The *Car* in *Car*bon Dioxide

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At the mention of greenhouse gas, carbon dioxide (CO_2) immediately comes to mind. Most people visualize monstrous factories with looming grey clouds above, towering chimneys surrounded by smog and a dismal future where trees are replaced by pathetic stumps and noxious gas engulfs our planet. As most people are aware, climate change occurrs as a result of the greenhouse effect, in which greenhouse gasses trap solar heat within our atmosphere and prevent them from being released into outer space. However, while people are busy placing blame on big businesses as corporations, they neglect the biggest culprit: cars. They see climate offenses all around them, but are blind to the gray cloud they emit themselvesThey are blind to the death machines in their own garage, blind to what is hidden in plain sight: the *car* in *car*bon dioxide.

Even before hitting the road, cars produce a tremendous amount of carbon dioxide and massive footprints are left in the wake of its manufacturin. On average, a car contains 800 pounds of plastic, 200 pounds of rubber, 95 pounds of glass and over 2,400 pounds of steel. All these energy expenditures are then multiplied by the 78 million automobiles produced around the globe in 2020. The impact is substantial, and none of this even touches on the carbon dioxides released to maintain factories and machineries, nor the fuel consumed to transport the aforementioned materials. According to a United Nations (UN) report, automobiles are projected to triple in quantity by 2050, which will significantly hinder the Sustainable Development Goal (SDG) of keeping the rise of average global temperatures to less than 2ºC.

The mass production of cars. Pollutants are produced from vehicle materials, as well as machineries.

Unfortunately, carbon emissions from cars do not end here. In fact, pollution reaches its peak when the car hits the road. According to National Geographic, 80-90% of environmental impact from automobiles is due to fuel consumption and gas emission. A typical private vehicle emits 4.6 metric tons of carbon dioxide per year, which is equivalent to 4,600 kg or nearly four cars! Still more, gasses with high global warming potential (GWP) such as methane (CH4) and hydrofluorocarbon (HFC) seep from tailpipes and air conditioners. Nitrous oxide (N2O) also escapes, contributing to the depletion of our ozone layer, a protective shield around Earth that shelters us against dangerous ultraviolet(UV) radiations. Sulphur dioxide (SO2) and nitrogen dioxide (NO2) mix with rainwater to produce acid rain, damaging our crops, forests and vegetation. Moreover, from the tailpipe, occasional fuel leaks are inevitable, and these liquids spill to contaminate our soil, lakes and wetlands.

Fuel leaked by cars. It can be found on any neighbourhood road.

In addition to the car itself, we must also consider accessory pollutants such as petroleum products. Immediately, petroleum should raise an environmental red flag, even before being burned. First, its extraction is an energy-intensive process, hopelessly detrimental to the local ecosystem. Furthermore, the transportation of these crude oils is an issue as well. To ship them takes up immense amounts of energy, and provides for the possibility of an oil spill. Besides the inconvenience of fuel, roads, highways, parking lots and other destructive infrastructures are constructed to accommodate vehicles, all of which only serve to accelerate the eradication of our planet.

Around the twelve-year mark is when a car will find itself in a junkyard, but even then, it will continue to pollute. While much of it can be recycled, plastic, battery acids and other malignant products from cars linger on. If batteries are not disposed of properly, they can release extremely toxic chemicals that are directly hazardous to the human body.

Neon liquids spill out of an expired battery. It is highly corrosive. Exposure to its fumes may cause dizziness or nausea.

In the United States, cars and trucks are accountable for nearly 20% of all carbon dioxide emissions, and that number is steadily increasing. We are driving death machines and we're not just a threat to ourselves, we are killing our planet. Unless we control the situation now, it is doomed to collapse. So, what can be done? For one, keep your vehicles well maintained. Worn-out engines, leaking air conditioners, overdue batteries and clogged air filters will stress out the motor, increasing carbon dioxides outputs. Another solution is to purchase electric vehicles (EV). "Results show that even for cars registered today, battery-electric vehicles have by far the lowest lifecycle greenhouse gas emissions," insists a report published by the International Council on Clean Transportation (ICCT). It has been estimated an average EV today emits only one-third of their gas counterparts. If the entire continent of Europe switches to EV, their climate impacts will be reduced by nearly 70%! Aside from choosing the right car, you can further cut down carbon emissions by limiting air conditioner (AC) usage. By rolling down your window instead of turning on the AC, your car performance and mileage improve by 20%. But most importantly, the best way to eliminate carbon footprint is abstinence. While it is virtually impossible to cut ties with automobiles, we can decrease the number of cars on the street by carpooling, taking public

transportation, or simply walking instead of driving. It is also crucial to educate citizens, especially teenagers about to get their licenses on this matter. Let them know: for every time we choose not to drive, our world is being driven to a greater healthier destination

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