

Global and International Logistics

Ryuichi Shibasaki ^{1,*}, Daisuke Watanabe ²  and Tomoya Kawasaki ³ 

¹ Resilience Engineering Research Center, Department of Technology Management for Innovation (TMI), Graduate School of Engineering, The University of Tokyo, Tokyo 113-8656, Japan

² Department of Logistics and Information Engineering, Tokyo University of Marine Science and Technology, Tokyo 135-8533, Japan; daisuke@kaiyodai.ac.jp

³ Department of Systems Innovation, Graduate School of Engineering, The University of Tokyo, Tokyo 113-8656, Japan; kawasaki@sys.t.u-tokyo.ac.jp

* Correspondence: shibasaki@tmi.t.u-tokyo.ac.jp

In the present world, with the recent advances in the globalization of trade and economic activity, research on the logistics issue should be approached from more global or international viewpoints, to achieve sustainable economic development. Global issues in the logistics field include not only international cooperation and cross-border issues, but also intermodal transport, global shipping network analysis, supply chain integration and coordination, intelligent transport system and information technologies, green and reverse logistics, impacts of China's Belt and Road Initiative (BRI), and others. Furthermore, since the current advancement of information technologies enables us to use some kinds of big data in the global logistics field, new ideas on big data analysis in this field is also very important topics [1]. This special issue (SI) is comprised of 10 thoroughly refereed contributions that shed light on a wide array of research activities within three themes: international trade, maritime shipping, and intermodal transport.

In the topics of international trade, we attempt to synthesize the relationship between international trade and several economic activities that involve regional economic development, cross-border e-commerce trade, and international reverse logistics. Transport infrastructure and logistics are increasingly becoming important factors affecting international trade. In particular, China is developing the international logistics corridor along the BRI. Ma et al. (Contribution 1) discuss the impact of logistics development level on bilateral trade from 31 of China's provinces to 65 countries along the BRI by using the improved gravity model with data for the period 2008–2018. From these research results, strengthening domestic and international logistics infrastructure does not only contribute to the sustainable development of future trade in China, but also helps to realize the coordinated development among regions in China. Since logistics networks along BRI routes face several challenges that hinder efficient operations, logistics practitioners must align their networks with future developments. Nitsche (Contribution 2) discusses current barriers to the BRI from a logistics and supply chain management perspective, proposes strategies for dealing with them, and outlines and assesses conceivable BRI development scenarios to create awareness for possible international logistics network developments.

E-commerce trade that is developing rapidly all over the world brings a market for the development of international logistics and plays a role in improving the quality of service, improving the effectiveness of the supply chain, enhancing the efficiency of business operations, and increasing the volume of international trade. He et al. (Contribution 3) explore the dynamic interaction between international logistics and cross-border e-commerce trade using the panel data in Organization for Economic Co-operation and Development (OECD) countries for the period 2000–2018. They reveal that each OECD country's government should take up corresponding policies to ensure the sustainable development of both international logistics and cross-border e-commerce trade. In terms of global waste trade as reverse logistics, Tran et al. (Contribution 4) discuss the effect of



Citation: Shibasaki, R.; Watanabe, D.; Kawasaki, T. Global and International Logistics. *Sustainability* **2021**, *13*, 5610. <https://doi.org/10.3390/su13105610>

Received: 11 May 2021
Accepted: 14 May 2021
Published: 18 May 2021

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

China's restrictive programs on the international trade of waste products. These restrictions divert the flow of waste mostly to the low- and middle-income countries of the East Asian and Pacific regions along with Europe and Central Asia, and shipping companies face with a lack of products on backhaul routes and thus force to change their longstanding practices.

On the second topic, maritime shipping, we attempt to synthesize the efficiency of shipping with foldable containers as new technology, the port development in global shipping network, and the impact and effectiveness of greenhouse gas (GHG) emissions in the shipping and shipbuilding market. In recent years, rapid economic growth and globalization have led to a substantial increase in container cargo shipping demand and growing trade imbalances between imports and exports among different regions, resulting in an imbalance between the inbound and outbound flows of full containers. Liang et al. (Contribution 5) consider the empty container repositioning problem of shipping companies that use standard and 3-in-1 foldable containers with more advanced designs. The introduction of foldable containers not only effectively reduces the management costs of empty containers, but also makes costs more stable and predictable.

Global manufacturing activities have a strong relationship with regional port development, and a well-developed port has sufficient capacity and strong access from/to the hinterland. Riaventin et al. (Contribution 6) discuss the problem of improving the capacity and connectivity of ports in the hub and feeder port network by allocating the available budget for investment in Indonesia. Under a circumstance that several new ports are to be improved to ensure smooth interisland transport flows of goods, the effects of the investment on economic consequences and increased network connectivity are assessed.

GHG emissions from the global shipping sector have been increasing due to global economic growth. The International Maritime Organization has set a goal of halving GHG emissions from the global shipping sector by 2050 as compared with 2008 levels, and has responded by introducing several international regulations to reduce the GHG emissions of maritime shipping. Wada et al. (Contribution 7) develop a model to consider GHG emission scenarios for the maritime shipping sector using system dynamics incorporating a shipping and shipbuilding market model. They evaluate the effects of current and future measures for GHG emission reduction, including ship speed reduction, transition to liquefied natural gas (LNG) fuel, promotion of energy efficiency design index regulation, and introduction of zero-emission ships. Kim et al. (Contribution 8) discuss the emission inventory around the world and bunker consumption from a LNG fleet using position data calculated from an automatic identification system (AIS) database. Comparisons regarding the LNG trade amount and bunker consumption of a LNG fleet, as well as the total CO₂ inventory and CO₂ emissions from a LNG fleet in the vicinity of the coasts of relevant countries are made.

