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Food and Agriculture Organization of the United Nations Background Guide 2018

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Dear Delegates,

Welcome to the 2018 National Model United Nations Conference in Washington, D.C. (NMUN•DC)! We are pleased to introduce you to our committee, the Food and Agriculture Organization of the United Nations (FAO). This year's staff is composed of Director Samantha Hall and Assistant Director Zachary Parker. Samantha holds a master's degree in International Affairs and works full-time as a program assistant for a major international development agency. Zachary holds a bachelor's degree in Supply Chain Management and works as a Supply Chain Planner for a major international machine and equipment distributor. We are both excited to see how delegates address the complex food security topics facing the international community.

The topics under discussion for FAO are:

- I. Feeding Cities of the Future: Urban Biodiversity
- II. Climate Change and Food Security

FAO specializes in leading international collaboration to end world hunger, combat food insecurity, and eliminate malnutrition and poverty. To achieve these goals, FAO coordinates with various United Nations agencies, Member States, non-governmental organizations, and other international stakeholders to promote sustainable agriculture, forestry, and fisheries. FAO works to share knowledge, establish and strengthen policies, increase collaboration, and make recommendations to the international community. Furthermore, FAO seeks to promote rural development, resilient livelihoods, and inclusive and efficient food systems to strengthen human capacity to withstand natural disasters, crises, and the effects of climate change.

We hope you will find this Background Guide useful as an introduction to the topics for this committee. However, it is not intended to replace individual research. We highly encourage you to explore your Member State's policies in-depth, as well as use the Annotated Bibliography and Bibliography to further your knowledge on these topics. In preparation for the conference, each delegation will submit a [position paper](#). Please take note of the [NMUN Conduct Expectations](#) on the website and in the [Delegate Preparation Guide](#) regarding plagiarism, codes of conduct, dress code, sexual harassment, and the awards philosophy and evaluation method. Adherence to these guidelines is mandatory.

The [NMUN Rules of Procedure](#) are available to download from the NMUN website. This document includes the long and short form of the rules, as well as an explanatory narrative and example script of the flow of procedure. It is thus an essential instrument in preparing for the conference, and a reference during committee.

If you have any questions concerning your preparation for the committee or the conference itself, feel free to contact the Under Secretary-General for the committee, Courtney Indart; the Deputy Secretary-General, Chase Mitchell; or the Secretary-General for the conference, Angela Shively. You can contact them by email at: usgcourtney.dc@nmun.com, dsg.dc@nmun.org, or secgen.dc@nmun.org.

We wish you all the best in your preparations and look forward to seeing you at the conference!

Sincerely,

Samantha Hall, *Director*
Zack Parker, *Assistant Director*



Committee Overview

“Achieving zero hunger is a fundamental condition to sustainable development.”¹

Introduction

The Food and Agriculture Organization of the United Nations (FAO), founded in 1945, is the leading intergovernmental organization coordinating efforts towards the eradication of hunger and food insecurity.² FAO's headquarters are in Rome, Italy and it conducts work in over 130 countries.³ FAO facilitates partnerships between the United Nations (UN), non-governmental organizations (NGOs), civil society organizations (CSOs), Member States, the private sector, and other stakeholders.⁴ Through the variety of functions that FAO performs, it works to reduce hunger, malnutrition, and food insecurity; increase the sustainability and productiveness of agriculture, forestry, and fisheries; reduce rural poverty; enable inclusive and efficient agriculture and food systems; and improve the resilience of livelihoods to disasters.⁵

The Food and Agriculture Organization of the United Nations (FAO) is a specialized agency, which coordinates with the United Nations through the Economic and Social Council.

FAO was preceded by the International Institute of Agriculture (IIA), which was founded in 1905 in Rome to study the state of agriculture and disseminate the information gathered.⁶ The IIA effectively dissolved during the Second World War and, in 1943, the Interim Commission on Food and Agriculture (ICFA) was established at the Hot Springs Conference in Virginia, United States in order to create a new permanent agricultural organization.⁷ Shortly after the end of the Second World War, the ICFA drafted the constitution of FAO and it was signed at the First Session of the Conference of the Food and Agricultural Organization of the United Nations in Quebec, Canada and entered into force on 16 October 1945 to formally establish the FAO.⁸ FAO inherited the statistical functions of the IIA and while FAO has a much broader mandate and reach, the core mission remained largely the same: the needs of farmers, agriculture, and economic development.⁹

In its first two decades FAO oversaw the establishment of important international agricultural agreements and institutions, including the World Food Programme (WFP) in 1961.¹⁰ In 1974, amid famine and global food crises, the first World Food Conference convened in Rome, Italy.¹¹ Member States adopted the *Universal Declaration on the Eradication of Hunger and Malnutrition* (1974), proclaiming 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.”¹² In commemoration of the founding of FAO, the FAO Conference adopted Resolution 1/79 in 1979, establishing World Food Day, which shall be observed on 16 October.¹³ At the World Food Summit in 1996 the *Rome Declaration on World Food Security* and the *World Food Summit Plan of Action* were adopted.¹⁴ Both recognize seven broad commitments including the eradication of poverty, implementation of policies to improve physical and economic access of nutritionally adequate and safe food, and sustainable food, agriculture, fisheries, forestry, and rural development practices.¹⁵

¹ Graziano da Silva, *A statement by FAO Director-General José Graziano da Silva*, 2018.

² FAO, *About FAO*, 2018.

³ Ibid.

⁴ Ibid.

⁵ Ibid.

⁶ Phillips, *FAO - its origins, formation and evolution 1945-1981*, 1981, pp. 3-5.

⁷ Ibid, pp. 12-13.

⁸ Ibid, p. 13

⁹ Ibid, p. 14; FAO, *About FAO*, 2018.

¹⁰ Phillips, *FAO – its origins, formation and evolution 1945-1981*, 1981, p. 15

¹¹ UN, *Outcomes on Food*.

¹² FAO, *World Food Summit*; World Food Conference, *Declaration on the Eradication of Hunger Malnutrition*, 1974.

¹³ FAO, *World Food Day (1/79)*, 1979.

¹⁴ UN, *Outcomes on Food*.

¹⁵ Ibid.

Governance, Structure, and Membership

FAO is a specialized agency of the United Nations (UN) Economic and Social Council (ECOSOC) and is governed by the Member States that comprise its membership.¹⁶ FAO currently consists of 194 Member States, two Associate Members (Faroe Islands and Tokelau), and a member organization (European Union).¹⁷ The primary body of FAO is the Conference of Member Nations established by Article III of the FAO constitution, which meets every two years in regular session.¹⁸ The Conference can vote to meet the following year in a special session.¹⁹ Each Member State and Associate Member is represented by one delegate carrying one vote; other international organizations may attend by invitation but do not have the right to vote.²⁰ The purpose of the Conference is to determine the policy and approve the budget of FAO.²¹ The Conference may make recommendations to Member States and Associate Members, by a two-thirds majority, related to food and agriculture with the objective to implement these recommendations by national action.²² In addition, the Conference may make recommendations to any international organization regarding issues pertaining to the FAO and may review any decision made by the council or subsidiary body.²³ The Conference can also establish Regional Conferences; there are currently Regional Conferences for Africa, Asia and the Pacific, Europe, Latin America and the Caribbean, and Near East and North Africa.²⁴ These are the highest governing body of FAO at the regional level and their purpose is to be a forum for Member States from the same geographic region to meet and discuss regional priorities, challenges, and to formulate coherent and aligned positions on global policy.²⁵

The Council of FAO is the executive body of the organization and meets more frequently than the biennial FAO Conferences, typically convening two to three times per year.²⁶ The Council acts on current food and agricultural activities and situations, and activities of the organization as a whole, including the development of the Programme of Work.²⁷ A body of 49 Member States is elected by the Conference to serve three-year terms on the Governing Council; the Council's powers are also delegated by the Conference.²⁸ FAO also has three Council Committees and four Technical Committees, which support the administrative and programmatic work of the organization, respectively.²⁹

The Director-General leads FAO and is appointed by the Conference for an initial four-year term that can be renewed once, for a total tenure of eight years.³⁰ The current Director-General is José Graziano da Silva, who was re-appointed in 2015 to serve his second and final term, which will end in 2019.³¹ The organization is composed of six main departments: Agriculture and Consumer Protection; Economic and Social Development; Fisheries and Aquaculture; Forestry; Corporate Services, Human Resources and Finance; and Technical Cooperation.³² Specialized divisions further support these departments.³³ For example, the Agricultural Development Economics Division supports the Economic and Social Development Department through preparing evidence-based policy analysis on agriculture and economic development.³⁴

¹⁶ New Zealand, *United Nations Handbook 2017-18*, 2018.

¹⁷ FAO, *Legal Office: FAO Members*, 2018.

¹⁸ FAO, *Basic Texts of the Food and Agriculture Organization of the United Nations, Volumes I and II*, 2017.

¹⁹ *Ibid.*

²⁰ *Ibid.*

²¹ *Ibid.*

²² *Ibid.*

²³ *Ibid.*

²⁴ FAO, *FAO Regional Conferences*, 2018.

²⁵ *Ibid.*

²⁶ FAO, *Governing and Statutory Bodies: Council*, 2018.

²⁷ *Ibid.*

²⁸ FAO, *Basic Texts of the Food and Agriculture Organization of the United Nations, Volumes I and II*, 2017.

²⁹ FAO, *Governing and Statutory Bodies Web site*, 2018.

³⁰ FAO, *Basic Texts of the Food and Agriculture Organization of the United Nations, Volumes I and II*, 2017.

³¹ FAO, *Director-General*, 2018.

³² FAO, *Departments*, 2018.

³³ *Ibid.*

³⁴ FAO, *Agricultural Development Economics Division (ESA)*, 2018.

Funding for FAO is derived from various sources, with the majority of the funding coming from obligatory, assessed contributions by Member States, as well as voluntary contributions by Member States.³⁵ The regular budget is funded by the assessed contributions, and is set at \$1.005 billion for the 2018-19 biennium.³⁶ Voluntary contributions for the biennium are anticipated to total \$1.6 billion.³⁷ FAO's total planned budget for 2018-19 is thus \$2.6 billion.³⁸ The amounts Member States are assessed are determined at the FAO Conference.³⁹ Further funding includes contributions from Member States, international financial institutions, and the private sector, with funding often directed towards specific programs.⁴⁰

Mandate, Functions, and Powers

FAO's primary directive and responsibilities are outlined in its *Constitution* (1945). The mandate of FAO, as stated in the preamble of the *Constitution*, is to address the following: "raising levels of nutrition and standards of living of the peoples; improvements in the efficiency of the production and distribution of all food and agricultural products; bettering the condition of rural populations; and contributing towards an expanding world economy and ensuring humanity's freedom from hunger."⁴¹ FAO is primarily responsible for increasing levels of nutrition but is not responsible for the direct provision of food.⁴² FAO works closely with the World Food Programme (WFP) and other agencies to facilitate the provision of food, particularly in times of emergency.⁴³ FAO's core functions are to collect and analyze information related to nutrition, food, and agriculture, and to make this collection and analysis of data available to its members and other organizations.⁴⁴ In addition, FAO provides technical assistance to Member States, organizes programs and missions, cooperates with national governments, and takes necessary and appropriate actions to implement the mandate of the organization as set forth in the preamble.⁴⁵

In addition to its core functions, FAO also provides assistance in emergencies.⁴⁶ FAO is involved in disaster risk reduction activities to increase the resilience of communities to disasters.⁴⁷ Due to the relationship between disasters and food insecurity, and the further relationship to decreased levels of nutrition, FAO has implemented programs in multiple regions to reduce the risk of food insecurity through a multi-sector approach with four broad thematic pillars: "Enabling the Environment; Watch to Safeguard; Apply Risk and Vulnerability Reduction Measures; and Prepare and Respond."⁴⁸ FAO also co-leads the Food Security Cluster with WFP.⁴⁹ The cluster works to ensure that adequate nutrition and food are provided in humanitarian emergencies through the coordination of multiple partner agencies including WFP, FAO, the International Federations of Red Cross and Red Crescent Societies (IFRC), and other international NGOs.⁵⁰

Recent Sessions and Current Priorities

The 159th session of the FAO Council was held from 4-8 June 2018.⁵¹ It reviewed the 2016-17 program implementation report; took reports from the Regional Conferences and Council Committees; and discussed other administrative matters, such as nominations for the office of Director-General and the FAO Action Plan for the

³⁵ FAO, *Technical Cooperation Department*.

