NMUN • NY

FOOD AND AGRICULTURE ORGANIZATION

BACKGROUND GUIDE 2012

Written By: Matt Buongiorno, Sonia Mladin, Denise Chau, Christine Oscai

NMUN•NY

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NATIONAL COLLEGIATE CONFERENCE association™

1 - 5 April 2012 - Sheraton
3 - 7 April 2012 - Marriott

CONTACT THE NMUN

Please consult the FAQ section of nmun.org for answers to your questions. If you do not find a satisfactory answer you may also contact the individuals below for personal assistance. They may answer your question(s) or refer you to the best source for an answer.

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NMUN•NY 2012 Important Dates

IMPORTANT NOTICE: To make hotel reservations, you must use the forms at nmun.org and include a $1,000 deposit. Discount rates are available until the room block is full or one month before the conference – whichever comes first. PLEASE BOOK EARLY!

31 January 2012	• Confirm Attendance & Delegate Count. (Count may be changed up to 1 March) • Make Transportation Arrangements - DON'T FORGET! (We recommend confirming hotel accommodations prior to booking flights.)
15 February 2012	• Committee Updates Posted to www.nmun.org
1 March 2012	• Hotel Registration with FULL PRE-PAYMENT Due to Hotel - Register Early! Group Rates on hotel rooms are available on a first come, first served basis until sold out. Group rates, if still available, may not be honored after that date. See hotel reservation form for date final payment is due. • Any Changes to Delegate Numbers Must be Confirmed to: outreach@nmun.org • Preferred deadline for submission of Chair / Rapp applications to Committee Chairs • All Conference Fees Due to NMUN for confirmed delegates. ($125 per delegate if paid by 1 March; $150 per delegate if receved after 1 March. Fee is not refundable after this deadline. • Two Copies of Each Position Paper Due via E-mail (See Delegate Preparation Guide for instructions).
NATIONAL MODEL UNITED NATIONS 2012	1 - 5 April – Sheraton New York 3 - 7 April - New York Marriott Marquis The 2013 National Model UN Conference 17 - 21 March & 24 - 28 March (both at Sheraton; Sun-Thurs)

POSITION PAPER INSTRUCTIONS

Two copies of each position paper should be sent via e-mail by 1 MARCH 2012

1. TO COMMITTEE STAFF

A file of the position paper (.doc or .pdf) for each assigned committee should be sent to the committee e-mail address listed below. Mail papers by 1 March to the e-mail address listed for your particular venue. These e-mail addresses will be active when background guides are available. Delegates should carbon copy (cc:) themselves as confirmation of receipt. Please put committee and assignment in the subject line (Example: GAPLEN_Greece).

2. TO DIRECTOR-GENERAL

- Each delegation should send one set of all position papers for each assignment to the e-mail designated for their venue: positionpapers.sheraton@nmun.org or positionpapers.marriott@nmun.org. This set (held by each Director-General) will serve as a back-up copy in case individual committee directors cannot open attachments.
Note: This e-mail should only be used as a repository for position papers.

- The head delegate or faculty member sending this message should cc: him/herself as confirmation of receipt. (Free programs like Adobe Acrobat or WinZip may need to be used to compress files if they are not plain text.)

- Because of the potential volume of e-mail, only one e-mail from the Head Delegate or Faculty Advisor containing all attached position papers will be accepted.

Please put committee, assignment and delegation name in the subject line (Example: Cuba_U_of_ABC). If you have any questions, please contact the Director-General at dirgen@nmun.org.

nmun.org
for more information

COMMITTEE	EMAIL - SHERATON
General Assembly First Committee	ga1st.sheraton@nmun.org
General Assembly Second Committee	ga2nd.sheraton@nmun.org
General Assembly Third Committee	ga3rd.sheraton@nmun.org
Human Rights Council	hrc.sheraton@nmun.org
ECOSOC Plenary	ecosoc.sheraton@nmun.org
Commission on the Status of Women	csw.sheraton@nmun.org
Commission on Narcotic Drugs	cnd.sheraton@nmun.org
Economic and Social Commission for Western Asia	escwa.sheraton@nmun.org
United Nations Children's Fund	unicef.sheraton@nmun.org
Conference on Sustainable Development (Rio+20)	csustd.sheraton@nmun.org
Food and Agriculture Organization	fao.sheraton@nmun.org
UN Educational, Scientific and Cultural Organization	unesco.sheraton@nmun.org
African Union	au.sheraton@nmun.org
Organization of American States	oas.sheraton@nmun.org
Organisation of Islamic Cooperation	oic.sheraton@nmun.org
Asia-Pacific Economic Cooperation	apec.sheraton@nmun.org
Security Council A	sca.sheraton@nmun.org
Security Council B	scb.sheraton@nmun.org
International Criminal Court	icc.sheraton@nmun.org
Peacebuilding Commission	pbc.sheraton@nmun.org
Conference on the Arms Trade Treaty	att.sheraton@nmun.org

COMMITTEE	EMAIL - MARRIOTT
General Assembly First Committee	ga1st.marriott@nmun.org
General Assembly Second Committee	ga2nd.marriott@nmun.org
General Assembly Third Committee	ga3rd.marriott@nmun.org
Human Rights Council	hrc.marriott@nmun.org
ECOSOC Plenary	ecosoc.marriott@nmun.org
Commission on the Status of Women	csw.marriott@nmun.org
Commission on Narcotic Drugs	cnd.marriott@nmun.org
Economic and Social Commission for Western Asia	escwa.marriott@nmun.org
United Nations Children's Fund	unicef.marriott@nmun.org
Conference on Sustainable Development (Rio+20)	csustd.marriott@nmun.org
Food and Agriculture Organization	fao.marriott@nmun.org
UN Educational, Scientific and Cultural Organization	unesco.marriott@nmun.org
African Union	au.marriott@nmun.org
Organization of American States	oas.marriott@nmun.org
Organisation of Islamic Cooperation	oic.marriott@nmun.org
Asia-Pacific Economic Cooperation	apec.marriott@nmun.org
Security Council A	sca.marriott@nmun.org
Security Council B	scb.marriott@nmun.org
International Criminal Court	icc.marriott@nmun.org
Peacebuilding Commission	pbc.marriott@nmun.org
Conference on the Arms Trade Treaty	att.sheraton@nmun.org

OTHER USEFUL CONTACTS

Entire Set of Delegation Position Papers	positionpapers.sheraton@nmun.org
(send only to e-mail for your assigned venue)	positionpapers.marriott@nmun.org
Secretary-General	secgen.ny@nmun.org
Director(s)-General	dirgen.ny@nmun.org
NMUN Office	info@nmun.org

Dear Delegates,

It is with utmost happiness that we welcome you to the 2012 National Model United Nations Conference (NMUN). This year's Food and Agriculture Organization (FAO) staff is: Directors Matt Buongiorno and Sonia Nora Mladin, and Assistant Directors Denise Chau and Christine Oscai. Sonia graduated from the University of Manchester in the United Kingdom with a degree in Politics and International Relations and is now doing a Masters in Populations Science and Development at the Catholic University of Louvain, Belgium. This is going to be her second year as Director at NMUN and her forth year on staff. Matt Buongiorno is currently a second-year Teach for America math teacher at Kealakehe High School in Kailua-Kona, Hawaii. In addition to teaching math, Buongiorno also directs Kealakehe Model UN and Speech/Debate. Prior to his arrival in Hawaii he was a 2009 Scoville Fellow and researched nuclear non-proliferation at the Federation of American Scientists in Washington DC. He graduated with a Bachelor's in Political Science from Texas Christian University. Denise is currently studying for her Masters in Management at London Business School to complement her undergraduate Bachelor's of Science degree in Cell Biology and Genetics from the University of British Columbia. Despite this rather unusual background, she has been an avid delegate, staff, and secretariat member for countless Model UN conferences for the past six years. NMUN 2012 is Denise's second time as part of the NMUN staff. Christine Oscai is finishing her senior year as an Economics major at the University of Illinois at Chicago. She plans to pursue a Master in Healthcare Administration next year. Currently, she is involved in research that studies free health clinics in America. She is looking forward to her second year as an NMUN staff member.

The topics under discussion for the FAO at the 2012 NMUN are:

1. Increasing Agricultural Productivity: Feeding 9 Billion by 2050
2. The Impact of Biotechnology on Food Security
3. International Trade and Microbiological Hazards in Food

The FAO is a specialized agency that leads international efforts to mitigate global hunger. It does so by serving as a forum for information-sharing, helping developing countries modernize and improve agricultural practices as well as fishing and forestry, promoting good nutrition, and ensuring food security.

This background guide will serve as a brief introduction to the three topics listed. Accordingly, it is not meant to be used as an all inclusive analysis but as the foundation for your own study and research. To conduct your research, please consult scholarly materials such as journals, books, international news articles, and the UN website. Also, you will need to familiarize yourself with the work and current operations of the FAO.

Each delegation must submit a position paper. NMUN will accept position papers via e-mail by March 1, 2012. Please refer to the message from your Directors-General explaining the NMUN position paper requirements and restrictions. It is crucial that delegates adhere to these guidelines.

NMUN is an amazingly rewarding academic experience and we hope that you will find it as interesting and beneficial as we have. It is our priority to make the 2012 NMUN Conference as intellectually stimulating and intriguing as possible so that you will want to participate at NMUN in the future. If you have any questions regarding preparation, please feel free to contact any of the FAO substantive staff or the Under-Secretaries General for the Department of Specialized Agencies, Daniel Leyva (Marriott) and Cyril Philip (Sheraton).

Sincerely,

Sheraton Venue
Matt Buongiorno
Director

Denise Chau
Assistant-Director

fao.sheraton@nmun.org

Marriott Venue
Sonia Nora Mladin
Director

Christine Oscai
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Message from the Directors-General Regarding Position Papers for the 2012 NMUN Conference

At the 2012 NMUN New York Conference, each delegation submits one position paper for each committee to which it is assigned. Delegates should be aware that their role in each committee affects the way a position paper should be written. While most delegates will serve as representatives of Member States, some may also serve as observers, NGOs, or judicial experts. To understand these differences, please refer to the Delegate Preparation Guide.

Position papers should provide a concise review of each delegation's policy regarding the topic areas under discussion and should establish precise policies and recommendations about the topics before the committee. International and regional conventions, treaties, declarations, resolutions, and programs of action of relevance to the policy of your State should be identified and addressed. Making recommendations for action by your committee should also be considered. Position papers also serve as a blueprint for individual delegates to remember their country's position throughout the course of the Conference. NGO position papers should be constructed in the same fashion as position papers of countries. Each topic should be addressed briefly in a succinct policy statement representing the relevant views of your assigned NGO. You should also include recommendations for action to be taken by your committee. It will be judged using the same criteria as all country position papers, and is held to the same standard of timeliness.

Please be forewarned, delegates must turn in entirely original material. ***The NMUN Conference will not tolerate the occurrence of plagiarism.*** In this regard, the NMUN Secretariat would like to take this opportunity to remind delegates that although United Nations documentation is considered within the public domain, the Conference does not allow the verbatim re-creation of these documents. This plagiarism policy also extends to the written work of the Secretariat contained within the Committee Background Guides. Violation of this policy will be immediately reported to faculty advisors and it may result in dismissal from Conference participation. Delegates should report any incident of plagiarism to the Secretariat as soon as possible.

Delegation's position papers can be awarded as recognition of outstanding pre-Conference preparation. In order to be considered for a Position Paper Award, however, delegations must have met the formal requirements listed below. Please refer to the sample paper on the following page for a visual example of what your work should look like at its completion. The following format specifications are **required** for all papers:

- All papers must be typed and formatted according to the example in the Background Guides
- Length must **not** exceed two single-spaced pages (one double-sided paper, if printed)
- Font must be Times New Roman sized between 10 pt. and 12 pt.
- Margins must be set at one inch for whole paper
- Country/NGO name, School name and committee name clearly labeled on the first page,
- The use of national symbols is highly discouraged
- Agenda topics clearly labeled in separate sections

To be considered timely for awards, please read and follow these directions:

1. **A file of the position paper** (.doc or .pdf format required) **for each assigned committee** should be sent to the committee email address listed in the Background Guide. These e-mail addresses will be active after November 15, 2011. Delegates should carbon copy (cc:) themselves as confirmation of receipt.

2. Each delegation should also send **one set of all position papers** to the e-mail designated for their venue: positionpapers.sheraton@nmun.org or positionpapers.marriott@nmun.org. This set will serve as a back-up copy in case individual committee directors cannot open attachments. These copies will also be made available in Home Government during the week of the NMUN Conference.

Each of the above listed tasks needs to be completed no later than **March 1, 2012 (GMT-5) for delegations attending the NMUN conference at either the Sheraton or the Marriott venue**.

PLEASE TITLE EACH E-MAIL/DOCUMENT WITH THE NAME OF THE COMMITTEE, ASSIGNMENT AND DELEGATION NAME (Example: AU_Namibia_University of Caprivi)

A matrix of received papers will be posted online for delegations to check prior to the Conference. If you need to make other arrangements for submission, please contact Amanda D'Amico, Director-General, Sheraton venue, or Nicholas Warino, Director-General, Marriott venue at dirgen@nmun.org. There is an option for delegations to submit physical copies via regular mail if needed.

Once the formal requirements outlined above are met, Conference staff use the following criteria to evaluate Position Papers:

- Overall quality of writing, proper style, grammar, etc.
- Citation of relevant resolutions/documents
- General consistency with bloc/geopolitical constraints
- Consistency with the constraints of the United Nations
- Analysis of issues, rather than reiteration of the Committee Background Guide
- Outline of (official) policy aims within the committee's mandate

Each delegation can submit a copy of their position paper to the permanent mission of the country being represented, along with an explanation of the Conference. Those delegations representing NGOs do not have to send their position paper to their NGO headquarters, although it is encouraged. This will assist them in preparation for the mission briefing in New York.

Finally, please consider that over 2,000 papers will be handled and read by the Secretariat for the Conference. Your patience and cooperation in strictly adhering to the above guidelines will make this process more efficient and it is greatly appreciated. Should you have any questions please feel free to contact the Conference staff, though as we do not operate out of a central office or location, your consideration for time zone differences is appreciated.

Sincerely yours,

Sheraton Venue
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Delegation from *Represented by*
The United Mexican States **(Name of College)**

Position Paper for the General Assembly Plenary

The issues before the General Assembly Plenary are: The Use of Economic Sanctions for Political and Economic Compulsion; Democracy and Human Rights in Post-Conflict Regions; as well as The Promotion of Durable Peace and Sustainable Development in Africa. The Mexican Delegation first would like to convey its gratitude being elected and pride to serve as vice-president of the current General Assembly Plenary session.

I. The Use of Economic Sanctions for Political and Economic Compulsion

The principles of equal sovereignty of states and non-interference, as laid down in the Charter of the United Nations, have always been cornerstones of Mexican foreign policy. The legitimate right to interfere by the use of coercive measures, such as economic sanctions, is laid down in Article 41 of the UN-charter and reserves the right to the Security Council.
Concerning the violation of this principle by the application of unilateral measures outside the framework of the United Nations, H.E. Ambassador to the United Nations Enrique Berruga Filloy underlined in 2005 that the Mexico strongly rejects "the application of unilateral laws and measures of economic blockade against any State, as well as the implementation of coercive measures without the authorization enshrined in the Charter of the United Nations." That is the reason, why the United Mexican States supported – for the 14th consecutive time – Resolution (A/RES/60/12) of 2006 regarding the *Necessity of ending the economic, commercial and financial embargo imposed by the United States of America against Cuba*.
In the 1990s, comprehensive economic sanctions found several applications with very mixed results, which made a critical reassessment indispensable. The United Mexican States fully supported and actively participated in the "Stockholm Process" that focused on increasing the effectiveness in the implementation of targeted sanctions. As sanctions and especially economic sanctions, pose a tool for action "between words and war" they must be regarded as a mean of last resort before war and fulfill highest requirements for their legitimate use. The United Mexican States and their partners of the "Group of Friends of the U.N. Reform" have already addressed and formulated recommendations for that take former criticism into account. Regarding the design of economic sanctions it is indispensable for the success to have the constant support by all member states and public opinion, which is to a large degree dependent the humanitarian effects of economic sanctions. Sanctions must be tailor-made, designed to effectively target the government, while sparing to the largest degree possible the civil population. Sanction regimes must be constantly monitored and evaluated to enable the world-community to adjust their actions to the needs of the unforeseeably changing situation. Additionally, the United Mexican States propose to increase communication between the existing sanction committees and thus their effectiveness by convening regular meetings of the chairs of the sanction committees on questions of common interest. An example is the case of negative spill-over effects of economic sanctions on neighboring countries, in which affected countries additionally need to be enabled to voice their problems more effectively, as addressed in the resolution *Implementation of the provisions of the Charter of the United Nations related to assistance to third States affected by the application of sanctions* (A/RES/54/107). Non-state actors have in the last years tremendously grown in their political importance, especially with regard to the international fight against terrorism. Their position and the possibilities of the application of economic sanction on non-state actors is another topic that urgently needs to be considered.

