



Research for Transport and Logistics Industry

Proceedings of the 2nd International Conference

Organised By
Sri Lanka Society of Transport and Logistics



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Message from the Chairman Sri Lanka Society of Transport and Logistics (SLSTL) and R4TLI Conference Chair



The Second R4TLI is not just the continuity from last year. It is a progressive journey. First we have positioned the conference as international, not just by opening the doors to international authors but more so to denote the extent of the Review Panel comprising leading academics and researches from 09 countries and the rigour of the review and publication process headed by Prof Chan Wirasinghe from the University of Calgary, Canada and Dr. T L Gunaruwan from the University of Colombo, Sri Lanka. This year we also hope to publish in addition to the Proceedings, a Journal from the best papers presented.

The continuation of the International Conference for R4TLI - Research for Transport and Logistics Industry is an effort to bridge the gap between academia and industry that exists in many developing countries. For example, it is becoming increasingly apparent that Sri Lanka which seeks to exploit its geographic position to re-establish itself as a global logistics hub needs to reach the state of the art operational levels to compete with the already well-established and rapidly advancing hubs both to the east and west of Colombo. The conference which has attracted abstracts not just from senior academics, but also from young researchers and graduates from industry is a validation of the potential for research and development.

A panel of international reviewers from Japan, Hong Kong, Australia, United States of America, Taiwan, United Kingdom, Sri Lanka and Poland have reviewed and recommended papers for presentation. While over 50 abstracts were received, only around 30 were accepted for inclusion in the proceedings. Around 15 authors have been invited to submit full papers.

I am encouraged by the assistance given by the membership of the Sri Lanka Society of Transport and Logistics (SLSTL). The unstinted financial support from the industry lead by the Walkers CML who have partnered R4TLI for the second successive year and the enthusiastic sponsorship received for the research awards from several leading establishments in the field of transport and logistics has been overwhelming.

I also wish to place on record the assistance received from the Organising Committee and the Scientific Committee of this conference Dr T L Gunaruwan, Mrs Namalie Siyambalapatiya, Dr Tissa Liyanage, Dr Ganga Samarasekera, Dr Pradeepa Jayaratne, Ms Thivya Amalan, Ms Kaushalya Herath, Ms Uthapalee Hewage, Mr Naleen de Alwis, Ms Krishani Perera, Ms Mahesha Perera, Mr Mahesh and Mr Nishantha Fernando which has greatly contributed to making this conference a success. The support extended by the Eastern Asia Society for Transport Studies (EASTS) and the personal attendance at the conference by its office bearers is also greatly appreciated.

Thank you.

Prof. Amal S Kumarage
Chairman - Organizing Committee

Message from Professor Mohan Munasinghe

It is my privilege and pleasure to be the Chief Guest at the 2nd International Conference on Research for Transport and Logistics Industry (R4TLI) organized by the Sri Lanka Society of Transport and Logistics (SLSTL). This annual conference which began last year is already an important step towards making the Transport and Logistics industry more sustainable.



The conference theme “Research for Transport and Logistics Industry” is indeed very appropriate, considering the key role of academia-industry collaboration in tackling specific problems with locally-relevant and sustainable solutions. I have noted that this conference provides a platform for exchanging scientific ideas with industry, which can encourage the growth of new firms seeking to enhance economic, social and environment benefits in Transport and Logistics.

Finally, we can all look forward to a showcase event, which is the result of the dedicated efforts of the Organizing Committee ably led by Prof. Amal Kumara, to highlight industrial innovation.

Please accept my warm good wishes for a very successful conference.

Prof. Mohan Munasinghe

Chief Guest

Founder Chairman, Munasinghe Institute of Development (MIND)

Vice-Chair, UN Intergovernmental Panel on Climate Change, who shared the 2007 Nobel Prize for Peace

**Message from Professor Tetsuo Yai,
President of the Eastern Asia Society for
Transportation Studies (EASTS)**



Dear Distinguished Members of Sri Lanka Society of Transport & Logistics, I am pleased to extend, on the behalf of Eastern Asia Society for Transportation Studies (EASTS), the warmest congratulations to the second international conference of SLSTL, Research for Transport & Logistics Industry (R4TLI), following the successful first conference last year.