³⁶ FAO, *Strategic Planning*, 2018.

³⁷ Ibid.

³⁸ Ibid.

³⁹ Ibid.

⁴⁰ FAO, *Technical Cooperation Department*; FAO, *Strategic Planning*, 2018.

⁴¹ FAO, *Basic Texts of the Food and Agriculture Organization of the United Nations, Volumes I and II*, 2017

⁴² UN, *Funds, Programmes, Specialized Agencies and Others*.

⁴³ FAO, *FAO Attributes, Core Functions, and Comparative Advantages*, 2012.

⁴⁴ FAO, *Basic Texts of the Food and Agriculture Organization of the United Nations, Volumes I and II*, 2017, p. 3.

⁴⁵ FAO, *FAO Attributes, Core Functions, and Comparative Advantages*, 2012.

⁴⁶ FAO, *FAO in Emergencies: Resilience*, 2018.

⁴⁷ Ibid.

⁴⁸ FAO, *Resilient Livelihoods: Disaster Risk Reduction for Food and Nutrition Security*, 2013; FAO, *A Field Guide to Disaster Risk Reduction in Southern Africa*, 2014.

⁴⁹ FAO, *FAO in Emergencies: Prepare and Respond*, 2018.

⁵⁰ Food Security Cluster, *About FSC*.

⁵¹ FAO, *FAO Council 159th Session*, 2018.

Prevention of Sexual Exploitation and Abuse and Sexual Harassment.⁵² The Council also signed a new Memorandum of Understanding with IFAD and WFP to strengthen interagency collaboration in achieving SDG 2, and highlighted the need for funding from Member States, particularly for the Green Climate Fund.⁵³ The 160th session of the Council is scheduled for December 2018, with the provisional agenda including reports from the Technical Committees and discussion of the 2019-2022 program of work.⁵⁴

The current overarching goals of FAO were set at the 40th session of the Conference, held from 3-8 July 2017, where Member States discussed and reviewed the work of FAO on the SDGs and its programmatic work.⁵⁵ The 2017 Programme Evaluation Report found that most FAO programs aligned satisfactorily or highly satisfactorily to national and regional and global priorities, strengthening the Organization's ability to work closely with stakeholders to achieve favorable outcomes.⁵⁶ FAO's programs aimed at food security, nutrition, forestry, and fisheries, were among its best performing based on FAO's ability to realize stated program outcomes.⁵⁷ FAO indicated its continued work towards aligning its strategic objective and climate change through the adoption of the 2018-2019 Biennial Theme, "Climate Change and its impact on the work and activities of FAO."⁵⁸ The primary goal of FAO in this context is to improve Member States' food and agriculture systems to be resilient to the effects of global climate change.⁵⁹

Additionally, the *Director-General's Medium Term Plan 2018-2021* (MTP) and *Programme of Work and Budget 2018-2019* (PWB) build upon the organization's work towards the achievement of the 2030 Agenda and more broadly address food security and sustainability.⁶⁰ The PWB's assessment showed that FAO's strategic objectives contribute to 40 targets across of 15 of the SDGs.⁶¹ The MTP sets out the five strategic objectives of FAO through 2021: eradication of malnutrition and hunger; increase the productivity and sustainability of agriculture, forestry, and fisheries; reduce rural poverty; improve the inclusiveness and efficiency agriculture and food systems; and, increase the resilience of livelihoods to threats and crises.⁶² The PWB outlines the program's priorities and outcomes and the allocation of FAO's resources to achieving its strategic objectives.⁶³

Over the last decade, FAO has continued to promote policies aimed at food security, eradication of hunger and malnutrition, and economic development.⁶⁴ In 2017, FAO made mitigating the effects of climate change on food security its main priority with its adoption of the *FAO Strategy on Climate Change* and its launch of the Global Action Programme for Small Island Developing States (SIDS) to specifically target the impact of climate on food.⁶⁵ Many of FAO's goals are integral to the *2030 Agenda for Sustainable Development* (2015) in order to achieve the 17 Sustainable Development Goals (SDGs).⁶⁶ FAO is the custodian of 21 indicators across SDGs 2, 5, 6, 12, 14 and 15.⁶⁷ As a custodian agency FAO is responsible for collecting, analyzing, verifying, and distributing data from Member States and tracking global and regional estimates; contributing to SDG reports that are component of the High-Level Political Forum on Sustainable Development's review of progress; and establishing partnerships with other international agencies to monitor and report on the indicators.⁶⁸ To fulfill this role, FAO is growing its data

⁵² FAO, *FAO Council 159th Session*, 2018.

⁵³ FAO, *FAO Council 159th Session Rome, 4-8 June 2018*, 2018.

⁵⁴ FAO, *Provisional Agenda for the 160th Session of the Council (December 2018)*, 2018.

⁵⁵ FAO, *FAO Conference ends with endorsement of UN agency's programme of work and budget*, 2017.

⁵⁶ FAO, *Programme Evaluation Report 2017*, 2017, pp. 4-5.

⁵⁷ *Ibid.*, p. 4.

⁵⁸ FAO, *2018-19 Biennial Theme - Climate Change and its impact on the work and activities of FAO*, 2017.

⁵⁹ *Ibid.*

⁶⁰ FAO, *The Director-General's Medium Term Plan 2018-21 and Programme of Work and Budget 2018-19*, 2017.

⁶¹ *Ibid.*

⁶² *Ibid.*, p. 5.

⁶³ *Ibid.*

⁶⁴ FAO, *About FAO*, 2018.

⁶⁵ FAO, *FAO Strategy on Climate Change*, 2017; FAO, *Global Action Programme on Food Security and Nutrition in Small Island Developing States: Supporting the implementation of the Samoa Pathway*, 2017.

⁶⁶ FAO, *Sustainable Development Goals*, 2018.

⁶⁷ FAO, *FAO and the SDGs*, 2015.

⁶⁸ *Ibid.*



collection and analysis through expanding its access to technologies, such as building partnerships with companies like Google to access geospatial archives and harnessing satellite technology to monitor fisheries and forests.⁶⁹

Beyond working to achieve the SDGs, FAO is focusing its work on issues such as antimicrobial resistance, climate change, and migration related to food insecurity.⁷⁰ In line with FAO's emphasis on climate change, the 31st session of the FAO Regional Conference for Europe (ERC) held from 16 May to 18 May 2018 in Russia, focused on sustainable food systems in the European and Central Asian regions as well as the integration of technology to promote e-agriculture.⁷¹ Regarding migration, FAO plays a vital role in addressing its root causes through targeted agricultural and rural development.⁷² In 2018, FAO is co-chairing the Global Migration Group with the International Organization for Migration and is instrumental in leading the efforts to adopt the Global Compact for Safe, Regular and Orderly Migration by the end of 2018 to raise awareness of how agriculture and sustainable development relate to the mass movement of people across borders.⁷³

Conclusion

FAO will play a crucial role in meeting the targets of the 2030 Agenda as its strategic objectives and programmatic work will intersect with nearly every SDG in some capacity.⁷⁴ FAO, along with its partner organizations, is in a position to further reduce the burden of hunger, malnutrition, and food insecurity on future generations and have aligned its strategic objective towards achieving these goals.⁷⁵ While still meeting the outlined goals to eradicate hunger, malnutrition, and combat poverty, FAO will further enhance its position to appropriately respond to pressing global situations, such as famine, food insecurity, and migration.⁷⁶

⁶⁹ FAO, *New tools for reporting on world's forest resources launched*, 2018.

⁷⁰ FAO, *Themes*, 2018.

⁷¹ FAO, *FAO Regional Conference for Europe (ERC)*, 2018.

⁷² FAO, *FAO and IOM boost cooperation on migration*, 2018.

⁷³ *Ibid.*

⁷⁴ FAO, *FAO and the SDGs*, 2015.

⁷⁵ *Ibid.*

⁷⁶ FAO, *Themes*, 2018.



Annotated Bibliography

Food and Agriculture Organization of the United Nations. (2015). *FAO and the SDGs* [Report]. Retrieved 7 June 2018 from: <http://www.fao.org/3/a-i6919e.pdf>

This report discusses the ways in which FAO will work towards achieving the SDGs and the methods to evaluate its, and other organizations', progress towards achieving several of the SDGs and its targets. It provides valuable insight into how FAO will ensure that the relevant information is collected in order to inform and adapt its future programmatic work in response to trends observed. It is important for delegates to understand the work that FAO does in order to track its progress so that they can make informed decisions about future policy proposals.

Food and Agriculture Organization of the United Nations. (2017). *Basic Texts of the Food and Agriculture Organization of the United Nations, Volumes I and II*. Retrieved 5 April 2018 from: <http://www.fao.org/3/a-mp046e.pdf>

The Basic Texts of FAO include the mandate, the constitution, and an overview of the governing bodies. Delegates should use these documents as a base for further research and ensure actions recommended fit within the mandate of the organization. In order to propose policy that is within the scope and mandate of FAO, delegates need to have a keen understanding of FAO's powers, authority, and ability to implement policy and programmatic activities.

Food and Agriculture Organization of the United Nations. (2017). *Programme Evaluation Report 2017* [Report]. Retrieved 7 June 2018 from: <http://www.fao.org/3/a-mt142e.pdf>

The Programme Evaluation Report covers the work of FAO during the years 2015 and 2016 and highlights successes and remaining challenges of FAO's work in achieving its previous goals. It is important for delegates to understand the areas in which FAO excels in achieving its goals and strategic objectives in order to incorporate these strengths into new policies. Therefore it is also important to understand where FAO did fulfill its goals in order to propose new ways in which the committee may approach solutions to the issues that the FAO is working to resolve.

Food and Agriculture Organization of the United Nations. (2017). *The Director-General's Medium Term Plan 2018-21 and Programme of Work and Budget 2018-19*. Retrieved 7 June 2018 from: <http://www.fao.org/3/a-ms278e.pdf>

The MTP outlines the current priorities and immediate work of FAO. The MTP identifies ten challenges to achieving FAO's goal and priorities and determined five strategic objectives: "Contribute to the eradication of hunger, food insecurity and malnutrition; Make agriculture, forestry and fisheries more productive and sustainable; Reduce rural poverty; Enable more inclusive and efficient agricultural and food systems; and, Increase the resilience of livelihoods to threats and crises." It is crucial for delegates to understand the ten challenges to achieving not only the strategic objectives of FAO but furthermore how the challenges may impede any work of the organization. In addition, knowledge of the strategic objectives of FAO is important in order for delegates to propose actionable policy that is aligned with the committee's current priorities.

Food and Agriculture Organization of the United Nations. (2018). *FAO Attributes, Core Functions, and Comparative Advantages*. Retrieved 7 June 2018 from: <http://www.fao.org/docrep/meeting/025/md881e01.pdf>

This document clearly outlines the core functions of FAO and how they, as outlined in FAO's constitution, contribute to the success of the organization. In addition, it outlines the evolution of how these core functions have been explained and incorporated in previous decisions. It is imperative that delegates have a strong foundational knowledge of the mandate and the functions of FAO in order to propose policy that is actionable.

