

1. Introduction

Nowadays, with the developing world, that is, working remotely, comes to the fore. Teleworking, remote working, has many positive or negative effects on the environment. The most striking issue in the impact of business life on the environment is transportation. Transportation is followed by the energy consumption resulting from the use of equipment.

To date, most of the studies carried out are extensive researches on transportation. However, there is no definite conclusion due to the fact that there are too many variables in this regard. Studies on energy consumption due to equipment usage are relatively few and incomplete.



Figure 1: Office working or telework

2. Objectives

To evaluate:

- the environmental impact of remote working
- comparing the results

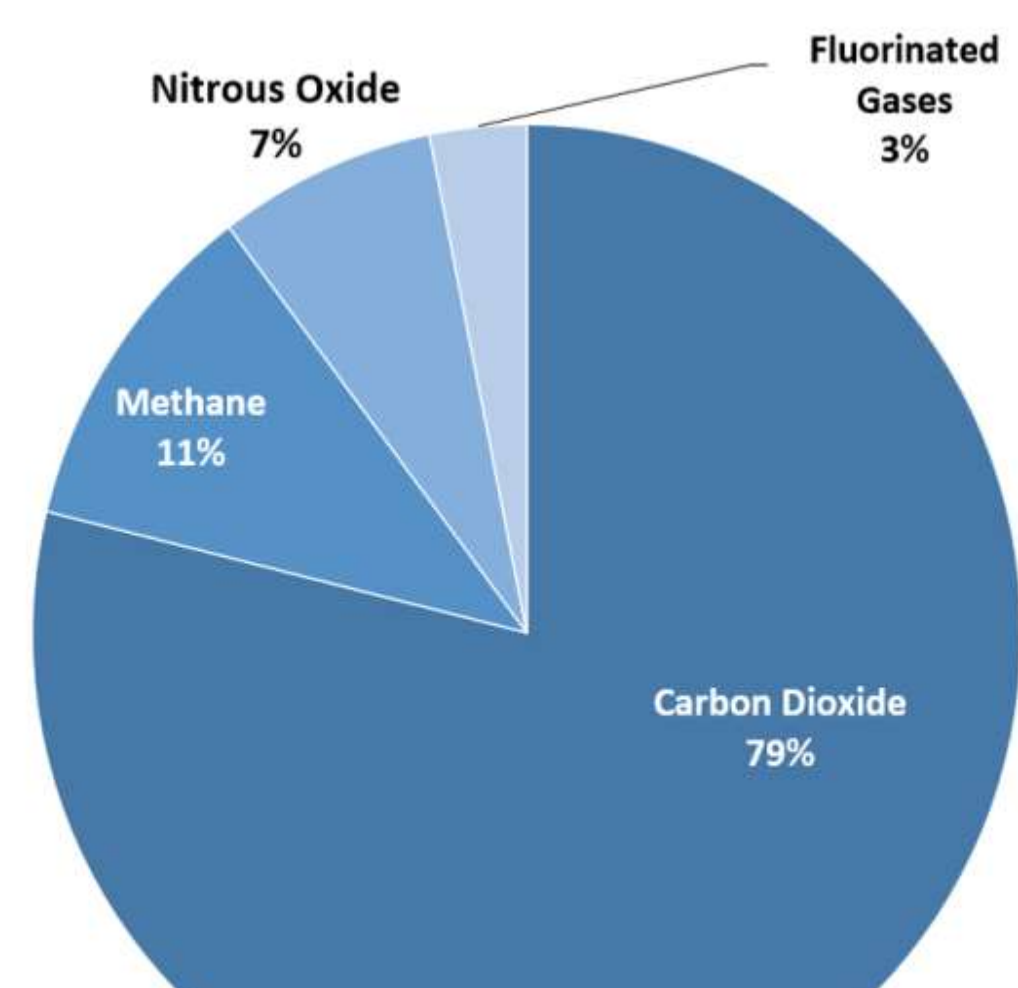


Figure 2: Greenhouse gas emissions in 2020 from EPA

especially CO₂

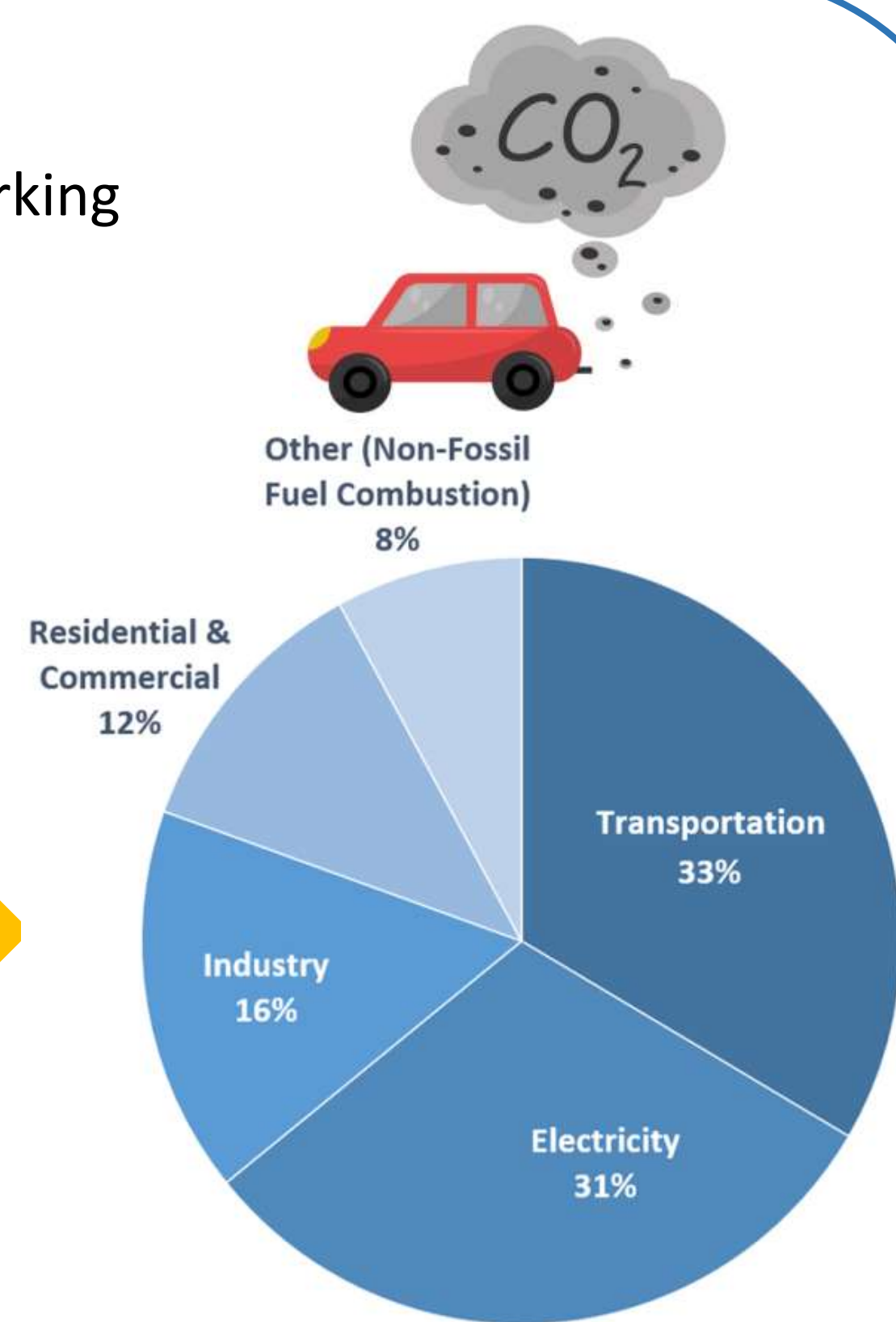
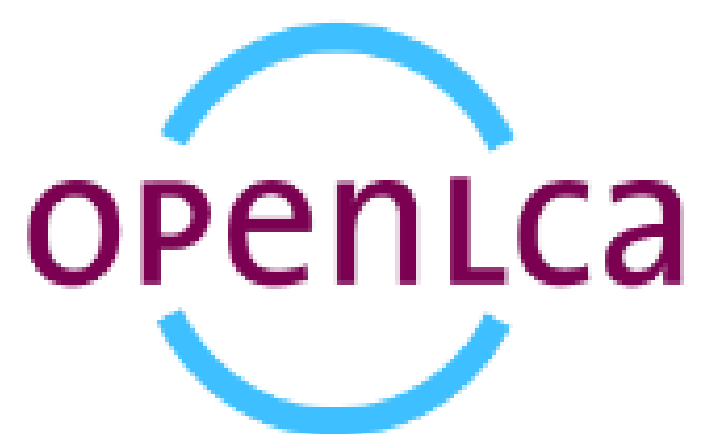


