University of Salford MANCHESTER
1967-2017 50 YEARS

UTHM
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MOBILISE: Multi-agency Collaboration Platform for Building Resilient Communities

MOBILISE
Building Resilient Communities

www.mobilise-project.org.uk

Cabinet Office

RESILIENT GREATER MANCHESTER

Environment Agency

GREATER MANCHESTER PREPARED

TELESPAZIO
a LEONARDO and THALES company

SECURE INFORMATION ASSURANCE

CATAPULT
Satellite Applications

adpc

Khyber Pakhtunkhwa
PDMA-PaRRSA

GCRF
Global Challenges Research Fund

EPSRC
Engineering and Physical Sciences Research Council

Project Funders

Global Challenges Research Funds – *Initiative led by Department for Business, Energy and Industrial Strategy (BEIS)*

- 5-year £1.5Bn fund to deliver the UK Aid Strategy: tackling global challenges in the national interest.
- Encourage UK researchers to take a leading role in addressing the problems faced by developing countries (LMIC) through:
  - Challenge-led disciplinary and interdisciplinary research
  - Strengthening capacity for research and innovation within both the UK and developing countries
  - Providing an agile response to emergencies where there is an urgent research need.
- Special Call - Tackling global development challenges through engineering and digital research

Project MOBILISE (£1.2M)

Tackling global development challenges through digital research

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Engineering and Physical Sciences Research Council

- Aim : to develop a digital infrastructure that can offer intelligence to a range of agencies to work together to reduce the impact of disasters such as floods and landslides on communities.
- Scientific Objectives
  - Digitally enhanced multi-agency collaboration models
  - Resilience frameworks that can measure resilience
  - Modelling community & infrastructure vulnerability
  - Model cascading effect of disasters
  - Social media and real-time intelligence gathered through Space technology for real-time monitoring
  - 3D visualisation of real-time satellite data for supporting disaster response

Targeted Impact

- Focus : Disaster risk reduction (pre-disaster phase) and disaster response
- Chosen countries : Sri Lanka, Malaysia, Pakistan (+ UK)

Ref: Disasters in Asia and the Pacific: 2015 Year in Review", the United Nations Economics and Social Commission for Asia and the Pacific (UN/ESCAP, 2015)

Global Team

Building on our long term R&D work with national and international partners

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THINKlab : Technology Competent Centre

Technology Enhanced Collaboration

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UK Partners

Centre for Disaster Resilience

- Risk management and sustainability
- Community engagement and participation in reconstruction
- Disaster risk reduction and culture
- Improved disaster resilience through social media interaction

- University of Moratuwa
- University of Colombo
- University of Peshawar
- Universiti Tun Husein Onn Malaysia
- Asian Disaster Preparedness Centre

Global Team

Scientific Partners

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UK Team

Prof. Terrence Fernando

Dr. Chaminda Pathirage

Dr. Udayangani Kulatunge

Sri Lankan Team

Prof. Sam Hettiarachchi

Prof. Siri Hettige

Pakistan Team

Dr. Mushtaq Jan

Prof. Noor Jehan

Dr. Noralfishah Sulaiman

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Global Team

Steering Committee

UK Steering Committee

- **Chair: Luana Avagliano**, Head of ResilienceDirect, Cabinet Office
- Kathy Oldham, Chief Resilience Officer, GMCA.
- Asma Jhina **(**Associate Director, 100 Resilience Cities)
- Gwen Scott (Operation Mangager, Environment Agency)
- Dan Wicks (Senior Earth Observation Specialist, Satellite Applications Catapult)
- Geraint Cooksley (Principal Earth Observation Consultant, Telespazio)
- Martin Knapp (Managing Director, Secure Information Assurance Ltd)

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Sri Lankan Steering Committee

- **Chair: Hemanthi Goonasekara,** Federation of Sri Lankan Government Authorities
- Srimal Samansiri, Assistant Director R&D, Disaster Management Centre
- Dr. Senaka Basnayake, Department Head, Climate Change and Risk Management Division, Asian Disaster Preparedness Cen.
- Arumaithurai Subakaran, Executive Director, Centre for Governance Innovations
- Ananda Mallawatantri, Country Representative,International Union for Cons ervation of Nature (IUCN).
- Chief Secretaries of Sabaragamuwa and Cenrtal Province.

