

# SLOCAT Transport, Climate and Sustainability Global Status Report

## 3<sup>rd</sup> edition



Global and regional stories of where we are and where we need to get to urgently



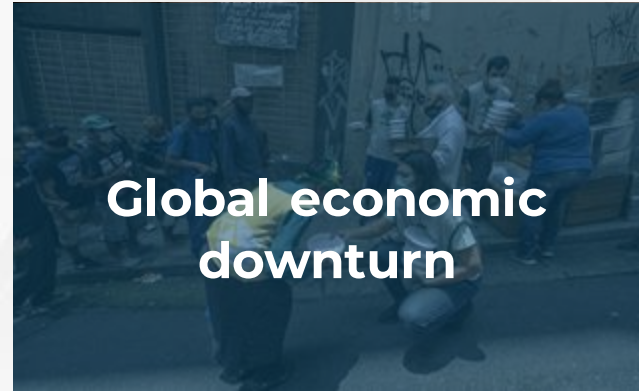
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#TransportClimateStatus



**Efforts to achieve climate and sustainability goals are derailing in a world of accelerating interconnected crises**

Beyond the often devastating human toll, these events have had a substantial impact on transport globally. They have exacerbated ongoing challenges in the transport sector, increased uncertainty, and revealed vulnerabilities, resulting in a general downgrading of the urgency of climate and sustainability concerns.

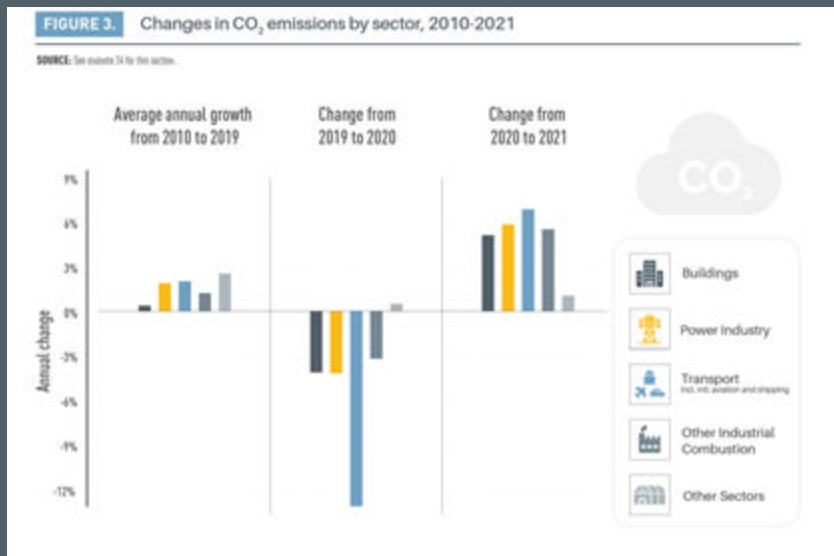




**As the laggard  
among sectors,  
transport had the  
highest increase in  
global emissions**

## Combustion sector with the fastest CO<sub>2</sub> emissions growth

- **18% growth** from 2010 to 2019.
- Accounting for **22% of global fossil CO<sub>2</sub> emissions** in 2019.
- **Biggest drop in transport CO<sub>2</sub>** in history in **2020** due to pandemic.
- **Strongest rebound among all sectors in 2021.**



## Why?

### Near-complete dependence on fossil fuels

- 96% of the energy demand in transport.

**Slow progress in the “hard-to-abate” sub-sectors** of long-distance road freight, aviation and shipping.

Increasing **energy demand** and **vehicle fleet**.

### Ever-increasing passenger vehicle sizes (SUVs)

- 20% more fuel than a medium-sized car.

**Older, more polluting vehicles** remain on the world's roads.

- Nearly 2/3 of the main countries importing second hand vehicles lack regulations.





# Asia continues to spearhead emissions growth

With its blooming population and economy, Asia continued to record the highest emissions growth among regions.