Figure 3: Carbon dioxide emissions, by source from EPA

3. Material & Method



In order to calculate and compare the carbon emissions of working remotely and from the office, models were created, consisting of 4 main and 8 sub categories.

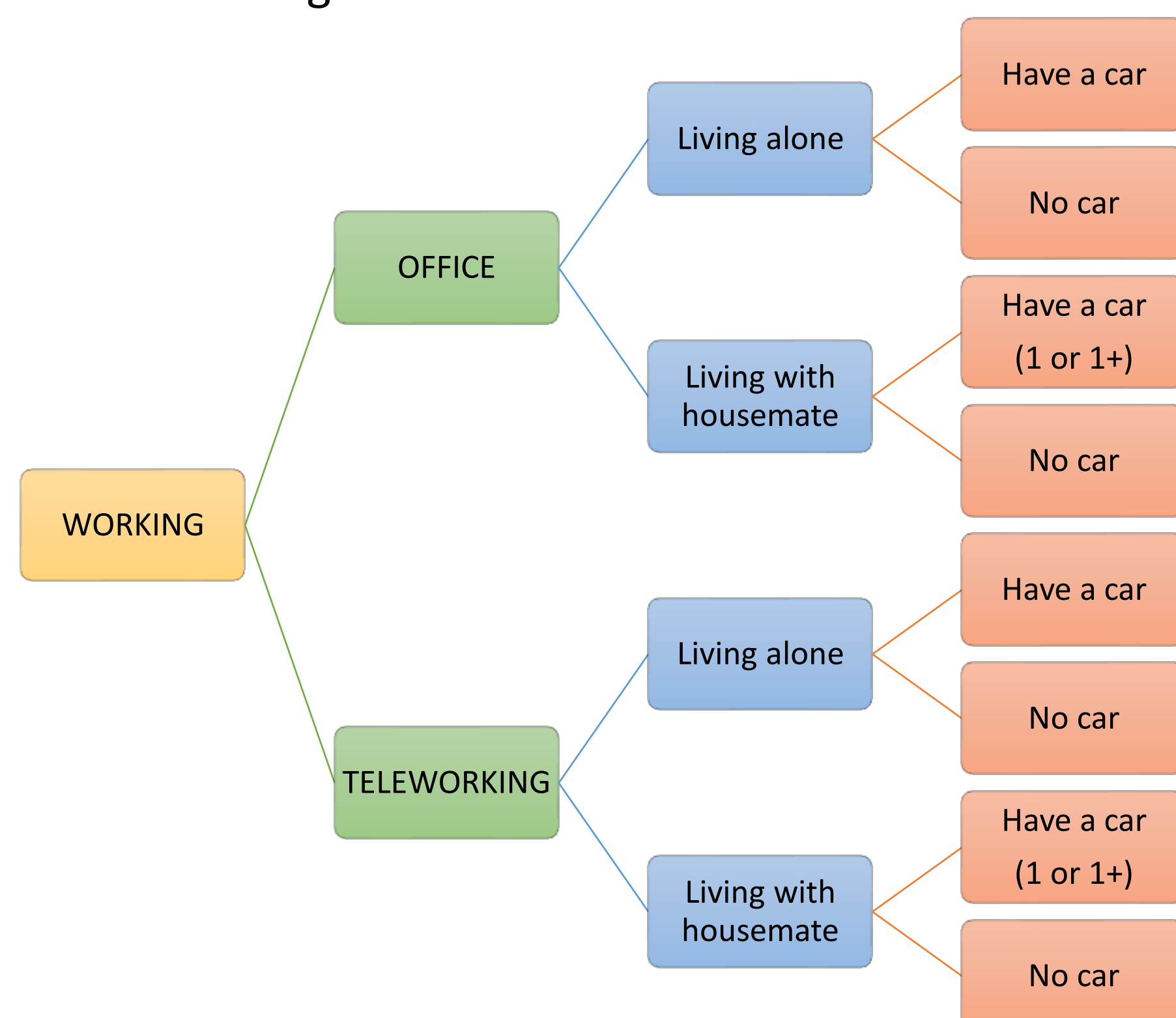


Figure 4: Models of working

4. Results

Table 1: CO₂ emissions for transportation

