TC21 Special Session on JSCE Annual Meeting

How COVID-19 affected Trans-disciplinary Approach (TDA) and decision making on building disaster resilience?

06 September 2021 13:00-15:00 (UTC+9)

Advancing Compound Disaster Risk and Societal Resilience in Malaysia: Progress and Challenges

Khamarrul Azahari Razak

Universiti Teknologi Malaysia (UTM) Kuala Lumpur

[1] Director, Disaster Preparedness and Prevention Center (DPPC),
Malaysia-Japan International Institute of Technology (MJIIT), Universiti Teknologi Malaysia (UTM)
[2] Science and Technology Expert Panel for Disaster Risk Reduction (STEP for DRR)
National Disaster Management Agency (NADMA), Prime Minister's Department Malaysia
[3] Member, Working Group on Climate Change & Disaster Risk Reduction,
Global Young Academy, Germany @ https://globalyoungacademy.net
[4] Technical Committee, Asian Civil Engineering Coordinating Council (ACECC),
TC21: Transdisciplinary Approach for Building Societal Resilience to Disasters, Japan

khamarrul.kl@utm.my I +6019 3649495

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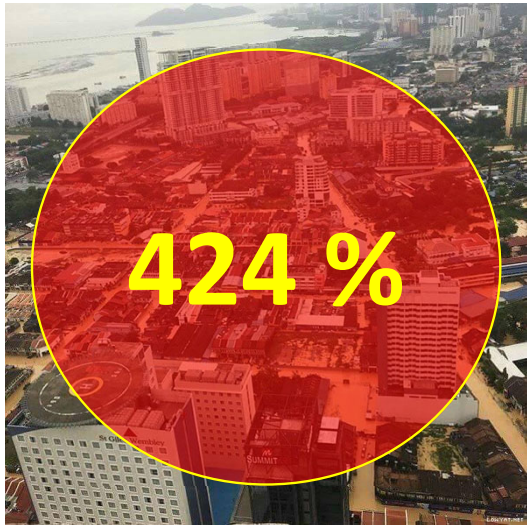
REJUVENATING OUR CITIES AND SOCIETIES IN A COVID-19 TRANSFORMED WORLD

CONTENT I Disaster Risk (Before-during COVID-19 pandemic) | Transdisciplinary Approach I Rapid Assessment & Observation (Climate-induced disaster & COVID-19) I Conclusions

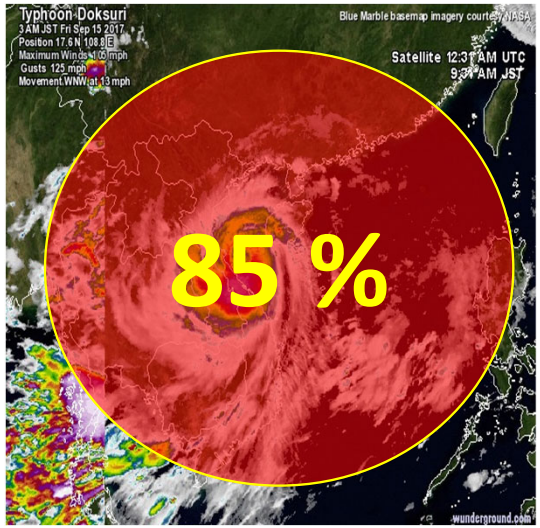
Disaster risk, climate change, and risk-sensitive development in Malaysia (BEFORE COVID-19)



424% economic losses (Data provided by National Disaster Management Agency (NADMA) Prime Minister's Department based on data compiled in the period of 2009-2018 for the Sendai Framework Monitor Report (as per 29 October 2019)

32% rainfall increment (Projected change in maximum monthly value in North-East Region (Terengganu, Kelantan, Pahang) based on average annual rainfall and mean temperature (1984-93 vs 2025-34 & 2041-50);

