**Research Report**

**General Assembly 3**



***The question of establishing international guidelines for emissions that are a result of the transportation sector.***

*Student Officers:*

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**Introduction**

Climate change is defined by the United Nations as long-term shifts in temperatures and weather patterns. Climate change is caused by greenhouse gas emissions that trap the sun’s heat and increase global temperatures and weather extremes. A part of the emissions comes from burnt fossil fuels and acquiring the resources for the transportation sector; a sector that is vital for the economic movement of the world, but that comes with the consequences of climate change.

Public transport significantly reduces greenhouse gas emissions and energy consumption by consolidating passengers into fewer vehicles, making it far more efficient than private cars. It encourages compact urban development, alleviates traffic congestion, and serves as a cornerstone for decarbonizing urban mobility. However, public transport vehicles still emit excessive amounts of greenhouse gases. By transitioning to clean energy, public transport can further minimize its environmental impact, making it essential for achieving climate goals and promoting equitable, sustainable cities.

**The Committee**

General Assembly 3 is one of the General Assemblies and does not have any special procedures assigned to the committee. General Assembly 3 in MUNA deals with environmental, humanitarian and health issues. In General Assembly 3 nations can debate about environmental, humanitarian and health issues, with the aim to raise awareness and resolve the issues in question.

Whilst debating about an issue in MUNA, financial factors are never a problem. Please consider that there are no financial constraints and do not vote or speak against resolutions due to financial reasons.

**Keywords**

Bus Rapid Transit (BRT): A high-efficiency bus system that uses dedicated lanes, modern vehicles, and quick boarding to provide fast and reliable public transport.

Low-carbon cities: Urban areas that minimize greenhouse gas emissions through sustainable practices, energy efficiency, and renewable energy use.

Mobility: The ease and efficiency with which people can travel using buses, trains, subways, and other shared transportation systems.

**Overview**

To get a clear view of the scale of the problem and what should be improved upon, it is important to have some background information on this issue.

Public transport is a vital tool for reducing greenhouse gas emissions and addressing climate change. In many developed regions, such as Europe and parts of Asia, robust public transport systems—including trains, subways, and buses—are integral to urban mobility. These areas have made significant strides in adopting clean energy technologies, such as electric buses and hydrogen-powered trains, further reducing their environmental impact. In North America, public transport is well-developed in cities but less accessible in suburban and rural areas, leading to a continued reliance on private vehicles that contribute heavily to emissions.

In developing regions, public transport is often less formalized, relying on systems like minibuses or vans, which can be inefficient and polluting. However, cities such as Bogotá and Curitiba have implemented Bus Rapid Transit (BRT) systems to provide affordable and lower-emission alternatives. Expanding and modernizing public transport in these areas remains a key challenge for reducing emissions while meeting the needs of rapidly growing urban populations.

Globally, transport contributes about 25% of energy-related greenhouse gas emissions, with a significant share coming from private vehicles. Public transport offers a more energy-efficient and sustainable alternative by consolidating trips and reducing reliance on cars. Transitioning to cleaner technologies in public transport, alongside expanding its accessibility, is critical for achieving climate goals and fostering equitable, low-carbon cities. Despite regional differences in development, public transport’s role in combating climate change is universally indispensable.

Clear guidelines are essential for maximizing the role of public transport in combating climate change. Policies that promote the adoption of clean energy technologies, such as electric and hydrogen-powered vehicles, can significantly reduce emissions. Urban planning guidelines that prioritize public transport infrastructure over car-centric development encourage more sustainable mobility patterns. Standards for efficiency, safety, and accessibility can further increase public transport use, reducing reliance on private vehicles. By providing a roadmap for modernization and integration with renewable energy, guidelines help align public transport systems with global climate goals and ensure consistent progress across regions.

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**Arguments**

Public transport plays a largely positive role in combating climate change, but there are also negative aspects to consider, particularly when systems are outdated, poorly maintained, or rely on fossil fuels. Below are some key arguments and facts highlighting both the benefits and drawbacks of public transport in the context of climate change:

**Positive Role**

1. **Emission Reductions**: Public transport emits significantly less CO₂ per passenger-kilometer compared to private vehicles. For example, buses can emit 33% less CO₂ per mile than cars, while trains emit up to 70% less.
2. **Energy Efficiency**: By consolidating passengers, public transport uses less energy per person. For instance, a fully occupied train or bus can replace dozens of cars, leading to substantial energy savings.
3. **Catalyst for Clean Energy**: Public transport systems in many cities are transitioning to electric or hydrogen-powered vehicles, which dramatically lower their carbon footprint, especially when powered by renewable energy.
4. **Reduced Congestion**: By decreasing the number of cars on the road, public transport reduces traffic congestion, which is a significant source of unnecessary emissions from idling and slow-moving vehicles.

