

The Role of Zero Emission Transport for Sustainable Urban Centres Planning Management

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KL Traffic Jam

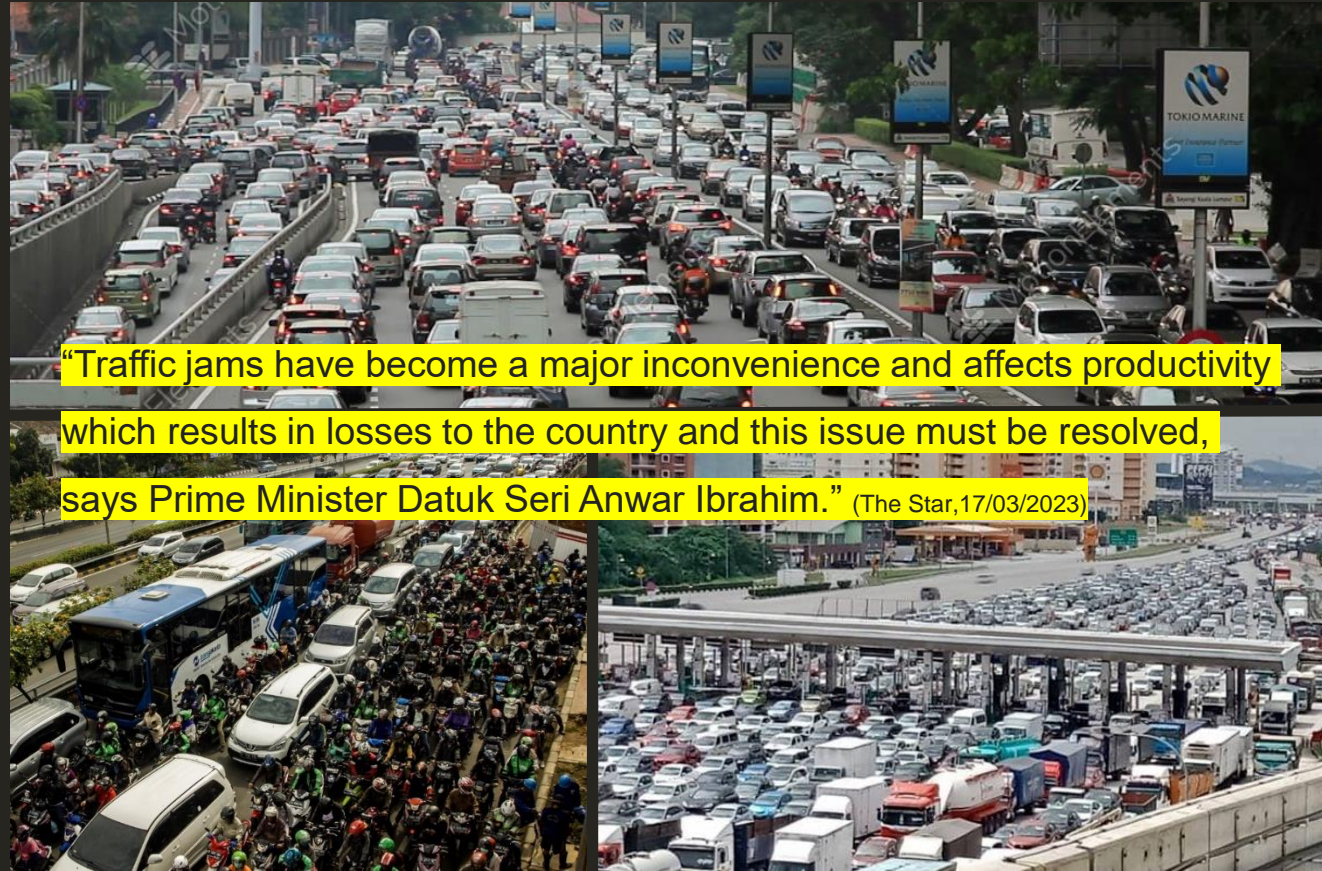
Average 44hours monthly
in traffic jam (The Star, 2023)

1.1 – 2.2% of Malaysia's
GDP (The Star, 2019)

65mil T CO₂e (29% of fossil
fuel)*

14mil T CO₂ – KL **

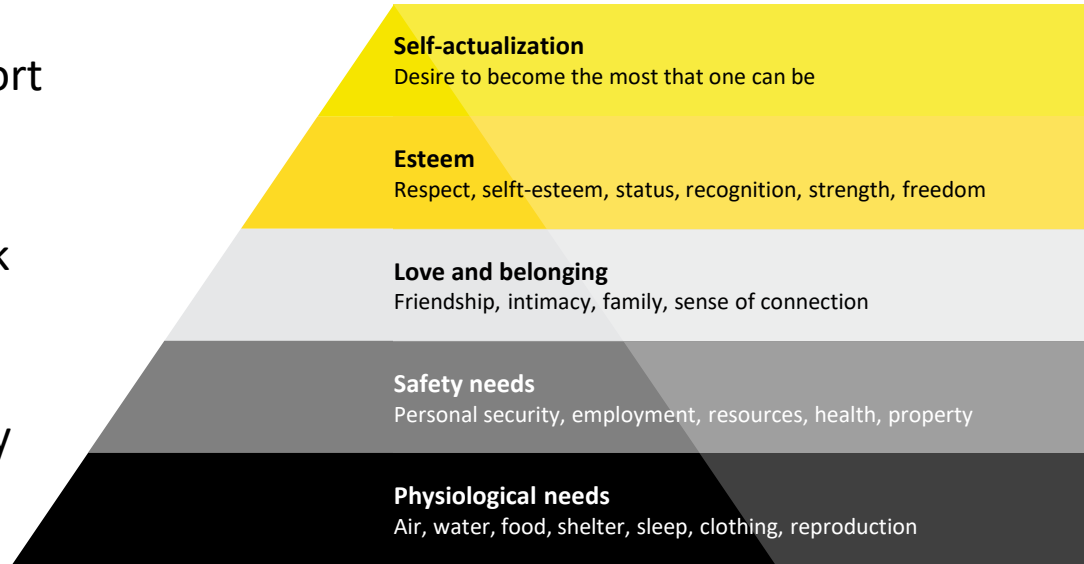
* IEA, 2019/ ** DBKL,2022



"Traffic jams have become a major inconvenience and affects productivity which results in losses to the country and this issue must be resolved, says Prime Minister Datuk Seri Anwar Ibrahim." (The Star,17/03/2023)

Transport is a Basic Need!