II. Democracy and Human Rights in Post-Conflict Regions

As a founding member of the United Nations, Mexico is highly engaged in the Promotion of Democracy and Human Rights all over the world, as laid down in the *Universal Declaration on Human Rights (UDHR)* in 1948. Especially since the democratic transition of Mexico in 2000 it is one of the most urgent topics to stand for Democratization and Human Rights, and Mexico implements this vision on many different fronts.
In the Convoking Group of the intergovernmental Community of Democracies (GC), the United Mexican States uphold an approach that fosters international cooperation to promote democratic values and institution-building at the national and international level. To emphasize the strong interrelation between human rights and the building of democracy and to fortify democratic developments are further challenges Mexico deals with in this committee. A key-factor for the sustainable development of a post-conflict-region is to hold free and fair election and thus creating a democratic system. Being aware of the need of post-conflict countries for support in the preparation of democratic elections, the United Mexican States contribute since 2001 to the work of the International Institute for Democracy

and Electoral Assistance (IDEA), an intergovernmental organization operating at international, regional and national level in partnership with a range of institutions. Mexico's foreign policy regarding human rights is substantially based on cooperation with international organizations. The Inter American Commission of Human Rights is one of the bodies, Mexico is participating, working on the promotion of Human Rights in the Americas. Furthermore, the Inter-American Court of Human Rights is the regional judicial institution for the application and interpretation of the *American Convention of Human Rights*.

The objectives Mexico pursues are to improve human rights in the country through structural changes and to fortify the legal and institutional frame for the protection of human rights on the international level. Underlining the connection between democracy, development and Human Rights, stresses the importance of cooperation with and the role of the High Commissioner on Human Rights and the reform of the Human Rights Commission to a Human rights Council.

Having in mind the diversity of challenges in enforcing democracy and Human Rights, Mexico considers regional and national approaches vital for their endorsement, as Mexico exemplifies with its *National Program for Human Rights* or the *Plan Puebla Panama*. On the global level, Mexico is encouraged in working on a greater coordination and interoperability among the United Nations and regional organizations, as well as the development of common strategies and operational policies and the sharing of best practices in civilian crisis management should be encouraged, including clear frameworks for joint operations, when applicable.

III. The Promotion of Durable Peace and Sustainable Development in Africa

The United Mexican States welcome the leadership role the African Union has taken regarding the security problems of the continent. Our delegation is furthermore convinced that The New Partnership for Africa's Development (NEPAD) can become the foundation for Africa's economic, social and democratic development as the basis for sustainable peace. Therefore it deserves the full support of the international community.

The development of the United Mexican States in the last two decades is characterized by the transition to a full democracy, the national and regional promotion of human rights and sustainable, economic growth. Mexico's development is characterized by free trade and its regional integration in the North American Free Trade Agreement. Having in mind that sustainable development is based not only on economic, but as well on social and environmental development, President Vicente Fox has made sustainable development a guiding principle in the Mexican Development Plan that includes sustainability targets for all major policy areas.

The United Nations Security Council has established not less than seven peace-keeping missions on the African continent, underlining the need for full support by the international community. In post-conflict situations, we regard national reconciliation as a precondition for a peaceful development, which is the reason why Mexico supported such committees, i.e. in the case of Sierra Leone. The United Mexican States are convinced that an other to enhance durable peace in Africa is the institutional reform of the United Nations. We therefore want to reaffirm our full support to both the establishment of the peace-building commission and the Human Rights Council. Both topics are highly interrelated and, having in mind that the breach of peace is most often linked with severest human rights' abuses, thus need to be seen as two sides of one problem and be approached in this understanding.

As most conflicts have their roots in conflicts about economic resources and development chances, human development and the eradication of poverty must be at the heart of a successful, preventive approach. Lifting people out of poverty must be seen as a precondition not only for peace, but for social development and environmental sustainability.

The United Mexican States want to express their esteem for the decision taken by the G-8 countries for a complete debt-relief for many African Highly-Indebted-Poor-Countries. Nevertheless, many commitments made by the international community that are crucial for Africa's sustainable development are unfulfilled. The developed countries agreed in the *Monterrey Consensus of the International Conference on Financing for Development* (A/CONF.198/11) to increase their Official Development Aid (ODA) "towards the target of 0,7 per cent of gross national product (GNP) as ODA to developing countries and 0,15 to 0,20 per cent of GNP of developed countries to least developed countries". Furthermore, the United Mexican States are disappointed by the result of the Hong Kong Ministerial conference of the World Trade Organization, which once more failed to meet the needs of those, to whom the round was devoted: developing countries and especially African countries, who today, more than ever, are cut off from global trade and prosperity by protectionism.

With regard to the African Peer Review Mechanism, the United Mexican States want to underline that good governance is an integral part of sustainable development. Therefore, we support all efforts by African countries to make the mechanism obligatory to increase transparency and accountability in all African countries.

Committee History

Introduction

The Food and Agriculture Organization (FAO) was established in 1945 at the First Session of the FAO Conference held in Québec City, Canada, with the primary aim of achieving worldwide food security.[1] It was established with four main objectives: to raise the levels of nutrition and standards of living of peoples of its Member States; to secure improvements in the efficiency of the production and distribution of all food and agricultural products; to better the condition of rural populations; and, using the aforementioned three objectives, to contribute towards an expanding world economy and in turn, ensure freedom from hunger for all humanity.[2] Its motto, "*Fiat panis*," is Latin for "let there be bread" and is featured in the current emblem of the FAO.[3] The current headquarters of the FAO is located in Rome, Italy.[4]

The FAO is a specialized agency of the United Nations (UN); it also participates in the UN Economic and Social Council (ECOSOC).[5] It is a part of a group called the Rome-Based Agencies (RBA), which also includes the International Fund for Agricultural Development (IFAD) and the World Food Programme (WFP).[6] The three RBAs work together to increase collaboration in an effort to further common goals of combating global hunger and poverty with focus on the following five topical areas identified: analytical and policy support for governments and national development plans, the food crisis and Comprehensive Framework for Action (CFA) implementation, climate change and its links to natural resource management, the Millennium Development Goals (MDG) Africa Initiative, which was launched to encourage implementation of the MDGs in Africa, and the transition from relief to development, which helps countries struck by disaster to recover, such as in the case of Haiti, where local people were hired to reconstruct and reinforce water systems after the 2004 tropical storm.[7]

The activities of the FAO fall into four main areas: putting information within reach by serving as a knowledge network that disseminates information through its extensive Web site and numerous publications, sharing policy expertise to its member countries, providing a meeting place for nations as a neutral forum, and bringing knowledge to the field through its thousands of field projects and collaboration with humanitarian agencies.[8]

History of the FAO

The FAO was preceded by the former organization called the International Institute of Agriculture (IIA), the initial creation of which was driven by David Lubin, who had proposed for an international organization where agricultural problems could be discussed.[9] The King of Italy was receptive to the idea, and opened the 1905 conference in Rome, which led to the creation of the IIA.[10] In 1945, shortly after the conclusion of the Second World War, the FAO was created in Québec City, Canada, at the First Session of the FAO Conference, which ratified the financial and governance structure of the FAO, in addition to identifying the policies and the FAO program of work.[11] In 1946, the Permanent Committee of the IIA dissolved the IIA and had its functions and assets transferred to the then-new

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[1] FAO, *Food and Agriculture Organization Web site*, 2011.
[2] FAO, *Basic Texts of the Food and Agriculture Organization of the United Nations, Volume I: Constitution*, 2011, p. 1.
[3] FAO, *FAO: its origins, formulation and evolution 1945-1981*, 1981, p. 9.
[4] FAO, *Food and Agriculture Organization Web site*, 2011.
[5] FAO, *Food and Agriculture Organization Web site*, 2011.
[6] FAO, *Joint Meeting of the Hundred and One Session of the Programme Committee and the Hundred and Twenty-eighth Session of the Finance Committee: Direction for Collaboration among the Rome-based Agencies*, 2009, p. 1.
[7] FAO, *Joint Meeting of the Hundred and One Session of the Programme Committee and the Hundred and Twenty-eighth Session of the Finance Committee: Direction for Collaboration among the Rome-based Agencies*, 2009, p. 1.
UNESCO, *UNESCO Web site*, *Increasing resources for vulnerable population*.
FAO and the EU, *Success Stories From Inside Poverty's Door,* 2007, p. 4.
[8] FAO, *Food and Agriculture Organization Web site*, 2011.
[9] Hodgson, *Review: The International Institute of Agriculture: An Historical and Critical Analysis of its Organization, Activities, and Policies of Administration* by Asher Hobson, 1932, p. 406.
[10] Hodgson, *Review: The International Institute of Agriculture: An Historical and Critical Analysis of its Organization, Activities, and Policies of Administration* by Asher Hobson, 1932.
[11] FAO, *Report of the Conference of FAO, First Session*, 1945.

FAO.[12] The mandate of the FAO was broader than the IIA, whose work mostly concentrated on the collection and publication of statistics and agricultural information.[13]

Current Structure of the FAO

The FAO currently consists of 191 Member States, two associate members, and one member organization.[14] The main organ within the FAO is the Conference of Member Nations, which meets every two years in regular session.[15] Each member nation has one representative at the Conference; the functions of the Conference are to determine organizational policy, approve the FAO budget, and make recommendations.[16] The Conference also elects a council of 49 Member States that govern the organization, as well as appoints the Director-General of the Conference, who in turn appoints the staff that manage the administration of the FAO.[17] The Director-General is currently Dr. Jacques Diouf of Senegal, who has been serving in the position since 1994; however he will soon be replaced on January 2, 2012, by the incoming Director-General-elect, José Graziano da Silva.[18] The FAO is organized into seven departments: Agriculture and Consumer Protection, Economic and Social Development, Fisheries and Aquaculture, Forestry, Corporate Services, Human Resources and Finance, Natural Resources Management and Environment, and Technological Cooperation.[19] Each of these departments is further specialized into divisions, which are charged with a myriad of responsibilities that include field work, statistical compilation, and publications.[20]

The FAO's activities are funded through two main sources: net budgetary appropriation and voluntary contributions.[21] The net budgetary appropriation is the allotted contributions that each FAO member nation contributes as per the requirements of membership; in 2010-11 the budget for this was $1 billion.[22] Voluntary contributions comprise of two main categories of extra-budgetary resources: core voluntary contributions that are part of the planned FAO programme of work, and other extra-budgetary voluntary contributions that are used to support field programs, technical assistance, and emergency assistance.[23]

Current Issues and Projects

Food security is a prominent issue that the FAO addresses, as world food prices have significantly increased in recent years, threatening vulnerable populations with food insecurity.[24] In response to the looming threat of food crises as a result of high food prices, the FAO launched its Initiative on Soaring Food Prices (ISFP) in December 2007 to help small farmers grow increased amounts of food and in turn earn more money, as well as work on long-term measures toward food security.[25] So far, the success of the ISFP in keeping food prices down has various degrees of success, depending on the country and crop examined, as each country has a different staple food or crop that is affected by world food prices and demand.[26]

The FAO is also actively committed to addressing the UN Millennium Development Goals (MDGs), with a focus on Goal 1, which aims to eradicate extreme poverty and hunger by halving the proportion of people who suffer from hunger between the years 1990 and 2015.[27] It addresses the challenges of Goal 1 through two approaches: improving agricultural productivity and promoting better nutritional practices, and promoting programs that promote access to

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[12] United Nations, *Protocol for the Dissolution of the International Institute of Agriculture*, 1946.
[13] FAO, *Food and Agriculture Organization Web site,* 2011.
[14] FAO, *Food and Agriculture Organization Web site*, 2011.
[15] FAO, *Basic Texts of the Food and Agriculture Organization of the United Nations, Volume I: Constitution*, 2011, p. 3.
[16] FAO, *Basic Texts of the Food and Agriculture Organization of the United Nations, Volume I: Constitution*, 2011, p. 3.
[17] FAO, *Basic Texts of the Food and Agriculture Organization of the United Nations, Volume I: Constitution*, 2011, p. 4-6.
[18] FAO, *Food and Agriculture Organization Web site*, 2011.
[19] FAO, *Food and Agriculture Organization Web site*, 2011.
[20] FAO, *Food and Agriculture Organization Web site*, 2011.
[21] FAO, *The Director-General's Medium-Term Plan 2010-13 (Reviewed) and Programme of Work and Budget 2012-13*, 2011, p. 5.
[22] FAO, *The Director-General's Medium-Term Plan 2010-13 (Reviewed) and Programme of Work and Budget 2012-13*, 2011, p. 5.
[23] FAO, *The Director-General's Medium-Term Plan 2010-13 (Reviewed) and Programme of Work and Budget 2012-13*, 2011, p. 5.
[24] FAO, *FAO's Initiative on Soaring Food Prices: Guide for immediate country level action*, 2008, p. 5.
[25] FAO, *FAO Initiative on Soaring Food Prices Web site*, 2011.
[26] Demeke, *Initiative for Soaring Food Prices, Country Response to the Food Security Crisis: Nature and Preliminary Implications of the Policies Pursued,* 2009, p. 25.
[27] FAO, *Fact Sheet: FAO and the Eight Millennium Development Goals*, 2010, p. 1.

food for those who need it.[28] The FAO is also one of the co-founders of the Alliance Against Hunger and Malnutrition (AAHM), a global initiative that provides a collaborative platform for the various stakeholders in the fight against hunger and malnutrition, which include governments, non-governmental organizations, the private sector, and UN agencies.[29]

Emergency response is also an issue that the FAO addresses, as the organization strives to help countries prevent, mitigate, prepare for, and respond to emergencies that range from climate-related disasters to toxic chemical releases, such as in the case of rapidly relocating pesticides stored in a Mozambique flood zone. It is also involved with alleviating hunger in countries in a state of protracted crisis, a situation where a country has suffered natural disasters and/or conflicts, long-lasting food crises, weak and/or a breakdown of governance, and a lack of institutional capacity to handle the crises the country faces.[30] Currently 22 countries are classified as being in a protracted crisis situation, with most of those countries on the African continent.[31] One state that has been in a protracted crisis situation for the past two decades is Somalia, as ongoing conflict, drought, a large internally displaced population, and an ineffectual government have contributed to a food insecurity crisis.[32] In 2011, famine in Somalia has killed tens of thousands of people; in the worst-affected areas, more than 50% of the population suffered from acute malnutrition and the death rate exceeded six per 10,000 population per day.[33] A state of emergency has been declared in response to the famine in the Horn of Africa region, which includes Somalia and parts of Kenya, Ethiopia, Djibouti, and Uganda, with around 12 million people in the region in need of emergency assistance.[34] To address the humanitarian crisis, a meeting was held on August 18, 2011, in Rome, which brought together UN agencies, non-governmental organizations, and governments. [35] The meeting resulted in a call for a twin-track approach that addressed the immediate relief needs in the area, as well as ensure regional recovery by taking concrete steps to address the root causes of the famine and safeguard local food production.[36]

In addition to the projects and initiatives highlighted so far, the FAO is also engaged in a myriad of different issues, which include maintaining FAOSTAT, the world's largest database of food, hunger, and agricultural information, and helping alleviate food insecurity in Pakistan after floods washed away the harvest by mobilizing funds from existing projects to purchase and donate 26,000 tons of wheat seed to affected farmers and their families.[37] It also works in conjunction with the World Health Organization in establishing the Codex Alimentarius Commission to ensure food safety and protect consumer health worldwide by creating a set of food standards and guidelines based on scientific and technical knowledge.[38]

Conclusion

Food and agriculture continue to be pivotal issues in the world today, and the challenge of the FAO will be to remain relevant to the many issues surrounding food and agriculture. The FAO has at times been criticized in the past for being ineffective and irrelevant; one such prominent incidence of criticism came as a response to the FAO's 2004 report "Agricultural Biotechnology: meeting the needs of the poor?," when more than 650 civil society organizations signed an open letter that accused the FAO of betraying the farmers that it had pledged to support by siding with global biotechnology companies on the issue of genetically-engineered crops.[39] However, despite this criticism, the FAO has had successes in working towards its mandate of achieving food security; such examples of success include: decreasing damaging and expensive pesticide use in Pakistan, rehabilitating aquaculture activity after the 2004 tsunami in Indonesia, and successfully carrying out a vaccination program in Turkey that prevented a new strain of Foot and Mouth disease in livestock.[40] Continuing forward into the 21st century, the FAO must strike a

[28] FAO, *Fact Sheet: FAO and the Eight Millennium Development Goals*, 2010, p. 1.
[29] AAHM, *Alliance Against Hunger and Malnutrition Web site*, 2011.
[30] FAO, *The State of Food Insecurity in the World*, 2010, p. 12-13.
[31] FAO, *The State of Food Insecurity in the World*, 2010, p. 12-13.
[32] FAO, *The State of Food Insecurity in the World*, 2010, p. 14.
[33] FAO, *FAO Media Centre Web site: Famine in Somalia*, 2011.
[34] FAO, *FAO Media Centre Web site: Famine in Somalia*, 2011.
[35] FAO, *FAO Media Centre Web site: Meeting on Horn of Africa calls for tackling root causes of famine*, 2011.
[36] FAO, *FAO Media Centre Web site: Meeting on Horn of Africa calls for tackling root causes of famine*, 2011.
[37] FAO, *FAO at Work 2010-2011: Women – Key to Food Security*, 2011, p. 13-17.
FAO, *Update on Agriculture Sector, Pakistan Floods,* 2010, p. 2.
[38] FAO and WHO, *Codex Alimentarius Web site*, 2011.
[39] ETC Group, *Message to FAO: "Fight Hunger – Not Farmers*", 2004.
[40] FAO and the EU, *Success Stories From Inside Poverty's Door,* 2007, p. 3-5.

delicate balance that continues to addresses the concerns and perspectives of all parties involved, while continuing to define its role and mandate in the world today.

