



UNEA

MOMUN 2026
BACKGROUND GUIDE

United Nations Environment Assembly

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Committee Overview

In our modern day, as pollution becomes an even more pressing matter, it is imperative that we address the core problems in order to debate possible solutions.

We live in an extremely modernized and urbanized society. Going back to our old, non-urbanized ways is simply not an option. We need to find ways to make our cities simultaneously more sustainable and modernized. As the population continues to grow at an alarming rate, the agriculture industry and our need for urban expansion is also growing, and with that comes even more pollution and environmental destruction.

With every product you buy, millions of tons of methane and carbon are produced just to get that product on the shelf. Every major city does nearly irreversible environmental damage every day. As delegates, it is your responsibility to create innovative, bold, and effective solutions before it is too late.

It is imperative to remember that we only have one Earth, and it is our responsibility to keep it alive.

Sincerely,

Esme Brean
Director, Monarch Park Model United Nations 2026
United Nations Environment Assembly

MOMUN 2026

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Director's Letter

Dear delegates,

My name is Esme Brean, and I am a grade 11 IB student at Monarch Park C.I. I have been doing Model UN for nearly three years now, and I am so excited to be your director. Ever since my first conference, general assemblies have always been my favourite committee to participate in. I love to hear others' ideas on current events and debate the best possible solutions for real-life issues. I am passionate about GAs because they make me feel like I am contributing to my community both locally and globally by learning about foreign stances and politics, so when I am older, I can take action to make our world a better place.

The United Nations Environmental Assembly stood out to me as a topic because it is one of the most pressing issues in today's world. Our society is rapidly growing, and our problems and impact on the environment are growing with it. I urge delegates to interact with this committee to the fullest of their ability, as the solutions we discuss here may very well be the solutions of the future.

Each delegate will bring different ideas on how to develop as a global community, and I cannot wait to hear and see all the collaboration and fierce debate. I know this is going to be the most exciting and intriguing committee I have ever had the pleasure to direct, and I am very excited to meet all of you at MOMUN 2026.

If you have any questions about this committee's topics or format, you can contact me through my email, 350293564@tdsb.ca, and I will promptly respond.

Best regards,

Esmé Brean

Director, Monarch Park Model United Nations 2026

UNEA

350293564@tdsb.ca

For **UNEA**, here are your staff:

Director: Esme Brean

Moderator:

Equity Statement

The committee acknowledges that the topics discussed may involve unethical and controversial issues. Therefore, some flexibility will be allowed for addressing matters that may be considered unfair, controversial, or unethical within the committee's context. Delegates are reminded that only English should be used, and accents or other languages are not allowed during proceedings.

Delegates may find themselves fundamentally opposed to policies related to countries. The chair would strongly encourage delegates to refrain from referring to issues in the modern day in offensive or inappropriate fashion.

MOMUN 2026 has a zero-tolerance policy for equity violations within or outside of the committee. We acknowledge that this committee may touch on controversial issues; however, we implore delegates to maintain a high degree of respect and decorum. As a reminder, instances of racism, sexism, homophobia, transphobia, xenophobia, ableism, or any other form of discrimination will not be tolerated and may lead to disqualification from awards or removal from MOMUN 2026, depending on the severity.

We strongly encourage delegates to refrain from controversial topics, past and present. For clarity, please email or speak to any staff member of this committee. We kindly ask all delegates to approach sensitive issues with the utmost respect and understanding toward others. Moreover, a basic level of respect and order is expected when interacting with other delegates, pages, staff, faculty facilitators, and all MOMUN personnel who make this conference possible.

Glossary

Antibiotic Resistance

Antibiotic resistance occurs when bacteria evolve mechanisms to survive or resist drugs designed to kill them, rendering standard treatments ineffective and is often caused by overuse of antibiotics¹

Biocapacity

The ability of an ecosystem to generate natural resources and absorb human-generated waste²

Biocapacity Deficit

When a country's demand for resources and amount of waste produced exceeds its natural biocapacity

Carbon Capture and Storage Technology

Carbon capture technologies are engineering processes that separate carbon dioxide from industrial exhaust or ambient air to prevent it from entering the atmosphere³

¹ Cleveland Clinic. (2023, October 19). *Antibiotic Resistance*. Cleveland Clinic. <https://my.clevelandclinic.org/health/articles/21655-antibiotic-resistance>

