1.2 Health EDRM and research

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Objectives

This chapter is designed to enable readers to:

- understand the imperative for health emergency and disaster risk management (Health EDRM) as a transformational paradigm for managing health risks and consequences of all types of emergencies and disasters

- describe the principles, approaches and components of the WHO Health EDRM Framework

- make the case to use and strengthen evidence and research to support Health EDRM decision-making and practice which frames the need for, scope and content of the Guidance

- appreciate how this book provides guidance on conducting and/or commissioning high quality research for Health EDRM that meets the needs of those who will use it

Consequences of emergencies and disasters

NB. Data on risks and consequences of emergencies and disasters are dynamic. Data should be updated as required. Local data can be added.

Guidance on Research Methods (published 2019)
- natural hazard-related disaster data between 2008 and 2017 (annual averages):
  o nearly 70,000 deaths, approximately 200 million people affected
- economic losses of more than US$160 billion.
- tens of millions affected by conflict

Updated set of available data at Dec 2020 (sources indicated)
- Humanitarian assistance: 235million people in need (OCHA 2020)

Natural hazard-related events (large-scale events, 2010-2019) (IFRC World Disasters Report 2020):
- Events: 285/year
- Deaths: 74 000/year
- People affected: 175m/year
- Economic losses: $192bn/year (natural hazard-related)

Consequences of emergencies and disasters (2)

Biological: 200 major outbreaks/year (GPMB 2019)

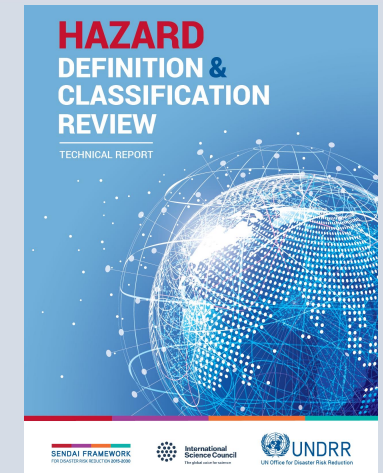Add other data such as latest COVID-19 data

Consequences also include:
- other types of emergencies: biological and technological events (e.g. epidemics, transport, air pollution)
- other health effects includes injury, illness, disability, mental health
- medium and long-term effects on health, livelihoods, economy, environment, etc
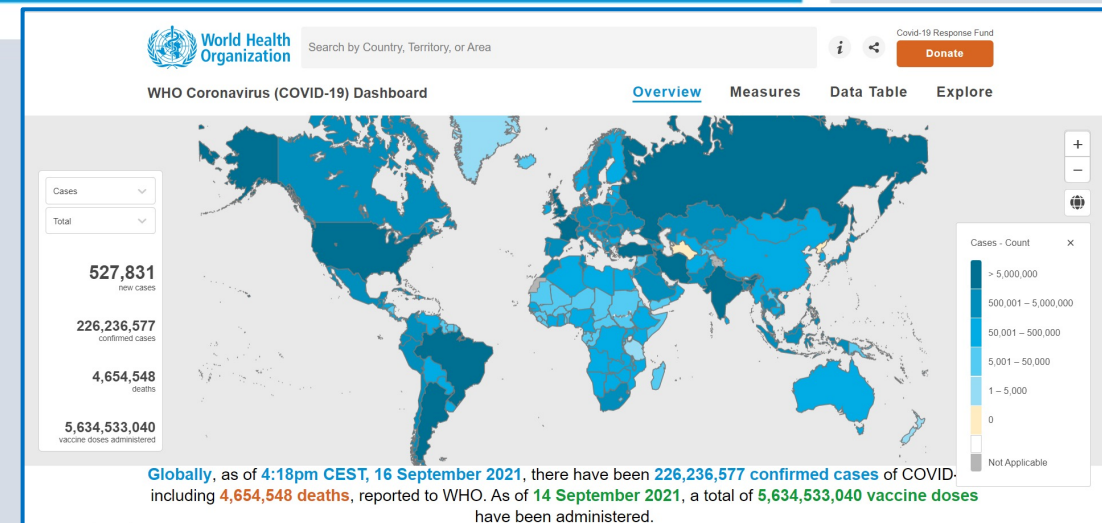
WHO Classification of Hazards – groups, types