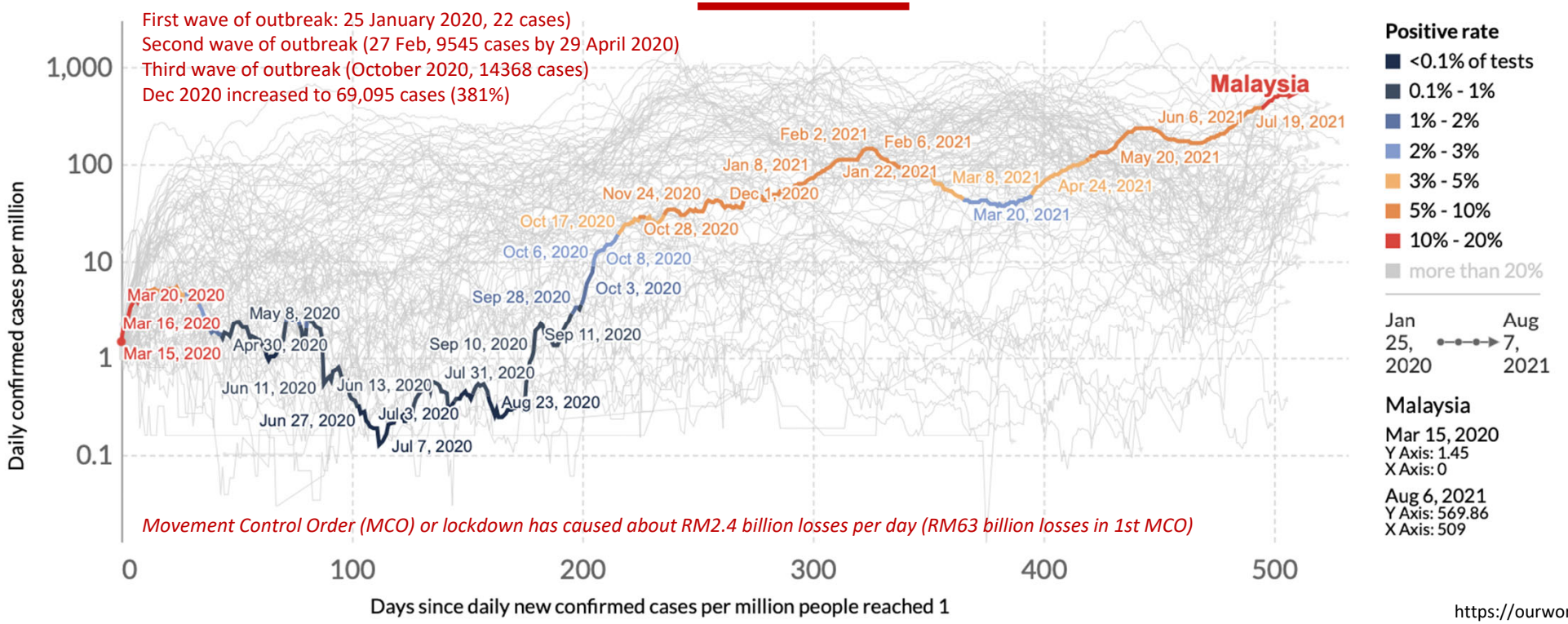
67% population in Malaysia exposed to floods based on distribution of Disasters in ASEAN (July 2012-January 2019) as stated in ASEAN Risk Monitor and Disaster Management Review (ARMOR) AHA Centre



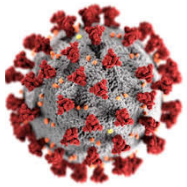
Urbanization rate is expected to increase up to 85% by 2040, as provided by Federal Department of Town and Country Planning. Mainstreaming DRR in the development planning is challenging.

Northeast monsoon (Nov 2020 – March 2021)

DPPC Rapid Assessment 2020/2021 (Field reconnaissance & site survey)



Movement Control Order (MCO) or lockdown has caused about RM2.4 billion losses per day (RM63 billion losses in 1st MCO)



https://ourworldindata.org

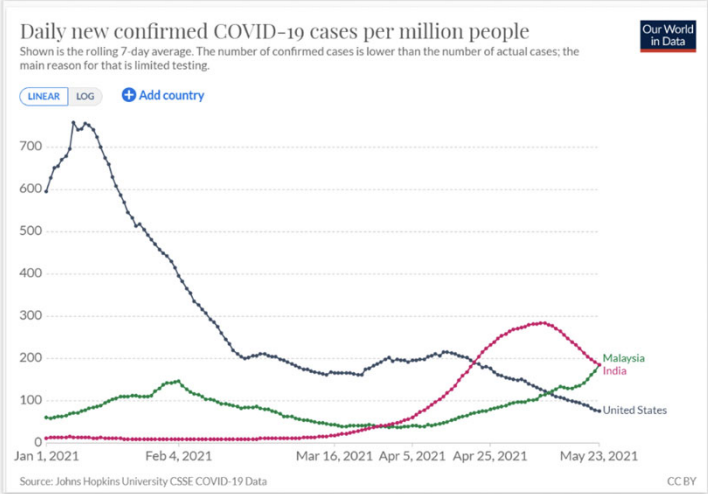
https://github.com/CSSEGISandData/COVID-19

