

30th Annual

## BRIGHAM YOUNG UNIVERSITY MODEL UNITED NATIONS CONFERENCE

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Friday, November 8<sup>th</sup>, 2019 – Provo, Utah

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*General Assembly First  
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Dear Delegates,

Welcome to the 30<sup>th</sup> Annual BYU Model United Nations Conference! My name is Robert Lindsay. I am a junior at BYU majoring in Political Science and Economics. I have participated in two National Model United Nations Conferences, representing Sudan to the United Nations Industrial Development Organization in Xi'an China in 2018 and Turkmenistan to the United Nations Environment Assembly in New York in 2019.

You will represent your respective Member State to the United Nations Environment Assembly (UNEA). UNEA is the governing body of the UN Environment Programme and the head policy-making organ for the United Nations on environmental topics.

The topics before the United Nations Environment Assembly (UNEA) at this year's BYUMUN Conference are:

- I. Restructuring Industrial Systems to Create a Green Economy;
- II. Mitigating the Effects of Climate Change on Agriculture.

It is imperative to make fundamental adjustments to current industrial practices, which significantly contribute to warming. Furthermore, the effects of climate change are already threatening global food systems, causing starvation and relocation. Developing practices that mitigate the effects of climate change are critical to preserving world-wide well-being.

Extensive research is required on your part to create realistic and effective solutions to these problems. This Background Guide will inform you on the topics, but your research does not end here. Consult other sources, including those listed in the bibliographies, to develop your innovative solutions to these issues.

I am happy to answer any questions or concerns. You may contact me at the email listed below.

Regards,

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## Committee History

*“Our essential unity as peoples of the Earth must transcend the differences and difficulties which still divide us. You are called upon to rise to your historic responsibility as custodians of the planet in taking the decisions here that will unite rich and poor, North, South, East and West, in a new global partnership to ensure our common future.”*

— Maurice Strong, Founder and first Director of the UN Environment Programme

### History

The United Nations Environment Programme (UN Environment) was created at the Stockholm Conference in 1972 for the purpose of addressing environmental issues at the United Nations (UN).<sup>1</sup> Six months following the conference, the UN General Assembly adopted resolution 2997 of 1972, which established UN Environment as the official UN body concerned with environmental issues.<sup>2</sup> UN Environment has facilitated multiple landmark agreements, such as the *Rio Declaration on Environment and Development* and the *Statement of principles for the Sustainable Management of Forests*, collectively known as Agenda 21, which set out the principles and action-plans that guide the UN, Member States, and the global community in combating environmental problems.<sup>3</sup>

### Mandate

UN General Assembly resolution 2997 (1972) established UN Environment with a mandate to promote cooperation among Member States on environmental issues, create environmental policy, raise awareness on environment issues, create information-sharing networks among the scientific community and policy makers, help least-developed and developing Member States with environmental concerns, and create the budget of the Environment Fund.<sup>4</sup> UN Environment’s importance and influence grew with the *Nairobi Declaration on the Role and Mandate of the United Nations Environment Programme* (1997), which established the program to be “the leading global environmental authority that sets the global environmental agenda.”<sup>5</sup> The Nairobi Declaration was later endorsed by the General Assembly and represents Member States’ acknowledgment of UN Environment as the leading authority on environment issues.<sup>6</sup>

Upon adoption of The Nairobi Declaration, UN Environment expanded its mandate to focus on research and analysis of environmental trends using the best available scientific methods and data.<sup>7</sup> This development led to UN Environment’s role as a policy advisor to governments, UN

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<sup>1</sup> United Nations. "Report of the United Nations Conference on the Human Environment." Stockholm, 5-16 June 1972. Accessed June 13, 2019. [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/CONF.48/14/REV.1](http://www.un.org/ga/search/view_doc.asp?symbol=A/CONF.48/14/REV.1).

<sup>2</sup> UN General Assembly, Institutional and financial arrangements for international environmental co-operation (A/RES/2997(XXVII)), 1972.

<sup>3</sup> Stanley Johnson. *UN Environment, The First 40 Years: A Narrative by Stanley Johnson* (Nairobi: United Nations Office at Nairobi, 2012), 137-139.

<sup>4</sup> Supra note 2.

<sup>5</sup> UN General Assembly, Programme for the Further Implementation of Agenda 21 (A/RES/S-19/2), 1997, par. 123.

<sup>6</sup> Ibid.

<sup>7</sup> Governing Council of UN Environment, Proceedings of the Governing Council at its Nineteenth Session (UNEP/GC.19/34), 1997, 52-56.

bodies, and NGOs, and as a developer of international environmental law.<sup>8</sup> With increased access to data and scientific expertise, the mandate was also expanded to include monitoring of Member States' compliance with international environmental laws and norms.<sup>9</sup> This allows UN Environment to help Member States comply with international standards.

## Structure

The UN Environment Assembly (UNEA) is the governing body of UN Environment. It was created at the 2012 World Summit on Sustainable Development (Rio +20) and is made up of representatives from all 193 Member States to the United Nations.<sup>10</sup> The Assembly meets every two years to review progress, set goals, discuss plans, and pass resolutions that advise UN agencies, governments, and other organizations on environmental policy.<sup>11</sup> UNEA can create subsidiary bodies or task forces to help accomplish a particular task, though the General Assembly or the Economic and Social Council must approve resolutions that create new bodies or environmental policy.<sup>12</sup> Each Member State has a vote at the assembly.<sup>13</sup>

The Committee of Permanent Representatives (CPR) is the most significant subsidiary organ of UNEA. The Committee meets four times annually to fulfill its responsibilities, which include: preparing the meetings and agendas of UNEA, providing policy recommendations for UNEA, preparing decisions for adoption by the assembly, reviewing the implementation of UNEA decisions, and performing functions assigned to it by the Assembly.<sup>14</sup> The Committee is made up of all accredited permanent representatives to UN Environment.<sup>15</sup>

UN Environment has multiple divisions to help carry out its efforts. The Science Division acts as an expert informant to UN policy makers. The Science Division monitors environmental developments and policies and informs UNEA on its findings, providing suggestions on what policies work best.<sup>16</sup> The Economy Division gives advice to economic decision makers on sustainable business.<sup>17</sup> The Communication Division promotes UN Environment's messages to governments, key stakeholders, and the general public through traditional and media channels. It advocates for environmental issues and aims to influence policy makers.<sup>18</sup>

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<sup>8</sup> New Zealand Ministry of Foreign Affairs and Trade, United Nations Handbook 2017-18, 2017.

<sup>9</sup> Ibid.

