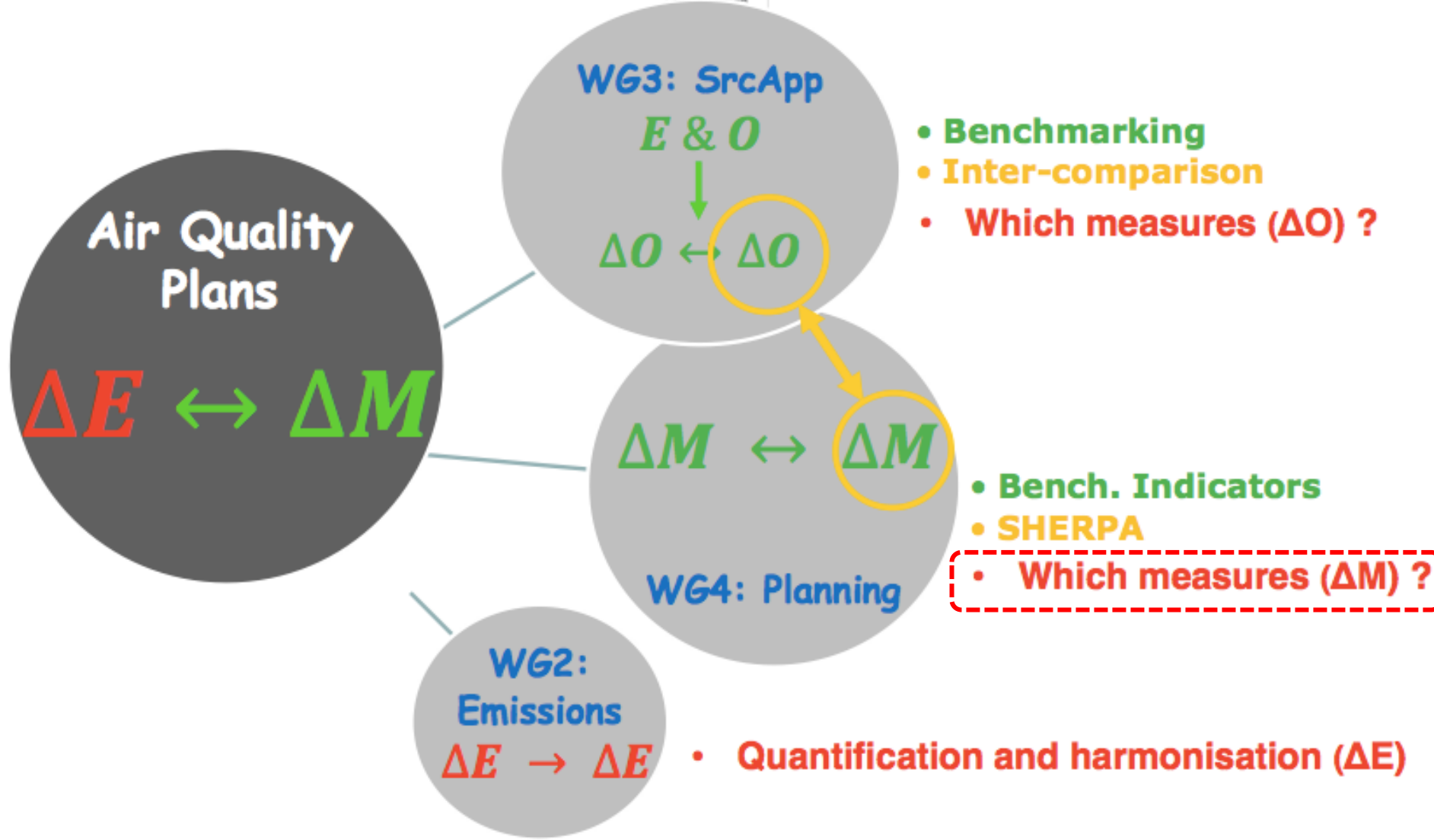


FAIRMODE

What about abatement measures ?

