



## Low Carbon Transport Quick Wins

Opportunities for Climate and Clean Air Action in Urban Road Transport in Low Income Countries in Africa and Asia

Gary Haq

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<b>Abstract</b>	
<p>The climate emergency together with the COVID- 19 pandemic provide a unique opportunity to make urban transport more resilient, reduce greenhouse gas (GHG) emissions, achieve liveable cities, secure prosperity and boost living standards. Rapid motorisation in LICs in Asia and Africa is expected to increase their contribution to total global transport GHG emissions, threatening international climate objectives if no action is taken. The transport sector is also a major contributor to fine particle pollution in major cities with toxic outdoor air pollution killing up to 3.4 million people each year worldwide. Death rates have risen as countries shift from low to middle-income countries.</p> <p>Low income countries in Africa and Asia can take a number of short- to medium-term low carbon road transport measures that have the potential for rapid climate and clean air benefits. This policy note outlines 10 low carbon transport quick wins identified by the DFID HVT Programme that can reduce GHG emissions for both passenger and freight road transport while offering sustainable development benefits (e.g. improved air quality, accessibility, efficiency, safety and energy security). Four recommendations are made to achieve climate and air co-benefits in low income countries: (1) exploit the post-COVID-19 recovery to push forward low carbon transport transformation; (2) target finance for low carbon transport in the post-COVID-19 recovery; (3) raise the level ambition of NDCs by including low carbon quick wins for road transport; and (4) ensure better coordination between transport, energy and environment and planning agencies.</p>	
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## EXPLOITING CLIMATE AND CLEAN AIR CO-BENEFITS IN THE TRANSPORT SECTOR

The [climate emergency](#) together with the COVID- 19 pandemic provide a unique opportunity to make urban transport more resilient, reduce greenhouse gas (GHG) emissions, achieve liveable cities, secure prosperity and boost living standards.

Transport, access and mobility are key to sustainable development in many low-income countries (LICs) in Africa and Asia. Yet, global transport GHG emissions are rising faster than any other economic sector.<sup>[1]</sup>

Rapid motorisation in LICs in Asia and Africa is expected to increase their contribution to total global transport GHG emissions, threatening international climate objectives if no action is taken.

Far-reaching transitions in transport and as well as other sectors are therefore required to adapt to a changing climate and to reduce emissions to avoid further climate change. The 2015 United Nations (UN) Paris Agreement set out a global action plan to limit global heating to below 1.5°C and avoid risks

**African and Asia LICs can take a number of short- to medium-term low carbon transport measures that have the potential for rapid climate and clean air benefits.**

to health, livelihoods, food security, water supply, human security, and economic growth.<sup>[1]</sup>

Raising the **ambition of transport measures in Nationally Determined Contributions (NDCs)<sup>i</sup>** can **unleash the transport sector's potential to meet global climate objectives**. This could be undertaken by (i) setting emissions reduction goals for the transport sector including targets for specific sub-sectors such as cars, road freight, and aviation; (ii) including a balanced approach of all Avoid -Shift-Improve measures; (iii) incorporating climate change adaptation and resilience into transport systems; and (iv) aligning national financing and investment strategies to decarbonise and climate proof transport systems.<sup>[2]</sup>

**The transport sector is also a major contributor to fine particle pollution (PM<sub>2.5</sub>) in cities.** In Africa, road transport PM<sub>2.5</sub> emissions are expected to increase by 40% by 2030 compared to 2012.<sup>[3]</sup> Polluting diesel vehicles are a key source of black carbon which can have direct and indirect impacts on the climate, glacial regions, agriculture and human health.

**Toxic outdoor air pollution is killing up to 3.4 million people each year worldwide, with death rates rising as countries shift from low to middle-income countries.**<sup>[4]</sup> For example, in Africa [outdoor air pollution](#) causes 780,000 death each year.<sup>[5]</sup>

**Although indoor air pollution is a major killer, vehicle tail-pipe emissions (PM<sub>2.5</sub>) are responsible for about 385,000 premature deaths globally (2015) equal to 11% of air pollution deaths and a cost of USD 1 trillion in health damages.**<sup>[6]</sup> Recent evidence suggests that long term exposure to air pollution may be linked to [higher COVID-19 deaths](#).<sup>[7]</sup> <sup>[8]</sup> However, it is [too early](#) to say that air pollution is an additional, or unaccounted for, effect on COVID-19, beyond it being a contributor to underlying disease in the population.