Bibliography

Food Security Cluster. (n.d). *About FSC* [Website]. Retrieved 12 April 2018 from: <http://foodsecuritycluster.net/page/about-food-security-cluster>



Food and Agriculture Organization of the United Nations. (n.d.). *World Food Summit*. Retrieved 10 April 2018 from: <http://www.fao.org/wfs/>

Food and Agriculture Organization of the United Nations. (1979). *World Food Day (1/79)* [Resolution]. Retrieved 28 July 2018 from: <http://www.fao.org/docrep/x5565E/x5565e05.htm#wfd>

Food and Agriculture Organization of the United Nations. (2013). *Resilient Livelihoods: Disaster Risk Reduction for Food and Nutrition Security* [Report]. Retrieved 5 April 2018 from: <http://www.fao.org/docrep/015/i2540e/i2540e00.pdf>

Food and Agriculture Organization. (2014). *A Field Guide to Disaster Risk Reduction in Southern Africa* [Report]. Retrieved 7 April 2018 from: <http://www.fao.org/emergencies/fao-in-action/stories/stories-detail/en/c/240884/>

Food and Agriculture Organization of the United Nations. (2015). *FAO and the SDGs* [Report]. Retrieved 12 April 2018 from: <http://www.fao.org/3/a-i6919e.pdf>

Food and Agriculture Organization of the United Nations. (2017). *Basic Texts of the Food and Agriculture Organization of the United Nations, Volumes I and II*. Retrieved 5 April 2018 from: <http://www.fao.org/3/a-mp046e.pdf>

Food and Agriculture Organization of the United Nations. (2017). *The Director-General's Medium Term Plan 2018-21 and Programme of Work and Budget 2018-19*. Retrieved 3 April 2018 from: <http://www.fao.org/3/a-ms278e.pdf>

Food and Agriculture Organization of the United Nations. (2017, July 7). *FAO Conference ends with endorsement of UN agency's programme of work and budget* [Press Release]. Retrieved 9 April 2018 from: <http://www.fao.org/news/story/en/item/979783/icode/>

Food and Agriculture Organization of the United Nations. (2017). *FAO Strategy on Climate Change* [Report]. Retrieved 9 June 2018 from: <http://www.fao.org/3/a-i7175e.pdf>

Food and Agriculture Organization of the United Nations. (2017). *Global Action Programme on Food Security and Nutrition in Small Island Developing States: Supporting the implementation of the Samoa Pathway* [Report]. Retrieved 9 June 2018 from: <http://www.fao.org/3/a-i7135e.pdf>

Food and Agriculture Organization of the United Nations. (2017). *Programme Evaluation Report 2017*. Retrieved 10 April 2018 from: <http://www.fao.org/3/a-mt142e.pdf>

Food and Agriculture Organization of the United Nations. (2017). *2018-19 Biennial Theme - Climate Change and its impact on the work and activities of FAO* [Report]. Retrieved 9 April 2018 from: <http://www.fao.org/3/a-mt378e.pdf>

Food and Agriculture Organization of the United Nations. (2018). *About FAO* [Website]. Retrieved 5 April 2018 from: <http://www.fao.org/about/en/>

Food and Agriculture Organization of the United Nations. (2018). *Agricultural Development Economics Division (ESA)* [Website]. Retrieved 28 July 2018 from: <http://www.fao.org/economic/agricultural-development-economics/en/>

Food and Agriculture Organization of the United Nations. (2018). *Departments* [Website]. Retrieved 5 April 2018 from: <http://www.fao.org/about/who-we-are/departments/en/>

Food and Agriculture Organization of the United Nations. (2018). *Director-General* [Website]. Retrieved 5 April 2018 from: <http://www.fao.org/about/who-we-are/director-gen/en/>



Food and Agriculture Organization of the United Nations (2018, January 24). *FAO and IOM boost cooperation on migration* [Press Release]. Retrieved 13 April 2018 from: <http://www.fao.org/news/story/en/item/1073732/icode/>

Food and Agriculture Organization of the United Nations. (2018). *FAO Attributes, Core Functions, and Comparative Advantages* [Report]. Retrieved 8 April 2018 from: <http://www.fao.org/docrep/meeting/025/md881e01.pdf>

Food and Agriculture Organization of the United Nations. (2018). *FAO Council 159th Session*. [Website]. Retrieved 9 June 2018 from: <http://www.fao.org/about/meetings/council/cl159/documents/en/>

Food and Agriculture Organization of the United Nations. (2018). *FAO in Emergencies: Prepare and respond* [Website]. Retrieved 14 June 2018 from: <http://www.fao.org/emergencies/how-we-work/prepare-and-respond/en/>

Food and Agriculture Organization of the United Nations. (2018). *FAO in Emergencies: Resilience* [Website]. Retrieved 7 April 2018 from: <http://www.fao.org/emergencies/how-we-work/resilience/en/>

Food and Agriculture Organization of the United Nations. (2018). *FAO Regional Conference for Europe (ERC)* [Website]. Retrieved 15 June 2018 from: <http://www.fao.org/about/meetings/erc31/en/>

Food and Agriculture Organization of the United Nations. (2018). *FAO Regional Conferences* [Website]. Retrieved 28 July 2018 from: <http://www.fao.org/about/meetings/about-regional-conferences/en/>

Food and Agriculture Organization of the United Nations. (2018). *Governing and Statutory Bodies: Council* [Website]. Retrieved 5 April 2018 from: <http://www.fao.org/unfao/govbodies/gsbhome/council/en/>

Food and Agriculture Organization of the United Nations. (2018). *Governing and Statutory Bodies Web site*. Retrieved 5 April 2018 from: <http://www.fao.org/unfao/govbodies/en/>

Food and Agriculture Organization of the United Nations. (2018). *Legal Office: FAO Members* [Website]. Retrieved 5 April 2018 from: <http://www.fao.org/legal/home/fao-members/en/>

Food and Agriculture Organization of the United Nations. (2018, March 5). *New tools for reporting on world's forest resources launched* [Press Release]. Retrieved 9 April 2018 from: <http://www.fao.org/news/story/en/item/1105144/icode/>

Food and Agriculture Organization of the United Nations. (2018). *Provisional Agenda for the 160th Session of the Council (December 2018)*. Retrieved 28 July 2018 from: http://www.fao.org/fileadmin/user_upload/bodies/CL_159/CL159_INF/MV897_INF_2/MV897_CL_159_INF_2_en.pdf

Food and Agriculture Organization of the United Nations. (2018). *Strategic Planning* [Website]. Retrieved 5 April 2018 from: <http://www.fao.org/about/strategic-planning/en/>

Food and Agriculture Organization of the United Nations. (2018). *Sustainable Development Goals* [Website]. Retrieved 7 April 2018 from: <http://www.fao.org/sustainable-development-goals/en/>

Food and Agriculture Organization of the United Nations. (2018). *Technical Cooperation Department* [Website]. Retrieved 28 July 2018 from: <http://www.fao.org/tc/en/>

Food and Agriculture Organization of the United Nations. (2018). *Themes* [Website]. Retrieved 13 April 2018 from: <http://www.fao.org/themes/en/>

Graziano de Silva, J. (2018). *A statement by FAO Director-General José Graziano da Silva*. Retrieved 28 July 2018 from: <http://www.fao.org/director-general/my-statements/detail/en/c/1105735/>



New Zealand, Ministry of Foreign Affairs and Trade. (2017). *United Nations Handbook 2017-18*. Retrieved 8 April 2018 from: [https://www.mfat.govt.nz/assets/Peace-and-Security/United Nations Handbook 2017 18.pdf](https://www.mfat.govt.nz/assets/Peace-and-Security/United_Nations_Handbook_2017_18.pdf)

Phillips, R. (1981). FAO - its origins, formation and evolution 1945-1981. *Food and Agriculture Organization of the United Nations*. Retrieved 5 April 2018 from: <http://www.fao.org/docrep/009/p4228e/P4228E00.htm#TOC>

United Nations. (n.d.). *Funds, Programmes, Specialized Agencies and Others* [Website]. Retrieved 28 July 2018 from: <http://www.un.org/en/sections/about-un/funds-programmes-specialized-agencies-and-others/>

United Nations. (n.d.) *Outcomes on Food* [Website]. Retrieved 17 June 2018 from: <http://www.un.org/en/development/devagenda/food.shtml>

World Food Conference. (1974). *Universal Declaration on the Eradication of Hunger and Malnutrition*. Retrieved 9 April 2018 from: <http://www.ohchr.org/EN/ProfessionalInterest/Pages/EradicationOfHungerAndMalnutrition.aspx>

I. Feeding Cities of the Future: Urban Biodiversity

Introduction

With more than half of the world’s population living in urban areas and this percentage projected to increase to 70% by 2050, the need for increased access to sustainable food systems is growing.⁷⁷ Biodiversity has been regularly discussed by the international community over the last decade, and while the urban approach is relatively new, it draws on a wealth of international agreement on biodiversity and the environment.⁷⁸ Biodiversity was defined by the *Convention on Biological Diversity* (1993) as “the diversity of all living forms at different levels of complexity: genes, species, ecosystems and even landscapes and seascapes.”⁷⁹ Food and Agriculture Organization (FAO) of the United Nations (UN) considers biodiversity essential for food security and nutrition, and without the maintenance of biodiversity, high levels of food insecurity can occur.⁸⁰ Food security is made up of four factors - food availability, food access, utilization, and stability – and without these, food sources become difficult to achieve.⁸¹ The rapid urbanization currently being experienced globally has been identified by the FAO as decreasing this food security worldwide.⁸²

As urbanization has progressed, innovative solutions have been developed, such as urban agriculture or urban gardening, that may help to ensure food security in the growing urban populations.⁸³ Some Member States are increasingly supporting peri-urban agriculture (UPA), which often grows organically and have been described as “spontaneous responses to the increased demand for food linked to urban population expansion” in developing countries.⁸⁴ Advancement of urban biodiversity can occur through a people-centered focus, as well as through unique community solutions to urban biodiversity issues.⁸⁵ Local community engagement, along with multilateral support, can have a major impact on urban biodiversity.⁸⁶

International and Regional Framework

In 1992, the United Nations Conference on Environment and Development (UNCED) adopted *Agenda 21*, which provided a comprehensive, multi-level framework for the international community to work towards all areas of sustainability.⁸⁷ *Agenda 21* focused on a variety of areas of sustainability, including social and economic sustainability, and guiding principles for the future of biodiversity among other themes.⁸⁸ A second outcome of the conference was the *Convention on Biological Diversity* (CBD).⁸⁹ The CBD aims to conserve biological diversity and is the foundation document with that aim; it calls for sustainable and equal sharing of biologically diverse resources.⁹⁰ The CBD highlights other factors that are affected by biological diversity, such as people, their well-being, and their ability to survive off of biologically diverse resources.⁹¹

⁷⁷ ECOSOC, *ECOSOC Integration Segment – Fact Sheet*, 2014.

⁷⁸ Nilon, *Urban biodiversity and the importance of management and conservation*, 2010, p. 1.

⁷⁹ UNCED, *Convention on Biological Diversity*, 1992.

⁸⁰ FAO, *Biodiversity*, 2018.

⁸¹ FAO, *Food Security Policy Brief*, 2006.

⁸² FAO, *Reviewed Strategic Framework (C 2013/7)*, 2013.

⁸³ FAO, *Urban Agriculture*, 2018.

⁸⁴ UNSTATS, *Population density and urbanization*, 2017; FAO, *Urban Agriculture*, 2018.

⁸⁵ FAO, *Food, Agriculture and Cities: Challenges of food and nutrition security, agriculture and ecosystem management in an urbanizing world*, 2011, p. 36.

⁸⁶ Ibid.

⁸⁷ UNCED, *Agenda 21*, 1992.

⁸⁸ Ibid.

⁸⁹ Ibid.

⁹⁰ Secretariat of the Convention on Biological Diversity, *Introduction*, 2018.

⁹¹ Secretariat of the Convention on Biological Diversity, *How the Convention on Biological Diversity promotes nature and human well-being*, 2000.

