

**Global Stocktake Technical Dialogue 1**  
**SLOCAT Partnership on Sustainable Low Carbon Transport**  
August 2022

Note: Information is sourced from the [SLOCAT Transport and Climate Change Global Status Report - 2nd Edition](#), except where otherwise specified.

The SLOCAT Secretariat contributed to the first Technical Dialogues at SB56 in June 2022. SLOCAT delivered transport-focused technical interventions on finance flows, technology, and capacity building needs in Roundtable 3 of the Technical Dialogues, as summarised below.

**(A) Finance Flows for the transport sector**

**Q1:** *What is the collective progress in terms of the current implementation of, and ambition in, making **finance flows** consistent with a pathway towards low greenhouse gas emissions and climate-resilient development towards to achieving the goal defined in Article 2.1 (c) of the Paris Agreement?*

**Mitigation Financing Needs**

- **Trends**
  - Transport accounted for 14% of total global greenhouse gas emissions in 2018, which increased for all major transport modes and sub-sectors, except railways.
  - Larger passenger vehicles (SUVs, including pickup trucks) – were the biggest driver of passenger transport emissions between 2010 and 2018.
  - Freight transport contributed 42% of total transport CO<sub>2</sub> emissions as well as disproportionately high levels of local air pollutants.
  - International aviation and shipping emissions both recorded double-digit growth between 2010 and 2019.
  
- **Gaps**
  - Vehicle electrification and transport renewable energy targets for 2020 set in early 2010 have largely not been met.
  - Transport is the only sector where emission levels rose in Annex I countries between 1990 and 2020, increasing 19%.
  - Transport mitigation ambition is lacking in NDCs. From Nov 2018 to May 2021, 54 second-generation NDCs were submitted (from 53 countries and the EU-27).
  - 72% of these include specific measures for mitigating transport emissions, but only 15% include a specific target for reducing transport emissions, showing insufficient progress towards meeting Paris Agreement goals.
  
- **Opportunities**
  - To keep the rise in global temperature below 2 degrees Celsius (°C), annual transport emissions must be reduced to 6.5 gigatonnes of CO<sub>2</sub> or less by 2050; and to keep the rise below 1.5 °C, emissions must be reduced to less than 3

gigatonnes of CO<sub>2</sub>. This would mean slashing per capita transport CO<sub>2</sub> emissions from 0.88 tonnes in 2019 to 0.2 tonnes in 2050.

- To achieve the 1.5 °C scenario with ambitious low carbon transport measures, emissions must start to decline now. To achieve a 2 °C scenario, the mitigation can be delayed until 2030, but emissions must plateau at around 2020 levels.
- Therefore COP26 transport commitments must be paired with sufficient funding (e.g. through sources to complement the [Glasgow Financial Alliance for Net Zero](#)) to enable emission reductions consistent with Paris Agreement targets.

### ***Transport Adaptation Financing Needs***

#### **● Trends**

- Transport systems, assets and modes worldwide are increasingly vulnerable to shocks and stresses including climate change.
- Heatwaves are damaging infrastructure such as rail tracks, overhead wires, and pavement surfaces, disrupting transport.
- Droughts are reducing water levels for inland navigation, and long dry spells can affect the integrity of infrastructure.
- High winds, extreme waves and storm surges are impacting coastal infrastructure (including ports and airports), and extreme rainfall is flooding river based transport corridors with increased frequency.

#### **● Gaps**

- Among the 22 NAPs submitted from October 2015 through March 2021 (with 14 submitted since 2018), more than 50% refer to specific transport adaptation measures. While this reflects an increase in adaptation considerations in transport, significant gaps remain.
- 51 NAPAs were submitted from November 2004 to February 2017, followed by no submissions through May 2021. This lack of substantive progress is likely linked to the absence of a clear reporting process on implementation status.
- There is a critical need for more data on adaptation needs for transport, which is less widespread and comprehensive than data on transport emission trends.

#### **● Opportunities**

- Adequate adaptation finance is critical for transport systems, due to increasing vulnerability to climate impacts worldwide.
- Increasing attention to adaptation will require leveraging the power of reverse linkages (i.e., South-North exchanges), as many successful adaptation solutions are emerging under the most vulnerable conditions (e.g., more resilient pavements, distributed solar energy to avoid grid outages).
- Financing organisations and the insurance industry are key players in encouraging and delivering effective adaptation. Improved information on

physical risks will be needed, as the cost and availability of insurance will increasingly reflect the adequacy of investment in resilience.

- Climate risk and adaptation costs should be embedded in finance decisions for all new development. Climate risk disclosure is an important tool but is often inadequate.