Pakistan Steering Committee

- **Chair: Mr. Muhammad Khalid**, Director General, Provincial Disaster Management Authority, Government of Khyber Pakhtunkhwa-Pakistan
- Mr. Imdadullah Khan, Jehanghira Union Council, District Nowshera
- Mr. Rahat Jan, Managing Director, Inaratech-Pakistan
- Mr. Rafatullah, Director, Nowshera Rural Development Foundation-Pakistan

Malaysian Steering Committee

- **Chair : Mohd Ariff Baharom**, Deputy Director General, Planning & Preparedness Sector of the National Di saster Management Agency
- Datuk Zainal Bin Hussin, Mayor, Melaka Historic City Council
- Dr. Zuhairi Abdul Hamid, Executive Director, Construction Research Institute of Malaysia

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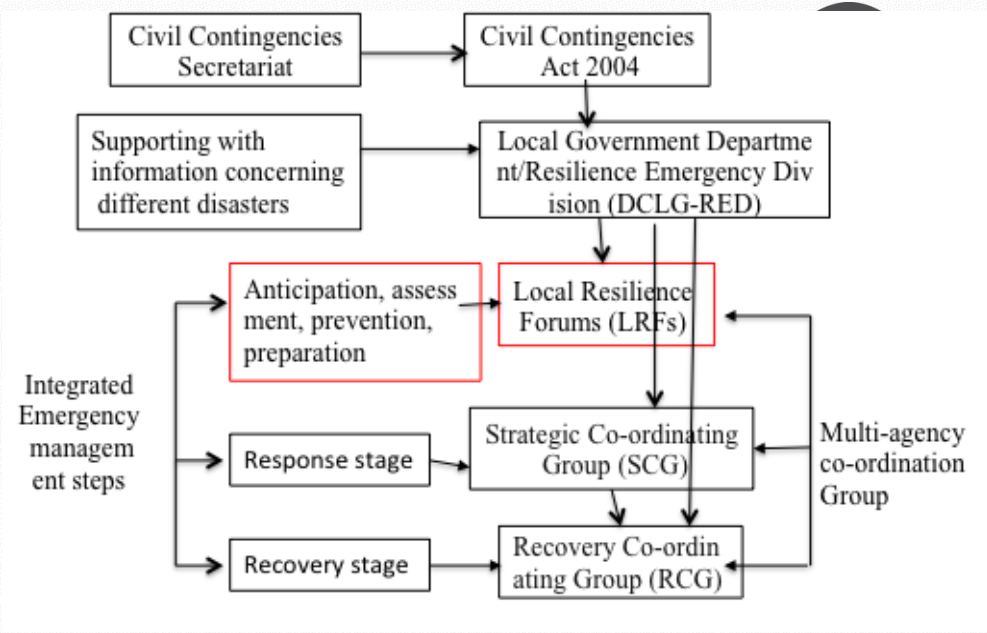
Multi-agency Collaboration

Multi-agency Collaboration in UK



- How can we strengthen multi-agency collaboration in Sri Lanka, Pakistan and Malaysia through advanced digital technology?
  - Different political and administrative systems
  - Digital Strategy

