#CLEANAIRHEALTHYCITIES:

A SILVER LINING FOR A HEALTHY RECOVERY

8 EPHA recommendations on how city mayors and leaders can tackle the social costs of air pollution

March 2021

epha european public health alliance

About EPHA

EPHA is a change agent – Europe's leading NGO alliance advocating for better health. We are a dynamic member-led organisation, made up of public health civil society, patient groups, health professionals, and disease groups working together to improve health and strengthen the voice of public health in Europe.

Every year nearly 400,000 Europeans die prematurely from air pollution, affecting those from disadvantaged backgrounds the most. EPHA calls on policy-makers and politicians at international, European, national and city level to tackle the systemic causes of this global public health challenge; to mitigate the climate crisis; and contribute to a post-COVID-19 healthy recovery.

See more at **https://epha.org/cleanair/**

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1. Introduction

The European Public Health Alliance (EPHA) has adopted an overarching approach to tackle systemic causes of ill-health in its new strategic plan "Artists and Scientists – New Partnerships for People's Health 2021-2025."

Air pollution is a global health challenge

- EPHA advocates for healthy environments to support the development of holistic and integrated policies that scale up prevention and health promotion and enable healthy lives for all
- EPHA tackles global health threats and promotes public health to avert serious health crises and ensure policy coherence between public health and other policies affecting health.

EPHA is bringing new evidence to help accelerate policy changes to improve our urban environment which put public health at their heart. We have formulated recommendations for mayors and other city leaders to ensure a sustainable clean air future for urban dwellers. EPHA and its members extend an open invitation to partner with cities across Europe in their implementation.

EPHA members continue to be on the frontline in the fight against COVID-19 and are experiencing at first hand its devastating consequences for people's health. Our members - public health NGOs, patient groups, health professionals and disease groups, work to improve health and strengthen the voice of public health in Europe, nationally and in local communities. Air pollution is a public health and climate emergency, and only firm policy action in the context of the European Green Deal**,** as our members advocate, will ensure that all Europeans can enjoy a healthy recovery

What needs to change to improve public health?

While the measures introduced during lockdown were extreme, the response to COVID-19 has shown that **people will support radical policies** if decision-making is transparent, evidence-based and inclusive and has the clear aim of protecting the health of people and their families. Surveys of public opinion have shown that urban residents across Europe do not want to see air pollution return to pre-Covid-19 levels and support profound changes in transport to protect clean air[1]

Clean energy transition, transportation and mobility; and agriculture have been identified[2] as the policy areas for action to tackle air pollution and mitigate the effects of climate change which need to involve multiple sectors of society

These EPHA recommendations, developed in the light of evidence on the devastating health impacts and related social costs in European cities and **building on our increased activity in this policy area, formulate** public health-focused policy solutions for cities in the area of transport systems and urban mobility.

1 No going back to pre-Covid air pollution levels – opinion poll finds: https://epha.org/no-going-back-to-pre-covid-air-pollution-levels-opinion-poll-finds/

2 European Respiratory Society (ERS) the American Thoracic Society (ATS), and International Society for Environmental Epidemiology (ISEE) 'Bounce Back Better: Sustainable Strategies for a Healthy Recovery from the Pandemic'

EPHA's 8 recommendations for Europe's city mayors and leaders

	**1.Implement Low Emission Zones, charging and parking policies**
	**2. Make walking and cycling a cornerstone of city level mobility**
	**3. Integrate public transport into a multi-modal transport system**
	**4. Denormalise personal vehicle use in urban areas**
	**5. Listen to the health evidence and involve the medical community**
	**6. Improve urban pollution monitoring networks**
	**7. Act local, think global! - Join forces with and learn from other cities' experiences in tackling air pollution**
	**8.Unleash available funding to finance cities' green and healthy recovery**

These 4 principles should be mainstreamed into the development of cleaner transport policies to protect public health

One Health:

The “polluter pays” and “user pays” principles should take into account a One Health perspective. The final cost of a journey should reflect its impact on the human, animal and environmental health.