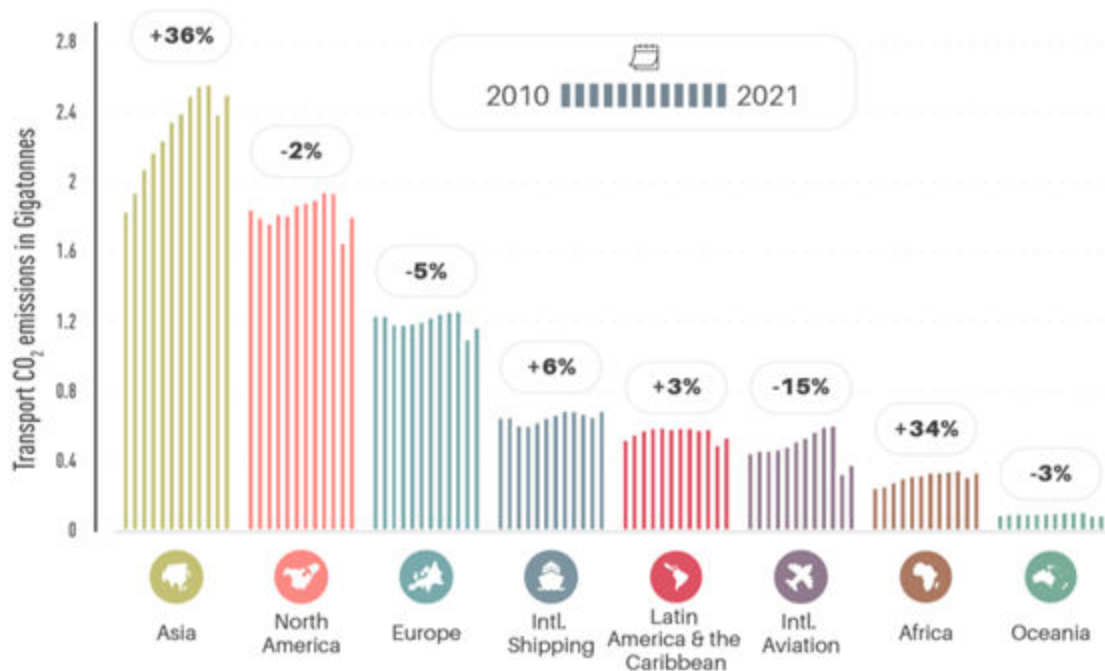
→ **36% growth** from 2010 to 2021.

Followed closely by **Africa**.

→ **34% growth** during that period.

**North America, Europe** and **Oceania** experienced emission reductions during that period.

Transport CO<sub>2</sub> emissions, by region and for international shipping and aviation, 2010-2021





# Freight plays an increasing role in transport CO<sub>2</sub> emissions

**Global demand for passenger transport grew 6% from 2018 to 2022.**

→ **Two-thirds** of passenger transport globally was in **passenger cars.**

**Global freight activity grew 7% from 2019 to 2022.**

→ **Road transport** accounted for **22% of global freight activity** in 2019.

**Road transport (passenger & freight) contributed more than three-quarters of transport CO<sub>2</sub> emissions in 2019.**

→ **Freight emissions keep growing from 40% in 2018 to 42% in 2019.**

→ **Projected** to be **22% higher in 2050** than in 2015.

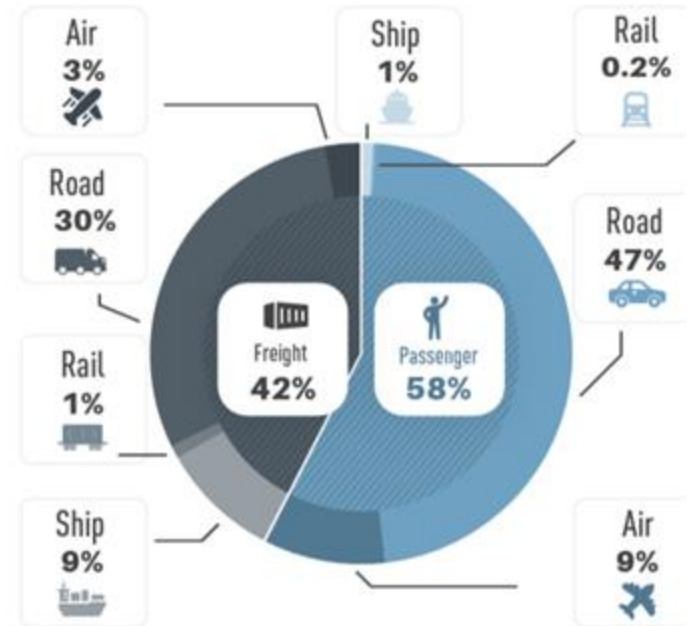
Rising demand - lack of scalable solutions - air freight - longer supply chains

**Shortening global supply chains is essential to decarbonise freight and reduce vulnerability:** Approx. 70% of international trade involved global value chains in 2021.

