

Plans and programmes to improve air quality over Portugal - a numerical modelling approach

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Guidelines

Directive on Ambient Air Quality and Cleaner Air for Europe
(Directive 2008/50/EC)

“Air quality plans should be developed for zones and agglomerations within which **concentrations of pollutants in ambient air exceed the relevant air quality target values or limit values**, plus any temporary margins of tolerance, where applicable...”

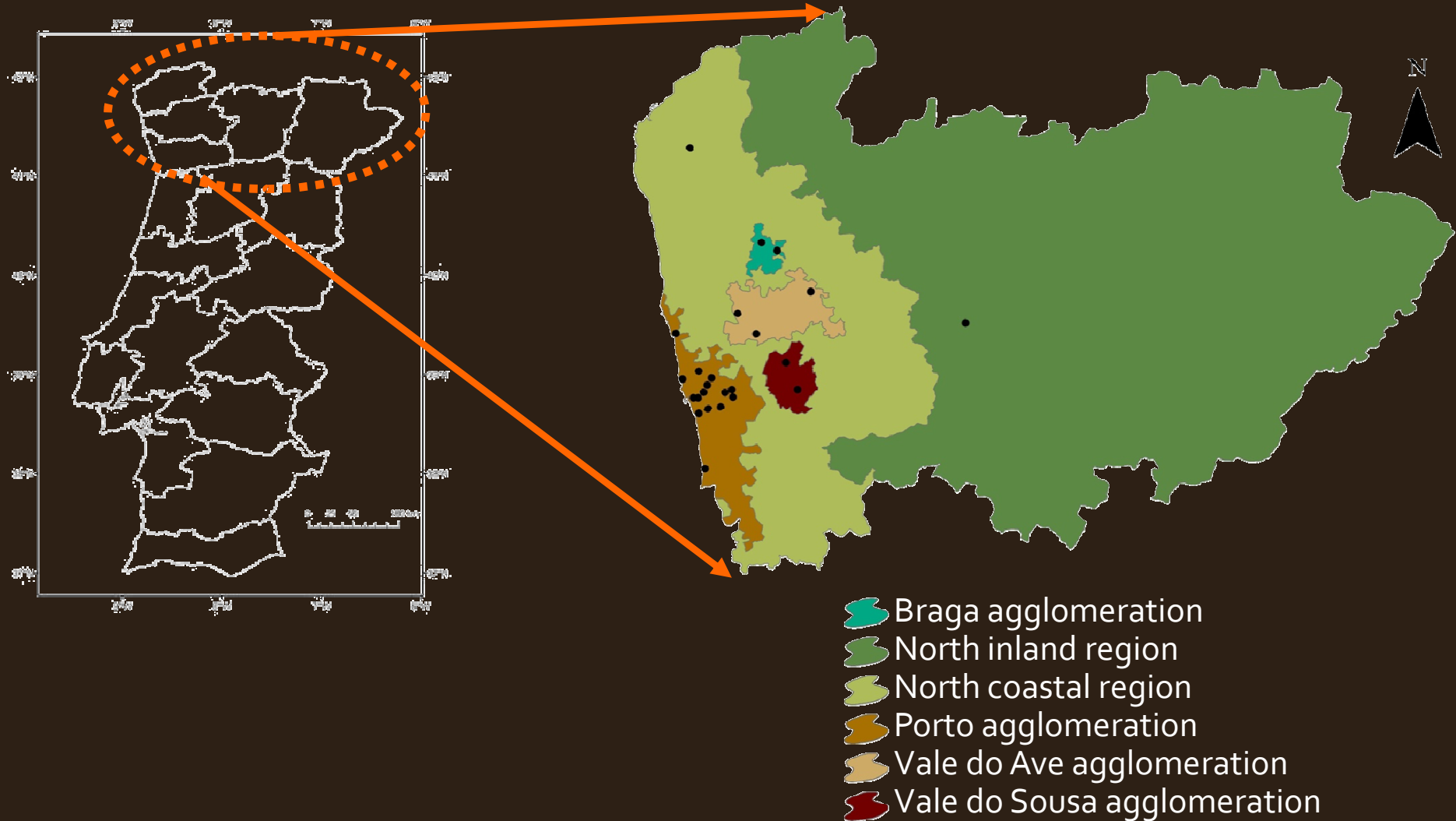


Implementation/development of **plans and programmes** for the improvement of air quality

