

*Background Guide*

# UN Environmental Programme: Light Pollution - Ecosystems and Energy



## BunnyMUN III

L.B. POLY - October 19, 2024

# BACKGROUND GUIDE TABLE OF CONTENTS

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Head Chair Letter.....	3
Vice Chair Letter.....	5
How To MUN.....	6
Committee Description.....	7
Topic Synopsis.....	8
Background.....	9
UN Involvement.....	12
Bloc Positions.....	13
Questions to Consider.....	15
References.....	16

# CO-HEAD CHAIR LETTER

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Dear Delegates,

My name is Earl Wright and I am one of your Co-Head Chairs for the UNEP room of Bunny MUN III. I joined MUN as a sophomore due to my love for history and foreign policy. I am now a junior and a webmaster for our Long Beach Poly MUN organization.

I am so excited to hear the ideas and solutions everyone comes up with for such an important issue we find today. I hope everyone has a good time and brings all that they have to the conference.

Sincerely,

Earl Wright

UNEP | Co-Head Chair | earlfhw@gmail.com

# CO-HEAD CHAIR LETTER

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Dear Delegates,

My name is Daniel Ramirez and I am so excited to be co-chairing for your room at this year's BunnyMUN.

I'm currently a senior at Poly but I've been involved in Model UN since my sophomore year. I've vice-chaired the last two years at our school's JackrabbitMUN so I'm happy to be chairing for the first time with this UNEP room. A little about me is I swim competitively for a club team and for my high school. Some of my hobbies include hanging out with my friends, watching movies, and listening to vinyl records. After high school, I'm planning to major in Film and later work in the industry.

In this room, you are going to be tasked with researching this topic and truly familiarizing yourself with the material. Make sure to think critically about this issue and carefully consider the perspective of your country. Good luck!

Sincerely,

Daniel Ramirez

UNEP | Co-Head Chair | [ramirezdaniel6643@gmail.com](mailto:ramirezdaniel6643@gmail.com)

# VICE CHAIR LETTER

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Dear Delegates,

My name is Alivia Seard, and I am thrilled to be your vice chair for this committee! I can't wait to hear your out-of-the-box solutions and witness your collaboration.

As Co-President of our MUN program here at Long Beach Poly High, I genuinely feel that Model UN has been an invaluable experience. I enjoy the debate and love learning about international relations and current events, but what I treasure most about the program is the community that, I believe, is unlike any other. It brings me great joy to see you all becoming a part of that community for BunnyMUN III!

Beyond the pantsuits and placards of MUN, I am co-president of Poly's Creative Writing Club and a member of Female Leadership Academy and book club. I love reading, writing, organizing, dancing and baking (though my decorating skills still leave much to be desired!), and you can often find me watching a political drama. In March of last year, I also had the honor of being a girl delegate for Girl Scouts USA to the 68th Session of the Commission on the Status of Women in New York where I was able to take my MUN knowledge and apply it in the real world.

Lastly, delegates, I want to applaud you for trying something new! MUN can seem a little intimidating, but the hardest part is starting, I promise. In the meantime, please don't hesitate to ask us any questions you have, and believe in yourself! See you soon!

Sincerely,

Alivia Seard

UNEP | Vice Chair | [alivianseard12@gmail.com](mailto:alivianseard12@gmail.com)

# HOW TO MUN

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So, you're probably wondering: How do I prepare for debate? Well, here are some starting points to begin your country research!

1. Read through this background guide
  - a. find your country in Bloc Positions (pg. 13) and read that paragraph
2. Look for information on your country in the CIA World Factbook and BBC Country Profiles, linked here:
  - a. <https://www.cia.gov/the-world-factbook/countries/>
  - b. [http://news.bbc.co.uk/1/hi/world/europe/country\\_profiles/default.stm](http://news.bbc.co.uk/1/hi/world/europe/country_profiles/default.stm)
3. Look at the Questions to Consider (pg. 15) and try to answer them (do some research on the internet!)
4. Do more research on the internet for:
  - a. previous country actions
  - b. previous NGO and United Nations actions
  - c. possible solutions

During the committee, all delegates will present an “opening statement.” This is a short introductory speech and will only last about 30 seconds to 1 minute—nothing too bad! You can practice and time your speech using a timer.

These opening statements are written beforehand. They don't have to be memorized, either. You can print or write your speech, then read off the paper.

Your opening statement should include:

1. Your country's position on the issue at hand
2. What your country has done in the past
3. Possible solutions that align with your country's position
  - a. This is what you will discuss in the main part of the committee! Including this in your opening statement is a great way to let other delegates know where you stand.

# COMMITTEE DESCRIPTION

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The United Nations Environment Programme (UNEP) is the leading global authority on the environment. UNEP's mission is to inspire, inform, and enable nations and peoples to improve their quality of life without compromising that of future generations.