<sup>10</sup> Kimble, Melinda. 2016. "The UN Environment Assembly: What You Need to Know." United Nations Foundation. Last updated, June 23, 2016. Accessed June 4, 2019. [https://unfoundation.org/blog/post/the-un-environment-assembly-what-you-need-to-know/?gclid=Cj0KCQjw6lfoBRCiARIsAF6q06t4RCFZPBoKICxjk3QXcOlitCFMpJ-8KiMf4lYDy5V94FVwaGeCcUIaAnUFEALw\\_wcB](https://unfoundation.org/blog/post/the-un-environment-assembly-what-you-need-to-know/?gclid=Cj0KCQjw6lfoBRCiARIsAF6q06t4RCFZPBoKICxjk3QXcOlitCFMpJ-8KiMf4lYDy5V94FVwaGeCcUIaAnUFEALw_wcB).

<sup>11</sup> UN General Assembly, The Future We Want (A/RES/66/288), 2012, pp. 17-18.

<sup>12</sup> Ibid.

<sup>13</sup> Supra note 14.

<sup>14</sup> United Nations Environment. "The Committee of Permanent Representatives." About Us. Accessed at <https://www.unenvironment.org/cpr/committee-permanent-representatives>.

<sup>15</sup> Ibid.

<sup>16</sup> United Nations Environment. "UN Environment Divisions." About UN Environment. Accessed at <https://www.unenvironment.org/about-un-environment/why-does-un-environment-matter/un-environment-divisions>.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

UN Environment is a member of the UN Environment Management Group (EMG) – a partnership of fifty-one UN agencies created by General Assembly resolution 53/242 of 1999. The EMG works on environment issues that require a cooperative effort across multiple UN agencies.<sup>19</sup> UN Environment often works through EMG to accomplish its tasks. For example, EMG created the Coalition to Combat Sand and Dust Storms in 2018 at the direction of UNEA.<sup>20</sup>

UN Environment receives funding from Member States who donate either to the Environment Fund, which can be used at the discretion of UNEA, or make earmarked contributions to particular issues. Non-earmarked funds are used for research and advocacy of environmental issues, transferring technological innovations, bringing together governments, the private sector, and civil society in setting the global environmental agenda, and oversight of UN Environment.

Although UNEA was only formed in 2012, it has already made historic achievements. Its first two sessions formed the environmental components of the *2030 Agenda for Sustainable Development*.<sup>21</sup> In 2014, a Ministerial Outcome Document was adopted by consensus; the document called for “an ambitious, universal implementable and realizable Post-2015 Development Agenda” that encompassed all areas of sustainable development for “the protection of the environment and the promotion of inclusive social and economic development in harmony with nature.”<sup>22</sup> As the assembly has universal membership, the adoption of this document by consensus reflects the commitment of all Member States to a global effort to preserve the environment.

## Recent Focus

UN Environment has undergone a paradigm shift in recent years. Instead of approaching environmental issues as a separate topic, UN Environment approaches all of the UN’s development goals with an environmental focus. As stated in the *Medium Term Strategy 2018-2021*, UN Environment is to “provide an environmental lens through which to view, understand and advise on sustainable development.”<sup>23</sup> UN Environment’s integrated approach to sustainable development is reflected in the 2030 Sustainable Development Goals (SDGs), where 9 of the 17 goals have an explicit environmental component.<sup>24</sup>

The *Medium Term Strategy 2018-2021* established UN Environment’s seven priority areas, including climate change; resilience to disasters and conflicts; eco-system management, environmental governance; chemicals and waste; resource efficiency; and environment under

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<sup>19</sup> United Nations Environment Management Group. “About EMG.” Accessed at <https://unemg.org/about-emg/>.

<sup>20</sup> United Nations Environment Management Group. “Collaborating on Global Environment Issues.” Our Work. Accessed at <https://unemg.org/our-work/emerging-issues/>.

<sup>21</sup> United Nations Environment Assembly. “History of the United Nations Environment Assembly.” UN Environment Assembly and Governing Council. Accessed at <http://web.unep.org/environmentassembly/un-environment-assembly-and-governing-council>.

<sup>22</sup> Ibid.

<sup>23</sup> United Nations Environment Programme. 2016 *Medium Term Strategy, 2018-2021*. Nairobi, Kenya: United Nations Office at Nairobi.

<sup>24</sup> United Nations. “About the Sustainable Development Goals.” Sustainable Development Goals. Accessed at <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>.

review.<sup>25</sup> Each of these priorities has a long-term plan, laid out in the *Medium Term Strategy*, to achieve a particular target associated with the SDGs. These plans detail how UN Environment will educate Member States, civil society, and the public sector on best practices for each of these priority areas and encourage commitments from these stakeholders to implement environmentally-friendly policies.<sup>26</sup>

Recent sessions of the Environment Assembly have focused on pollution and creating innovative solutions to environment issues. UNEA's third session, which took place in 2017, had the theme of "Towards a pollution free planet." The assembly addressed five sub themes of pollution, including water, land, marine, and air pollution, as well as sound management of chemicals and waste.<sup>27</sup> Eleven resolutions were adopted addressing issues such as marine plastic litter, lead paint exposure, city air quality, soil pollution, and water pollution.

## **Conclusion**

The recent creation of the Environment Assembly, where every Member State has a vote, represents the importance of UN Environment to the global community. Each Member State wants their voice heard in setting the global agenda on the environment. As UN Environment promotes and facilitates cooperation between Member States on tackling environmental challenges, Member States will increase their commitment to implement policies at home that decrease pollution and protect the environment. Thus, UN Environment is at the head of the global charge to save the planet.

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<sup>25</sup> Supra note 14, pp. 18.

<sup>26</sup> Supra note 14.

<sup>27</sup> Supra note 21.

## *Annotated Bibliography*

**Council on Foreign Relations. “Examining Rio 20’s Outcome.” Accessed at: <https://www.cfr.org/expert-roundup/examining-rio20s-outcome>.**

*The Council on Foreign Relations provides analysis on the successes and failures of the Rio+20 Summit of June 2012. This document is relevant not only for detailing the actions taken at the summit, but also for demonstrating how conferences and non-binding agreements can influence the mindset of the global community and lead to real financial and policy commitments from global leaders.*

**General Assembly, The United Nations. “Agenda 21 on Sustainable Development”. The United Nations Conference on Environment and Development– Rio de Janeiro, 3-14 June 1992.” Accessed at: <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>.**

*Agenda 21 is an action plan of the United Nations regarding sustainable development. It is meant to be referenced and used by local, national, and international governments. It was created at the Rio Summit and set the direction for an integrated approach to sustainable development.*