Vulnerability Assessment, Mitigation and Resilience

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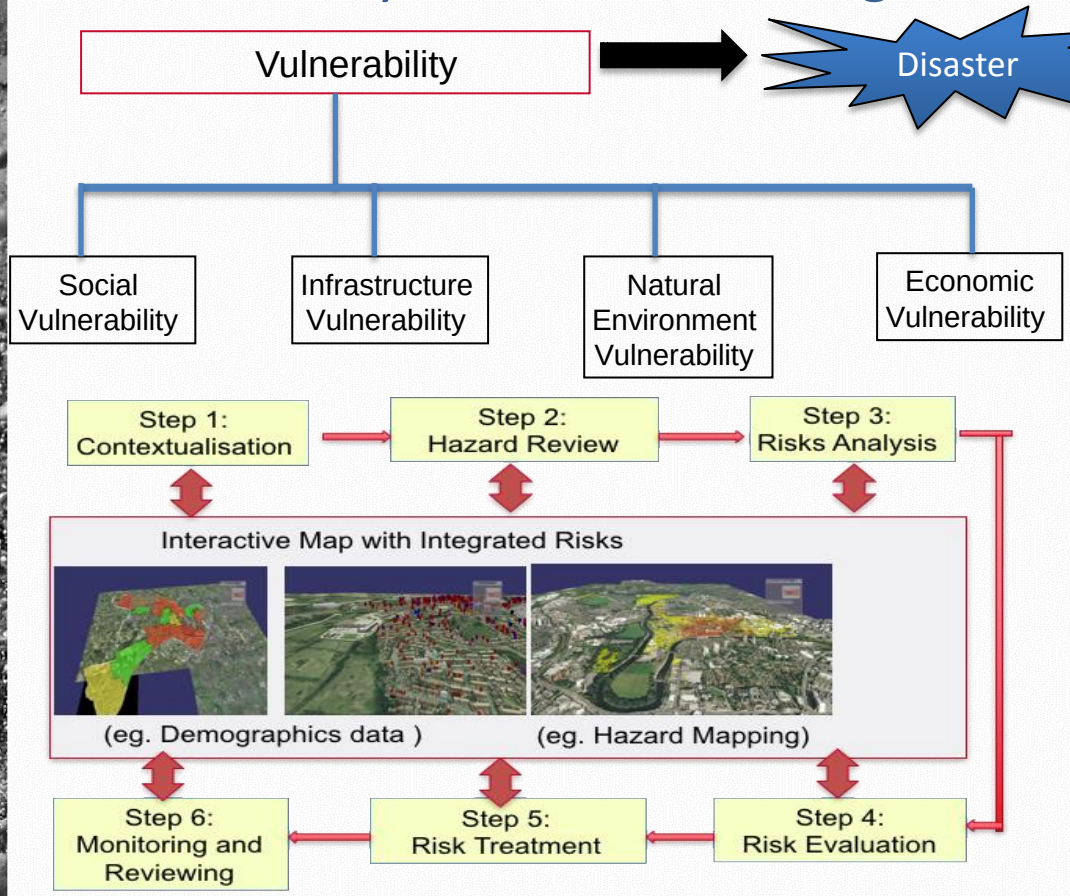


- Use Six-step risk assessment process (Contextualisation, hazard review, risk analysis, risk evaluation, risk treatment, monitoring & reviewing)
- Develop a web-based collaboration platform that can support collective vulnerability assessment, mitigation and resilience.
- Resilience framework that can compute dynamic resilience capacity

Resilience Framework that can Measure Resilience

Recommended Resilience Framework in Sri Lanka
(Source : Disaster Management Centre, 2015)

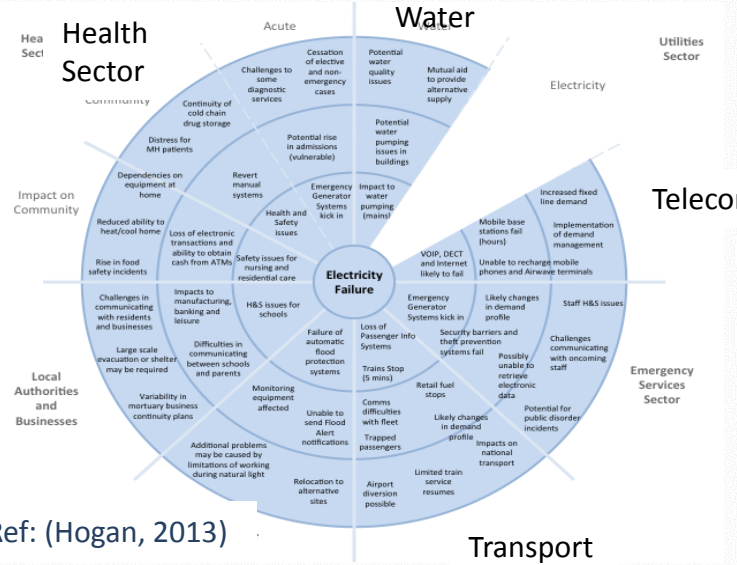
Current Approaches for Measuring Resilience

- Uscore 2 (http://uscore2.eu/)
  - Developing Self-assessment tool-box to assess resilience
- 100 Resilience City Self Assessment Tool