- Frequency, reliability, accessibility, safety, and comfort
- Physiological, Safety and Love/belonging — are what motivate us to work, and work is one of the great drivers of transit demand.
- People are in a hurry, and they have every right to be



Maslow's hierarchy of needs

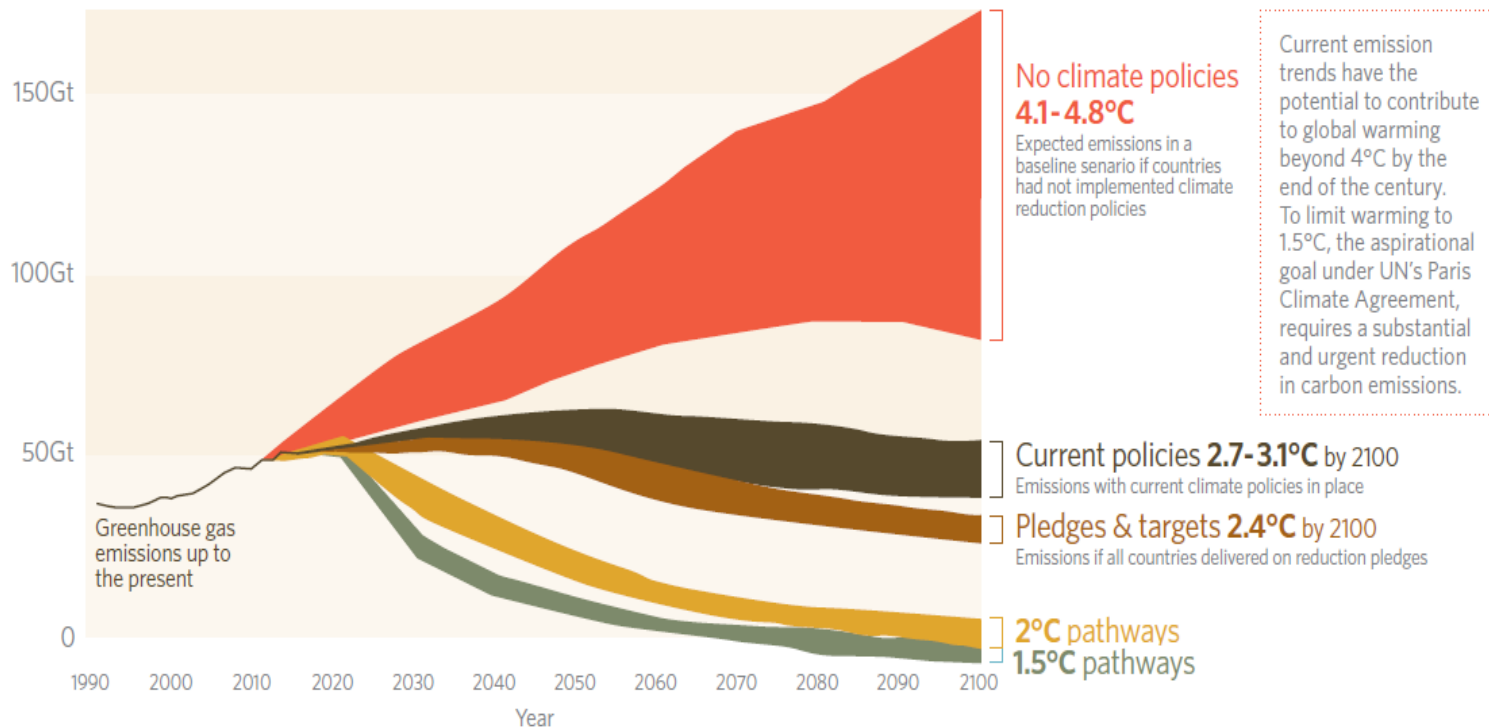
Abraham Maslow's hierarchy needs (1943, 1954)

My TfL Experience



Current Emission

Annual global greenhouse gas emission
in gigatonnes of carbon dioxide-equivalents