Groups	Sub-groups	Examples of main types
Natural	Geophysical	Earthquake, geophysical-triggered mass movement, tsunami, volcanic activity
	Hydrological	Flood, wave action, hydrometeorological-triggered mass movement
	Meteorological	Storms, cyclones, extreme temperature
	Climatological	Drought, wildfire
	Biological	Air-, water-, and vector-borne diseases, animal and plant diseases, food-borne outbreaks, antimicrobial resistant microorganisms
	Extraterrestrial	Meteorite impact, space weather
Human-induced	Technological	Industrial hazard, structural collapse, fire, air pollution, infrastructure disruption, cybersecurity, hazardous materials (including radiological), food contamination
	Societal	Armed conflict, civil unrest, financial crisis, terrorism, chemical, biological, radiological, nuclear, and explosive weapons
Environmental	Environmental degradation	Erosion, deforestation, salinization, sea level rise, desertification, wetland loss/degradation

HAZARD
DEFINITION & CLASSIFICATION REVIEW
TECHNICAL REPORT

SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION 2015-2030 | International Science Council The global voice for science | UNDRR UN Office for Disaster Risk Reduction

Refer to ISC/UNDRR Definition and Classification Review (published in 2020, 2021)

Risks associated with emergencies and disasters

Many communities are experiencing increasing risks due to:

- risk drivers include unplanned urbanization, climate change, weak health systems

- exposure and vulnerability exacerbated by poverty, living in risk-prone areas, inequitable access to health/other services, social determinants, age profiles

Emergencies have devastating impacts on community and country's development with impact on pathways to universal health coverage (UHC), overwhelmed health systems, decimated economies

Managing risks of emergencies and disasters

Actors across many disciplines in health and other sectors:
- prevent hazardous events and their health effects
- stop events from becoming emergencies or disasters by:
- preparing for their occurrence,
- responding to and recovering from them.

Actors must be able to access and use research to:
- inform their decision-making and practice
- where uncertainties remain, they must be able to resolve these uncertainties by facilitating new research.
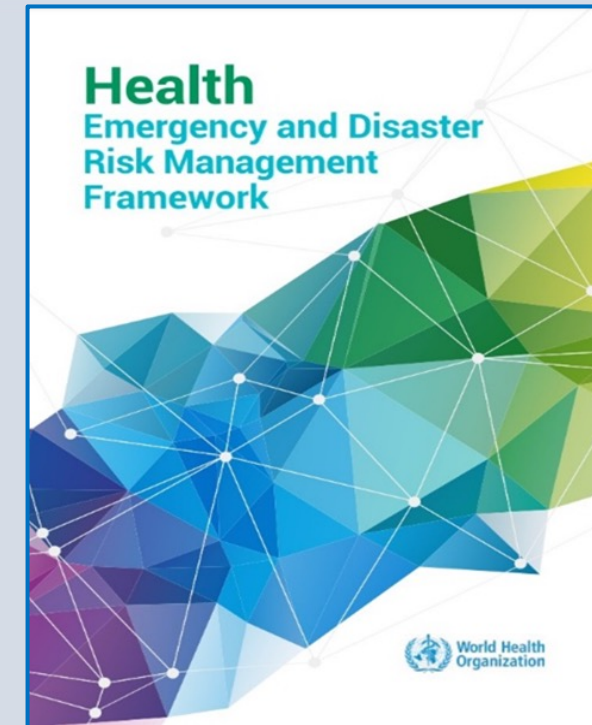
Sendai Framework for Disaster Risk Reduction 2015-2030 & WHO 13th General Program of Work (GPW13)

- Sendai Framework: global agreement is part of 2030 agenda for sustainable development