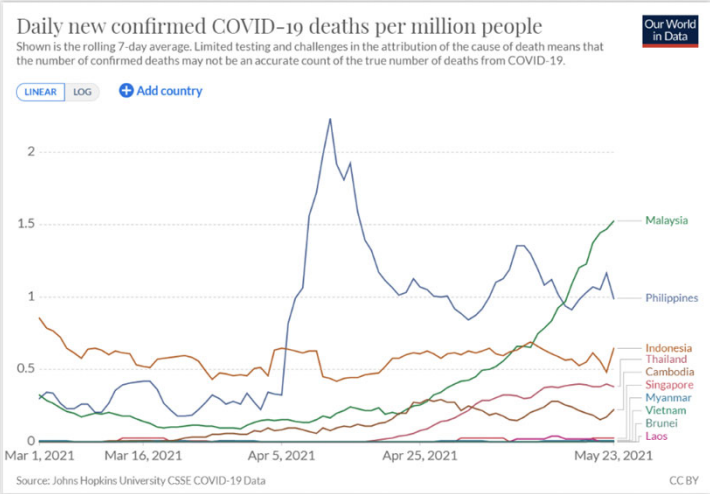
Source: COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University

– as per 6 August 2021

Total positive cases: 1,224,595 (6.44%) I 20,889 daily new cases I 160 new death Total death 10,179 (0.83%)

khamarrul.kl@utm.my





CNBC

ASIA ECONOMY

Malaysia's daily new Covid cases per million people is now one of the highest globally

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Yen Nee Lee
@YENNEE_LEE

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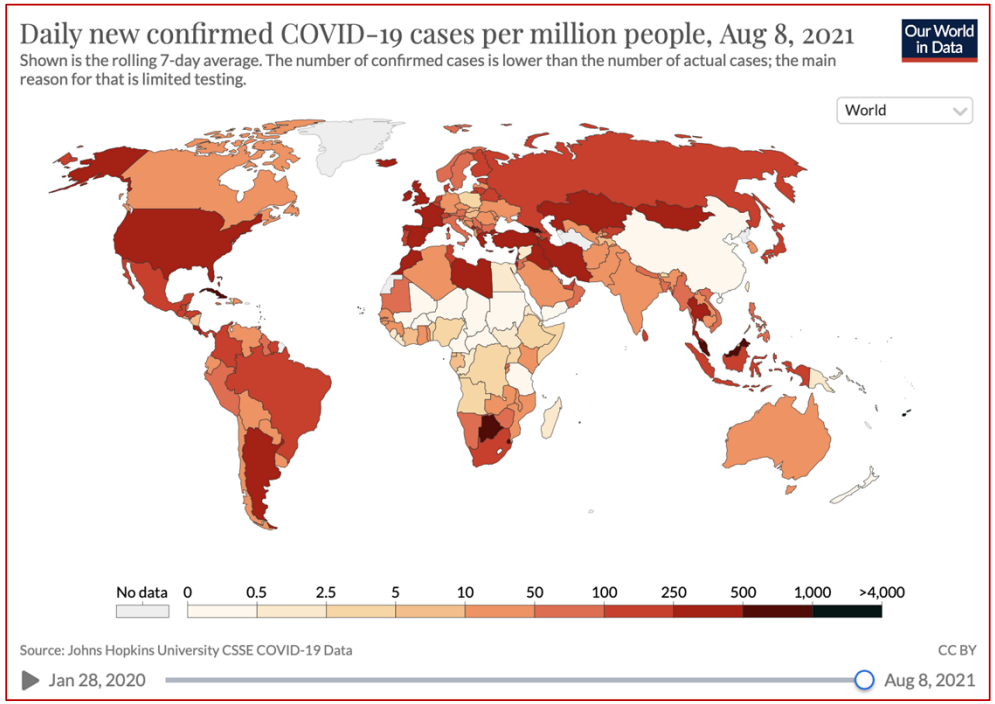
OPINION