Reducing Health inequalities:

Improving population health shall not result in more inequalities. Air pollution affects everyone, but not the same way. Dirty air has the potential to exacerbate existing health inequalities, especially for socially disadvantaged groups that are disproportionately exposed to air pollution.

Systematically assess health impacts and cost savings of policy interventions:

Social and health cost savings are not always part of the impact assessments. To calculate the social cost savings linked to reducing the burden on air pollution should be taken into account when considering the costs of investments.

No “one-size-fits-all” solutions:

Differences in local geography, climate, building and engineering traditions across Europe mean that there is no “one-size-fits-all” solution to tackling urban air pollution. However, there can be a common vision and guidelines, targets, good practices towards achieving goals which focus on improving public health and the environment.

2. The burden of air pollution in European cities

Air pollution is the number one cause of premature death from environmental factors in Europe, according to the European Environmental Agency (EEA). The problem is greatest in cities, where two thirds of Europeans live. Two thirds of cities break clean air standards set by the World Health Organization. PM, NO_2 and O_3 cause about 400,000 early deaths annually. According to a previous CE Delft report for the European Public Health Alliance, transport pollution is a major source of urban air pollution, costing €67- 80 billion in the EU28 in 2016.

Social costs of air pollution in European cities

Cities ranked by overall costs to residents

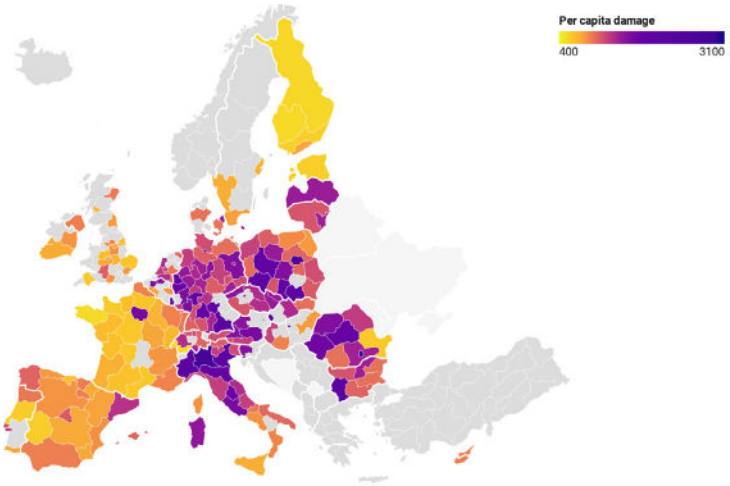
	CITY	TOTAL DAMAGE COSTS		CITY	TOTAL DAMAGE COSTS		CITY	TOTAL DAMAGE COSTS
AUSTRIA			GERMANY			NORWAY		
	Vienna	€ 2,567,485,526		Berlin	€ 5,237,257,544		Bergen	€ 156,113,675
	Graz	€ 431,963,160		Hamburg	€ 2,936,377,930			
	Linz	€ 286,076,935		Munich	€ 2,877,847,412			
BELGIUM			GREECE			POLAND		
	Brussels	€ 1,585,778,013		Athens	€ 1,126,581,958		Warsaw	€ 4,222,682,712
	Antwerp	€ 744,293,817		Patras	€ 200,144,612		Metropolia Silesia	€ 3,596,193,823
	Gent	€ 386,424,103					Kraków	€ 1,490,117,352
BULGARIA			HUNGARY			PORTUGAL		
	Sofia	€ 2,575,337,596		Budapest	€ 3,272,079,833		Lisbon	€ 635,590,170
	Plovdiv	€ 354,839,429		Debrecen	€ 165,282,269		Sintra	€ 236,064,011
	Varna	€ 330,601,003		Győr	€ 153,362,078		Porto	€ 226,074,858