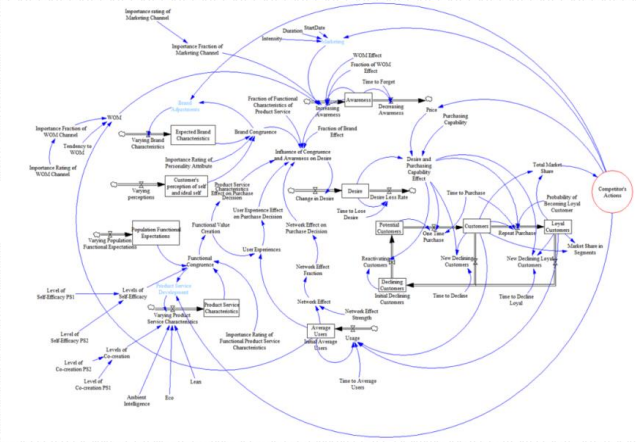
❖ How can we measure community resilience ?

❖ To explore quantitative measures

Modelling Disaster Cascading

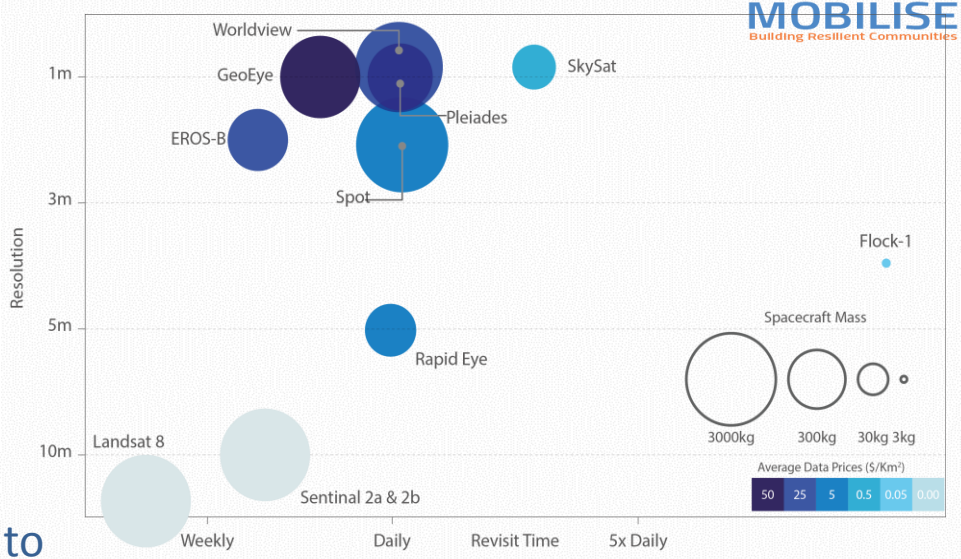


Ref: (Hogan, 2013)



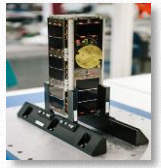
- Develop a decision support system, based on **spatial system dynamics** that can be used by multi-agencies to assess the vulnerabilities, risks and consequences of hazards on critical infrastructure

Real-time Intelligence During Disasters



Source: Satellite Application Centre

- Extend risk assessment platform to be used during **disaster response phases** by integrating real-time data (weather, 2D satellite data, crowdsourcing)