² *Nature's regenerative capacity*. (2012). Wwf.panda.org. https://wwf.panda.org/discover/knowledge_hub/all_publications/living_planet_report_timeline/lpr_2012/demands_on_our_planet/biocapacity/

³ *Carbon capture in Canada*. (2024, December 3). Canadian Climate Institute. <https://climateinstitute.ca/safe-bets-wild-cards/carbon-capture-in-canada/>

Rotational Farming

Rotational farming, or crop rotation, is the practice of growing different types of crops in the same area across a planned sequence of growing seasons⁴

Drought-Resistant Crops

Aims to breed plants that require less water⁵

Drip Irrigation

Irrigation technology that delivers water directly to the plant's roots to prevent evaporation and water waste⁶

Ecological Footprint

The impact of a person or community on the environment, expressed as the amount of land required to sustain their use of natural resources.

⁴ Rodale Institute. (2025). *Crop rotations*. Rodale Institute.
<https://rodaleinstitute.org/why-organic/organic-farming-practices/crop-rotations/>

⁵ Ameer, M. (2024). Drought-Resistant Crops: a Sustainable Solution to Climate Change. *International Research Journal of Plant Science*, 15(4), 1–3.
<https://www.interestjournals.org/articles/droughtresistant-crops-a-sustainable-solution-to-climate-change-111271.html>

⁶ Shock, C. (2019, December 30). *An Introduction to Drip Irrigation*. College of Agricultural Sciences.
<https://agsci.oregonstate.edu/mes/irrigation/introduction-drip-irrigation>

Greywater Recycling

Treats and cleans wastewater to be used for agricultural purposes⁷

Monoculture

The process of growing one crop in a large area of space for a prolonged amount of time⁸

Paris Agreement

The Paris Agreement is a legally binding international treaty adopted in 2015 by 195 parties at COP21 to combat climate change⁹

Rainwater Harvesting

Collects and stores rainwater to be later used for agricultural purposes

⁷ Greywater Recycling. (n.d.). Global Water Partnership.

<https://www.gwp.org/en/NCWR/Resources/NCWRPractices/greywater-recycling/>

⁸ Petruzzello, M. (2023). *monoculture* | *agriculture* | *Britannica*. Wwww.britannica.com.
<https://www.britannica.com/topic/monoculture>

⁹ UNFCCC. (2025). *The Paris agreement*. United Nations Climate Change.
<https://unfccc.int/process-and-meetings/the-paris-agreement>

United Nations Framework Convention on Climate Change (UNFCCC)

A 1992 international treaty aiming to stabilize greenhouse gas concentrations to prevent dangerous human interference with the climate system¹⁰

Urban Heat Island Effect

A phenomenon that explains how urbanized cities experience many effects of global warming due to increased human activity such as industries, traffic, and construction, mixed with a lack of vegetation due to their dense infrastructure

Variable Rate Irrigation

Irrigation technology that adapts the amount of water delivered to each crop based on the needs of that specific plant to prevent overuse of water in the agriculture industry¹¹

Vertical Farming

Stacking crops vertically on top of each other, which uses artificial irrigation and soil systems to prevent the overuse of land in the agriculture industry¹²

¹⁰ *United Nations Framework Convention on Climate Change (UNFCCC) and Climate, Peace and Security | Climate Security Mechanism.* (2024, November 15). Climate Security Mechanism. <https://www.un.org/climatesecuritymechanism/en/united-nations-framework-convention-climate-change-unfccc-and-climate-peace-and-security>

¹¹ Kateryna Sergieieva. (2024, October 25). *Variable Rate Irrigation Technology And Its Benefits.* EOS Data Analytics. <https://eos.com/blog/variable-rate-irrigation/>

¹² *VERTICAL FARMING | meaning in the Cambridge English Dictionary.* (n.d.). Dictionary.cambridge.org. <https://dictionary.cambridge.org/dictionary/english/vertical-farming>

Current State of Affairs

As our population continues to grow, over half of the global population remains concentrated in small cities (see map below for reference)¹³. This can lead to a myriad of problems, including disproportional ecological footprints that lead to global-scale impacts and a lack of proper housing for large cities' needs. As you can see in the graph, some of the areas with the highest population, like India, China, Japan, Bangladesh, and Singapore, are also the countries with the highest ecological footprints¹⁴. This correlation is not random; these countries with extreme population densities are exceeding their natural environment's biocapacity and sending their country into a biocapacity deficit. This means their population's demands are exceeding their environment's natural ability to replenish their resources. For instance, China, being driven by rapid urbanization and industrialization, is currently consuming more than double its biocapacity to maintain its economy¹⁵. This issue extends globally as currently over 80% of countries are in a biocapacity deficit¹⁶. If countries remain in a biocapacity deficit, our environment will soon reach its capacity for supporting our needs.