Supply shortages due to 2020/22 events showed the **fragility of global supply and logistics chains and their international dependencies:**

→ **Global Supply Chain Pressure Index at all-time high.**

Transport CO<sub>2</sub> emissions by activity and mode, 2019



Source: Shell (2020), The Energy Transformation Scenarios, <https://www.shell.com/energy-and-innovation/the-energy-future/scenarios/the-energy-transformation-scenarios.html> (accessed 20 August 2022)



# International aviation is still recovering from the pandemic hit, while shipping remains stable

**International aviation CO<sub>2</sub> emissions took a 45% hit in 2020, falling to pre-millennium levels.**

From **2020 to 2021, international aviation CO<sub>2</sub> emissions increased by 15%**, still remaining **37% below 2019**.

Despite the drastic pandemic impacts on global trade, **international shipping CO<sub>2</sub> emissions only fell by 2% in 2020. By 2021, they were higher than pre-pandemic levels.**

CO<sub>2</sub> emissions by international aviation and shipping in million tonnes from 2015 to 2021



The **International Civil Aviation Organization** aims to **achieve net zero carbon emissions by 2050**

→ This **remains aspirational and is insufficient** to meet the targets of the Paris Agreement.

The **International Maritime Organization** raised its ambition to target a **70% emission reduction by 2040**.

→ This places the sector **well within the carbon budget aligned with keeping global temperature rise below 2°C compared to pre-industrial levels, but is insufficient to keep global temperature rise within 1.5°C.**

Source: SLOCAT analysis based on Crippa, M. et al (2022), CO<sub>2</sub> emissions of all world countries - 2022 Report, doi:10.2760/730164, [https://edgar.jrc.ec.europa.eu/report\\_2022](https://edgar.jrc.ec.europa.eu/report_2022) (accessed 20 September 2022)





## Most of the world's population is lacking access to affordable, sustainable transport



Only **32% African urban population** and **38% in Asia** has **convenient access to public transport** compared to the 56% global average.

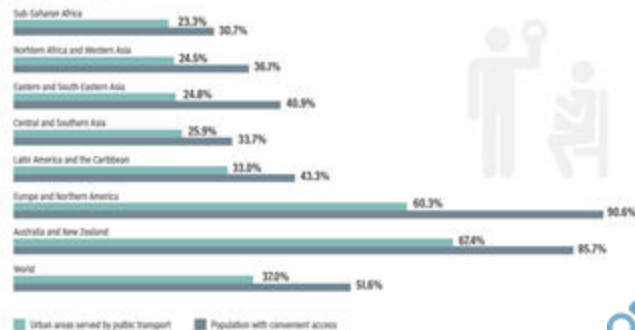
- In **Africa**, **95% of roads fail to meet an acceptable level of service.**
- In some **African cities 95% of all motorised trips are in informal transport services.**

**Traffic crashes: Leading cause of death among 5-29 year-olds worldwide; 93% of them in LMICs.**

- **No reduction in traffic deaths for a decade** despite targets.
- Investment in **public transport** can reduce crashes by attracting private vehicle users.

**FIGURE 10.** Public transport coverage and share of the population with convenient access in urban areas, by region, 2022

Source: UN Women/ITR for the authors



**Transport expenditures often make up a high share of household budgets**, placing a burden on low-income users.

- LAC reported the highest share of household spending on transport (17%) as of 2019.



**Land traffic contributes 5% of the mortality from PM<sub>2.5</sub> globally.**

- 32% in North America.



Post-pandemic horizon: **Momentum for proximity planning**, recognition of **health benefits of active mobility**, **policy responses to walking**, and **investments in cycle lanes & bike sharing.**



**Despite increasing electric mobility and global renewables uptake, the transport sector continues to depend heavily on fossil fuels**

Fossil fuels continued to account for **nearly all (96%) of energy used in transport in 2021** – a share that has **barely changed over the past decade**, due mainly to rising transport demand



**In 2021, the growth in transport energy consumption rebounded** (although it did not yet return to 2019 levels), showing that the **2020 decline was related to the pandemic and not to policy action.**



**Energy efficiency savings continued to be outweighed by rising transport emissions** due to the overall growth in transport demand and modal shift towards higher-emitting transport.