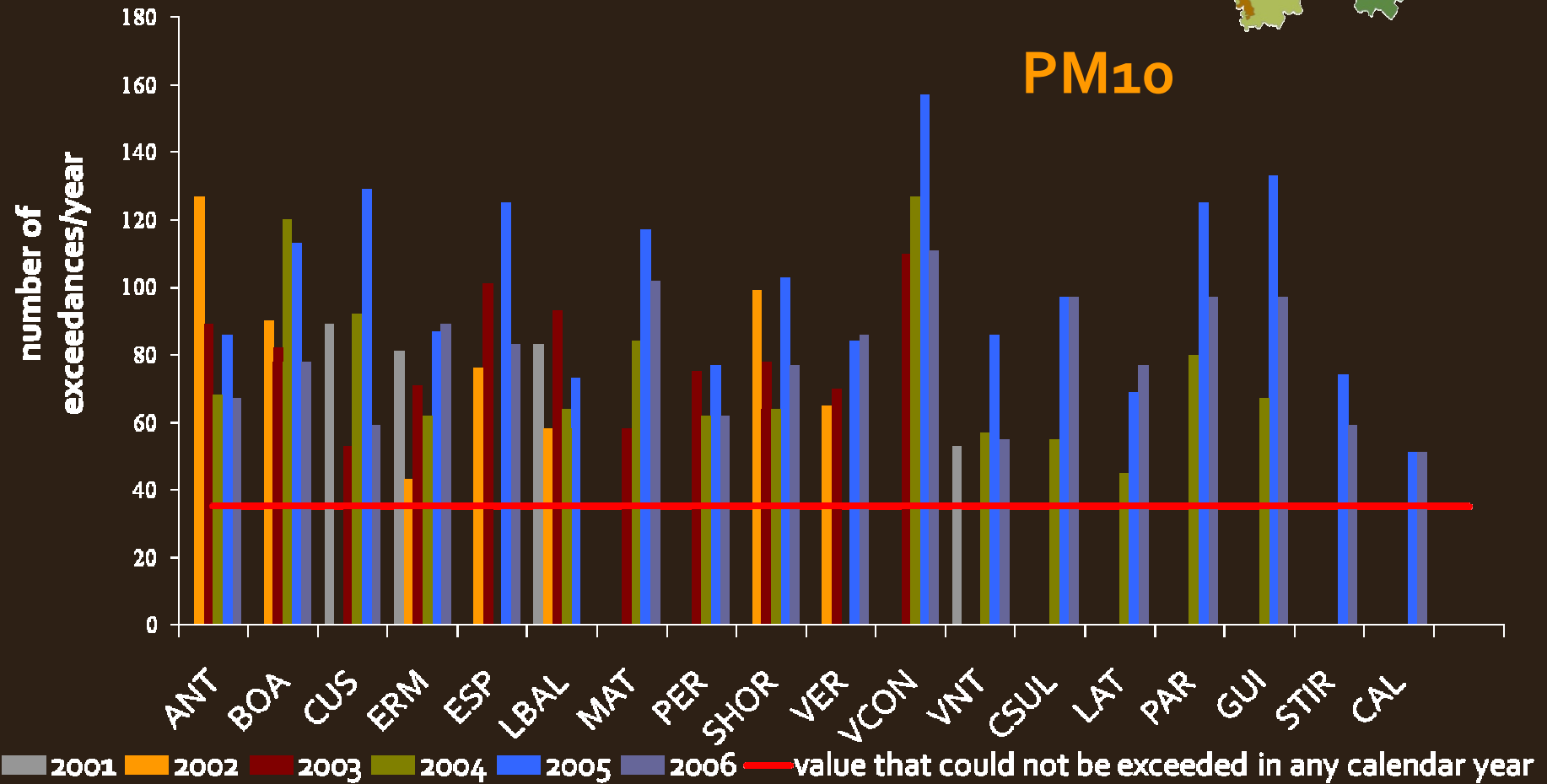
Plans and Programmes

- What is the objective?
 - Definition and implementation of measures to improve air quality
- How it works?
 - Local authorities and private/public sectors must be involved in the direct selection and implementation of the air quality measures

