Preface

We have been aware of the vulnerability of the social system in the face recent extreme weather events, with influences from climate change, the global COVID-19 pandemic and non-climate-related natural disasters such as earthquakes and volcanic eruptions also contributing. National and local governments need to prepare measures to reduce the impacts of these events and recover rapidly. Waste management is an important social infrastructure that is commonly affected by external causes such those listed as above, necessitating measures for resilience against them. Waste management in developing countries in Asia has been improving, but efforts to protect the living environment can hardly keep up before new problems emerge, forcing countries to take even more action. The present issue introduces challenges to the development of modes of waste management for harmonizing a future lively society that can adapt to drastic changes caused by external factors.

Inappropriate management of solid waste is not only a major cause of incidents and man-made disasters but also a trigger for greater damage from natural disasters. In other words, appropriate management of solid waste may help prevent or mitigate damage from disasters. Research and development of engineering systems for the mitigation of disaster damage and climate change impact through proper resource allocation and recycling disposal directly help solve the discernable problems faced by local residents.

Nor is marine plastic pollution independent of disasters. The infectious disease pandemic forced humanity to increase its utilization and disposal once again of plastics, which are essential in personal protective equipment. Moreover, climate-related disasters enhance the release of plastics from waste dumping sites, and are also known to promote the movement of plastics that have accumulated in drainage ditches, along roads and in river basins. An international framework for plastics management is being developed at a rapid pace. Together with individual countries' actions and policy implementation in the field of waste management, this will play an indispensable role.

Actions taken by nations toward decarbonization are featured in this issue along with ways renewable energy is being used. These should be a part of any strategy for mitigation and adaptation to climate change. Perusing this issue, the reader can also find state-of-the-art policy strategies and good practices in the Asian region. I hope the comprehensive articles in this issue will be of benefit to the readers of this journal, to academia, to the engineering and policy community, and to society in general, who are all struggling to solve the problem of waste management as they strive towards a society that is resilient to climate change, pandemics and natural disasters.

Guest Editor
Tomonori ISHIGAKI Ph. D.
National Institute for Environmental Studies