largely based on the high percentages of disposable income spent on food purchases. In some parts of Asia and Africa, over 70% of household income goes towards to food expenditures, compared to 12% in North America. High household spending on food leads to food insecurity. The people most at risk are the urban poor, rural landless, pastoralists, and small farmers who are net food buyers.

- Some countries are paying to import food which they could be producing themselves.

- As food prices increase, the most nutritional foods are cut out of peoples' diets, resulting in negative nutritional and health outcomes. Children who are malnourished in the first months of life are permanently developmentally and cognitively impaired with lifelong implications. Even if food prices come down, the negative impacts will be borne by the children of the future.

- The economic impacts are enormous as people are forced to sell assets, in order to buy food, and consequently they get into debt. Children are

taken out of school and health care is cut back, in order to reduce household expenses.

- There are tremendous environmental impacts, as marginal lands are cultivated and people migrate into heavily used agricultural areas. As food becomes less affordable, households are compelled to clear and cultivate marginal lands on steep hills which results in overgrazing, soil degradation, soil erosion, and deforestation.

- Some farmers, who are net sellers of food products, will benefit from the increased food prices. But this is a small group of farmers on a global scale within the developing countries.

Underlying factors of the crisis

- Population growth and greater purchasing power, as well as changing patterns of food consumption, and higher calorie intake have all led to increased food demands in the emerging economy countries.

- Increased energy prices resulting in higher input and transportation costs for food production, the diversion of crops from food to biofuel production, extreme floods and droughts, and land and water degradation resulted in a reduced supply of food.

- Declining world stocks of grains resulting from the combination of higher demand and lower production, created commodity market speculation which amplified the volatility of rising food prices

- National and international investments in agriculture and food production have declined since the 1980s. There was a perception that the world's food supply was secure and that countries were becoming more self sufficient in food. Therefore government investments in food production and agricultural infrastructure were not considered a priority. Since 1990, funding of Official Development Assistance (ODA) to agriculture has declined from 18% to less than 4% of the total ODA from the OECD countries. See Figure 3.

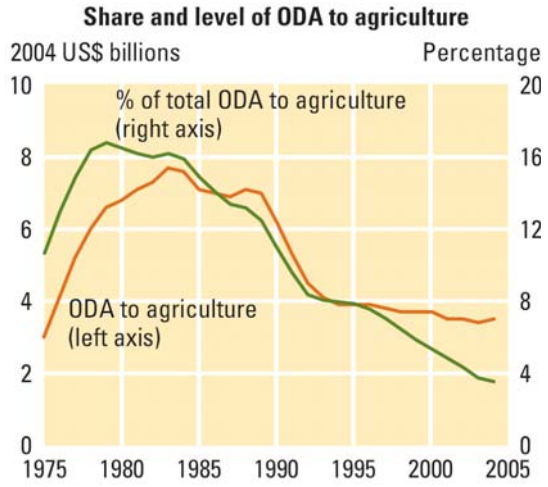

Figure 3. ODA investments in agriculture (Source: World Bank, 2008)

- In developing countries, agriculture contributes 29% of gross domestic product (GDP), but less than 4% of GDP has been invested in agriculture. See Figure 4. Since most countries with advanced economies have at one time had strong agrarian economies, the developing world cannot escape this factor of development, and need to support investments in the food producing sector.

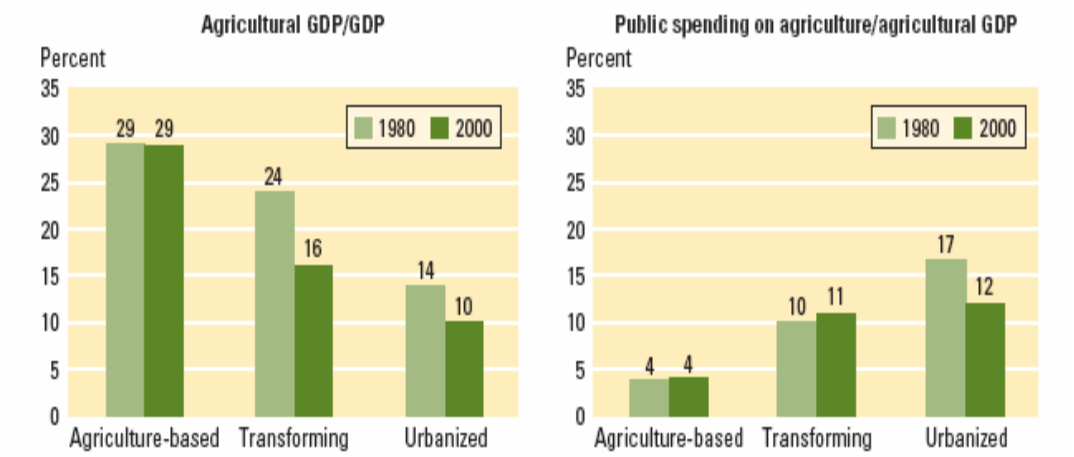

Figure 4. Public spending in agriculture (Source: World Bank, 2008)

- 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 the local farmers.