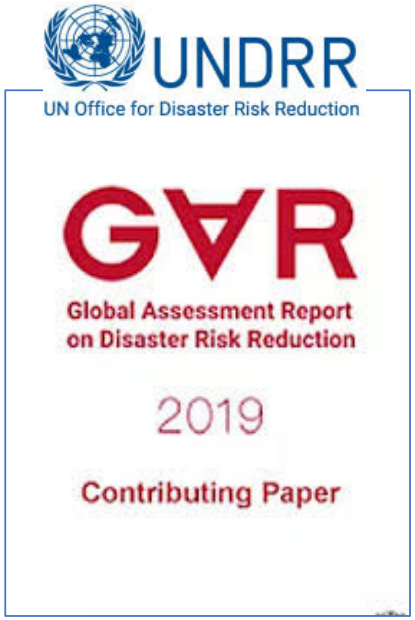
Opinions | Coronavirus pandemic

Malaysia: From COVID role model to a mini-India



khamarrul.kl@utm.my

Rejuvenating disaster risk reduction and resilience through transdisciplinary approaches

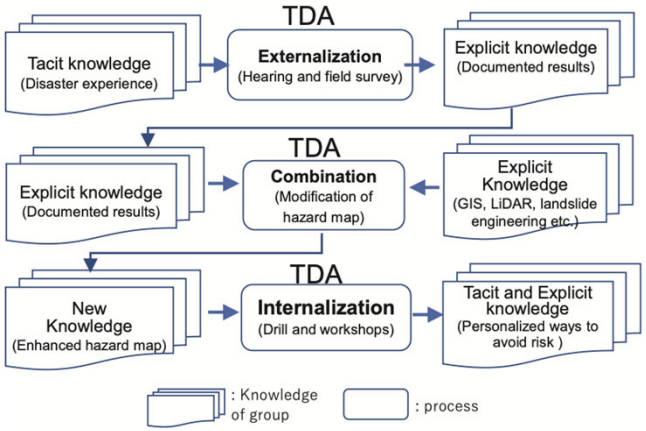


https://www.preventionweb.net/publications/view/66188

Key elements for TDA implementation

- DRR is seen as a holistic and cross-cutting issue
- Network with various stakeholders from wide range of expertise
- Stakeholders collaborate from planning to implementation with aim to solve a common issue
- Scientific knowledge is tested and implemented in practice on the field
- There are policies that support, encourage or requires TDA
- Budget is allocated to implement TDA
- There are capacity building programs to nurture future implementers of TDA
- Scientific knowledge is reflected in the policies

Matsuura, S. and Razak, K. (2019), "**Exploring transdisciplinary approaches to facilitate disaster risk reduction**", *Disaster Prevention and Management: An International Journal*. https://doi.org/10.1108/DPM-09-2019-0289



Cycle of knowledge-flow. New knowledge (enhanced hazard map) is generated by combining the externalized tacit knowledge (disaster experience) and contemporary landslide engineering (Kuraoka et al 2020)

https://www.fujipress.jp/jdr/dr/dsstr001500070868/

Transdisciplinary Approach (TDA): An approach to achieve a common societal goal, by all players and stakeholders at all levels of all related disciplines (natural, social and humanity sciences) and sectors (public, private, academia, and civil) working together, going beyond the limit of disciplinary knowledge and sectoral capacities by creating innovation means, and making holistic and transformative solutions possible

khamarrul.kl@utm.my

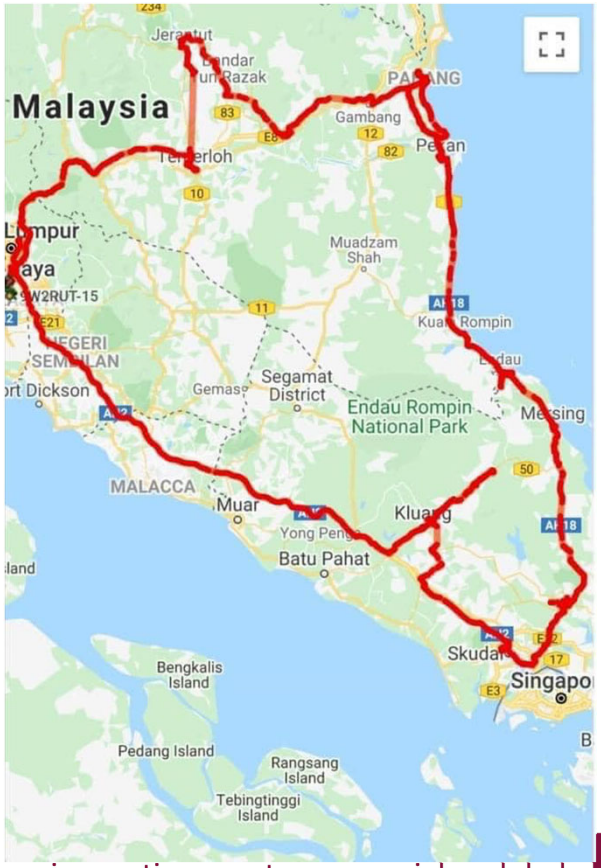
Rapid Assessment & Observation I Climate-induced Disaster & COVID-19 Pandemic