	CITY	TOTAL DAMAGE COSTS			TOTAL DAMAGE COSTS		CITY	TOTAL DAMAGE COSTS
CROATIA			IRELAND			ROMANIA		
	Zagreb	€ 1,312,028,080		Dublin	€ 431,454,062		Bucharest	€ 6,345,139,087
	Osijek	€ 135,545,965		Cork	€ 89,735,878		Timisoara	€ 542,215,309
							Brasov	€ 495,557,564
CYPRUS			ITALY			SLOVAKIA		
	Lefkosia	€ 222,378,715		Rome	€ 4,144,344,954		Bratislava	€ 891,503,030
				Milan	€ 3,498,940,399		Kosice	€ 221,574,435
				Torino	€ 1,815,447,357		Zilina	€ 106,162,266
CZECH REPUBLIC			LATVIA			SLOVENIA		
	Prague	€ 2,253,053,555		Riga	€ 895,589,858		Ljubljana	€ 433,967,793
	Brno	€ 485,338,520		Liepaja	€ 80,761,084		Maribor	€ 107,177,360
	Ostrava	€ 420,868,108						
DENMARK			LITHUANIA			SPAIN		
	Copenhagen	€ 785,432,237		Vilnius	€ 753,022,734		Madrid	€ 3,383,362,222
	Aarhus	€ 306,769,731		Kaunas	€ 318,561,060		Barcelona	€ 2,020,417,033
	Odense	€ 187,988,303		Klaipeda	€ 232,231,276		Valencia	€ 670,821,188

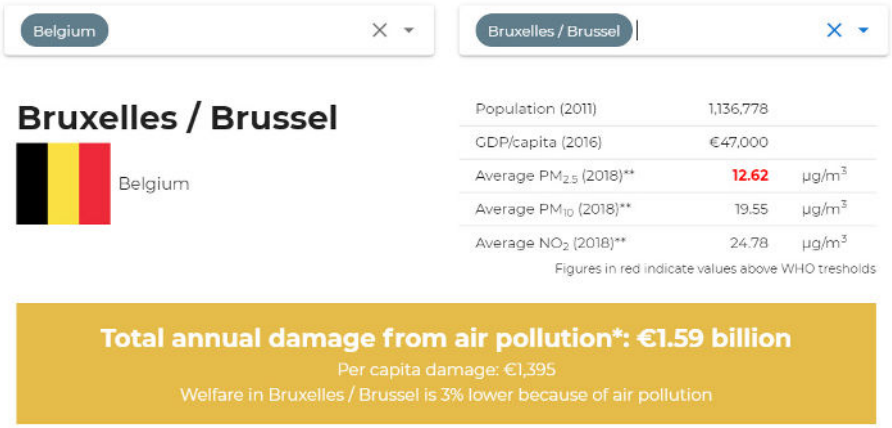
	CITY	TOTAL DAMAGE COSTS		CITY	TOTAL DAMAGE COSTS		CITY	TOTAL DAMAGE COSTS
ESTONIA			LUXEMBOURG			SWEDEN		
	Tallinn	€ 249,194,994		Luxembourg	€ 166,146,874		Stockholm	€ 682,917,334
	Tartu	€ 44,821,408					Göteborg	€ 418,060,115
	Narva	€ 23,138,028					Malmö	€ 262,753,522
FINLAND			MALTA			SWITZERLAND		
	Helsinki	€ 493,726,101		Valletta	€ 279,577,806		Zürich	€ 432,517,555
	Tampere	€ 117,318,500					Basel	€ 182,369,253
	Oulu	€ 105,873,953					Bern	€ 160,822,740
FRANCE			NETHERLANDS			UNITED KINGDOM		
	Paris	€ 3,505,259,275		Amsterdam	€ 1,054,817,803		London	€ 11,380,722,416
	Marseille	€ 774,108,756		Rotterdam	€ 750,342,591		Greater Manchester	€ 2,409,496,795
	Lyon	€ 585,267,499		's-Gravenhage	€ 521,202,760		West Midlands urban area	€ 1,806,623,126

Air pollution costs the average European city resident €1,276 per year. Air pollution leads to premature deaths, loss of healthy life years, hospital admissions and lower overall quality of life This figure includes direct health costs as well as other non-direct health effects which have been 'translated' by economists into their equivalent in money, commonly defined as **'social cost.'**

The CE Delft study "Health costs of air pollution in European cities and the linkage with transport" examined 432 cities in all EU countries plus the UK, Norway and Switzerland. Added together, air pollution costs for city residents amounts to €166 billion per year, or €385 million per city on average. When grouped by city rather than per capita cost, those living in big, expensive cities tend to face the highest pollution costs due to population density, higher earnings and expenses. However, cities in Central and Eastern Europe buck this trend and feature high in the impact table despite lower income levels as particularly bad air pollution takes its toll.