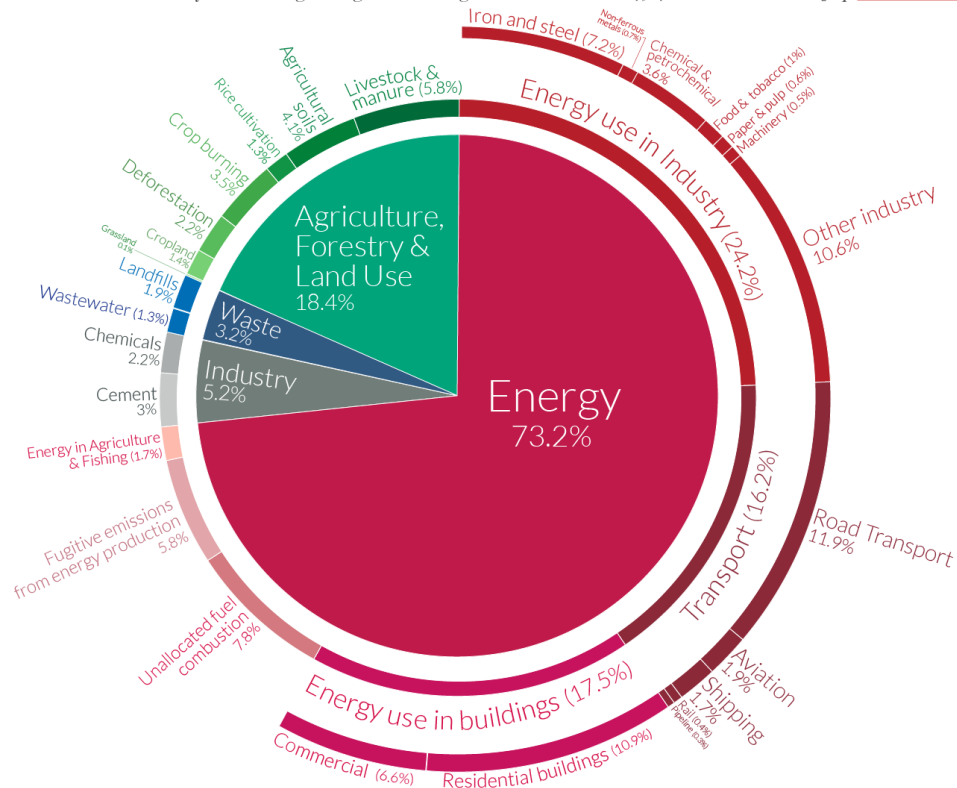


Global greenhouse gas emissions by sector

This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO₂eq.

Our World
in Data

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Global CO₂ emissions from Transport totalled 8 billions tonnes.

~75% of transport emissions come from road vehicles

Transport and related industries accounts for nearly 35% of all GHG emissions

OurWorldinData.org – Research and data to make progress against the world's largest problems.

Source: Climate Watch, the World Resources Institute (2020).

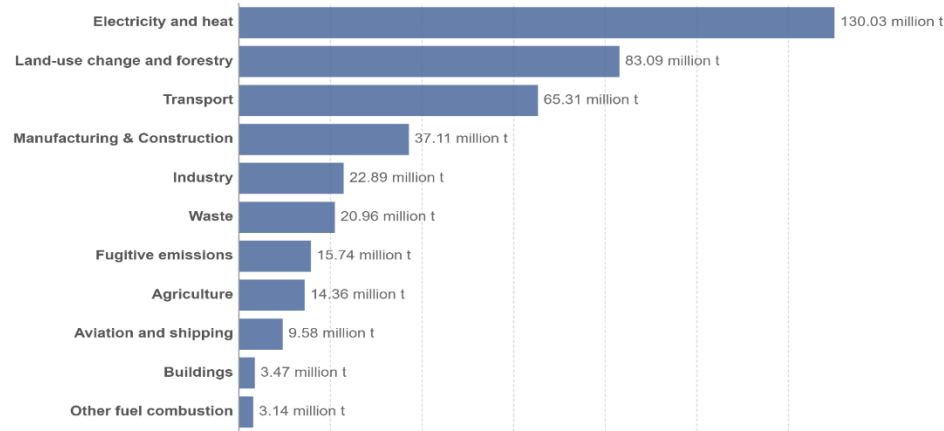
Licensed under CC-BY by the author Hannah Ritchie (2020).

GHG by sector in Malaysia

Greenhouse gas emissions by sector, Malaysia, 2019

Emissions are measured in carbon dioxide equivalents (CO₂eq). This means non-CO₂ gases are weighted by the amount of warming they cause over a 100-year timescale.

Our World
in Data



Source: Our World in Data based on Climate Analysis Indicators Tool (CAIT).
OurWorldInData.org/co2-and-greenhouse-gas-emissions • CC BY

Global Emission trends

Increases in road vehicles (both passenger and freight), aviation and shipping were the leading factors behind the global growth in transport carbon dioxide (CO₂) emissions between 2000 and 2018.(UNFCC, 2021)

Global Emission trends

Continued greenhouse gas emissions will lead to increasing global warming. Average annual GHG emissions during 2010–2019 were higher than in any previous decade on record. Despite progress, adaptation gaps exist. Current global financial flows for adaptation are insufficient (IPCC, AR6, 2023)

RouteZero

At COP26, following the successful RouteZero initiative, the Zero Emissions Vehicle Declaration launched by the UK COP26 Presidency was launched by a leadership group of more than 100 countries, businesses, and organizations committed to driving forward a transition to a climate-neutral transportation sector.

Signatories to the Declaration signed up to the global pledge to ensure that all new car and van sales be zero emission by 2040 globally, and by 2035 in leading markets.