### **(3) Financing flows to meet mitigation and adaptation needs**

- **Trends**

- Nearly two-thirds of the investment in transport infrastructure in 2015 (USD 666 billion, or 66%) went to road transport, followed by rail (USD 231 billion; 23%) and airports and ports (around USD 55 billion, or 5%, each).
- In 2019, an estimated USD 250 billion was invested in energy efficiency for buildings, industry and transport, but the transport sector received only 26% of this (USD 65 billion). Overall investment in transport has fallen dramatically since 2014.
- Transport represents 20% of green bond proceeds, making it the third largest sector after energy (32%) and buildings (30%). Green bonds for transport reached USD 52 billion in 2019, up 71% from 2018.

- **Gaps**

- There remains an estimated annual financing gap of around USD 440 billion for transport infrastructure to meet the United Nations (UN) Sustainable Development Goals by 2030.
- Regional investment gaps for transport infrastructure by 2040 are significant, estimated at USD 0.8 trillion for Africa, USD 1.6 trillion for Asia and USD 6.0 trillion for the Americas.
- Globally, investments of USD 2.7 trillion per year from 2016 to 2030 (or USD 40.5 trillion in total) will be needed to achieve low carbon transport pathways, with 60-70% of these investments in emerging economies.
- G20 countries have committed more than half of total tracked stimulus spending to transport projects (USD 276 of USD 506 billion as of December 2020), but only one-third of this transport spending (USD 103 billion) targets green transport improvements, which are outweighed by fossil fuel focused investments.
- Global energy subsidies reached an estimated USD 5.2 trillion (6.5% of GDP) in 2017. Despite repeated pledges to end subsidies, support for fossil fuels among G20 governments has declined only 9% since 2014-2016, totalling USD 584 billion annually during 2017-2020.
- Health benefits of meeting Paris Agreement targets are estimated at double the costs of meeting these targets (Markandya et al, Lancet Planetary Health 2018). Thus, phasing out fossil subsidies can fill the low-carbon transport financing gap.

- **Opportunities**

- Disseminating proven low carbon transport solutions that pay off quickly on social, economic and environmental dimensions (e.g., limiting passenger and freight vehicle imports to reduce operating costs and improve air quality) will require expanding capacity building and education programmes.
- Leveraging COVID-19 recovery packages towards green and equitable transport financing will require building on successful trends during the pandemic (e.g., tactical urbanism measures) and ensuring that positive changes become permanent (e.g., less congestion, improved urban air quality).
- Expanding opportunities for sustainable, low carbon transport will require adopting measures that support the Sustainable Development Goals, such as decent work and economic prosperity, and affordable and clean energy (e.g., electric freight vehicles powered by small-scale renewables).
- Filling funding gaps will require shifting resources from less efficient to more efficient transport measures that balance incentives and disincentives and drive substantive behaviour change (e.g., expanded road and parking pricing, pay-as-you drive insurance, incentives for car-free living).
- Expanding lending criteria compatible with Paris Agreement targets will require broader commitments from international financial institutions to incorporate fossil-free financing as a core business practice (e.g., European Investment Bank alignment of transport lending criteria with 1.5 °C targets).
- Investments required to reduce urban emissions through low carbon urban mobility are projected to total USD 1.83 trillion (around 2% of global gross domestic product, GDP) annually, which would result in savings of USD 2.80 trillion in 2030 and USD 6.98 trillion in 2050.
- On a global basis, investments in walking and cycling infrastructure and in electric vehicle charging infrastructure hold the highest potential to multiply employment opportunities.

## **(B) Technology development and transfer for the transport sector**

*Q2: What is the collective progress in terms of the state of current implementation of, and ambition in, **technology development and transfer** towards achieving the vision defined in Article 10.1 of the Paris Agreement? What is the state of cooperative action on technology development and transfer?*

- **Trends**

- Battery prices dropped 89% between 2010 and 2020, from USD 1,183 to 135 per kWh making EVs more affordable for many users, especially in the Global South.
- More affordable batteries are facilitating the rapid scale-up of electric bicycles in Europe, North America and South Asia, and of electric bus fleets in leading countries with substantial e-bus fleets such as China, Chile and Colombia.