- Increased emphasis on health (>30 references), science, evidence, research

- Improving the scientific evidence base to advance Health EDRM

- Evidence and research critical for WHO GPW 13 including one billion more people have better protection from health emergencies by 2023
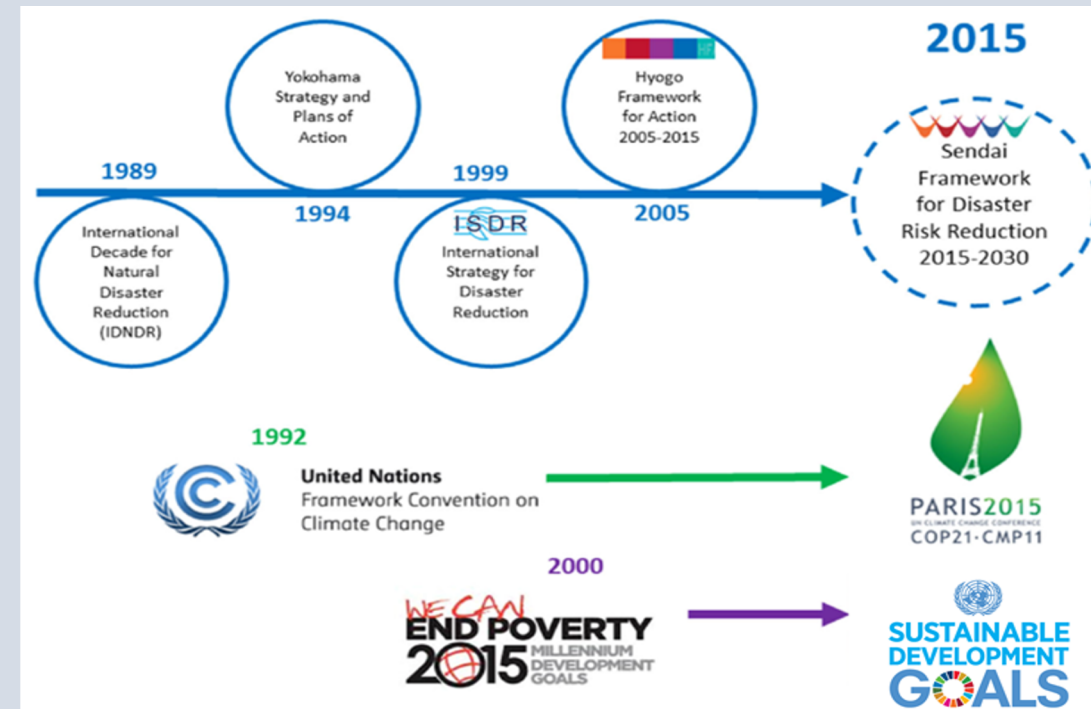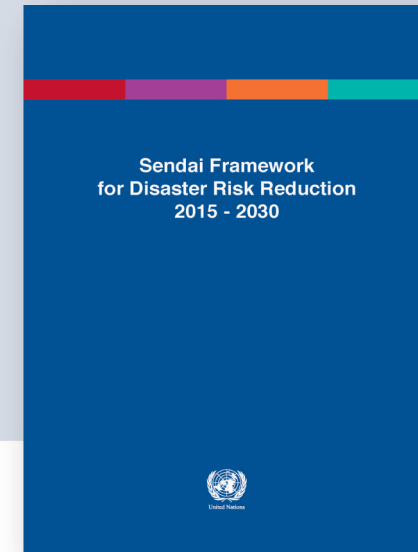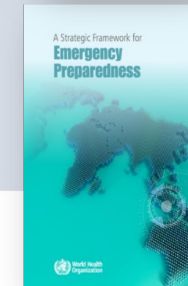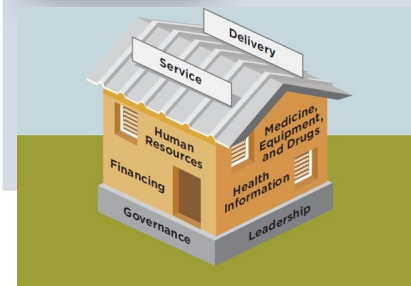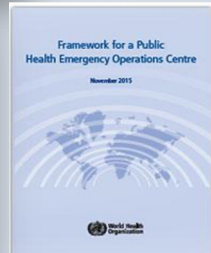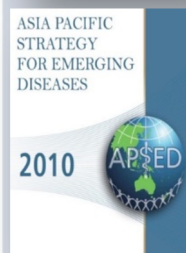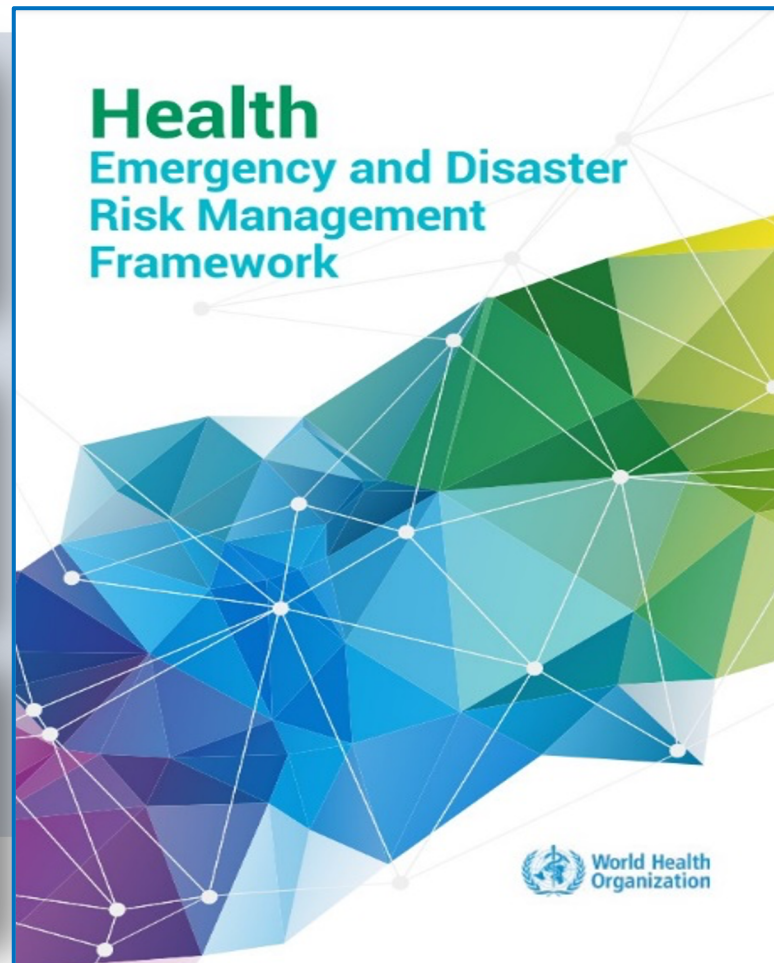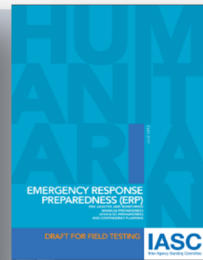
Health Emergency and Disaster Risk Management