As an extension of the CBD, the *Cartagena Protocol on Biosafety to the Convention on Biological Diversity* shifted the focus towards biosafety.⁹² The *Cartagena Protocol* was adopted in 2000 as a result of the second Conference of Parties (COP) to the CBD, and aims to promote the protection of biological diversity from modern technology and industrialization.⁹³ Furthermore, the *Cartagena Protocol* focuses on the transportation and introduction of new organisms, and encourages countries to adopt specific protections in place to safeguard current biological organisms from any potential impacts of new organisms.⁹⁴ Following COP4 in Bratislava, Slovakia, efforts to protect biodiversity shifted towards the creation of a protocol on access and benefit sharing, as this was one of the core principles of the CBD itself.⁹⁵ The *Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of Benefits to the Convention on Biological Diversity* was adopted in 2010 to ensure that the CBD was able to meet some of its main objectives, ensure less variability in biological organisms, and provide benefit sharing through the promotion of access, benefit-sharing, and compliance.⁹⁶

During the 13th meeting of the COP in 2017, it was requested FAO provide additional research and guidance with regard to sustainability for food and agricultural sectors.⁹⁷ During FAO's 40th session, FAO identified that mainstreaming and biodiversity partnerships, specifically the creation of a platform for mainstreaming partnerships, is a priority.⁹⁸ The outcome document issued by FAO during the COP13 meetings called for increased multi-stakeholder discussions regarding conservation and usage of biologically diverse resources, and the consideration of biodiversity mainstreaming during future FAO conferences.⁹⁹ In September 2015, the adoption of the *2030 Agenda for Sustainable Development* created the Sustainable Development Goals (SDGs), which constitute the modern response to sustainability issues.¹⁰⁰ A significant number of the 17 goals have connections to biodiversity, and now, urban biodiversity, including Goal 2 to achieve zero hunger and Goal 11 to achieve Sustainable Cities and Communities.¹⁰¹ Goal 11 is particularly important as it lays the foundation for an urban approach for biodiversity through targets working towards resource efficiency and sustainable urbanization.¹⁰² Progress on this goal will be discussed in-depth at the upcoming High-Level Political Forum (HLPF) on Sustainable Development, and topics within the theme of "Transformation towards sustainable and resilient societies."¹⁰³

Highlighting the importance of the urban approach, the UN Human Settlements Programme (UN-HABITAT) adopted the *New Urban Agenda* during the 2017 HABITAT-III conference.¹⁰⁴ The agenda reinforces the benefits of the urban approach towards economic development and in creating inclusive, sustainable societies.¹⁰⁵ In order to implement the *New Urban Agenda*, a set of six target themes for implementation, such as spatial development, urban prosperity, and environmental sustainability.¹⁰⁶ Another key document important to the current understanding of urban agriculture is UN General Assembly resolution 72/238 on "Agriculture Development, Food Security, and Nutrition," which conveyed the importance of the *New Urban Agenda* and the relationship between agriculture and food systems and improving biodiversity.¹⁰⁷

⁹² Secretariat of the Convention on Biological Diversity, *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*, 2000.

⁹³ UN DPI, *International Day for Biological Diversity*; Secretariat of the Convention on Biological Diversity, *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*, 2000.

⁹⁴ Ibid.

⁹⁵ Secretariat of the Convention on Biological Diversity, *The Nagoya Protocol – History*.

⁹⁶ Secretariat of the Convention on Biological Diversity, *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity*, 2011.

⁹⁷ FAO, *Outcome of the 13th Meeting of the Conference of the Parties to the Convention on Biological Diversity: Mainstreaming Biodiversity across Agricultural Sectors*, 2017, p. 2.

⁹⁸ Ibid.

⁹⁹ FAO, *Outcome of the 13th Meeting of the Conference of the Parties to the Convention on Biological Diversity: Mainstreaming Biodiversity across Agricultural Sectors*, 2017, p. 2.

¹⁰⁰ UN General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1)*, 2015.

¹⁰¹ Ibid.

¹⁰² Ibid.

¹⁰³ UN DPI, *High Level Political Forum*, 2018.

¹⁰⁴ United Nations Conference on Housing and Sustainable Urban Development., *New Urban Agenda*, 2017

¹⁰⁵ Ibid.

¹⁰⁶ UN-HABITAT, *New Urban Agenda*, 2017.

¹⁰⁷ UN General Assembly, *Agriculture, Food Security and Nutrition (A/RES/72/238)*, 2017.

Role of the International System

FAO plays one of the largest roles in the advancement of biodiversity and urban agriculture, which was emphasized in the Strategic Framework 2010-2019.¹⁰⁸ Within the Strategic Framework, objectives 2 and 4 stress the importance of improving biodiversity and food systems, and mainstreaming sustainable urban livelihoods.¹⁰⁹ In a 2011 FAO report, *Food, Agriculture and Cities*, the importance of identifying the link and future outcome of urban, peri-urban, and rural food systems was underlined.¹¹⁰ The report identified a number of important trends that affect urban food systems: the relationship between urban and rural food systems, supporting growing urban populations, management of natural resources, and more.¹¹¹ The FAO Biodiversity group is also an important mechanism for highlighting and streamlining the components and challenges of biodiversity.¹¹² While the group aims to highlight cross-sectoral issues within biodiversity, such as socio-economics and biosecurity, an urban approach can be a future opportunity of consideration.¹¹³

Outside FAO, other UN organizations such as the UN Environment Programme (UNEP), UN Development Program (UNDP), and the UN Educational, Scientific, and Cultural Organization (UNESCO) play key roles in promoting biodiversity, specifically through the implementation of the CBD Strategic Plan for Biodiversity and its Aichi Targets.¹¹⁴ The Strategic Plan for Biodiversity 2011-2020 is a comprehensive and overarching framework that works to implement biodiversity into all aspects of the UN system, particularly in terms of policy and management.¹¹⁵ COP10 to the CBD, decision X/2 lays out the strategic plan in detail; sections V and VI of the decision outlines its implementation and support mechanisms for how the various UN bodies can coordinate for implementation.¹¹⁶ Strategies for the plan include addressing underlying causes of biodiversity loss, promotion of sustainability, improving the status of safeguards, enhancing benefits from biodiversity, and enhancing planning, knowledge management, and capacity-building. As an opportunity to mainstream the role that biodiversity plays, UN General Assembly resolution 65/161 declared 2011-2020 the United Nations Decade on Biodiversity.¹¹⁷ Other groups directly involved in biodiversity include the Commission on Genetic Resources for Food and Agriculture, which seeks to achieve consensus on biological diversity policies; the Governing Body of the International Treaty on Plant Genetic Resources for Food and Agriculture, which oversees the actions and implementation of elements of the CBD; and the Commission on Phytosanitary Measures that addresses plant protection.¹¹⁸ UN-HABITAT aims to be the leading body on dealing with the challenges of urbanization, and support cities as they continue to grow and urbanize.¹¹⁹ Organizations such as the Research Centres on Urban Agriculture and Food Security (RUAF) promote partnerships and research on urban agriculture initiatives in local communities.¹²⁰ Some of RUAF projects include urban farming agriculture for disadvantaged groups in Sierra Leone and Market Oriented Urban Agriculture in Gaza.¹²¹

Urban Food Chains

As food production continues to change, having a strong understanding of the food value and supply chain can drive change within urban food production and biodiversity.¹²² It is increasingly important for urban food chains to be

¹⁰⁸ FAO, *Reviewed Strategic Framework (C 2013/7)*, 2013.

¹⁰⁹ *ibid.*

¹¹⁰ FAO, *Food, Agriculture and Cities: Challenges of food and nutrition security, agriculture and ecosystem management in an urbanizing world*, 2011.

¹¹¹ *Ibid.*

¹¹² FAO, *Biodiversity Group*, 2018.

¹¹³ *Ibid.*

¹¹⁴ FAO, *Biodiversity*, 2018.

¹¹⁵ CBD, *Strategic Plan for Biodiversity 2011-2020, including Aichi Biodiversity Targets*, 2018.

¹¹⁶ CBD, *COP 10 Decision X2*, 2010.

¹¹⁷ FAO, *United Nation Decade on Biodiversity*, 2018.

¹¹⁸ FAO, *Biodiversity Intergovernmental Bodies*, 2018.

¹¹⁹ UN-HABITAT, *UN-HABITAT at a glance*, 2012.

¹²⁰ Research Centres on Urban Agriculture and Food Security, *About RUAF*, 2018.

¹²¹ Research Centres on Urban Agriculture and Food Security, *Projects*, 2018.

¹²² International Food Policy Research Institute, *Global Food Policy Report 2017*, 2017, p. 42.

short, due to the immense number of benefits, including higher profit margins for procurers.¹²³ Shorter chains also allow urban populations to take advantage of peri- and sub-urban food production and increases market access.¹²⁴ FAO's report on *Cities and Biodiversity* highlighted the growth and success of urban and suburban agriculture production in Cuba.¹²⁵ Due to difficulty in importing food, the country has focused much of their efforts and overall geography to be used to support urban agriculture.¹²⁶ This meant that Cuba focused on developing short supply chains in order to meet the needs of the island population.¹²⁷ The same report discusses Northern Vietnam, where most agriculture sales occur through street vendors and movement towards urbanization has allowed for the alignment of policies to permit a premium, market price to be offered for staple products, such as rice.¹²⁸

While food production may be seen as a relatively simple operation, factors such as an aging population, commercialization, and productivity shifts are challenging the ability for many Member States to meet local needs.¹²⁹ Opportunities here lie in the advancement of green technology and innovation, which can have the greatest impact on the future growth of urban cities, particularly in urban production and biodiversity advancement.¹³⁰ Non-governmental organizations often seek to reduce the divide between urban and rural agriculture and often lead local efforts through their initiatives.¹³¹ There is a growing need to find a balance between these production sources to support future growth of urban populations.¹³² As cities begin to shift towards a reliance on urban food systems, one of the pitfalls is that cities often do not take a holistic approach to food production.¹³³ The holistic approach can advance urban food systems and can help cities address poor infrastructure, poverty alleviation, and healthy environments.¹³⁴

Governance Policies and Planning

Consideration of governance policies and city planning, specifically for food systems and their relationship to biodiversity, are growing in importance.¹³⁵ Governance and planning for urban biodiversity can be important when considering the balance between urban and peri-urban agriculture, food development, and environmental sustainability.¹³⁶ In order to find a balance and meet the growing challenges towards urban biodiversity, urban planners can consider global pricing structures and food production, both locally and abroad, as two guiding principles.¹³⁷ The CBD report *Cities and Biodiversity Outlook Action and Policy* also identified that a people-centered approach was a key factor.¹³⁸

Many local initiatives come from small-scale farmers.¹³⁹ Urban agriculture often includes initiatives such as urban gardening, aquaponics, or vertical farming, among others.¹⁴⁰ The importance of these initiatives is the ease for scalability and replicability, which can be included and supported by local government urban planning.¹⁴¹ Support

¹²³ Ibid.

¹²⁴ Research Centres on Urban Agriculture and Food Security, *Sustainable Urban Food Provisioning*, 2013.

¹²⁵ Secretariat of the Convention on Biodiversity et al, *Cities and Biodiversity Outlook Action and Policy*, 2012, p. 36.

¹²⁶ Ibid, p. 37.

¹²⁷ Research Centres on Urban Agriculture and Food Security, *Sustainable Urban Food Provisioning*, 2013.; Secretariat of the Convention on Biodiversity et al, *Cities and Biodiversity Outlook Action and Policy*, 2012, p. 37.

¹²⁸ Secretariat of the Convention on Biodiversity et al, *Cities and Biodiversity Outlook Action and Policy*, 2012, p. 38.

¹²⁹ Moreno-Penaranda, *Japan's Urban Agriculture: Cultivating Sustainability and Well-being*, 2011.

¹³⁰ Ibid.

¹³¹ Grow City, *About*, 2010; ReVision Urban Farm, *Our Story*, 2015.

¹³² International Food Policy Research Institute, *Global Food Policy Report 2017*, 2017, pp. 43-44.

¹³³ Local Governments for Sustainability (Management) Inc., *Outcomes of Resilient Urban Food Systems Forum 2013*, 2013.

¹³⁴ Ibid.

¹³⁵ FAO, *Food, Agriculture and Cities Challenges: of food and nutrition security, agriculture and ecosystem management in an urbanizing world*, 2011, p. 36.

¹³⁶ FAO, *Food for Cities*, 2018.

¹³⁷ FAO, *Food, Agriculture and Cities Challenges: of food and nutrition security, agriculture and ecosystem management in an urbanizing world*, 2011, p. 36.

¹³⁸ Secretariat of the Convention on Biodiversity et al, *Cities and Biodiversity Outlook Action and Policy*, 2012, p. 39

¹³⁹ Food Tank, *Annual Report 2015-2016*, 2016.