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<sup>i</sup> Efforts by each country to reduce national emissions and adapt to the impacts of climate change under the United Nations Framework Convention on Climate Change.



**The COVID-19 pandemic produced a 17% temporary drop in daily global carbon dioxide (CO<sub>2</sub>) emissions because of forced confinement (since early April 2020), with half from changes to road transport.** Zero emission mobility such as walking and cycling, including e-bikes provide social distancing and could be desirable for some time as confinement is eased. However, the transport sector emissions are likely to raise faster if government responses do not use the opportunity to change travel behaviour.<sup>[10]</sup> The [post-COVID-19 pandemic](#) provides an opportunity for low carbon and zero exposure transformation of the transport sector as part of a [comprehensive](#) emission reduction strategy.<sup>[9]</sup>

**Taking action to address transport emissions improves urban air quality, mitigates climate change and contributes to the UN Sustainable Development Goals (SDG) such as reducing road traffic fatalities.**

The [17 SDGs](#) aim to end extreme poverty and create a healthy, sustainable world by the year 2030. Health and wellbeing of people and the planet is at the heart of the SDGs such as halving the number of [road traffic fatalities and injuries](#). The contribution of transport to the road traffic deaths and injuries and air pollution deaths, together with its close links to climate change, means it is a threat to the SDG vision of a better world.



## LOW CARBON TRANSPORT QUICK WINS

Low carbon transport quicks wins have high climate change emission reduction potential and can play an important role in the decarbonisation of the road transport sector. [Slocat](#) undertook a review of transport policy measures on behalf of the [UK DFID High Volume Transport \(HVT\) programme](#). Based on a consultation of transport stakeholders in nine LICs in Africa and Asia, Slocat [identified 10 low carbon transport quick wins](#) to achieve rapid emission reduction.<sup>[11]</sup> While these measures have been identified for African and Asia LICs, they also apply to developed countries and other regions.

Low carbon transport quick wins are short- to medium-term actions that can reduce GHG emissions for both road passenger and freight transport, offer sustainable development benefits (e.g. improved air quality, accessibility, vehicle efficiency, road safety and energy security), include Avoid-Shift-Improve measures and reflect the local transport system context of LICs.

Other [transport policy measures](#) (e.g. improved public and informal transport, [speed management](#) and electric vehicles) are available, but these 10 low carbon quick wins listed here are considered by transport stakeholders to have the greatest relevance to LICs to improve urban air quality and contribute to long-term climate targets under the UN Paris Agreement.

Quick Win	Mitigation Potential	Practice
<b>Fossil Fuel Subsidy Phase Out</b>	Fossil fuel subsidies in Sub-Saharan Africa are estimated to average <a href="#">5% of GDP</a> . Removal of fossil fuel consumption subsidies could result in an 8-12% reduction in global GHG emissions by 2050. <sup>[12]</sup> <a href="#">The International Energy Agency (IEA)</a> see the removal of fossil fuel subsidies as a prerequisite for carbon taxation, which has the potential to raise substantial climate finance for LICs.  Fuel subsidy reform has the potential for India and Indonesia to achieve 1-9% in GHG savings by 2030.	Fossil fuel subsidy reform is being introduced in countries such as <a href="#">Angola, Ghana, Kenya, Nigeria and Uganda</a> .  Bangladesh, India and Nigeria have included Fossil Fuel Subsidy reform in national climate change strategies.
<b>National/ Urban Sustainable Mobility Plans</b>	Urban transport emits 25% of total transport sector emissions. Sustainable urban mobility plans focus on non-technological options (e.g. avoiding the need to travel, moving to environmentally modes) which can contribute to a <a href="#">2-40%</a> reduction in emissions by 2050.	Cameroon is adopting national and city urban mobility plans. The cities of <a href="#">Douala and Yaoundé</a> adopted a sustainable urban mobility plan in 2019.
<b>Fuel Economy Standards and Policies</b>	<a href="#">Improving vehicle fuel economy</a> delivers financial savings, lowers carbon emissions, reduces oil dependence and improves air quality. Regulation of the fuel economy of diesel and petrol vehicles are needed if climate targets are to be achieved.	In 2018, <a href="#">ASEAN countries</a> adopted the fuel economy roadmap for transport. In 2020, West Africa Environment Ministers adopted the <a href="#">first regional fuel economy roadmap</a> . China, India, <a href="#">Kenya</a> , Mauritius Sri Lanka, South Africa <a href="#">Thailand and Vietnam</a> have all implemented fuel



