Transport Decarbonisation Index (TDI) Benchmarking Report Brief

Introduction

A systemic transformation in transport and mobility is urgently needed, particularly in low- and middle-income countries (LMICs) across Sub-Saharan Africa and South Asia, which are marked by rapidly growing populations, spiralling urbanisation, rising private motorisation and an underperforming transport sector. The growth in greenhouse gas emissions stemming from the surface transport of LMICs in these regions is expected to outpace the global average in the coming decades, underscoring the need for urgent action to keep global warming within the 1.5 degrees Celsius target of the Paris Agreement on climate change.

Adding to the challenge, transport decarbonisation efforts would have to be pursued in parallel with initiatives to enhance transport access and connectivity, which are central to advancing socio-economic development in these regions. However, many LMICs lack the capacity, data and policy frameworks necessary to implement sustainable transport solutions and to attract international climate finance.

Against this backdrop, the **Transport Decarbonisation Index (TDI), through its diagnostic toolkit, aims to support policy makers in LMICs in their efforts to reduce emissions from surface transport while advancing broader sustainable development objectives**. By delivering a data-driven overview of where countries stand in their journey towards net zero greenhouse gas emissions and complementing it with tailored, yet non-prescriptive policy advice, the TDI seeks to enable evidence-based, time-sensitive and targeted decisions on surface transport decarbonisation. More than a diagnostic tool, the TDI seeks to act as a **catalyst for knowledge sharing, partnership building, and collaborative learning**, supporting LMICs in aligning national policies with global climate and sustainability agendas.

The application and benchmarking of the TDI has been carried out across 12 pilot countries: **Ethiopia**, **Ghana**, **Kenya**, **Nigeria**, **Rwanda**, **South Africa**, and **Zimbabwe** in Africa, as well as **Bangladesh**, **India**, **Nepal**, **Pakistan** and **Sri Lanka** in South Asia. The piloting process has been an instrumental part of the TDI project because it: 1) helped to finetune and finalise the TDI methodology, 2) shed light on the realities of transport data in LMICs across the two regions, and 3) underscored the challenges of developing a set of indicators that capture the complexity of transport systems. **This brief on the TDI Benchmarking Report provides an overview of the main results and lessons learned from the index's piloting.**

The TDI: a catalyst for knowledge sharing, partnership building and collaborative learning

The TDI covers a range of surface transport modes – including road, rail and inland waterways – across both passenger and freight transport. The project provides a diagnostic toolkit that enables policy makers in LMICs to evaluate the current state of their transport sectors, identify their respective strengths and gaps, and undertake high-impact policy actions towards a decarbonisation pathway.

The TDI enables users to self-assess a country's transport system through the spreadsheet toolkit, which is provided in the form of an Excel file to enable broad accessibility for practitioners and policy makers in LMICs. The toolkit and its dedicated user guide can be downloaded from the HVT website and used as a local file without an internet connection. Upon inputting transport data on a specific sheet, users are provided with a score for the dimensions. The results are accompanied by explanations about the scores' meanings and corresponding policy guidance specifically for the two lowest-scoring dimensions.

The provision of illustrative and non-prescriptive advice is aimed at supporting evidence-based and informed policy making. These policy actions are to be considered within the context of each country, factoring in characteristics linked to levels of development, the availability of natural resources, the presence of manufacturing capacity and the existence of specific geographical characteristics, among others. To be impactful, policies require an enabling financial, political and institutional environment.

The TDI is not to be used in isolation but should be considered in parallel with a range of policy and financing instruments to effectively steer the sector towards a low carbon pathway. Learn more about how countries can boost their ambition for transport mitigation, adaptation and resilience in their Nationally Determined Contributions 3.0 and how to facilitate access to climate finance for transport in LMICs.

Importantly, the TDI is designed not as a tool for casting blame or shaming countries with lower scores but as a platform for mutual learning, collaboration and inspiration. By approaching a low score as an indicator of significant untapped decarbonisation potential, policy makers can make informed decisions regarding the policy and financing efforts needing prioritisation.

