## Environment impact and reduction of CO2 emissions

The part of atmosphere pollution due to the transportation is very high in the big cities. For these areas, we consider that the transportation by road is the first responsible of emission of NOx and PM10 particles. The process of emission of those particles is:

* The VOC (Volatile organic compounds): those particles are emitted directly from the exhaust of cars.
* NOx: some of those particles are emitted by the engine and some others are produced by chemical reactions in the atmosphere due to the NOx emitted.
* PM10 and PM2.5 are emitted or created by the VOCs. There volatility is due to the traffic.

In this part we are going to calculate the ecological impact of using carpooling. We are limiting our study of ecological impact to the CO2 emission during the travels. Our statistics are collected from the last ENTD (a French study which is made each 10 years to know how French people are traveling). The study was made with a sample of 20200 representative households of the national (France) tendency.

Those figures are showing that the most important use of carpooling is related to travels between 20 and 30 km.



### CO2 economy made for travels Home-Job

We learn from ENTD’s figures that, the mean distance between house and work place is 14.7km

This following simulation is made for round trip, 5 working days per week and 52 working weeks in the year.