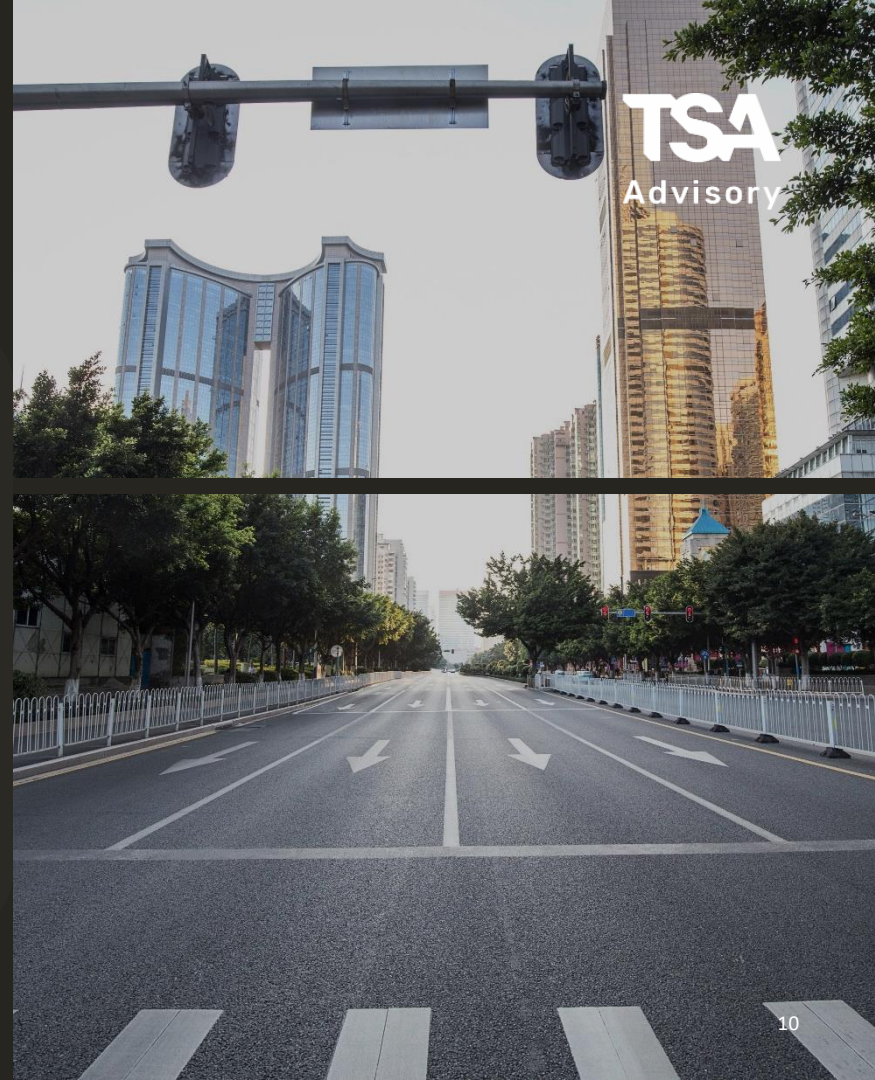


The Key Challenges

- CO2 emissions from urban mobility is forecasted to increase 26% by 2050 and by 2050 two thirds of worlds population will live in urban centres
- Demand for urban passenger transport could grow 60-70% by 2050
- Cars remain city dwellers' travel mode of choice
- Transport policies have been designed to suit car users and prioritising investment in road infrastructure
- Transport policies have induced car demand!
- Fostered the urban sprawl, making sustainable modes of transport inconvenient.



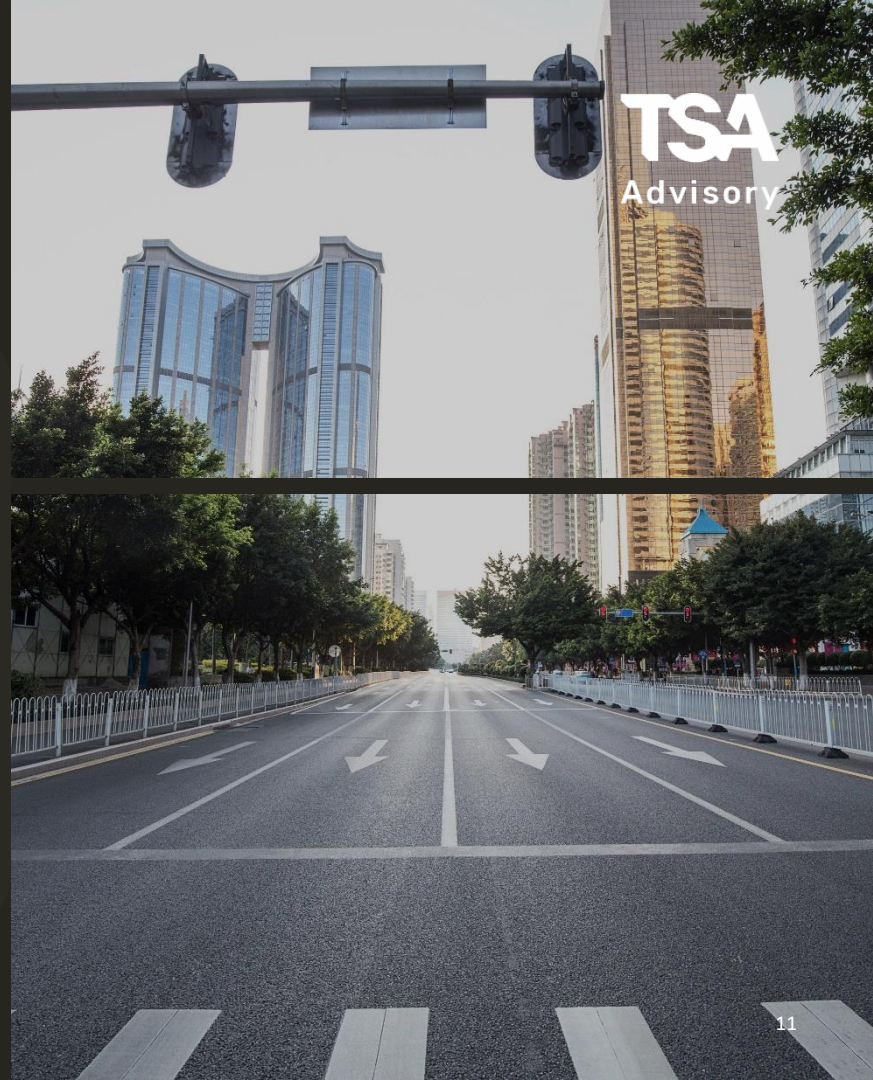
The role of Urban Centres in Zero Emission Transport



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IPCC CLIMATE CHANGE 2023 Synthesis Report