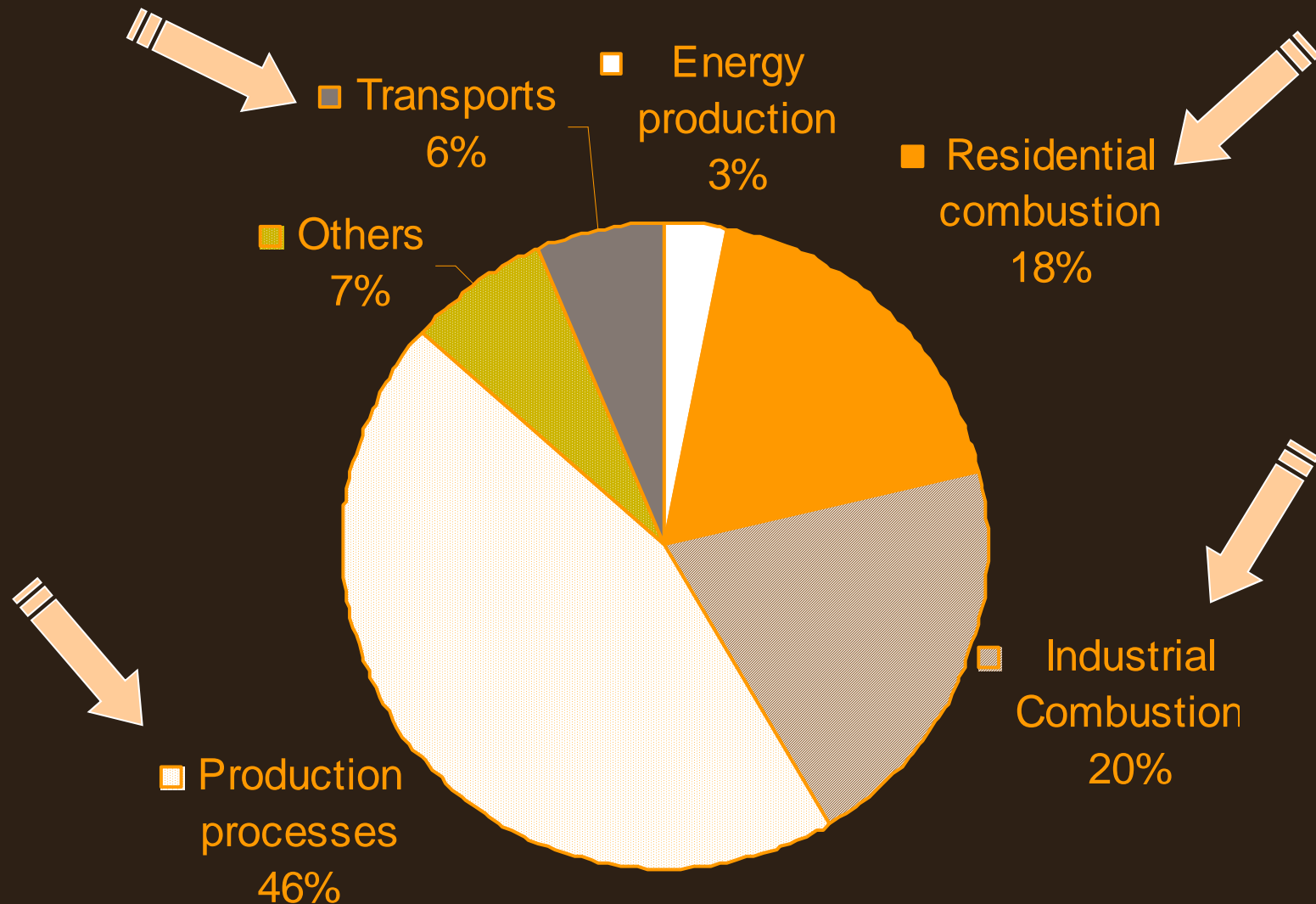
Northern Region



The problem...