- Lithium-ion batteries have become much more efficient and lack the price volatility of oil. The energy density of lithium-ion battery cells nearly tripled between 2010 and 2020, helping to extend the range of electric vehicles.
- **Gaps**
  - To help countries meet their government targets, the share of electric cars in vehicle sales needs to be around 66%. A comparison of national electric vehicle sales targets with manufacturers' plans for producing the vehicles suggests that a significant gap will remain between supply and demand through 2050.
  - Several national and regional entities have announced intentions to phase out sales of cars and trucks with internal combustion engines. However, this ambition cannot be supported by current levels of electric vehicle production.
  - Cost comparisons between electric and fossil-fuelled vehicles fail to reflect the ongoing presence of fossil fuel subsidies. Despite progress with subsidy reform in the early 2010s, worldwide subsidies for fossil fuels still totalled USD 500 billion in 2019.
  - Many governments provide financial and non-financial incentives to support the initial uptake of electric vehicles, but these incentives are often designed to be phased out once a certain market share has been reached.
  - Electric mobility has limited potential in aviation, shipping and heavy-duty trucking, and it will only fully decarbonise transport if it is powered with renewable energy.
  - Lithium prices have recently soared due to electric mobility demand, increasing more than 11-fold in two years from \$6,000 per ton in March 2020 to more than \$70,000 per ton in March 2022. Latin America holds 60% of all identified lithium resources around the world, located mainly in Argentina, Bolivia and Chile.
- **Opportunities**
  - Electric mobility requires differentiated strategies by region and a greater focus on shared fleets (including electric buses, mini-buses, 2- and 3-wheelers, urban freight) to extend limited natural resources and avoid clean congestion.
    - As of 2019, India had in service 800 electric buses; 11,000 electric cars; 600,000 electric 2-wheelers; and 1,500,000 electric 3-wheelers.
  - Electric mobility requires additional financial support in the Global South to make a proportional sectoral contribution to Paris Agreement targets.
    - The GEF Global Electric Mobility Program, launched in 2019 with a focus on 17 countries, brings together UNEP, the IEA, the EBRD and the ADB, with financing from the GEF. The initiative now is expanding to support an additional 10 low- and middle-income countries in developing national electric mobility roadmaps and targets, policy frameworks, business models, and financing schemes to transition to electric vehicles.

- Technological interventions have helped to integrate paratransit with more formal networks. The use of geolocation data (via mobile phones) provides more information on routes and stops, making it possible to match passenger demand and supply and to improve efficiency of informal and formal transport services.
  - The Digital Matatus project mapped informal bus services across Nairobi, Kenya, improving both accessibility for users and planning opportunities for city officials.
- Additional efforts are needed to move beyond mapping and towards improved paratransit planning in cities, so these services can complement large-scale transport reform through bus rapid transit and other corridor-based systems.

### **(C) Capacity building for the transport sector**

Q3: What is the collective progress in terms of the state of current implementation of, and ambition in, **enhancing the capacity of developing country Parties** to implement the Paris Agreement? How effective has been the implementation of capacity-building efforts?

*Note: Below examples are sourced from DFID/SLOCAT report “Capacity Building Needs Assessment to promote low carbon development in high volume transport ... in Africa and South Asia”), which investigating capacity-building needs for sustainable low-carbon transport in **Bangladesh, Ghana, India, Indonesia, Kenya, Nigeria, Rwanda, South Africa, and Uganda**.*

- **Trends**

- Low carbon transport in low-income countries is usually seen as a desirable co-benefit but not as a primary driver of transport interventions, even for transport policies which ultimately achieve low carbon outcomes.
- Transport interventions are mostly driven by development priorities, such as the need to reduce congestion, improve air quality, increase accessibility for a growing urban population, increase energy security, and streamline logistics to support an expanding industrial and economic activity.
- Current targets and activities on transport by the selected project countries are still incompatible with the 1.5-degree Celsius target of the Paris Agreement. While various countries lack a specific target for mitigation of transport emissions, most of the countries with existing 2030 emission targets will need to increase their level of mitigation ambition to meet these targets.

- **Gaps**

- The majority of the capacity building needs identified by the respondents are process related, concerning *how* to implement LC- HVT rather than *what* to implement. Some of these needs are technical.
  - How to strengthen political leadership and create clear policy direction
  - How to implement private-public partnerships (PPP) for LCT

- How to structure and develop a taxation or incentive regimes
    - How to regulate and promote bike/e-bike/ e-scooter sharing schemes
    - How to demonstrate cost savings to the business community
    - How to perform a cost-benefit or multi-criteria analysis over the life of low carbon vehicles.
  - Many practitioners lack the tacit knowledge and experience that involvement in such projects would generate. Due to this, most of the themes identified as critical are to compensate for this lack of hands-on experience.
  - The ability to prepare bankable proposals for low carbon projects (i.e. to make the project attractive to financing options) was a gap highlighted by local government and funding agencies,
- **Opportunities**
    - Institutional reform is needed to 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).
    - Suitable channels for knowledge perceived as most effective stress the perceived need for practical tacit knowledge (e.g. through workshops for specific organisations, mentorship and exchange programmes, study tours, local and regional conferences and internships).
    - Developing persuasive, evidence-based arguments that it will pay to leapfrog carbon-intensive transport systems and move directly to LC-HVT is key to overcoming political and social barriers.
    - Air quality and its health impacts was considered an issue in larger cities where pollution is visible. Local-level authorities believe that the promotion of cleaner, lower carbon transport – if framed as a pollution reduction strategy – could be gain support among voters and end-users. Thus