Inputs to the Mitigation Work Programme - Transport

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SLOCAT is the international, multi-stakeholder partnership powering systemic transformations and a just transition towards equitable, healthy, green and resilient transport and mobility systems for the people and the planet. We deliver on our mission through co-creation, co-leadership and co-delivery across knowledge, advocacy and dialogue activities in the intersection between transport, climate change and sustainability. Our multi-sectoral Partnership engages a vibrant and inclusive ecosystem across transport associations, NGOs, academia, governments, multilateral organisations, philanthropy and business; and a large community of world-class experts and change-makers. Going where others do not or cannot go individually, our Partnership is leveraged to set ambitious global agendas and catalyse progressive thinking and solutions for the urgent transformation of transport and mobility systems worldwide. SLOCAT facilitates engagement of transport stakeholders in the Marrakech Partnership for Global Climate Action in its role as co-Focal Point (with the International Transport Forum) for the Transport sector.

SLOCAT welcomes the opportunity to submit its views as an observer to the UNFCCC, on the **Mitigation Work Programme (MWP)**. This document describes critical **challenges and opportunities in the transport sector**, through the lens of **just energy transition** (the focus of the first MWP global dialogue), as structured around the three modalities below.

(A) Implementing policies and measures with global overview and country-specific experience

Topic: Transport sector mitigation potential pathways

- ***Challenges/barriers*:** Compared to 2010, transport-related emissions could increase 65% by 2050 without mitigation measures and could decrease 68% if mitigation strategies are deployed, which is in line with the 1.5℃ temperature rise target.[1] Many global studies assert that it is difficult for the transport sector to decarbonise and to contribute its proportional share to the ambitious climate targets set by the Paris Agreement.
- ***Actionable solutions:*** SLOCAT establishes that deep decarbonisation for transport is feasible, through research anchored in a global meta-analysis of long-term transport emission pathways from over 500 bottom-up modelling estimates from 81 countries, rather than relying on aggregated regional data and modelling efforts.[2] Low-carbon transport measures thus lead to a more positive trend than previously projected. Whereas in 2017 the emission gap was estimated

[1] Interpretation of IPCC AR6 report: transportation carbon emissions reduction pathways strengthening technology and management innovation

[2] Decarbonising transport to achieve Paris Agreement targets

to reach 16 gigatonnes of CO_2 by 2050, new estimates (based on studies up to 2019) show a gap of around 12 gigatonnes.[3]

Topic: Just Energy Transition Partnerships

- ***Challenges/barriers:*** In moving away from coal production and consumption, it is critical to address social consequences by ensuring training and alternative job creation for affected workers and new economic opportunities for affected communities.[4] Emerging economies require concrete incentives to accelerate the shift to clean energy sources.
- ***Actionable solutions:*** A USD 20 billion JETP for **Indonesia** was launched at the G20 summit in November 2022, which focuses on scaling up electrification, renewables, and energy efficiency.[5] This was coupled with a USD 700 million agreement to support the development of climate-conscious transport infrastructure in five Indonesian provinces.[6]

Topic: Emission reduction strategies for aviation and maritime transport

- ***Challenges/barriers:*** Alternative fuels for aviation and maritime transport - as "hard-to-abate sectors" - require deployment targets, regulatory changes, research programs and demonstration trials. he IPCC AR6 separates the shipping and aviation sectors for the first time to discuss the GHG emissions trends and decarbonisation opportunities and challenges for each.[7]
- ***Actionable solutions:*** The **Maritime Just Transition Task Force** was established during the 2021 UN climate change conference (COP 26) to enable further progress towards a safe, equitable and human-centred transition towards a decarbonised shipping industry. This process spawned the launch of the **Just Transition Work Programme** at COP 27, which is expected to take further shape during 2023.

(B) Addressing financial, technological and capacity-building needs, through international cooperation, including with non-Party stakeholders, and provision of support to developing countries

Topic: Capacity building on EV battery circularity measures

- ***Challenges/barriers:*** Countries have different levels of development among phases of EV battery circularity (e.g. Mining + raw material processing; battery cell component and pack production; EV production/assembly, recycling and reuse. A lack of coordination leads to economic inefficiencies and fails to leverage regional economies of scale.
- ***Actionable solutions:*** NDC-TIA and LG-CTA are delivering a four-part technical training series for the Leadership Group for Clean Transport in Asia titled Circularity of Electric Vehicle Batteries: from Materials and Manufacturing to Recycling, including participation from **Bangladesh, Bhutan, India, Indonesia, Laos, Philippines**, **Sri Lanka and Vietnam**.