		economy policies.
<b>Diesel Quality Standards</b>	Diesel road vehicles and ships are responsible for 19% of global black carbon emissions. <sup>[16]</sup> <a href="#">Using low-sulphur fuels and cleaner diesel vehicle standards</a> can reduce black carbon emissions and avoid an estimated 500,000 premature death globally each year. <sup>[17]</sup>	In 2019, Southern African Development Community (SADC) countries agreed to <a href="#">reduce sulphur levels in fuels to 50 ppm</a> or less by end 2022 for importing countries and 2025 for refining countries and to 10 ppm from 2025 - 2030 for all countries.
<b>Limit the Import of Polluting Second-hand Vehicles</b>	<a href="#">Fuel efficiency of vehicles</a> declines after 15 years of use, up to 50% by 25 years. Vehicles that meet minimum emission standards in exporting markets, when combined with clean fuels and regular maintenance, have the potential to lower the impact of road transport in terms of CO <sub>2</sub> and non-CO <sub>2</sub> emissions in all markets. Regulation therefore is key to controlling the <a href="#">quality of used vehicle imports</a> in line with the importing country's aspirations.	<a href="#">Car ownership in Africa</a> is driven by the importation of used vehicles. However, few African countries place restrictions on imported used vehicles. In contrast, some Asian countries (e.g. Nepal, Pakistan) do regulate the importation of used vehicles.
<b>Electric Two- and Three-Wheelers and Electric Bicycles</b>	Electrification of electric two- and three-wheelers and e-bikes can improve air quality and reduce GHG emissions. Full decarbonisation of two- and three-wheelers is necessary to keep below 2°C global heating. Of the CO <sub>2</sub> savings from <a href="#">electric vehicles</a> globally in 2017, 80% was due to e-bikes in China.	<a href="#">Two- and three-wheelers</a> are the fastest growing transport mode in many LICs. While Asia has the highest share of the global motorcycle fleet, growth rates of motorcycles in many African countries are increasing. Ethiopia, Morocco, Kenya, Rwanda, Uganda and Philippines, Thailand and Vietnam are undertaking E-initiatives.
<b>Low-Emission Zones</b>	Access to Low Emission Zones is restricted to vehicles that meet specified emission standards and reduce polluting emissions. Any vehicle that fails to meet these standards may be either excluded from entering the zone or will be charged a fee to enter. Low emissions zones improve air quality while the deployment of electric vehicles can provide additional climate benefits.	<a href="#">Low Emission Zones</a> have been adopted by European cities and some Asia cities (e.g. China). In European Union cities, low emissions zones cities resulted in a reduction in fine particulate matter emissions. <sup>[13]</sup>
<b>Walking and Cycling Infrastructure</b>	A 370 km non-motorised transport (NMT) network could increase cycling by 7% (Cape Town) and walking by 40% (Nairobi). The climate value of NMT presents an opportunity for <a href="#">African cities</a> , and the global community, to achieve collective climate-related goals.	In 2019, <a href="#">Zambia</a> has adopted a NMT strategy to improved access through sustainable transport modes including walking, cycling, and public transport. Indonesia has published a National design and planning the for guide practical a as Guideline and