In the final topic, intermodal transport, we attempt to synthesize the modal choice factors and the optimal policies in long-distance inter-regional cross-border transport. Land transport is a vital alternative to international maritime shipping in inter-regional transport and several cross-border land corridor projects have been implemented worldwide. Hanaoka et al. (Contribution 9) discuss the factors that can help select between these two modes in long-distance inter-regional cross-border transport. They identify eight significant variables: distance, export of manufacturing commodity, landlocked country/area, neighboring country/area, country risk, infrastructure level, port-access time, and maritime transport frequency. Yamaguchi et al. (Contribution 10) focus on container transport in Myanmar with the global logistics intermodal network simulation model including both maritime shipping and land transport in the land-based Southeast Asia region. Based on the simulation results, the policies that reduce cross-border barriers and improve service levels in Dawei port would result in using Myanmar's ports for Thai cargo.

This SI is related to the 8th International Conference on Transportation & Logistics (T-LOG 2020) which was held online on 6–7 September 2020 hosted by Universitas Internasional Semen Indonesia (<https://tlog2020.uisi.ac.id/>, accessed on 6 May 2021). Through years of effort organizing the conference series every two years, since being initiated in

2004 by the National University of Singapore, The University of Tokyo, and Tsinghua University, T-LOG has been extended to an extensive network consisting of 30 member institutes from 12 countries. Under the conference theme “Logistics Connectivity in East Asia: Practices & Challenges”, which aims to promote interaction between practitioners and academics, through presentation of papers, discussions and exchange of knowledge, ideas, and experience, we have explored various theories and methods concerning logistics connectivity in East Asia, including creation and innovation in infrastructures design, multi-modal transport synchronization, transport technology, and information technology and management. We have also discussed approaches to collect, process, manage, and use various kinds of information efficiently and effectively, so that logistics and transport competitiveness and value in East Asia that face global challenges in transport and logistics issues can be improved. The next T-LOG will be held in Incheon, South Korea in 2022, and we hope to provide regular opportunities for researchers as well as practitioners in the field of logistics to present their work.

List of Contributions in This Special Issue

1. Ma, W.; Cao, X.; Li, J. Impact of Logistics Development Level on International Trade in China: A Provincial Analysis. *Sustainability* **2021**, *13*, 2107, doi:10.3390/su13042107
2. Nitsche, B. Decrypting the Belt and Road Initiative: Barriers and Development Paths for Global Logistics Networks. *Sustainability* **2020**, *12*, 9110, doi:10.3390/su12219110
3. He, Y.; Wu, R.; Choi, Y.-J. International Logistics and Cross-Border E-Commerce Trade: Who Matters Whom? *Sustainability* **2021**, *13*, 1745, doi:10.3390/su13041745
4. Tran, T.; Goto, H.; Matsuda, T. The Impact of China’s Tightening Environmental Regulations on International Waste Trade and Logistics. *Sustainability* **2021**, *13*, 987, doi:10.3390/su13020987
5. Liang, Z.; Shibasaki, R.; Hoshino, Y. Do Foldable Containers Enhance Efficient Empty Container Repositioning under Demand Fluctuation?—Case of the Pacific Region. *Sustainability* **2021**, *13*, 4730, doi:10.3390/su13094730
6. Riaventin, V. N.; Cahyo, S. D.; Singgih, I. K. A Model for Developing Existing Ports Considering Economic Impact and Network Connectivity. *Sustainability* **2021**, *13*, 3705, doi:10.3390/su13073705
7. Wada, Y.; Yamamura, T.; Hamada, K.; Wanaka, S. Evaluation of GHG Emission Measures Based on Shipping and Shipbuilding Market Forecasting. *Sustainability* **2021**, *13*, 2760, doi:10.3390/su13052760
8. Kim, H.; Watanabe, D.; Toriumi, S.; Hirata, E. Spatial Analysis of an Emission Inventory from Liquefied Natural Gas Fleet Based on Automatic Identification System Database. *Sustainability* **2021**, *13*, 1250, doi:10.3390/su13031250
9. Hanaoka, S.; Matsuda, T.; Saito, W.; Kawasaki, T.; Hiraide, T. Identifying Factors for Selecting Land over Maritime in Inter-Regional Cross-Border Transport. *Sustainability* **2021**, *13*, 1471, doi:10.3390/su13031471
10. Yamaguchi, T.; Shibasaki, R.; Samizo, H.; Ushirooka, H. Impact on Myanmar’s Logistics Flow of the East–West and Southern Corridor Development of the Greater Mekong Subregion—A Global Logistics Intermodal Network Simulation. *Sustainability* **2021**, *13*, 668, doi:10.3390/su13020668

Author Contributions: Conceptualization, R.S.; investigation, R.S., D.W. and T.K.; writing—original draft preparation, D.W.; writing—review and editing, R.S., D.W. and T.K. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Acknowledgments: The editors express their gratefulness and gratitude to the reviewers for their support and critical and constructive comments. This has significantly improved the quality of the collection as well as academic output. The editors extend their thanks to the editorial assistance office of MDPI for their support throughout the review and publication process of this Special Issue.

Conflicts of Interest: The authors declare no conflict of interest.

Reference

1. Shibasaki, R.; Kato, H.; Ducruet, C. (Eds.) *Global Logistics Network Modelling and Policy: Quantification and Analysis for International Freight*; Elsevier: Amsterdam, The Netherlands, 2020.