



**Special issue of the International Journal of Disaster Resilience in the Built Environment, the second in a joint initiative between with the IOC/UNESCO Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS)**

## **“Technology enabled tsunami early warning: opportunities, gaps, barriers and challenges”**

### **Guest Editors:**

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### **Background**

Tsunamis are triggered by earthquakes, volcanic eruptions, submarine landslides, and by onshore landslides in which large volumes of debris fall into the water. If a tsunami-causing disturbance occurs close to the coastline, a resulting tsunami can reach coastal communities within minutes.

In order to protect those coastal communities, fast, accurate tsunami forecasts and warning information are an essential component of an effective tsunami warning system. An end-to-end tsunami warning system begins with the upstream rapid detection of a tsunami wave, including detection, verification, threat evaluation, and forecasting. It ends with a well-prepared community that is capable of responding appropriately to a warning, including delivery of public safety messages, risk assessment and management, initiating national countermeasures, and preparing and implementing standardised reactions.

Ideally, these should be integrated within a multi-hazard warning system that addresses several hazards and/or impacts of similar or different type in contexts where hazardous events may occur alone, simultaneously, cascadingly or cumulatively over time, and taking into account the potential interrelated effects. For example, the current COVID-19 responses have resulted in a shift of priorities, alterations in work processes, physical distancing, self-isolation and quarantine measures, as well as temporary lockdowns of entire communities. This may create ambiguity or confusion with regards to tsunami warning services and response actions like evacuation.

ICT is an essential component of an effective early warning system, including integrated software and hardware systems for data acquisition, decision making, and information dissemination, supporting the detection and analysis of imminent hazards and the targeted dissemination of related warnings. The technological concepts and performance capabilities of early warning systems are evolving rapidly. This includes advancements in the scientific understanding of geological disasters and related phenomena, as well as improved scientific modelling approaches. These have been aided by the availability of high-performance tools for supporting near real-time modelling, decision support and visualisation. Both the upstream and the downstream information flow heavily rely upon and benefit from the capabilities of the underlying ICT infrastructures. Advances in telecommunication infrastructures in parallel with the growth of the internet have enhanced the variety and performance of channels for warning purposes, including mobile and smart solutions, but also introduced new challenges and opportunities, such as the growth of social media and an increased threat of misinformation.

In this special issue of the International Journal of Disaster Resilience in the Built Environment, the second in a joint initiative between with the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS), we invite original research papers that share new knowledge and developments on “Technology enabled tsunami early warning: opportunities, gaps, barriers and challenges”.

### Contents of the themed issue:

This special issue focuses on ICT to support decision making and information dissemination in tsunami early warning. We anticipate a wide range of contributions, including discussions on situations associated with pandemics such as COVID-19 and other biological hazards. These may include, but are not limited to the following:

1. Evidence to support the gap of developing technology enabled tsunami early warning
2. New technological applications to enhance the disaster risk knowledge
3. Development of hazard maps, vulnerability maps and simulations to investigate different scenarios
4. Use of technology to enhance evidence-based decision making
5. Application of technology enabled stakeholder management platforms and tools
6. Use of social media, mobile based applications and digital platforms to maintain real time information as a tool of tsunami risk communication and tsunami early warning dissemination
7. Integrating tsunami early warning with other hazards, including pandemic threats
8. Community receptiveness, perception and trust towards technology enabled tsunami early warning mechanisms
9. Barriers and challenges in the application of technology into tsunami early warning mechanisms

### Submissions

We are calling for abstracts (200 words) with a proposed title, and up to three key words. These will be reviewed against the themed issue scope. Authors of the selected abstracts will be invited to submit full papers according to the journal's author guidelines:

[http://www.emeraldgrouppublishing.com/products/journals/author\\_guidelines.htm?id=ijdrbe](http://www.emeraldgrouppublishing.com/products/journals/author_guidelines.htm?id=ijdrbe)

Further instructions on the preparation of full manuscripts will be issued to authors of selected papers.

Any queries or abstracts should be submitted to: **Dr Chandana Siriwardena**, Department of Civil Engineering, University of Moratuwa, Sri Lanka, email: [chaasi@uom.lk](mailto:chaasi@uom.lk)

### Important deadlines

- 15<sup>th</sup> July 2020: Deadline for abstract submission
- 31<sup>st</sup> July 2020: Decision and call for full papers
- 31<sup>st</sup> October 2020: Full paper submission

### International Journal of Disaster Resilience in the Built Environment

The International Journal of Disaster Resilience in the Built Environment (**IJDRBE**) is edited by Professor Dilanthi Amaratunga and Professor Richard Haigh from the Global Disaster Resilience Centre at the University of Huddersfield, UK. IJDRBE aims at developing knowledge and capacity in strategic and practical aspects of disaster risk reduction, response and reconstruction to reduce the impact of natural and anthropogenic hazards. The journal publishes original and refereed material that contributes to the advancement of the research and practice and provides contributing authors with an opportunity to disseminate their research and experience to a broad audience. The Journal is indexed in British Library, Construction and Building Abstracts, ICONDA – The International Construction Database, Business Source Premier (EBSCO), ABI INFORM Global (ProQuest), Cambridge Scientific Abstracts (ProQuest), INSPEC, SCOPUS and in Emerging Sources Citation Index (ESCI) by Clarivate Analytics (formerly ISI Thomson Reuters). **IJDRBE is also a top Q1 quartile ranked Journal.**

If you are keen to know more about the journal, editors can be contacted, as follows:

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Further details on the journal is available at: <http://www.emeraldgrouppublishing.com/ijdrbe.htm>