Explore this interactive map here to compare the costs between European cities. .



Use this on-line tool here to compare cities in the same country and across Europe.

What needs to change to improve public health?

This study reveals the magnitude of the damage toxic air is causing to people's health and the huge health inequalities existing between and within countries in Europe. The report shows that even small changes to transport habits and city policies can make a substantial difference to such costs. A 1% increase in the average journey time to work increases the costs of PM10 emissions by 0.29% and those of NO2 emissions by 0.54%. A 1% increase in the number of cars in a city increases overall costs by almost 0.5%.

Therefore, to a large extent, the situation can be influenced by transport policies and cities can reduce these social costs by taking evidence-informed policy decisions, some of which have already been implemented and have been proven to be impactful.

3. COVID-19 and the implications on policies to tackle air pollution

Recent evidence on COVID-19 suggests that exposure to air pollution worsens the severity of the virus, likely compromising people's ability to fight off the illness. It points to the need for improved air quality standards and a transition away from polluting fossil fuels to improve the air we breathe and our ability to withstand any future pandemics.

Air pollution caused conditions: the risk of comorbidities

Air pollution causes diseases that are linked to higher COVID-19 death rates. Patients with chronic lung and heart conditions caused or worsened by long-term exposure to air pollution are less able to fight off lung infections and more likely to die. Air pollution can cause hypertension, diabetes and respiratory diseases, conditions that doctors are starting to link to higher mortality rates for COVID-19. These conditions affect millions of people, and can increase the risk of more serious health complications if one contracts the virus.

How can we tackle air pollution?

As the World Health Organization (WHO) video[3] which addresses protecting ourselves from COVID-19 and air pollution, highlights:

"But in the case of air pollution, the most important recommendation we can say is, that in those countries where the levels of air pollution are very high, we need to enforce legislation to reduce those levels of air pollution. We need to make sure that as citizens, we are aware of the fact that the air pollution is affecting our health, and by doing so, requesting our authorities, at the city or the country level, to tackle the causes of air pollution, reducing the emissions. And particularly one important one will be stopping burning fossil fuels, which are contributing enormously to this air pollution and, therefore, the illnesses that exposure to air pollution is causing."

COVID-19 restrictions imposed from March 2020 cleaned the air rapidly: A comprehensive set of satellite images revealed how levels of air pollution have fallen dramatically in cities across the world due to COVID-19 lockdown measures. However, levels of air pollution have been bouncing back and in some cities are now worse than before the pandemic. Evidence is now emerging about possible policy solutions city leaders can take to tackle air pollution with potential

3 Air pollution & COVID-19: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/media-resources/science-in-5/episode-9---air-pollution-covid-19

support from their inhabitants.

What needs to change to improve public health?

Lockdown measures in many cities demonstrated that carbon dioxide emissions, air pollution and noise levels can be drastically and almost immediately reduced, while urban space for walking and cycling could be increased dramatically, improving both our environment and our health. It is now time to find sustainable and permanent ways to achieve those same levels of cleaner air in cities in the long-term.

4.What measures would most effectively reduce air pollution in cities?

Blue Sky Recovery: How can we reduce air pollution to the levels achieved during lockdown?

According to new research, cities can significantly reduce air pollution levels sustainably by accelerating the ongoing switch to zero-emission vehicles, as well as measures to encourage more walking, cycling, public transport and teleworking. This transition is already well underway in many cities. Mayors and city leaders have been redesigning city plans to make space for active mobility and physical distancing.

Air pollution and transport policies at the city level: policy perspectives

A new study from CE Delft for EPHA has examined the literature, identifying 28 different urban policies currently running in towns and cities throughout Europe, from zero emission public buses to sharing e-scooters, to understand their effect on PM and NOx transport emissions.