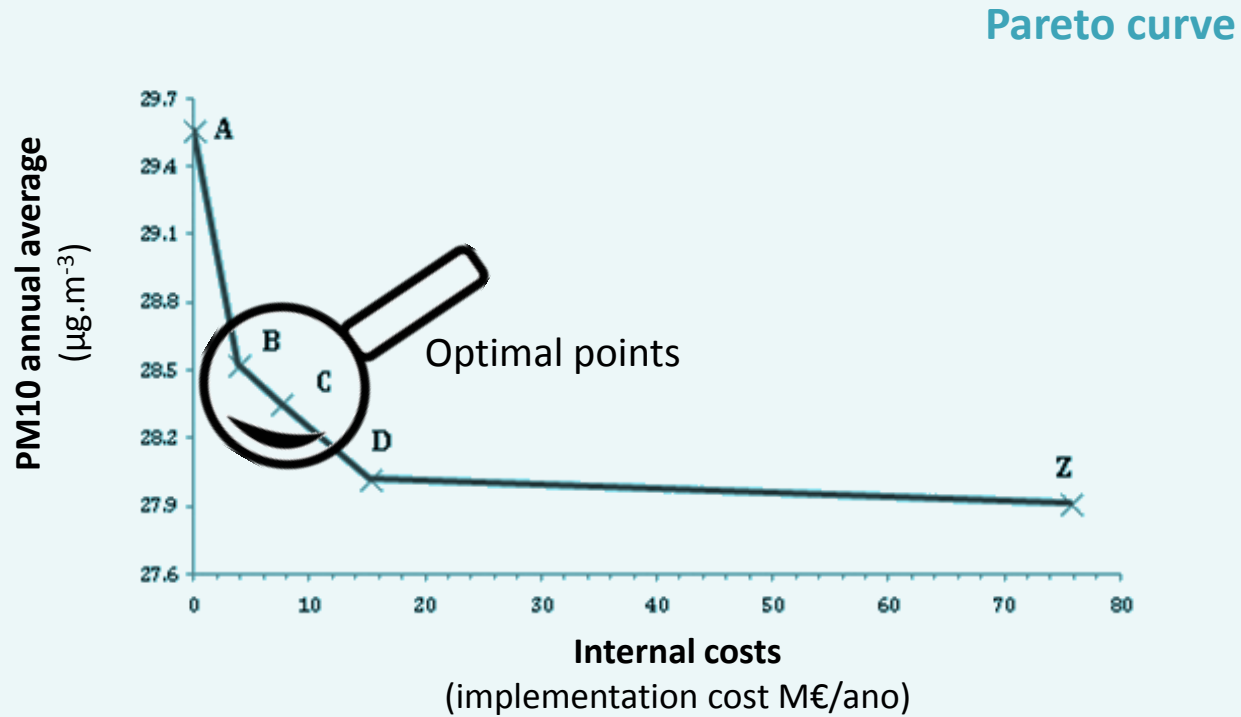
Alexandra Monteiro, Co-chair WG4
University of Aveiro, Portugal