Annotated Bibliography

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Food and Agriculture Organization. (2011). *FAO Home*. Retrieved on August 31, 2011, from http://www.fao.org/

This is the FAO Web site and is a vast repository of information concerning the FAO, from current news reports about emergencies the FAO is addressing, to a comprehensive collection of the numerous publications issued by the FAO in PDF format. This Web site should be the first location that delegates should peruse to gain a better understanding of the FAO, its many programmes and initiatives, and how its work is connected to the rest of the UN. Many pages of the site can serve as a good starting point for research, and the following pages and sections within the site are highly recommended: About, Publications, Fact Sheets on FAO's Programme, and Countries.

Food and Agriculture Organization. (2011). *Basic Texts of the Food and Agriculture Organization of the United Nations*. Retrieved on August 31, 2011, from http://www.fao.org/docrep/meeting/022/K8024E.pdf

The Basic Texts is a comprehensive document that is split into two volumes; Volume I contains the constitution, financial regulations, and rules of procedures of the FAO. Volume II contains details of the governance and administrative structure of the FAO, in addition to the nature of its working relationships with other UN agencies and non-governmental organizations. Delegates should note that this is not the completed update of the basic texts, as updates are still ongoing as of October 2011. However, this document is still an invaluable resource for delegates who wish to understand how the FAO functions.

Food and Agriculture Organization. (2011). *The Director-General's Medium-Term Plan 2010-13 (Reviewed) and Programme of Work and Budget 2012-13*. Retrieved on August 31, 2011, from http://www.fao.org/docrep/meeting/021/ma061e.pdf

An excellent resource for the past, current, and future plans of the FAO from a financial perspective, the Medium-Term Plan provides a comprehensive overview of the many projects of the FAO as it reviews and recommends future policy with monetary figures and relevant statistics attached. Highlighted in this report is the Medium Term Plan, which consists of strategic and functional objectives, and recommendations for the role and actions of the FAO from the year 2011 to the year 2013. The Medium-Term Plan was created in response to the Immediate Plan of Action for FAO Renewal, a plan constructed from Member States' feedback in order to create a more effective, efficient, and relevant FAO for the future.

Food and Agriculture Organization. (2010). *Fact Sheet: FAO and the Eight Millennium Development Goals*. Retrieved on August 31, 2011, from http://www.fao.org/mdg/22032-0e0f5a6cc2178754a83092ab58f01ed44.pdf

The FAO's fact sheet gives a comprehensive overview on the past and ongoing efforts of the FAO in addressing the first goal of the UN Millennium Development Goals, which focuses on eradicating extreme poverty and hunger. Key issues and information highlighted in this fact sheet include food security programs, global action in response to the food crisis, and recent initiatives to emergencies. This is recommended as a good starting point for delegates to be able to have a better idea of how FAO's initiatives work within the UN system; however further research should be done into the topics summarized on this fact sheet to gain a more in-depth and thorough knowledge of the FAO.

Food and Agriculture Organization. (2011). *FAO at Work 2010-2011: Women – Key to Food Security*. Retrieved on September 1, 2011, from http://www.fao.org/docrep/014/am719e/am719e00.pdf

This is the annual report produced by the FAO that highlights a key theme, which for this past year was the role of women in ensuring food security. In addition, the report also contains an overview and results of the numerous ongoing and new projects and initiatives that the FAO has been involved in over the past year, such as the launch of a wheat rust tracking site, an update

on the activities of World Food Day, and the elimination of the cattle disease rinderpest that was achieved under a program coordinated by the FAO. This is a great resource for delegates who wish to have a broad and general overview of the large portfolio of the FAO.

Food and Agriculture Organization. (2011). *The State of Food Insecurity in the World*. Retrieved on September 1, 2011, from http://www.fao.org/docrep/013/i1683e/i1683e.pdf

Produced in association with the World Food Programme (WFP), this report highlights the issue of food insecurity and the many problems associated with it, as well as analyses on the international response and coordination of relief efforts for food insecurity. It highlights some success stories from the work of the FAO and WFP, and highlights three key recommendations about food security in regions experiencing a protracted crisis situation. This is a great resource for those wanting to further research about food insecurity, the UN bodies that address it, and to have access to concrete statistical analysis about food insecurity.

I. Increasing Agricultural Productivity: Feeding 9 Billion by 2050

Introduction

In 1974, world leaders gathered in Rome for the United Nations World Food Conference and unanimously resolved that "every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop fully and maintain their physical and mental faculties."[41] Almost four decades have passed, and governments are still "very far from reaching" their deadline of eradicating hunger by 2015. [42] With the world population set to rise by 34 percent by the year 2050, governments are faced with an ever-increasing food demand, which puts pressure mainly on the agriculture sector.[43]

It is not only population growth that will lead to higher demands for food but also a rise in per capita consumption.[44] As previously undernourished people get access to foods with better caloric value, they go through a nutritional transition, which results in an increased demand for energy rich foods that require more resources. [45] Consequently, improving agricultural productivity has never been so imperative. This is because the agriculture and agro-industrial sectors have been underlined as key in alleviating poverty due to them being the main driving forces of rural economies and for some Lesser Developed Countries (LDCs) their whole economy.[46]

According to Food and Agriculture Organization (FAO) projections, in order for the necessary production increase to be delivered, the world would need to invest an average of USD 83 billion a year into developing countries' agriculture, which would amount to an increase of about 50 percent from the level it is at now.[47] Le Vallée, *Ten years after the 1996 World Food Summit - 3 October 2006 Fostering Political Will for Food Security,* 2003. In addition, the same FAO report stresses that the increase in production in developing countries would come mainly from improved yield, and only 20 percent will come from the expansion of arable land. Herein lies one of the challenges as yield rate growth has halved in the last half century.[48] Amongst the challenges foreseen in meeting food demands, there is also the reliance on imports for food security of many countries, which would call for a "dependable market for food", as well as climate change and biofuels.[49] However, even with adequate supplies hunger can persist if safety nets are not put in place to ensure access to food, as can be seen when malnutrition and over nutrition are experienced at the same time within the borders of the same country.[50] Overall, the FAO resolves that, whilst the world has the resources and

[41] World Food Conference, *Universal Declaration on the Eradication of Hunger and Malnutrition,* 1973.
[42] Ministers of Agriculture of the G8 Countries ,*Final Declaration - Agriculture And Food Security At The Core Of The International Agenda,* 2009.
[43] Dupont Advisory Committee, *Agricultural Innovation & Productivity For The 21st Century Report And Recommendations*, 2011.
[44] Godfray et al, *The future of the global food system,* 2010.
[45] Godfray et al, *The future of the global food system,* 2010.
[46]FAO, IFAD, and WFP, *Reducing Poverty And Hunger: The Critical Role Of Financing For Food, Agriculture And Rural Development, 2002.*
[47] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.
[48] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.
[49] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.
[50] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.

the technology to meet demands, political will is quintessential in being able to ensure that every person have adequate access to food in 2050. [51]

The overarching question is whether we will be able to feed 9 billion by 2050. The world has the necessary tools, resources, and information to curb hunger and feed the world by 2050, but this will only be accomplished if political will is mobilized on the national and international level.

Will there be enough natural resources to feed 9 billion?

In the coming decades, the demand for natural resources is predicted to slowdown, compared to the past 50 years. [52] However, even with the deceleration of demand for food and feed, a rise in production of 70 percent will be required to meet demand in 2050 due to the increase in population and changing dietary needs.[53] Moreover, population and demand growth will compete with food production for natural resources.[54]

In recent decades, arable land has continuously been lost to urbanization and development; furthermore, urban population is expected to rise from 49 percent today to 70 percent in 2050.[55] This stresses the importance of increasing yield and sustainability to meet demands, especially when we take into account the arable land that is lost due to salinization or desertification.[56] In some developing countries, as much land has been lost through these two processes as has been made productive through irrigation and area expansion.[57] Thus, there is an increased need to make more food from less land, which, as we will see in the following part, can be done by using resources more efficiently and with less impact on the environment through methods such as conservation agriculture (CA).[58]

The bigger and more prosperous urban population will not compete with agriculture only for land, but it will also affect available water resources. At the moment, agriculture is the largest consumer of freshwater, constituting approximately 75 percent of human water use. However, urbanization will lead to more competition with worldwide household and industrial consumers.[59] While climate change will also affect the supply of water, it is expected that, at least until 2050, the agricultural water supply will be in higher competition with human factors than with climate change.[60] Studies have shown that while climate change will lead to more evaporation in some areas, it will also lead to more precipitation in others. [61] Also, what tends to not be included in water calculations is that water is needed to maintain functioning ecosystems and environmental flow requirements (EFR), and it will be increasingly difficult to maintain EFRs in certain areas without affecting agriculture.[62] Similar to the use of land, it is clear that increasing water efficiency in the production of food, as well as in other areas, is quintessential to the management of the resource base.

Within the array of non-agricultural resource use, a new competitor has emerged in recent years – bio-fuels. The necessity of renewable bio-energy has put agricultural policies under the spot light, and Member States such as the USA, who have thus far relied on foreign, non-renewable energy, have had debates between the public and policy-makers.[63] With the effects of the expansion of the ethanol industry on water and land resources, as well as climate change, policy-makers' policies will shape the future of the natural resource base available for food production.[64]

Le Vallée, *Ten years after the 1996 World Food Summit - 3 October 2006 Fostering Political Will for Food Security,* 2003.
[51] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.
[52] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.
[53] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.
[54] Dupont Advisory Committee, *Agricultural Innovation & Productivity For The 21st Century Report And Recommendations*, 2011.
[55] Godfray, *Food Security: The Challenge of Feeding 9 Billion People,* 2010.
[56] Godfray, *Food Security: The Challenge of Feeding 9 Billion People,* 2010.
[57] McCalla, *Agriculture and Food Needs to 2025: Why We Should Be Concerned*, 1994, p. 8.
[58] Hobbs, Sayre, and Gupta, *The role of conservation agriculture in sustainable agriculture*, 2008.
[59] Wallace, *Increasing agricultural water use efficiency to meet future food production*, 2000.
[60] Godfray, *The future of the global food system,* 2010.
[61] Godfray, *Food Security: The Challenge of Feeding 9 Billion People,* 2010.
[62] Godfray, *The future of the global food system,* 2010.
[63] World Resources Institute, *Biofuels Production and Policy: Implications for Climate Change, Water Quality, and Agriculture,* 2002.
[64] World Resources Institute, *Biofuels Production and Policy: Implications for Climate Change, Water Quality, and Agriculture,* 2002.

What is more, climate change, urbanization and economic growth do not only affect inanimate resources required for food production, they also threaten biodiversity.[65] Only a dozen species are needed to provide 90 percent of worldwide animal protein eaten, and only four types of crops account for half of the plant protein consumed by humans.[66] There is also the debate that has arisen surrounding the effects climate change, urbanization and pesticide use has had on honey bees, such as the European honey bee, which is a very valuable pollinator of agricultural crops worldwide in economic terms, with research predicting that although highly adaptable the species has and will be threatened by the stress of urbanization.[67]

With populations growing as much as they are and with economical transition which affect dietary needs happening so fast, urbanization and climate change can be seen as the biggest obstacle holding the world back from being able to feed all its people.[68] Urbanization takes labor force away from agriculture, diversifies and increases the nutritional value of the food demands, increased demand for fuels, including bio-fuels and contributes to diminishing the arable land surface and other basic resources, such as water, that are required for agriculture.[69]

Necessary steps towards feeding 9 billion

Internationally

If the world is to produce enough food to feed 9 billion, we cannot rely on an increase in resource consumption, but rather on an amplification of resource use efficiency. [70] Ever since the Green Revolution first began in the 1960s, agricultural research and development has been key to increasing crop yield.[71] Conventional plant breeding approaches were used to cross plants with various genetic backgrounds in order produce "plants/varieties with improved characteristics such as higher yields, improved disease resistance, improved nutritional quality."[72] With help from the international public sector, local plant breeders gained access germplasts from worldwide sources, which had huge impacts on crop development. Due to this, wheat yields improved by 208 percent from 1960 to 2000, and maize yields increased by 157 percent in the same period.[73] Developing countries benefited greatly from the spillover of benefits from investments in crop development made outside their countries, and this was due to international germplast networks. [74] However, while in the first two decades of the Green Revolution public investments were the main source for research and development into productivity growth and nutritional improvements, at the start of the 1990's, the public sector recognized the economic viability of the seed industry.[75] Now it is the private sector in the developed world who invests the most in biotechnology research and development, and evidence shows that only China, India and Brazil have invested extensively in adequate agricultural public research programs. [76]

The majority of developing countries have to rely on access to transgenic technologies through market mechanisms as they do not invest themselves in research, this process may or may not be best suited for poor farmers. [77] However, existing private research could benefit poor farmers but only if agreements are made so that the public sector can use and adapt already privately researched biotechnologies.[78] Researchers Pingali and Traxler have proposed three possible ways for the public sector in developing countries to gain access to biotechnologies, as exchange systems similar to those created for germplasts might not work due to the "proprietary nature of the technology": gain direct access to private or public-sector transgenic varieties developed internationally, develop an independent capacity to expand transgenic varieties, and collaborate regionally to develop and adjust transgenic varieties.[79] Many developing

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[65] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.
[66] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.
[67] Le Conte and Navajas, *Climate change: impact on honey bee populations and diseases*, 2008.
[68] World Population Awareness. *Sustainability, Carrying Capacity, and Overconsumption,* 2011.
[69] World Population Awareness. *Sustainability, Carrying Capacity, and Overconsumption,* 2011.
[70] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005.
[71] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005.
[72] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005, p. 2.
[73] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005.
[74] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005.
[75]Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005.
[76] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005.
[77] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005.
[78] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005.
[79] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005, p. 7-8.

countries also lack any regulatory capacities to evaluate biosafety. [80] As has been seen by the European Union's implementation of stringent regulations regarding genetically modified organisms, agricultural biotechnology research is necessary not only to allow access to biotechnology but also for developing policies regulatory bodies which supervise the biosafety imports and usage of these technologies, such as the European Food Safety Authority.[81]

The issue at hand is not only whether we can produce enough to feed 9 billion but whether we can actually get the food to them. In order to make sure 9 billion people have actually access to food governments should work together towards a global market for food which is reliable and dependable whilst also incorporating safety measure that protect the most vulnerable. As the occurrence of food spikes is likely to increase, the issues and concerns of countries that depend on imports for their food need to be addressed. For example, the creation of international financing mechanisms dedicated to food import would be one of the possible solutions.[82]

Regionally

Regionally, the yield gap, the difference between what could be produced and what is being produced locally, could also be narrowed with improved access to technologies and management practices as well as education for farmers and policy reforms. Biotechonologies, along with allocating more resources to public agricultural research and development, governments should also encourage the private sector to collaborate with public researchers on improving crops and their nutritional value. Consequently, governments should increase farmers' access to the benefits of biotechnology research such as improved seeds.[83]

In terms of long term environmental sustainability, as well as increased yield, the FAO refer to conservation agriculture (CA) which is one of the methods which promotes minimal soil disturbance, mulching and crop rotation. CA is defined by the FAO as a practice, which "aims to conserve, improve and make more efficient use of natural resources through integrated management of available soil, water and biological resources combined with external inputs."[84] The FAO also underlines its contribution towards environmental conservation and an enhanced sustainable agricultural production, although the short term disadvantage of this method would be the logistics behind setting up a completely new system, such as acquiring new equipment and educating farmers on the practice.[85] Without adequate tools and practice, CA can lead to unsatisfactory results in crop yields, which is why it is quintessential that CA equipment is developed and adapted to the difference in needs and ability that small farmers have compared to large scale farmers.[86] Study cases in Bolivia and Brazil have shown that availability of equipment and implementation of CA should not be a problem as long as farmers, local manufacturers and extensionists collaborate.[87] Unfortunately, research by the Cornell University Department of Crops and Soil Science has shown that it is not just lack of information and access to tools that prevents these practices from being more widespread, but also local reluctance to adopt something that goes against local traditional farming such as reducing levels of tillage.[88] As result governments should also invest in educating farmers on CA and other better suited practices for their countries.[89]