The analysis then closely examined the public health impacts of 5 identified transport measures:

1.Congestion charging

2.Environmental (low-emission) zones

3. Car-sharing schemes

4. Parking policies

5.Cycling/walking policies.

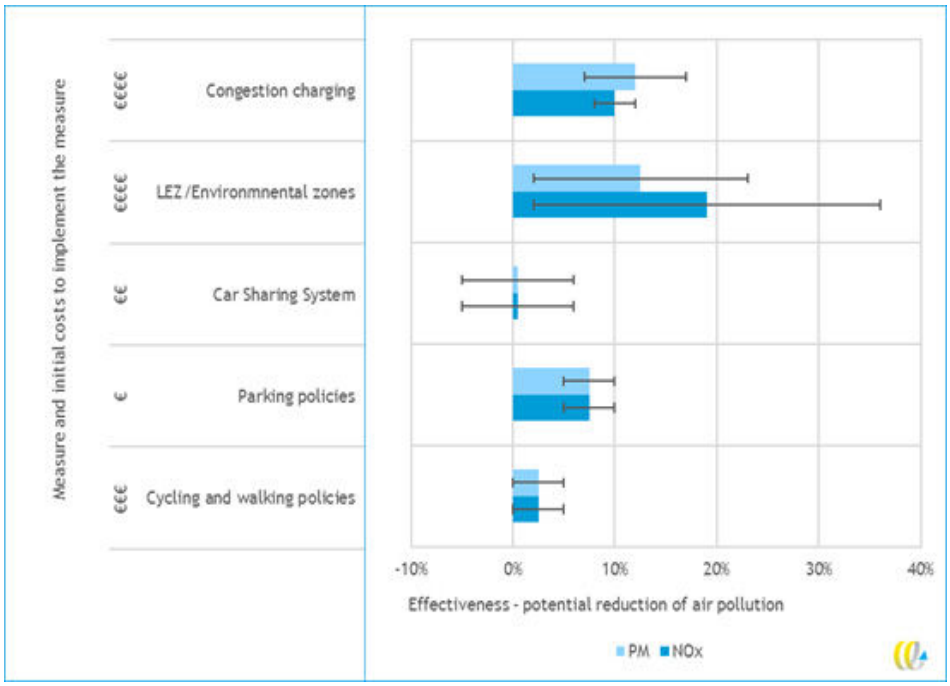


Figure 21 from the CE Delft study (p 48) visualises the potential impact of the top 5 measures on PM and NOx emission reductions for the identified 5 measures. See the specific numbers presented in the efficiency tables below:

1. Congestion charging

Charging vehicles to enter cities like London, Stockholm, Gothenburg and Milan cuts pollution, saving up to an estimated €95 million in social costs. To work well, both congestion charging and low emission zones have to be a significant size and well policed. Cameras to scan vehicles and other infrastructure make both congestion charging and low emission zones expensive to set up, but charges can subsidise these costs. Investing pollution charges into more active transport and public spaces boosts well-being and further cuts social costs.

Efficiency	
NOx, reduction	8-10%
PM reduction	7-17%
Estimated reduction social costs in 2020	
Metropolitan (> 1 mln inhabitants)	31-96 mln Euro
Small cities (< 200,000 inhabitants)	1-3 mln Euro

2. Environmental (Low Emission) Zones

Restricting polluting vehicles from cities such is happening in Milan, London, Malmö, Stockholm and Brussels worked best, cutting the pollutants and saving the most populated cities up to an estimated €120 million in health and other costs per year.

Efficiency	
NOx, reduction	2-36%
PM reduction	2-23%
Estimated reduction social costs in 2020	
Metropolitan (> 1 mln inhabitants)	9-131 mln Euro
Small cities (< 200,000 inhabitants)	0-4 mln Euro

3. Car sharing

Publicly subsidised commercial car sharing schemes, like those in Paris, Amsterdam and Cologne, did little to bring down pollution and only make sense in the biggest cities, according to CE Delft. They can also compete with public transport and increase pollution if shared vehicles are old.