**United Nations Environment Programme. “Medium Term Strategy: 2018-2021.” Accessed at: [http://wedocs.unep.org/bitstream/handle/20.500.11822/7621/-UNEP\\_medium-term\\_strategy\\_2018-2021-2016MTS\\_2018-2021.pdf.pdf?sequence=3&isAllowed=y](http://wedocs.unep.org/bitstream/handle/20.500.11822/7621/-UNEP_medium-term_strategy_2018-2021-2016MTS_2018-2021.pdf.pdf?sequence=3&isAllowed=y).**

*The Medium Term Strategy sets out the priorities and objectives of UN Environment for a four-year period. It consists of expected accomplishments for seven priority areas, as well as operating principles for the programme. The document details specific action plans that consist of chain events that lead to the expected accomplishments. These accomplishments are anchored in the 2030 Sustainable Development Goals.*

**UN Environment. “Environment Fund.” Accessed at: <https://www.unenvironment.org/about-un-environment/funding/funding-facts/environment-fund>.**

*This is UN Environment’s web-page explaining the environment fund and other funding sources of UN Environment. Accessible from this web-page are reports detailing the contributions of each Member State, the total funding of UN Environment, and explanations of where the funds are used.*

**UN Environment Assembly. “UN Environment and Governing Council.” Accessed at: <http://web.unep.org/environmentassembly/un-environment-assembly-and-governing-council>.**

*This is UN Environment Assembly’s website. It gives a detailed explanation of the history, functions, and governance of the assembly. The website also provides key*

*documents detailing the proceedings and outcomes of the four previous sessions. Included are the resolutions passed at each session.*

**UN Environment Programme. “UN Environment Divisions.” Accessed at: <https://www.unenvironment.org/about-un-environment/why-does-un-environment-matter/un-environment-divisions>.**

*This page details each branch of UN Environment and their respective roles.*

## I. Restructuring Industrial Systems to Create a Green Economy

*“I don’t want you to be hopeful. I want you to panic...and act as if the house was on fire.”*  
— Greta Thunberg, Environmental Activist

### Introduction

Global warming is an immediate threat to humanity. In 2018, the Intergovernmental Panel on Climate Change (IPCC) found that a global temperature increase of 1.5° C is likely to occur by 2040; the IPCC predicts that such an increase will cause rising sea levels, food shortages, and wildfires, all amounting to a \$54 trillion cost to the world economy.<sup>28</sup> Though the threat is immediate and enormous, the world economy is not adjusting its behavior quickly enough. The UN’s Global Carbon Project reported that in 2018, 31.7 billion tonnes of carbon were emitted into the air, a record high and a 2.7 percent increase from 2017.<sup>29</sup> The IPCC warns that if such trends continue without severe and drastic change, there will be “irreversible” losses to ecosystems and increases to sea-levels.<sup>30</sup>

Industry activity is major contributor of greenhouse gasses (GHGs), which cause climate change. When GHGs, such as carbon dioxide (CO<sub>2</sub>), are released into the atmosphere, they create a greenhouse effect. By allowing heat from the sun to enter the Earth but not allowing heat to exit the Earth, the Earth’s temperature increases.<sup>31</sup> In 2010, industry accounted for 21 percent of GHGs.<sup>32</sup> Industry sector emissions have two categories: direct and indirect. Direct emissions are created at the location of industrial activity, or on-site. On-site emissions are produced as fossil fuels are burned for the creation of power or heat or by chemical reactions used in industrial processes.<sup>33</sup> Indirect emissions are those made at power plants to support the electricity needs of industrial facilities and machinery. In the United States, direct and indirect emissions made up 29.2 percent of the country’s total GHG emissions in 2017, making it the largest GHG emitter of any sector in the US economy<sup>34</sup>

Industries continue to pollute because of their incentive structure. The environmental costs of producing goods and services are rarely internalized by an industry. Unless firms assume responsibility to reduce emissions, or unless a cost is imposed on them for their pollutions, they will continue to emit large amounts of GHGs.

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<sup>28</sup> Intergovernmental Panel on Climate Change. 2018 Report. Switzerland. Accessed at [https://report.ipcc.ch/sr15/pdf/sr15\\_spm\\_final.pdf](https://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf).

<sup>29</sup> Carrington, Damian. 2018. “Brutal News’: Carbon Emissions Jump to an All-Time High in 2018.” *The Guardian*. Accessed at <https://www.theguardian.com/environment/2018/dec/05/brutal-news-global-carbon-emissions-jump-to-all-time-high-in-2018>.

<sup>30</sup> Supra note 18.

<sup>31</sup> NASA. 2007. “Greenhouse Gases Effect on Global Warming.” Conceptual Image lab. Last updated September 7. Accessed at <https://svs.gsfc.nasa.gov/20114>.

<sup>32</sup> United State Environmental Protection Agency. “Global Greenhouse Gas Emissions Data.” Last updated April 13, 2017. Accessed at <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data>.

<sup>33</sup> Ibid.

<sup>34</sup> United States Environmental Protection Agency. “Sources of Greenhouse Gas Emissions.” Last updated April 29, 2019. Accessed at <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#industry>.

## Efforts towards a Green Economy

An alternative to imposing costs is to develop a green economy. UN Environment defines a green economy as “low carbon, resource efficient, and socially inclusive.”<sup>35</sup> Such an economy can be developed through public or private investment into industries that reduce carbon emissions, increase resource efficiency, and prevent the loss of biodiversity and ecosystems. Examples include the solar and wind power industries. Governments can help industry achieve a green economy by implementing green industrial policies. UN Environment defines industrial policies as “government actions which alter the structure of an economy, encouraging resources to move into sectors that are perceived as desirable for future development.”<sup>36</sup> By implementing green industrial policies, governments can alter the structure of their economies, basing them around low or zero carbon industries, and develop a sector that can provide millions of jobs and industrial development. A green economy is able to tackle the problems of both climate change and underdevelopment. As Secretary General Antonio Guterres stated this April, “the Green Economy is the future.”<sup>37</sup>

The idea of a green economy began in 2008 in response to the global financial crisis, and led to the creation of UNEP’s Green Economy Initiative, which encouraged policymakers to invest in green technologies to reboot their economies in a sustainable way.<sup>38</sup> In 2010 at the UNEP Global Ministerial Environment Forum in Nusa Dua, world leaders stated that the green economy can “can significantly address current challenges and deliver economic development opportunities and multiple benefits for all nations.”<sup>39</sup> Following this forum, the idea of a green economy became a focus for the international community with extensive amounts of literature published on the subject. As a result, the green economy concept was one of the two major themes at the UN Conference on Sustainable Development in 2012 (Rio+20).<sup>40</sup> Rio+20 was a groundbreaking Conference (over eighty heads of government were in attendance) that set the agenda for global environmental policy. The outcome document of the Conference, *The Future We Want*, dedicated Section Three to affirming the importance of green economic policies as a driver of sustainable development and poverty eradication.<sup>41</sup>

As a response to Rio+20’s call to action on the green economy, the UN created the *Partnership for Action on the Green Economy* (PAGE). The partnership is made up of five UN bodies,

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<sup>35</sup> UN Environment. 2018. Green Economy. Accessed at <https://www.unenvironment.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-economy>.