For over 50 years, UNEP has worked with governments, civil society, the private sector and UN entities to address humanity's most pressing environmental challenges - from restoring the ozone layer to protecting the world's seas and promoting a green, inclusive economy.

UNEP is driving transformational change by drilling down on the root causes of the triple planetary crisis of climate change, nature and biodiversity loss and pollution. UNEP's work is focused on helping countries transition to low-carbon and resource-efficient economies, strengthening environmental governance and law, safeguarding ecosystems, and providing evidence-based data to inform policy decisions.

Through cutting-edge science, coordination and advocacy, UNEP supports its 193 Member States to achieve the Sustainable Development Goals and live in harmony with nature.



**UNEP**  
United Nations  
Environment Programme

# TOPIC SYNOPSIS

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Around the world, only about 30% of people are able to see the Milky Way at night. This is a result of light pollution, a phenomenon that occurs because of excess artificial outdoor light sources. Cars, buildings, and street lamps are just a few of the manmade objects that generate light that make it impossible to see the stars in many cities around the world, including Long Beach. However, more than stargazing is at stake. Light pollution confuses animals like birds and sea turtles as they migrate, changes our bodies' natural sleep rhythms, and is a representation of wasted energy. It is up to delegates to consider infrastructure, ecosystems, and energy to attempt to address this overlooked issue that threatens our environment every night.

# BACKGROUND

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## Light Pollution: Definition and Sources

With the invention of the electric lightbulb in the late nineteenth century, people began illuminating their lives with an ease not known before. Traveling after sunset became safer, businesses stayed open longer, and nightlife was filled with new possibilities. As the world industrialized, evening lighting became more prevalent. Cities began to rely on artificial light, with advertising, cars, streetlamps, offices, and buildings all adding to the brightness. While many people’s lives have been improved by the ability to light a room with the flip a switch, the technology has been overused. This overuse, known as light pollution, is defined as “the excessive or inappropriate use of outdoor artificial light” and has resulted in 80% of the world living under “sky glow” today. Although this phenomenon is known for preventing individuals from



seeing the stars, light pollution is increasingly impacting the environment, energy sector, and millions of people’s quality of life.

## Impacts on Human Health

While many human activities are dependent on light, many are also reliant on darkness. Our bodies have a “biological clock” that matches the light-dark cycle of the sun, called our circadian rhythm. Maintaining our circadian rhythm allows our bodies to sleep, to have energy, to digest our food properly, and to regulate temperature. Light pollution causes circadian

rhythms to be disrupted. This can lead to, among other issues, poor sleep, lower energy, memory loss, and hormone changes.

Excessive artificial light in the evenings can also reduce levels of melatonin, a hormone that is only released when our body perceives darkness, making health issues like headaches, tiredness, and stress more likely. Scientists have even documented connections between low melatonin and cancer.

## **Ecological Impacts**

Like all forms of pollution, light pollution affects more than humans. Wildlife—both on land and in the sea—face many challenges due to nighttime lighting, including the same circadian rhythm disruptions humans have. Animals such as sea turtles and migratory birds are disoriented by artificial light sources, making navigation difficult and death likely. Corals that spawn based on the moon no longer have a singular bright light to guide reproduction, limiting repopulation and threatening entire reef ecosystems. Other species that normally use darkness



for protection, particularly insects, are now clearly visible to predators, leading to unnatural decreases in their numbers. Habitat reduction also occurs, as light—often a signal of danger for wildlife—floods ecosystems and forces animals to stay away from their potential homes.

These changes, while detrimental to wildlife, have the potential to greatly affect humans too. Every unbalanced ecosystem creates biodiversity loss, leading to a decrease in the natural resources available for people to use. This reality only makes light pollution all the more dangerous.

## **Light Pollution and Energy**

In addition to severe impacts on humans and ecosystems around the globe, light pollution is concerning simply because it is, almost by definition, the wasting of energy. Internationally, about 35% of artificial light is wasted every year because light sources are poorly designed. This mismanagement of light translates to wasted money and energy sources, many of which are fossil fuels. In fact, light pollution itself generates a significant carbon footprint, with 15 million tons of CO<sub>2</sub> emitted every year in the United States. In this way, light pollution is yet another contributor to the climate crisis.

## **Challenges to Addressing Light Pollution**

Almost as numerous as the negative impacts of light pollution are the challenges of addressing it. One of the most significant hurdles is a lack of education, as this particular form of pollution is publicized far less than others. A part of this social obstacle is also the long-held association of light with improvement. Explaining that more light in a city is not necessarily better for the city can be difficult, limiting effective change.

Some potential solutions to light pollution also carry hidden consequences. The use of the more efficient LED (light emitting diode) light bulbs, for instance, has been hailed as an ideal alternative to traditional incandescent light bulbs. However, some governments are using the money saved by the LEDs to purchase more light sources, ultimately making the problem worse, not better. While paradoxes like these make the issue of light pollution more challenging to address, they also reveal the importance of research to create a well-informed solution.