[3] SLOCAT Transport and Climate Change Global Status Report, 2nd Edition
[4] Just Energy Transition Partnerships: An opportunity to leapfrog from coal to clean energy
[5] Indonesia's Just Energy Transition Partnership a key step forward for international cooperation on energy and climate
[6] Strengthening the U.S.-Indonesia Strategic Partnership
[7] Interpretation of IPCC AR6 report: transportation carbon emissions reduction pathways strengthening technology and management innovation

Topic: Training of seafarers for shipping decarbonisation

- ***Challenges/barriers:*** Seafarers will need training to access job opportunities through the decarbonisation of the shipping sector. A recent study estimates that 800,000 seafarers will require new skills by the mid-2030s to handle emerging fuels, technologies and vessels, requiring timely action by governments and maritime authorities.[8]
- ***Actionable solutions:*** **Indonesia** is making efforts to retrain its maritime workforce (with support from the International Labour Organization) to meet emerging needs in the sector through the Skills for Prosperity Programme in Indonesia.[9] Similarly, the **South African** International Maritime Institute (SAIMI) is running the National Seafarer Development Programme, an African regional effort to empower crews of the future and create good jobs for workers. SAIMI is also due to launch a South African cadet training programme in 2023.[10]

Topic: Avoid, Shift, Improve Strategies in in the transport sector

- ***Challenges/barriers:*** Scenario literature suggests that global warming targets require economy-wide emission reduction measures, and the mitigation potential of transport electrification in particular depends heavily on the ***decarbonisation of the power sector***. In addition to the transition of technologies ("Improve" measures), behavioural changes ("Avoid" and "Shift" measures) are needed to support transport decarbonisation, as emission reductions will not be achieved without critical transitions in transport modes.
- ***Actionable solutions:*** A 2021 study found that while "Improve" measures can contribute half of the required emission reductions in transport, "Avoid" and "Shift" actions are needed to meet the other half. For example, the COP 27 Presidency initiative, **Low Carbon Transport for Urban Sustainability (LOTUS)**[11] provides capacity building for national and local governments on enhancing walking, cycling and public transport, thus providing a critical component of mitigation implementation in the transport sector.

(C) Promoting sustainable development and understanding socioeconomic effects

Topic: Lithium mining to support transport electrification

- ***Challenges/barriers:*** Increased lithium mining to manufacture electric vehicle batteries has severe consequences for drought intensity, biodiversity of ecosystems, and sovereignty of indigenous lands.[12] Lithium extraction in **Argentina**, **Bolivia**, and **Chile** has significantly increased water demand, which has created extreme shortages in regional water sources and has thus had substantial negative impacts on farmers raising crops and livestock in these countries.[13]

[8] Asian seafarer hubs step up to meet decarbonization challenge
[9] Asian seafarer hubs step up to meet decarbonization challenge
[10] African leaders urged to harness seafarer green skills momentum
[11] Low Carbon Transport for Urban Sustainability (LOTUS)
[12] Achieving Zero Emissions with More Mobility and Less Mining
[13] The Lithium Triangle: Where Chile, Argentina, and Bolivia Meet

- ***Actionable solutions:*** Projected lithium demand can be reduced by up to 92% in 2050 (compared to lithium-intensive scenarios) through three key policy interventions: decreasing car dependency, right-sizing EV batteries, and creating more robust battery recycling systems.[14]

Topic: Grid capacity for Electric Vehicles

- ***Challenges/barriers:*** Overproduction of power from solar arrays during the daytime can squander valuable electricity-generation capacity in the absence of solutions to store and distribute to electric vehicles. Further, some projections show that meeting demand for electric vehicle charging could require construction of new power plants to meet peak evening loads.[15]
- ***Actionable solutions:*** Vehicle-to-grid (V2G) systems are used to link electric power and transport systems to increase sustainability and increase energy security. While the majority of V2G studies focus on technical aspects (e.g. renewable energy storage, load balancing to minimise costs), few focus on implications for natural resource use, social justice, gender, and urban resilience considerations, which could highlight additional benefits of a rapid V2G transition.[16]

Topic: Employment impacts due to fossil-fuel phaseout

- ***Challenges/barriers:*** Central to the political discussions is also the necessity of a just transition away from fossil fuels, especially in countries like India which employs a large mining workforce. In 2019, Coal India, the main federal government-owned company that mines more than 80% of total coal in the country employed 270,000 people.[17]
- ***Actionable solutions****:* An eventual coal phase-out requires expanding effective just transition strategies, as demonstrated in several countries. **South Africa**'s government has given just transition an important place in its national policy since 2017, recognising the social implications of moving towards clean energy. [18]

Note: *SLOCAT submitted inputs on key topics to the MWP in February 2023. This document incorporates SLOCAT's efforts to advance transport measures critical to mitigation ambition and just transition. More information on the full spectrum of transport emissions and policy solutions is available in the SLOCAT Transport and Climate Change Global Status Report, 2nd Edition*

[14] Achieving Zero Emissions with More Mobility and Less Mining
[15] Minimizing electric vehicles' impact on the grid
[16] The neglected social dimensions to a vehicle-to-grid (V2G) transition: a critical and systematic review
[17] How a just transition can make India's coal history
[18] How a just transition can make India's coal history