Air quality planning



Applying an IAM to Porto region

Pareto curve: measures optimization



Applying an IAM to Porto region

List of measures for **point C**

Measures List

SNAP 1	Sector	Activity	Technology	Application Rate...	CLE AR	OPT AR	EmiRedPm10[ton]	EmiRedNox[ton]
2	Residential-Commercial: Fireplaces	Fuelwood direct	Fireplace improved		15.0	79.8	728.1	0.0
7	Light duty vehicles: cars and small buses ...	Medium distillates ...	EURO 4 on light duty diesel road vehicles		16.2	19.7	30.1	27.7
7	Light duty vehicles: light commercial trucks...	Medium distillates ...	EURO 5 on light duty diesel road vehicles		47.1	51.1	22.1	76.3
7	Light duty vehicles: cars and small buses ...	Medium distillates ...	EURO 5 on light duty diesel road vehicles		37.4	38.4	11.0	12.6
7	Light duty vehicles: light commercial trucks...	Medium distillates ...	EURO 4 on light duty diesel road vehicles		15.1	15.7	2.5	11.4
8	Other transport: agriculture and forestry	Medium distillates ...	Stage 1 control on construction and agriculture mobile so...		7.2	22.9	1.7	12.5
2	Residential-Commercial: Heating stoves	Fuelwood direct	Biomass stove improved		40.0	41.4	0.1	0.0
1	Oth. En. Sect.: combustion	Gas	Combustion modification on oil and gas industrial boilers ...		20.0	20.1	0.0	0.0
1	Oth. En. Sect.: combustion	Heavy fuel oil	Good housekeeping: industrial oil boilers		100.0	100.0	0.0	0.0
1	Oth. En. Sect.: combustion	Heavy fuel oil	Low sulphur fuel oil (0.6 %S)		76.0	76.0	0.0	0.0
1	Oth. En. Sect.: combustion	Medium distillates ...	Good housekeeping: industrial oil boilers		100.0	100.0	0.0	0.0
1	Oth. En. Sect.: combustion	Medium distillates ...	Low sulphur diesel oil - stage 1 (0.2 % S)		40.0	40.0	0.0	0.0

