**NAME:**

**REG. NO.:**

**UNIT: ENVIRONMENTAL SCIENCE**

**UNIT CODE:**

**TASK: EFFECTS OF TRANSPORT ON LOCAL AND GLOBAL ENVIRONMENT (PROBLEMS)**

**LECTURER:**

**DUE DATE:**

**SCHOOL:**

**ABSTRACT**

Transport is a sector of great importance when it comes to running our day-to-day activities as we move ourselves and goods as well as services from one place to another. This sector has had tremendous growth, especially technologically, from the times of walking long distances to deliver a message, the use of donkeys, the use of bicycles, on land, and the likes of canoes and rafts on the water.

The former means of transport are time-consuming but eco-friendly compared to the current means like motor vehicles, motorcycles, electric trains, and aircraft like airplanes among other transportation means.

The latter has gases emitted to the air gases that have different effects on the ecosystem like damage to the ozone layer by too many carbon dioxide emissions.

It is estimated that the transport sector accounts for about 25% of the CO2 emitted to the atmosphere whereas economically advanced countries like the United States are counted to have 28% of the global CO2 emissions.

This sector, besides the emissions, has other environmental effects unique to it like the distribution of fossil fuels and noise emitted by transport means and conveyances.

Transportation also leads to noise pollution, and water pollution, and affects ecosystems through multiple direct and indirect interactions. With the continuous growth in transportation, increasingly shifting to high-speed transportation modes, these externalities are expected to grow.

The effects will be tackled in direct, indirect, and cumulative impacts for each of the scopes, locally and globally.

**INTRODUCTION**

**Direct impacts**

These are majorly the results that occur to the environment with immediacy and are evident as well as easily understood like noise pollution.

Noise pollution causes distraction to people especially those students studying in schools close to the main busy roads, affecting their concentration.

Another direct impact of the transport sector is carbon dioxide gas, which is known to have immediate impacts.

**Indirect impacts**

These are secondary effects of the transport sector that might be difficult to locate but are there. They include the health issues brought about by the incomplete combustion of gases in an internal engine linked with some respiratory and cardiovascular complications.

**Cumulative impacts**

These are the effects that occur over time, longer periods of time especially climate change, which is both a local and global challenge, bringing about an imbalance on the climatic patterns.

These may take decades since the imbalance happens gradually and is not as directly impactful as the direct impacts of the emitted carbon dioxide gas to the atmosphere.

With this breakdown, there are other sub-topics on the major impacts to be dealt with on their own as follows:

**EFFECTS OF TRANSPORT ON THE ENVIRONMENT:**

**Climate change**

This is also called global warming. It is caused by the over-time damage of the ozone layer by the carbon dioxide produced by the burning fuels from transport means.

The activities of the transport sector release several million tons of greenhouse gases, each year into the atmosphere, covering between 25 and 30% of all greenhouse gas emissions.

Some gases, like nitrogen oxide, majorly contribute to the depletion of the stratospheric ozone(O3) layer, which naturally is meant to screen the earth`s surface from ultraviolet rays. The rise in air amounts, in addition to its emissions, has increased the number of ice crystals formed because of condensation around planes flying at high altitudes. Absurdly they can contribute to climate change, reflect solar radiation as well as trap heat.

Transportation contributes to this occurrence of climate change and then turns to affect the transport sector when cases like floods happen.

**Water pollution**

The waters are another area of transport means and are of high demand, especially transportation of very heavy containers. Because of its increased demand, marine transport emissions represent the most segment of the water quality. The major effects of water transport to the water quality result from dredging, oil spills, ballast waters, and waste. These oils hinder the process of air circulation for aquatic animals. The inability of both the plants and the living creatures to breathe properly leads to death. The death of the plants leads to inadequate food for the animals.

The decreased number of the animals like fish which is a source of economic sustenance as well as a source of food directly leads to a slow growth of the area.

Dredging refers to the process of making the harbors to be deep through the removal of sediments from the bed of a water body. It is important in that it creates and maintains sufficient depth of water for shipping operations as well as port accessibility. Dredging activities modify the hydrology by creating turbidity that affects marine biological diversity. This happens by contamination of water sediments and the water raised by this method requires disposal sites and ways of removing contaminants.

Waste generated by vessels at sea or ports causes environmental problems since it can contain a very high level of bacteria that can be hazardous to public health and marine ecosystems when discharged.

**Air pollution**

Through the emissions from the combustion of fossil-derived fuels, transportation systems contribute to degraded air quality. Aircraft emit these gases like the gases from the rockets that alter the atmospheric pressure and heat which degrades the aircraft.

These pollutant gases include nitrogen dioxide (NO3), sulfur dioxide (SO2), carbon monoxide (CO), and ozone (O3). Some of these gases produced in the air also cause respiratory and cardiovascular complications. Carbon monoxide (CO), when inhaled, reduces the availability of oxygen in the circulatory system and can be extremely harmful and even deadly at specific concentrations.

Nitrogen dioxide (NO2) emissions from transportation sources reduce lung function, affect the respiratory immune defense system, and increase the risk of respiratory problems. Sulfur dioxide (SO2) and nitrogen oxides (NOx) emissions in the atmosphere form acidic compounds that create acid rain when mixed in cloud water. Acid precipitation has detrimental effects on the built environment, reduces agricultural crop yields, and causes forest decline.

**Deforestation**

This is the cutting down of trees in areas marked to be used for constructing transport channels like tarmac roads or railway roads. This cutting down of trees without planting others to fill in the cut trees, brings about a reduced number of trees that naturally are meant to absorb the excess carbon dioxide gas that facilitates photosynthesis to take place.

**Noise pollution**

Noise represents the general effect of irregular chaotic sounds on people as well as animal life. Basically, noise is an undesirable sound. Long-term exposure to high noise levels severely hamper hearing and affects human physical and psychological well-being. Noise emanating from the movement of transport vehicles and the operations of ports, airports, and railyards affects human health by increasing the risk of cardiovascular diseases.

Ambient noise is a frequent result of road transportation in urban areas, which is the cumulative outcome of all the noise generated by vehicles, impairs the quality of life and property values. Falling land values nearby acute noise sources such as airports are often noted since buyers are less willing to bid on properties in areas of elevated noise levels. Many noise regulations impose mitigation measures if noise reaches a defined level, such as sound walls and other soundproofing techniques.

**CONCLUSION**

The transport sector has as many advantages as well as disadvantages to the environment both locally and globally. It is high time that we all understand the essence of a balanced eco-system by adapting ways like more walking on short distances or use of transport means that do not burn fuel like scooters or bicycles, planting trees at any eligible time most especially the rainy seasons, and or encouraging the use of unleaded petroleum fuel to reduce the emission of harmful gases.

**REFERENCING**

Dr. Jean-Paul Rodrigue: <https://transportgeography.org/contents/chapter4/transportation-and-environment/>

Banister, D. and K. Button (eds) (1993) Transport, the Environment, and Sustainable Development. London: Spon Press.

Baumol, W. and W. Oates (1988) The Theory of Environmental Policy, Cambridge: Cambridge University Press.

https://iopscience.iop.org/journal/1748-9326/page/Transportation\_and\_the\_Environment

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