		areas urban in NMT for infrastructure of stakeholders at the city level.
<b>Road Pricing</b>	<p><a href="#">Road pricing</a> (e.g. road tolls and congestion charging) applies direct charges for the use of roads to manage travel demand. <a href="#">Congestion charging</a> and parking management can also influence vehicle use.<sup>[14] [15]</sup> Congestion charging can <a href="#">reduce GHG emissions from 15-20%</a>, lower traffic congestion by 13-30% and improve air quality.</p>	<p>In <a href="#">Singapore</a>, congestion charging and CO<sub>2</sub>-based vehicle taxation together with other measures has successfully reduced transport emissions.<sup>[1]</sup> <a href="#">Kenya, Tanzania and Uganda, and South Africa</a>, have introduced road toll charges.</p>
<b>Green Freight</b>	<p>Measures aimed at improving the efficiency of freight logistics (e.g. urban consolidation centres, platooning, retiming deliveries, etc.) could achieve <a href="#">5-10% reduction</a> in emissions.</p> <p><a href="#">Green freight</a> programmes could reduce fuel, increase logistics efficiency and reduce GHG emissions. However, the implementation of such programmes especially urban freight is still at an early stage in many LICs.</p>	<p>In 2017, the <a href="#">Northern Corridor Green Freight strategy</a> was launched covering the six countries (Kenya, Uganda, Rwanda, Burundi, South Sudan and the DR of Congo) to improve fuel efficiency and reduce transport emissions.</p> <p>The <a href="#">Green Freight Initiative</a> in the Greater Mekong Subregion is improving fuel efficiency and reducing costs and emissions of trucking companies.</p>



## RECOMMENDATIONS FOR CLIMATE AND CLEAN AIR ACTION

### 1. Exploit the post-COVID-19 recovery to push forward low carbon transport transformation

- The COVID-19 crisis provides the opportunity to revisit transport policy post-crisis (e.g. national policy for the new financing of sidewalks and pop-up bike lanes) and to show leadership in encouraging walking and cycling.
- A post-COVID-19 recovery can support urban mobility, exploit cleaner vehicle technologies, digital transport and logistics, infrastructure development and promote low emission mobility for all.
- Transport systems should produce low emission and be climate resilient. This requires reducing the vulnerability of a transport system to climate change (based on location and therefore its exposure and sensitivity to climate change), reducing polluting emissions and increasing its adaptive capacity (i.e. its resources for coping with impacts and minimising damage).

### 2. Target finance for low carbon transport in the post-COVID-19 recovery

- Targeting finance at low carbon transport (especially provision of cycling and pedestrian infrastructure) together with training in preparing funding proposals, can ensure the provision of the necessary budget to implement projects.
- Informal and formal public transport system provides access to jobs and amenities and an effort should be made to ensure this sector survives post-COVID-19.
- More funding for research and promotion of low carbon transport can assist in the decarbonisation of the transport sector in the post-Covid-19 recovery.

### 3. Raise the level ambition of NDCs by including low carbon quick wins for road transport

- Under the UN Paris Agreement countries are due to submit their updated [Nationally Determined Contributions in 2020](#) outlining [national efforts](#) to kept global temperature below 1.5°C.
- Low carbon transport quick wins can form part of the Avoid -Shift-Improve strategies to achieve rapid emission reductions, equitable access and climate and clean air co-benefits.
- Connect national level ambition in NDCs to what can be practically be achieved at the individual project and policy level to implement and operate low carbon transport systems.

### 4. Ensure better coordination between transport, energy, environment and planning agencies

- Greater inter-agency coordination can connect national climate ambition with metropolitan and city level transport planning and implementation to ensure compact urban growth, increased provision of public transport infrastructure and non-motorised transport use
- Institutional reform can improve coordination and effectiveness of various stakeholders in implementing low carbon transport policies (e.g. accountable urban transport authorities; empowered regulatory frameworks; secure sources of funding for fleet and infrastructure improvements; a public transport industry amenable to regulatory control and fleet investments).
- Coordinating bodies can play a key role in advancing low carbon transport, act as champion, regarding the introduction of new transport technologies (e.g. electric mobility). This can provide opportunity for strengthening institutions and capacity building.





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**High Volume Transport Applied Research Programme**

IMC Worldwide Ltd

64-68 London Road South, Redhill

RH1 1 LG

Tel: +44 (0)1737 231400

Email: [hvtinfo@imcworldwide.com](mailto:hvtinfo@imcworldwide.com)

Web: [www.transport-links.com](http://www.transport-links.com)