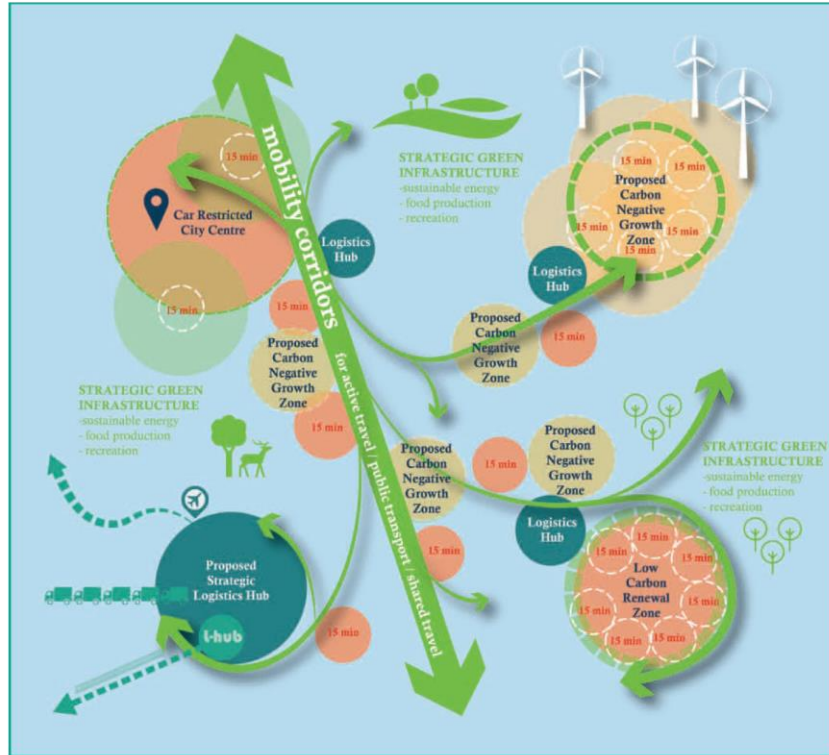
Urban systems are critical for achieving deep emissions reductions and advancing climate resilient development. Key adaptation and mitigation elements in cities include considering climate change impacts and risks (e.g., through climate services) in the design and planning of settlements and infrastructure; land use planning to achieve compact urban form, co-location of jobs and housing; supporting public transport and active mobility (e.g., walking and cycling); the efficient design, construction, retrofit, and use of buildings; reducing and changing energy and material consumption; sufficiency; material substitution; and electrification in combination with low emissions sources.



Desa Park City – a model township?



Spatial Planning for Net Zero Transport



Net zero transport –
‘zoning’ land for development.


Three key concepts

- Carbon Negative Growth Zone
- Low Carbon Renewal Zone, and
- Strategic Green Infrastructure.

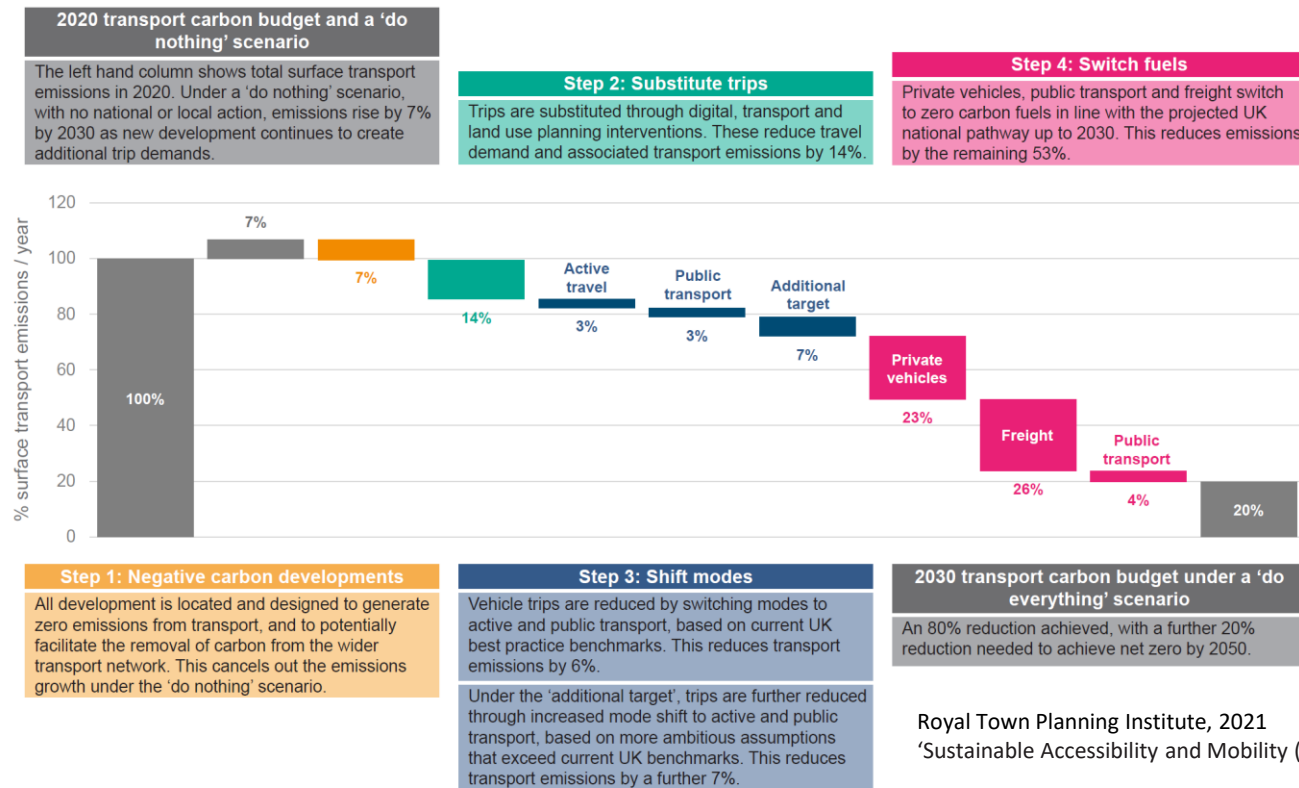
15 min Neighbourhood

- Live local
- access everyday needs within the local area

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On behalf of  Federal Ministry
for Economic Cooperation
and Development