22-27 December 2020 I 08-12 January 2021 (monsoon season, Nov 2020-March 2021)

Field reconnaissance I Site survey I Technical visits to riverine floods prone areas
Engagement with State & District Disaster Command Center I Meeting & Discussions

Disaster Preparedness & Early Warning & Evacuation & Societal Resilience
- Floods, Landslides & COVID-19 pandemic -

Pahang – Perak –Kelantan – Terengganu & Johor - Pahang (1500 km road travel)



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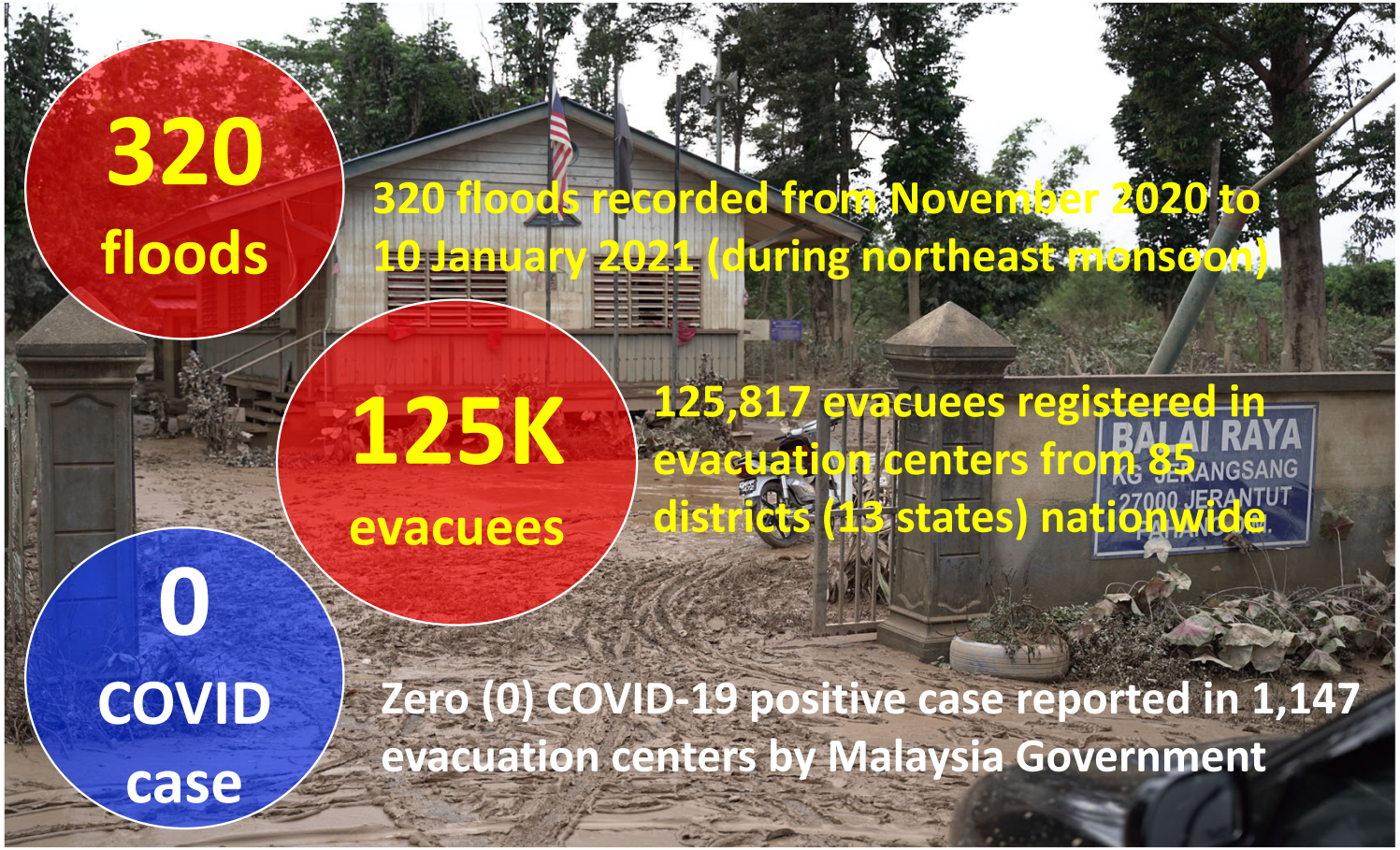
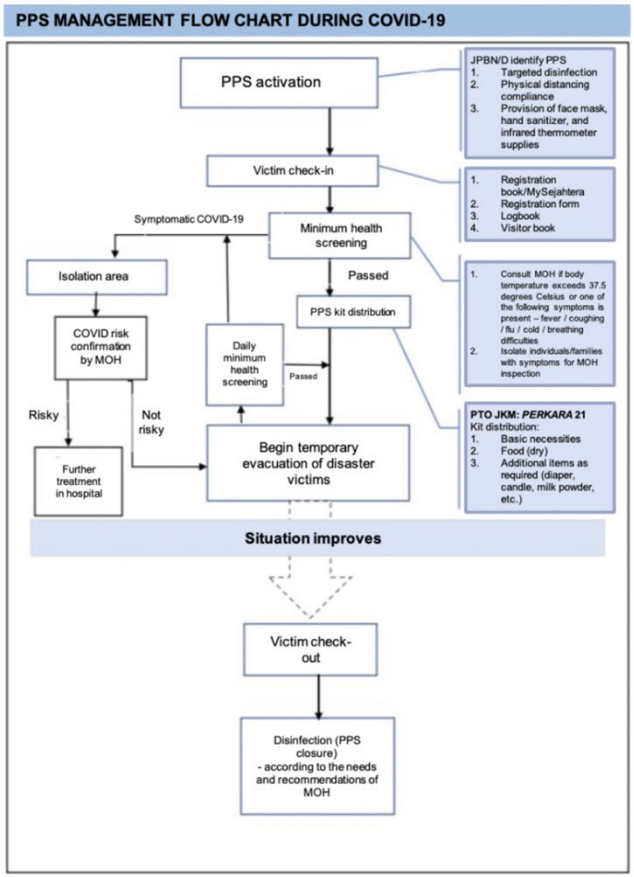