		CO ₂ (Kg/Year)
Office Worker	Living Alone	660.413
	Living with Household	660.413
Teleworker	Living Alone	80.698
	Living with Household	97.524

Transportation CO₂ Emissions (Kg/Year)

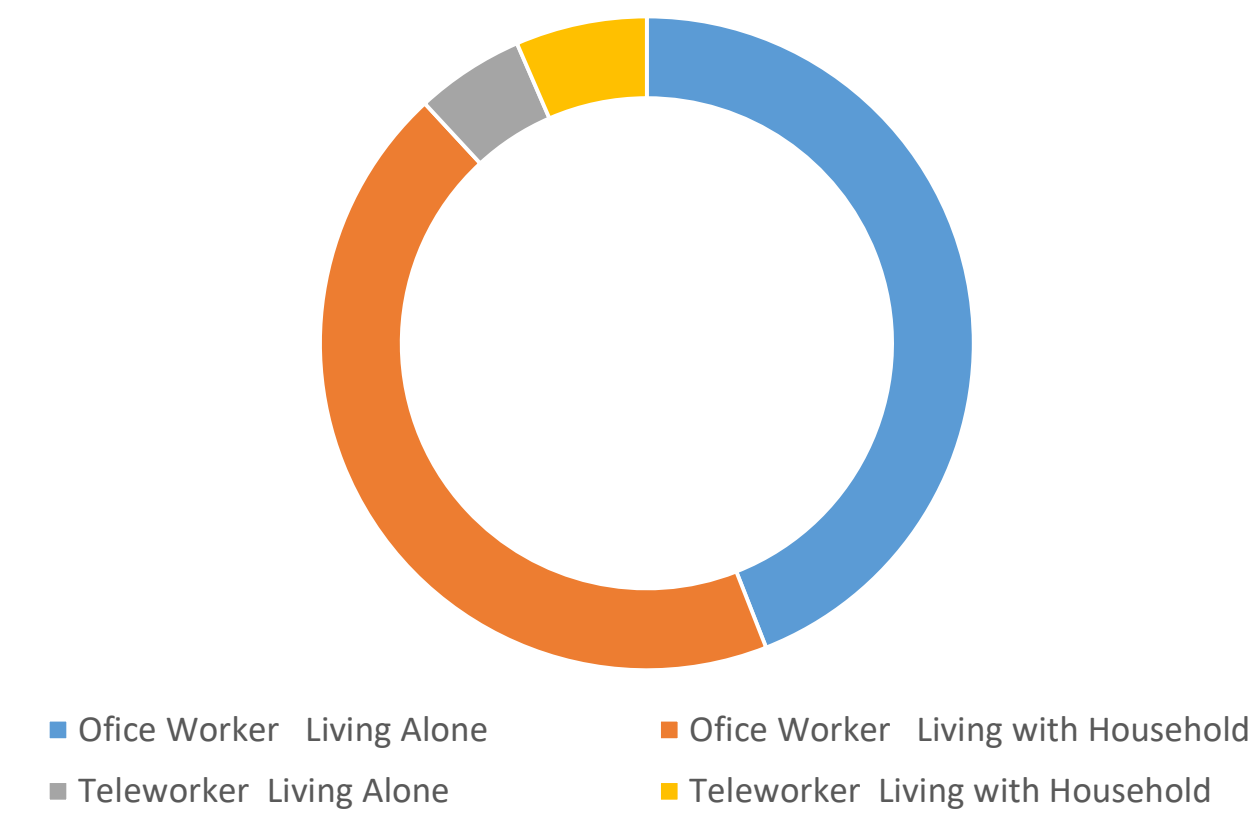


Table 2: CO₂ emissions for equipment

	CO ₂ (Kg/Year)
Office Worker	695.99
Teleworker	101.99

Equipment Usage CO₂ Emissions (Kg/Year)