List of measures for **point B**

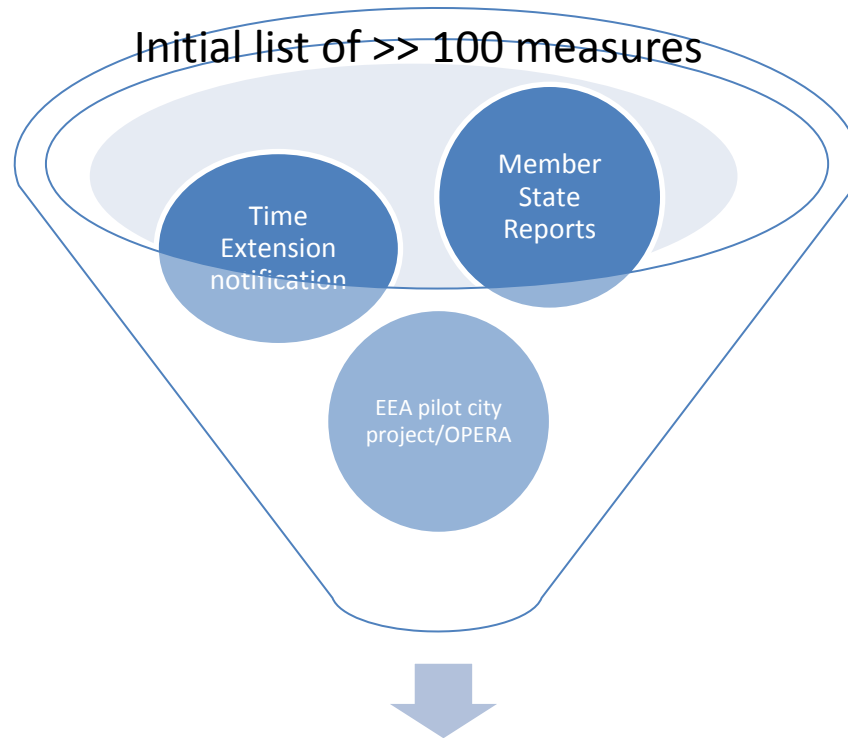
Measures List

SNAP 1	Sector	Activity	Technology	Application Ra...	CLE AR	OPT AR	EmiRedPm10[ton]	EmiRedNox[ton]
2	Residential-Commercial: Fireplaces	Fuelwood direct	Fireplace improved		15.0	47.1	360.1	0.0
7	Light duty vehicles: cars and small b...	Medium distillate...	EURO 4 on light duty diesel ...		16.2	19.7	30.1	27.7
1	Power & district heat plants existing, ...	Gas	Combustion modification o...		80.0	100.0	0.0	133.6
3	Industry: Other combustion (used in ...	Medium distillate...	Low sulphur diesel oil - sta...		60.0	60.0	0.0	0.0
8	Other transport: rail	Medium distillate...	Low sulphur diesel oil - sta...		100.0	100.0	0.0	0.0
7	Light duty vehicles: cars and small b...	Medium distillate...	Low sulphur diesel oil - sta...		100.0	100.0	0.0	0.0
3	Industry: Other combustion (used in ...	Biomass fuels	Electrostatic precipitator: 2 fi...		100.0	100.0	0.0	0.0
3	Industry: other sectors; combustion ...	Medium distillate...	Low sulphur diesel oil - sta...		60.0	60.0	0.0	0.0
7	Light duty vehicles: light commercial ...	Medium distillate...	Low sulphur diesel oil - sta...		100.0	100.0	0.0	0.0
2	Residential-Commercial: Fireplaces	Fuelwood direct	Fireplace new		5.0	5.0	0.0	0.0
6	Manufacture of automobiles (new in...	Vehicles	Adsorption, incineration		100.0	100.0	0.0	0.0
7	Light duty vehicles: cars and small b...	Medium distillate...	EURO 6 on light duty diesel ...		40.4	40.4	0.0	0.0

Similar and restrict list of measures

(replacement of fireplaces + light duty vehicles)

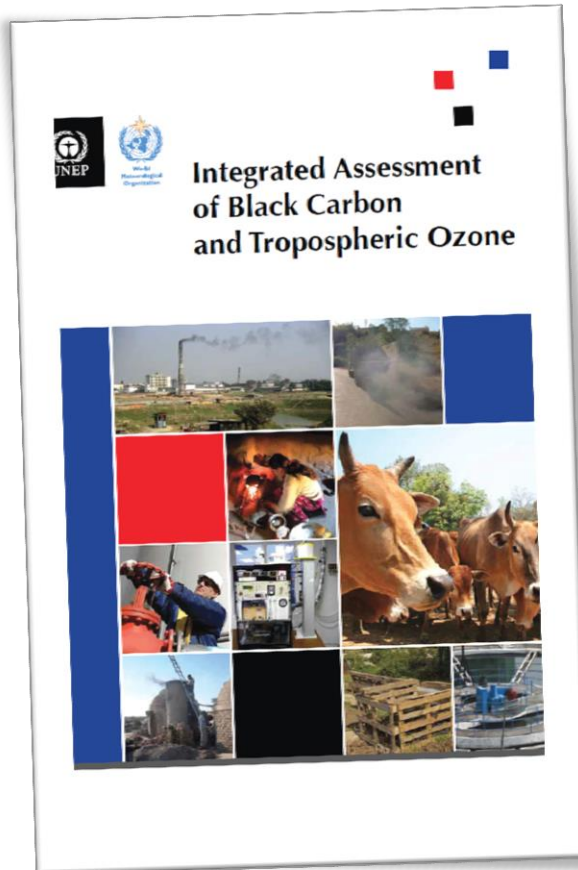
DG-ENV DB OF MEASURES



Final list of 70 measures

<https://luft.umweltbundesamt.at/measures/>

UNEP 2015 report



“A package of 16 measures has been identified that could yield the largest reductions in radiative forcing from short-lived substances at the global scale in 2030 (...)

These were selected from approximately 2000 measures in the technology and emission databases of the IIASA-GAINS model, which were aggregated into about 400 packages of measures.

The net effect of these emission changes on radiative forcing at the global scale, integrated over a 100-year period, has been estimated for each measure and **the top 16 that achieve nearly 90 per cent of the overall mitigation potential have been selected.”**

“Measures to reduce emissions of BC and other products of incomplete combustion require action in the transport, domestic and agricultural sectors, and in a few industrial sectors in developing countries. .”