- **Better engines, hybrid powertrains and electric vehicles led to an 8.2% increase in energy efficiency of cars and vans** from 2015 to 2021.
- The **increased popularity of sport utility vehicles (SUVs) and trucks poses a huge challenge** to reducing transport energy consumption and emissions.

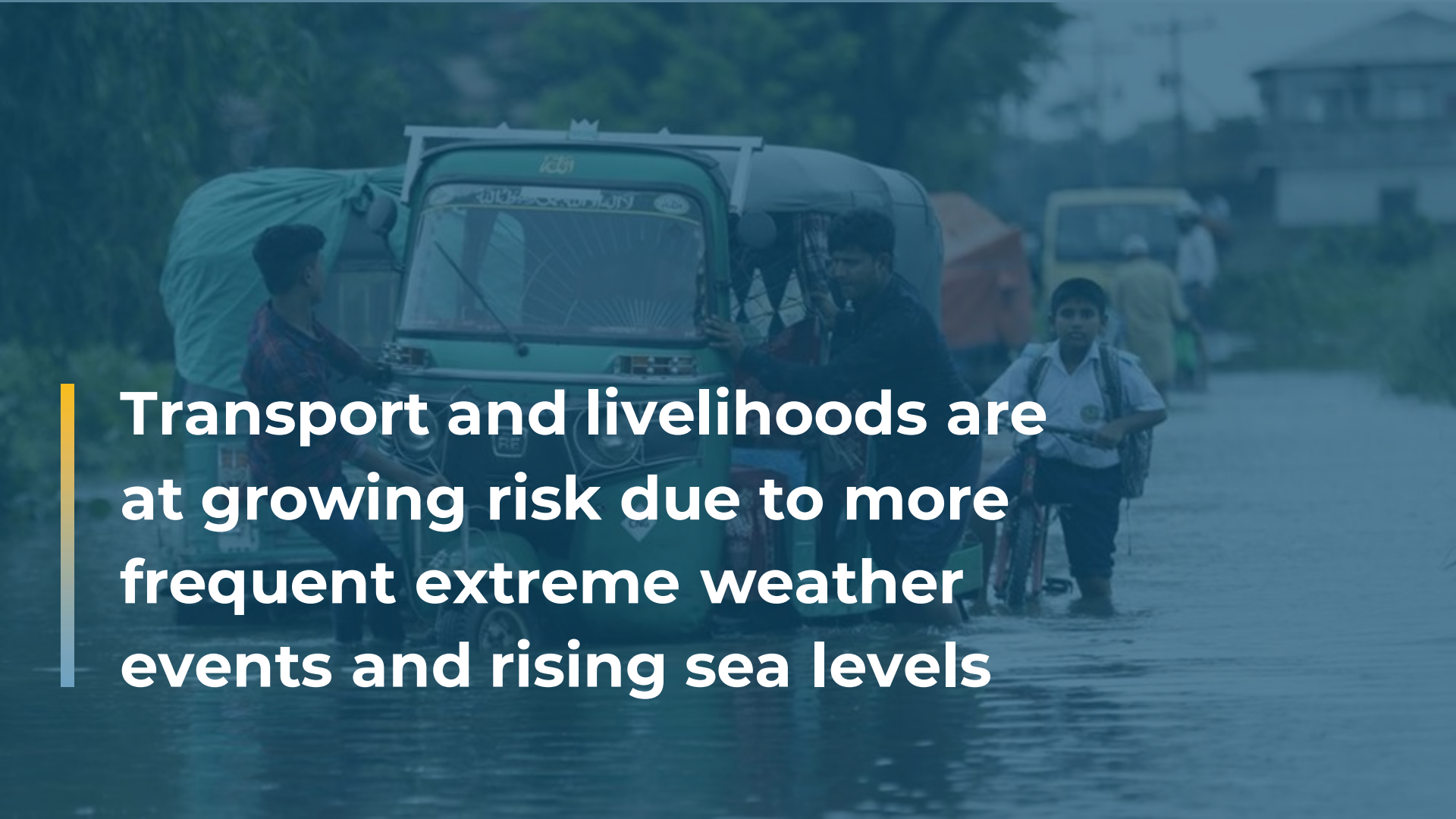


**Despite immense EVs growth, electricity demand in road transport is still low** → **EVs: around 1% of vehicles globally** in 2022 and 0.14% of total global electricity consumption in 2020. → **Renewable energy provides only around one-quarter of the power** supply for such vehicles.