An example of another improved practice would be labour intensive techniques, which policy makers could promote since in many countries double and triple cropping are still relatively limited.[90] More labour intensive practices would include more frequent weeding and better land preparation. This would in turn lead to a higher demand for water resources, which could be met by infrastructural irrigation work and water management, thus creating a 'water-fertilizer-labour-intensive' technology, which has been used successfully in the rice fields of East Asia.[91] To

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[80] Pingali and Raney, *From the Green Revolution to the Gene Revolution: How will the Poor Fare?*, 2005, p. 7-8.
[81] Prakash and Kollman. *Biopolitics in the EU and the U.S.: A Race to the Bottom or Convergence to the Top?,* 2003.
[82] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.
[83] Dupont Advisory Committee, *Agricultural Innovation & Productivity For The 21st Century Report And Recommendations*, 2011.
[84] FAO, *What is Conservation Agriculture?*, 2011.
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[86] Hobbs, Sayre, and Gupta. *The role of conservation agriculture in sustainable agriculture,* 2008.
[87] Hobbs, Sayre, and Gupta. *The role of conservation agriculture in sustainable agriculture,* 2008.
[88] Hobbs , Sayre, and Gupta. *The role of conservation agriculture in sustainable agriculture,* 2008.
[89] Hobbs, Sayre, and Gupta. *The role of conservation agriculture in sustainable agriculture,* 2008.
[90] Giovanni, *Farm Size, Land Yields and the Agricultural Production Function: An Analysis for Fifteen Developing Countries,* 1985.
[91] Giovanni, *Farm Size, Land Yields and the Agricultural Production Function: An Analysis for Fifteen Developing Countries,* 1985, p. 532.

help develop CA in their countries, but also to improve yield in general through other practices, governments could also create financing mechanism so that farmers could afford the tools to create more as well as invest in extension.[92]

Smaller farmers would also benefit from policies that would tackle the monopolization of resources by large-scale farmers through a land reform, thus addressing hunger and poverty regionally.[93] Such reforms would have to be adapted to each countries capabilities but they are very likely to be beneficial in areas where there is more land available for redistribution.[94] Improving crop yield due to the previously mentioned increased performance of small farmers *vis-a-vis* large farmers, the reforms would also enhance the distribution of wealth and help labour absorption.[95] To help labour absorption another option is the creation of rural employment schemes, which would mobilize labourers who are seasonally idle to do other jobs. Although many such schemes have not been very successful, China and Japan have seen results with the labourers doing jobs like canal digging or deforestation during agricultural off-season.[96]

Again, measures would have to be taken regionally in order to allow the most vulnerable to have access to food. The afore mentioned measures, which improve employment rates, address poverty and give more resources and power to the rural poor would contribute to improved access but other policies could be beneficial too.[97] Underlining the importance of stable food markets and the positive impact trade liberalization would have, the FAO supports the reduction of the food markets access restrictions, which governments in developing countries still have in place.[98] Also, stronger regional cooperation in economic terms could lead to improved food safety regulations and commerce.[99]

Fostering political will

In, 1996 at the Rome World Food Summit, Dr. Jacques Diouf, Director-General of FAO, said, "We have the possibility to do it. We have the knowledge. We have the resources. And with the Rome Declaration and the Plan of Action, we've shown that we have the will."[100] Now, 15 years after the World Food Summit, the political will still needs to be mobilized to take the actions it agreed upon.[101] This mobilization needs to be done both nationally and internationally.

Nationally, it is public pressure that acts as a main driver to policy change and as such, it has the power to reform policies and affect institutions.[102] An example of how this works is China and Brazil's awareness that each of their trans-national societies are changing dietary needs. Both countries have started on a policy change pathway, which is to start from community advocacy and intervention to national programming.[103] Of course, civil society's power to advance change is also dependant on the conditions in which governments allow it to have power. Having internal peace, open and effective political processes and ensuring that food is not used as a political tool are all responsibilities that policy makers have to bear mind if communities are to be able to work towards relieving themselves from poverty and hunger.[104]

A clear success of the influential power of civil society is that of Brazil's Zero Hunger Policy, which was adopted in 2003 after processes, set in motion by communities. Also, in North America, InterAction, an umbrella group formed of relief non-governmental organizations has been successfully lobbying for policy change. It is also global factors

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[92] Dupont Advisory Committee, Agricultural Innovation & Productivity For The 21st Century Report And Recommendations, 2011.

[93] Dupont Advisory Committee, Agricultural Innovation & Productivity For The 21st Century Report And Recommendations, 2011.

[94] Dupont Advisory Committee, Agricultural Innovation & Productivity For The 21st Century Report And Recommendations, 2011.

[95] Giovanni, A. *Farm Size, Land Yields and the Agricultural Production Function: An Analysis for Fifteen Developing Countries,* 1985

[96] Giovanni, A. *Farm Size, Land Yields and the Agricultural Production Function: An Analysis for Fifteen Developing Countries,* 1985

[97] Giovanni, A. *Farm Size, Land Yields and the Agricultural Production Function: An Analysis for Fifteen Developing Countries,* 1985

[98] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.

[99] WSFS 2009/INF/2, *How to Feed the World in 2050*, 2009.

[100] FAO, *World Food Summit,* 2011.

[101] Ministers of Agriculture of the G8 Countries ,*Final Declaration - Agriculture And Food Security At The Core Of The International Agenda,* 2009.

[102] Le Vallée, *Ten years after the 1996 World Food Summit - 3 October 2006 Fostering Political Will for Food Security,* 2003.

[103] Le Vallée, *Ten years after the 1996 World Food Summit - 3 October 2006 Fostering Political Will for Food Security,* 2003.

[104] Le Vallée, *Ten years after the 1996 World Food Summit - 3 October 2006 Fostering Political Will for Food Security,* 2003.

that affect national policy reform and the improvement of institutions as they have the power to influence countries that are backed by international bodies and civil society.[105] International factors can influence local policies on a number of levels as can be seen in the case of the North American and West European farm subsidies, which the World Bank, after realizing their negative effects on the world food market, is now advocating against.[106]
The food security in Southern Africa, notably Zimbabwe, stands testimony to how lack of political will can hinder access to food. Caused by a combination of national policies, structures and process, which inhibited rational development plans and action, the food crisis was worsened by inaction and inability to compensate for the lack of national political commitment to reform.[107]

Case study: Brazil's Zero Hunger Policy (ZHP)

Entitled Fome Zero (Zero Hunger), the Brazilian policy which aimed to ensure that all citizens of Brazil ate three meals a day, stands as an example not only to the power of communities but also to what can be achieved when there is the political will to implement change.[108] Local Brazilian Government representatives and FAO researchers alike have agreed that the ZHP has been an immense success in its eight years of running both in terms of fighting hunger and ensuring food security as well as in shedding light on some of the issues a country the size of Brazil has to face when implementing such a policy.[109]
The policy itself focused on 20 initiatives which can be divided into four main areas of action: "food access; strengthening of family agriculture; income generation; articulation, mobilization, and social control."[110] In doing so it created more specific policies, such as the Food Stamp Program, whose aim was to give food stamps to people living on less than one dollar a day. Other examples of initiatives were donating emergency food baskets to people living on low energy diets, preventing child malnutrition by helping mothers to be and babies less than one year old, and developing educational programs regarding food and food consumption. [111]
The results of the ZHP, which has also successfully blended local measures with national actions, have been extraordinary.[112] Brazil has already met the First Millennium Development Goal, that of eradicating extreme hunger and poverty by 2015.[113] Research also shows that between 2003 and 2009, 20 million people were lifted from poverty, and that the percentage of children under five years weighing less than normal for their age dropped from 4.2 in 1996 to 1.8 in 2006.[114] Currently, the ZHP is also being analyzed for its applicability in all Latin American countries.[115]

Conclusion

When researching this topic, delegates should focus on a wide array of questions which would tackle issues such as building up political will, locally and internationally; examining adequate pathways to reform; educating people on sustainable agriculture; adapting success stories to more diverse physical and social environments; ensuring the most vulnerable have access to food. Some more specific questions to be taken into account would be: Do governments have an incentive for creating relevant licensing agreements? Could licensing agreements be designed that would allow the public sector to use private sector research and technologies in order to ensure the most vulnerable have access to food?[116] How can communities be empowered to impose policy reform?

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[105] Le Vallée, *Ten years after the 1996 World Food Summit - 3 October 2006 Fostering Political Will for Food Security,* 2003.
[106] Le Vallée, *Ten years after the 1996 World Food Summit - 3 October 2006 Fostering Political Will for Food Security,* 2003.
[107] Bird, Booth and Pratt, *Food Security Crisis in Southern Africa: The Political Background to Policy Failure*, 2003.
[108] Grazianodasilva. *Revisiting Zero Hunger,* 2011.
[109] FAO, Ministry of Agrarian Development - Brasil, NEAD. *The Fome Zero (Zero Hunger) The Brazilian experience,* 2011.
[110] International Policy Centre for Inclusive Growth - Press Room. *The Implementation of Brazil's Food Security Policies,* 2011.
[111] FAO, Ministry of Agrarian Development - Brasil, NEAD. *The Fome Zero (Zero Hunger) The Brazilian experience,* 2011
[112] International Policy Centre for Inclusive Growth - Press Room. *The Implementation of Brazil's Food Security Policies,* 2011.
[113] International Policy Centre for Inclusive Growth - Press Room. *The Implementation of Brazil's Food Security Policies,* 2011.
United Nations General Assembly, United Nations General Assembly Resolution 55/2. United Nations Millennium Declaration, 2000.
[114] International Policy Centre for Inclusive Growth - Press Room. *The Implementation of Brazil's Food Security Policies,* 2011.
[115] FAO, Ministry of Agrarian Development - Brasil, NEAD. *The Fome Zero (Zero Hunger) The Brazilian experience,* 2011.
[116] FAO - Economic and Social Development Department, *The state of food and agriculture 2003-04*, 2004.

Annotated Bibliography

I. Increasing Agricultural Productivity: Feeding 9 billion by 2050

Dupont Advisory Committee (2011). *Agricultural Innovation & Productivity For The 21st Century Report And Recommendations*. US: Dupont.

This Dupont Advisory Committee Report summarizes the challenges facing food security in the next decades along with recommendations on how to engage with them. As it is one of the world's top ten largest chemical companies, the paper is a good source for delegates to get a private sector view on the topic at hand. The recommendations the advisory make cover all the issues necessary to achieve food security, amongst which the mobilization of political will, the reforming of policies and supporting small farmers.

Godfray, C. et al.. (2010). The future of the global food system. *Philosophical Transactions of the Royal Society*. 365, 2769-2777.

In this article the author has summarized a series of scholarly reports concerning the key factors which will play a role in the food system during the next four decades. The paper explores issues such as demand for food, food production and exogenous factors such as climate change. Its conclusions are that food security is only to be achieved given the advancement and availability of technologies which is directly influenced by political will .

FAO - Economic and Social Development Department (2004). *The State Of Food And Agriculture 2003-2004 Agricultural Biotechnology Meeting the needs of the poor*. Rome: FAO. Retrieved September 04, 2011, from: http://www.fao.org/docrep/006/Y5160E/Y5160E00.htm

This publication by the FAO's Economic and Social Development Department discusses the use of biotechnology in alleviating hunger. As such, it uses an array of research to make recommendations on how biotechnology can be used to lift the most vulnerable from poverty. Delegates will find that this compilation of reports, data and statistics, provides a good basis for understanding the advantages and disadvantages of biotechnological research.

FAO, Ministry of Agrarian Development - Brasil, NEAD (2011). *The Fome Zero (Zero Hunger) The Brazilian experience* . Brazil: FAO. Retrieved September 04, from: http://www.nead.gov.br/portal/nead/nead-especial/?page=2

This book summarizes the effects of Brazil's ZHP in terms of the social and economic improvements it has made as well as in terms of its failures and shortcomings. The work describes the ZHP in detail, from policy reform to stages of implementation. Delegates will also find useful the section in which the possibility and adaptability of the policy in Latin America is discussed.

Le Vallée, J.C. (2006). *Ten years after the 1996 World Food Summit - 3 October 2006 Fostering Political Will for Food Security*. Retrieved August 15, 2011 from: http://www.sarpn.org/documents/d0002192/Le-Vallee_Food-security_Oct2006.pdf

This is a review of the progress world leaders made with regards to alleviating hunger during the first decade after the 1996 World Food Summit. The author, Co-Founder/Member of Food Secure Canada, stresses the need for food security policy development mechanisms as well as for increase awareness on the key issues that need to be taken into account when developing food security policies. The three main parts of the paper refer to recent political developments regarding the topic, their effects, the current willingness of governments to tackle the issue of hunger and the possibility for building more political will.

Ministers of Agriculture of the G8 Countries (18 to 20 April 2009). *Final Declaration - Agriculture And Food Security At The Core Of The International Agenda*. Cison di Valmarino: G8. Retrieved August 15, 2011 from: http://www.g8italia2009.it/static/G8_Allegato/FINAL_DECLARATION%5B1%5D,2.pdf

In this declaration Ministers of Agriculture from the G8 countries underline the importance of the agricultural sector and of tackling food security at an international level. The declaration addresses the effects the recent economical downturn has had on food security and proposes several measures for improving access to food worldwide.

Pingali, P. and T. Raney. (2005). *From the Green Revolution to the Gene Revolution: How will the Poor Fare?* Agricultural and Development Economics Division of the Food and Agriculture Organization of the United Nations. ESA Working Paper No. 05-09 (November), Retrieved August 15, 2010 from: ftp://ftp.fao.org/docrep/fao/008/af276e/af276e00.pdf

This paper analyzes the Green Revolution's strategy for food crop and how this strategy has been altered by the monopolizing of agriculture research and development investment by the private sector. Here, delegates will find a breakdown of the effects of the Green Revolution on the rural poor compared against the more recent development of transgenic technologies, which has been less publicly available.

United Nations, United Nations General Assembly Resolution 55/2. United Nations Millennium Declaration, adopted at the 8th Plenary Meeting, 18 September 2000. Retrieved August 21, 2011, from: http://www.un.org/millennium/declaration/ares552e.pdf

This is the Resolution in which the GA's 8th Plenary adopted the MDGs. Along with stating all the goals, the resolution contains an expressed desire to promote gender equality, support youth in finding employment, encourage drug availability in developing countries at lower prices, develop partnerships to address poverty and ensure that technological advancements become available to everyone.

World Food Conference. (resolution 3180 (XXVIII) of 17 December 1973). *Universal Declaration on the Eradication of Hunger and Malnutrition* . Retrieved September 04 from: http://www2.ohchr.org/english/law/malnutrition.htm

Adopted on 16 November 1974 by the World Food Conference and only one page long, the Universal Declaration on the Eradication of Hunger and Malnutrition is an essential read for delegates as it stands testimony to the fact that whilst the knowledge is there for solutions to eradicate hunger and the right to be free from it has been acknowledged, without lack of political will these goals cannot be achieved.

WSFS 2009/INF/2. (2009). How to Feed the World in 2050. *Feeding the World, Eradicating Hunger, World Summit on Food Security*, Rome 16-18 November. Retrieved September 04 from: http://www.fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf

Written by the FAO, as a result of the How to Feed the World in 2050 High Level Expert Forum, this paper is a perfect summary of the issues threatening global food demands, productivity and access. The source tackles issues such as the natural resource base and food security, and delegates will also find a list of prerequisites for meeting the challenge including an analysis on the mobilization of political will regarding the topic.