Transport Emission Reduction Pathways



Legend

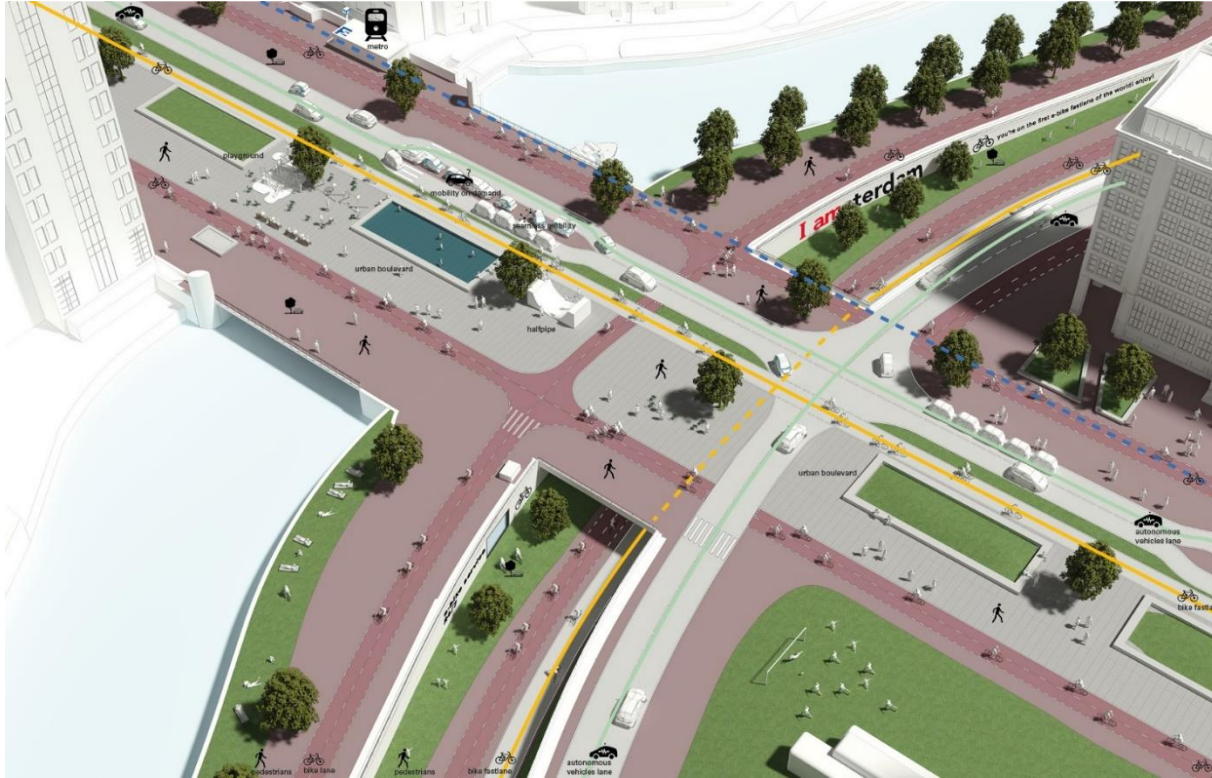
Land use	Low carbon renewal zone	
	Carbon negative growth zone	
	Strategic mobility hub	
	Strategic logistics hub	
Landscape	Farmland	
	Open countryside	
	Parks / open space	
	Allotments	
Access	Railway / train station	
	Road network	
	Rail logistics connection	
	Local logistics connections	
	Movement corridors	
	Strategic cycle route	
	Pedestrianised streets	
	Public square	
	EV public transport	
Buildings	Living lanes	
	Community work hub	
	Gigafactory	
	Make space	
	Repurposed out of town	
	Local markets	

Substitute trips	Active travel infrastructure
	Logistics infrastructure
	Land use planning
	IT infrastructure
Shift modes	Shared mobility
	Modern public transport
	Street design and access restrictions
	EV charging infrastructure

				
Cycle friendly	Pedestrian friendly			
				
e-Cargo bike	Home delivery	Ground drone		
				
Co-working	Mixed use	15-minute neighbourhood		
				
Online tasks	Home working	Broadband / 5G		
				
e-Bikes	Car clubs	Vehicle to grid technology	Mobility hubs	Carpool
				
DRT	AV EV shuttles	Public / shared modes		
				
Car-free centres	Drop-off / pick-up priority	Freight restrictions	Last mile connectivity	Segregated cycle highway
				
EV charging off-street	EV charging on-street	Fast EV charging	EV taxi	

Royal Town Plan

Mobility as a Commons (MaaC)



*The Tragedy of the Commons, Garrett Hardin in 1968, is a well-known concept in environmental studies, around a shared resource.

Give cities back to the people

Since mobility is basic need than should be treated as such, as a public good, as commons.