- Health EDRM described in the WHO Health EDRM Framework, published in August 2019

- Prevention, preparedness and readiness, response and recovery save lives and protect health

- Entire health system & whole-of-society working together: not one sector working alone

- Communities at centre – high levels of vulnerability (e.g. the poorest, women, children, people with disabilities, older persons, migrants, refugees, displaced persons, people with chronic diseases)

- Reducing health risks and consequences of emergencies: vital to local, national and global health security, building resilience of communities, countries and health systems


Health Emergency and Disaster Risk Management Framework

World Health Organization

Health EDRM: Bridging many frameworks

WHO Health Emergency and Disaster Risk Management Framework

- Safeguards development & implementation: SDGs, UHC, Sendai Framework, IHR, Paris Agreement, etc

- Aligns health security, disaster risk reduction, humanitarian action, climate change & sustainable development agendas

- Bridges the health and multi-sectoral communities across many disciplines

- Integrates health systems, emergency/ disaster management, epidemic preparedness and response, climate change, etc

- Common language for health system actors working together for improved health outcomes and wellbeing for communities at risk of emergencies & disasters

- Continuum of measures - all types of hazards, risks, events (biological, natural, technological, societal)

Health
Emergency and Disaster
Risk Management
Framework

World Health Organization
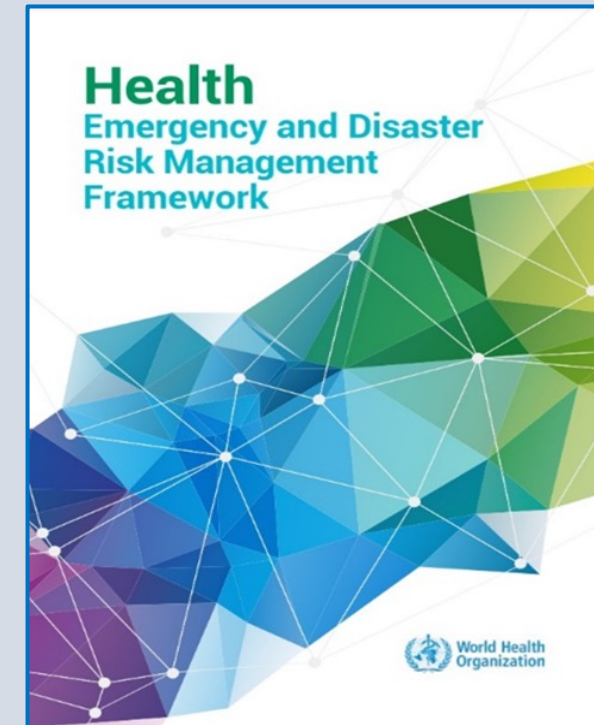
Health EDRM: Summary of changes/transformation

From	To
Event-based	Risk-based
Reactive	Proactive
Single-hazard	All-hazard
Hazard-focus	Vulnerability and capacity focused
Single agency	Whole-of-society/multi-sectoral
Separate responsibility	Shared responsibility of health systems
Response-focus	Risk management
Planning for communities	Planning with communities

WHO Health EDRM Framework

Vision of Health EDRM

Highest possible standard of health and wellbeing for all people who are at risk of emergencies, and stronger community and country resilience, health security, universal health coverage and sustainable development

Expected Outcome of Health EDRM

Countries and communities have stronger capacities and systems across health and other sectors resulting in the reduction of the health risks and consequences associated with all types of emergencies and disasters.

Guiding principles

- Risk-based approach
- Comprehensive emergency management
- All-hazards approach
- Multisectoral and multidisciplinary collaboration
- Inclusive, people- and community-centred approach
- Whole of health system-based
- Ethical considerations

Components of Health EDRM (1)

1. Policies, strategies and legislation
2. Planning and coordination
3. Human resources – workforce capacity, training, safety, security
4. Financial resources - regular budget, contingency funding
5. Information and knowledge management – risk assessments, early warning, **research**
   o supports evidence, knowledge and practice
   o new/innovative risk management measures
6. Risk communications – media, risk comms

Components of Health EDRM (2)

7. Health infrastructure & logistics – emergency kits, safe hospitals, stockpiles
8. Health and Related Services:
    A. Health-care services
    B. Specialized services and measures for specific hazards
    C. Public health measures
9. Community EDRM Capacities
10. Monitoring and evaluation – evidence to support:
    o monitor progress towards meeting Health EDRM objectives
    o monitoring risks and capacities
    o evaluating strategies, programmes and activities

Applying Health EDRM - selected guidance
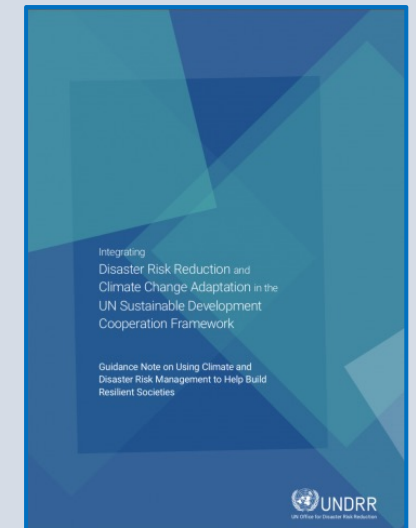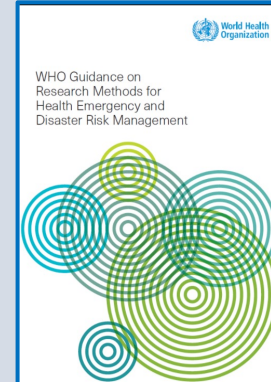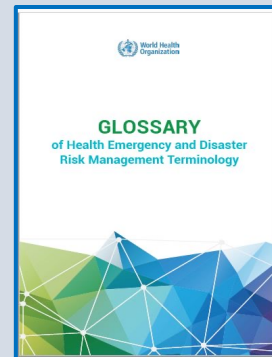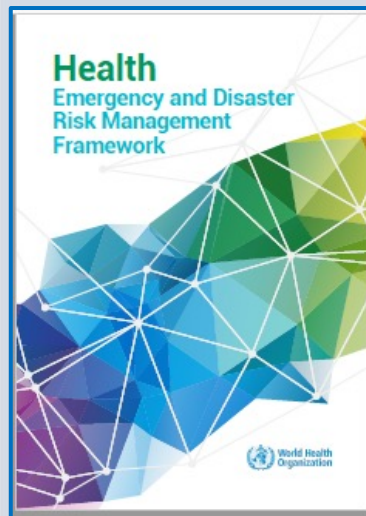
Health EDRM Framework focus on research

