



# CONSULTATIVE WORKSHOP: STRATEGIC PLAN ON SCIENCE, TECHNOLOGY AND INNOVATION FOR CRITICAL INFRASTRUCTURE AND DISASTER RISK REDUCTION

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# Critical Infrastructure (CI)

United Nations International Strategy for Disaster Reduction (UNISDR) **define** CI as:

“the primary **physical structures, technical facilities and systems** which are **socially, economically or operationally essential to the functioning of a society or community**, both in routine circumstances and in the extreme circumstances of an emergency”



Physical

Electricity and water supply, waste (water) management, transport or information and telecommunication technologies

Socio-Economic

Hospitals, schools and public administration

## Flood Damage Assessment in 2014

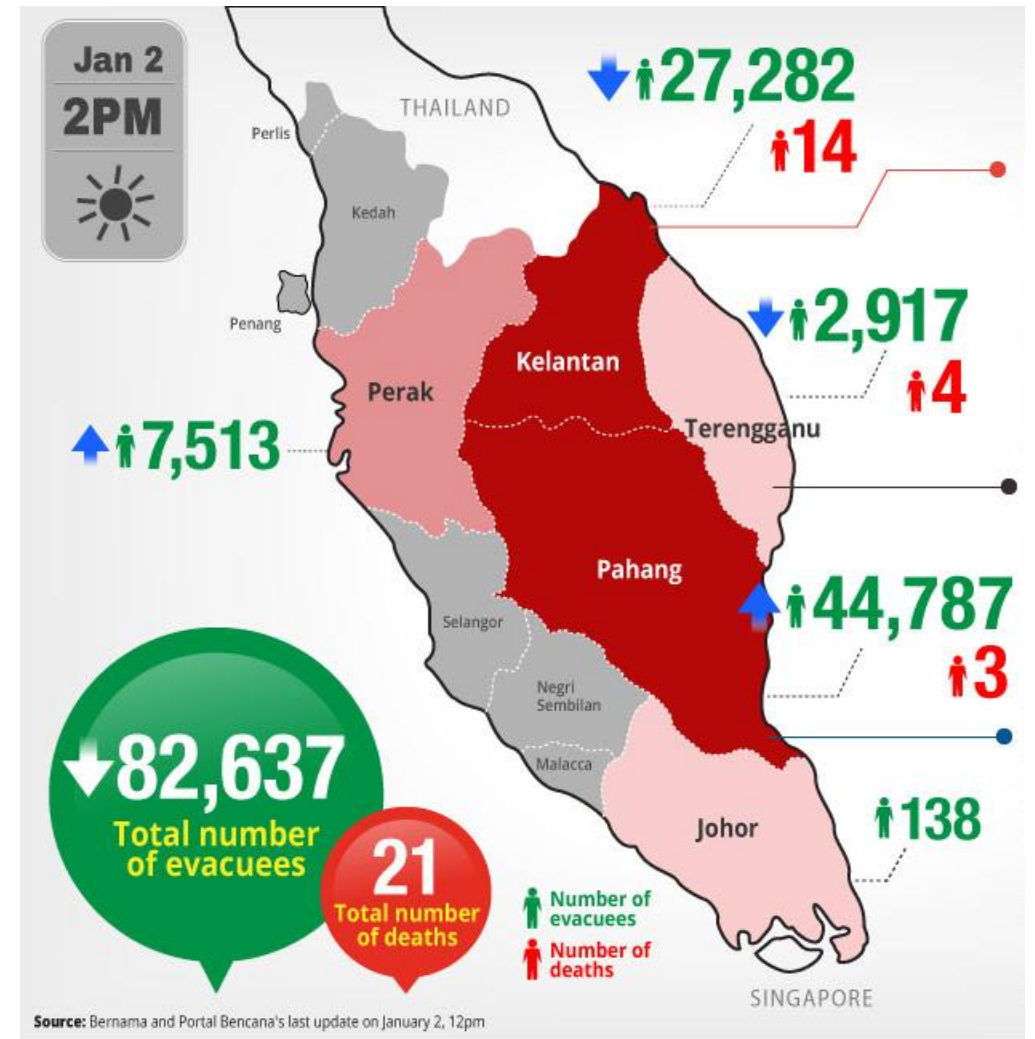
The total repair damaged to property and infrastructure in all the affected states

**close to 1 billion ringgit.**

- **350 million** ringgit to repair damaged schools in five states
- **200 million** ringgit in property damage
- **100 million** ringgit to repair roads in Kelantan
- **132 million** ringgit to repair roads in Terengganu
- **96 million** ringgit to repair 93 collapsed hillslopes along the damaged roads in four states

Source:

<http://newsinfo.inquirer.net/662008/damage-due-to-malaysia-flood-close-to-284m#ixzz4mO1xu8AX>



Source:

<http://www.themalaymailonline.com/malaysia/article/flood-damage-estimate-tops-rm1b>

## CREAM Initiatives



01

Establishment Centre of Excellence - MAMPAN

02

Research activities (short term):

- Multi-Hazard Assessment of Vulnerability Building Index
- Multi-Hazard Assessment of Vulnerability Infrastructure Index
- Big Data Analysis for Integrated System Digitalization

03

Rating Tools

- Malaysian Carbon Reduction and Environmental Sustainability Tool (MyCREST)
- Malaysian Infrastructure Sustainable Rating Tool

04

Seminar and Conference

## STI application in Policy Making

Short Term

Towards

Quadruple Helix  
Approaches:  
Government, Industry,  
Academia and  
Community

**2020**

Guidelines in  
Project / Building  
Development in  
Risky Disaster Area

Multi-Hazard Assessment of  
Vulnerability Building Index

Development of Sustainability and  
Vulnerability Index of Infrastructure

Big Data Analysis for Integrated  
System Digitalization



[STI] Findings, Data,  
Model,

Science-Based Policy  
Making for Resilient  
Construction

# INVITATION TO COLLABORATE

Initiative	Outcomes and Benefits	
R&D	<ul style="list-style-type: none"> <li>• Standard, Guideline, Best practices etc.</li> <li>• Building and infrastructure vulnerability index</li> <li>• Integration of big data in disaster risk reduction</li> <li>• Resilience infrastructure and building to climate change and flooding</li> </ul>	Short Term
	<ul style="list-style-type: none"> <li>• Resilience cities to flooding and beyond</li> <li>• Initiatives towards resilience urbanization</li> </ul>	Long Term
Implementation of sustainable construction agenda with industry	<ul style="list-style-type: none"> <li>• Sustainable design, construction and maintenance for building and infrastructure</li> <li>• Promoting resilience initiative and quick recovery after disaster</li> <li>• Mainstreaming Disaster Risk Reduction in the Construction Industry</li> <li>• Sustainable Environments and Practice</li> <li>• Promote NADMA to become global disaster resilience center</li> </ul>	



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THANK YOU