Prioritising active modes through urban planning

- Active modes, like walking or cycling, are always complementary to public transport. Release zero emissions and promote a healthy city lifestyle.
- Mass public transport must remain the backbone of urban mobility, complemented by shared or on-demand mobility services. Its not about banning cars rather its giving people better choice to use alternative modes of transport
- Complemented by Electric Fleet of Buses
- Renewable energy sources



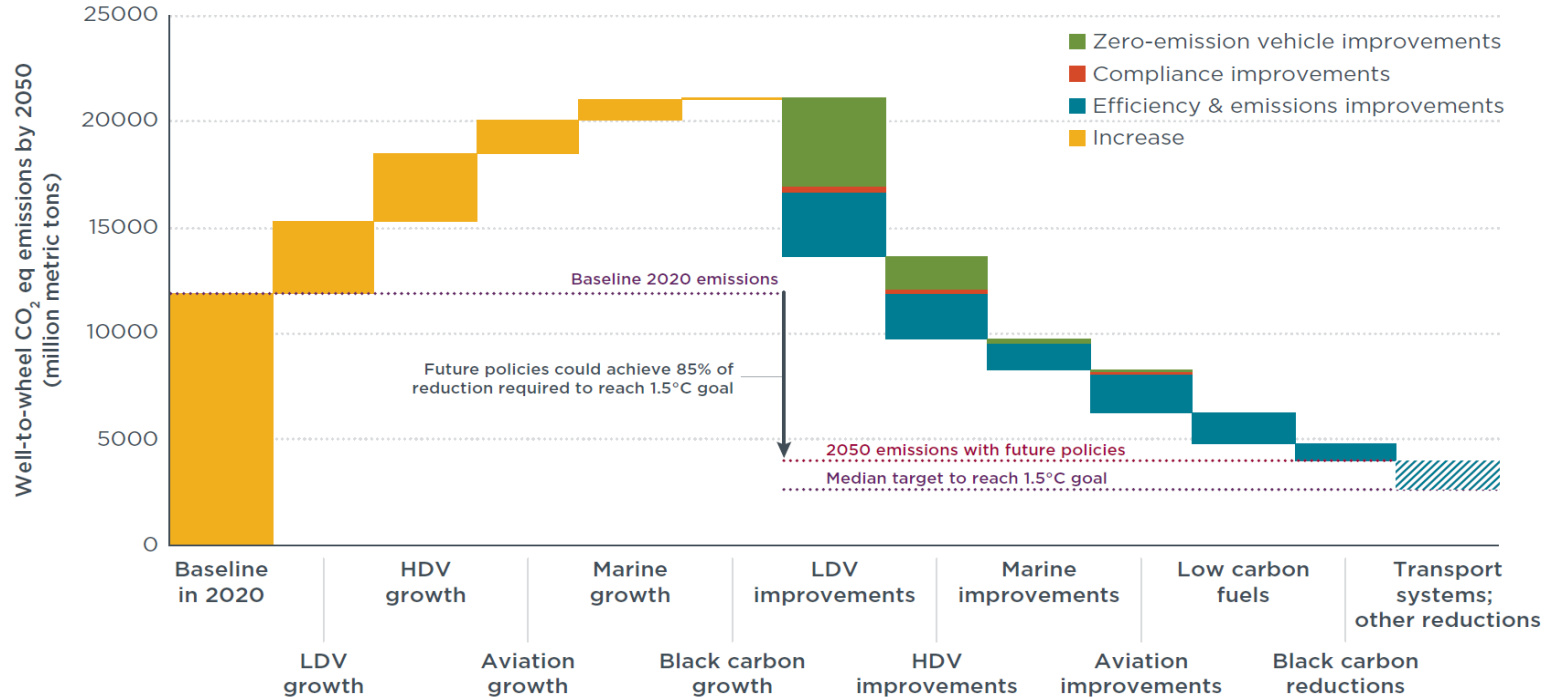
What next?

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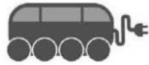











Ambitious Scenario!

SUMMARY OF THE AMBITIOUS YET FEASIBLE SCENARIO



Scenario for Shifting Kuala Lumpur to Zero Transport

Substitute Trips	Active Travel Infrastructure	 Cycle friendly  Pedestrian friendly
	Logistics	 e-Cargo bike
Shift Mode	Shared Mobility	 e-Bikes  Mobility hubs  Carpool
	Modern Public Transport	 DRT  AV EV shuttles  Public / shared modes
	Access Restrictions	 Car-free centres  Congestion charging  Freight restrictions  Ultra low emission ZONE  Last mile connectivity  Segregated cycle highway
	EV Charging Infrastructure	 EV charging on-street  EV taxi

