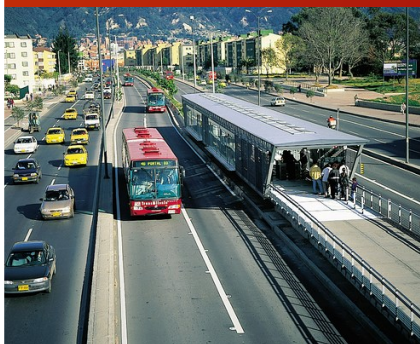




*Research  
Leads to  
Advancement*



# Transport Research Forum

## 2022



UNIVERSITY OF MORATUWA

DEPARTMENT OF CIVIL ENGINEERING  
TRANSPORTATION ENGINEERING DIVISION

# Transport Research Forum 2022



## Abstracts (Revised)

03<sup>rd</sup> December 2022

University of Moratuwa, Sri Lanka

Transportation Engineering Group  
Department of Civil Engineering  
University of Moratuwa

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## Introduction

Transport Research Forum (TRF) is an annual conference organized by the Transportation Engineering Division of the Department of Civil Engineering, University of Moratuwa. The prime objective of this conference is to create a platform for researchers in the transportation field to build up their research careers and to share their research findings with other colleagues and the industry, researchers and academics, including several international experts in Highway Engineering, Transportation Engineering and Planning, are the participants in this event. In addition, representatives from the industry and related government institutions are also invited every year.

Department of Civil Engineering conducted the first-ever Sri Lanka Transportation Forum in 1983, and since the late 90's, the Transportation Engineering Group has organized many Transport Research Conferences at local and international levels. Later, the Transport Research Forum (TRF) was established; two conferences were held initially, and since 2010, TRF has been held consecutively every year., TRF 2022 is the 15th Transportation Research Forum conducted by the Transportation Engineering Division. Many of the research findings presented in Transport Research Forums have been put into practice, and one of the main objectives of the Transport Research Forum is to come up with solutions to address transport-related problems in the country and disseminate them to the industry. 2020, TRF achieved a significant milestone by publishing its selected proceedings (full papers from selected studies presented at TRF 2020) in the IESL 'The Engineer' journal as a special edition and hoping to do the same this year as well.

## Message from the Conference Chair

**Prof. W.K. Mampearachchi**

**University of Moratuwa**

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As the Chairperson of the research committee, I am delighted and honoured to bring this message to the Transportation Research Forum 2022.

We, the Transportation Engineering Group, have decided to hold this prestigious conference at the Dept. of Civil Engineering.

I hope that this conference will allow the participants to have a productive discourse. Our technical program is rich and varied, with Keynote speeches from experts in foreign countries and around 25 technical papers. Some of the underlying issues in the transport sector in Sri Lanka will be covered in-depth at our conference by our invited speakers and guest speakers. I extend my heartfelt appreciation to them.

As a conference chair, I know that the success of the conference depends ultimately on the many people who have worked with us in planning and organizing the conference. I take this opportunity to acknowledge the support given by the Vice-Chancellor, Prof. Niranjan Gunawardana and our Dean, Prof. Udayanga Hemapala, who have a very clear desire to upgrade research in the community in which we live.

In particular, I thank the committee for their wise advice and brilliant suggestions for organizing the conference. All recognition should go to the committee members who have all worked extremely hard on the details of important aspects of the conference programs. A note of appreciation to the academia and industry partners for their thorough and timely reviewing of the papers.

Most of all, I thank you, the presenters, for enriching the conferences with your presence, as it is a tradition with the conferences. I hope you will enjoy the content, and new fellowships, get new ideas, and above all, have a great deliberation.

On behalf of the Conference Committee, we're looking forward to seeing you at the conference.

# **TRF 2022 Organising Committee**

## **Conference Chair**

Prof. W. K. Mampearachchi

## **Conference Secretary**

Dr H L K Perera

## **Committee Members**

Prof. J M S J Bandara

Dr. H R Pasindu

Dr. G L D I De Silva

## **Supporting Staff**

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Ms. M.P.V.P. Medawatta

Mrs. G.A.N. Gurusingha

Mrs. G.N. Wijekoon

Mr. Thusitha Isanka

Mrs. Melani Jayakody



## Reviewers

### *External*

Dr Chamod Hettiarachchi (Tongji University, China)

Mr. Chathura Vidanapathirana (CINEC Campus-Malabe)

Dr Dhanushika Gunathilake (University of South Florida-USA)

Dr (Mrs) Hansinee Sitinamaluwa (Dept. of Material Science Engi., University of Moratuwa)

Dr (Mrs) Ishani Dias (Kothalawala Defence University)

Mr Isuru Gamalath (Sri Lanka Institute of Information Technology)

Mr Kaushan Devasurendra (University of Calgary-Canada)

Dr Nadika Jayasooriya (University of Sri Jayawardhanapura)

Dr. (Mrs.) Namali Sirisoma (Kothalawala Defence University)

Prof. (Mrs) Niranga Amarasingha (Sri Lanka Institute of Information Technology)

Dr. Sabeen Sharic (Kothalawala Defence University)

Dr Varuna Adikariwattage (Transport & Logistics Mgt Dept., University of Moratuwa)

### *Internal*

Prof Saman Bandara (Department of Civil Engineering, University of Moratuwa)

Prof Wasantha Mampearachchi (Department of Civil Engineering, University of Moratuwa)

Dr H R Pasindu (Department of Civil Engineering, University of Moratuwa)

Dr Dimantha De Silva (Department of Civil Engineering, University of Moratuwa)

Dr Loshaka Perera (Department of Civil Engineering, University of Moratuwa)

## Keynote Speech



***Prof. (Mrs) Regine Gerike***

*Head of the chair of Integrated Transport Planning and Traffic Engineering, Dean of the "Friedrich List" Faculty of Transport and Traffic Sciences, Technische Universität Dresden, Germany.*

Regine Gerike is the head the chair of Integrated Transport Planning and Traffic Engineering and dean of the “Friedrich List” Faculty of Transport and Traffic Sciences at Technische Universität Dresden, Germany. Before joining TU Dresden, she chaired the Institute for Transport Studies at the University of Natural Resources and Life Sciences (BOKU) in Vienna, Austria. Regine Gerike did her PhD at TU Dresden in the field of modelling transport and its environmental effects. From 2008 to 2012, she was an assistant professor at Technische Universität München, head of the Research centre mobility and transport (Mobil. TUM) and of the PhD-program “Mobil. LAB – Sustainable Mobility in the Metropolitan Region of Munich”. Her research interests include transport planning from the strategic level to urban street design with a focus on traffic safety and vulnerable road users, empirical research on travel behaviour and holistic approaches to evaluating sustainable mobility.

**Topic: Visions and Strategies for Urban Transport: Function, Form, Fairness, Forever**

### **Abstract**

The Sustainable Development Goals (SDGs), as approved by the United Nations in 2015, provide the overarching normative framework for all sectors of society, including transport. A closer look at the SDGs with relevance to transport reveals their focus on the negative effects, such as accidents or emissions of environmental pollutants. The complementary framework of “responsible mobility” is suggested in order to comprehensively account for transport systems’ positive and negative effects based on four pillars: Transport systems should deliver accessibility (function), contribute to vibrant streets and livable cities (form), they should be fair (fairness), and they should fulfil these requirements today and in the future (forever). Strategies for meeting these ambitions are discussed, considering constants and dynamics in travel behaviour. The combination of push and pull approaches is of the highest relevance, as is the targeted coordination of urban and transport planning.