PM10 emissions contribution by sector in Portugal



Some of the selected measures



Certified combustion appliances with PM emissions reduction

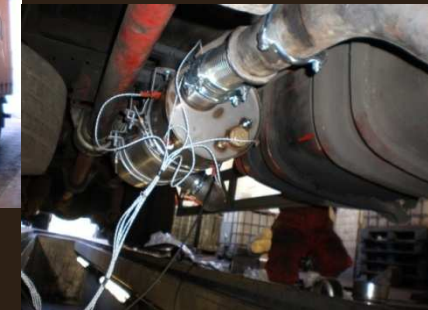


Improvement of industrial PM retention systems

Reinforcement of the inspection of industry sources



Diesel Particle filter



Public transportation with lower emission and improvement of public transport network

Objective

- investigate the impact of all designed measures on the air quality of Northern Portugal

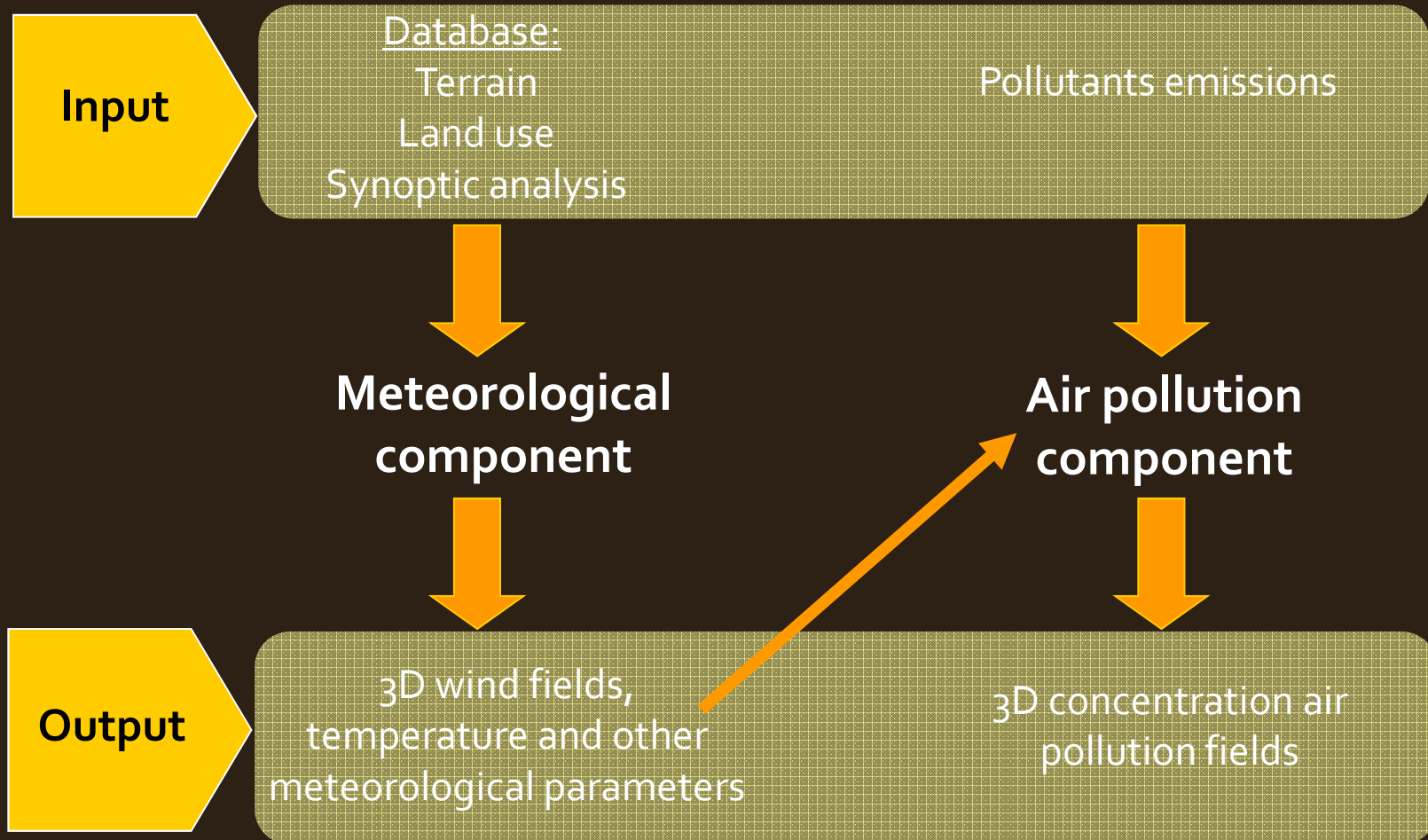


TAPM application for the year 2004 (base year):