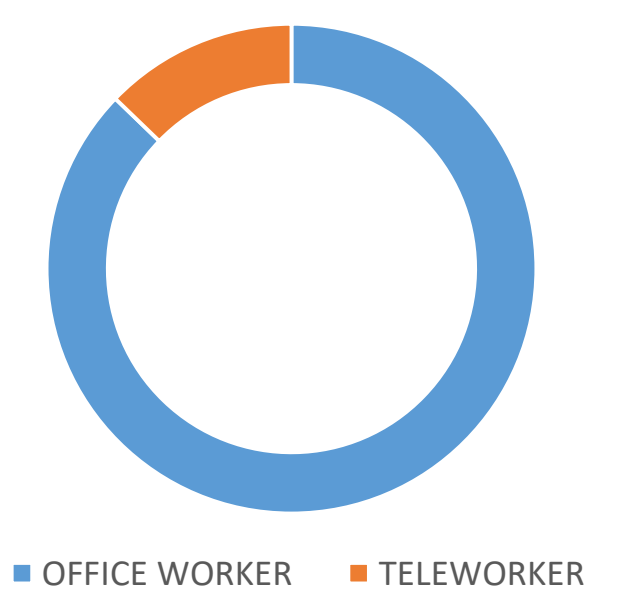
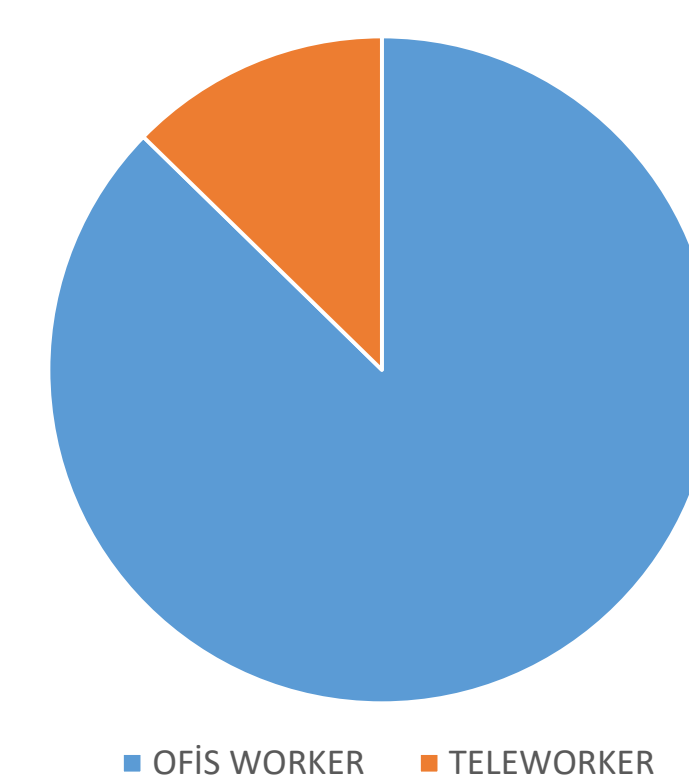


Table 3: Total CO₂ emissions

		CO ₂ (Kg/Year)	
		Office Worker	Teleworker
Equipment Usage		695.99	101.99
Transportation		660.00	95.00
TOTAL		1355.99	196.99

Total Carbon dioxide Emission (Kg/Year)



5. Conclusion

In these days when remote working has started to become widespread, the environmental impact of an employee over a one-year period has been calculated when working remotely or in the office. The study area was determined as Istanbul and it was aimed to fill the lack of the city in this area because there are very few and insufficient studies specific to Istanbul on this subject.

As a result of this study, it is predicted that remote working will contribute to clean air by reducing emission values, and that the remote working system will also alleviate the traffic problem. As a result of researches and calculations, it has been seen that carbon emissions decrease by 85 percent in remote working compared to working from the office. Based on this, it can be said that increasing the rate of remote work for Istanbul will be beneficial for the environment.

6. References

- <https://blog.bonus.ly/evaluate-remote-workers>
- <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>
- <https://www.vectorstock.com/royalty-free-vector/car-emitting-carbon-dioxide-co2-environmental-vector-21630081>