<sup>36</sup> UN Environment. 2018. Green Industrial Policy. Accessed at <https://www.unenvironment.org/explore-topics/green-economy/what-we-do/economic-and-fiscal-policy/green-industrial-policies>.

<sup>37</sup> UN News. 2019. “‘The green economy is the future,’ UN chief says in Beijing, urging climate solutions that strengthen economies, protect the environment.” April 27. Accessed at <https://news.un.org/en/story/2019/04/1037461>.

<sup>38</sup> United Nations System: Chief Executives Board for Coordination. 2016 “Green Economy Initiative.” Accessed at <https://www.unsystem.org/content/green-economy-initiative-gei>

<sup>39</sup> United Nations. Sustainable Development Goals. Knowledge Platform. 2017. “Green Economy.” Accessed at <https://sustainabledevelopment.un.org/index.php?menu=1446>.

<sup>40</sup> Ibid.

<sup>41</sup> United Nations. Sustainable Development. Knowledge Platform. 2016. “The Future we Want.” Accessed at <https://sustainabledevelopment.un.org/futurewewant.html>

including UN Environment, UN Industrial Development Organization, the International Labor Organization, the UN Institute for Training and Research, and the UN Development Program.<sup>42</sup> These bodies together provide an integrated and holistic approach to aiding countries in creating a green economy. PAGE's activities include identifying opportunities for investment in the green economy and promoting these investments to governments, civil society, businesses, and financing partners.<sup>43</sup> PAGE has partnered with 18 countries and helped them undergo policy reform; for example, PAGE is playing a key role the National Rural Sector Programme in Burkina Faso, which is setting up rural farming industries for a sustainable future.<sup>44</sup>

The *Green Economy Coalition* is another partner of UN Environment that has made significant strides towards a green economy. The coalition is a partnership of over fifty charities, think tanks, NGOs, and private companies, founded in 2009 by UN Environment.<sup>45</sup> Recent projects of the coalition include bringing together stakeholders in the finance industry and promoting funding on sustainable projects; spearheading the *Measure What Matters* initiative, which encourages governments and corporations to change their measurements of success to include environmental concerns; and helping small and medium-sized enterprises (SMEs) implement more green practices and engage with local policymakers on environmental issues.<sup>46</sup>

### **Possible Innovative Solutions**

Despite the efforts of the international community, there are still significant barriers to transitioning industry towards a green economy that require innovative solutions. One of the biggest challenges to the green economy is the need to balance wealth growth and planetary boundaries. Much of the world still lives in poverty, including in developed countries. Thus there is a dual challenge: to lift people out of poverty and to sustain the planet. It is estimated that between 20-50 percent of workers worldwide are still in carbon intensive industries.<sup>47</sup> Thus any transition to a green economy must include plans to protect the employment of much of the world's workforce. New and innovative solutions are required to achieve this balance.

Innovative solutions should consider mobility and skill assistance to workers who are displaced by the reduction of carbon industries.<sup>48</sup> Individual Member States have implemented some techniques to aid in this displacement challenge, though the UN as a whole has yet to directly address this issue. Transition from polluting to renewable energy industries requires workers with new skill sets. Governments and the private sector can implement programs to retrain workers so that they do not go unemployed. For example, Massive Open Online Courses (MOOCs), such as those provided by the private company Coursera, can reach people in towns

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<sup>42</sup> Partnership for Action on Green Economy. 2019. "Who Are We?" Accessed at <https://www.un-page.org/about/who-are-we>

<sup>43</sup> Ibid.

<sup>44</sup> Ibid.

<sup>45</sup> Green Economy Coalition. 2017. "Institutional Setup and Governance." Accessed at <https://www.greeneconomycoalition.org/institutional-setup-governance>.

<sup>46</sup> Green Economy Coalition. 2017. "Our Projects." Accessed at <https://www.greeneconomycoalition.org/projects>.

<sup>47</sup> Partnership For Action on Green Economy. 2017. "Green Industrial Policy: Concept, Policies, and Country Experiences." Pg 62. Accessed at <https://www.greeneconomycoalition.org/assets/reports/External-Reports/PAGE-GreenIndustrialPolicy2018-FullReport.pdf>.

<sup>48</sup> Ibid, pg 61.

and villages who otherwise would have little access to higher education; furthermore, these courses can be provided at a low cost.<sup>49</sup> Another solution that has been explored by governments is education systems that prepare those entering the workforce to work in the renewable industry.<sup>50</sup> Any green economy solution must also address the need to maintain and support prosperity.

Governments can implement socially optimal tax systems that promote a labor shift from polluting industries to clean industries. For example, the Canadian province of British Columbia introduced a revenue neutral carbon tax in 2008. The tax covered 70 percent of all provincial emissions and all carbon-tax revenue was used to finance reductions in personal and corporate income taxes. As a result of the tax, emission intensive industries were forced to employ fewer workers, yet other industries saw an increase in employment. This suggests that workers laid off by emission intensive industries were able to find employment elsewhere. Taxes were imposed on polluting industries, yet jobs were retained.<sup>51</sup>

Though British Columbia had a successful experience with carbon taxes, some research points to the negative effects of a carbon tax. A 2012 report by researchers at the Brookings Institute found that if a hypothetical 15 dollar tax per metric tonne of carbon were imposed on the US economy in 2010, assuming constant consumption patterns, the tax would disproportionately affect the poorest percentile income earners, reducing their income by 3.5 percent.<sup>52</sup> Though carbon tax plans intend to return the tax to the people in forms of government programs and subsidies, this can take time, leaving the poorer classes to struggle for a time as they continue to have high energy demand.<sup>53</sup> Member States in favor of carbon tax solutions must find ways to mitigate any negative effects a tax may have on their society.

Morocco has become a strong example in the North African region in transitioning to green energy. The country is transitioning from importing most of its energy resources (US \$10 billion spent on oil, coal, and natural gas in 2012) to providing 42 percent of its energy requirements using renewable sources by 2020.<sup>54</sup> The country is on track to achieve this goal, due in part to the creation of the world's largest concentrated solar farm, the Noor-Ouarzazate Complex which produces enough electricity to power a city the size of Prague.<sup>55</sup> Morocco is setting an example for the rest of the Middle East North Africa region (MENA) which also have traditionally relied on importing their energy supply. Though Morocco is successfully transitioning to renewable

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<sup>49</sup> Adi Gaskell. 2016. "Can MOOCs Help You to Retrain if You Lose Your Job?" Forbes. Last modified September 8. Accessed at <https://www.forbes.com/sites/adigaskell/2016/09/08/can-moocs-help-you-to-retrain-if-you-lose-your-job/#2c24bade27c4>.