**Russia's invasion of Ukraine led to fuel price spikes in transport, underscoring the need to decouple transport from fossil fuel dependency**

- Global cost inflation settled in the range between 5-10% towards the end of 2022



**Transport and livelihoods are at growing risk due to more frequent extreme weather events and rising sea levels**



**Natural hazards contribute to huge financial losses,** leading to an estimated **USD 15 billion annually in direct damage to transport systems worldwide.**

- USD 8 billion in LMICs.
- EU average 1998-2010: USD 2.7 billion annually.



**Access to transport services, in particular public and informal transport, is threatened.**

- **27% of road and rail assets** worldwide are exposed to at least one cyclone, earthquake or flooding hazard per year.



**A huge gap remains to bring adaptation finance to the necessary levels.**


- Estimated need in LMICs is 5 to 10 times greater than the current investment.

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**Monetary impacts of transport disruptions far exceed physical damages to assets:**

**USD 107 billion annual losses to businesses in LMICs**

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**Drastic action is urgently  
needed for the world  
to stand a chance of  
achieving its climate  
and sustainability goals**

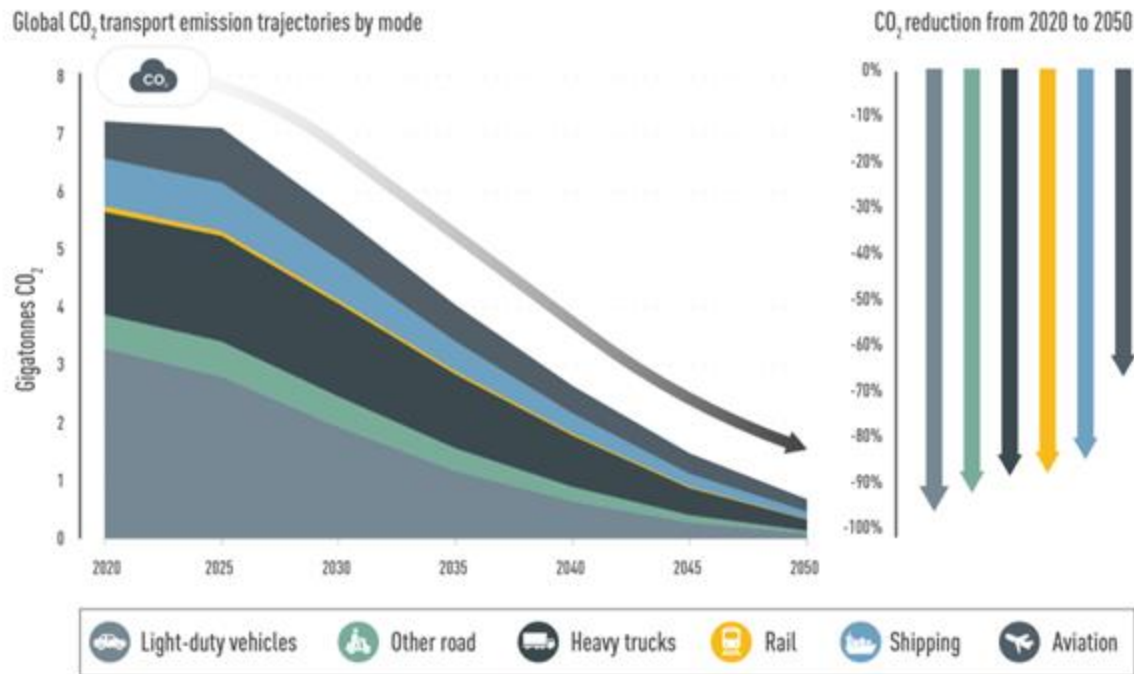


# Achieving transport pathways that limit global warming to below 1.5°C will require a 59% reduction in global transport CO<sub>2</sub> emissions by 2050

The **IEA net-zero emission scenario** will require a **90% reduction of CO<sub>2</sub> emissions from transport by 2050**, compared to 2020 levels.