# UN INVOLVEMENT

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The UN has used multiple strategies to inform communities about the dangers of light pollution and has laid the groundwork for light pollution decisions and guidelines to be placed.

In 1979, the Convention of Migratory Species created the CMS International Light Pollution Guidelines for Migratory Species, informing communities that “an Artificial Lighting Management Plan should be developed in collaboration with all light owners and managers to mitigate [the] impacts [of artificial light on migratory species]”. The Guidelines also encourage The Scientific Council of the UN to recall the CMS (Convention of Migratory Species) “Decision 12.17 on Marine Turtles” which encourages them to “review relevant scientific information on conservation and threats to marine turtles, such as climate change and sky glow”.

UNEP has also partnered with the EFTA (Environment for the Americas) to initiate World Migratory Bird Day to bring awareness to the impact that artificial lighting has on the migration of birds. The United Nations Environmental, Social, and Cultural Organization (UNESCO) additionally signed the Starlight Declaration in 1992 to preserve the dark night sky.

More recently, light pollution was on the agenda at the 2020 Convention on Migratory Species of Wild Animals Conference of Parties and the theme of the 2022 Migratory Bird Day. Despite these efforts, it is clear that light pollution is still an underrecognized issue.

# BLOC POSITIONS

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## **African Bloc:**

Many African nations would benefit greatly from the limiting of light pollution. The continent is abundant with wildlife, with some species being photosensitive to excessive light. Animals like baboons are negatively affected and can often begin scratching pigmented sections of their skin. Light pollution also lowers the overall biodiversity of areas that are rich in nature, making it a massive threat to the countries of Africa. Although countries like Nigeria have installed motion-sensor street lamps to reduce the prominence of artificial light, the African bloc does not have much anti-light pollution legislation to speak of.

## **Latin-American and Caribbean Bloc**

Latin America and the Caribbean suffer from the same effect of light pollution as any other region, though to a lesser extent. This is due to a smaller amount of widespread industrialization that many other regions have. It is also notable that countries like Mexico are taking steps to limit the damage. Just recently the nation passed a bill that promised to limit the persistence of invasive light. The “Decree for the reform and addition of various provisions of the general law of ecological balance and the protection of the environment.” It defines light pollution as a serious threat to the environment and gives authority to the Ministry of Environment and Natural Resources to help prevent the issue from getting worse.

## **European Bloc**

The continent of Europe is especially prone to a phenomenon called “skyglow”. This means that light from various parts of urban areas illuminate so prominently that the actual skyline begins to lighten up. However, Europe also has the benefit of unity via the European Union. In 2019, the EU passed the Green Public Procurement Criteria for Road Lighting and Traffic Signals which accelerated the implementation of new light fixtures. This was a decision influenced by German and Slovenian use of Low Impact Lighting.

## **Asian Bloc**

Asia is home to some of the most light-polluted countries in the world. Singapore, with a light pollution rating of 100%, experiences year-round disruption because of the prominence of artificial light. Animals like baby sea turtles depend on moonlight to lead them to the ocean. This natural process is often interfered with due to other sources of light like street lamps and traffic lights. Singapore began combatting this by turning off unnecessary outdoor lighting after 11:00 pm. Similarly, China has made the decision to turn off lights during migration season in order to not interfere with the behavior of birds.

# QUESTIONS TO CONSIDER

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1. How can the challenges of reducing light pollution be addressed?
2. How can your country regulate light pollution?
3. Has your country supported previous attempts at regulation (internationally or domestically)?
4. What methods can be used to support wildlife impacted by light pollution in the immediate future?
5. What kind of energy infrastructure could be adjusted or created to limit light pollution in your country and beyond?

# REFERENCES

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For more on the light pollution:

1. [National Geographic](#)
2. [UN Sustainable Development](#)

For more on light pollution as an energy source:

1. [BBC: Light pollution's wasted energy seen from space](#)

For more on the impacts of light pollution on humans:

1. [Dark Sky: Light Pollution Affects Human Health](#)
2. [South Hampton Town: Light Pollution Can Put Your Health at Risk](#)

For more on the ecological impacts of light pollution:

1. [Dark Sky: Light Pollution Harms Wildlife and Ecosystems](#)
2. [Dark Sky: From the Beach to the Seafloor, Light Pollution Interferes with Marine Life](#)
3. [National Wildlife Federation: How Light Pollution Impacts Wildlife and How You Can Help](#)
4. [Florida Fish and Wildlife Conservation Commission: About Lighting Pollution](#)

For more on light pollution and energy:

1. [Dark Sky](#)

For more on UN involvement:

1. [United4Efficiency](#)
2. [CMS International Light Pollution](#)
3. [World Migratory Bird Day](#)
4. [Decision 12.7](#)