Applying an IAM to Porto region

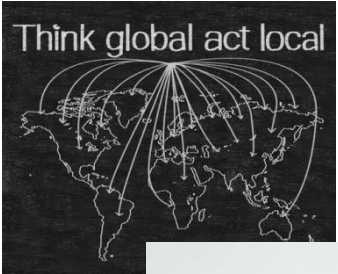
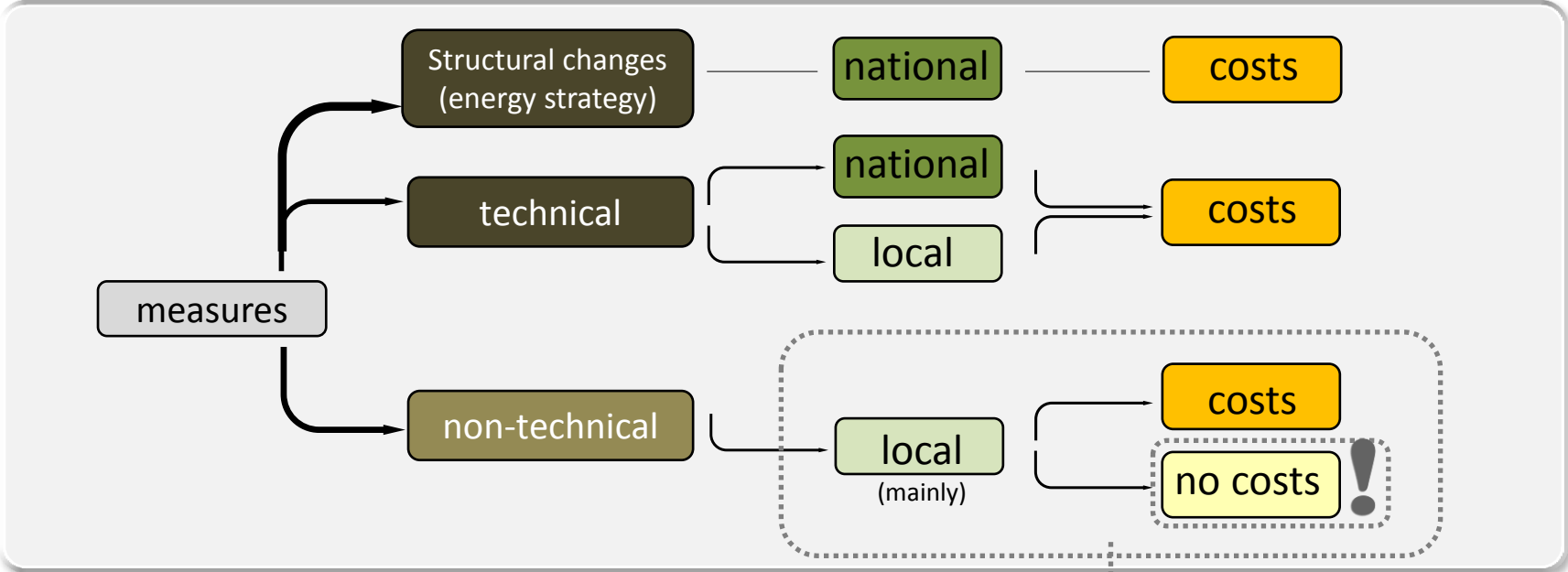
Other measures were designed but not considered by IAM...

Measures included in IAM



Measures designed in the Air Quality Plan	Costs (€)
Introduction of low-emission vehicles for transport of passengers and goods	13,668,042
Improvement of public transport network	147,928,092
Car sharing	
Renewal of the fleet of taxis and vehicles for waste collection	525,186
Decrease the percentage of heavy goods vehicles in circulation	
Car parks peripheral construction	
Strengthening the monitoring of illegal parking	4,800
Low Emission Zones (LEZ)	
Cut-off streets to traffic	14,316,996
Introduction of public fueling stations for natural gas	
Promote the implementation / improvement of industrial air cleaners	12,500,000
Enhanced surveillance of stationary sources	67,500
Emissions reduction from residential combustion	
Reduction of particle emissions from agriculture and forests	1,772
Street sweeping and washing	465,821
Dust emissions reduction on construction sites	
Environmental education and recommendation	144,050

Final comments



Think Glocal.

Final comments

- **3 different examples** shows the same direction: a **limited number of measures can be enough** to test “all” the decision of local decision makers
- **A harmonized set of methodology can be used** to estimate the abatement emission resulting from each of these measures