¹³ Our World in Data. (2022). *Population density*. Our World in Data.

<https://ourworldindata.org/grapher/population-density>.

¹⁴ World Population Review. (2024). *Ecological Footprint by Country 2024*. Worldpopulationreview.com.

<https://worldpopulationreview.com/country-rankings/ecological-footprint-by-country>.

¹⁵ Diep, A. (2015, May 15). *May 14: Ecological Deficit Increases in China*. Earth Overshoot Day.

<https://overshoot.footprintnetwork.org/china/>.

¹⁶ Global Footprint Network. (2021). *Ecological Footprint*. Footprintnetwork.org; Global Footprint Network.

<https://www.footprintnetwork.org/our-work/ecological-footprint/>.

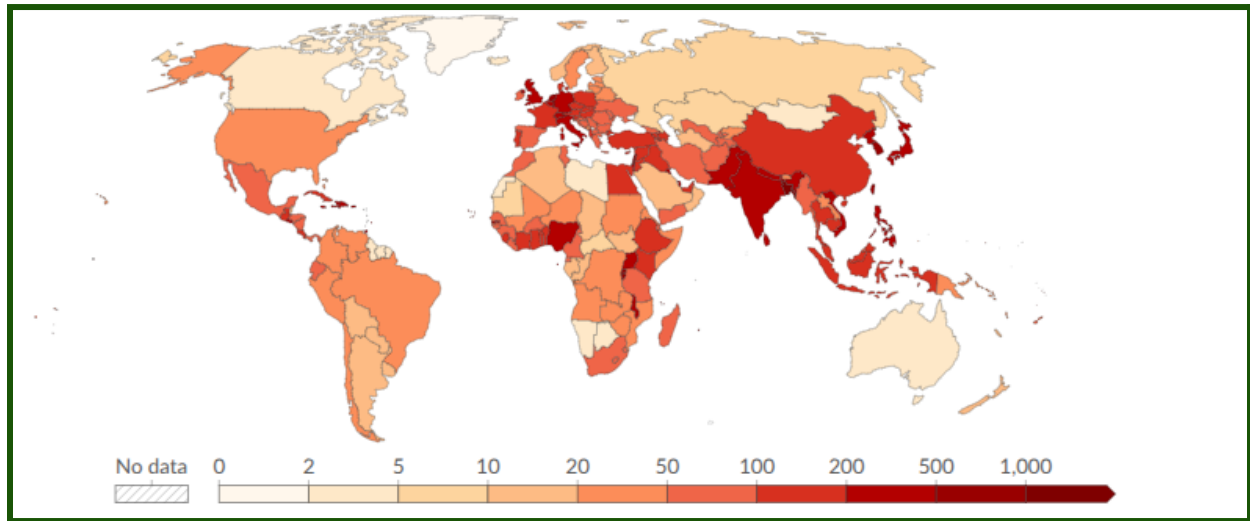


Figure 1: Population Density, 2025 - The Number of People per km² Land Area

Over 10 years ago, all parties in the United Nations Framework Convention on Climate Change (UNFCCC) came to an agreement known as the Paris Agreement; a global plan to mitigate climate change. One key aspect of the Paris Agreement is the agreement that all participating countries will make an effort for global adaptation, which includes all participating countries to effectively reduce their strain on the environment¹⁷. Now, over 10 years later, nearly every country still exists in a biocapacity deficit. Countries in the UNEA must collaborate to determine a feasible plan of action to reduce our global biocapacity deficit before we face the consequences.

Moreover, the growing population has also caused a need to increase agricultural production. This includes expanding farmland and animal farming to feed the growing population. This has caused a magnification of the negative impacts of the agricultural industry. The agriculture industry

¹⁷ UNFCCC. (2015). *Key Aspects of the Paris Agreement*. United Nations Climate Change; United Nations. <https://unfccc.int/most-requested/key-aspects-of-the-paris-agreement>.

has contributed around 25% of the global greenhouse gas emissions, takes up nearly 50% of our global habitable land area¹⁸, and is responsible for 70% of global freshwater withdrawals annually¹⁹.