<sup>50</sup> Supra note 48.

<sup>51</sup> Ibid.

<sup>52</sup> Aparna Mathur and Adele Morris. 2012. "Distribution effects of a Carbon Tax in the Context of Broader Fiscal Reform." *Brookings Institute*. December 14. Accessed at <https://www.brookings.edu/research/distributional-effects-of-a-carbon-tax-in-the-context-of-broader-fiscal-reform/>.

<sup>53</sup> Ibid.

<sup>54</sup> EcoMENA. 2019. "Renewable Energy in Morocco." June 7. Accessed at <https://www.ecomena.org/renewable-energy-in-morocco/>.

<sup>55</sup> Morocco World News. 2019. "Morocco on Track to Generate 42% of its Electricity from Renewable Energies by 2020: CNN." February 9. Accessed at <https://www.morocccoworldnews.com/2019/02/265431/morocco-electricity-renewable-energies/>.

energy, the transition has not resulted in a significant increase in jobs for locals.<sup>56</sup> Any green economy plan involving renewable energy should ensure employment opportunities are created by renewable energy to mitigate the loss of jobs in fossil fuel industries.

China has successfully transitioned part of its automotive industry to non-polluting and low-polluting options through green industrial policy. By encouraging international investors to develop electric car products in partnership with Chinese companies, low cost electric cars have risen in sales. Between 200 million and 230 million two-wheel electric cars are on Chinese roads and, in 2015, 600,000 low-speed electric cars were produced in the Shandong province alone.<sup>57</sup> By 2020, the Chinese central government aims to have 5 millions electric cars on the road; they are on track to produce one million of those cars this year.<sup>58</sup> While electric cars have the ability to reduce air pollution, their net effect in reducing climate change is close to zero, as they are powered by electric charging stations which ultimately are powered by coal. Yet electric cars factor into China's long term transition to decarbonize their energy sector; China aims to reduce CO<sub>2</sub> emission by 60 to 65 percent below 2005 levels by 2030 and thus are planning to shift much of their energy sector towards renewables.<sup>59</sup> Electric cars powered by renewable energy systems will then have no CO<sub>2</sub> emissions.

Each of the solutions presented have challenges to their ability to significantly reduce CO<sub>2</sub> emissions. For example, Morocco's solution requires investors to believe the country will maintain political stability; not all countries of the world have the political stability to ensure this confidence. Furthermore, despite policies such as those implemented in Canada and China, renewable energy's share of increased electricity production globally has been declining since 2017.<sup>60</sup> This is largely a result of new findings in oil supply and the development of cheaper methods of production. Thus, lasting solutions thus must be economically viable and able to compete with cheaper fossil fuels.

## Conclusion

Though there are many examples of innovative solutions, each Member State faces unique challenges in creating a green economy. Solutions that apply to developed countries do not often apply to least developed countries (LDCs), creating the need for detailed and complex solutions. Furthermore, increased cooperation on a global scale is necessary to encourage each Member State to participate in the transition to a green economy. As Member States cooperate in creating innovative ideas, they will find real solutions to address the myriad problems associated with growing the green economy. Such cooperation and critical thinking is essential to creating a planet that can sustain its billions of inhabitants.

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<sup>56</sup> Sam Mertz. 2016. "There is an Unhappy Story of Social Discontent Hidden Under Morocco's Glossy COP22 Presentation." *Quartz Africa*. November 16. Accessed at <https://qz.com/africa/839595/theres-an-unhappy-story-of-social-discontent-hidden-under-moroccos-glossy-cop22-presentation/>.

<sup>57</sup> Supra note 47, pg 186.

<sup>58</sup> Holly Williams. 2019. "Electric Cars: China's Drive to Dominate the Electric Car Industry." *CBS News*. February 24. Accessed at <https://www.cbsnews.com/news/electric-cars-chinas-drive-to-dominate-the-industry-60-minutes/>.

<sup>59</sup> Supra note 47, pg 195.

<sup>60</sup> Wenjuan Dong and Qi Ye. 2018. "Utility of Renewable Energy in China's Low-Carbon Transition." Brookings Institute. Last modified May 18. Accessed at <https://www.brookings.edu/2018/05/18/utility-of-renewable-energy-in-chinas-low-carbon-transition/>

## **Questions to Consider**

1. What policies will cause a transition away from polluting industries to a green economy?
2. How can governments transition to a green economy while sustaining jobs in carbon-intensive industries?
3. How can UNEA and other UN agencies facilitate multilateral cooperation in pursuing a green economy?
4. How will a transition to a green economy be financed?

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*This details the consequences of reaching 1.5°C warming, what are the main contributors to warming, and the extent of change that must be made to prevent serious warming. This document will provide an idea of how expansive solutions must be to prevent 1.5°C warming.*

**Mead, Leila. 2018. "PAGE Shows Way to Green Economic Transition Through Industrial Policy." International Institute for Sustainable Development. January 23. Accessed at <http://sdg.iisd.org/news/page-shows-way-to-green-economic-transition-through-industrial-policy/>**

*PAGE completed research on how to balance a green economy with wealth creation. This report will be helpful in seeking innovative solutions that ensure both environmental protection and wealth creation.*

**Nairobi, Kenya. December 4-6. Accessed at <https://papersmart.unon.org/resolution/uploads/k1800398.english.pdf>**

*This Declaration provides the current vision of UNEA with regards to pollution policy.*

**PAGE. 2017. "Green Industrial Policy and Trade: A Tool-Box." Accessed at [https://www.un-page.org/files/public/gita\\_manual\\_150ppi\\_full\\_3.pdf](https://www.un-page.org/files/public/gita_manual_150ppi_full_3.pdf)**

*PAGE published a report detailing the renewable energy trade system. This report will be useful in gaining an understanding of renewable energy industry.*

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*This document details UNEA’s plan to implement their vision that was detailed in the Ministerial Declaration. This document will provide details on what plans have already been put in place by UNEA. This will be useful to ensure that innovative solutions brought to the conference do not repeat what is already being done.*

**United Nations Environment. 2014. “UNEA Provides New Momentum to Financing the Green Economy.” Nairobi, Kenya. June. Accessed at <https://www.unenvironment.org/ru/node/6503>.**

*This web-report will provide a better understanding of the challenges facing financing for the green economy, and the steps that are being taken to tackle those challenges.*

## II. Mitigating the Effects of Climate Change on Agriculture

*“To forget how to dig the earth and to tend the soil is to forget ourselves.”*

— Mahatma Gandhi, Indian activist.