Overall, the **carbon intensity of the energy used in transport, and of the fuels consumed, needs to be halved by 2050.**

Global transport CO<sub>2</sub> emission trajectories by mode required to achieve IEA net zero emissions scenario, 2020 to 2050





# At a minimum, to transform our transport and mobility systems, we know we need to:



Implement **integrated, inter-modal and multi-dimensional** approaches across passenger and freight transport



Put **walking, cycling and public transport** at the heart of passenger transport strategies, and end the unsustainable car-centric model



Increase **vehicle efficiency** and **reduce vehicle size and volume**



Expand the uptake of **electric vehicles beyond cars** and increase **charging infrastructure**



End **fossil fuel dependency** in transport and increase the uptake of **renewable energy**, with policies that support an **equitable and just transition**



**Scale up financing** for sustainable, low carbon transport solutions and redouble efforts on the **adaptation and resilience** of transport systems



**Repurpose funds currently going towards fossil fuels subsidies in transport** or other polluting activities



Fill the **capacity needs** to harness opportunities, ensuring a just transition and equitable access to transport, jobs and services



Improve **data and data literacy**



Mobilise **multi-stakeholder action and ambition**

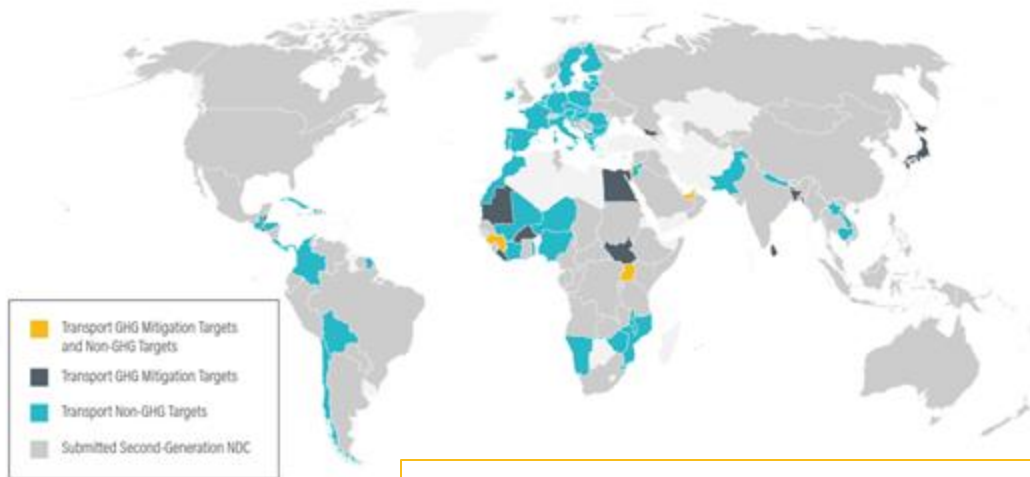
**Collective, active and electrified transport is key for a more equitable, accessible, healthy, green, sustainable and resilient transport future**



**Current policy support,  
actions, commitments  
and targets by  
stakeholders expose  
complacency**

## Without more ambitious policies towards structural and systemic transformation, transport emissions could grow as much as 50% by 2050

Transport targets, by type, in second-generation NDCs



Only 23 countries globally (16%) had included transport emissions targets in Nationally Determined Contributions (NDCs)

Few Voluntary National Reviews of the Sustainable Development Goals present long-term targets or concrete policy measures

Current NDCs will still contribute to average global temperature rise of 2.8°C by 2100

There remains a lack of **comprehensive and balanced policy action** with a **disproportionate focus on “Improve” measures**

→ Public transport-focused development and mixed land use can reduce GHG emissions 23-26% by 2050, according to IPCC’s AR6

As of 2022, **just over 3% of cities worldwide had a low-emission zone** in place or planned; only **10% had a sustainable urban mobility plan (SUMP)**

→ However, LEZs in Europe grew 40% between 2019 and 2022; are projected to grow another 58% by 2025

→ By mid-2021, several dozen cities had implemented or planned Zero Emission Zones (ZEZs), mostly in Europe, China and India

A wider **electrification agenda is needed** that goes **beyond e-cars to address 2 & 3 wheelers, public transport and freight** and that is aligned with the **energy transition towards renewables**



# Emerging climate leadership from businesses, though greater ambition and deeper commitment are needed



Approx. **100 companies** contributed **71% of global GHG emissions** from 1998 to 2015



**Emerging innovations in hard-to-decarbonise sub-sectors:**

Zero emission trucks, ships and planes; low-carbon fuels; batteries technology



**Gap remains between ambition and climate transition planning** - Lack of action and funding



Many transport companies **under-perform on social aspects of climate and sustainability**



