



Dear Delegates,

It is a pleasure to welcome you to the 2016 Montessori Model United Nations Conference.

The following pages intend to guide you in the research of the topics that will be debated at MMUN 2016 in committee sessions. Please note this guide only provides the basis for your investigation. It is your responsibility to find as much information necessary on the topics and how they relate to the country you represent. Such information should help you write your Position Paper, where you need to cite the references in the text and finally list all references in the Modern Language Association (MLA) format.

The more information and understanding you acquire on the two topics, the more you will be able to influence the Resolution writing process through debates [formal and informal caucuses], and the MMUN experience as a whole. Please feel free to contact us if and when you face challenges in your research or formatting your Position Papers.

We encourage you to learn all you can about your topics first and then study your country with regard to the two selected topics. Please remember that both committee members need to be well versed and ready to debate both topics.

Enjoy researching and writing your Position Papers.

We look forward to seeing you at the Conference!

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Food and Agriculture Organization of The United Nations (FAO)

An intergovernmental organization, FAO has 194 Member Nations, two associate members and one member organization, the European Union. Its employees come from various cultural backgrounds and are experts in the multiple fields of activity FAO engages in. FAO's staff capacity allows it to support improved governance inter alia, generate, develop and adapt existing tools and guidelines and provide targeted governance support as a resource to country and regional level FAO offices. Headquartered in Rome, Italy, FAO is present in over 130 countries.

FAO's three main goals are: the eradication of hunger, food insecurity and malnutrition; the elimination of poverty and the driving forward of economic and social progress for all; and, the sustainable management and utilization of natural resources, including land, water, air, climate and genetic resources for the benefit of present and future generations.

Source: <http://www.fao.org/about/who-we-are/en/>

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Building Agricultural Resilience to Climate Change

Topic Background

Agriculture is a broad term, which encompasses most farming activities such as the cultivation of soils for the growing of crops and raising animals for human needs. It is also viewed as its own industry within the economy, as well as a type of land use.

Agricultural output is reliant on sunlight, temperature and rainfall, making it highly susceptible to changes in climate patterns and variations. As a result, climate change is predicted to have significant impacts on agricultural conditions, and in turn food supply and food security. Some of these impacts include:

- A shift in climate and agricultural zones towards the poles;
- Changes in production seasons;
- Changes in pests and diseases;
- Changes in atmospheric carbon dioxide and ground-level ozone concentrations which alter the nutritional quality of some foods;
- Decreased yields due to prolonged and more extreme weather events; and
- Increased vulnerability of the landless and the poor.¹

How climate change affects agriculture will significantly vary in differing regions. For example, the geography of Sub-Saharan Africa makes it particularly vulnerable to climate change with 70% of the population reliant on rain-fed agriculture for their livelihoods. It is predicted that the rainy season will shorten resulting in an expected 33% loss of agricultural yield. On the other hand, projected yields could increase up to 20% in East and Southeast Asia by the mid-21st century as they benefit from rising temperatures. However, this benefit could be lost if temperatures continue to rise.² It is clear the most vulnerable groups will be the rural poor who depend on agriculture for their livelihoods but lack the ability to adapt to new climate conditions. This leads to the first broad issue. There are currently approximately 795 million people in the world who do not have enough food to lead a healthy active lifestyle, or one in nine people globally.³ In order to achieve food security for these people, global food production needs to be increased by 60% by 2050. Furthermore, with population growth concentrated in developing countries, food production in developing countries will need to increase by 100% in order to

¹ "Agriculture." The Climate Institute. <http://www.climate.org/topics/agriculture.html>

² "Summary for Policymakers – Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change." Intergovernmental Panel on Climate Change. http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SPM_FINAL.pdf.

³ "Hunger Statistics." World Food Programme. <http://www.wfp.org/hunger/stats>

provide adequate nutrition to all.⁴ Thus, agricultural output patterns will not only need to increase significantly, but also remain consistent throughout this time and done in the context of all the consequences of climate change. This highlights the importance of climate change adaptation to secure the world's food supply.

