



MIMOZA

A DECISION-MAKING TOOL TO EVALUATE THE EFFECT OF LEZs ON VEHICLES AIR EMISSIONS

MOVICI - MOYCOT - Medellín, Colombia

April 18-20th 2018

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April 19th 2018





Background

- Today >50% of the world's population live in cities.
- By 2050, this proportion -> 2/3.
- Cities must face challenges: urban air quality.
- LEZs appear to be a possible way to improve air quality in cities.
- LEZ are areas where the most polluting vehicles are regulated.

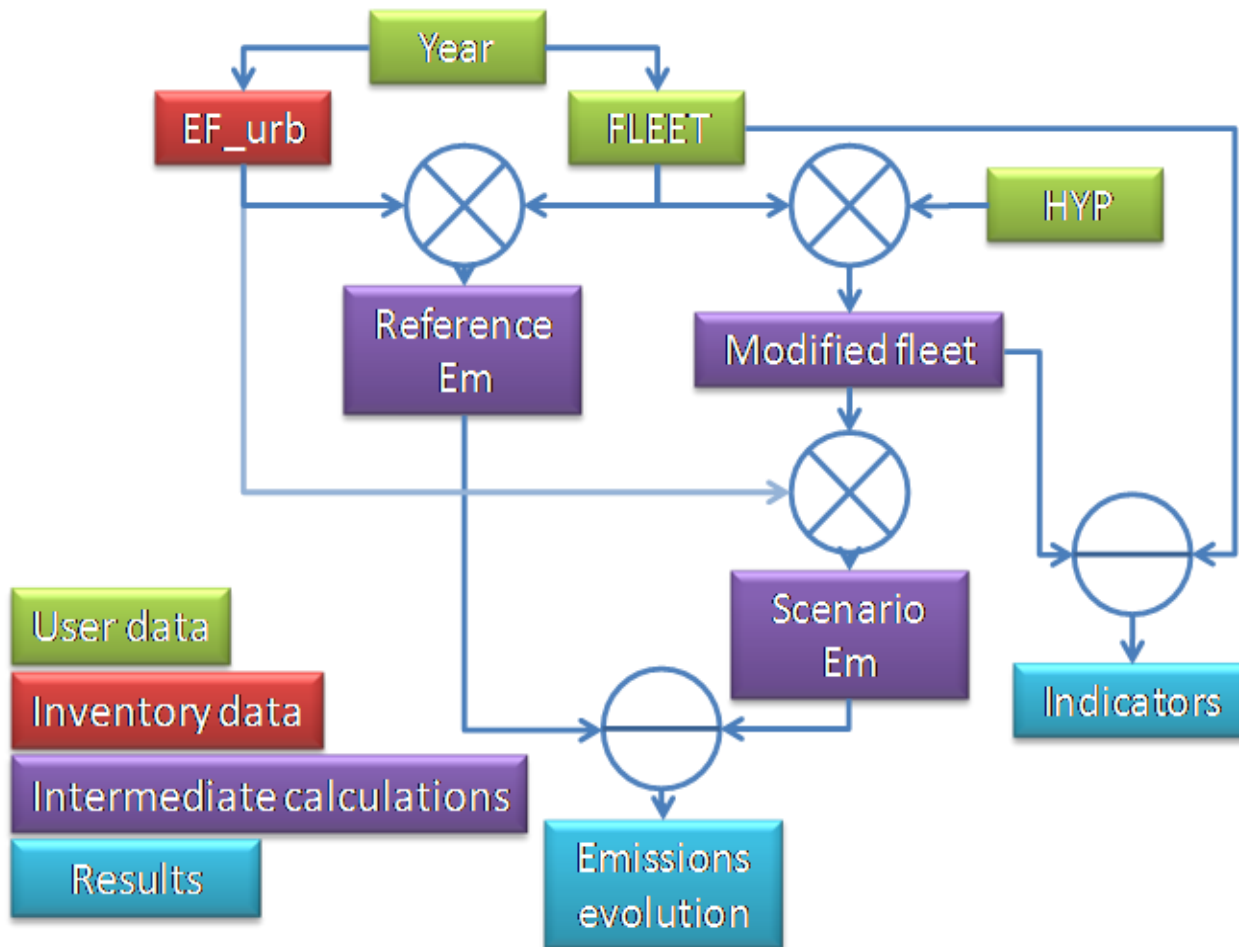


What is the MIMOZA tool?

- Simulation tool created in 2011 at the request of the French Ministry of Ecology;
- Purpose: to help policy makers in selecting scenarios to reduce air emissions (NO_x , NO_2 , PM_{10} and CO_2) from vehicles in French cities.



How does it work?



INPUT data

The baseline scenario construction:

- The reference year;
- The vehicle fleet composition:
 - Vehicle categories;
 - Engine motorization;
 - Emissions standards;
- The vehicles traffic (vehiclesxkm).

INPUT data

The test scenario construction:


- The renewal rate of the vehicles;
- The traffic restriction hypotheses:



- The temporal aspects:
 - All the time (24/7);
 - Over periods: the percentage X% of the vehicles traffic not able to circulate during the period of the establishment of the LEZ.