Efficiency	
NOx, reduction	-5- 5% reduction
PM reduction	-5- 5% reduction
Estimated reduction social costs in 2020	
Metropolitan (> 1 mln inhabitants)	22 - 28 mln Euro
Small cities (< 200,000 inhabitants)	~ 1 mln Euro

4. Parking policies

By contrast, the cost and availability of municipal parking is cheap to change and since vehicle ownership is strongly influenced by parking availability, this tool is effective. In the few cases it has been used specifically to cut emissions, it did so by 5-10%, CE Delft found. However, setting aside space for cycling and walking is expensive, particularly in dense cities, relative to the small gains acheived.

Efficiency	
NOx, reduction	5-10%
PM reduction	5-10%
Estimated reduction social costs in 2020	
Metropolitan (> 1 mln inhabitants)	22-56 mln Euro
Small cities (< 200,000 inhabitants)	1-2 mln Euro

5. Cycling and Walking Policies

Cycling/walking policies have also other benefits, such as improved health from active mobility and better quality of city life if the space allocated to car traffic is simultaneously reduced. Increasing the share of active transport modes can help local authorities to achieve a cleaner, less congested city infrastructure, improved levels of air quality, and thus healthier cities.

Efficiency	
NOx, reduction	0-5%
PM reduction	0-5%
Estimated reduction social costs in 2020	
Metropolitan (> 1 mln inhabitants)	0-28 mln Euro
Small cities (< 200,000 inhabitants)	0-1 mln Euro

	Metropolitan cities		Big cities		Small cities	
	Social return	% change	Social return	% change	Social return	% change
Congestion charge						
North	-	-	3.7 - 8.7 €mln	1.2 - 2.7 %	1 - 2.3 €mln	1.2 - 2.8 %
West	30.8 - 71.7 €mln	1.1 - 2.6 %	4.4 - 10.2 €mln	1.1 - 2.6 %	1 - 2.4 €mln	1.1 - 2.7 %
South	39 - 90.9 €mln	1.1 - 2.6 %	3.1 - 7.1 €mln	1.1 - 2.7 %	1.3 - 2.9 €mln	1.2 - 2.7 %
East	40.8 - 95.7 €mln	1.2 - 2.8 %	5 - 11.8 €mln	1.2 - 2.8 %	1.4 - 3.2 €mln	1.2 - 2.8 %
LEZ's/environmental zones						
North	-	-	1.1 - 12 €mln	0.4 - 3.8 %	0.3 - 3.1 €mln	0.4 - 3.8 %
West	9.4 - 99.9 €mln	0.3 - 3.7 %	1.3 - 14.3 €mln	0.3 - 3.7 %	0.3 - 3.3 €mln	0.3 - 3.7 %
South	11.9 - 126.5 €mln	0.3 - 3.7 %	0.9 - 9.9 €mln	0.3 - 3.7 %	0.4 - 4.1 €mln	0.4 - 3.8 %
East	12.4 - 130.9 €mln	0.4 - 3.8 %	1.5 - 16.1 €mln	0.4 - 3.8 %	0.4 - 4.3 €mln	0.4 - 3.8 %
Car sharing schemes						
North	-	-	~ 2.6 €mln	~ 0.8 %	~ 0.7 €mln	~ 0.8 %
West	~ 21.5 €mln	~ 0.8 %	~ 3.1 €mln	~ 0.8 %	~ 0.7 €mln	~ 0.8 %
South	~ 27.2 €mln	~ 0.8 %	~ 2.1 €mln	~ 0.8 %	~ 0.9 €mln	~ 0.8 %
East	~ 28.3 €mln	~ 0.8 %	~ 3.5 €mln	~ 0.8 %	~ 0.9 €mln	~ 0.8 %
Parking policies						
North	-	-	2.6 - 5.1 €mln	0.8 - 1.6 %	0.7 - 1.4 €mln	0.8 - 1.6 %
West	21.5 - 42.4 €mln	0.8 - 1.6 %	3.1 - 6 €mln	0.8 - 1.6 %	0.7 - 1.4 €mln	0.8 - 1.6 %
South	27.2 - 53.7 €mln	0.8 - 1.6 %	2.1 - 4.2 €mln	0.8 - 1.6 %	0.9 - 1.7 €mln	0.8 - 1.6 %
East	28.3 - 56.2 €mln	0.8 - 1.6 %	3.5 - 6.9 €mln	0.8 - 1.6 %	0.9 - 1.9 €mln	0.8 - 1.7 %
Cycling and walking policies (active mobility)						
North	-	-	0 - 2.6 €mln	0 - 0.8 %	0 - 0.7 €mln	0 - 0.8 %
West	0 - 21.5 €mln	0 - 0.8 %	0 - 3.1 €mln	0 - 0.8 %	0 - 0.7 €mln	0 - 0.8 %
South	0 - 27.2 €mln	0 - 0.8 %	0 - 2.1 €mln	0 - 0.8 %	0 - 0.9 €mln	0 - 0.8 %
East	0 - 28.3 €mln	0 - 0.8 %	0 - 3.5 €mln	0 - 0.8 %	0 - 0.9 €mln	0 - 0.8 %