Base scenario

Reduction scenario

The Air Pollution Model



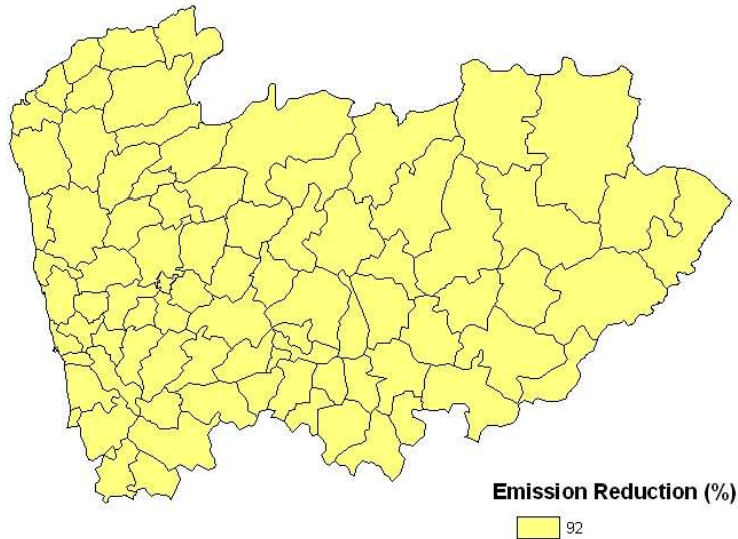
Base scenario:

- use the national emission inventory

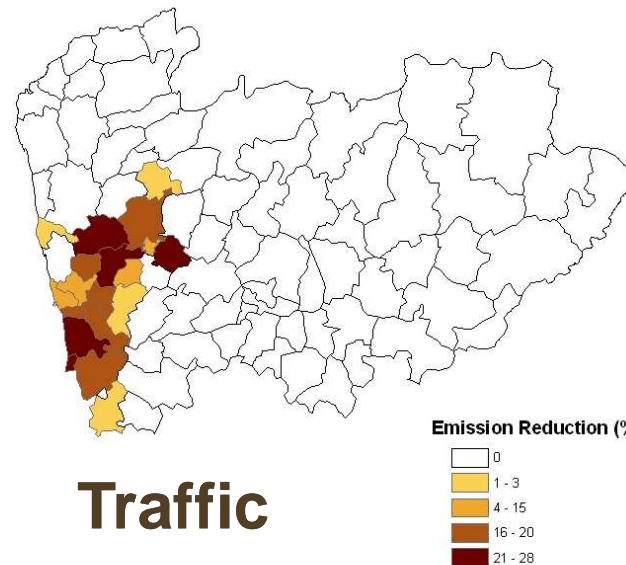
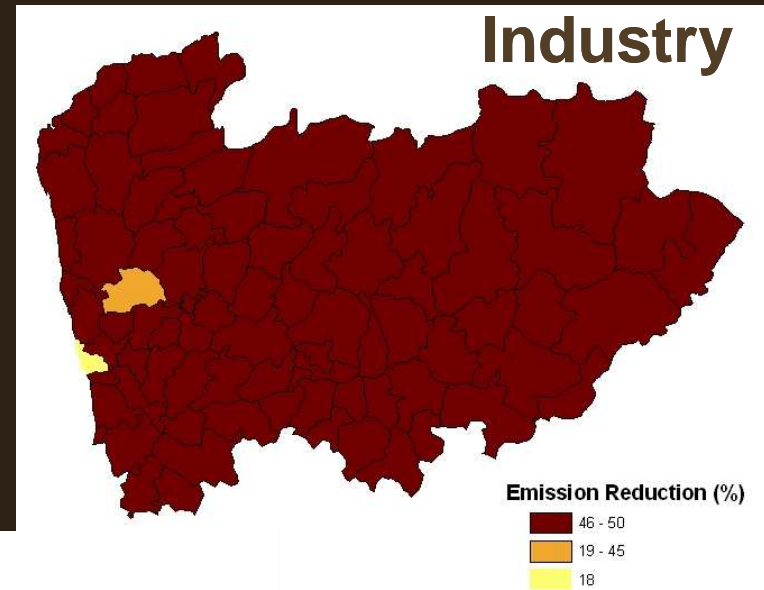
Reduction scenario:

- use all the reduction calculate from each measure

Residential combustion

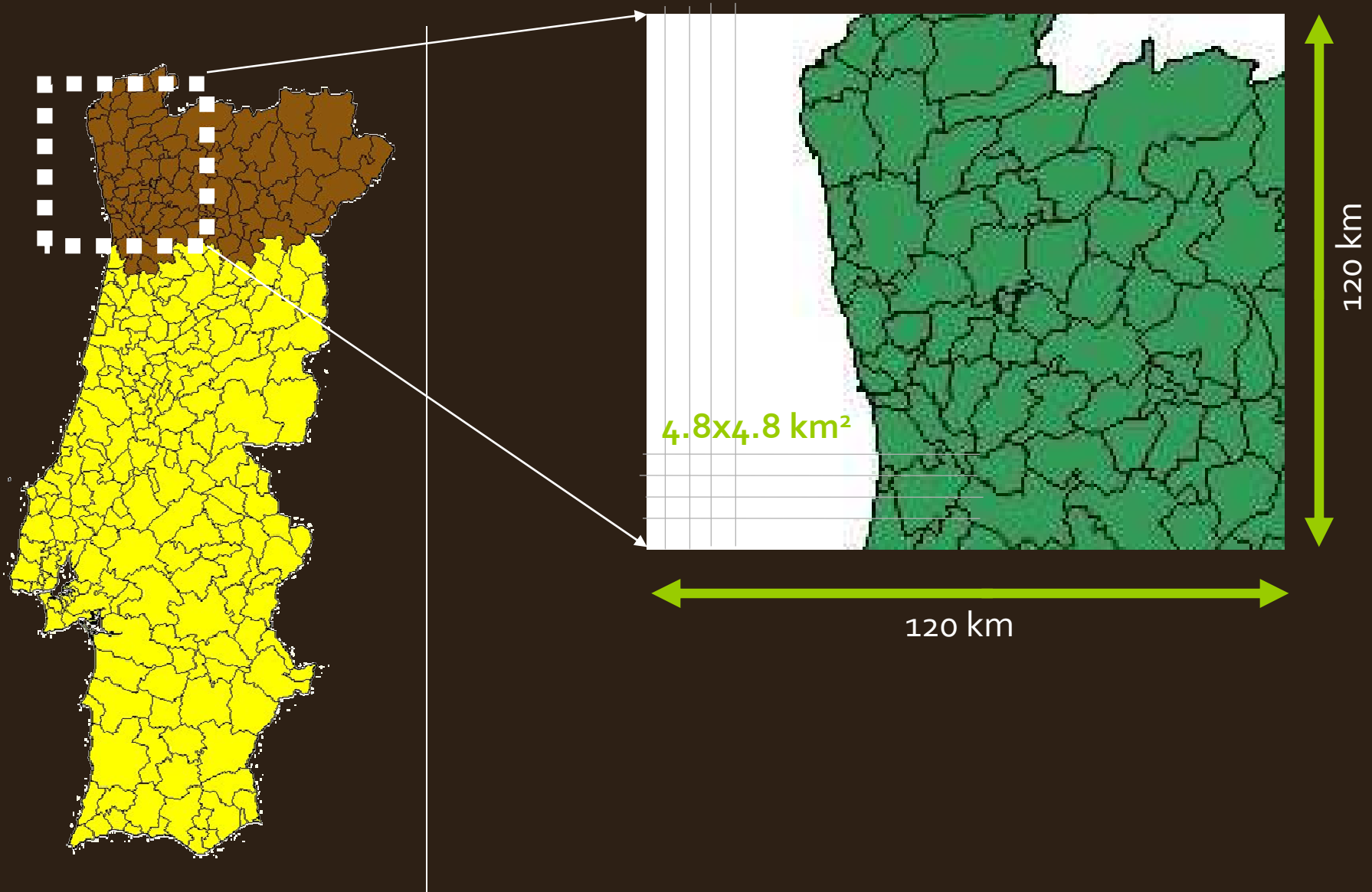


Industry

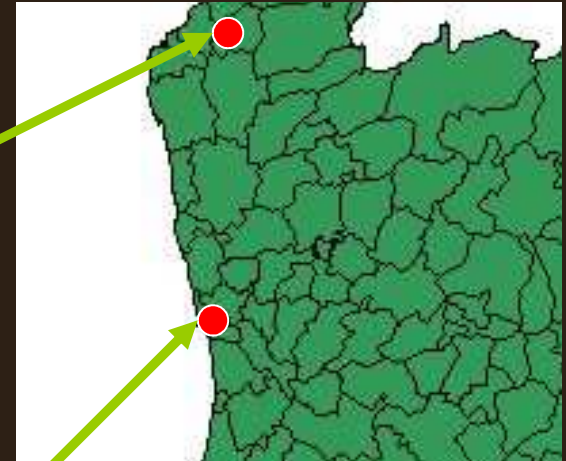


Traffic

Application domain

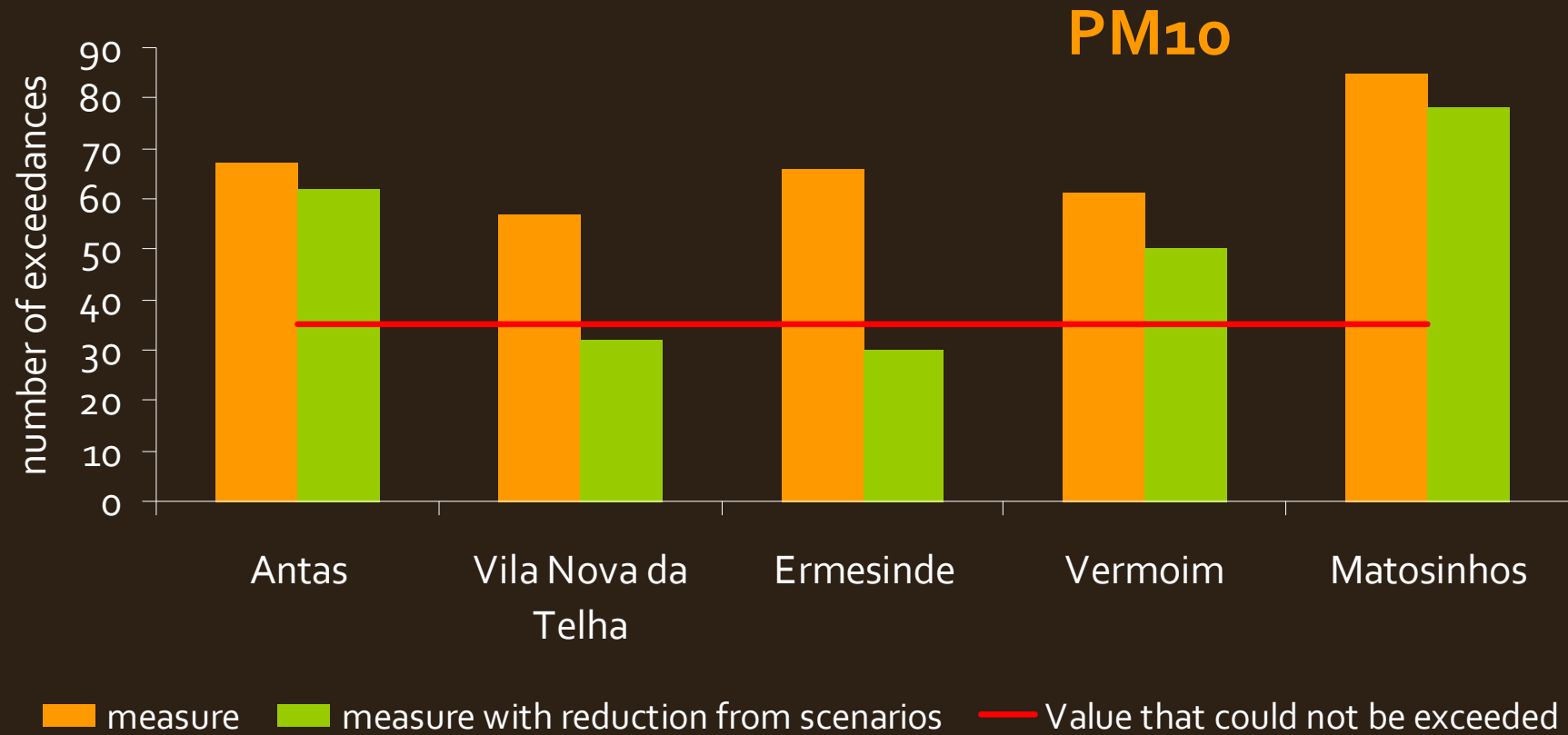


Meteorological results – 2004 year application

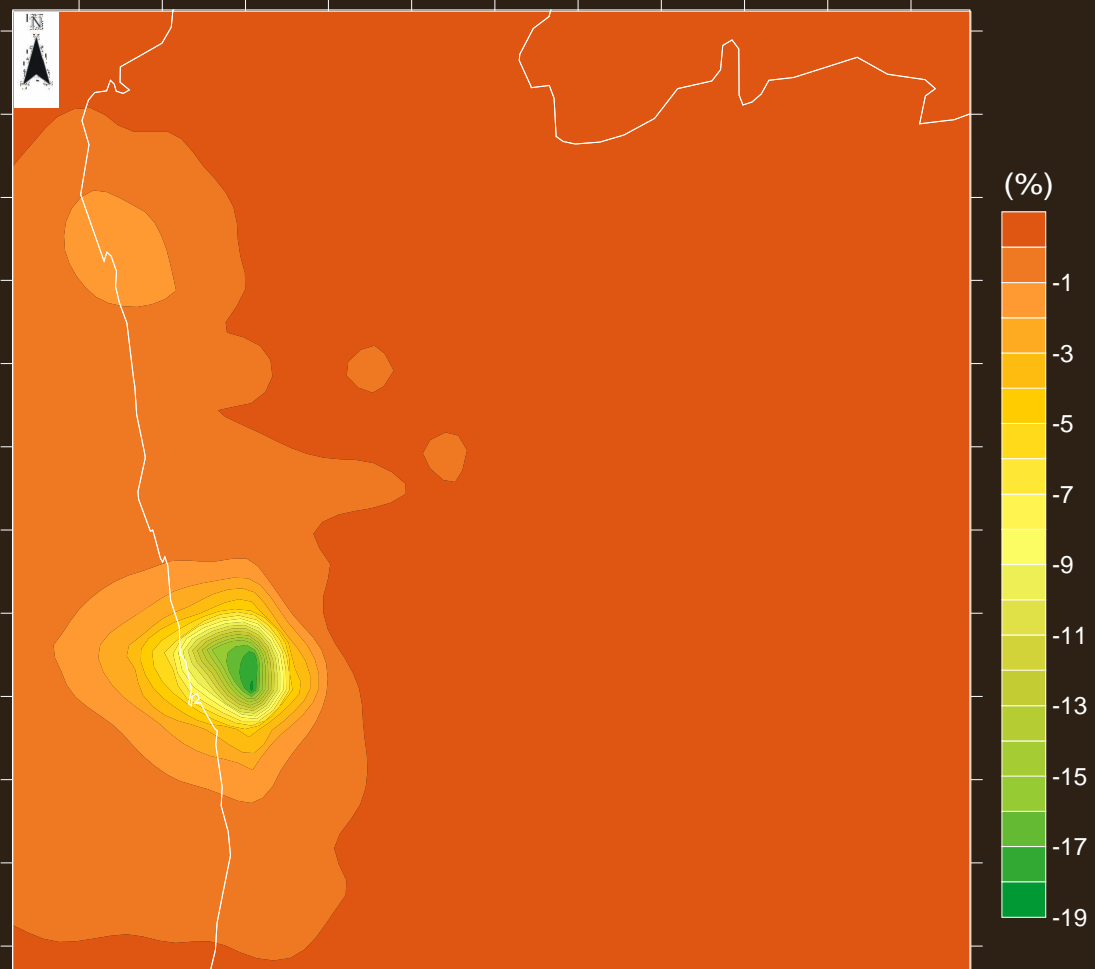


	Viana do Castelo			Pedras Rubras		
	TEMP	U	V	TEMP	U	V
r	0.90	0.60	0.75	0.93	0.76	0.83
IOA	0.91	0.66	0.74	0.94	0.79	0.86
SKILLr	0.63	1.39	1.00	0.46	1.03	0.83
BIAS	-0.94	-0.76	-0.48	0.46	-0.83	-0.21

Results – 2004 year application



Differential between base and reduction scenarios (2004 year application) – annual mean



↓ 19 % [PM10] over
Porto region

Final remarks

- Over the last decade in the Northern region of Portugal high PM₁₀ concentrations were measured

- Plans and programmes were designed for the Northern region

17 reduction
measures

- ✓ traffic
- ✓ industry
- ✓ residential combustion
- ✓ civil constructions
- ✓ agriculture and forests
- ✓ environmental education

- The application of all measures will achieve a PM₁₀ concentration reduction of almost **19%**

Future work

- Improve the emission inventory
- A higher involvement of all entities/institutions to improve the implementation and the number of reduction measures

**Thank you for your
attention**