

**Thesis Title :**

A model to measure the Critical Infrastructure disaster resilience in Sri Lanka

**Abstract :**

Critical Infrastructures (CIs) are the primary resources and structures which are essential to the social and economic wellbeing and effective functioning of the communities. 'Disaster resilience' is an emerging terminology that explains the capabilities of a system changing accordingly to face hazardous events without losing its functionality.

A significant amount of impacts on CIs have been reported over the past few years in Sri Lanka due to disasters. This has led to considerable disturbances to the country's economic growth. Priority 3 and priority 4 which are defined in the action plan of the 'Sendai framework', which is established in 2015 (i.e. investing in disaster reduction for resilience and enhancing disaster preparedness for effective response and to "Build back better" in recovery) emphasized the need of evaluation of disaster resilience. Therefore, the quantification of disaster resilience level is vital to understand the current level of a disaster and move forward with the necessary actions. Many tools have been developed to evaluate the resilience level in the global context. The applicability of these tools in Sri Lanka is questionable due to the lack of suitability of the indicators used to measure resilience. Hence, there is a considerable need for a tool to measure disaster resilience levels, which applies to Sri Lanka.

The proposed study seeks to develop a model using system dynamic approaches to measure critical infrastructure disaster resilience applicable to Sri Lanka considering selected case studies from the country. The proposed study will be followed by selecting suitable indicators and variables through a review and expert opinion. The selected indicators and variables will be further tested using a statistical approach.