### Introduction

Climate change threatens the security of global food systems. According to a study by scientists from the UN Food and Agriculture Organization (FAO), the impacts of climate change can place between 5 and 170 million additional people at risk of being unable to meet the dietary requirements to maintain a normal healthy life.<sup>61</sup> Climate related disasters, such as floods, droughts, and storms, have the ability to destroy crops, infrastructure essential to agriculture and the global food trade, and distribution systems, putting millions at risk.<sup>62</sup> Furthermore, the melting of glaciers will also affect the quantity of water available for human consumption and the reliability of flood patterns, which are essential for farming.<sup>63</sup> The IPCC 2018 report, *Global Warming of 1.5°C*, warns of these climate change consequences and calls for the implementation of mitigation strategies.<sup>64</sup>

Changes to the climate affect not only the production of food, but threatens global food trade, which is essential to feeding the world’s population. The Chatham House Royal Institute of International Affairs, a think tank, produced a report exploring the risks posed to “chokepoints” of agricultural trade, or “critical junctures on transport routes through which exceptional volumes of trade pass.” The report explores hypotheticals; for example, if a hurricane similar to Hurricane Katrina hit the Gulf of Mexico while at the same time rainfalls rendered Brazil’s roads unusable (Brazil saw such rain in 2013), up to 50 percent of global soybean exports, an essential commodity for protein animal feed, would be affected.<sup>65</sup> Protein farmers around the world would be unable to feed much of their livestock and there would be meat and dairy shortages globally. Areas that rely heavily on one chokepoint and do not have alternative routes are particularly at risk; for example, one-third of all grain imports to MENA pass through the Black Sea and the Turkish Straits and cannot be rerouted if one these chokepoints were severely damaged by the environment.<sup>66</sup> Changing weather patterns are a serious threat to global food supply.

Agriculture is not only a victim of environmental degradation; much of current farming and food production methods are especially harmful to the environment. According to the recent IPCC report *Special Report on climate change, desertification, land degradation, sustainable land*

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<sup>61</sup> Josef Schmidhuber and Francesco N. Tubiello. 2017. “Global Food Security Under Climate Change.” *Proceedings of the National Academy of Science of the United State of America*. 104, no. 50 (December): 19703-19708. Accessed at <https://www.pnas.org/content/104/50/19703>.

<sup>62</sup> World Food Program. 2012. “Climate Impacts on Food Security.” Accessed at <https://www.wfp.org/climate-change/climate-impacts>.

<sup>63</sup> Ibid.

<sup>64</sup> Rebecca Carter. 2018. “Climate Change is Transforming Agriculture. Adaptation Must Be Transformative, Too.” World Resources Institute. Last Modified October 11. Accessed at <https://www.wri.org/blog/2018/10/climate-change-transforming-agriculture-adaptation-must-be-transformative-too>.

<sup>65</sup> Chatham House Royal Institute of International Affairs. 2017. “Chokepoints and Vulnerabilities in Global Food Trade.” Executive Summary. *Chatham House*. London. Accessed at <https://www.chathamhouse.org/sites/default/files/publications/research/2017-06-27-chokepoints-vulnerabilities-global-food-trade-bailey-wellesley-final.pdf>.

<sup>66</sup> Ibid.

*management, food security, and greenhouse gas fluxes in terrestrial ecosystems*, 23 percent of man-made greenhouse gas emissions are caused by agriculture, forestry, and other land use activities.<sup>67</sup> The report also warned that extensive land use for farming activities often requires deforestation or results in desertification, destroying forests and eroding soil. Forests and healthy soil take in CO<sub>2</sub>, thus mitigating climate change, yet current farming practices take up large amounts of land that could otherwise exist as a carbon sink. To increase the amount of carbon sink land, the IPCC report called for a transformation in our land use and consumption patterns. For example, 25 to 30 percent of all food production is wasted; the report states that fixing this problem would free up millions of square-miles of land.<sup>68</sup>

Agriculture harms the environment in other ways. According to an FAO report *More People, More Food, Worse Water? A Global Review of Water Pollution from Agriculture*, agriculture is the world's largest contributor to water pollution. Modern agricultural practices use large amounts of agrochemicals, such as herbicides and pesticides, to boost production. These chemicals end up in water bodies and drinking water supplies. The issue is perpetuated by an increasing demand for agricultural fertilizers, which has increased by 1.6 percent annually since 2015.<sup>69</sup> Increased demand is a result of soil degradation. Increasingly large harvests degrade soil and plant nutrients and thus fertilizer is required to compensate for poor soil quality. In Brazil, for example, corn and soybean harvests have nearly doubled since 2008, requiring fertilizers to support such an increase.<sup>70</sup>

## **Efforts Towards Mitigation**

Global efforts to ensure a sustainable agricultural industry and food supply made significant progress at the 2012 *United Nations Conference on Sustainable Development* (Rio+20). There, leaders of governments adopted the *10-Year Framework of Programmes on Sustainable Consumption and Production Patterns* (10YFP).<sup>71</sup> This program is a global framework for action towards achieving sustainable consumption and production (SCP) and outlines how countries and governments can cooperate to achieve SCP. 10YFP was initially created with five programs; each program gathered various governments, businesses, UN bodies, and civil society to address a particular issue, such as sustainable infrastructure, or sustainable consumer choice. A sixth program was created in 2015 per the request of FAO and UNEP to address the pollution intensity of food systems and to increase agricultural resource efficiency.<sup>72</sup> This sixth program, Sustainable Food Systems (SFS), is a platform that allows representatives from governments, the

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<sup>67</sup> Reuters. 2019. "U.N. Flags Need to Cut Meat to Curb Land Use Impact on Global Warming." August 8. Accessed at <https://www.nytimes.com/reuters/2019/08/08/world/americas/08reuters-climate-change-ipcc-land.html>.

<sup>68</sup> The Associated Press. 2019. "UN Climate Report: Change Land Use to Avoid a Hungry Future." August 8. Accessed at <https://www.nytimes.com/aponline/2019/08/08/science/ap-us-sci-climate-land-report.html>.

<sup>69</sup> Food and Agricultural Organization of the United Nations. 2015. "World Fertilizer Trends and Outlook to 2018." Rome. Accessed at <http://www.fao.org/3/a-i4324e.pdf>.

<sup>70</sup> John Baffes and Wee Chain Koh. 2018. "Fertilizer Prices to Rise in 2019 on Supportive Fundamentals." World Bank. Let's Talk Development. November 30. Accessed at <https://blogs.worldbank.org/developmenttalk/fertilizer-prices-rise-2019-supportive-fundamentals>.

<sup>71</sup> Sustainable Development Goals: Knowledge Platform. 2014. "The 10 Year Framework of Programmes on Sustainable Consumption and Production Patterns (10YFP)." Accessed at <https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=1444&menu=35>.

