



Life cycle assessment methods to support India's efforts to decarbonise transport

Workshop under the DTEE and NDC-TIA projects

13-14 April 2021

Online registration for day 1 [here](#)

Online registration for day 2 [here](#)



सत्यमेव जयते

NITI Aayog



■ INTERNATIONAL TRANSPORT FORUM

The International Transport Forum (ITF) at the OECD is an intergovernmental organisation with 62 member countries. It acts as a think tank for transport policy that covers all modes of transport. The ITF's mission is to foster a deeper understanding of the role of transport in economic growth, environmental sustainability and social inclusion and to raise the public profile of transport policy. The ITF acts as a platform for discussion of transport policy issues. It analyses trends, shares knowledge and promotes exchange among transport decision-makers and civil society.

■ DECARBONISING TRANSPORT (DT) INITIATIVE

The Decarbonising Transport initiative helps governments and industry to translate climate ambitions into actions. It provides tools for decision makers to select greenhouse gas (GHG) emission mitigation measures that deliver on their commitments. Specifically, it:

- Provides targeted analytical assistance to identify climate actions that work.
- Gathers and shares evidence for best practices for the transition to carbon-neutral mobility.
- Helps building a global policy dialogue and bringing the transport perspective to the broader climate change discussions.

■ DECARBONISING TRANSPORT IN EMERGING ECONOMIES (DTEE)

As part of the DT initiative, the Decarbonising Transport in Emerging Economies (DTEE) project aims to help national governments and other stakeholders to identify measures and establish pathways to reduce transport GHG emissions and meet their climate goals and NDCs, while also fostering their economic and social development. The project is implemented by the ITF in collaboration with The Wuppertal Institute (WI). It focuses on four ITF member countries: Argentina, Morocco, India and Azerbaijan. It is centred on the development of modelling tools that allow to assess GHG emissions in transport and help to elaborate policy strategies to mitigate them.

The activities of the DTEE project are developed in close co-ordination with each of the countries' national government agencies, also involving local policymakers and other stakeholders from industry, academia and non-governmental/civil society organisations. NITI Aayog is the nodal agency liaising with the ITF and WI in the case of India.

Based on exchanges that took place since the project kick-off meeting in June 2020, the DTEE India project will focus on the development of a modelling tool capable to assess GHG emissions in the transport sector, taking a life-cycle perspective. DTEE India activities will also include support for the build-up of local capacity, with the aim to improve future transport research and policy development beyond the project duration.

■ NDC TRANSPORT INITIATIVE IN ASIA (NDC-TIA)

The NDC Transport Initiative for Asia (NDC-TIA) supports China, India and Vietnam in the definition of policies enabling to meet the objectives of their Nationally Determined Contributions (NDCs). The project is implemented by a consortium involving the ITF and the following members: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, International Council on Clean Transportation (ICCT), World Resources Institute (WRI), Agora Verkehrswende (AGORA), Partnership on Sustainable, Low Carbon Transport (SLoCaT) Foundation and Renewable Energy Policy Network for the 21st Century (REN21). The consortium will also connect with regional stakeholders and other Asian countries in order to encourage taking a comprehensive approach to decarbonise transport.

The ITF is primarily involved in the India component of the NDC-TIA. As in the case of DTEE, NITI Aayog is the nodal agency for the NDC-TIA project in India. The focus of the NDC-TIA activities carried out by

the ITF in India is on the build-up of capacity to take action on GHG emission mitigation in the transport sector. In particular, the ITF involvement in the NDC-TIA India project will leverage on the life-cycle assessment tool developed in the DTEE India project to help local research and academic institutions supporting the government in the definition of GHG emission mitigation policies in transport.

■ WORKSHOP OBJECTIVES

Lifecycle assessment (LCA) is a methodology used to account the environmental footprint of services or products through all life stages, ranging from sourcing of raw materials to final disposal of the product. This environmental footprint can be evaluated for various impact categories such as energy use, greenhouse-gas emissions or emissions of local pollutants and is usually specified for a comparable service unit, for instance passenger-kilometre or tonne-kilometre in the case of alternative transport options.

Applied to alternative transport modes or vehicles types, LCA can yield comprehensive insights on the environmental performance of different transport choices. It reflects for instance the embedded emissions of rail infrastructure for a planned metro line, or the energy use associated with battery production for electric vehicles (EVs). It can be used to assess alternative fuels, for instance accounting for the carbon intensity of electricity used to charge EVs, or to compare alternative production pathways for biofuels. LCA can also shed light on the environmental impact of emerging mobility services, for instance related to empty running of ride-sourcing cars on their way to pick up passengers, or to service vehicles used to charge and distribute dock-less scooters in cities. Put in a nutshell, LCA provides more detail than for instance information on the energy intensity per vehicle-kilometre alone and is a powerful tool to inform the design of policies to decarbonise transport. Well-designed policies can ensure that the developments in the transport sector are compatible with climate objectives and further stimulate economic growth and industrial competitiveness.