II. Impact of Biotechnology and Food Security

"Food is a basic right. Food and nutritional security are the foundations of a decent life, a sound education and the achievement of the Millennium Development Goals."[117]

Introduction

At the 2009 Food Security Summit, Secretary-General Ban Ki-moon proclaimed that on "this day, more than 17,000 children will die of hunger. Once every five seconds. Six million children a year. […] today more than one billion people are hungry. This is not acceptable."[118] Food security has been prioritized to such an extent that it has been folded into the first Millennium Development Goal, to eradicate extreme poverty and hunger.[119] Biotechnology has been introduced as one method of combating hunger and ensuring food security. Biotechnology also offers several

[117] Moon, *Opening Remarks at Food Security Summit*, 2009.
[118] Moon, *Opening Remarks at Food Security Summit*, 2009.
[119] UN, *Millennium Development Goals*.

additional benefits, including higher crop yields, protection against insects, disease, and other threats, and in some cases more nutritious and tastier food.[120]

Biotechnology is an overarching term that has been defined by some academics as "the use of a living organism or its products for commercial purposes," and that may help supplement general health by infusing fruits, vegetables, grains, and other foodstuffs with nutritional benefits otherwise not found in nature.[121] The 1992 Convention on Biological Diversity officially defines biotechnology as "any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify products or processes for specific use."[122] More colloquially, modern biotechnology has been understood to generally mean "modification of living organisms (plants, animals, and fish) through the manipulation of genes."[123] As biotechnology is a far-reaching and multifaceted term, the Food and Agricultural Organization (FAO) has distinguished two separate types of biotechnology: (1) the use of genetic information to alter current plant and animal breeding practices (i.e. speeding up the process, manipulating a specific characteristic, etc.) and (2) creating an altogether new organism by modifying genetic patterns in plants or animals (these are called genetically modified, or GM crops).[124]

For years, biotechnology has included physical manipulation such as cloning, but the international community is now making more sophisticated molecular alterations.[125] Indeed, today's manipulation of organisms does not only occur at a visual level but at a smaller molecular level (i.e. changing the genetic composition of the organism).[126] In other words, scientists are physically selecting desired characteristics of an animal or plant and injecting these desired characteristics into organisms.[127] For example, research is being conducted in Syria to improve lentils' tolerance cold weather, and scientists have inserted a bacteria gene that "produces an insect-killing toxin" inside of cotton and maize in an effort to reduce the need for pesticides.[128]

Biotechnology's Capacity to Help the Hungry

One of the primary purposes of biotechnology is to help the hungry by making agricultural practices easier, cheaper, more convenient, and/or have higher yields.[129] Ismail Serageldin writes, "Poverty continues to limit access to food, leaving hundreds of millions of people undernourished in developing countries. Biotechnology – one of many tools of agricultural research and development – could contribute to food security by helping to promote sustainable agriculture centered on smallholder farmers in developing countries."[130] Research and development (R&D) focused on enhancing crop traits is also facilitating the development of crops that are resistant to droughts and tolerant to detriments like salt, thereby paving the way for more resilient crops.[131]

The Food and Agricultural Organization (FAO) has conducted research on biotechnology and its impact on developing communities and has concluded that "the current economic downturn plus the effects of climate change both reinforce the need to extend the effectiveness of crop improvement and management programs."[132] While biotechnologies aid in reinforcing crop improvement, controversies associated with the implications of biotechnology (potential adverse health effects, etc.) and "best fits" for particular regions complicates decision-making.[133]

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[120] University of Arizona, *Biotechnology and Food*, 2008.
[121] University of Arizona, *Biotechnology and Food*, 2008.
[122] Food and Agricultural Organization, *Biotechnology and food security*.
[123] Food and Agricultural Organization, *Biotechnology and food security*.
[124] Food and Agricultural Organization, *Biotechnology and food security*.
[125] Biotechnology Institute, *What is Biotechnology?*
[126] Biotechnology Institute, *What is Biotechnology?*
[127] Biotechnology Institute, *What is Biotechnology?*
[128] Food and Agricultural Organization, *Biotechnology and food security*
[129] Serageldin, *Biotechnology and Food Security in the 21st Century*, 1999.
[130] Serageldin, *Biotechnology and Food Security in the 21st Century*, 1999.
[131] Food and Agricultural Organization, *Biotechnology and food security*.
[132] Food and Agricultural Organization, *Agricultural biotechnologies in developing countries: Options and opportunities in crops, forestry, livestock, fisheries, and agro-industry to face the challenges of food insecurity and climate change*, 2010.
[133] Food and Agricultural Organization, *Agricultural biotechnologies in developing countries: Options and opportunities in crops, forestry, livestock, fisheries, and agro-industry to face the challenges of food insecurity and climate change*, 2010.

One of the arguments in favor of adopting biotechnology as a tool capable of strengthening agricultural practices and ultimately aiding the hungry is that biotechnology offers an alternative to conversion of land for agricultural use.[134] The Food and Agricultural Organization (FAO) contends, "Even with improved food distribution and access, food security cannot be achieved without dramatic increases in crop production made possible by biotechnology – converting more land for agricultural use is unsustainable."[135] The FAO further notes that new and exciting opportunities for increasing crop yields, adding otherwise absent nutritional benefits, mitigating the threat insects pose to crops is made possible by genetic engineering.[136]

Case Studies of Biotechnology in Agriculture

Sorghum and Millet in West Africa

Biotechnology has been applied to sorghum and millet in West Africa in an attempt to combat regional hunger, especially given the geographical significance of these crops.[137] IDK Atokple agrees: "Sorghum and millet are essential to diets of the poor in semi-arid tropics where droughts cause frequent failures of other crops. They are most important in West Africa, taking about 70% of total cereal production."[138] A projection of sorghum production into the future indicates declining rates of sorghum production despite a growing demand, thereby creating an impending food crisis.[139] As a result, various National Agricultural Research Systems (NARS) studies have focused on enhancing sorghum and millet breeding in West Africa.[140]

Initially researched and developed throughout the late twentieth century, sorghum conversion programs "continue to be one of the major sources of new strains of sorghum throughout the world."[141] Sureno, for example, is a widely used mold-resistant strain of sorghum.[142] Another strain called SRN39 is resistant to Striga, a parasitic weed.[143] Finally, Malisor 84-7 is a largely bug-resistant strain of sorghum; and CS 3541 Macia is high-yield and is easily adapted.[144] These and other hybrid strains of sorghum were introduced into Burkina Faso, Mali, Niger, and Nigeria from 1960 to 1980, and in virtually all of these locations hybrid sorghum has seen tremendous improvements in yield – as much as 20% to 60%.[145] As the development of hybrid strains continue, the disparity between hybrid sorghum yields and conventional sorghum yields grows larger in favor of hybrid strains.[146]

Additional R&D has been specifically geared toward breeding efforts intended to enhance grain quality, though currently this sector of R&D is incredibly small (approximately 3%, compared to the 97% of R&D geared toward improving grain yields with little consideration for quality).[147] However, food-related international organizations like FAO have recognized the need to place new priority on enhancing nutritional quality of GM sorghum in addition to simply increasing yields, particularly by manipulating the quality of the protein within GM sorghum.[148]

Though modest results have been achieved through improving grain quality and enhancing the disease resistance of strains of millet, several obstacles have precluded the full realization of biotechnology in Africa, namely that there is an underinvestment in agricultural science in Africa; that there is excessive regulation of biotechnology in almost all African countries; and that this overregulation discourages donors from assisting African NGOs and scientists.[149] Academics and UN officials nonetheless recognize the potential for biotechnology in Africa, claiming that "under

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[134] Food and Agricultural Organization, *Agricultural biotechnologies in developing countries: Options and opportunities in crops, forestry, livestock, fisheries, and agro-industry to face the challenges of food insecurity and climate change*, 2010.
[135] Food and Agricultural Organization, *Agricultural biotechnologies in developing countries: Options and opportunities in crops, forestry, livestock, fisheries, and agro-industry to face the challenges of food insecurity and climate change*, 2010.
[136] UNCTAD, *Key Issues in Biotechnology*, 2002.
[137] Atokple, *Sorghum and Millet Breeding in West Africa in Practice.*
[138] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[139] Atokple, *Sorghum and Millet Breeding in West Africa in Practice.*
[140] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[141] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[142] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[143] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[144] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[145] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[146] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[147] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[148] Atokple, *Sorghum and Millet Breeding in West Africa in Practice*.
[149] Paalberg, *Starved for Science: How Biotechnology is Being Kept Out of Africa*, 2008.

the right circumstances, modern agricultural biotechnology can contribute much to increased food security and better health in African countries by speeding agricultural productivity."[150]

Bt Cotton in India

India has also managed to significantly improve crops through implementing biotechnology.[151] The Asia-Pacific Consortium on Agricultural Biotechnology writes, "The first approval of Bacillus thuringiensis (Bt) cotton cultivation in India was granted in 2002, and since from 2002 to 2006, 20 Bt cotton hybrids, presently covering an area of approximately 1.3 million hectares, have been commercialized."[152] These GM cotton strains have several key benefits, including pest resistance (thereby mitigating the need for pesticides) and economic benefits for small-scale, local farmers.[153]

One of the biggest threats to cotton production in India is susceptibility to insect invasion, particularly the bollworm.[154] Beginning in the 1990s, genetic engineering in India has been leveraged to improve bollworm resistance has since resulted in the development of 40 cotton hybrids with genes for bollworm resistance.[155] Variations of Bt cotton are specifically modified to produce a protein that is toxic to bollworms. The key takeaway here, again, is the reduced need for pesticides and insecticides.[156]

In recognition of biosafety concerns, compositional analyses, allergenicity studies, and toxicological studies were conducted to determine safety of Bt cotton.[157] The outcome of these studies were that not only was Bt cotton safe, but economically advantageous compared to conventional strains of cotton. Conducted studies demonstrated that "there was a 78.8% increase in the value due to yield and 14.7% reduction in pesticide cost with the growing of Bt cotton as compared to non-Bt cotton."[158] Consecutive with this reduction in pesticide cost, the advancements also allowed for higher cotton yields, ultimately creating greater economic opportunity for Indian cotton farmers.[159]

Rice Biotechnology in Asia

Finally, rice biotechnology has been utilized in Asia with attempts of improving yields and combating hunger in Asia. The significance of rice in Asia is captured by Edilberto Redona, who writes, "Rice is the staple food for more than three billion people and provides 27% of dietary energy and 20% of dietary protein in the developing world. Of the 840 million people suffering from chronic hunger, over 50% live in areas dependent on rice production."[160]

During the Green Revolution the price of rice has significantly increased, and about 84% of this intense growth can be attributed to modern farming technologies and the implementation of several genetically modified strains of rice. These include but are not limited to rice that is "non-photoperiod sensitive" (meaning that they can be planted more than once per year) and strains that are especially responsive to fertilizer.[161] With the implementation of highly-resistant faster-growing strains of rice, rice-production cost per unit output was reduced 10%, ultimately translating into reduced prices at the consumer level – thereby making food consumption cheaper.[162] As a result, increased production has reduced rice prices by over 80% in twenty years.[163]

R&D further enhancing GM rice is currently underway, particularly through reduction of water-intake. Rice consumes twice the water that other crops like corn and wheat do, for example.[164] Redona agrees, stating "As drought is one of the main constraints to high yields also in rain-fed-production systems in both the lowlands and the

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[150] Paalberg, *Starved for Science: How Biotechnology is Being Kept Out of Africa*, 2008.
[151] Asia-Pacific Consortium on Agricultural Biotechnology, *Bt Cotton in India*, 2006.
[152] Asia-Pacific Consortium on Agricultural Biotechnology, *Bt Cotton in India*, 2006.
[153] Asia-Pacific Consortium on Agricultural Biotechnology, *Bt Cotton in India*, 2006.
[154] Asia-Pacific Consortium on Agricultural Biotechnology, *Bt Cotton in India*, 2006.
[155] Asia-Pacific Consortium on Agricultural Biotechnology, *Bt Cotton in India*, 2006.
[156] Asia-Pacific Consortium on Agricultural Biotechnology, *Bt Cotton in India*, 2006.
[157] Asia-Pacific Consortium on Agricultural Biotechnology, *Bt Cotton in India*, 2006.
[158] Asia-Pacific Consortium on Agricultural Biotechnology, *Bt Cotton in India*, 2006.
[159] Asia-Pacific Consortium on Agricultural Biotechnology, *Bt Cotton in India*, 2006.
[160] Redona, *Rice Biotechnology for Developing Countries in Asia*.
[161] Redona, *Rice Biotechnology for Developing Countries in Asia*.
[162] Redona, *Rice Biotechnology for Developing Countries in Asia*.
[163] Redona, *Rice Biotechnology for Developing Countries in Asia*.
[164] Redona, *Rice Biotechnology for Developing Countries in Asia*.

uplands, there is a need to increase water productivity of rice."[165] Further, unlike Bt strains of cotton in India, most genetically-altered variations of rice in Asia is still vulnerable to various pests and diseases.[166]

Biotechnology and Food Security

Several academics have drawn attention to criticisms of biotechnology, particularly that biotechnology is not as capable of achieving food security as proponents claim.[167] For example, it has been remarked, "most innovations in agricultural biotechnology have been profit-driven rather than need-driven and that the real thrust of genetic engineering is not to make developing countries more prosperous but rather to generate profits."[168] According to critics, major producers of GM soybeans like Monsanto "will require farmers to buy its brand of inputs and will forbid farmers from keeping or selling seed and by controlling germplasm from seed to sale, and by forcing farmers to pay inflated prices for seed-chemical packages, companies are determined to extract the most profit from their investment."[169] Monsanto is but one example of this phenomenon. Several other corporations in corn, soy, and rice have been accused of disempowering small farmers through stringent control of agricultural products.[170]

The FAO has drawn similar conclusions about genetically modified food as being chiefly driven by profit motives, including that "the five largest plant biotechnology companies are all large multinational corporations with important interests in agro-chemical sales."[171] FAO noted that the majority of biotechnological research and development (R&D) takes place within rich Organization for Economic Cooperation and Development (OECD) countries, where private-sector interests are prioritized, insofar that public-sector R&D is largely conducted for the benefit of those private-sector firms.[172]

An additional argument against biotechnology as a mechanism capable of facilitating greater food security is that recent experiments have demonstrated that genetically engineered seeds do not actually increase crop yields; for example, one 1998 study concluded that "in 1998 yields were not significantly different in engineered versus non-engineered crops in 12 of 18 crop/region combinations in the United States."[173] A different study examined more than 8,000 field trials and determined that "Monsanto GM soybeans actually produced fewer bushels of soybeans than similar conventionally bred varieties."[174]

Some opponents also claim that GM crops also post an inherent risk to human health. Oppositional groups to biotechnology suggest that biotechnology – particularly gene transfer and cross-pollination methods – may introduce new and otherwise absent allergens.[175] Genetic modification may also result in toxic compounds, endangering potential consumers.[176]

Finally, recent evidence suggests that there may be potential risks associated with eating foods with genetic manipulations. For example, newly introduced proteins in some GM crops may themselves act as allergens or toxins or reduce the food's overall nutritional quality (for example, herbicide resistant soybeans can contain less isoflavones, a nutrient in soybeans that is currently believed to protect women from cancer).[177]

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[165] Redona, *Rice Biotechnology for Developing Countries in Asia*.
[166] Redona, *Rice Biotechnology for Developing Countries in Asia*.
[167] Altieri and Rosset, *Ten Reasons Why Biotechnology Will Not Ensure Food Security, Protect The Environment, And Reduce Poverty In The Developing World*, 1999.
[168] Altieri and Rosset, *Ten Reasons Why Biotechnology Will Not Ensure Food Security, Protect The Environment, And Reduce Poverty In The Developing World*, 1999.
[169] Altieri and Rosset, *Ten Reasons Why Biotechnology Will Not Ensure Food Security, Protect The Environment, And Reduce Poverty In The Developing World*, 1999.
[170] Altieri and Rosset, *Ten Reasons Why Biotechnology Will Not Ensure Food Security, Protect The Environment, And Reduce Poverty In The Developing World*, 1999.
[171] Kropiwicka, *Biotechnology and food security in developing countries*
[172] Kropiwicka, *Biotechnology and food security in developing countries*.
[173] Kropiwicka, *Biotechnology and food security in developing countries.*
[174] Altieri and Rosset, *Ten Reasons Why Biotechnology Will Not Ensure Food Security, Protect The Environment, And Reduce Poverty In The Developing World*, 1999.
[175] UNCTAD, *Key Issues in Biotechnology*, 2002.
[176] UNCTAD, *Key Issues in Biotechnology*, 2002.
[177] Altieri and Rosset, *Ten Reasons Why Biotechnology Will Not Ensure Food Security, Protect The Environment, And Reduce Poverty In The Developing World*, 1999.

Biotechnology Capacity Building

According to FAO, "capacity building represents the main challenge in the safe application of modern biotechnologies in developing countries."[178] The main aim of FAO's role in capacity building for biotechnology has been to build human, institutional and policy development capacities within a country's main regulatory bodies in order to effectively handle the products of modern biotechnology (i.e. GM organisms and processed products).[179] On this note, FAO has executed numerous capacity building initiatives in biotechnology, including launching projects specifically designed to "assist countries and regions in building strong technical, institutional, and information-sharing capacities to ensure the safe use of modern biotechnologies and enhance sustainable agriculture and food production."[180]

Capacity building includes but is not limited to developing regulations, training personnel, upgrading infrastructure, improving communication, and enhancing public participation in biosafety.[181] FAO has also pioneered efforts in expanding awareness in areas like public communication and addressing consumer concerns about biotechnology.[182]

Conclusion

With recent statistics showing an increase in the number of a worldwide hungry population, FAO is actively committed to promoting the sustainable intensification of agriculture to reverse this trend through several multifaceted approaches, including but not limited to: helping to raise levels of nutrition by regular access to sufficient high-quality food; modernizing and increasing agricultural productivity through simple, sustainable tools and techniques; and improving lives of rural populations through the safe use of biotechnology.[183] The potential benefits of plant biotechnology and its ability to curb hunger and contribute to fulfilling the first Millennium Development Goal has already been generally acknowledged; though biotechnology, while it has seen success in enhancing food production opportunities in some developing countries, has in other circumstances received scathing criticisms and allegations of negative impacts on health, the environment, and economic opportunity for small-scale farmers.[184] The international community has remained dedicated to continued R&D prioritizing agricultural biotechnology feasibility, safety, and implementation through capacity-building in a variety of settings; and continued advancements in these and other areas are ultimately what can determine enhanced effectiveness of biotechnology and its ability to combat global hunger and contribute to achievement of the first Millennium Development Goal.