<sup>72</sup> Lynn Wagner. 2015. "10YFP Sustainable Foods program Launched." SDG Knowledge Hub. Last modified October 29. Accessed at <http://sdg.iisd.org/news/10yfp-sustainable-food-systems-programme-launched/>.

private sector, UN agencies, and civil society to cooperate in creating sustainable food systems.<sup>73</sup> SFS is co-lead by the government of Switzerland and South Africa.<sup>74</sup>

SFS has seen success in gathering commitments from global stakeholders through the programmes' global conferences. In February 2019, SFS held its second *Global Conference on the Sustainable Food Systems Programme* in Costa Rica.<sup>75</sup> The Conference was a gathering of 150 representatives from over 30 countries and promoted multi-stakeholder partnerships between food producers and donors to stimulate higher levels of investment in sustainable agricultural practices and to spur political commitment across governments to pursue sustainable food systems.<sup>76</sup> The Conference produced commitments from various stakeholders, including NGOs, governments, businesses and universities, to increase funding for sustainable practices and research, to reduce land use, and to gather stakeholders in their home countries to further the discussion of sustainable food systems.<sup>77</sup>

In its most recent session, UNEA addressed the issue of potential food shortages by passing resolution 4/2 of 2019, *Promoting Sustainable Practices and Innovative Solutions for Curbing Food Loss and Waste*<sup>78</sup>. The resolution was aimed at addressing the 2030 Sustainable Development Goal (SDG) 12, *Responsible Consumption and Production*. The resolution focuses on target 12.3, which is to halve, per capita, global food waste. The resolution requested a partnership between the International Resource Panel and the One Planet Network to research and develop ways to implement SCP and present their findings and recommendations at UNEA-5 in 2021<sup>79</sup>. The International Resource Panel is a UN Environment research community that studies global resource issues and provides practical solutions to governments, policy makers, and industry leaders.<sup>80</sup> The One Planet Network gathers professionals and resources from hundreds of governments, civil society organizations, businesses, and universities to create content to help governments implement SCP policies and tackle their unique challenges.<sup>81</sup> Together these two UN organizations are working to provide insight and policy analysis to governments on how to implement effective practices that curb food-waste.

In 2015, the World Expo was held in Milan, Italy, with the theme “Feeding the Planet, Energy For Life.” Over 60 pavilions representing 147 countries demonstrated innovative solutions and shared experiences on how to address the three topics of the Expo: the right to food that is healthy, safe and sufficient; the environmental, social, and economic sustainability of the food

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<sup>73</sup> The One Planet Network. 2019. “Sustainable Food Systems Program.” Programmes. Accessed at <https://www.oneplanetnetwork.org/sustainable-food-system>.

<sup>74</sup> Ibid.

<sup>75</sup> One Planet. 2019. “The Second Global Conference of the Sustainable Food Systems Programme.” Accessed at <https://www.oneplanetnetwork.org/sustainable-food-system/2nd-global-conference-sustainable-food-systems-programme>.

<sup>76</sup> Ibid.

<sup>77</sup> One Planet. 2019. “Commitments Towards Sustainable Food Systems.” Sustainable Food Systems. February 7. Accessed at [https://docs.wixstatic.com/ugd/491351\\_b9de83c15cb34aa6a10fb193194916de.pdf](https://docs.wixstatic.com/ugd/491351_b9de83c15cb34aa6a10fb193194916de.pdf).

<sup>78</sup> UNEA/EA.4/Res. 4. “Promoting Sustainable Practices and Innovative Solutions for Curbing Food Loss and Waste.” United Nations Environment Assembly. Accessed at <http://wedocs.unep.org/handle/20.500.11822/28499>.

<sup>79</sup> Elia Paul. 2019. “What Did UNEA-4 Do for the Environment?” SDG Knowledge Hub. March 26. Accessed at <https://sdg.iisd.org/commentary/policy-briefs/what-did-unea-4-do-for-the-environment/>.

<sup>80</sup> Ibid.

<sup>81</sup> Ibid.

chain; and the preservation of taste and food culture.<sup>82</sup> The Expo raised awareness among millions of visitors on the importance of food security and the planet's delicate food system. At the Expo, the Organization for Economic Co-operation and Development (OECD), FAO, and the United Nations Capital Development Fund (UNCDF) presented their joint initiative to implement, research, and increase policy mechanisms that promote food security and nutrition in rural areas across the world's LDCs.<sup>83</sup> The progress of their projects in Morocco, Peru, Colombia, and Cote d'Ivoire were presented at the Conference.<sup>84</sup>

## Solutions

The Global Resource Outlook in its 2019 report *Natural Resources for the Future We Want* detailed its vision of 'decoupling,' which is "to allow for well-being to increase independently of resource use."<sup>85</sup> This principle can be simply stated as resource efficiency. Solutions to both mitigating the effects of climate change on agriculture and decreasing agriculture's impact on the climate should operate on this principle of resource efficiency. Some examples of this principle include the use of new methods to increase crop yields per acre, ensuring no water is lost in irrigation systems, keeping soil healthy so that more food is produced per acre, and reducing food waste.<sup>86</sup>

An example of this principle in action is the Waste and Resources Action Program (WRAP), a UK based charity, which arranged a set of voluntary commitments from UK industries and retail to increase resource efficiency and reduce waste. As a result of industry commitments from leading UK grocers, such as Tesco, Asda, and Sainsbury's, the years 2005-2012 witnessed a 2.9 million tonne decrease in food waste, saving consumers roughly 4.9 billion pounds.<sup>87</sup> The Program also estimates that the UK decreased food and water waste by 4 percent between 2010 and 2012.<sup>88</sup> WRAP's success has led the Programme to receive funding from the UK's Department for Environment and the Department of Food and Rural Affairs.<sup>89</sup> Though industries were able to make impactful changes in preventing their own waste, consumer participation is needed, as nearly 40 percent of all food waste in industrialized countries occurs at the consumer level.<sup>90</sup> Member States should seek solutions that encourage consumer involvement in preventing food waste.

The Rainforest Alliance (RA), an NGO that works with farmers and businesses, has created a successful sustainable agriculture certification for farmers to achieve in return for assisting in

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<sup>82</sup> Allan Buckwell. 2015. "Expo 2015: Feeding the Planet, Energy for Life." In *Countryside*, European Landowners Organization (May-June): 8-9.

<sup>83</sup> UN Expo Milano 2015. "UN Itinerary." Accessed at <http://www.fao.org/un-expo/en/un-at-expo-2015/un-itinerary.html>.

<sup>84</sup> OECD/FAO/UNCDF. 2016. *Adopting a Territorial Approach to Food Security and Nutrition Policy*, OECD Publishing, Paris. Accessed at <http://dx.doi.org/10.1787/9789264257108-en>.