**Negative Role**

1. **Dependence on Fossil Fuels**: In many regions, buses and trains still rely on diesel or coal-based electricity, offsetting some of their environmental benefits. For example, diesel buses, while more efficient than cars, still emit harmful pollutants like nitrogen oxides and particulate matter.
2. **Infrastructure Emissions**: Building public transport infrastructure, such as railways, stations, and vehicles, is resource-intensive and generates significant emissions during construction.
3. **Inefficiency in Underused Systems**: Public transport systems that are poorly planned or have low ridership can result in higher per-passenger emissions than cars, as vehicles run nearly empty while consuming substantial energy.
4. **Indirect Environmental Impacts**: Urban sprawl can sometimes result when new transport lines are built into undeveloped areas, leading to unintended increases in car dependency for "last-mile" connections and expansion of carbon-intensive infrastructure.

**Balancing the Impact**

While public transport is critical for reducing global emissions, maximizing its benefits requires investment in modernization, clean energy integration, and proper urban planning. Addressing inefficiencies, transitioning away from fossil fuels, and ensuring high ridership levels are essential to fully harness its potential while minimizing its negative aspects.

**Timeline of events**

**1990s: Recognition of Transport’s Role in Climate Change**

* **1992**: The Earth Summit in Rio de Janeiro highlights the need for sustainable transport as part of climate action.
* **Late 1990s**: European cities begin piloting cleaner bus technologies, including hybrid and early electric buses.

**2000s: Expansion of Sustainable Transport Policies**

* **2000**: Bogotá, Colombia, launches its TransMilenio Bus Rapid Transit (BRT) system, a model for efficient, lower-emission urban transport.
* **2005**: The Kyoto Protocol comes into effect, urging nations to reduce greenhouse gas emissions, including those from transport sectors.
* **2009**: Copenhagen introduces large-scale bike-sharing programs integrated with public transport to reduce car dependency.

**2010s: Shift Toward Electrification and Renewable Integration**

* **2010**: Shenzhen, China, begins transitioning its bus fleet to electric, a process completed in 2017, making it the first city with a fully electrified bus system.
* **2015**: The Paris Agreement identifies sustainable transport as a key element for achieving global climate targets.
* **2018**: The world’s first hydrogen-powered train, Alstom’s Coradia iLint, begins operation in Germany, offering a zero-emission alternative to diesel trains.

**2020s: Acceleration of Clean Public Transport**

* **2020**: Cities like Delhi and Santiago power sections of their metro systems with renewable energy, such as solar and wind.
* **2021**: The European Union announces the “Fit for 55” package, including funding to expand green public transport as part of its climate goals.
* **2023**: The Inflation Reduction Act in the United States allocates significant funding to electric buses and rail systems to decarbonize transit.
* **2024**: Planned expansions of Bus Rapid Transit (BRT) systems in African cities such as Nairobi aim to improve sustainable mobility.
* **2025**: Expected full electrification of major public transport fleets in cities like Oslo, Norway.

**Future Projections**

* **2030**: Many cities globally aim to achieve net-zero emissions in public transport systems as part of broader climate action plans.
* **2050**: Full integration of renewable energy-powered public transport and global adherence to carbon neutrality goals in urban mobility.

**Resolution**

A delegate should carefully consider their country's perspective and opinion on the matter when writing a resolution. This research report is a good starting point for your investigation. Consider ways to debate on the independence of the non-self-governing territories that benefit the most countries involved. Remember to pay attention not only to the less-developed countries involved in the issue, but also to the developed countries. Goals should be realistic and attainable. Furthermore, keep in mind that different countries have different policies, as well as global differences. These differences may be economic, but they are also primarily cultural. Make sure to thoroughly research your country and remember that you are speaking as if you are representing that country. Therefore, before attending the conference, do some research on your country's policies.

For more information on resolution writing, please refer to the MUNA booklet on our MUNA site: <https://munalfrink.nl/>.

**Links and Sources**

<https://www.un.org/en/climatechange/what-is-climate-change>

<https://napcentral.org/sectoral-naps>

<https://www.pewtrusts.org/en/research-and-analysis/issue-briefs/2024/09/climate-change-poses-risks-to-neglected-public-transportation-and-water-systems>

<https://www.epa.gov/transportation-air-pollution-and-climate-change/carbon-pollution-transportation>

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