A series of questions remain: what should the foci of future R&D efforts be and how will they be funded? How can the international community ensure that regionally-specific biotechnologies are both affordable and available? How can potential hazardous health effects associated with some GMOs be effectively countered? The answer to these and more questions will be necessary for ensuring future advancements in biotechnology as a mechanism for combating hunger and achieving greater food security.

Annotated Bibliography

II. Impact of Biotechnology on Food Security

Altieri, M. and P. Rosset. (1999). *Ten Reasons Why Biotechnology Will not Ensure Food Security, Protect the Environment, and Reduce Poverty in the Developing World*. Retrieved September 1, 2011, from http://www.agbioforum.org/v2n34/v2n34a03-altieri.htm

This article is the primary criticism of biotechnology used in this background guide. The article draws attention to biotechnology as a mechanism for profit-maximization for multinational corporations rather than one in the best interest of the global poor and hungry, and contends that biotechnology has more adverse effects than it does positive ones. Delegates should use this guide

[178] FAO, *Building Biosafety Capacities*, 2009.
[179] FAO, *Building Biosafety Capacities*, 2009.
[180] FAO, *Building Biosafety Capacities*, 2009.
[181] FAO, *Building Biosafety Capacities*, 2009.
[182] FAO, *Building Biosafety Capacities*, 2009.
[183] FAO, *Building Biosafety Capacities*, 2009.
[184] Redona, *Rice Biotechnology for Developing Countries in Asia*.

as a starting point for learning about criticisms of biotechnology in order to learn how to address those criticisms and/or strengthen existing biotechnologies to avoid these shortfalls.

Asia-Pacific Consortium on Agricultural Biotechnology. (2006). *Bt Cotton in India – A Status Report*. Retrieved September 1, 2011, from http://www.parc.gov.pk/bt_cotton.pdf

This is an extensive case study that outlines genetically modified cotton in India. The journal particularly explores how biotechnology has been used to improve cotton harvesting in India, outcomes/success stories, and challenges in more effectively implementing biotechnology in India. Delegates should use this not only as a specific case study but to gain an understanding of the process by which biotechnology is developed and adopted in a country.

Food and Agricultural Organization. (n.d.) *Biotechnology and Food Security*. Retrieved September 1, 2011, from http://www.fao.org/worldfoodsummit/english/fsheets/biotech.pdf

This document is a formal statement by FAO on biotechnology's capacity to impact food security. The statement recognizes some of the controversies associated with biotechnology and genetically modified foods but promotes biotechnology as a mechanism of achieving greater food security, particularly in developing countries. Delegates should use this as one of their first and primary sources for learning about the link between biotechnology and food security.

IDK Atokple. (n.d.). *Sorghum and Millet Breeding in West Africa in Practice*. Retrieved September 1, 2011, from http://www.afripro.org.uk/papers/Paper14Atokple.pdf

This article is another case study used by the background guide. Although the weakest of the three case studies, the article is a good representation of some of the challenges associated with biotechnology. The article draws attention to some of the obstacles that has precluded African countries from having better results with biotechnology, and makes recommendations on where future research and development needs to be invested. Delegates could use this source to discover gaps in biotechnology and innovate new solutions to address these gaps.

Kropiwnicka, M. (n.d.). *Biotechnology and food security in developing countries*. Retrieved September 1, 2011, from http://www.scienceandworldaffairs.org/PDFs/Kropiwnicka_Vol1.pdf

While not a country-specific case study, this is a good article on the way that biotechnology is being used in developing countries. It includes a section on collaboration between developed and developing countries in fostering rudimentary biotechnology programs, and what these relationships should look like. It makes general references to specific biotechnology being used in particular countries, but is not nearly as comprehensive as the case studies included in the background guide.

Paarlburg, R. (2009). *Starved for Science: How Biotechnology is Being Kept Out of Africa*. Retrieved September 21, 2011, from http://www.hup.harvard.edu/catalog.php?isbn=9780674033474

This source appropriately accompanies the African case study by calling attention to some of the obstacles that have precluded the full realization of biotechnology in Africa. It specifically calls attention to lack of incentives in donating technology and finances to ensure a sustainable biotechnology program in Africa. Delegates should use this in conjunction with the case study in this paper to learn about gaps that need to be filled in biotechnology efficacy.

Redona, E. (n.d.). *Rice Biotechnology for Developing Countries in Asia*. Retrieved September 1, 2011, from http://nabc.cals.cornell.edu/pubs/nabc_16/talks/redona.pdf

This article is another case study used within the background guide. This is a thorough and well-written article with statistics, facts, and figures on biotechnology's impact on rice in Asia, particularly through referencing rice production in specific Asian countries. The impact of genetically modified rice on levels of hunger in China is an example of the type of information found within the case study. Rice is one of the best success stories of biotechnology and its ability to combat hunger, and so delegates should use this to facilitate a discussion of practices that have worked.

Serageldin, I. (1999). *Biotechnology and Food Security in the 21st Century*. Retrieved September 1, 2011, from http://www.biotech-info.net/biotech_security.html

This article is another good source for delegates to consult on learning about how biotechnology specifically impacts food security. It includes a section on the history of biotechnology and specifically how genetically modified foods were developed and evolved over time. Delegates should use this source to gain a more scientific perspective on biotechnology.

United Nations Conference on Trade and Development. (2002). *Key Issues in Biotechnology*. Retrieved September 1, 2011, from http://www.unctad.org/en/docs/poitetebd10.en.pdf

This article is another helpful site that gives a basic overview on biotechnology. It draws attention to what biotechnology is, how it has been used historically, and provides recommendations for how it can be improved. It has a generally positive connotation (does not explore some of the criticisms of biotechnology). Delegates should use this site as a secondary starting point for learning about biotechnology and its basics.

University of Arizona. (2008). *Biotechnology and Food*. Retrieved August 31, 2011, from http://ag.arizona.edu/pubs/health/az1066.pdf

This article is an alternate perspective on biotechnology. Whereas the majority of other sources in this background guide are authored by UN bodies, this is an academic perspective on biotechnology. This site also has several citations to other academic journals on biotechnology, and so delegates should use this as a resource for further research by consulting those citations.

III. International Trade and Microbiological Hazards in Food

Introduction

The trend of the past few decades in the international food market has been to increase the amount of steps it takes to process food from its original source to its eventual sale to the consumer.[185] Although this industry-wide shift has made processing food a cheaper and more expedient process, it has also brought forth an array of new concerns regarding food safety.[186] Specifically, the technological advancements that make possible the production and trade of food on the international market also make food vulnerable to microbiological hazards that include bacteria, viruses, and parasites.[187]

An ominously increasing prevalence of disease outbreaks around the world has exacerbated concerns over food safety. For instance, in 2005, it is estimated that foodborne illnesses played a role in 1.8 million deaths worldwide.[188] A goal of the United Nations (UN) is to find solutions that improve the health and living standards of the global community.[189] In order to improve the longevity and life quality of members of the international community, changes must be made to the standards involved in food safety. Specifically, attention must be given to the food chain- or the processing of food along every stage from raw materials to use by the consumer. The Food and Agricultural Organization (FAO) must survey the international food market, analyze the effectiveness of current international food safety standards, and propose improvements that both prevent the outbreak of disease due to microbiological hazards in food and protect the economic interests of all Member States.

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[185] Kenny, *International Food Trade: Food Quality and Safety Consideration*

[186] Economic Commission for Latin America and the Caribbean, *Globalization and New Trends in International Trade*, 2007, pg. 69

[187] The International Commission on Microbiological Specifications for Foods, *A Simplified Guide to Understanding and Using Food Safety Objectives and Performance Objectives, 2006,* pg. *4*

[188] United Nations World Health Organization, *Food Safety and Foodborne Illness, Fact Sheet, No. 237, 2007*

[189] *The Charter of the United Nations*, 1945, Chapter IV, pg. 11

History of Attempts to Control Microbiological Hazards in Food

Uruguay Round of the General Agreement of Tariffs and Trade Agreements

Part of the solution to microbiological hazards in food products has been to implement global standards for food that is traded on the international market, as evidenced by the General Agreement on Tariffs and Trade (GATT). The GATT includes two of the first United Nations documents that set precedents regarding international food safety are the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TPS Agreement).[190]

The SPS Agreement encouraged Member States to set standards regarding food safety within their borders. However, these standards should be based only on scientific evidence and only for purposes of protecting the health of the population, of animals, or of plants.[191] These standards should also not be discriminatory between similar nations. [192] The SPS Agreement was also the first to discuss the precautionary principle regarding food safety—a measure that allows trade restrictions in cases where the scientific evidence is insufficient to prove or disprove the presence of a safety hazard, but a risk is suspected.[193]

The TBT Agreement included some of the same provisions as the SPS agreement. Like the SPS agreement, the TBT promotes the use of international safety standards regarding microbiological hazards in food as long as these standards do not interfere with trade. The TBT Agreement also encouraged Member States to recognize the validity of each other's safety regulations.[194] As a part of this provision, the TBT encourages Member States to have "enquiry points," or offices where information about safety standards and food testing can be available. [195]

International Standards

During the same decade that the SPS and TBT agreements were signed, providing general guidelines for the international trade of food and encouraging an international standard, the Codex Alimentarius Commission released the "Recommended International Code of Practice- General Principles of Food Hygiene." [196] This document officially endorsed the American-developed Hazard Analysis and Critical Control Point (HACCP) system as the international standard for food safety.[197] The HACCP system is based on assessing possible risks at each stage during the processing of a food and developing individual methods to prevent the risk of microbiological contamination.[198] In the next decade, the HACCP method was slowly incorporated into the International Organization for Standardization's ISO 22000.[199] The ISO is a leading standardizing system of goods and services that are traded on an international level.[200] The responsibility of oversight for implementing these international standards lies on either the private or public sector, depending on the individual Member State.[201]

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[190] United Nations World Trade Organization, *General Agreement on Tariffs and Trade*, 1947
[191] United Nations World Trade Organization, *Agreement on the Application of Sanitary and Phytosanitary Measures*, 1995, article 2, provision 1
[192] United Nations World Trade Organization, *Agreement on the Application of Sanitary and Phytosanitary Measures*, 1995, article 2, provision 3
[193] United Nations World Trade Organization, *Agreement on the Application of Sanitary and Phytosanitary Measures*, 1995
[194] United Nations World Trade Organization, *Agreement on Technical Barriers to Trade, 1995, article 10*
[195] United Nations World Trade Organization, *Agreement on Technical Barriers to Trade, 1995, article 1*
[196] The Codex Alimentarius Commission. *Recommended International Code of Practice- General Principles of Food Hygiene.* Rev. (1997), Amd. (1999)
[197] The Codex Alimentarius Commission. *Recommended International Code of Practice- General Principles of Food Hygiene.* Rev. (1997), Amd. (1999)
[198] The International Commission on Microbiological Specifications for Foods, *A Simplified Guide to Understanding and Using Food Safety Objectives and Performance Objectives, 2006,* pg. *4-6*
[199] Blanc, Didier, *ISO 22000:From Intent to Implementation,* ISO Management Systems *2006*
[200] *Faergemand, The ISO 22000 Series: Global Standards for Safe Food Supply Chains, 2008*
[201] Henson, *The Economics of Food Safety in Developing Countries*, 2003, pg. 30

The Food Chain Approach to Controlling Microbiological Hazards

Innovations in food manufacturing and processing technology have created more options for everyone involved in the food chain.[202] For instance, food-processing firms have a wider selection of where to purchase raw materials, retailers have more choice of where to purchase processed food, and so on.[203] Due to the tendency of food to be processed through a large number of intermediates, the opportunities for contamination have largely increased and oversight needs to be implemented at each stage of food production- from the extraction of animals or vegetables from the earth or sea to the purchase of said food by the consumer from a retailer.[204]

Case Study: The Chinese Dairy Sector

In the past two decades, the Chinese dairy sector has shifted to more efficient milk producing technologies in response to a rapid increase in the demand for milk.[205] During this period, China's largest milk powder production firm and the fifth largest distributor in the nation, the Sanlu Group, was investigated for the distribution of melamine-contaminated milk products throughout the world.[206][207] Worldwide, this incident of contamination caused illness in 300,000 individuals as well as six known deaths.[208] This was not an accidental case of contamination but a deliberate attempt by the Sanlu Group to cut costs and compete with other Chinese milk producers.[209] By using melamine to artificially raise the protein content of their milk products, the Sanlu Group could pass governmental inspections using a cheaper product.[210] Dr. Peter Embarek of the World Health Organization calls the event "a large-scale intentional activity to deceive consumers for simple, basic, short-term profits."[211] This particular instance exemplifies the lack of oversight that occurred in the industry. Had oversight been implemented at every stage of production, the raw material suppliers of milk may not have been able to deliberately risk the health and safety of their consumers.[212]

Like much of the modern food industry, the Chinese dairy sector has many possible risk points for food contamination. The raw suppliers of milk in China include both individual farmers who own as few as 3-4 cows at time and large farms that have characterized the industry.[213] Many of the cows that are raised in the expansive new farms are bred for superior genetics, are fed vitamins and supplements, and are milked and handled using machinery.[214] Chinese dairy processors collect milk through various methods such as intermediates called milk brokers, some via secondary transitional processing locations, and some directly from the source. From the dairy processer, the milk is sent to a variety of both local and international retailers who distribute milk to the consumers.[215]

In the aforementioned incidence of contaminated milk, melamine entered the system through the raw suppliers of milk, thus the contamination spread throughout 22 different companies and eventually in 69 different brands of dairy products.[216] The CAC's "General Principles of Food Hygiene" state that the measures taken to protect food from microbiological hazards should be taken at every level of the food chain because, as seen with the Chinese Dairy sector, contamination at one-step in the food chain can be detrimental even if safety standards are practiced at any other.[217]

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[202] Lillford, *Food Supply Chains: Recent Growth in Global Activity,* Innovation: Management, Policy, and Practice, 2008, pg. 29
[203] Lillford, *Food Supply Chains: Recent Growth in Global Activity,* Innovation: Management, Policy, and Practice, 2008, pg. 29
[204] Economic Commission for Latin America and the Caribbean, *Globalization and New Trends in International Trade*, 2007, pg. 69-70
[205] Fuller, Got Milk? The Rapid Rise of China's Dairy Sector and its Future Prospects. *Food Policy*, 2006, pg. 202
[206] Xiaojing, The Cause and Effect Analysis of the Melamine Incident in China, *Asian Journal of Agricultural Research*, 2011, pg. 176
[207] BBC News, *Tainted Milk Resurfaces in China,* 2010
[208] BBC News, *Tainted Milk Resurfaces in China,* 2010
[209] Xiaojing, The Cause and Effect Analysis of the Melamine Incident in China, *Asian Journal of Agricultural Research*, 2011, pg. 181-182
[210] BBC News, *Tainted Milk Resurfaces in China,* 2010
[211] United Nations Radio, *WHO and FAO Alert Governments to Contaminated Infant Formula*, 2008
[212] United Nations Radio, *WHO and FAO Alert Governments to Contaminated Infant Formula*, 2008
[213] Fuller, *Got Milk? The Rapid Rise of China's Dairy Sector and its Future Prospects*. Food Policy, 2006, 208
[214] Fuller, *Got Milk? The Rapid Rise of China's Dairy Sector and its Future Prospects.* Food Policy, 2006, 209
[215] *Gereffi, A Global Value Chain Approach to Food Safety and Quality Standards, 2009, pg. 23*
[216] United Nations Radio, *WHO and FAO Alert Governments to Contaminated Infant Formula*, 2008
[217] The Codex Alimentarius Commission. *Recommended International Code of Practice- General Principles of Food Hygiene.* Rev. (1997), Amd. (1999)

The Implementation of Food Safety Standards

The Burden of Safety

Another aspect of the problem of burden is that safety measures can be implemented by either private or public sector or by a combination of both.[218] Traditionally, safety standards that are implemented by the public sector are compulsory whereas standards that are implemented by the private sector are motivated by economic incentives such as consumer confidence.[219] The FAO Committee on Agriculture asserted that the regulation of food safety should be a partnership between both private and public sector with regards to an industry.[220] The 17th Session Committee on Agriculture states:

> *Diverse government ministries, such as public health, industry, consumer affairs, environment, agriculture and fisheries, are often jointly responsible for the development of official standards, technical regulations and enforcement of food safety. However, often it is the private sector that must make daily, practical decisions on investment, management and costs to ensure that food production, post-harvest treatment, processing and distribution comply with food safety standards.*[221]

Nonetheless, the FAO Committee on Agriculture states that the burden of responsibility "encompasses all stakeholders throughout the food chain," beginning with the food suppliers that first extract material from the ground or body of water and ending with the consumers who must be responsible for safe storage, preparation, and consumption practices.[222] In practice, it is often difficult to determine the liable party for an outbreak of contamination throughout the many different stages of food production.[223]

It is likely that, within the contexts of each industry, the private and public sectors face a different set of costs and benefits regarding the implementation of safety standards.[224] For instance, in least developed countries (LDCs), consumer demand is based heavily on price rather than perceived safety of food.[225] Thus, private industries that sell goods to low-income consumers have an incentive to sacrifice safety in order to keep prices as low as possible.[226] It is empirically true that lower income countries whose population spends a larger proportion of their income on food are more price-sensitive than are higher income countries. [227]

However, the public sector may be more interested in food safety because, in the long run, decreased incidents of diseases due to contaminated food strengthens the economy by creating a healthier work environment and encouraging exports by increasing international consumer confidence.[228] This is especially true if the public sector has the option to enforce, but not pay for, stringent and costly regulations.