Countries can leverage the index to:

- address knowledge and capacity gaps
- build investor trust through transparency
- strengthen partnerships with financial and development institutions
- mobilise financial and technical support
- devise impactful policies for sustainable, low carbon transport
- fast-track progress towards net zero emissions by 2050 by benchmarking against global pathways aligning to sustainability and decarbonisation goals and
- improve public awareness and engagement.

These activities can help foster alignment with global agendas, including the Paris Agreement and the 2030 Agenda for Sustainable Development. To realise the TDI's full potential, dissemination of the index's scoring results would have to be tailored to the needs, knowledge and data literacy of its target audience. The engagement from the outset of all relevant stakeholders – including policy makers, practitioners and others – is key to ensuring relevance and to increasing the sense of ownership among end users.

Results from the TDI's benchmarking

The piloting process across 12 countries has demonstrated the importance of tailored transport assessments, underscoring both the potential and challenges in aligning national transport strategies

with global decarbonisation and sustainability agendas. Although serving as a comparison tool is not the TDI's primary objective, assessing multiple countries has offered a valuable opportunity to showcase the index's application. The results reveal wide variability across dimensions such as public transport investment, freight efficiency, emissions and clean energy, among others. Yet, key observations can be drawn.

With spending between USD 17 and USD 180 per person in 2022, the piloted countries provide fewer per capita subsidies for fossil fuels (petrol and diesel) compared to global averages, thereby resulting in higher TDI scores under the dimension of "finance and economics". Lower scores, on the other hand, were observed in the piloted countries for the availability of low-cost finance, which refers to climate-related official development assistance. Although these data are not strictly limited to the transport sector, they offer a useful indication of potential financial support available for transport initiatives.

Within the dimension of "passenger transport and mobility system", data for the indicator of walkability, which relates to urban design and the proximity of residents to desired services and destinations, positioned **Nepal** as the highest-scoring country with 77% of walkable trips, whereas in **Nigeria** only 6% of trips are regarded as being walkable.

Sri Lanka emerged as a national best practice in terms of public transport investment relative to other pilot countries, whereas **India** stood out with higher scores on the indicator of "policy strength of clean fuels" thanks to its high fuel quality standards.

The majority of the 12 LMICs examined through the TDI were marked by low baseline transport carbon dioxide (CO_2) emissions, with average per capita emissions of around 0.24 tonnes of CO_2 in 2022.

In countries such as **Kenya**, **Nepal**, and **Nigeria**, renewables account for more than 70% of total energy consumption, representing some of the highest values in the dataset examined and pointing to important opportunities to amplify the emission benefits of transport electrification.

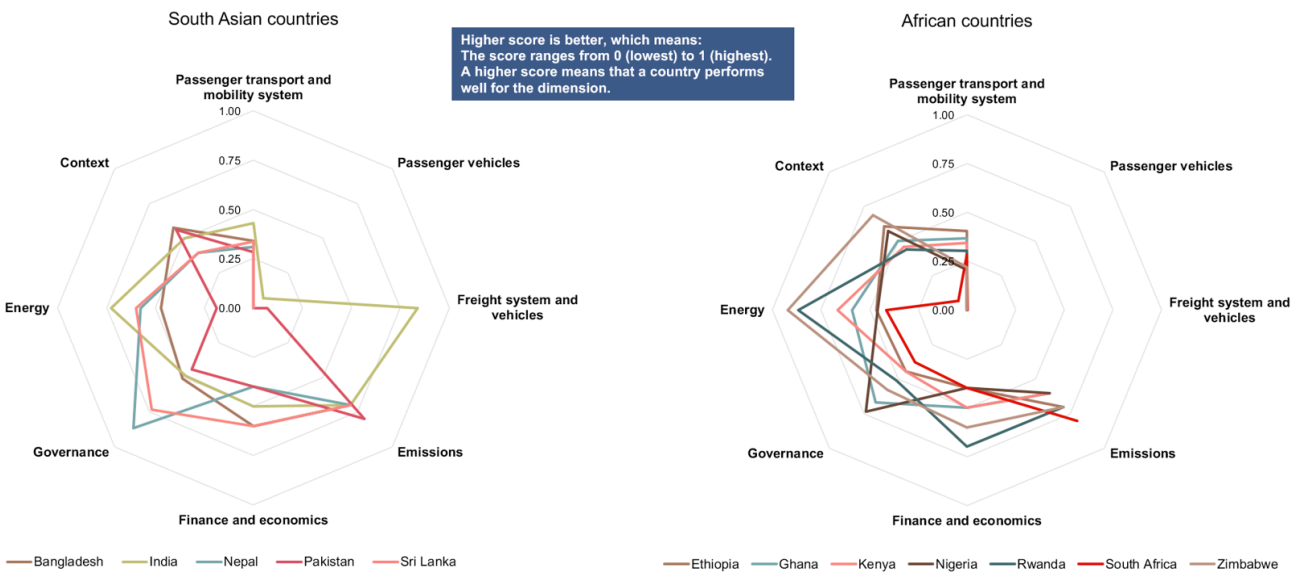
On the whole, South Asian countries yielded homogeneous results across the dimensions of passenger transport and mobility systems, emissions, as well as finance and economics. South Asian countries generally scored low in the passenger vehicles dimension as well as in the emissions dimension, signalling comparable levels of growth and per capita emissions. In contrast, African countries displayed greater diversity in their results. Notably, **South Africa** stood out in the "context" dimension, with much higher road traffic fatalities than in the other African pilot countries.