Table 9 from the CE Delft study (p 49) includes the estimate of the change in social costs of congestion charging in 2020 for 5 selected measures.

5. Recommendations for a Healthy Recovery in Cities

Traffic fumes cripple or bring early deaths to hundreds of thousands of people living in cities across Europe every year, affecting children, the vulnerable and socially deprived the most. Prevention of pollution is a precondition for a healthy recovery. The COVID-19 stimulus funding can be used by across the European Union in any of the 432 examined cities on East and West, South and North to close the inequality gap between and within countries and lift "the smog curtain"[4] between Eastern and Western Europe. Cities are helpful partners in efforts to tackle air pollution as meaningful change and public health improvement can happen relatively quickly. Mayors and city leaders should make this a priority investment for our health and ensure a 'healthy recovery' becomes reality for all. A wave of urban upgrades across Europe can tackle the increased levels of air pollution returning after the COVID-19 lockdowns.

8 recommendations for Europe's city mayors and leaders

1. Low Emission Zones, charging and parking policies

Taking account of city size, layouts, mobility patterns and behaviour, these three mobility measures are the most cost-effective in bringing down pollution-related social costs.

2. Make walking and cycling a cornerstone of city level mobility:

A cultural change is needed so that short trips in private cars are no longer the norm. There is no future-proof mobility without active mobility such as walking and cycling. Not only are they non-polluting, and do not rely on the development of new technologies, but they also contribute to improved human health and are essential to tackle physical inactivity, a core risk factor for chronic diseases.[5] The spike in bike usage has shown that the Europeans are ready for a culture change but these are fragile wins and more actions are necessary to ensure that cycling is a safe and accessible option for everyone across the EU. Green spaces are also essential to make truly walkable cities -with additional mental health benefits.

4 https://epha.org/zero-pollution-ambition-what-footprint-will-europe-leave-on-our-environment/

5 https://www.cpme.eu/index.php?downloadunprotected=/uploads/adopted/2020/11/CPME_AD_Board_21112020_008_FINAL_EN_CPME.Policy.on_.Physical.Activity.pdf

3. Integrate public transport into a multi modal transport system:

The COVID-19 pandemic has also had negative effects on mobility patterns, as levels of public transport usage also decreased. While evidence shows that, when recommended safety measures are in place, the infection risk is low [6], people's trust in public transport needs to be rebuilt. Operators must be supported in implementing the necessary measures and there must be clear, evidence-based public messages. Multimodality is important because it combines different advantages – convenience, cost, speed, etc – and as such can provide the right incentives for a societal change in mobility habits. However, in order for public transport to deliver the promised benefits to our health and our planet, the bus fleet should also be held to high emissions standards.

The link with tackling health inequalities is particularly relevant here: public transport is often used by those who do not have other choices: often those who are elderly, poorer, or from marginalized communities. Investing in public transport should also lead to more equal societies.

Particular attention must be paid to the situation in **Central and Eastern Europe**, where local authorities should be supported in replacing their aging bus fleets. Moreover, the development of recharging infrastructure for less- and non-polluting vehicles should also consider, even prioritise, the accessibility of buses.