Least Developed Countries

There has been much debate over whether food safety regulations pose too much of a burden on LDCs. This could be true for a number of reasons. For one, certain aspects of LDCs, such as poor water supply and insufficient mechanisms for sanitation, make food production inherently more hazardous.[229] Thus, it is a larger financial burden

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[218] United Nations Codex Alimentarius Commission, *The Impacts of Private Food Safety Standards and the Food Chain on Public Standard-Setting Processes, 2009, page 1*

[219] Henson, *The Role of Public and Private Standards in Regulating International Food Markets, 2006,* pg. *4-5*

[220] United Nations Committee on Agriculture, *Strategy for a Food Chain Approach to Food Safety and Quality: A framework document for the development of future strategic direction,* 2003, Chapter IV provision 32

[221] United Nations Committee on Agriculture, *Strategy for a Food Chain Approach to Food Safety and Quality: A framework document for the development of future strategic direction,* 2003, Chapter IV provision 32

[222] United Nations Committee on Agriculture, *Strategy for a Food Chain Approach to Food Safety and Quality: A framework document for the development of future strategic direction,* 2003

[223] United Nations Codex Alimentarius Commission, *The Impacts of Private Food Safety Standards and the Food Chain on Public Standard-Setting Processes, 2009, page 11*

[224] Smith, Gary, *The Interaction of Public and Private Standards in the Food Chain*, OECD Food, Agriculture, and Fisheries Working Papers No. 15, 2009, pg. 21

[225] Henson, *The Economics of Food Safety in Developing Countries*, 2003, pg. 25

[226] Henson, *The Economics of Food Safety in Developing Countries*, 2003, pg. 25

[227] Regmi, *Cross-Country Analysis of Food Consumption Patterns, 2001,* pg. *14*

[228] United Nations Committee on Agriculture, *Strategy for a Food Chain Approach to Food Safety and Quality: A framework document for the development of future strategic direction,* 2003

[229] Henson and Loader, *Barriers to Agricultural Exports from Developing Countries: The Role of Sanitary and Phytosanitary Requirements.* 2000, chapter 5

on LDCs to have the same safety standards as developed countries.[230] Furthermore, it is difficult to conduct the first step of food safety control, risk analysis, because LDCs may lack the institutions and facilities necessary to do so.[231]

Another issue to consider is that the demand for food in developed countries is much more likely to be based on perceived food safety than is demand for food in LDCs. Therefore, imposing equal standards on both industries in developed and LDCs creates much more of a burden on industries in LDCs because they have a much lower incentive otherwise to regulate the safety of their food. [232]

Finally, the FAO contends that the burden of food safety lies largely in the consumer to read labels and store, handle and cook food in a safe manner.[233] However, in LDCs information about food safety practices is much less likely to be available. In addition, food preparation is much more likely to be done in the home rather than by the food sector.[234] This decreases the instances where food is prepared by institutions that are trained in the safe handling of food and incentivized by legal obligations to handle food in a safe way.[235]

However, this is evidence to suggest that adopting safety standards increases the success of a firm in the food industry by promoting the wellbeing of population and reducing the economic costs of food-borne illnesses.[236] Thus, a balance must be sought between overwhelming industries in LDCs with the short-run costs of food safety regulations and allowing them to enjoy the long-run benefits of existing in an overall healthier and more productive economy.[237]

The Precautionary Principle

The precautionary principle, established by the European Union (EU), is designed to manage the risk to consumers and to the environment associated with food trade when there is insufficient scientific evidence to support or refute the presence of a safety hazard.[238] For a country to evoke the precautionary principle and implement a trading ban with another country there needs to be both a gap in scientific knowledge about the safety of a particular food and a suspected risk to consumers of food or to the environment.[239]

Some see the use of the precautionary principle to be a moral obligation of a country to protect its population from possible harm.[240] Some Member States make use of the precautionary principle because it is worth it to err on the side of caution in order to prevent a potential public health crisis.[241] However, the use of the precautionary principle has historically drawn criticism to that country's governance. [242]

For one, it is debated whether or not the use of the precautionary principle constitutes a shift in the burden of proof of food safety from the producers to the regulators in an industry.[243] Under the precautionary principle, instead of regulators having to prove that a food is unsafe before banning it, they have to prove that a food is safe before allowing it to be traded.[244]

It is also argued that the precautionary principle can be used as a political tool. It is stated that certain nations use it to ban trade for the purposes of protectionism, not for the safety of their consumers.[245] In 1989, the European Union

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[230] Henson and Loader, *Barriers to Agricultural Exports from Developing Countries: The Role of Sanitary and Phytosanitary Requirements.* 2000, chapter 5
[231] Henson, *The Economics of Food Safety in Developing Countries*, 2003, pg. 7-8
[232] Henson, *The Economics of Food Safety in Developing Countries*, 2003, pg. 7-8
[233] United Nations Committee on Agriculture, *Strategy for a Food Chain Approach to Food Safety and Quality: A framework document for the development of future strategic direction,* 2003
[234] Scott, *Food Safety and Foodborne Disease in 21st Century Homes*, The Canadian Journal of Infectious Diseases, 2003
[235] Henson, *The Economics of Food Safety in Developing Countries*, 2003, pg. 42
[236] United Nations Food and Agriculture Organization. *The Importance of Food Safety and Quality for Developing Countries.*
[237] Henson and Loader, *Barriers to Agricultural Exports from Developing Countries: The Role of Sanitary and Phytosanitary Requirements,* 2000, chapter 2
[238] Commission of the European Communities, *Communication from the Commission on the Precautionary Principle,* 2000
[239] Commission of the European Communities, *Communication from the Commission on the Precautionary Principle,* 2000
[240] United Nations Educational, Scientific, and Cultural Organization, *The Precautionary Principle, 2005,* pg. *17*
[241] United Nations Educational, Scientific, and Cultural Organization, *The Precautionary Principle, 2005,* pg. *18*
[242] United Nations Educational, Scientific, and Cultural Organization, *The Precautionary Principle, 2005,* pg. *42*
[243] *Lofstedt, The Precautionary Principle: Risk, Regulation and Politics, 2003, pg. 37-38*
[244] *Lofstedt, The Precautionary Principle: Risk, Regulation and Politics, 2003, pg. 1-2*
[245] *Lofstedt, The Precautionary Principle: Risk, Regulation and Politics, 2003, pg. 39*

famously declared a ban on any American growth hormone administered cattle.[246] While this type of Genetically Modified Organism (GMO) has been considered safe in America, the EU evoked the precautionary principle to preserve the safety of their consumers, leading critics to believe that the EU had the intention to protect its own beef farmers by banning beef from the USA. Although the EU's intents could be debated either way, the controversy brought up an important concern regarding the use of the precautionary principle—the possibility that Member States would use it for selfish means. [247]

Conclusion

The issue of microbiological hazards in food is a multifaceted issue that has social, political, and economic consequences for all Member States involved. Furthermore, due to the rapidly advancing technology involving food production, it is important to develop strategies that will adapt quickly to the industry.

While delegates research this topic, they should pay special attention to key aspects of international food safety that are still being debated. It may be beneficial to address the following questions: When it comes to possible hazards in food, should the "precautionary principle" be applied, or should the burden of proof that a food is harmful be on those who wish to ban it? How should the burden of food safety regulations on LDCs be addressed? What improvements can be made on the current regulation methods of microbiological hazards in food? Throughout the analysis of this topic, delegates should consider the individual incentives of each Member State and how the optimal level of welfare can be achieved.

Annotated Bibliography

III. International Trade and Microbiological Hazards in Food

Center for International Development at Harvard University. (2004). *Sanity and Phytosanitary Measures and Technical Barriers to Trade Summary.* Retrieved on August 28, 2011 from: http://www.cid.harvard.edu/cidtrade/issues/spstbt.html

This article places two crucial documents- the Sanitary and Phytosanitary Measures and Technical Barriers to Trade Agreements in the context of setting overall goals for international food safety initiatives. An understanding of how these two documents shaped the establishment of current international safety measures helps one to understand current debates on international food trade agreements, including the use of the precautionary principle and the burden of proof of safety. Furthermore, this document exemplifies how the SPS and TBT agreements are relevant to current debates- including the European Union's ban of Genetically Modified Organisms (GMOs).

Gereffi, G. and J. Lee, (2009). A Global Value Chain Approach to Food Safety and Quality Standards. Global Health Diplomacy for Chronic Disease Prevention Working Paper Series.

This document discusses the different types of food chains that exist in the food sector throughout the world. While understanding the differences between types of food chains can be very difficult, this document makes clear comparisons that highlight key differences in chain structures. Differences are noted between different countries and types of economies. With a clear understanding of the different types of food chains, one can analyze the complications involved in implementing safety standards throughout stages of the food chain. Furthermore, this document discusses the food chain analysis within the context of a few noted disease outbreaks related to food safety.

Henson, S. (2003). *The Economics of Food Safety in Developing Countries*. The Agricultural and Development Economics Division of the FAO: New York.

Spencer Henson's article explains the burden of food safety regulations within the context of an economic analysis of LDC's. Some of the main points that Henson covers are: the extra economic burdens that LDC's face when adhering to the same safety standards of developed countries, the difference in the demand for food in LDC's as opposed to developed countries, and the eventual benefits that LDC's experience when adhering to stringent safety standards and engaging in trade with developed countries.

[246] BBC News, *The Beef War*, 1999
[247] Lynch, *The Regulation of GMOs in Europe and the United States: A Case-Study of Contemporary European Politics,* 2001

The International Commission on Microbiological Specifications for Foods. (2006). *A Simplified Guide to Understanding and Using Food Safety Objectives and Performance Objectives.* Retrieved on August 7, 2011 from: www.icmsf.iit.edu/pdf/Simplified%20FSO9nov05.pdf

This document addresses how HACCP, the most widely used international standard for food safety, uses the principles of food safety objectives (FSOs) and performance objectives (POs) to protect consumers from microbiological hazards in food. Under the principles of HACCP, food has to meet certain standards at every stage of its production or else contamination at one area of the chain will cause contamination in the entire food source. This document provides examples for specific FSOs and POs to demonstrate exactly how HACCP is implemented within a food chain. Furthermore, this article explains how good agricultural practices (GAPs) and good hygiene practices (GHPs) are implemented in practicing HACCP to ensure the safety of consumers and to protect the environment.

Kenny, M. *International Food Trade: Food Quality and Safety Consideration*. Retrieved on September 23, 2011 from: http://www.fao.org/docrep/W9474T/w9474t02.htm

M. Kenny's article gives an economic context for the issues of food safety and international trade. For instance, the author discusses how the production of food is affected by the costs of production, the changing preferences of consumers, the introduction of new technologies, and the local production conditions. Furthermore, M. Kenny discusses the idea of "harmonization," or the convergence of the regulations of individual countries into one international standard.

Lofstedt, R. (2003). The Precautionary Principle: Risk, Regulation and Politics. The Institution of Chemical Engineers, 81 (Part B): 36-43.

This article explains the development of the precautionary principle from its use in the 1970s until the present day. The author takes a balanced look at both the benefits of the precautionary principle as well as its costs. The benefits that are explained in this article are the adherence to the safety of the nation's public, the responsiveness to a change in public perception of risk, etc. Some controversies that are analyzed are the shift in burden of proof of safety from the private to the public sector as well as the potential misuse of the precautionary principle. Overall, this article takes a comprehensive look at the history of the precautionary principle to predict its future use for food safety.

Orriss, G. and A. Whitehead, (2000) Hazard Analysis and Critical Control Point as a Part of an Overall Quality Assurance System in International Food Trade. *Food Control*. 11. 345-351.

In order to understand food safety, one must have a knowledge of HACCP- the most prominent international safety standard that exists. This article provides the reader a background of HACCP, including its establishment from the principles outlined in the SPS and TBT agreements and the theory behind its usage. More importantly, this document explains the tension between the public and private sectors in terms of how HACCP is to be practiced. Finally, this article briefly discusses the challenges of implementing HACCP in developing countries.

United Nations Codex Alimentarius Commission. (2009) *The Impacts of Private Food Safety Standards and the Food Chain on Public Standard-Setting Processes.* Retrieved on September 23, 2011 from: ftp://ftp.fao.org/codex/cac/CAC32/al329Dbe.pdf

This article explains the trend of shifting the burden safety standards from the public sector to the private sector. Specifically, this article discusses how the increased environmental and social awareness of firms naturally led to a shift in responsibility for food safety. Companies began to establish themselves as entities concerned with public safety and food quality. This article also discusses how and why food safety standards have become more stringent overall. Part of this trend is the increased relevance of the Codex Alimentarius Committee's work in establishing international safety standards that are increasingly implemented by private firms.

United Nations Food and Agriculture Organization. *The Importance of Food Safety and Quality for Developing Countries.* Retrieved on August 31, 2011 from: http://www.fao.org/trade/docs/LDC-foodqual_en.htm

This FAO article explains the importance of the growing food sector to the economies of developing countries. It assesses the problems developing countries face in establishing and maintaining food safety standards. These include the lack of infrastructure, sanitation, and general knowledge about food safety

that firms in developing countries experience. This article also delineates the different food safety control systems that are in place and explains where each is accomplishing its goals and where they fail to do so.

Xiaojing. (2011). The Cause and Effect Analysis of the Melamine Incident in China. *Asian Journal of Agricultural Research, 5: 176-185.* Retrieved on October 16, 2011 from: http://scialert.net/abstract/?doi=ajar.2011.176.185

Lu Xiaojing's article expands on the discussion of the Sanlu Group's milk contamination. The author describes the social and economic conditions that led to the incident as well as the already well-discussed lack of oversight regarding milk production safety. For one, Xiaojing points to the problem of asymmetric information, or a difference between what the Chinese population knew about the safety measures in dairy production and how these firms actually behaved. Furthermore, the author points out how purchases by low-income consumers are more price-sensitive than related to concerns about safety. This price-sensitivity incentivized the firms to take drastic measures in their attempts to control prices in production.

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Rules of Procedure
Food and Agriculture Organization

Introduction

1. These rules shall be the only rules which apply to the Food and Agriculture Organization (hereinafter referred to as "the Organization") and shall be considered adopted by the Organization prior to its first meeting.
2. For purposes of these rules, the Plenary Director, the Assistant Director(s), the Under-Secretaries-General, and the Assistant Secretaries-General, are designates and agents of the Secretary-General and Director-General, and are collectively referred to as the "Secretariat."
3. Interpretation of the rules shall be reserved exclusively to the Director-General or her or his designate. Such interpretation shall be in accordance with the philosophy and principles of the National Model United Nations and in furtherance of the educational mission of that organization.
4. For the purposes of these rules, "President" shall refer to the chairperson or acting chairperson of the Organization.

I. SESSIONS

Rule 1 - *Dates of convening and adjournment*
The board shall meet every year in regular session, commencing and closing on the dates designated by the Secretary-General.

Rule 2 - *Place of sessions*
The Board shall meet at a location designated by the Secretary-General.

II. AGENDA

Rule 3 - *Provisional agenda*
The provisional agenda shall be drawn up by the Secretary-General and communicated to the Members of the Organization at least sixty days before the opening of the session.

Rule 4 - Adoption of the agenda
The agenda provided by the Secretary-General shall be considered adopted as of the beginning of the session. The order of the agenda items shall be determined by a majority vote of those present and voting. Items on the agenda may be amended or deleted by the Organization by a two-thirds majority of the members present and voting.

The vote described in this rule is a procedural vote and, as such, observers are permitted to cast a vote. For purposes of this rule, those present and voting means those delegates, including observers, in attendance at the meeting during which this motion comes to a vote.

Rule 5 - Revision of the agenda
During a session, the Organization may revise the agenda by adding, deleting, deferring or amending items. Only important and urgent items shall be added to the agenda during a session. Permission to speak on a motion to revise the agenda shall be accorded only to three representatives in favor of, and three opposed to, the revision. Additional items of an important and urgent character, proposed for inclusion in the agenda less than thirty days before the opening of a session, may be placed on the agenda if the Organization so decides by a two-thirds majority of the members present and voting. No additional item may, unless the Organization decides otherwise by a two-thirds majority of the members present and voting, be considered until a committee has reported on the question concerned.

For purposes of this rule, the determination of an item of an important and urgent character is subject to the discretion of the Secretariat, and any such determination is final. If an item is determined to be of such a character, then it requires a two-thirds vote of the Organization to be placed on the agenda. It will, however, not be considered by the Organization until a committee has reported on the question. The votes described in this rule are substantive vote, and, as such, observers are not permitted to cast a vote. For purposes of this rule, the members present and voting means members (not including observers) in attendance at the session during which this motion comes to vote.