Involvement of wide **range of businesses** needed: **Original transport manufacturers, public & freight transport service providers, companies that use transport**

## 4 A's of Climate Leadership by the *We Mean Business* Coalition



### **Ambition**

Commit to net zero and set science-based targets in line with Paris Agreement goals and a just transition

### **Action**

Take concrete action across the business value chain and involve employees, suppliers, and customers

### **Advocacy**

Speak up to secure wider change through ambitious government policy and aligned trade associations

### **Accountability**

Disclose emissions, progress against targets and plans, risk management, policy engagement, and governance



**Scaling up investment  
and financing and  
repurposing subsidies:  
The way forward**



**Tracked climate finance averaged USD 585 billion annually (2019 - 2020).**

- ▶ Less than a quarter of the estimated amount required to achieve global goals.
- ▶ Only a **small share cover transport decarbonisation** projects.

**The far-reaching economic effects of global crises have further threatened to hinder investments** for low-carbon pathways, particularly in LMICs.

**International finance and investments from development financial institutions for transport increased from USD 136 billion (2017-2018) to USD 169 billion (2019-2020), but still far short of what is needed.**

- ▶ Shipping industry decarbonisation alone would cost USD 1.9 trillion.

Achieving net zero CO<sub>2</sub> emissions in the aviation sector by 2050 would cost at least USD 5 trillion.

Keeping global temperature rise within 1.5°C by 2050 through road transport efficiency would cost USD 3 trillion.

**There is a need to reassess funding priorities and mobilising large-scale private investment towards more sustainability objectives.**

**Repurposing the funds that go into fossil fuel subsidies towards more sustainable, low-carbon transport models is a must.**

- ▶ Fossil fuel subsidies have continued to grow, rising 27% in 2021 to USD 227 billion.
- ▶ Countries' expenditures on subsidising fossil fuel consumption are six times greater than the amount pledged in commitments under the Paris Agreement, according to the World Bank.

**Increased resources for transport adaptation and resilience will be particularly crucial.**

**Adequate integrated action and investments are still missing.**

- ▶ Only 8% of the Green Climate Fund was invested in transport, with an even smaller share invested in adaptation for transport.





# The transformation of transport systems will not happen overnight, but the end result will be worth it

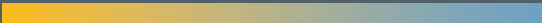
## What are we waiting for?

A **drastic shift from the status quo is necessary** to achieve a systemic transformation of transport and mobility. These changes will come with **society-wide positive impacts**

**Very few of the transport challenges being highlighted today are new**

**Much has been learned along the way**

- ▶ Marginal and incremental progress, small policy adjustments, low-ambition targets are not enough
- ▶ We have seen some stakeholders do whatever they can to deliberately withhold progress, even at the risk of harming people and the planet
- ▶ We have seen other stakeholders rise to the occasion and become the leaders, visionaries and change makers
- ▶ We have seen some cities adopting more sustainable models and prioritising access to transport and mobility services for all
- ▶ Governments can act overnight in redirecting policies and funding when they choose to, as seen during the pandemic and the ongoing energy crisis



**All stakeholders must revolutionise their level of ambition, action and accountability towards the structural transformation of transport systems**



### **Governments**

- Make climate strategies dramatically more ambitious and actionable
- Repurpose funds currently supporting fossil fuels
- Enable more sub-national action
- Ensure an equitable and just transition
- Send clearer signals and incentives to the market



### **Businesses**

- End counterproductive lobbying
- Implement credible climate transition plans
- Redirect investments from polluting endeavours, most notably fossil fuels and ever-larger vehicles



### **International finance and development institutions, including multilateral development banks**

- Scale up efforts towards sustainable transport systems, particularly in LMICs, in line with international climate and development goals



### **The global transport community and civil society**

- Conduct research, capacity building programmes, and outreach campaigns
- Increase the pressure on governments and businesses
- Countless other invaluable roles

Check out more key insights and facts at  
[www.tcc-gsr.com/key-insights](http://www.tcc-gsr.com/key-insights)



### Module 1

Transport Pathways to Reach Global Climate and Sustainability Goals



### Module 2

Regional Trends in Transport Demand and Emissions, and Policy Developments



### Module 3

Climate and Sustainability Responses in Transport Sub-Sectors and Modes



### Module 4

Transport and Energy



### Module 5

Enabling Climate and Sustainability Action in Transport: Finance, Capacity and Institutional Support

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