- Since food was cheap on world markets the developing countries imported food, rather than invest in agriculture. The developing countries also focussed on the export of high value crops, rather than on food production.

- Declining investment in the agricultural sector has resulted in a lack of infrastructure in rural areas including roads, electricity, irrigation, water storage and an absence of rural markets, collection and certification centres, and transport for perishables all of which have impeded food production gains.

- Declining investments also resulted in a lack of research and development, and building the technical capacity of farmers and extension workers.

- The rate of increase in crop yield has declined over the past few years, and the rate of overall global crop production has levelled. For example, as seen in Figure 5, the rate of increase in yield of rice in Asia is not as sharp as in the 30 year period of 1965-1995.

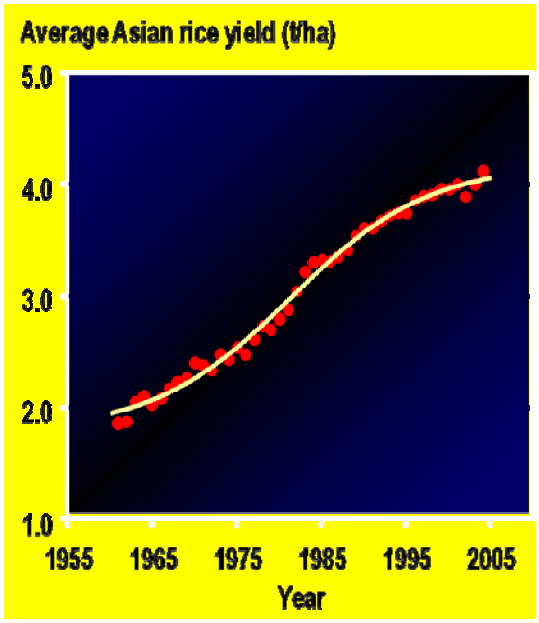

Figure 5. Asian rice yields (Source: Zeigler, 2008)

- Political conflicts aggravate food security and reduce food production. Agricultural land is abandoned and farmers migrate from areas of trouble as political refugees.

Success stories

A number of encouraging success stories were cited. These include:

- The development of post-harvest technology in India, which resulted in a reduction of food losses due to spoilage and wastage, contributed to 40% more food being available – a development in which McGill University scientists played a major role.

- The development of new rice varieties in Africa which contributed to higher yields, funded by CIDA.

- The application of water harvesting technology in the highlands of Ethiopia, which helped overcome drought and massive starvation in rural areas of the Amhara Region

7. Recommendations for Alleviating the Food Crisis

The presentations and discussions of the Conference led to the following recommendations on alleviating the crisis in the short, medium and long terms.

Broad policy and social recommendations

- Agriculture has been an engine for growth and development in Europe, North America and parts of Asia. In this context, we need to reinforce the importance of the agricultural sector for economic development in developing countries. This will invigorate economies and generate wealth to help combat poverty.

- Countries in the early stages of structural transformation, where agriculture is more important than other industries, should be encouraged to increase food production for domestic and regional consumption. Civil society, government and the private sector must all be involved. The farmer, particularly women farmers, should be at the centre of engagement and actively involved in the development process.

- International and local relief organizations should be supported in their efforts to provide immediate relief for vulnerable populations, and assist them in building their assets and productive capacity to transition into a level of food security. Responses may include:
  - Food vouchers and cash so that recipients can buy locally produced food and thus help generate wealth in the community;
  - Food for work and cash for work programs;
  - Mother and child nutrition programs;

- Feed children in school and continue the program during vacation time;
- Adjust the food basket between different grains as food prices vary, and shift to more nutritious foods;
- Provide cash transfers to countries in proportion to the number of children in school or attending nutrition centres. This money is circulated locally, so that people buy non tradable commodities;
- Vouchers for seeds and fertilizers, and for specific agricultural assets such as livestock, so as to prevent farmers from falling into debt and deeper poverty.

❖ There is a need to place stricter controls on taking farmland out of food production, in order to maintain the agricultural land base.

❖ Promote rural entrepreneurship, particularly among women in rural communities, so that value can be added to basic food commodities, in order to increase food supplies, and generate wealth and increased food purchasing power in vulnerable communities. Viable cottage industries and village agro-processing plants need to be supported.