As our global needs increase, the need for a revolution of the agriculture industry also increases, as within our current systems, the agriculture industry will not be able to sustain our ever growing needs for much longer.

¹⁸ Ritchie, H., Roser, M., & Rosado, P. (2022). *Environmental Impacts of Food Production*. Our World in Data. <https://ourworldindata.org/environmental-impacts-of-food>.

¹⁹ *World Enters "Era of Global Water Bankruptcy" UN Scientists Formally Define New Post-Crisis Reality for Billions*. (2026, January 20). United Nations University. <https://unu.edu/inweh/news/world-enters-era-of-global-water-bankruptcy>.

Topic A - *Sustainable Development* *in an Urbanized World*

In 2022, the global population reached 8 billion people²⁰. Currently, more than half of our population is condensed into urban areas²¹. These urban cities are geographically considered small compared to our world, but their impact on our environment can be felt on a global scale. The industrialized architecture of these cities contributes massively to their excessively large ecological footprint. By introducing sustainable development into the most urban cities of the world, we can decrease our global ecological footprint exponentially.

The Problem

Urbanized cities have increased pollution and worsened air quality as a result of the “*urban heat island effect*”. The “urban heat island” effect is a phenomenon that explains how urbanized cities experience many effects of global warming due to increased human activity such as industries, traffic, and construction, mixed with a lack of vegetation due to their dense infrastructure. The lack of proper air quality in urbanized areas poses not only a threat to future generations and long-term climate change, but also an immediate health risk. As of 2019, the World Health Organization (WHO) stated in a study that 99% of the global population lives in areas where air quality guidelines have not been

²⁰ United Nations. (2025). *Global issues: Population*. United Nations. <https://www.un.org/en/global-issues/population>.

²¹ Ritchie, H., Roser, M., & Rosado, P. (2022). *Environmental Impacts of Food Production*. Our World in Data. <https://ourworldindata.org/environmental-impacts-of-food>.

met.²² This poses a major threat to public health, as in the same study, the W.H.O stated that 4.2 million premature deaths were caused by ambient air pollution.

However, it is not only urban cities that face the hardships of pollution. Rural cities often bear the burden of the extreme waste produced by urbanized areas, as landfills are often located near rural communities. Also, as the air quality decreases globally from excessive pollution, the agricultural industries, often located in rural areas, suffer. Pollution can lead to global food insecurity, as GHGs can damage plant tissues and harm a plants ability to conduct photosynthesis.

Urban areas cause some of our largest and most pressing issues, but the solution cannot be the elimination of urban areas. They are the engines for the global economy and house over half of the global population. So we must turn our attention to alternative solutions, like rebuilding the way we live in urban settings.

Furthermore, as the populations of major cities grow, the housing crisis grows with it. Many urbanized cities are finding they simply do not have the space to accommodate all of their citizens, leaving many unhoused. Some of the cities that are experiencing the worst of the housing crisis include: Toronto, Los Angeles, and New York, and as of currently, all actions they have tried to take to reduce this issue have been unfruitful.

²² World Health Organization: WHO. (2024, October 24). *Ambient (outdoor) air pollution*. Who.int; World Health Organization: WHO.
<https://www.who.int/news-room/fact-sheets/detail/ambient-%28outdoor%29-air-quality-and-health>.

Sustainable Development Methods

One of the many ways we can make urban cities more sustainable is through sustainable development. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their needs. One way we can do this is by changing our methods of urbanization to conserve resources for future generations. Sustainable development allows us to continue maintaining our large urban cities while minimizing their ecological footprint. For example, one method of sustainable development is carbon capture technology. Carbon capture is a technology that separates carbon dioxide from the source or the air before it reaches the atmosphere. Many modern applications of this technology include building carbon capture technologies into urban infrastructure.

Another method that has been included in many global debates is green apartment infrastructure and tenant requirements. This can include having rooftop gardens that can help reduce an urban city's need for greenery. This method has been implemented in many places, such as Japan in their ACROS Fukuoka building or Singapore's Landscaping for Urban Spaces and High Rises (LUSH) program²³.