The results on the policy guidance for the two lowest-scoring dimensions in the piloted countries reveal that African countries could prioritise policies and activities on passenger transport. Asian countries, on the other hand, could address context-related issues such as air pollution and road safety.

All in all, the results of the TDI's application indicate that the piloted countries face significant challenges linked to road traffic fatalities and air pollution-related mortality. Despite rapid growth, emissions-related indicators scored relatively well across most of the countries. Maintaining low emission baselines, however, will require co-ordinated efforts across all dimensions covered by the TDI.

For an in-depth analysis of the results, see the TDI Benchmarking Report.

TDI Dimension Scores for the 12 Piloted Countries



Piloting confirmed the need for more and better data

The research on the TDI has shown that a wide range of indicators are available across important sustainability dimensions, to help measure transport sustainability. However, country application revealed that the data for these indicators must be widely and systematically collected.

Despite prioritising indicators with good data coverage across the piloted countries and relying on globally recognised databases with harmonised collection processes and annual updates, the TDI's application encountered significant data limitations. In general, the data coverage was weak for African countries, such as **Ethiopia**, **Rwanda**, and **Zimbabwe**, whereas better data were available for larger countries such as **India**, **Nigeria**, **Pakistan** and **South Africa**.

Data limitations were particularly pronounced in the freight transport sector, where **India** and **Pakistan** were the only countries for which data on the share of rail in total freight activity could be secured. The fact that only one-third of the identified indicators had sufficient representation for the 12 pilot countries confirms the challenge of significant data gaps and capacity limitations in LMICs across Africa and South Asia. This issue appears to be specific to LMICs, as good coverage exists for many of the indicators in regions such as Europe as well as in many larger economies in the Global South. The Benchmarking Report discusses the TDI's approach as well as general limitations and issues of transport indicator assessments.

The TDI's application has provided valuable insights into the type of data that needs to be captured. It has also underscored the need for improvements in data collection and availability in LMICs, with regional efforts in data analysis holding significant potential to improve assessment and policy making in transport. The example of the *Asian Transport Outlook* is a particularly successful data observatory for the Asia region and could serve as a model that could be replicated for more regions.

Conclusion

The TDI provides a critical framework for assessing and supporting LMICs in their efforts to achieve

sustainable transport and to reduce greenhouse gas emissions from the sector while supporting broader sustainable development objectives.

Despite data challenges, the TDI has proven that it can be a valuable tool for benchmarking performance and informing policy decisions, by offering a nuanced understanding of key transport dimensions such as emissions, governance, infrastructure and finance.

The methodology developed through this project provides a foundation for future assessments, enabling countries to refine their strategies and to take decisive steps towards sustainable and low carbon transport systems. Future iterations of the TDI could aim to enhance the assessment through the incorporation of new indicators and features. With more data available, the TDI could be enlarged to include more indicators to reflect equity and informal transport, among others. Additional resources would allow for the development and implementation of new tools and approaches (such as interactive online dashboards).