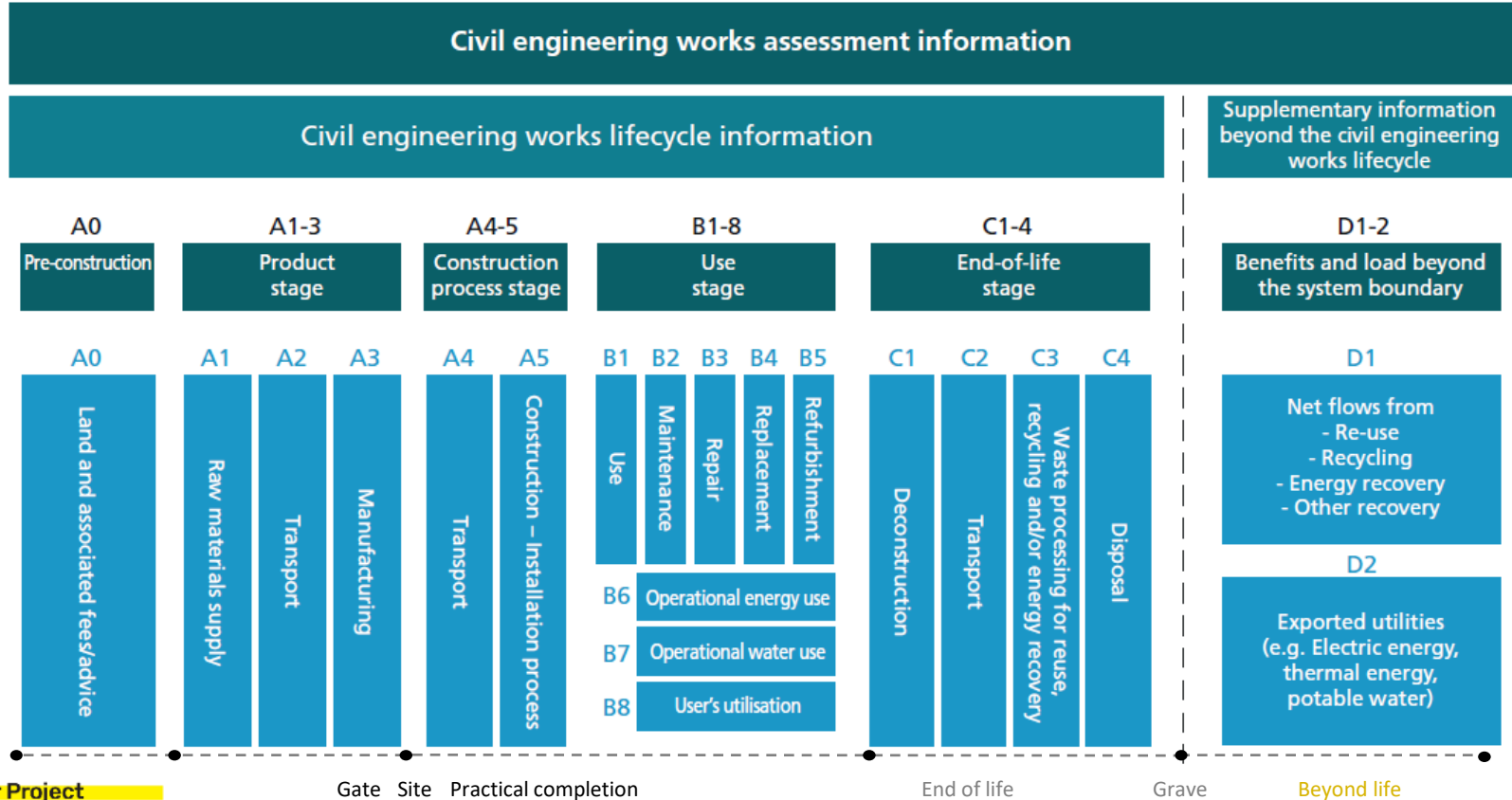
Enabling Better Infrastructure (ICE)

1. Start by identifying your strategic objectives
2. The United Nations Sustainable Development Goals (UN SDGs) provide a baseline for this task
3. Cost–benefit analysis (CBA) is vital for prioritising investments, but must embrace all of the environmental, social and governance (ESG) impacts of a proposal
4. A measure of affordability can focus minds
5. Governments should identify where private-sector involvement will deliver benefits and be clear on how they will be engaged.



Whole Life Cycle Stages of Carbon

Source: BS EN 17472:2022



Key Takeaways

1. **Get people out of cars : Change policies and investment priorities away from private vehicle users**
2. **Shift to zero emission public fleets**
3. **Mobility of the Commons**
4. **Needs Leadership**



Leading Edge Carbon Accounting Tool

 Need fast Building Embodied Carbon - **Sorted!**

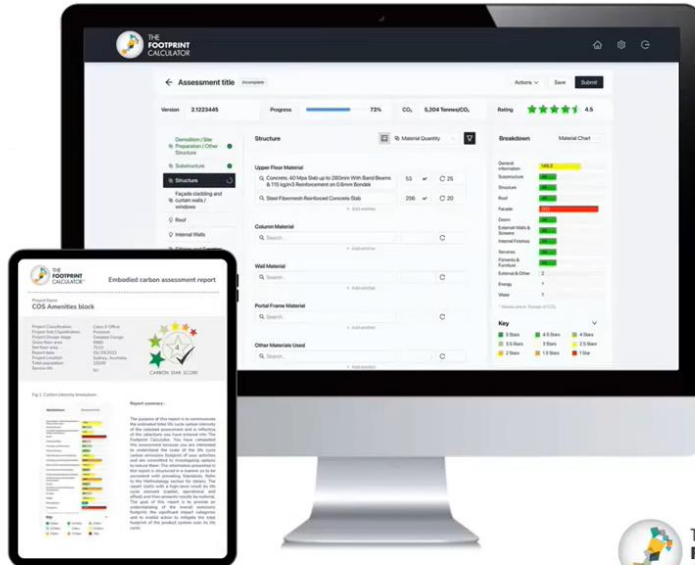
Footprint calculator (TM) - 2.0 Launch



THE
FOOTPRINT
CALCULATOR



- 90% of our users agree it is the world's most intuitive, userfriendly LCA software
- Fully aligned to ICMS/RICS & ISO14067 Standards
- Dynamic performance feedback providing instant understanding of impact by element
- Expanded design ready datasets to accelerate assessments
- Extended capability to support rapid estimates across the asset life from feasibility- as-built - operations
- API / BIM integration for accelerated early-stage design calculation & optimisation.



Assessments & benchmarks
Over **300,000,000 sqm** projects
globally



Countries
17 International project locations
leveraging our global benchmark
datasets



Carbon Mitigation
>72,000,000 tCO2-e
avoided



Acknowledgement

ICE is a leading source of professional expertise in transport, water supply and treatment, flood management, waste and energy.

Established in 1818, it has over 90,000 members globally

Please visit [Decarbonisation | Institution of Civil Engineers \(ICE\)](#) to start your journey to Net Zero

Best for Project

AUSTRALIA

SYDNEY | ADELAIDE | BRISBANE | CANBERRA | DARWIN
MELBOURNE | NEWCASTLE | PERTH | PARRAMATTA

NEW ZEALAND

AUCKLAND | CHRISTCHURCH | TAURANGA
WELLINGTON | QUEENSTOWN

MALAYSIA

KUALA LUMPUR

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