Guideline for Disaster Management COVID-19

Effective date: 22 October 2020



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Community-based Disaster Risk Reduction (CBDRR) 2021

Organizing CBDRR amidst COVID-19
Engaging Island-community
Empowering Local Champions
Conducting Town Watching DRR program
Enhancing Local Risk Communication
Reviewing Disaster Evacuation Plan
Designing Local DRR Resilience Strategy

Progress and challenges

Effectively managing and advancing compound disaster risk & societal resilience

1. Risk Assessment & Management
2. Risk Governance & Communication
3. Risk Development & Investment

khamarrul.kl@utm.my

A. Risk Assessment & Management

1. Advancing science and technology for mapping, modelling & assessing compound risk (water-related disaster & COVID-19 pandemic): Integration & Geo-Visualization & Big Data Analytics

2. Supporting impact-based early warning system: Early action & Rapid evacuation & localization & Impact analysis

3. Empowering local and indigenous knowledge for rapid assessment
   Unstructured process, ad-hoc basis, poorly treated in data integration

khamarrul.kl@utm.my

B. Risk Governance & Communication

1. Empowering the Secretariats of disaster management committee & local government for managing compound disaster risk : Resources/ manpower & public-private/donors-academia-NGOs (shared responsibility)

2. Managing security & safety and balancing the life and livelihoods: Strong leadership, Line of command & social trust

3. Cultivating evidence-based decision making for action (prediction/early warning, evacuation, and mitigation): Digital medium, platforms and tools for public warning and dissemination & Community-led action & localization

khamarrul.kl@utm.my

C. Risk Development & Investment

1. Mainstreaming DRR into local development planning & DRR investment: Cost-benefit & Enforcement & Political will & Co-Budget