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

from city planning has proven to be quite successful from many government planning groups in Central and South American countries such as Brazil, Cuba, Ecuador, Honduras, and Mexico.¹⁴² Many of these projects focused on city planning that addressed such initiatives, including family and communal gardens, peri-urban and sub-urban agriculture, and drip irrigation.¹⁴³ Some governments have increased their focus on urban planning as an opportunity to reduce or eliminate poverty and hunger, and advance education.¹⁴⁴ Working towards achieving true urban biodiversity, the Montreal-based Biopolis, a platform created by the World Wildlife Fund and Concertation Montréal, aims to showcase and reshape the way urban biodiversity is approached.¹⁴⁵ One of the areas that Biopolis supports is urban agriculture, and many of the projects that are identified within this sub-category of work seek to connect green infrastructure with urban development, specifically for food sources.¹⁴⁶

Conclusion

While the world continues to urbanize, the need to identify new food sources and support biodiversity is becoming of paramount importance.¹⁴⁷ Showcasing a strong commitment towards urban resilience and food security can allow cities to preserve their urban biodiversity and ensure their populations have access to fresh, nutritious food.¹⁴⁸ For Member States continuing to advance biodiversity, the immense impacts that urbanization can have on food systems could lead to the global community needing to reassess and reinforce biodiversity policies.¹⁴⁹ The achievement of sustainable food systems within urban biodiversity needs to focus on both people and governance in order to achieve the highest level of success.¹⁵⁰

Further Research

In considering how to ensure long-term food security in urban environments, delegates should consider the following questions: How should the *Convention on Biological Diversity* and its subsidiary goals address urban biodiversity? How will the impact and success of urban biodiversity affect food systems? Will a shift from rural to urban food production be able to support the growth of urban populations? How can civil society play a larger role in shaping food systems and reducing food insecurity through urban biodiversity? How will the relationship between urban, peri-urban, and rural populations need to change in terms of food production, and their supply chain networks?

¹⁴² FAO, *Growing Greener Cities in Latin America and the Caribbean*, 2014.

¹⁴³ FAO, *Growing Greener Cities in Latin America and the Caribbean*, 2014, pp. 10-89.

¹⁴⁴ *Ibid*, pp. 34-35.

¹⁴⁵ Biopolis, *About*, 2016.

¹⁴⁶ Biopolis, *Projects*, 2016.

¹⁴⁷ FAO, *The Future of Food and Agriculture – Trends and Challenges*, 2017.

¹⁴⁸ Olsson et al., *Peri-Urban Food Production and its Relation to Urban Resilience*, 2016.

¹⁴⁹ FAO, *Urban Agriculture*, 2018.

¹⁵⁰ FAO, *Food, Agriculture and Cities Challenges: of food and nutrition security, agriculture and ecosystem management in an urbanizing world*, 2011, p. 36.



Annotated Bibliography

Food and Agriculture Organization of the United Nations. (2011). *Food, Agriculture and Cities: Challenges of food and nutrition security, agriculture and ecosystem management in an urbanizing world* [Report]. Retrieved 7 March 2018 from: <http://www.fao.org/3/a-au725e.pdf>

This report provides an in depth understanding of the relationships between food, agriculture and cities. Additionally, it provides a set of recommendations on improving the future outlook of urban biodiversity and urban food systems. Delegates will find this useful, as it outlines the current challenges that are facing cities, agriculture, and biodiversity. This will allow delegates the opportunity to develop an in-depth understanding of the challenges, so that they may be able to complete a thorough analysis of the topic and develop potential solutions that are affecting the international community.

Food and Agriculture Organization of the United Nations. (2017). *Outcome of the 13th Meeting of the Conference of the Parties to the Convention on Biological Diversity: Mainstreaming Biodiversity across Agricultural Sectors (C 2017/33)*. Retrieved 6 March 2018 from: <http://www.fao.org/3/a-mt376e.pdf>

This document gives a brief recap of the recent meeting on the CBD and provides a variety of future considerations for FAO as they continue to integrate biodiversity into food systems. As a current outcome document from the latest FAO meeting, this will provide delegates with a sound understanding of biodiversity, and its importance for the success of food systems. Delegates will find this useful as it reviews the UN Biodiversity Conference outcomes, as well as the general mainstreaming of biodiversity and biodiversity as a platform itself.

Food and Agriculture Organization of the United Nations. (2017). *The Future of Food and Agriculture – Trends and Challenges* [Report]. Retrieved 29 April 2018 from: <http://www.fao.org/3/a-i6583e.pdf>

This report provides an indepth overview of a variety of trends occurring for food and agriculture. It is an important report as it also identifies a number of key challenges that are facing Member States, and potential for future solutions. This will provide support for delegates as they look to understand the various direct and indirect challenges with food and agriculture, and will allow them to identify the relationships that urban biodiversity has in terms of food systems. Of particular importance will be trends sections 2,5,8,12,15 and challenges sections 1,4,5,6,8,10.

Secretariat of the Convention on Biodiversity et al. (2012). *Cities and Biodiversity Outlook Action and Policy* [Report]. Retrieved 4 March 2018 from: <https://www.cbd.int/doc/health/cbo-action-policy-en.pdf>

This document provides a thorough understanding of the relationship between cities and their effects on biodiversity as a whole. The document will provide delegates with the opportunity to understand current challenges and opportunities, as well as key messages for the future of urban biodiversity. Sections 2,3,6,7,8 and 10 provide more details on the relationships of food and agriculture as it relates to urban biodiversity, both through direct and indirect factors.

United Nations Conference on Housing and Sustainable Urban Development. (2017). *New Urban Agenda*. Retrieved 7 March 2018 from: <http://habitat3.org/wp-content/uploads/NUA-English.pdf>

The New Urban Agenda is the outcome document from Habitat III and outlines how urban centers and populations will contribute in unique ways towards sustainable development. This resource will provide delegates a strong understanding of the importance that cities play in the movement towards a more sustainable future, which includes urban biodiversity, agriculture, and various food systems. This will allow delegates to understand how cities and urban environments will be leading future sustainable development. This resolution will be an important tool for delegates in allowing them to continue to build on urban development and ensure that they create relationships with urban biodiversity.

Bibliography

Biopolis. (2016). *About* [Website]. Retrieved 28 March 2018 from: <http://www.biopolis.ca/en/about/>

Biopolis. (2016). *Projects* [Website]. Retrieved 28 March 2018 from: <http://www.biopolis.ca/en/projects/>



Biopolis. (2016). *Project Requirements* [Website]. Retrieved 28 March 2018 from: <http://www.biopolis.ca/en/project-requirements/>

Food and Agriculture Organization of the United Nations. (2006). *Food Security Policy Brief* [Website]. Retrieved 3 June 2018 from: http://www.fao.org/fileadmin/templates/faoitally/documents/pdf/pdf_Food_Security_Coecept_Note.pdf

Food and Agriculture Organization of the United Nations. (2010). *Biodiversity for Food and Agriculture* [Report]. Retrieved 6 March 2018 from: <http://www.fao.org/3/a-i1980e.pdf>

Food and Agriculture Organization of the United Nations. (2011). *The Place of Urban and Peri-Urban Agriculture (UPA), in National Food Security Programmes* [Report]. Retrieved 3 June 2018 from: <http://www.fao.org/docrep/014/i2177e/i2177e00.pdf>

Food and Agriculture Organization of the United Nations. (2013). *Reviewed Strategic Framework* [Outcome Document]. Retrieved 3 June 2018 from: <http://www.fao.org/docrep/meeting/027/mg015e.pdf>

Food and Agriculture Organization of the United Nations. (2014). *Growing Greener Cities in Latin America and the Caribbean* [Report]. Retrieved 3 June 2018 from: <http://www.fao.org/3/a-i3696e.pdf>

Food and Agriculture Organization of the United Nations. (2017). *Sustainable crop and food systems in an urbanizing world* [Report]. Retrieved 28 April 2018 from: <http://www.fao.org/3/a-i7479e.pdf>

Food and Agriculture Organization of the United Nations. (2018). *Biodiversity* [Website]. Retrieved 3 June 2018 from: <http://www.fao.org/biodiversity/en/>

Food and Agriculture Organization of the United Nations. (2018). *Biodiversity Group* [Website]. Retrieved 3 June 2018 from: <http://www.fao.org/biodiversity/group/en/>

Food and Agriculture Organization of the United Nations. (2018). *Food for the Cities Programme* [Website]. Retrieved 7 March 2018 from: <http://www.fao.org/in-action/food-for-cities-programme/en/>

Food and Agriculture Organization of the United Nations. (2018). *Intergovernmental bodies* [Website]. Retrieved 3 June 2018 from: <http://www.fao.org/biodiversity/intergovernmental-bodies/en/>

Food and Agriculture Organization of the United Nations. (2018). *United Nations Decade on Biodiversity* [Website]. Retrieved 3 June 2018 from: <http://www.fao.org/biodiversity/international-decade-on-biodiversity/en/>

Food and Agriculture Organization of the United Nations. (2018). *Urban Food Actions Platform* [Website]. Retrieved 4 March 2018 from: <http://www.fao.org/urban-food-actions/en/>

Food Tank. (2016). *Annual Report 2015-2016*. Retrieved 3 June 2018 from: https://foodtank.com/wp-content/uploads/2016/11/Annual-Report_2015_2016_rev616.pdf

Grow City. (2015). *About* [Website]. Retrieved 2 July 2018 from: <http://www.grow-city.org/>

International Food Policy Research Institute. (2017). *Global Food Policy Report 2017*. Retrieved 29 April 2018 from: <http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/131085/filename/131296.pdf>

Local Governments for Sustainability (Management) Inc. (2013). *Outcomes of Resilient Urban Food Systems Forum 2013* [Report]. Retrieved 3 June 2018 from: <https://sustainabledevelopment.un.org/getWSDoc.php?id=79>

Moreno-Penaranda, R. (2011, September 20). Japan's Urban Agriculture: Cultivating Sustainability and Well-being. *United Nations University*. Retrieved on 29 April 2018 from: <https://unu.edu/publications/articles/japan-s-urban-agriculture-what-does-the-future-hold.html>



Müller, N., et al. (2013). Patterns and Trends in Urban Biodiversity and Landscape Design. In Elmquist, T. et al. *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities* (pp. 123-174). Heidelberg, Germany: Springer.

Nilon, C. (2010). Urban biodiversity and the importance of management and conservation. *Landscape and Ecological Engineering*. 7 (1): 45-52. Retrieved 28 April 2018 from: <https://link.springer.com/article/10.1007%2Fs11355-010-0146-8>

Olsson, E. et al. (2016). Peri-Urban Food Production and its Relation to Urban Resilience. *MDPI Sustainability*. 8 (12): 1340. Retrieved 29 April 2018 from: <http://www.mdpi.com/2071-1050/8/12/1340>

Research Centres on Urban Agriculture and Food Security. (2018). *About RUAF* [Website]. Retrieved 2 July 2018 from: <https://www.ruaf.org/about-ruaf>

Research Centres on Urban Agriculture and Food Security. (2018). *Projects* [Website]. Retrieved 2 July 2018 from: <https://www.ruaf.org/projects>

Research Centres on Urban Agriculture and Food Security. (2018). *Short food chains and local economy* [Website]. Retrieved 3 June 2018 from: <http://www.ruaf.org/short-food-chains-and-local-economy>

Secretariat of the Convention on Biological Diversity (n.d.). *The Nagoya Protocol - History* [Website]. Retrieved 5 March 2018 from: <https://www.cbd.int/abs/background/default.shtml>

Secretariat of the Convention on Biological Diversity (n.d.). *Strategic Plan for Biodiversity 2011-2020, including Aichi Biodiversity Targets*. Retrieved 3 June 2018 from: <https://www.cbd.int/sp/>

Secretariat of the Convention on Biological Diversity (2010). *COP 10 Decision X/2*. Retrieved 3 June 2018 from: <https://www.cbd.int/doc/decisions/cop-10/cop-10-dec-02-en.doc>

Secretariat of the Convention on Biological Diversity (2011). *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity*. Retrieved 4 March 2018 from: <https://www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf>

Secretariat of the Convention on Biological Diversity (2012). *Cartagena Protocol on Biosafety to the Convention on Biological Diversity*. Retrieved 28 April 2018 from: <https://bch.cbd.int/database/attachment/?id=10694>

Secretariat of the Convention on Biological Diversity (2000). *How the Convention on Biological Diversity promotes nature and human well-being* [Report]. Retrieved 28 April 2018 from: <https://www.cbd.int/doc/publications/cbd-sustain-en.pdf>

