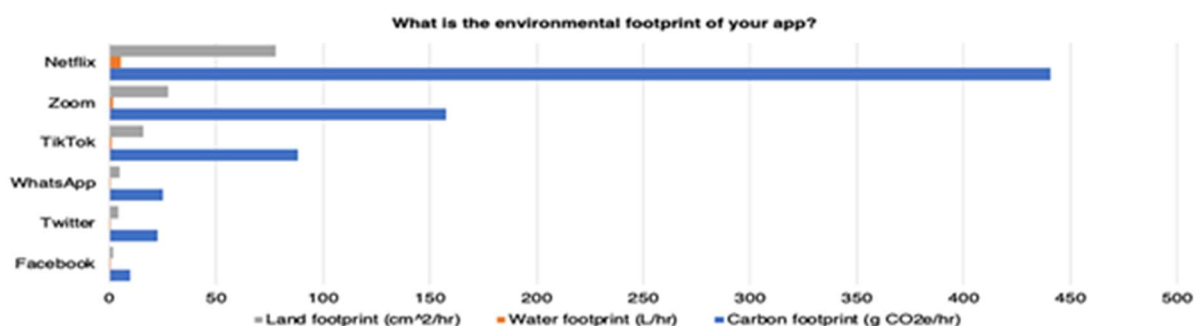


Has It Ever Crossed Your Mind: Carbon Footprint Of The Internet

By Ece Hasgül

As of March 2020, COVID-19 lockdowns have been affecting people's lives in many ways, especially moving from workplaces and schools to homes. It is no surprise that there has been an increase in internet traffic since then, considering the amount of time everyone spends video conferencing weekdays and constantly binging on new Netflix series. Recent study¹ from Purdue University estimated the carbon footprint of the internet's data storage, transmission, and use, along with its land, water footprints too, analyzing its environmental impacts. Although there have been several studies about the carbon footprint of the internet before, this study also estimates land and water footprint too as to get a better picture of its contribution to climate change.

In the research, they have studied several platforms where there are gigabytes of data such as Netflix, Youtube, Zoom, TikTok and Twitter and also online games; and gathered data from several countries such as China, Germany, France, Japan, US, and the UK. According to the study, one hour of videoconferencing or streaming, for example, accounts for 150-1,000 grams of CO₂ (on average, cars emit 120 grams of CO₂ per kilometer²), requires 2-12 liters of water, and demands a land area adding up to about the size of an iPad Mini. However, you can reduce these emissions by 96% only by closing off your camera on your Zoom call. As can be guessed from the named apps above, more video means more data which needs more storage to keep all those data, more electricity to power them, and also more water to keep them cool. This is one of the reasons keeping your camera off can decrease the amount drastically.



Although lockdowns helped immensely with the increasing internet traffic, at least 20% as some reports⁴ suggests, it had already been increasing before. In 2019 the internet carbon footprint accounted for 3.7 percent of the total, similar to the total emissions of air travels⁵. As everything becomes more digital, we seem to forget that

there also need to be resources for us to keep on using the Internet. Of course, traveling to another city for a meeting does more damage than a Zoom conference, that doesn't mean it is totally green. The electricity to power the internet as well as storing and transmitting the data relies on fossil fuels in many countries. There are also the factors of shipping and manufacturing the hardware such as servers and computers. As we can't be sure which companies use renewable energy instead, raising awareness on the issues can push companies to be more transparent about their energy sources.

Of course with technological developments, there are always new and more efficient ways to do things and storing the data is not an exception. However, the concern is if these developments will be able to catch up with the increasing growth of the internet and the increase of popularity of streaming platforms, thanks to the COVID-19, or not. There are more innovative ways to take care of the problem too, while one search in a search engine can account for 0.2 to 7 grams of CO2 emissions, a newer search engine called Ecoasia plants a tree for every 45 searches, which will help decrease the emissions. Although trees don't grow overnight and the project will probably need years for it to take a step in completing its mission, the thoughts and the efforts are worth acknowledging without a doubt.

Internet infrastructure has a fixed cost too and the results cannot be tied down to individuals only, nonetheless, there are quick fixes one can do that may create a greater impact in total. Keeping the camera off is one of them, and there are also other ways such as streaming videos at a lower quality when you don't need them to be the crispier image ever. (Yes, I'm talking about the 4K videos.) Or maybe you don't need to have the YouTube videos making a white noise all night long while you are sleeping. These examples make the difference due to the same reason: when you stream video content in lower quality or less amount there will be less energy used and fewer emissions will be emitted.

When you fall into the TikTok algorithm and stay in the app for the last 3 hours swiping, remember the carbon dioxide emitted because of this black hole and disconnect for a while, the break can also be nice for your health too. Now you can also say you're saving the planet when people ask you why you don't open your camera in the meeting. Lastly, I will put an infographic that might interest you. [\(1\)](#)

[\(2\)](#) [\(3\)](#) [\(4\)](#) [\(5\)](#) [\(6\)](#)