2. Enhancing the protection of risk-sensitive environmental areas and critical infrastructures: Data updating & damage / loss assessment & Resilient infrastructure

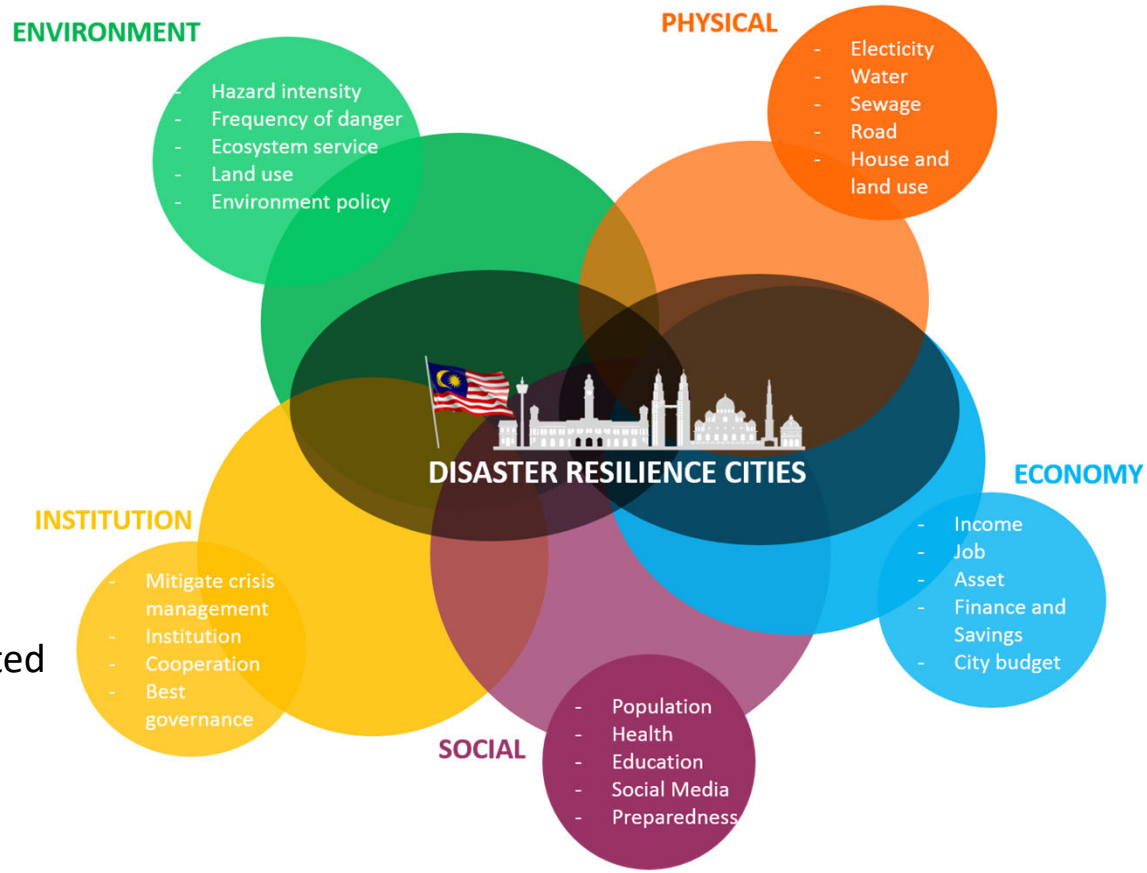
3. Reframing future impact scenarios for sustainable development strategy: Digital transformation & technology infrastructure & Risk-informed development

Conclusions & Recommendations

1. **3X3 Progress and Challenges** for managing and advancing compound disaster risk (Complex scenario, situational awareness technology, and pandemic risk reduction for resilience);

2. **Crisis comes opportunity** -> we must promote Transdisciplinary Approach (TDA) for building resilience (COVID-19 Rapid recovery & build-back-better);

3. **Transdisciplinary Approach (TDA)** must be locally adapted & practically implemented (Multi-tier decision-making process for action & Evidences for TDA localizations are critically needed !!)



khamarrul.kl@utm.my

ご清聴ありがとうございます

- Arigatou Gozaimasu -

Khamarrul Azahari Razak, PhD
Disaster Preparedness and Prevention Center (DPPC)
MJIIT, UTM Kuala Lumpur
Email: khamarrul.kl@utm.my; Tel: +6019 3649495