United Nations Conference on Environment and Development. (1992). *Convention on Biological Diversity*. Retrieved 5 March 2018 from: <https://www.cbd.int/doc/legal/cbd-en.pdf>

United Nations Conference on Environment and Development. (1992). *Agenda 21*. Retrieved 7 March 2018 from: <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>

United Nations Conference on Environment and Development. (2002). *Plan of Implementation of the World Summit on Sustainable Development*. Retrieved 28 April 2018 from: http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf

United Nations Conference on Housing and Sustainable Urban Development. (2017). *New Urban Agenda*. Retrieved 7 March 2018 from: <http://habitat3.org/wp-content/uploads/NUA-English.pdf>



United Nations, Department of Economic and Social Affairs. (2016). *Global Sustainable Development Report 2016*. Retrieved 7 March 2018 from: [https://sustainabledevelopment.un.org/content/documents/2328Global%20Sustainable%20development%20report%202016%20\(final\).pdf](https://sustainabledevelopment.un.org/content/documents/2328Global%20Sustainable%20development%20report%202016%20(final).pdf)

United Nations, Department of Public Information. (n.d.). *International Day for Biological Diversity* [Website]. Retrieved 28 April 2018 from: <http://www.un.org/en/events/biodiversityday/convention.shtml>

United Nations, Department of Public Information. (2018). *High Level Political Forum* [Website]. Retrieved 2 July 2018 from: <https://sustainabledevelopment.un.org/hlpf>

United Nations Development Programme. (2012). *The Future We Want: Biodiversity and Ecosystems—Driving Sustainable Development Biodiversity and Ecosystems Global Framework 2012-2020* [Report]. Retrieved 7 March 2018 from: http://www.undp.org/content/undp/en/home/librarypage/environment-energy/ecosystems_and_biodiversity/biodiversity-and-ecosystems-global-framework-2012-to-2020.html

United Nations, Economic and Social Council. (2014). *ECOSOC Integration Segment – Fact Sheet*. Retrieved 28 April 2018 from: http://www.un.org/en/ecosoc/integration/pdf/fact_sheet.pdf

United Nations, General Assembly, Seventieth session. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1)* [Resolution]. Retrieved 28 April 2018 from: <http://undocs.org/a/res/70/1>

United Nations, General Assembly, Seventy-second session. (2017). *Agriculture Development, Food Security, and Nutrition (A/RES/72/238)* [Resolution]. Retrieved 7 March 2018 from: <http://undocs.org/a/res/72/238>

United Nations Human Settlements Programme. (2012). *UN-Habitat at a glance* [Website]. Retrieved 3 June 2018 from: <https://unhabitat.org/un-habitat-at-a-glance/>

United Nations Statistics Division. (2017). *Population density and urbanization* [Website]. Retrieved 3 June 2018 from: <https://unstats.un.org/unsd/demographic/sconcerns/densurb/densurbmethods.htm>

II. Climate Change and Food Security

Introduction

In 2017, the Food and Agricultural Organization (FAO) of the United Nations (UN) reported that 819 million people are undernourished.¹⁵¹ Underlining that global hunger is rising, FAO noted that 11% of the world's population is affected despite the fact that there is enough food produced to feed everyone in the world.¹⁵² While there are many definitions of food security, the broadest acceptance of the definition is from the 1996 World Food Summit: "food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life".¹⁵³ Thus, when people do not have access to sufficient, safe, and nutritious food, this is defined as food insecurity.¹⁵⁴ Rural communities are especially vulnerable to food insecurity due to their reliance on agriculture and livestock, as well as distance from urban centers that have greater food availability.¹⁵⁵ Climate change negatively affects food production, availability and accessibility that prevent the global community in achieving food security.¹⁵⁶

Extreme weather events, such as droughts, floods, and storms are already recognized as tangible negative outcomes of climate change and have an adverse impact on food security through the destruction of crops, infrastructure, and communities.¹⁵⁷ Coupled with long-term and gradual climate risks, such as rising sea levels, climate change poses a tremendous risk to coastal areas, river deltas, and in-land communities that reduce levels of arable land and availability of adequate water resources.¹⁵⁸ Rising global temperatures leads to increased water usage for crops and livestock, and certain crops will no longer be able to grow in climates that have been altered to due to climate change.¹⁵⁹ Both extreme weather events and gradual climate risks threaten livelihoods and exacerbate global poverty rates and food insecurity.¹⁶⁰ In order to address the threat of climate change and food insecurity, Member States, civil society, and other international actors will need to create and implement food security strategies that include adaptive and mitigation tactics in addressing climate change.¹⁶¹ At the 2017 UN Climate Change Conference, the 23rd Conference of Parties (COP) to the 1992 UN Framework Convention on Climate Change (UNFCCC), world leaders and experts acknowledged global food security could be achieved through coordinated efforts towards addressing climate change, poverty, and hunger.¹⁶²

International and Regional Framework

In 1996, FAO held the World Food Summit in Rome, Italy, the outcome of which was the *Rome Declaration on World Food Security*.¹⁶³ The *Rome Declaration on World Food Security* reaffirms the *Universal Declaration of Human Rights* (1948) in the right for everyone to be free from hunger, have access to safe and nutritional food, and that political will and national commitment is needed to eradicate world hunger and achieve food security for all.¹⁶⁴ The UNFCCC was drafted in 1992 and it is an international environmental treaty that aims to prevent "dangerous" human activity from interfering with the climate system and stabilize greenhouse gas (GHG) concentrations.¹⁶⁵ Following the UNFCCC, the *Kyoto Protocol* (1997) was adopted and entered into force in 2005 as an expansion of the goals and Member States' commitments to addressing climate change.¹⁶⁶ Both the *Kyoto Protocol* and the

¹⁵¹ FAO, *State of Food Security and Nutrition in the World*, 2017.

¹⁵² *Ibid.*

¹⁵³ Mazziotta, Mura, & Napoli, *Towards a Food Insecurity Multidimensional Index*, 2011, p. 7.

¹⁵⁴ *Ibid.*

¹⁵⁵ FAO, *State of Food Security and Nutrition in the World*, 2017.

¹⁵⁶ FAO, *World hunger again on the rise, driven by conflict and climate change, new UN report says*, 2017.

¹⁵⁷ WFP, *Climate Impacts on Food Security*, 2018.

¹⁵⁸ FAO, *Climate change and food security: risks and responses*, 2016.

¹⁵⁹ *Ibid.*

¹⁶⁰ *Ibid.*

¹⁶¹ *Ibid.*

¹⁶² UNFCCC, *Climate Action Priority for Food Security and Zero Hunger*, 2017.

¹⁶³ FAO, *Rome Declaration on World Food Security*, 1996.

¹⁶⁴ *Ibid.*

¹⁶⁵ UNFCCC, *United Nations Framework Convention on Climate Change*, 1992.

¹⁶⁶ UNFCCC, *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, 1997.

UNFCCC calls upon Member States to reduce GHG emissions to prevent “dangerous anthropogenic interferences” to “ensure that food production is not threatened”.¹⁶⁷ Following the UNFCCC and *Kyoto Protocol*, the *Paris Agreement* (2015) once more urged Member States to reduce GHG emissions to prevent global temperatures from reaching more than 1.5 degrees Fahrenheit.¹⁶⁸ Within the *Paris Agreement*, a specific preamble focuses on “safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change.”¹⁶⁹ Every year, unless parties decide otherwise, the COP is held for parties to the UNFCCC to review the convention and any other frameworks the COP has adopted.¹⁷⁰ Decisions and other policies are also implemented at each COP to renew efforts to address climate change and its global impacts.¹⁷¹

Recognizing the links between climate change and food security, UN General Assembly resolution 70/1, *Transforming our world: 2030 Agenda for Sustainable Development*, encouraged Member States, civil society, and other international actors to take the steps necessary to reach the 17 Sustainable Development Goals (SDGs), such as eradication of world hunger (Goal 2), and combat climate change and its impacts (Goal 13).¹⁷² UN General Assembly resolution 71/245, *Agriculture development, food security, and nutrition*, acknowledges the intricate links between agriculture development, food security, and climate change.¹⁷³ Further, it urges Member States and international actors to increase the resilience of food and agricultural production to the impacts of climate change, and support climate-sensitive agricultural practices.¹⁷⁴

A valuable example of multilateral efforts in achieving the SDGs, particularly Goals 2 and 13, is the Food Security and Climate Change Multi-Year Action Plan (MYAP) 2018-2020 created by the Asia-Pacific Economic Cooperation (APEC), a regional economic forum comprised of 21 Member States from the Asia-Pacific region.¹⁷⁵ The MYAP is broken down into phases that outline key actions each APEC member should take in the year in order to build capacity within public and private sectors.¹⁷⁶ Some of these key actions include evaluating policies and regulations governing agriculture, livestock, and fishery sectors, evaluating climate conditions, and conducting regional dialogues and workshops on sustainable agriculture and integrating climate change adaptation and mitigation into food security policies.¹⁷⁷

Role of the International System

COP23 was held in 2017 in Bonn, Germany, where for the first time in negotiating on agricultural issues within the COP, the parties reached consensus on addressing the issues that connect agriculture to climate change.¹⁷⁸ At the conclusion of COP23, negotiators agreed on a joint approach to addressing food security and the impacts of climate change.¹⁷⁹ Notable decisions and goals included how the COP will approach “studying the socioeconomic and food security issues associated with climate change in the agriculture sector”, and improving livestock management, soil quality, and related water management.¹⁸⁰

The Rome-based Agencies (RBAs) are FAO, the International Fund for Agricultural Development (IFAD), and the World Food Programme (WFP).¹⁸¹ Although the three agencies work together on a number of projects and programs that seek to eradicate world hunger and achieve global food security, each addresses these issues in different ways.¹⁸²

¹⁶⁷ UNCED, *United Nations Framework Convention on Climate Change*, 1992.

¹⁶⁸ UNFCCC, *The Paris Agreement*, 2018.

¹⁶⁹ *Ibid.*

¹⁷⁰ UNFCCC, *Conference of the Parties (COP)*, 2018.

¹⁷¹ *Ibid.*

¹⁷² UN General Assembly, *Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1)*, 2015.

¹⁷³ UN General Assembly, *Agriculture development, food security and nutrition (A/RES/71/245)*, 2017.

¹⁷⁴ *Ibid.*

¹⁷⁵ APEC, *Food Security and Climate Change Multi-Year Action Plan (MYAP) 2018-2020*, 2018.

¹⁷⁶ *Ibid.*

¹⁷⁷ *Ibid.*

¹⁷⁸ Timperley, *COP23: Key outcomes agreed at the UN climate talks in Bonn*, 2017.

¹⁷⁹ Meyer, *Agriculture negotiations reach agreement at COP23*, 2017.

¹⁸⁰ *Ibid.*

¹⁸¹ WFP, *Rome-based agencies*, 2018.