Climate Financing

Climate financing is the local, national, or transnational financing from public, private, or alternative funding sources used to fund projects that aim to address and mitigate climate change. The Paris Agreement outlined that countries that are able to contribute to funding climate change

²³ *Five green buildings with vertical gardens around the world.* (2021, September 7). The Business Standard. <https://www.tbsnews.net/features/habitat/five-green-buildings-vertical-gardens-around-world-298927>.

mitigation initiatives in more vulnerable countries should contribute their available funds²⁴. As of currently, the Global Environmental Facility (GEF) and Green Climate Fund (GCF) have been the primary financing mechanisms for environmental initiatives and rely on donations from countries. These financing funds have proven useful, but their long-term reliability can be questioned. Relying solely on donations from countries can often work in the short term, but when faced with international challenges like wartime or economic instability, governments may have limited budgets for donations. That is why many global debates are looking favourably on expanding funding resources to private or alternative sectors²⁵.

²⁴ UNFCCC. (2022). *Introduction to climate finance*. United Nations Climate Change. <https://unfccc.int/topics/introduction-to-climate-finance>

²⁵ UNFCCC. (2022). *Introduction to climate finance*. United Nations Climate Change. <https://unfccc.int/topics/introduction-to-climate-finance>

Case Study A - Silicon Kingdom Holdings Carbon Capture Technology



Figure 2: ASU Professor's "Mechanical Tree"²⁶

Carbon capture technology is used to capture CO₂ from the atmosphere produced by industrial sources before it enters the atmosphere. It compresses the carbon dioxide in deep underground geological formations or is used in products like concrete²⁷. Silicon Kingdom Holdings is a Dublin-based company that focuses on passive carbon capture technology. They are responsible for the MechanicalTree™, which was developed by Dr. Klaus Lackner at Arizona State University²⁸. The

²⁶ Popular Science picks ASU professor's "Mechanical Tree" as a 2019 top technology | ASU News. (2019, December 5). Asu.edu. <https://news.asu.edu/20191205-popular-science-picks-lackner-mechanicaltree-2019-top-technology>.

²⁷ Center for Climate and Energy Solutions. (2018, April 11). Carbon Capture. Center for CDublin-based climate and Energy Solutions. <https://www.c2es.org/content/carbon-capture/>.

²⁸ Carbon Collect Ltd. | Tech Portal. (2023). Epri.com. <https://techportal.epri.com/developers/lcri/1c5BDqYz8Z8FcZSuHcJCmv>.

gas captured by the MechanicalTree™ is often sold for reuse. The MechanicalTree™ is a prime example of how we can use modern technology to address current challenges and mitigate the effects of global warming. Delegates should use this case study as an example of how technological advancements can advance conversations in environmental discussions.

Guiding Questions:

1. What methods of sustainable development should be used?
2. Should sustainable development plans be generalized globally or adapted on a needs basis for each country?
3. Who should primarily support and contribute to climate financing: governments or private/alternative sectors?
4. For national funding, how will funds be acquired for larger initiatives? Through increased taxes or relocating sections of the country's GDP? How will the public react to such decisions?
5. For private/alternative funding sectors that will be contributing to the fund, how will you incentivize private sectors to engage in the fund?

Topic B - *The Agriculture Industry*

The agriculture industry for years has been the backbone of many countries' economies and global trade. On the surface, its impact on global climate change may seem insignificant, as to the public, it can be imagined as vast acres of crops and animals, but that is simply not the reality. The agriculture industry has a massive impact on global climate change, and without reformation, it may be the source of our society's demise.

Animal Farming

Animal farming is a practice where farmers breed, raise, and manage animals to be used for food, fibre, leather, and labour. Animal farming has a major impact on the environment as it reduces biodiversity, contributes to global warming, and degrades soil quality. When animal farming is done on a large scale, vast areas of open land are required to house all the animals. This often results in inhumane confinement of animals or large-scale clearing of biodiversity to create pastures. Oftentimes, large areas that house trees and other organisms are cleared to create pastures for animals such as cows or if areas are not available the animals will be forced into smaller living spaces to accommodate for the global demand of meat. This poses a threat to local biodiversity as clearing these areas results in the killing of many different types of plants. Moreover, animals, specifically cows, produce large amounts of greenhouse gases like methane through their digestive system. Usually, this is not a problem, but when breeding or raising them in mass, the amounts of greenhouse gases pose a threat to our ozone layer.

