

**INTEGRATING TSUNAMI PREPAREDNESS INTO  
SUSTAINABLE COASTAL CITY PLANNING IN SRI  
LANKA**

C.J. DE ZOYSA

(218015C)

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Department of Civil Engineering

University of Moratuwa

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Chandula Jithmi De Zoysa

(218015C)

Thesis submitted in partial fulfillment of the requirements for the degree Master of  
Science in Civil Engineering

Department of Civil Engineering

University of Moratuwa

Sri Lanka

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## **Declaration of the Candidate & Supervisors**

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Date: 15<sup>th</sup> February 2023

C.J. De Zoysa

The above candidate has carried out research for the Masters thesis under my supervision.

Name of the supervisor: Dr. C.S.A. Siriwardhana

Signature of the supervisor:

Date: 15<sup>th</sup> February 2023

Name of the supervisor: Prof. P.B.R. Dissanayake

Signature of the supervisor:

Date: 15<sup>th</sup> February 2023

Name of the supervisor: Dr. C.S. Bandara

Signature of the supervisor:

Date: 15<sup>th</sup> February 2023

Name of the supervisor: Prof. Harsha Munasinghe

Signature of the supervisor:

Date: 15<sup>th</sup> February 2023

## **Abstract**

### **INTEGRATING TSUNAMI PREPAREDNESS INTO SUSTAINABLE COASTAL CITY PLANNING IN SRI LANKA**

Extreme weather events such as coastal storms, sea level rise, heavy rains and tornados often trouble coastal communities. Additionally, tsunamis occur infrequently, but are one of the most potentially devastating hazards faced by coastal cities owing to their unpredictability and the comparatively higher impact caused by one single event. Sri Lanka became the second highest affected country from the 2004 Indian Ocean Tsunami (IOT) among 15 other countries leaving cascading impacts to the whole nation. Despite the ongoing threat posed by such hazards, Sri Lankan legal frameworks and urban planning guidelines appear to lack the necessary regulations to address tsunami and other coastal hazard risk. Though Sri Lanka approaches towards a noteworthy milestone of launching a rating system for cities, it only spotlights the green features leading to sustainability where resilience aspects are unblended. The research aimed at incorporating Tsunami preparedness measures into sustainable coastal city planning through merging a set of Tsunami Preparedness criteria to the GreenSL Rating System for Sustainable Cities. A systematic review of global and local literature allowed identifying the crucial parameters of Tsunami resilience. A series of local experts revealing the present level of implementation, justified the bottlenecks in local urban planning and resilience parameters of significance. Next, effective strategies for Sri Lanka were developed as a set of criteria under 9 main categories to the GreenSL Rating System for Sustainable Cities with the aid of 8 expert (Delphi) surveys. Analytical Hierarchical Process (AHP) was employed to allocate points to the developed criteria based on the significance of each criterion. It resulted the modified GreenSL Rating System for Sustainable and Resilient Cities carrying total of points including 20 points for disaster resilience. It is recommended to be used for city assessments in coastal regions. A ground level application of the rating system was then carried out based on a local coastal city which disclosed appalling information on the actual level of practice and implementation of ideal sustainable and resilient measures suggested in the rating system.

**Keywords:** Disaster Risk Reduction; Tsunami Resilience; Natural Hazards; Sustainable Cities; Rating System

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