¹⁸² *Ibid.*

FAO assists in supporting policies that seek to promote sustainable food security initiatives through monitoring, evaluation, and information sharing on global trends and the impacts of climate change.¹⁸³ IFAD provides climate and environmental financial support to smallholder farmers to lower GHG emissions, increase crop yields, and enhance biodiversity.¹⁸⁴ WFP provides analysis and information that demonstrates the connection between climate risks and food security, as well as identify areas that are at most at-risk for these issues in order to support national policies and planning.¹⁸⁵

FAO partnered with the UN Environmental Programme (UNEP) on several initiatives that address food insecurity and the effects of climate change.¹⁸⁶ In 2017, FAO and UNEP created a Strategic Partnership Plan that implemented the Sustainable Food Systems Programme, which sought to enhance sustainable terrestrial, freshwater, and marine ecosystems, and provide support for implementing policies that promotes sustainable food systems and ecosystems management.¹⁸⁷ Through the Sustainable Food Systems Programme, UNEP and FAO promote investments and financial supports for sustainable food systems, encourages and facilitates the participation of civil society organizations in implementing the program at all levels, and builds collaboration between stakeholders through information sharing.¹⁸⁸

Civil society also plays a valuable role in eradicating world hunger through implementing and encouraging climate change adaptive and mitigation tactics.¹⁸⁹ CGIAR, a non-governmental organization (NGO) specialized in food security and climate change, created the Research Program on Climate Change, Agriculture, and Food Security to promote climate-smart agricultural practices to alleviate poverty, promote gender equality, and achieve food security.¹⁹⁰ A notable project CGIAR has conducted is building capacities between institutions and experts in Central America and Colombia in order to promote innovations and investments in climate-smart agriculture (CSA) practices and programs addressing climate change.¹⁹¹

Adaptation and Mitigation Strategies for Achieving Food Security

Adaptation refers to responses to climate change that seek to reduce the vulnerability of social and biological systems, thus preventing the impacts of climate change from devastating these systems and livelihoods.¹⁹² Mitigation strategies are measures that can be taken to reduce or prevent GHG emissions, and can be done through clean technology, such as renewable energy, zero-emission vehicles, and carbon capture practices.¹⁹³ There are a number of measures rural communities, governments, and civil society can take to achieve food security while addressing the impacts of climate change.¹⁹⁴ For the agricultural sector, small-scale irrigation for smallholder farmers is an example of a climate change adaptation tactic that is being used in West and Central Africa through FAO's Adapting Irrigation to Climate Change project to address climate variability and weather risks, such as droughts and floods.¹⁹⁵ Climate-smart livestock, agriculture and agroforestry are various approaches to make agricultural communities more resilient towards the impacts of climate change.¹⁹⁶ Agroforestry includes the planting of non-intensive plants that can provide small yields of food for communities, as well as the planting of additional trees and shrubs around grazing areas.¹⁹⁷ Agroforestry promotes healthy ecosystems, builds climate change resilience, and

¹⁸³ FAO, *What we do*, 2018.

¹⁸⁴ IFAD, *Climate and environment*, 2018.

¹⁸⁵ WFP, *Climate action*, 2018.

¹⁸⁶ Landscape News, *UNEP and FAO: Healthy Ecosystem Key to Better Food Security*, 2014.

¹⁸⁷ *Ibid.*

¹⁸⁸ *Ibid.*

¹⁸⁹ FAO, *FAO's Work on Climate Change*, 2017.

¹⁹⁰ CGIAR, *CGIAR Research Program on Climate Change, Agriculture and Food Security*, 2018.

¹⁹¹ CGIAR, *A common journey: Capacity-building in Central America to strengthen policies and decision-making for climate change adaptation and mitigation*, 2018.

¹⁹² FAO, *Climate Change Adaptation and Mitigation: Challenges and Opportunities in the Food Sector*, 2012, p. 6.

¹⁹³ *Ibid.*, p. 7.

¹⁹⁴ *Ibid.*

¹⁹⁵ FAO, *Adapting irrigation to climate change (AICCA): Background*, 2018.

¹⁹⁶ FAO, *Climate-Smart Agriculture Sourcebook*, 2013, p. 1.

¹⁹⁷ *Ibid.*, p. 134.

contributes to the progress towards achieving food security for all.¹⁹⁸ The EcoAgriculture Partners' project, Climate Smart Agricultural Landscapes in East Africa, collaborated with other NGOs to train farmers on sustainable land management and agroforestry practices that have climate change mitigation and adaptation benefits, such as reducing carbon emissions and water usage for crops.¹⁹⁹

Fisheries and aquaculture are also affected by the impacts of climate change due to rising sea levels, intensified storms and hurricanes, and rising sea temperatures.²⁰⁰ Some coastal cities and villages are able to grow and cultivate rice and other crops below sea level, and catch fish and shellfish with the use of the wetlands. In some aquaculture operations, maintaining environmental symbiosis with crops and fish is needed to protect and fertilize crops.²⁰¹ Through below sea level aquaculture practices, farmers are able to adapt to rising sea levels and mitigate GHG emissions by using cultivation practices that do not rely on GHG producing vehicles or technology.²⁰² In collaboration with the government of Kerala and M S Swaminathan Research Foundation, FAO studied the Kuttand Below Sea Farming system; the only system in India that cultivated rice below sea level for the past two centuries by using reclaimed delta swamps.²⁰³ The use of this system provides for the livelihoods in local communities through ecosystem services and contributes to the conservation of biodiversity.²⁰⁴

As the climates within each country vary across the world, many Member States have developed national adaptation plans (NAPs) to identify and meet medium- to long-term adaptation needs.²⁰⁵ Incorporating climate-smart approaches to agriculture, fisheries, and aquaculture operations can help achieve food security while addressing the effects of climate change.²⁰⁶ Inclusion of sustainable development initiatives, environmental protections, and natural disaster risk reduction plans have helped Member States promote sustainable development for changing climates, conserving environments for healthy ecosystems, and be better prepared to handle future natural disasters.²⁰⁷ Through the Integrating Agriculture in National Adaptation Plans Programme, FAO and the UN Development Programme (UNDP) have worked with Nepal, Kenya, the Philippines, Thailand, Uganda, Uruguay, Vietnam, and Zambia to incorporate agricultural sectors into NAPs.²⁰⁸ The four-year initiative allows FAO and UNDP to provide policy and technical support to ensure climate change adaptation priorities in agricultural, forestry, and fisheries sectors are incorporated in the NAP planning process.²⁰⁹ Furthermore, NAPs improve the Member States' prospects for obtaining global funds for climate finance from funding mechanisms such as the Global Environment Fund and Green Climate Fund.²¹⁰

Case Study: Climate-smart Livestock in Guinayangan, Philippines

In Guinayangan, Philippines, livestock production is a reliable source of income and food for households, especially for women.²¹¹ CGIAR introduced climate-smart livestock production to farmers and households in Guinayangan to build farm resilience through the raising of native pigs, small-scale backyard farming, sharing livestock assets, use of locally grown alternative feed sources, and intensive feed gardens.²¹² The climate-smart livestock production allows farmers and households to own and raise native pigs that can be used as a source of food.²¹³ The project empowered women to become managers of farms, and sell livestock products to earn more income through training

¹⁹⁸ Ibid.

¹⁹⁹ EcoAgriculture Partners, *Climate Smart Agricultural Landscapes in East Africa*, 2018.

²⁰⁰ Shelton, C., *Climate Change Adaptation in Fisheries and Aquaculture*, 2014, p. 7; FAO, *Fisheries, Aquaculture and Climate Change: The role of fisheries and aquaculture in the implementation of the Paris agreement*, 2016.

²⁰¹ FAO, *Rice Fish Culture*, 2018; FAO, *Kuttand Below Sea Level Farming System*, 2018.

²⁰² IFAD, *Guidelines for Integrating Climate Change Adaptation into Fisheries and Aquaculture Projects*, 2014, pp. 27-28.

²⁰³ FAO, *Kuttand Below Sea Level Farming System*, 2018.

²⁰⁴ Ibid.

²⁰⁵ UNFCCC, *Overview – National Adaptation Plans*, 2018.

²⁰⁶ FAO, *Climate-Smart Agriculture Sourcebook*, 2013, p. 1.

²⁰⁷ FAO, *Integrating Agriculture in National Action Plans (NAP-Ag) – Peer-to-peer exchange*, 2018.

²⁰⁸ FAO, *Eight countries to sharpen long-term climate change adaptation strategies*, 2015.

²⁰⁹ Ibid.

²¹⁰ Ibid.

²¹¹ Bernardo, *Low inputs, big gains: The benefits of climate-smart livestock production*, 2018.

²¹² Ibid.

²¹³ Ibid.

sessions and community workshops.²¹⁴ The intensive feed gardens are another source for households and individuals to use not only to feed their livestock, but also as an alternative food source for themselves.²¹⁵ Housing structures for the pigs and other livestock were built using local resources, such as bamboo, coconut husks, rice hulls, dried leaves, and saw dust.²¹⁶ These local resources are sustainable, do not require the use of carbon-producing machines to create or gather, and eliminate the potential use of carbon-producing machines and products to create the housing structures needed for their livestock.²¹⁷ These structures not only allowed for an easily built shelter for livestock, but also reduced the presence of flies, which improved the health of the pigs, and provided farmers with natural compost.²¹⁸ GHG emissions are also reduced due to the small-scale backyard farming system and relying on locally grown alternative feed sources.²¹⁹ The project provides rural communities with farm resilience, alternative sources of food, increased income, empowerment of women, and built a stronger community with improved livelihoods.²²⁰

Conclusion

The world still faces food insecurity and the effects of climate change make it harder for Member States, civil society, and the international community to achieve food security.²²¹ While reducing global carbon-dioxide levels is a goal of the Paris Agreement, safeguarding food systems and livelihoods is key as the climate is already changing.²²² Adopting climate change adaptation and mitigation tactics, such as CSA to agriculture, fisheries, and aquaculture helps in achieving food security while responding to the effects of climate change.²²³ Inclusion of women and indigenous populations helps build climate resilience in communities and provides additional economic opportunities.²²⁴ Developing NAPs and climate change adaptation strategies, and collaborating with other nations, can strengthen bilateral and multilateral coordination on achieving food security and building regional climate resilience.²²⁵

Further Research

Moving forward, delegates should consider the role of FAO in strengthening approaches to achieving food security while addressing the impacts of climate change as well as what actions Member States could take to further these goals. Delegates should consider questions such as: What are initiatives Member States could undertake that include vulnerable populations? Following the conclusion of COP23, what approaches could be used to encourage the international community to integrate the agricultural sector into climate adaption and mitigation initiatives? Are there avenues Member States could take to promote technical and cultural knowledge transfer across communities, such as below sea level farming? Delegates should further take a closer look at emerging climate change adaptation initiatives, climate-smart approaches, and sustainable agriculture projects that adapt to changing climates. Are there any gaps in these approaches that could be identified to strengthen food security initiative and climate change adaption approaches?

²¹⁴ Ibid.

²¹⁵ Ibid.

²¹⁶ Bernardo, *Low inputs, big gains: The benefits of climate-smart livestock production*, 2018.

²¹⁷ Ibid.

²¹⁸ Ibid.

²¹⁹ Ibid.

²²⁰ Ibid.

²²¹ FAO, *State of Food Security and Nutrition in the World*, 2017.

²²² UNFCCC, *The Paris Agreement*, 2018.

²²³ FAO, *Climate-Smart Agriculture Sourcebook*, 2013, p. 1.

²²⁴ FAO, *Indigenous peoples*, 2018; FAO, *Women farmers and resilience in the face of climate change*, 2018.

²²⁵ UNFCCC, *Overview – National Adaptation Plans*, 2018.



Annotated Bibliography

Asia-Pacific Economic Cooperation. (2017). *Food Security and Climate Change Multi-Year Action Plan (MYAP) 2018-2020*. Retrieved 4 March 2018 from: https://www.apec.org/Meeting-Papers/Sectoral-Ministerial-Meetings/Food-Security/2017_food_security/MYAP

This is a framework for the Asia-Pacific region to promote regional cooperation to address the challenges of food security, development, and climate change adaptation and mitigation. The framework includes a list of general approaches, phases of the action, and the overall objectives the framework seeks to accomplish. This is an example of an existing regional framework that delegates can use as a guide for their research, and contemplate how they can promote regional cooperation and coordination on food security and climate change adaptation and mitigation policies in committee.

Bernardo, E. (2018, January 29). Low inputs, big gains: The benefits of climate-smart livestock production. *Research Program on Climate Change, Agriculture and Food Security*. Retrieved 4 March 2018 from: <https://ccafs.cgiar.org/blog/low-inputs-big-gains-benefits-climate-smart-livestock-production>

A news article that highlights the work of CGIAR's Research Program on Climate Change, Agriculture and Food Security promotes climate-smart livestock production in developing nations. Climate-smart livestock production aims to reduce GHG emissions, empower women, improve the livelihoods of farmers, and build farm resilience in anticipation of the impacts of climate change. This news article will offer unique ideas to delegates about ways organizations are working to adapt to climate change while improving livelihoods of citizens. Delegates can use this article as an example of how climate-smart livestock promotes gender equality, food security, and climate change adaptation tactics. Delegates can also read CGIAR's publications to gain more knowledge of the work CGIAR's does in developing nations.