Additionally, as animals are often kept in tight and dirty settings that are breeding grounds for diseases, farmers often pump them with antibiotics. After these animals are killed and sold, the presence of antibiotics can be detrimental to humans, as taking antibiotics without need can lead to the

development of antibiotic-resistant bacteria, which can cause global disease that cannot be combated with modern medicine²⁹.

The need to change the animal farming industry is immense. At the core of the problem is our modern society's overconsumption of meat and animal products, as the grotesque need for large quantities of meat in grocery stores is forcing farmers to increase the number of animals they are keeping and decreasing the amount of space they give them. Around 360 million tons of meat is consumed each year globally, and this number has more than tripled in only 50 years³⁰.

The Agriculture Industry's Impact

The agriculture industry has been the heart of many rural settings for years, and it has sparked international trade and relations. The agriculture industry is also the main or a large source of income for most countries. The functioning of the agriculture industry and agricultural trade depends on specific regions producing specific crops in mass, otherwise known as monoculture agriculture. This often results in the lack of biodiversity in most areas, as entire crops are dedicated to one type of plant. This can lead to issues regarding soil quality degradation and increased fertilization needs.

Around 50% of the world's habitable land is used for agriculture, and ⅓ of the world's habitable land is used specifically for crop production³¹. While dedicated land to agriculture is not inherently bad for the environment, when large areas of land are used for monoculture, we risk degrading the soil quality, destroying biodiversity, and increasing the soil's resistance to pesticides and

²⁹ Martin, M. J., Thottathil, S. E., & Newman, T. B. (2015). Antibiotics Overuse in Animal Agriculture: A Call to Action for Health Care Providers. *American Journal of Public Health*, 105(12), 2409–2410.
<https://doi.org/10.2105/ajph.2015.302870>.

³⁰ Khan, K. S. (2023, August 3). *15 Most Consumed Meats in the World*. Yahoo Finance.
<https://finance.yahoo.com/news/15-most-consumed-meats-world-160853277.html>.

³¹ Ritchie, H., & Roser, M. (2024, February 16). *Half of the world's habitable land is used for agriculture*. Our World in Data; Our World in Data. <https://ourworldindata.org/global-land-for-agriculture>.

fertilizers, which drives farmers to use stronger and more harmful chemicals that later enter our food sources and water supplies³².

Moreover, the agriculture industry uses around 70% of the global population for irrigation, livestock, and food processing and in our current state as a global society with water insecurity being a major problem that plagues many countries, having the agriculture industry use excess and unnecessarily high amounts of water is not sustainable³³.

There are many solutions available to address the amount of water being consumed in the agriculture industry like drip irrigation which delivers water directly to plant's roots to prevent evaporation and water waste, variable rate irrigation which changes the amount of water being given to crops based on the type and biochemical makeup of the plant, rainwater harvesting which aims to collect rain water and store it for later use, grey water recycling which treats waste water to be reused for crops, or drought resistant crops which aims to breed plants to require less water³⁴.

The agriculture industry could also address the overconsumption of water issue and the issue of monoculture by implementing rotational farming. Rotational farming is where you rotate which crops are in a specific area after a specific period of time. This promotes biodiversity and improves the health of the soil, which helps the plants require less water and increases the quality of the soil.

One way to reduce the amount of land being used for agricultural purposes is vertical farming. Vertical farming is where you create mini crops stacked vertically on top of each other and rely on artificial irrigation. Vertically farming will allow countries to have more space for housing, meaning

³² Kogut, P. (2025, February 26). *Monoculture farming explained: What are the pros and cons?* EOS Data Analytics. <https://eos.com/blog/monoculture-farming/>.

³³ Ritchie, H., & Roser, M. (2024a, February). *Water use and stress*. Our World in Data. <https://ourworldindata.org/water-use-stress>.

³⁴ Smoor, T. (2024, August 27). *6 facts you should know about water use in agriculture* | Cargill. Cargill.com. <https://www.cargill.com/story/agriculture-water-use>.

vertical farming can help address both issues that the agriculture industry faces and public issues like the housing crisis or overurbanization of geographically small but dense cities.