Near real-time 3D VR Environment of live disaster events

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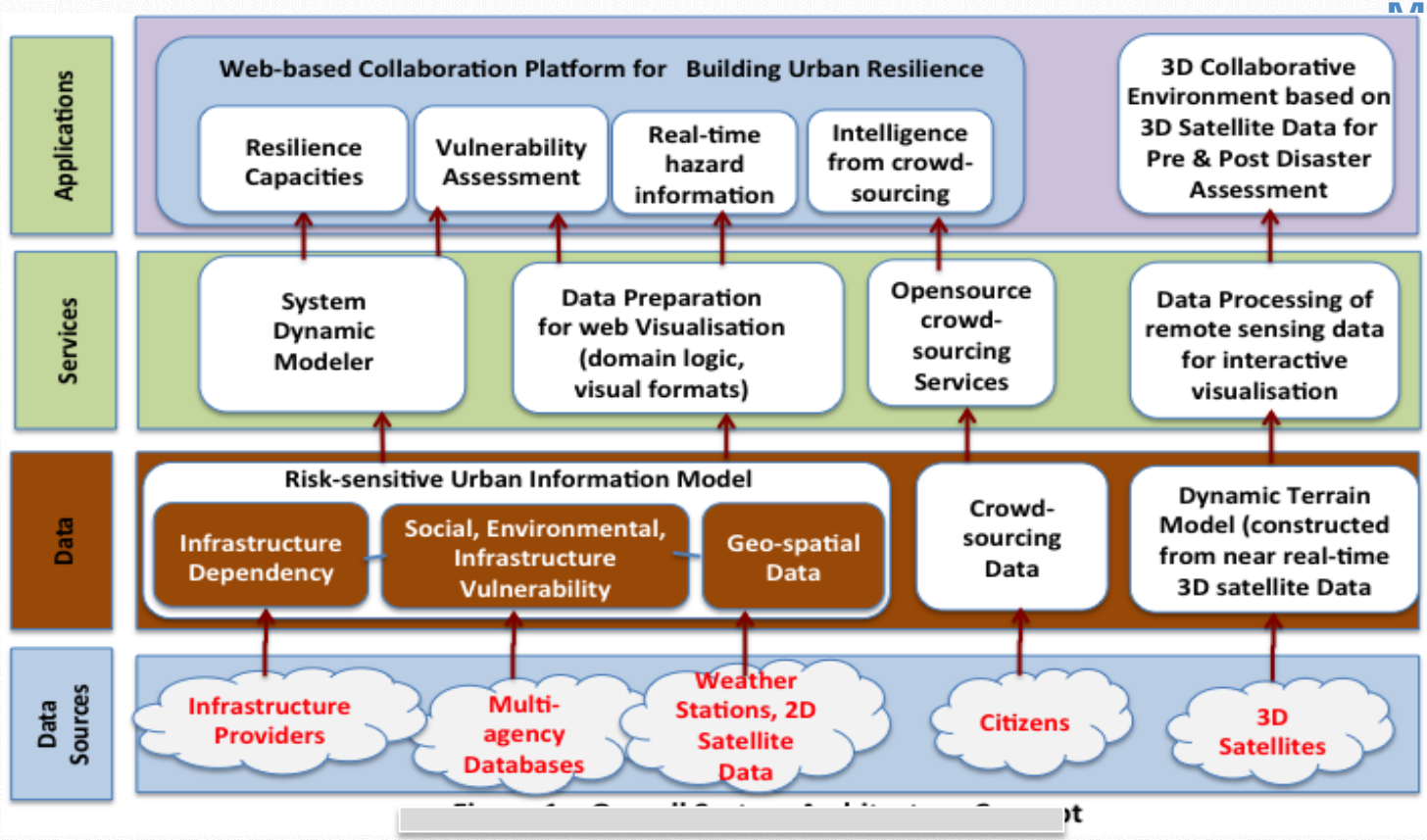
- Real-time data from satellites (+ drones)
- Implement a **novel 3D collaborative environment** that allows remote teams to get an accurate picture of a disaster event through near real-time **3D satellite data and analytics**

MOBILISE Technology Architecture



Summary : Key Implementation in Sri Lanka

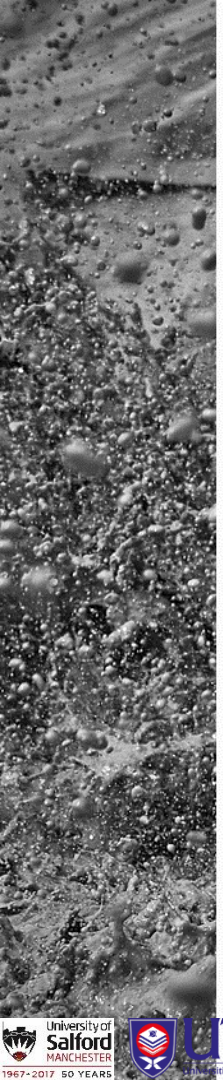
- Establish a resilience Framework that has the following elements (dynamic resilience framework that can evolve over time, toolkit for measuring resilience)
- Computer simulation model that can capture cascading affect of disaster that will allow the team to understand dependencies of vulnerabilities and decide how best to reduce them.
- Assess the current multi-agency collaboration approaches and propose a collaboration model / approach that can promote better collaboration using digital technologies and co-ordination processes.
- Establish a digital platform that can combine both remote sensing data and in-situ data to assess vulnerabilities and build disaster resilience
- Establish a community engagement platform
- Use of real-time satellite data for disaster response (3D)