Rule 6 - Explanatory memorandum
Any item proposed for inclusion in the agenda shall be accompanied by an explanatory memorandum and, if possible, by basic documents.

III. SECRETARIAT

Rule 7 - Duties of the Secretary-General

1. The Secretary-General or her/his designate shall act in this capacity in all meetings of the Organization.

2. The Secretary-General shall provide and direct the staff required by the Organization and be responsible for all the arrangements that may be necessary for its meetings.

Rule 8 - Duties of the Secretariat
The Secretariat shall receive, print, and distribute documents, reports, and resolutions of the Organization, and shall distribute documents of the Organization to the Members, and generally perform all other work which the Organization may require.

Rule 9 - Statements by the Secretariat
The Secretary-General, or her/his representative, may make oral as well as written statements to the Organization concerning any question under consideration.

Rule 10 - Selection of the President The Secretary-General or her/his designate shall appoint, from applications received by the Secretariat, a President who shall hold office and, *inter alia*, chair the Organization for the duration of the session, unless otherwise decided by the Secretary-General.

Rule 11 - Replacement of the President If the President is unable to perform her/his functions, a new President shall be appointed for the unexpired term at the discretion of the Secretary-General.

IV. LANGUAGE

Rule 12 - Official and working language
English shall be the official and working language of the Organization.

Rule 13 - Interpretation (oral) or translation (written)
Any representative wishing to address any body or submit a document in a language other than English shall provide interpretation or translation into English.

This rule does not affect the total speaking time allotted to those representatives wishing to address the body in a language other than English. As such, both the speech and the interpretation must be within the set time limit.

V. CONDUCT OF BUSINESS

Rule 14 – Quorum
The President may declare a meeting open and permit debate to proceed when representatives of at least one third of the members of the Organization are present. The presence of representatives of a majority of the members of the Organization shall be required for any decision to be taken.

For purposes of this rule, members of the Organization means the total number of members (not including observers) in attendance at the first night's meeting.

Rule 15 - General powers of the President
In addition to exercising the powers conferred upon him or her elsewhere by these rules, the President shall declare the opening and closing of each meeting of the Organization, direct the discussions, ensure observance of these rules, accord the right to speak, put questions to the vote and announce decisions. The President, subject to these rules, shall have complete control of the proceedings of the Organization and over the maintenance of order at its meetings.

He or she shall rule on points of order. He or she may propose to the Organization the closure of the list of speakers, a limitation on the time to be allowed to speakers and on the number of times the representative of each member may speak on an item, the adjournment or closure of the debate, and the suspension or adjournment of a meeting.

Included in these enumerated powers is the President's power to assign speaking times for all speeches incidental to motions and amendment. Further, the President is to use her/his discretion, upon the advice and at the consent of the Secretariat, to determine whether to entertain a particular motion based on the philosophy and principles of the NMUN. Such discretion should be used on a limited basis and only under circumstances where it is necessary to advance the educational mission of the Conference. For purposes of this rule, the President's power to ―propose to the Organization entails her/his power to ―entertain motions, and not to move the body on his or her own motion.

Rule 16
The President, in the exercise of her or his functions, remains under the authority of the Organization.

Rule 17 - Points of order
During the discussion of any matter, a representative may rise to a point of order, which shall be decided immediately by the President. Any appeal of the decision of the President shall be immediately put to a vote, and the ruling of the President shall stand unless overruled by a majority of the members present and voting.

Such points of order should not under any circumstances interrupt the speech of a fellow representative. Any questions on order arising during a speech made by a representative should be raised at the conclusion of the speech, or can be addressed by the President, sua sponte, during the speech. For purposes of this rule, the members present and voting mean those members (not including observers) in attendance at the meeting during which this motion comes to vote.

Rule 18
A representative may not, in rising to a point of order, speak on the substance of the matter under discussion.

Rule 19 - Speeches

1. No one may address the Organization without having previously obtained the permission of the President. The President shall call upon speakers in the order in which they signify their desire to speak.
2. Debate shall be confined to the question before the Organization, and the President may call a speaker to order if her/his remarks are not relevant to the subject under discussion.
3. The Board may limit the time allowed to speakers and all representatives may speak on any question. Permission to speak on a motion to set such limits shall be accorded only to two representatives favoring and two opposing such limits, after which the motion shall be put to the vote immediately. When debate is limited and a speaker exceeds the allotted time, the President shall call her or him to order without delay.

In line with the philosophy and principles of the NMUN, in furtherance of its educational mission, and for the purpose of facilitating debate, if the President determines that the Organization in large part does not want to deviate from the limits to the speaker's time as it is then set, and that any additional motions will not be well received by the body, the President, in her/his discretion, and on the advice and consent of the Secretariat, may rule as dilatory any additional motions to change the limits of the speaker's time.

Rule 20 - Closing of list of speakers
Members may only be on the list of speakers once but may be added again after having spoken. During the course of a debate the President may announce the list of speakers and, with the consent of the Organization, declare the list closed. When there are no more speakers, the President shall declare the debate closed. Such closure shall have the same effect as closure by decision of the Organization.

The decision to announce the list of speakers is within the discretion of the President and should not be the subject of a motion by the Organization. A motion to close the speakers' list is within the purview of the Organization and the President should not act on her/his own motion.

Rule 21 - Right of reply

If a remark impugns the integrity of a representative's State, the President may permit that representative to exercise her/his right of reply following the conclusion of the controversial speech, and shall determine an appropriate time limit for the reply. No ruling on this question shall be subject to appeal.

For purposes of this rule, a remark that impugns the integrity of a representative's State is one directed at the governing authority of that State and/or one that puts into question that State's sovereignty or a portion thereof. All interventions in the exercise of the right of reply shall be addressed in writing to the Secretariat and shall not be raised as a point of order or motion. The reply shall be read to the Organization by the representative only upon approval of the Secretariat, and in no case after voting has concluded on all matters relating to the agenda topic, during the discussion of which, the right arose.

Rule 22 - Suspension of the meeting
During the discussion of any matter, a representative may move the suspension of the meeting, specifying a time for reconvening. Such motions shall not be debated but shall be put to a vote immediately, requiring the support of a majority of the members present and voting to pass.

Rule 23 - Adjournment of the meeting
During the discussion of any matter, a representative may move the adjournment of the meeting. Such motions shall not be debated but shall be put to the vote immediately, requiring the support of a majority of the members present and voting to pass. After adjournment, the Organization shall reconvene at its next regularly scheduled meeting time.

As this motion, if successful, would end the meeting until the Organization's next regularly scheduled session the following year, and in accordance with the philosophy and principles of the NMUN and in furtherance of its educational mission, the President will not entertain such a motion until the end of the last meeting of the Organization.

Rule 24 - Adjournment of debate
A representative may at any time move the adjournment of debate on the topic under discussion. Permission to speak on the motion shall be accorded to two representatives favoring and two opposing adjournment, after which the motion shall be put to a vote immediately, requiring the support of a majority of the members present and voting to pass. If a motion for adjournment passes, the topic is considered dismissed and no action will be taken on it.

Rule 25 - Closure of debate
A representative may at any time move the closure of debate on the item under discussion, whether or not any other representative has signified her/his wish to speak. Permission to speak on the motion shall be accorded only to two representatives opposing the closure, after which the motion shall be put to the vote immediately. Closure of debate shall require a two-thirds majority of the members present and voting. If the Organization favors the closure of debate, the Organization shall immediately move to vote on all proposals introduced under that agenda item.

Rule 26 - Order of motions Subject to rule 23, the motions indicated below shall have precedence in the following order over all proposals or other motions before the meeting:

a) To suspend the meeting;
b) To adjourn the meeting;
c) To adjourn the debate on the item under discussion;
d) To close the debate on the item under discussion.

Rule 27 - Proposals and amendments
Proposals and substantive amendments shall normally be submitted in writing to the Secretariat, with the names of twenty percent of the members of the Organization would like the Organization to consider the proposal or amendment. The Secretariat may, at its discretion, approve the proposal or amendment for circulation among the delegations. As a general rule, no proposal shall be put to the vote at any meeting of the Organization unless copies of it have been circulated to all delegations. The President may, however, permit the discussion and consideration of amendments or of motions as to procedure, even though such amendments and motions have not been circulated. If the sponsors agree to the adoption of a proposed amendment, the proposal shall be modified accordingly and no vote shall be taken on the proposed amendment. A document modified in this manner shall be considered as the proposal pending before the Organization for all purposes, including subsequent amendments.

For purposes of this rule, all proposals shall be in the form of working papers prior to their approval by the Secretariat. Working papers will not be copied, or in any other way distributed, to the Organization by the Secretariat. The distribution of such working papers is solely the responsibility of the sponsors of the working papers. Along these lines, and in furtherance of the philosophy and principles of the NMUN and for the purpose of advancing its educational mission, representatives should not directly refer to the substance of a working paper that has not yet been accepted as a draft report segment. After approval of a working paper, the proposal becomes a draft report segment and will be copied by the Secretariat for distribution to the Organization. These draft report segments are the collective property of the Organization and, as such, the names of the original sponsors will be removed. The copying and distribution of amendments is at the discretion of the Secretariat, but the substance of all such amendments will be made available to all representatives in some form.

Rule 28 - Withdrawal of motions
A proposal or a motion may be withdrawn by its sponsor at any time before voting has commenced, provided that it has not been amended. A motion thus withdrawn may be reintroduced by any representative.

Rule 29 - Reconsideration of a topic
When a topic has been adjourned, it may not be reconsidered at the same session unless the Organization, by a two-thirds majority of those present and voting, so decides. Reconsideration can only be moved by a representative who voted on the prevailing side of the original motion to adjourn. Permission to speak on a motion to reconsider shall be accorded only to two speakers opposing the motion, after which it shall be put to the vote immediately.

For purposes of this rule, those present and voting means those representatives, including observers, in attendance at the meeting during which this motion is voted upon by the body.

VI. VOTING

Rule 30 - Voting rights
Each member of the Organization shall have one vote.

This rule applies to substantive voting on amendments, draft report segments, and portions of draft report segments divided out by motion. As such, all references to member(s) do not include observers, who are not permitted to cast votes on substantive matters.

Rule 31 - Request for a vote
A proposal or motion before the Organization for decision shall be voted upon if any member so requests. Where no member requests a vote, the Organization may adopt proposals or motions without a vote.

For purposes of this rule, proposal means any draft report segment, an amendment thereto, or a portion of a draft report segment divided out by motion. Just prior to a vote on a particular proposal or motion, the President may ask if there are any objections to passing the proposal or motion by acclamation, or a member may move to accept the proposal or motion by acclamation. If there are no objections to the proposal or motion, then it is adopted without a vote.

Rule 32 - Majority required
1. Unless specified otherwise in these rules, decisions of the Assembly shall be made by a majority of the members present and voting.
2. For the purpose of tabulation, the phrase “members present and voting” means members casting an affirmative or negative vote. Members which abstain from voting are considered as not voting.

All members declaring their representative States as “present and voting” during the attendance role call for the meeting during which the substantive voting occurs, must cast an affirmative or negative vote, and cannot abstain.

Rule 33 - Method of voting
1. The Board shall normally vote by a show of placards, except that a representative may request a roll call, which shall be taken in the English alphabetical order of the names of the members, beginning with the member whose name is randomly selected by the President. The name of each present member shall be called in any roll call, and one of its representatives shall reply “yes,” “no,” “abstention,” or “pass.”

Only those members who designate themselves as present or present and voting during the attendance roll call, or in some other manner communicate their attendance to the President and/or Secretariat, are permitted to vote and, as such, no others will be called during a roll-call vote. Any representatives replying pass, must, on the second time through, respond with either yes or no. A pass cannot be followed by a second pass for the same proposal or amendment, nor can it be followed by an abstention on that same proposal or amendment.

2. When the Organization votes by mechanical means, a non-recorded vote shall replace a vote by show of placards and a recorded vote shall replace a roll-call vote. A representative may request a recorded vote. In the case of a recorded vote, the Organization shall dispense with the procedure of calling out the names of the members.

3. The vote of each member participating in a roll call or a recorded vote shall be inserted in the record.

Rule 34 - Explanations of vote
Representatives may make brief statements consisting solely of explanation of their votes after the voting has been completed. The representatives of a member sponsoring a proposal or motion shall not speak in explanation of vote thereon, except if it has been amended, and the member has voted against the proposal or motion.

All explanations of vote must be submitted to the President in writing before debate on the topic is closed, except where the representative is of a member sponsoring the proposal, as described in the second clause, in which case the explanation of vote must be submitted to the President in writing immediately after voting on the topic ends.

Rule 35 - Conduct during voting
After the President has announced the commencement of voting, no representatives shall interrupt the voting except on a point of order in connection with the actual process of voting.

Rule 36 - Division of proposals and amendments
Immediately before a proposal or amendment comes to a vote, a representative may move that parts of a proposal or of an amendment should be voted on separately. If there are calls for multiple divisions, those shall be voted upon in an order to be set by the President where the most radical division will be voted upon first. If objection is made to the motion for division, the request for division shall be voted upon, requiring the support of a majority of those present and voting to pass. Permission to speak on the motion for division shall be given only to two speakers in favor and two speakers against. If the motion for division is carried, those parts of the proposal or of the amendment which are involved shall then be put to a vote. If all operative parts of the proposal or of the amendment have been rejected, the proposal or the amendment shall be considered to have been rejected as a whole.

For purposes of this rule, most radical division means the division that will remove the greatest substance from the draft report segment, but not necessarily the one that will remove the most words or clauses. The determination of which division is most radical is subject to the discretion of the Secretariat, and any such determination is final.

Rule 37 - Amendments
An amendment is a proposal that does no more than add to, delete from, or revise part of another proposal.

An amendment can add, amend, or delete operative clauses, but cannot in any manner add, amend, delete, or otherwise affect perambulatory clauses.

Rule 38 - Order of voting on amendments
When an amendment is moved to a proposal, the amendment shall be voted on first. When two or more amendments are moved to a proposal, the amendment furthest removed in substance from the original proposal shall be voted on first and then the amendment next furthest removed there from, and so on until all the amendments have been put to the vote. Where, however, the adoption of one amendment necessarily implies the rejection of another amendment, the latter shall not be put to the vote. If one or more amendments are adopted, the amended proposal shall then be voted on.

For purposes of this rule, furthest removed in substance means the amendment that will have the most significant impact on the draft report segment. The determination of which amendment is furthest removed in substance is subject to the discretion of the Secretariat, and any such determination is final.

Rule 39 - Order of voting on proposals
If two or more proposals, other than amendments, relate to the same question, they shall, unless the Organization decides otherwise, be voted on in the order in which they were submitted.

Rule 40 - The President shall not vote
The President shall not vote but may designate another member of her/his delegation to vote in her/his place.

VII. CREDENTIALS

Rule 41 - Credentials
The credentials of representatives and the names of members of a delegation shall be submitted to the Secretary-General prior to the opening of a session.

Rule 42
The Board shall be bound by the actions of the General Assembly in all credentials matters and shall take no action regarding the credentials of any member.

VII. PARTICIPATION OF NON-MEMBERS OF THE BOARD

Rule 43 - Participation of non-Member States
1. The Board shall invite any Member of the United Nations that is not a member of the Organization and any other State, to participate in its deliberations on any matter of particular concern to that State.
2. A committee or sessional body of the Organization shall invite any State that is not one of its own members to participate in its deliberations on any matter of particular concern to that State.
3. A State thus invited shall not have the right to vote, but may submit proposals which may be put to the vote on request of any member of the body concerned.

If the Organization considers that the presence of a Member invited according to this rule is no longer necessary, it may withdraw the invitation again. Delegates invited to the Organization according to this rule should also keep in mind their role and obligations in the committee that they were originally assigned to. For educational purposes of the NMUN Conference, the Secretariat may thus ask a delegate to return to his or her committee when his or her presence in the Organization is no longer required.

Rule 45 - Participation of national liberation movements
The Board may invite any national liberation movement recognized by the General Assembly to participate, without the right to vote, in its deliberations on any matter of particular concern to that movement.

Rule 46 - Participation of and consultation with specialized agencies
In accordance with the agreements concluded between the United Nations and the specialized agencies, the specialized agencies shall be entitled: a) To be represented at meetings of the Organization and its subsidiary organs; b) To participate, without the right to vote, through their representatives, in deliberations with respect to items of concern to them and to submit proposals regarding such items, which may be put to the vote at the request of any member of the Organization or of the subsidiary organ concerned.

Rule 47 - Participation of non-governmental organization and intergovernmental organizations
Representatives of non-governmental organizations/intergovernmental organizations accorded consultative observer status by the General Assembly and other non-governmental organizations/intergovernmental organizations designated on an ad hoc or a continuing basis by the Organization on the recommendation of the Bureau, may participate, with the procedural right to vote, but not the substantive right to vote, in the deliberations of the Organization on questions within the scope of the activities of the organizations.