<sup>85</sup> United Nations Environment Program. 2019. *Global Resources Outlook*. "Natural Resources for the Future We Want." Accessed at: <file:///Users/Robby/Downloads/gro-layout-en-web2.pdf>."

<sup>86</sup> Ibid.

<sup>87</sup> Ibid.

<sup>88</sup> Ibid.

<sup>89</sup> Ibid.

<sup>90</sup> Food and Agricultural Organization of the United Nations. 2019. "SAVE FOOD: Global Initiative on Food Loss and Waste Reduction". Accessed <http://www.fao.org/save-food/resources/keyfindings/en/>.

distributing their products and placing their seal on products.<sup>91</sup> RA works with over 783,000 farmers worldwide, mostly cooperating with small farms in LDCs.<sup>92</sup> To attain an RA certification, farmers must have a plan for sustainability on their farm and follow certain RA guidelines and trainings. For example, RA helps coffee farmers in Rwanda to conserve water by planting trees and bushes on stream and river banks to stop erosion of the soil and contamination of the water from crop runoff that carries harmful fertilizers. Furthermore, RA helps Rwandan farmers build and manage wastewater treatment facilities that use chemicals, microorganisms, and filtration systems to clean water contaminated by fertilizer and reuse this water to grow more coffee.<sup>93</sup> As farmers cooperate with RA and meet their criteria, RA helps distribute and market their products, making it a beneficial relationship for the farmers.

## **Conclusion**

Though these are examples of success and improvement, they are not applicable for each Member State. Government partnership with local industry is not feasible for all countries as it is in the UK. Further international cooperation across Member States and new innovative ideas are required to reduce food waste and mitigate climate change's negative impacts on food security. The 10YP details not just increased resource efficiency, but a need for an overall decrease in the environmental impact of resource use. As Member States engage in this cooperative effort and understand that everyone's security and wellbeing rests on other nations' ability to produce food, willingness among governments and the private sector to make changes necessary for SCP will increase.

## **Questions to Consider**

1. How can Member States ensure the protection of 'chokepoints' where large amounts of international food trade pass through?
2. How can Member States create better cooperative structure between governments, the UN, and the agriculture industry to reach SCP?
3. What unique ideas will help protect crops from extreme weather events and also have a reduced impact on the environment (less use of pesticides and land)?
4. How can farmers increase their crop yields while significantly decreasing the amount of land used for agriculture.?

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<sup>91</sup> Rainforest Alliance. "Our Approach." Accessed at <https://www.rainforest-alliance.org/>.

<sup>92</sup> Rainforest Alliance. "Our Impacts." Accessed at <https://www.rainforest-alliance.org/impact>.

<sup>93</sup> Global Citizen. 2016. "5 Ways Farmers can Combat Climate Change." September 30. Accessed at <https://www.globalcitizen.org/en/content/5-ways-farmers-can-work-around-climate-change/>.

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*The Royal Institute of International Affairs provides a detailed analysis of how the global food security relies on trade of a few crops and fertilizers, and illustrates the fragility of that trade. They detail particular chokepoints in international food trade that are essential to global food security.*

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*Climate Focus and California Environmental Associates are both environmental consultancy firms that help governments, NGOs, and businesses evaluate the environmental sustainability of their practices and propose workable solutions to environmental problems. In this report, multiple strategies are proposed to reduce agricultural CO<sub>2</sub> emissions, and each strategy is tailored towards particular regions of the globe.*

**Food and Agriculture Organization of the United Nations, Organization for Economic Cooperation and Development, and United Nations Capital Development Fund. 2016. *Adopting a Territorial Approach to Food Security and Nutrition Policy*. Paris: OECD Publishing. Accessed at [https://www.oecd-ilibrary.org/urban-rural-and-regional-development/adopting-a-territorial-approach-to-food-security-and-nutrition-policy\\_9789264257108-en](https://www.oecd-ilibrary.org/urban-rural-and-regional-development/adopting-a-territorial-approach-to-food-security-and-nutrition-policy_9789264257108-en).**

*This joint report between multiple UN bodies argues for the need to use territorial approaches to addressing hunger and malnutrition. It conducts case studies in Cambodia, Columbia, Cote d'ivoire, Morocco, Peru, Mali, and Niger, evaluating which policies and methods helped to reduce hunger. Though this report examines all aspects of hunger, it frequently discusses climate changes effect on hunger and how to mitigate it.*

**Food and Agriculture Organization of the United Nations. 2018. *Koronivia Joint Work on Agriculture: Analysis of Submissions*. Rome. Accessed at <http://www.fao.org/3/CA2586EN/ca2586en.pdf>.**

*The 2017 United Nations Climate Change Conference (COP23) adopted the Koronivia decision 4/CP.23 on the "Koronivia Joint Work on Agriculture," which called for an increased focus on agriculture and food security as part of the climate change discussion.*

*This report summarizes the positions of particular Member States towards the Kornovia agreement and details their particular agricultural needs.*

**Food and Agriculture Organization of the United Nations. 2018. *The State of Agricultural Commodity Markets 2018: Agricultural trade, climate change and food security*. Rome. Accessed at <http://www.fao.org/3/I9542EN/i9542en.pdf>.**

*This report details the expected effects of climate change on agriculture in different parts of the world, predicting an increase in yields in the global north, but a severe decrease in yields in Sub-Saharan Africa, MENA, and Southeast Asia. The report includes an analysis of food trade between countries and how climate change impacts this trade.*

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*The IPCC special report details how current land use practices are contributing to climate change and declares that large changes are required in land use and in dietary practices to prevent 1.5 C warming.*

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*This report summarizes existing knowledge on how climate change impacts global food security. It explores topics such as how climate change-induced natural disasters will harm crop production, and how higher temperatures will affect soil quality and decrease yields.*

**Rainforest Alliance. 2016. “5 Ways Farmers can Combat Climate Change.” Global Citizen. September 30. Accessed at <https://www.globalcitizen.org/en/content/5-ways-farmers-can-work-around-climate-change/>.**

*These suggestions were made by the rainforest alliance and are examples of specific solutions that can be implemented to help mitigate the effects of climate change on agriculture.*

**UNEA/EA.4/Res 2. “Innovative Pathways to Achieve Sustainable Consumption and Production.” United Nations Environment Assembly. Nairobi. Accessed at <https://papersmart.unon.org/resolution/uploads/k1900824.pdf>.**

*This is a resolution from the most recent session of UNEA and details the Assembly’s recent efforts towards a sustainable food industry.*

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*This is a report by the International Resource Panel that details recent trends in the production and use of natural resources and associated challenges and potential solutions.*