



Editorial

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Transportation and logistics activities lie at the heart of world trade. Over the past 50 years, operational research has widely contributed to solving fundamental problems associated with these fields. However, the recent and significant increase in the amount of transportation and logistics activities has started to raise serious concerns about their harmful effects on the environment, such as greenhouse gas emissions, pollution, waste and noise. Existing operational research methodologies and techniques, although very well equipped to address economic aspects, have not yet been widely applied to the solution of the environmental problems associated with transportation and logistics. It was this very reason that prompted us to edit part 2 of this special issue of *Journal of the Operational Research Society* on 'Transportation, Logistics and the Environment'. The aim was to gather papers that explicitly addressed the environmental aspects of these activities.

From the time at which the call for papers was made to the submission deadline, we received 20 submissions. All dealt with some aspect of transportation and logistics, but despite our carefully worded call for papers, only a few *explicitly* addressed environmental concerns. Also, some contributions were clearly not in the operational research domain and thus fell outside the scope of the special issue. To summarize, the submission and selection process resulted in the four papers that appear in this issue. This gave us confirmation that the field is indeed in its infancy and that there is still much room for further research in the area.

The four papers in part 2 of this special issue address environmental issues in freight transportation planning across

three modes of transport, road, shipping and rail, as well as in the field of recycling. The first paper, by Fernández, Kalcics, Nickel and Ríos-Mercado, presents mathematical models and solution algorithms for a territorial design problem motivated by the new Waste Electrical and Electronic Equipment directive of the European Commission. The second paper, by Maden, Eglese and Black, concerns the reduction of emissions in vehicle routing and scheduling in which speed depends on the time of travel. The authors describe a heuristic algorithm to solve the problem and report savings in CO₂ emissions of up to 7% in a case study involving the scheduling of a fleet of delivery vehicles in the United Kingdom. The third paper, by Fagerholt, Laporte and Norstad, addresses the problem of reducing CO₂ emissions in maritime transport by controlling the speed of a ship whose route is predetermined. The authors offer an efficient solution algorithm which is based on solving a shortest path problem on a directed acyclic graph. The last paper of part 2 of this special issue is by Bauer, Bektas and Crainic. It addresses the problem of reducing greenhouse gas emissions in intermodal freight transport. The authors present a mathematical model for a scheduled service network design problem with fleet management and use the model to solve a case study related to an intermodal rail network in Eastern Europe.

We thank the editors of the Journal, Terry Williams and John Wilson, for accepting our proposal to organize this part special issue, Sarah Parry for her assistance with the submission process, and the anonymous reviewers for their helpful advice. We hope the readers of the *Journal of the Operational Research Society* will enjoy reading the part special issue and that the papers it contains will help to promote more research in this exciting but yet embryonic field.

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