Case study B - Dyson's Impact on Vertical Farming



Figure 3: 1,000-pound wheels and robots now farming Dyson strawberries³⁵

Dyson Farms owns a facility in the United Kingdom with over a million strawberry plants. It includes vertically rotating crops that allow each crop to get natural sunlight, reducing the need for artificial light, automated robots that pick the strawberries, and machines that emit UV rays to kill mold. James Dyson stated that this greenhouse can yield 200,000 strawberries per month and only occupies 26 acres. This modern solution to the problem of land availability shows that it is possible to

³⁵ New Atlas. (2025, July 7). *1,000-pound wheels and robots now farming Dyson strawberries*. New Atlas. <https://newatlas.com/environment/farming-dyson-strawberries/>.

support the immense needs of our growing population without putting additional strains on the environment.

Guiding Questions:

1. How will you implement any decisions made about farming frameworks in individual countries' agriculture industries?
2. Should the methods used to change the agriculture industry be globally applicable or change based on the country's needs and the types of crops they use?
3. How will you address the global overconsumption of meat?
4. Should legal frameworks about animal farming and animal storage conditions be outlined with reference to animal ethics and rights?

References

Ameer, M. (2024). Drought-Resistant Crops: a Sustainable Solution to Climate Change.

International Research Journal of Plant Science, 15(4), 1–3.

<https://www.interestjournals.org/articles/droughtresistant-crops-a-sustainable-solution-to-climate-change-111271.html>

British Geological Survey. (2023). *Understanding carbon capture and storage*. British Geological Survey.

<https://www.bgs.ac.uk/discovering-geology/climate-change/carbon-capture-and-storage/>

Carbon capture in Canada. (2024, December 3). Canadian Climate Institute.

<https://climateinstitute.ca/safe-bets-wild-cards/carbon-capture-in-canada/>

Carbon Collect Ltd. | Tech Portal. (2023). Epri.com.

<https://techportal.epri.com/developers/lcri/1c5BDqYz8Z8FczSuHcJCmv>

Center for Climate and Energy Solutions. (2018, April 11). *Carbon Capture*. Center for Climate and Energy Solutions. <https://www.c2es.org/content/carbon-capture/>

Cleveland Clinic. (2023, October 19). *Antibiotic Resistance*. Cleveland Clinic.

<https://my.clevelandclinic.org/health/articles/21655-antibiotic-resistance>

Diep, A. (2015, May 15). *May 14: Ecological Deficit Increases in China*. Earth Overshoot Day.

<https://overshoot.footprintnetwork.org/china/>

Five green buildings with vertical gardens around the world. (2021, September 7). The Business Standard.

<https://www.tbsnews.net/features/habitat/five-green-buildings-vertical-gardens-around-world-298927>

Global Footprint Network. (2021). *Ecological Footprint*. Footprintnetwork.org; Global Footprint Network. <https://www.footprintnetwork.org/our-work/ecological-footprint/>

Greywater Recycling. (n.d.). Global Water Partnership.

<https://www.gwp.org/en/NCWR/Resources/NCWRPractices/greywater-recycling/>

New Atlas. (2025, July 7). *1,000-pound wheels and robots now farming Dyson strawberries*.

New Atlas. <https://newatlas.com/environment/farming-dyson-strawberries/>

Kateryna Sergieieva. (2024, October 25). *Variable Rate Irrigation Technology And Its Benefits*.

EOS Data Analytics. <https://eos.com/blog/variable-rate-irrigation/>

Khan, K. S. (2023, August 3). *15 Most Consumed Meats in the World*. Yahoo Finance.

<https://finance.yahoo.com/news/15-most-consumed-meats-world-160853277.html>

Kogut, P. (2025, February 26). *Monoculture farming explained: What are the pros and cons?*

EOS Data Analytics. <https://eos.com/blog/monoculture-farming/>

Martin, M. J., Thottathil, S. E., & Newman, T. B. (2015). Antibiotics Overuse in Animal

Agriculture: A Call to Action for Health Care Providers. *American Journal of Public*

Health, 105(12), 2409–2410. <https://doi.org/10.2105/ajph.2015.302870>

Mohajeri, N., Hsu, S.-C., Milner, J., Taylor, J., Kiesewetter, G., Gudmundsson, A., Kennard, H.,

Hamilton, I., & Davies, M. (2023). Urban–rural disparity in global estimation of PM_{2.5}

household air pollution and its attributable health burden. *The Lancet Planetary Health*,

7(8), e660–e672. [https://doi.org/10.1016/S2542-5196\(23\)00133-X](https://doi.org/10.1016/S2542-5196(23)00133-X)

Nature's regenerative capacity. (2012). Wwf.panda.org.