EASTS was founded in November 1994 with 13 countries/regions in Eastern Asia. As of September 2015, the member domestic societies join from 19 countries/regions, including Sri Lanka. The primary objective of EASTS is to foster and support excellence in transportation research and practice. Under the objectives, EASTS is organizing biennial International Conferences. Since the 1st Conference held in Manila, Philippines in 1995, 11 conferences were held in EASTS area and provided great opportunities to enrich participants' professional knowledge. The 12th conference will be held in September 2017 in Ho Chi Minh City, Vietnam.

We believe SLSTL has contributed significantly in Sri Lanka and could be a more essential key player throughout the world. I believe SLSTL has significant potential and will thrive more with your continuous support and contribution.

Once again, congratulations to the second international conference.

Tetsuo Yai,
President of EASTS
Professor, Dr. of Eng., Tokyo Institute of Technology

Message from Prof Chan Wirasinghe

I am pleased to continue to be associated with the 2nd international conference on “Research for Transport and Logistics Industry (R4TLI 2017)” to be held in Sri Lanka in July 2017, organized by the Sri Lanka Society of Transport and Logistics. As the Co-Chair of the Scientific Committee it was satisfying to have received 84 titles of which the very best 41 have been accepted for presentation at the conference. Of them 10 papers have been accepted for publication as full papers. The submissions which have been accepted are of high quality and cover a wide range of topics from theoretical to practical applications as well as logistics to passenger transportation. I am very confident that the R4TLI 2017 will be an outstanding success as in the inaugural year. I congratulate Professor Amal Kumaraage, Dr. T L Gunaruwan and others for organizing this international conference that will have an impact on academia and industry beyond the shores of Sri Lanka.



Sincerely,

S.C. (Chan) Wirasinghe

Co-Chair, Scientific Committee

Professor of Civil Engineering

Founding Dean (Emeritus) Schulich School of Engineering

EDITORIAL PREFACE

Last year, in launching the inaugural *R4TLI* Conference Proceedings, the Editorial Committee was emphatic in our call for greater research and development undertakings in the transport and logistics sector and undertook to catalyse necessary discourse within the discipline through our conference.

In organising the second international conference *R4TLI-2017*, the Sri Lanka Society of Transport and Logistics (SLSTL) sought to sustain the momentum gained in stimulating discourse on transportation and logistics industry during 2016. It is noteworthy that the Editorial Committee received 84 title submissions in the beginning, yielding only 57 Abstracts effectively submitted. The rigorous double-blind peer review process adopted to ensure the quality of Abstracts finally approved 39 Abstracts, of which 11 are ear-marked for full paper submissions.

The abstracts compiled herein represent a cross-section of research interests in transport and logistics. It has been our singular privilege to have gained familiarity with each during the preceding months in an exercise which has widened our own perception of the industry and the many crossroads which lie before us. We are also grateful for the commitment of the eminent panel of academics from Sri Lanka and abroad who painstakingly reviewed these contents and provided feedback to each of our contributors; an effort which we are confident will culminate in elevated standards of research, industry-wide.

We are confident that *R4TLI-2017* will serve to expand the industry's understanding of the research universe within which it operates, particularly through the double-blind peer-reviewed journal the SLSTL intends to publish during the course of this year, based on submissions made in view of the conference. These initiatives, we are hopeful, will help devise a more nuanced approach to transport and logistics: one which we may build upon in years and conferences to come.

T L Gunaruwan (Chief Editor)

Lalith Edirisinghe

Chathuni Uduwela

Uthpalee Hewage

Thivya Amalan

Asith Hettiarachchi

**CONFERENCE ON RESEARCH FOR
TRANSPORT AND LOGISTICS INDUSTRY
2017**

2nd International Symposium Organised By

Sri Lanka Society of Transport and Logistics (SLSTL)

In Partnership with Walkers CML

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