8.00am-08.30am	**Registration**
8.30am-8.45 am	Welcome Speech: Minister of Disaster Management, Honourable Minister Anura Priyadarshana Yapa, Ministry of Disaster Management
8.45am - 9.05am	MOBILISE Project: Multi-agency Collaboration Platform for Building Local Resilience Prof. Terrence Fernando, THINKlab, University of Salford, United Kingdom
Session 1 : Disaster Risk Reduction and Resilience	
9.05am – 9.35am	Approach for Measuring Ten Essentials for Creating Resilient Cities Mr. Jon Percival, Greater Manchester Resilience Forum, United Kingdom
9.35am - 9.55am	Importance of Disaster Risk Reduction in Sri Lanka Mr. Kingsley Fernando, Secretary of Minster of Disaster Management, Sri Lanka
9.55am – 10.15am	Measuring Disaster Resilience and Challenges Dr. Chaminda Pathirage, Centre for Disaster Resilience, University of Salford, United Kingdom
10.15am – 10.35am	Ecological Approach to Disaster Risk Reduction Dr. Ananda Mallawatantri, International Union for Conservation of Nature, Sri Lanka.
10.35am - 10.50am	Panel Discussion
10.50am -11.20am	Refreshment Break

Session 2: Multi-agency Collaboration (Chair: Dr. Chaminda Pathirage, University of Salford)	
Challenges in Building Multi-agency Collaboration in Sri Lanka Emeritus Prof. Siri Hettige, Department of Sociology, University of Colombo, Sri Lank	
Stakeholder Collaboration for Knowledge Management in Preparedness, Dr. Buddhi Weerasinghe, ADPC	
Community Engagement Platforms During Disaster Response Mr Sudath Madugalle, Sri Lanka Red Cross Society, Sri Lanka	
Panel Discussion	
Lunch	

Session 3 : Applications of Space Technology in Disaster Risk Reduction (Chair: Prof. Terrence Fernando)	
1.50pm – 2.10pm	Role of Satellite Technology in Disaster Risk Reduction and Response Mr. Juan Carlos Villagrán de León, UN-SPIDER, Germany
2.10pm – 2.30pm	The Use of Space Technology in DRM in Sri Lanka Mr. Srimal Samansiri, Disaster Management Centre, Sri Lanka.
2.30pm – 2.50pm	Managing Floods and Drought for Improved Risk Management Solutions Using Space Technology Dr Giriraj Amarnath, International Water Management Institute, Sri Lanka
2.50pm - 3.10pm	A Digital Earth Platform in Support of Disaster Risk Reduction Mr. Stefano Natali, MEEO Srl, Ferrara, Italy
3.10pm – 3.20pm	Discussion
3.20pm – 3.50pm	Refreshment Break

Session 4 : Digital Platforms for Disaster Risk Reduction (Chair Prof. Terrence Fernando)	
3.50pm – 4.10pm	Technology Platforms for Accessing Disaster Risk Information Mr. Suranga Kahandawa, South Asia Disaster Risk and Climate Change Unit, The World Bank, Sri Lanka
4.10pm – 4.30 pm	Use of Geospatial Technology and Innovation in Early Warning Systems and DRR: Experience from FAO work Dr. Lorenzo De Simone, Food and Agriculture Organization of the United Nations (FAO), Italy
4.30pm – 4.50 pm	On-going Technology Projects in Asia for Building Disaster Resilience Dr. Senaka Basnayake, Asian Disaster Preparedness Centre, Thailand
4.50pm – 5.10 pm	Multi-agency Collaboration Platform for Building Disaster Resilience in the Local Context: MOBILISE Approach Prof. Terrence Fernando, THINKlab, University of Salford, United Kingdom
5.10pm – 5.30pm	Panel Discussion
5.30pm	Close



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Thank You !

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