Food and Agriculture Organization of the United Nations. (2017). *FAO's Work on Climate Change [Report]*. Retrieved 4 March 2018 from: <http://www.fao.org/3/a-i8037e.pdf>

This report by FAO gives an in-depth briefing of the work the organization is doing to address the impacts of climate change. The report details the work FAO has completed and is currently doing to address the impacts of climate change on global food security and world hunger. Delegates will be able to understand the work FAO does, especially in the context of addressing climate change and protecting food security. Furthermore, delegates will gain in-depth knowledge of the work FAO does to adapt to climate change by reading FAO's Action Areas section.

International Fund for Agricultural Development. (2014). *Guidelines for Integrating Climate Change Adaptation into Fisheries and Aquaculture Projects*. Retrieved 4 March 2018 from: <https://www.ifad.org/documents/10180/3610585/fisheries.pdf/f1bce7f8-7de9-49cb-b12b-7dd6312bd42c>

These guidelines were compiled from a range of organizations and experts that seek to promote climate change adaptation policies and practices into fisheries and aquaculture projects, particularly for developing countries. The guidelines include resource and fishery management, increasing access to financial services, reducing GHG emissions, and many other recommendations for Member States and civil society to implement into fishery and aquaculture projects. Delegates will be able to use these guidelines as examples of the actions Member States need to take to protect fisheries and aquaculture from the impacts of climate change.

Shelton, C. (2014). Climate Change Adaptation in Fisheries and Aquaculture. *FAO Fisheries and Aquaculture Circular*, 1088: 1-34.

This report highlights 26 current and recent activities and programs that benefit fisheries and aquaculture in developed and developing countries. The report emphasizes the impacts of climate change has on fisheries and aquaculture, and outlines various adaptation measures Member States can take. Delegates will learn more about fisheries and aquaculture, their uses, and how climate change plays a role in management of fisheries and aquaculture. Delegates should read the section "Examples of adaptation activity" to learn more about climate change adaptation activities that are already in use.



Bibliography

- Asia-Pacific Economic Cooperation. (2017). *Food Security and Climate Change Multi-Year Action Plan (MYAP) 2018-2020*. Retrieved 4 March 2018 from: https://www.apec.org/Meeting-Papers/Sectoral-Ministerial-Meetings/Food-Security/2017_food_security/MYAP
- Bernardo, E. (2018, January 29). Low inputs, big gains: The benefits of climate-smart livestock production. *Research Program on Climate Change, Agriculture and Food Security*. Retrieved 4 March 2018 from: <https://ccafs.cgiar.org/blog/low-inputs-big-gains-benefits-climate-smart-livestock-production>
- Cinner, J., et al. (2018). Building adaptive capacity to climate change in tropical coastal communities. *Nature Climate Change*, 8: 117-123.
- CGIAR. (2018). *CGIAR Research Program on Climate Change, Agriculture and Food Security*. Retrieved 16 April 2018 from: <https://www.cgiar.org/research/program-platform/climate-change-agriculture-and-food-security/>
- CGIAR. (2018). A common journey: Capacity-building in Central America to strengthen policies and decision-making for climate change adaption and mitigation. Retrieved 26 June 2018 from: <https://ccafs.cgiar.org/common-journey-capacity-building-central-america-strengthen-policies-and-decision-making-climate>
- Conference of the Parties to the United Nations Framework Convention on Climate Change. (1997). *Kyoto Protocol to the United Nations Framework Convention on Climate Change*. Retrieved 2 June 2018 from: <https://unfccc.int/process/the-kyoto-protocol>
- Dahlberg, C. (2012). Climate change affects different regions differently. *Knut and Alice Wallenberg Foundation*. Retrieved 16 April 2018 from: <https://kaw.wallenberg.org/en/research/climate-change-affects-different-regions-differently>
- EcoAgriculture Partners. (2018). *Climate Smart Agricultural Landscapes in East Africa*. Retrieved 2 June 2018 from: <https://ecoagriculture.org/project/climate-smart-ag-east-africa/>
- Food and Agriculture Organization of the United Nations. (1996). *Rome Declaration on World Food Security*. Retrieved 16 April 2018 from: <http://www.fao.org/docrep/003/w3613e/w3613e00.HTM>
- Food and Agriculture Organization of the United Nations. (2012). *Climate Change Adaptation and Mitigation: Challenges and Opportunities in the Food Sector* [Report]. Retrieved 16 April 2018 from: <http://www.fao.org/docrep/016/i2855e/i2855e.pdf>
- Food and Agriculture Organization of the United Nations. (2013). *FAO Policy on Gender Equality: Attaining Food Security Goals in Agriculture and Rural Development* [Report]. Retrieved 16 April 2018 from: <http://www.fao.org/3/a-i3205e.pdf>
- Food and Agriculture Organization of the United Nations. (2013). *Climate-Smart Agriculture Sourcebook* [Report]. Retrieved 16 April 2018 from: <http://www.fao.org/3/a-i3325e.pdf>
- Food and Agriculture Organization of the United Nations. (2015, September 1). *Eight countries to sharpen long-term climate change adaptation strategies* [News Article]. Retrieved 2 June 2018 from: <http://www.fao.org/news/story/en/item/326801/icode/>
- Food and Agriculture Organization of the United Nations. (2016). *Climate change and food security: risks and responses* [Report]. Retrieved 4 March 2018 from: <http://www.fao.org/3/a-i5188e.pdf>
- Food and Agriculture Organization of the United Nations. (2016). *Fisheries, Aquaculture and Climate Change: The role of fisheries and aquaculture in the implementation of the Paris agreement* [Report]. Retrieved 4 March from: <http://www.fao.org/3/a-i6383e.pdf>



- Food and Agriculture Organization of the United Nations. (2017). *FAO's Work on Climate Change* [Report]. Retrieved 4 March 2018 from: <http://www.fao.org/3/a-i8037e.pdf>
- Food and Agriculture Organization of the United Nations et al. (2017). *The State of Food Security and Nutrition in the World 2017* [Report]. Retrieved 4 March 2018 from: <http://www.fao.org/3/a-I7695e.pdf>
- Food and Agriculture Organization of the United Nations. (2017, September 15). *World hunger again on the rise, driven by conflict and climate change*, new UN report says [News Article]. Retrieved 4 March 2018 from: <http://www.fao.org/news/story/en/item/1037253/icode/>
- Food and Agriculture Organization of the United Nations. (2018). *Adapting irrigation to climate change (AICCA): Background* [Website]. Retrieved 4 March 2018 from: <http://www.fao.org/in-action/aicca/en/>
- Food and Agriculture Organization of the United Nations. (2018). *Indigenous peoples* [Website]. Retrieved 2 June 2018 from: <http://www.fao.org/indigenous-peoples/en/>
- Food and Agriculture Organization of the United Nations. (2018). *Integrating Agriculture in National Adaptation Plans (NAP-Ag) – Gender Mainstreaming* [Website]. Retrieved 4 March 2018 from: <http://www.fao.org/in-action/naps/overview/programme-activities/gender-mainstreaming/en/>
- Food and Agriculture Organization of the United Nations. (2018). *Integrating Agriculture in National Adaptation Plans (NAP-Ag) – Peer-to-peer exchange* [Website]. Retrieved 4 March 2018 from: <http://www.fao.org/in-action/naps/overview/programme-activities/p2p-exchange/en/>
- Food and Agriculture Organization of the United Nations. (2018). *Kuttanad Below Sea Level Farming System* [Website]. Retrieved 16 April 2018 from: <http://www.fao.org/giahs/giahsaroundtheworld/designated-sites/asia-and-the-pacific/kuttanad-below-sea-level-farming-system/en/>
- Food and Agriculture Organization of the United Nations. (2018). *Rice Fish Culture* [Website]. Retrieved 16 April 2018 from: <http://www.fao.org/giahs/giahsaroundtheworld/designated-sites/asia-and-the-pacific/rice-fish-culture/en/>
- Food and Agriculture Organization of the United Nations. (2018). *Women farmers and resilience in the face of climate change* [Website]. Retrieved 2 June 2018 from: <http://www.fao.org/climate-smart-agriculture/news/detail/en/c/881891/>
- International Fund for Agricultural Development. (2014). *Guidelines for Integrating Climate Change Adaptation into Fisheries and Aquaculture Projects* [Report]. Retrieved 4 March 2018 from: <https://www.ifad.org/documents/10180/3610585/fisheries.pdf/f1bce7f8-7de9-49cb-b12b-7dd6312bd42c>
- International Fund for Agricultural Development. (2018). *Climate and environment* [Website]. Retrieved 2 June 2018 from: <https://www.ifad.org/web/guest/climate-and-environment>
- Landscape News. (2014, September 29). UNEP and FAO: Healthy Ecosystems Key to Better Food Security. *Landscape News*. Retrieved 2 June 2018 from: <https://news.globallandscapesforum.org/10284/unep-fao-healthy-ecosystems-key-better-food-security/>
- Mazziotta, M., Muro, P., & Napoli, M. (2011). Towards a Food Insecurity Multidimensional Index. *Roma Tre Universita Degli Studi*. Retrieved 2 June 2018 from: <http://www.fao.org/fileadmin/templates/ERP/uni/FIMI.pdf>
- Meyer, C. (2017, November 15). Agriculture negotiations reach agreement at COP23. *Environmental Defense Fund*. Retrieved 2 June 2018 from: <http://blogs.edf.org/climatetalks/2017/11/15/agriculture-negotiations-reach-agreement-at-cop23/>



Shelton, C. (2014). Climate Change Adaptation in Fisheries and Aquaculture. *FAO Fisheries and Aquaculture Circular*, 1088: 1-34.

Timperley, J. (2017, November 19). COP23: Key outcomes agreed at the UN climate talks in Bonn. *CarbonBrief*. Retrieved 2 June 2018 from: <https://www.carbonbrief.org/cop23-key-outcomes-agreed-un-climate-talks-bonn>

United Nations Conference on Environment and Development. (1992). *United Nations Framework Convention on Climate Change*. Retrieved 16 April 2018 from: <https://unfccc.int/resource/docs/convkp/conveng.pdf>

United Nations Environment Programme. (2018). *Sustainable Food Systems Programme* [Brochure]. Retrieved 2 June 2018 from: <http://www.oneplanetnetwork.org/sites/default/files/10yfp-sfs-brochure-en.pdf>

United Nations Framework Convention on Climate Change. (2017, November 14). *Climate Action Priority for Food Security and Zero Hunger* [Press Release]. Retrieved 16 April 2018 from: <https://unfccc.int/news/climate-action-priority-for-food-security-and-zero-hunger>

United Nations Framework Convention on Climate Change. (2018). *The Paris Agreement* [Website]. Retrieved 16 April 2018 from: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

United Nations Framework Convention on Climate Change. (2018). *Overview – National Action Plans* [Website]. Retrieved 16 April 2018 from: <https://unfccc.int/topics/resilience/workstreams/national-adaptation-plans/overview>

United Nations Framework Convention on Climate Change. (2018). *Conference of the Parties (COP)* [Website]. Retrieved 2 June 2018 from: <https://unfccc.int/process/bodies/supreme-bodies/conference-of-the-parties-cop>

United Nations Framework Convention on Climate Change. (2018). *What we do* [Website]. Retrieved 2 June 2018 from: <http://www.fao.org/about/what-we-do/en/>

United Nations, General Assembly, Seventieth session. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development (A/RES/70/1)* [Resolution]. Retrieved 16 April 2018 from: <https://undocs.org/A/RES/70/1>

United Nations, General Assembly, Seventy-first session. (2017). *Agriculture development, food security and nutrition (A/RES/71/245)* [Resolution]. Retrieved 4 March 2018 from: <https://undocs.org/A/RES/71/245>

World Food Programme. (2016). *Collaboration among the United Nations Rome-based Agencies: Delivering on the 2030 Agenda* [Report]. Retrieved 16 April 2018 from: <http://documents.wfp.org/stellent/groups/public/documents/eb/wfp286749.pdf>

World Food Programme. (2018). *Climate Impacts on Food Security* [Website]. Retrieved 16 April 2018 from: <https://www.wfp.org/climate-change/climate-impacts>

World Food Programme. (2018). *Rome-based agencies* [Website]. Retrieved 2 June 2018 from: <http://www1.wfp.org/rome-based-agencies>

World Food Programme. (2018). *Climate action* [Website]. Retrieved 2 June 2018 from: <http://www1.wfp.org/climate-action>