[https://wwf.panda.org/discover/knowledge_hub/all_publications/living_planet_report ti](https://wwf.panda.org/discover/knowledge_hub/all_publications/living_planet_report_timeline/lpr_2012/demands_on_our_planet/biocapacity/)

[meline/lpr_2012/demands_on_our_planet/biocapacity/](https://wwf.panda.org/discover/knowledge_hub/all_publications/living_planet_report_timeline/lpr_2012/demands_on_our_planet/biocapacity/)

Our World in Data. (2022). *Population density*. Our World in Data.

<https://ourworldindata.org/grapher/population-density>

Petruzzello, M. (2023). *monoculture | agriculture | Britannica*. Wwww.britannica.com.

<https://www.britannica.com/topic/monoculture>

Popular Science picks ASU professor's "MechanicalTree" as a 2019 top technology | ASU News.

(2019, December 5). Asu.edu.

<https://news.asu.edu/20191205-popular-science-picks-lackner-mechanicaltree-2019-top-technology>

Ritchie, H., & Roser, M. (2024a, February). *Water use and stress*. Our World in Data.

<https://ourworldindata.org/water-use-stress>

Ritchie, H., & Roser, M. (2024b, February 16). *Half of the world's habitable land is used for agriculture*. Our World in Data; Our World in Data.

<https://ourworldindata.org/global-land-for-agriculture>

Ritchie, H., Roser, M., & Rosado, P. (2022). *Environmental Impacts of Food Production*. Our World in Data. <https://ourworldindata.org/environmental-impacts-of-food>

Ritchie, H., Roser, M., & Samborska, V. (2018, September). *Urbanization*. Our World in Data.

<https://ourworldindata.org/urbanization>

Rodale Institute. (2025). *Crop rotations*. Rodale Institute.

<https://rodaleinstitute.org/why-organic/organic-farming-practices/crop-rotations/>

Shock, C. (2019, December 30). *An Introduction to Drip Irrigation*. College of Agricultural Sciences. <https://agsci.oregonstate.edu/mes/irrigation/introduction-drip-irrigation>

Smoor, T. (2024, August 27). *6 facts you should know about water use in agriculture* | Cargill. Cargill.com. <https://www.cargill.com/story/agriculture-water-use>

UNFCCC. (2015). *Key Aspects of the Paris Agreement*. United Nations Climate Change; United Nations. <https://unfccc.int/most-requested/key-aspects-of-the-paris-agreement>

UNFCCC. (2022). *Introduction to climate finance*. United Nations Climate Change. <https://unfccc.int/topics/introduction-to-climate-finance>

UNFCCC. (2025). *The Paris agreement*. United Nations Climate Change. <https://unfccc.int/process-and-meetings/the-paris-agreement>

United Nations. (2025). *Global issues: Population*. United Nations. <https://www.un.org/en/global-issues/population>

United Nations Framework Convention on Climate Change (UNFCCC) and Climate, Peace and Security | Climate Security Mechanism. (2024, November 15). Climate Security Mechanism.

<https://www.un.org/climatesecuritymechanism/en/united-nations-framework-convention-climate-change-unfccc-and-climate-peace-and-security>

United States Environmental Protection Agency. (2025, February 27). *Nonpoint Source:*

Agriculture | US EPA. US EPA. <https://www.epa.gov/nps/nonpoint-source-agriculture>

VERTICAL FARMING | meaning in the Cambridge English Dictionary. (n.d.).

Dictionary.cambridge.org.

<https://dictionary.cambridge.org/dictionary/english/vertical-farming>

World Enters “Era of Global Water Bankruptcy” UN Scientists Formally Define New Post-Crisis Reality for Billions. (2026, January 20). United Nations University.

<https://unu.edu/inweh/news/world-enters-era-of-global-water-bankruptcy>

World Health Organization: WHO. (2024, October 24). *Ambient (outdoor) air pollution.*

Who.int; World Health Organization: WHO.

<https://www.who.int/news-room/fact-sheets/detail/ambient-%28outdoor%29-air-quality-and-health>

World Population Review. (2024). *Ecological Footprint by Country 2024*.

Worldpopulationreview.com.

<https://worldpopulationreview.com/country-rankings/ecological-footprint-by-country>