OUTPUTS

- The percentage of vehicles impacted:

Fleet indicators	Motorization	HDV	Buses and Coaches	Passenger cars	LCV	2WM	All veh.
1- Impacted 	Gasoline	0.0%	0.0%	2.4%	0.9%	0.0%	1.9%
	Gas. Hybrid	0.0%	0.0%	0.0%	0.0%		0.0%
	Diesel	20.8%	27.0%	4.3%	12.1%		5.6%
	Die. Hybrid	0.0%	0.0%	0.0%	0.0%		0.0%
	LPG	0.0%	0.0%	0.0%	0.0%		0.0%
	Electric	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	NGV	0.0%	0.0%	0.0%	0.0%		0.0%
	ALL	20.8%	27.0%	6.7%	13.0%	0.0%	7.6%

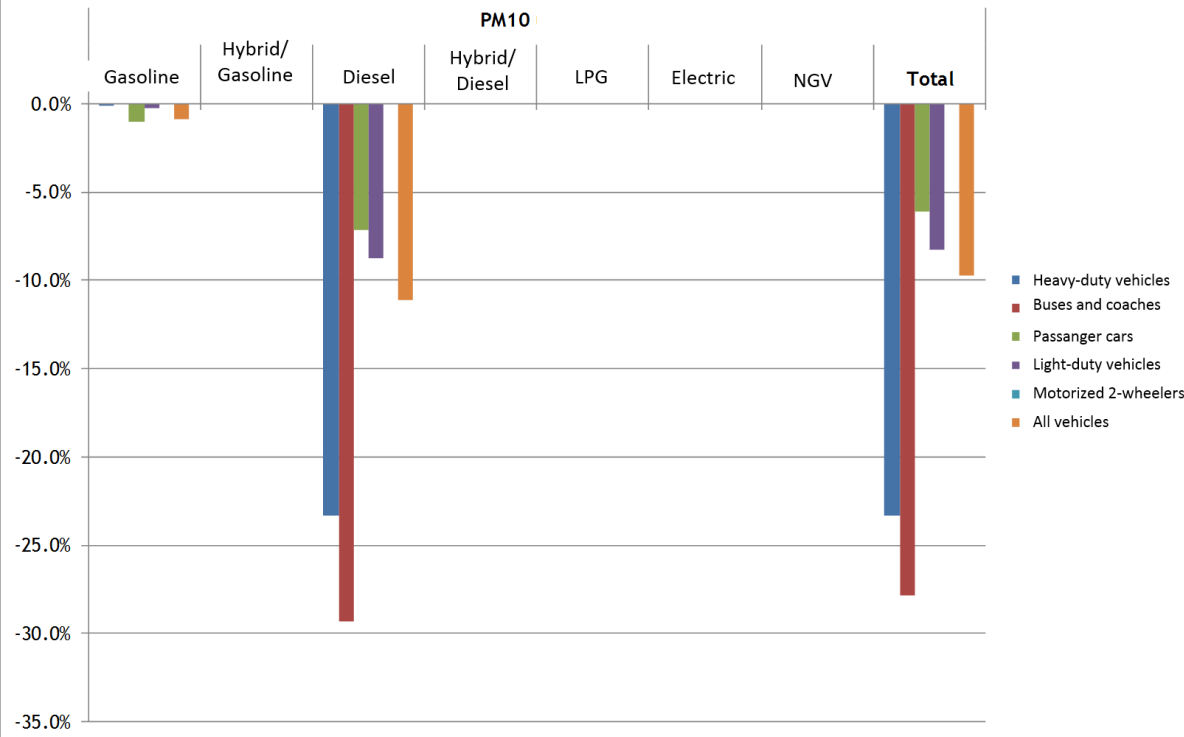
- LEZ assessment in terms of emissions reductions (%):

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Pollutant	Motorization	Heavy-duty vehicles	Buses and coaches	Passanger cars	Light-duty vehicles	Motorized 2-wheelers	All vehicles
NO _x	Gasoline	[-0.3% ; 5.5%]	[0.0% ; 0.0%]	-17.8% ; -16.5%	[-6.9% ; -5.1%]	[0.0% ; 0.0%]	-16.2% ; -14.9%
	Hybrid/Gasoline	[0.0% ; 0.0%]	[0.0% ; 0.0%]	[0.0% ; 0.0%]	[0.0% ; 0.0%]		[0.0% ; 0.0%]
	Diesel	-27.0% ; -22.8%	-37.8% ; -33.8%	[-4.9% ; -3.4%]	[-8.7% ; -6.8%]		-16.8% ; -14.0%
	Hybrid/Diesel	[0.0% ; 0.0%]	[0.0% ; 0.0%]	[0.0% ; 0.0%]	[0.0% ; 0.0%]		[0.0% ; 0.0%]
	LPG	[0.0% ; 0.0%]	[0.0% ; 0.0%]	[0.0% ; 1.6%]	[0.0% ; 0.0%]		[0.0% ; 1.6%]
	Electric	[0.0% ; 0.0%]	[0.0% ; 0.0%]	[0.0% ; 0.0%]	[0.0% ; 0.0%]	[0.0% ; 0.0%]	[0.0% ; 0.0%]
	NGV	[0.0% ; 0.0%]	[0.0% ; 6.4%]	[0.0% ; 1.6%]	[0.0% ; 0.0%]		[0.0% ; 6.3%]
	Total		-27.0% ; -22.8%	-36.3% ; -32.3%	[-6.3% ; -4.8%]	[-8.6% ; -6.8%]	[0.0% ; 0.0%]



CITEPA; City Center; CC1-2017; 15/12/2017





Conclusions

- In recent years, LEZ became a popular option to reduce vehicle-related air emission, notably in Europe.
- This work can continue by adapting for other countries cases the database of reference including the default emissions factors, notably Colombia.



Conclusions

- MIMOZA is downloadable in French version. It may be freely used subject to systematic mention when the results are published.
- French Ministry for Ecological and Solidary Transition, ADEME and CITEPA disclaims all liability for the use of this simulation tool and the consequences related to the use of results that remain exclusively at the initiative of the user.



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GRACIAS POR SU ATENCIÓN

MIMOZA tool

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