However, agriculture itself is partly responsible for climate change as it remains a major producer of greenhouse gases (GHGs). Major sources include deforestation and land clearing, use of fossil fuel-based fertilisers, and methane from livestock. Advances in technology have allowed for more intensive agricultural methods used to substantially increase crop yields leading to an exacerbation of GHGs sources and emissions.⁵ The Food and Agriculture Organisation (FAO) estimates that 30% of global GHG emissions are from agriculture and land use.⁶

This leads to the second broad issue. Since agriculture is such a large contributor to GHG emissions, reducing emissions from agriculture must be part of a broader strategy in mitigating the effects of climate change and ensuring global average temperatures do not rise by more than the dangerous two degree level.

In order to tackle these two broad issues, solutions must increase agricultural output while decreasing GHG emissions in order to create resilience from climate change.

Past International Action

Building climate change resilience and adaptation has been a de facto part of the UN's work, but the particular issue of building agricultural resilience has rarely been the focus. For example, Millennium Development Goal 1 – eradicating extreme hunger and poverty – depends on food security which in turn relies on sustainable agricultural output.

In 2012, the FAO and Organisation for Economic Cooperation and Development (OECD) held a joint workshop titled 'Building Resilience for Adaptation to Climate Change in the Agriculture Sector' where it examined the various risks to which agriculture is prone, how climate change is expected to impact them and various risk management strategies. It developed the notion of 'Climate-Smart Agriculture' (CSA) which is built upon: (1) sustainably increasing agricultural productivity to support equitable increases in farm incomes, food security, and development; (2) adapting and building resilience of agricultural and food security systems to climate change at multiple levels; and (3) reducing GHG emissions from agriculture. This focuses on the interests of local stakeholders in achieving global outcomes. It provides local planners and policymakers with improved technologies for sustainable farm management and frameworks to enable this.⁷ It has been relevant to international goals such as achieving food security as part of the Millennium

⁴ "Agriculture and Climate Change – Overview." Food and Agriculture Organisation.

<http://www.fao.org/fileadmin/templates/agphome/documents/faooecd/holmgren.pdf>

⁵ Above, n 1.

⁶ Above, n 4.

⁷ "Climate-Smart Agriculture." Food and Agriculture Organisation.

<http://www.fao.org/climatechange/climatesmart/en/>

Development Goals and reducing GHG emissions under those of the United Nations Framework Convention on Climate Change (UNFCCC). While there has been widespread interest in this initiative, implementing it worldwide has been challenging due to a lack of tools and experience. For CSA to be successful, considerable efforts are required to develop knowledge, capacities, and resources to implement it globally.⁸

At the 17th Conference of the Parties (COP) held in Durban, South Africa in 2011, the Subsidiary Body for Scientific and Technological Advice (SBSTA) was requested to consider issues on climate change and agriculture with the aim of exchanging views on the topic between experts. Since then, it has released annual reports focusing on differing aspects of the topic each year.⁹ However, although these reports have featured on the agenda of subsequent COPs, they serve as recommendations and are generally not adopted in full due to various economic and political reasons of Member States. The 2015 annual report, SBSTA 42, will again be on the agenda of the upcoming COP21 in Paris in late 2015.

On a grassroots level, non-governmental organisations have been active in promoting climate resilient agriculture as a reliable livelihood especially for those in developing countries. Biodiversity International is a global research-for-development organisation which works with farmers, governments, and other local partners in low-income countries to improve food, nutrition, resilience, productivity, and climate change adaptation through creating agricultural biodiversity. It focuses on economical solutions aimed at maintaining or creating food security. For example, it recently coordinated a review on the current technologies used to cultivate cacao planting in West Africa and the prospects of improvement in order to meet the rising global demand for cocoa, and is now initiating a partnership programme with local growers and authorities to improve cultivation.¹⁰

Possible Solutions

In order to tackle the two broad issues outlined earlier, delegates will need to consider solutions which: emit less GHGs in farming practices; increase food production; and in the context of the consequences of climate change. This ties in directly with Sustainable Development Goals 2, 12, 13 and 15:¹¹

- End hunger, achieve food security and improved nutrition, and promote sustainable agriculture;
- Ensure sustainable consumption and production patterns;

⁸ Ibid.