4. Denormalise personal vehicle use in urban areas:

More directly prohibitive measures should be considered and encouraged as part of a European vision for healthy cities. Whenever cars are indeed the only viable option, car sharing should be encouraged. Nevertheless, it is now clear that adapting cities to cars is not a desirable or even effective solution: the new transport policies need to be people-centric instead. A city where mobility is dependent on private car ownership is a dysfunctional one: more congested, less healthy and less equitable. Instead, the space that is freed up can be used for green spaces or as a space for the local community to come together, rebuilding social cohesion. This, in turn, will build public support for the green transition.

5. Listen to health evidence and involve the medical community

in city level policy decisions to tackle air pollution. One group, Medics4CleanAir are demanding decision-makers take note of the latest scientific evidence on the health damage of air pollution, as a basis of any future clean transport policy. Engaging with medical professionals can help support the introduction of cleaner transport policies at a local level.

6 UITP, Public Transport is COVID-safe

6. Improve urban pollution monitoring networks:

Official data is far from being comprehensive and complete. Reported levels of air quality may diverge from the actual situation, given that air quality is still relatively sparsely monitored across Europe. Some large European cities have only a limited number of monitoring stations. Without a good network of monitoring stations, air pollution may be being seriously underestimated. As a result, the social costs reported are likely to be an underestimate in some cities. If air pollution levels are in fact higher than the figures reported in official statistics, the social costs will increase accordingly and the necessary actions will not be implemented.

•**Proactive monitoring by increasing and improving the placement of existing monitoring** measures can pre-empt legal proceedings which often lead to law courts ultimately forcing legally cities to monitor better air quality.

•**Innovative technological solutions can be considered** to measure difficult to capture other forms of pollution such as ultra-fine particulate matter and non-tailpipe emissions from tyres and brakes.

•**Make partnerships with citizen science initiatives** for a more comprehensive overview on the magnitude and geographical situation of air pollution. City residents actively engaged in monitoring air quality levels are already contributing and complementing official data.

7. Act local, think global! - join forces with other cities

Learning from experience and adapting to local circumstances has been proven to be an effective approach. Cities should consider joining alliances such as the WHO Healthy Cities network and the C40 Cities Initiative to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on air pollution, to improve health and tackle the climate emergency.

8. Unleash available funding to finance cities' green and healthy recovery of cities:

The €672 EU COVID-19 recovery fund is about to flow to national governments, a third of which is earmarked for green investments, including transport. These opportunities should be easy to access and available.Cities should be given enough resources to use these grants effectively.

These 4 principles or “red lines” should be mainstreamed into the development of cleaner transport policies to protect public health

One Health:

The “polluter pays” and “user pays” principles should take into account a One Health perspective. The final cost of a journey should reflect its impact on the human, animal and environmental health.

Reducing Health inequalitie:

Improving population health shall not result in more inequalities. Air pollution affects everyone, but not the same way. Dirty air has the potential to exacerbate existing health inequalities, especially for socially disadvantaged groups that are disproportionately exposed to air pollution.

Systematically assess health impacts and cost savings of policy interventions:

Social and health cost savings are not always part of the impact assessments. To calculate the social cost savings linked to reducing the burden on air pollution should be taken into account when considering the costs of investments.

No “one-size- fits-all solutions:

Differences in local geography, climate, building and engineering traditions mean that there can be no “one-size-fits-all” solution. However there can be a common vision and guidelines, targets, good practices towards achieving goals which focus on improving public health and the environment.

Conclusion

Air pollution is a global public health challenge. City level action is urgently needed to tackle its systemic causes mitigate the climate crisis; and contribute to a post-COVID-19 healthy recovery.

COVID-19 has shown that people can support radical policies if decision making is transparent, evidence-informed and inclusive and has the clear aim of protecting health of people and their families. Some restrictions may be necessary for large scale adoption of behavioural changes at the speed that is necessary to avoid a climate catastrophe. Yet this change should be seen primarily as an opportunity to remodel our urban lives and improve our health and the environment.

Mayors and city leaders can play a pivotal role in reducing city level air pollution by introducing targeted policy interventions. Implementing these measures will tackle the social costs of air pollution and support, not hinder, a healthy recovery from COVID-19.

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