This workshop will bring together Indian and international experts from research organizations, industry, government, and advocacy groups to take stock of existing transport LCA work and to explore how it can assist transport decarbonisation policies in the Indian context. The workshop also aims at identifying potential gaps and priorities that arise as new vehicle technologies, fuel types, and mobility services enter the mass market. Specifically, the workshop aims to:

- Take stock of available research and tools used to evaluate the life-cycle emissions and energy use of alternative transport options.
- Identify what India-focused LCA studies with relevance for transport decarbonisation are available today.
- Explore how existing LCA frameworks accommodate analyses of energy use and GHG emissions of emerging vehicle technologies, fuel types and mobility services.
- Elicit opportunities to build on existing India-focused LCA frameworks to develop a tool that can inform transport decarbonisation policy developments in India.

The outcomes of this workshop will inform a project to prepare an LCA tool for Indian policy makers.

■ WORKSHOP FORMAT

Due to the circumstances induced by the Covid-19 pandemic, will take place as a virtual event. Workshop presentations will be uploaded to a workshop page, if speakers agree.

Register to attend the workshop [here](#) for day 1 and [here](#) for day 2.

Contact: Till.Bunsen@itf-oecd.org

■ AGENDA

13 April 2021, 13:55 – 18:00 CEST/ 17:25 – 21:30 IST

5 min	Meeting start – connection to Zoom platform
40 min	Opening by International Transport Forum and NITI Aayog
<p>Speakers will introduce ITF's Decarbonising Transport initiative and its activities focusing on India. An overview of India's policy priorities for the transport sector and opportunities for LCA insights to aid decarbonisation efforts will then set the scene for following sessions.</p> <p>Speakers:</p> <ul style="list-style-type: none"> • Jari Kauppila, International Transport Forum • Pierpaolo Cazzola, International Transport Forum • Siddharth Sinha, NITI Aayog 	
90 min	Session I: International transport LCA research
<p>The objective of this session is to gather an overview of existing LCA work with relevance for transport decarbonisation. It focuses on assessments with focus on transport infrastructure, vehicle technologies and transport fuel types. Speakers will take stock of current research themes and emerging priorities.</p> <p>Chair: Madhav Sharma, NITI Aayog</p> <p>Speakers:</p> <ul style="list-style-type: none"> • Shoshanna Saxe, University of Toronto • Sofia Amaral, Ricardo • Michael Wang Argonne National Laboratory • Marta Yugo, Concawe 	
10 min	Break
90 min	Session II: LCA focusing on transport fuels in India
<p>Fuel switching can lower India's dependency on fossil fuel imports while reducing the carbon intensity of transport. The environmental impact of alternative fuels tends to concentrate on fuel production, which means that their potential to mitigate emissions depends on their well-to-tank emission intensity. This session presents LCA research on conventional fuels and their low-carbon alternatives.</p> <p>Chair: Till Bunsen, International Transport Forum</p> <p>Speakers:</p> <ul style="list-style-type: none"> • Seema Unnikrishnan and Shilpi Srivastava, National Institute of Industrial Engineering • Yogendra Shastri, Indian Institute of Technology Bombay • Pratham Arora, Indian Institute of Technology Roorkee • Brajesh Kumar Dubey, Indian Institute of Technology Kharagpure 	
10 min	Conclusion of Day 1
Recap of the workshop sessions of Day 1.	

14 April 2021, 10:55 – 14:30 CEST/ 14:25 – 18:00 IST

5 min	Meeting start – connection to Zoom platform
10 min	Introduction to day 2 of workshop
Reporting of outcomes from sessions I & II and link to day 2 of the workshop.	
90 min	Session III: LCA focusing on vehicles in India
<p>This session will explore how factors such as vehicle design, powertrain choice and manufacturing processes determine the footprint of alternative vehicle options. Speakers will also identify India-specific particularities that influence energy use and GHG emissions from public transit and private vehicles.</p> <p>Chair: Vatsalya Sohu, International Transport Forum</p> <p>Speakers:</p> <ul style="list-style-type: none">• Krishna Upadhyayula, Umea University• Arghya Sardar, Technology Information Forecasting and Assessment Council• Rangan Banerjee, Indian Institute of Technology Bombay	
10 min	Break
90 min	Session IV: LCA focusing on transport infrastructure in India
<p>India's transport infrastructure has strongly expanded along economic growth and urbanisation in recent years. This session focuses on studies that evaluate the embedded emissions and energy use of road infrastructure and rail projects in India and how they influence lifecycle performance of alternative transport modes.</p> <p>Chair: Elisabeth Windisch, International Transport Forum</p> <p>Speakers:</p> <ul style="list-style-type: none">• Sharif Qamar, TERI• Krishna Prapoorna, Indian Institute of Technology Tirupati• Amar Shinde, Manipal Institute of Technology	
10 min	Conclusion of workshop
This session will allow the ITF and NITI Aayog to summarise earlier sessions.	