⁹ "Issues Relating to Agriculture." United Nations Framework Convention on Climate Change. http://unfccc.int/land_use_and_climate_change/agriculture/items/8793.php

¹⁰ "Biodiversity International News." Biodiversity International. <http://www.biodiversityinternational.org/news/>

¹¹ "Sustainable Development Goals: All you need to know." The Guardian. <http://www.theguardian.com/global-development/2015/jan/19/sustainable-development-goals-united-nations>

- Take urgent action to combat climate change and its impacts (taking note of the agreements made by the UNFCCC forum); and
- Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation, and halt biodiversity loss.

These goals should guide delegates in what they set out to achieve.

Delegates will also need to make an assessment on the most vulnerable groups and how to build their resilience in particular. It is estimated that the majority of the 3 billion people living in rural areas of developing countries live on less than US\$2 per day, in remote or marginal areas and depend on agriculture for their livelihoods. Delegates will need to accommodate these unique circumstances which include poor access to adequate natural resources, limited communication and transportation networks, and weak public infrastructure and institutions.¹²

As was mentioned before, sub-Saharan Africa stands to be one of the most impacted areas with significantly reduced rainfall having a substantial impact on livelihoods. In order to maximise a decreasing natural resource in order to secure food supply, delegates will need to look at solutions which protect the water supply and use this precious resource efficiently. Possible measures may include reforestation to reduce salinity (often a by-product of reduced rainfall and overuse), adequate infrastructure to minimise leaking, seepage and evaporation and implementation of irrigation, and water-sharing mechanisms.¹³ Other methods, such as water efficient farming and technologies or even diversification of crops should also be investigated. Existing UN and other international mechanisms should also be utilised in building agricultural resilience. Useful agencies may include the FAO, World Food Programme, and the Global Environment Facility, a financial mechanism for climate change. Strengthening partnerships between such agencies, governments, civil society, and the private sector will be crucial in the research and development of new knowledge and technologies, influencing the global policy agenda and securing additional funding. All of these together will ensure that more people and communities are assisted in building their resilience to climate change.

Delegates will need to keep in mind that often more than one measure will be necessary to achieve the desired outcome and that differing regions may need different measures to address their unique circumstances. In securing the world's food supply, local, national, and international solutions will be needed.

¹² "Climate Change: Building the Resilience of Poor Rural Communities." International Fund for Agricultural Development. <http://www.ifad.org/climate/factsheet/e.pdf>

¹³ Ibid.

Further Research

- UN Sustainable Development, [Food security and nutrition and sustainable agriculture](#)
This gives a summary of past UN actions and has links to the latest developments in the topic including on the connection between world hunger, climate change and the Sustainable Development Goals.
- International Fund for Agricultural Development, [Factsheet on Climate Change and Building the Resilience of Poor Rural Communities](#)
This document clearly outlines international climate adaptation strategy as a whole and offers case studies of current local projects in place to improve the rural poor's resilience to climate change.
- FAO, [Summary Report and Main Conclusions](#) of the 'Building Resilience for Adaptation to Climate Change in the Agriculture Sector' 2012 workshop
This document gives experts' opinion on the sub-issues which need to be addressed. A full report including all the presentations made at the workshop can be found [here](#).
- [Biodiversity International](#)
One of the largest NGOs in this field, it also releases policy documents where you may find possible solutions.

Questions:

1. Which geographical region's agriculture is most vulnerable to climate change?
2. By what percentage will food production have to increase in developing countries to ensure all their citizens receive adequate nutrition?
3. According to the FAO, what percentage of global greenhouse gas emissions come from agriculture and land use?
4. Why are recommendations from the SBSTA rarely adopted in full by member states?
5. What are some organizations which might be useful in building agricultural resistance to climate change?

Answers:

1. Sub-Saharan Africa
2. 100%
3. 30%
4. Various economic and political reasons
5. The FAO, World Food Programme, and the Global Environment Facility