Institutional policy recommendations

❖ Global policies and development aid should focus on eliminating agricultural and trade barriers. Government policies should allow farmers to take advantage of local, regional and international market opportunities.

❖ Export bans and restrictions on food trade increase market volatility. These restrictions should be removed within the context of global and regional trade organizations, so as not to affect smaller countries. Trade discussions between countries will improve understanding of food supplies and food demands, and reduce the panic about food shortages within countries.

❖ An early warning system is necessary to would allow countries to prepare in advance for food shortages.

❖ Developing countries should create policy tools such as credit, regulatory and fiscal frameworks, environmental sustainability, risk management, and rights to resources for food and agriculture production. They should also create price stability and adequate remuneration to increase food production.

- Encourage a new generation of farmers through youth training and grants, and stimulate more young people, particularly in developing countries to go into agricultural production and research.

Technical Recommendations

- Higher farm incomes will enable farmers to invest in their own communities, in water and sanitation infrastructure, and in veterinary medicines. There is thus a need to develop suitable technologies which will increase farm income.

- Improve the dissemination of technology best practices, and practices on nutrition, and child and maternal health in community and farm level organizations.

- Massive educational and extension programs ought to be implemented at local and regional levels.

- There is a need for technologies which will produce more food with fewer inputs and resources, and build resilience into our soils and ecosystems.

- Information on modern technologies in the areas of crop production, post harvest technology, irrigation and water storage, soil fertility and stabilization needs to be urgently available to farmers.

- Innovative research programs should be developed rapidly to focus on crop yield improvements, transformations of production and post-production systems, reducing post harvest losses, sustainable land and water use, and preventing environmental degradation.

Financial recommendations

- Investment in the agricultural sector needs to be ramped up and should be made a priority of both national governments and donors.

- Investments are urgently needed for fast impact programs and for medium and long term programs including improving rural infrastructure (roads, power, irrigation, post-harvest storage and distribution, agro-processing facilities), agricultural production, research and development, and building technical capacity for extension workers, scientists, and farmers.

8. Next Steps and Way Forward

Given the current global financial crisis and the impact that this is likely to have on a worsening food crisis, it is critical that world food production become an international priority.

McGill University is extremely well-placed to take leadership on the issues of global food security and bring together world experts to develop solutions. To build on the momentum generated by the conference, there was unanimous agreement from participants that McGill University create a Global Food Policy Institute that would implement a research and training comprised of several objectives, including the following, in the immediate short term:

- Analyze policies of food production and trading that may exacerbate food insecurity and development of ideas which may reduce the harmful impacts of distorted policies;
- Monitor food supplies in select vulnerable countries, and develop early warning and alert mechanisms which could trigger short term food production, in order to lessen impending crises.
- Define an innovative research agenda which can be rapidly implemented at the village or community levels, in order to increase food availability immediately;
- Undertake immediate, short term training programs to build capacity of farmers, extension workers and scientists involved in food and nutrition;
- 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 will include topics such as the need to increase investment in agriculture, community nutrition programs to improve child and maternal health, mechanisms for building resilience in vulnerable communities.

In order to achieve the above objectives, it would be necessary to focus on some specific countries such as: Kenya, Ethiopia, Malawi, Ghana, Mali, Senegal, Zambia, Guyana, Honduras, Haiti, Cambodia, Bangladesh.

It was further proposed that the McGill Conference on Global Food Security should become an annual event. It will provide on ongoing forum where experts from international organizations, governments, farm organizations can meet to further understanding, cooperation and find solutions to the ongoing food crisis. The results of some of the above policy analyses and monitoring can be reported at the annual conferences.

It is recognized that some ways to reduce food prices are to increase agricultural productivity and create efficient markets through public investment in agricultural

research, rural education, and rural infrastructure. However, the magnitude and nature of these improvements are not always evident to all stakeholders, nor how and what are the most effective partnerships to be developed to help make interventions happen. A McGill Institute on Global Food Policy would help to elucidate, define and develop operational plans for such interventions in specific countries.

9. References

FAO. 2004. Food and Agriculture Organization of the United Nations. Map taken from the website: http://www.fao.org

FAO. 2008. Food and Agriculture Organization of the United Nations. Figures available on line at http://www.fao.org

World Bank. 2008. World Development Report. Agriculture for Development. Available on line at: http://econ.worldbank.org

Zeigler, R.S. 2008. The rice crisis: why did it happen and what can we do about it? Presentation at the McGill Conference on Global Food Security September 25, 2008. International Rice Research Institute. Data available at: http://beta.irri.org/statistics