- Harmonisation of the collection, analysis and dissemination of data, information, evidence across relevant sectors

- Requires good quality research

- Evidence-based technical guidance to build capacity through training programmes and health systems improvements

Health EDRM Research Network

Refer to slides for Chapter 1.1.

Health EDRM Research Network was established in 2016 and formally launched in 2018
- promotes global collaboration among academics, government officials and other stakeholders
- aims to generate better scientific evidence to inform policy and practice for Health EDRM
- evidence/research before, during and after emergencies and disasters

WHO Kobe Centre expert meeting in October 2018 calls for **guidance on research methods** for actors who are:
- conducting research
- commissioning research
- using evidence and research

WHO and health research

- Health EDRM research supports and implements WHO's key role in research and innovation
  - Vital to WHO as knowledge-based, normative, standard-setting organization

- WHO hosts special research programmes, coordinates multi-country research, supports research capacity development.

- DG WHO-designated over 800 WHO collaborating centres in support of WHO

- WHO works with partners to identify and coordinate research, development and innovation e.g. to better detect, prevent and respond to new and emerging diseases and other hazards that endanger health (such as health EDRM, diagnostics, vaccines and therapeutics for epidemic-prone diseases)

- Research informs strategic shifts – diplomacy, advocacy, normative guidance, agreements based on science and evidence.

- Health EDRM research informs and is informed by many fields of research

Role of research in Health EDRM

Health EDRM has uncertainties due to nature of risk and lack of evidence

Good quality research and evidence is required to address uncertainties which arise from:
- limited knowledge, understanding, access to or application of evidence,
- lack of evidence to support decision making and action on:
  - how common problems are
  - how to reduce the risks of those problems occurring
  - how to manage risks and event when they do occur

This guidance describes the types of research to answer these questions

Role of research in Health EDRM (2)

Research from systematic reviews (chapter 2.7) has informed:
- the benefits of vaccination to prevent common diseases
- strategies to improve water quality
- treatment for diseases and injuries
- the potential harms of interventions such as brief debriefing to prevent post-traumatic stress disorder

Systematic reviews of existing research evidence (Chapter 2.6) drawing on:
- organizations that produce and maintain reviews, e.g. Cochrane, Campbell Collaboration, Joanna Briggs Institute
- organizations, such as Evidence Aid, collate systematic reviews, produce collections on specific topics, such as malnutrition (Chapter 3.7)

Policies and technical guidelines must be prepared using rigorous systematic methods (e.g. WHO Handbook for Guideline Development)

Guidance on Health EDRM in this book

Many gaps in evidence and research for Health EDRM remain.

When systematic reviews or studies of sufficient quality are lacking, decision makers and practitioners should work with researchers, and collaborators to design and conduct research.

This book provides guidance on:
- Research management processes that will lead to effective and efficient research studies
- The value of a systematic approach to designing, conducting, reporting and using research
- How to ensure that research is reliable, robust and fit for purpose, and meets the priority needs of those who will use it
- How to implement a research plan and translate its findings in routine, day-to-day practice, policy and programme direction setting.

Key messages

- Emergencies and disasters have widespread effects on public health, economies, the environment and country and community development.

- Risks and risk drivers must be managed by reducing hazards, exposures and vulnerabilities, and strengthening capacities of systems, organizations and communities.

- Evidence-based Health EDRM aims to transform policy, practice and culture to promote health security, address climate change and safeguard pathways to UHC and sustainable development.

- Health EDRM requires actors in health systems and other sectors at all levels to work together on applying measures across prevention, preparedness, response and recovery.

- WHO Health EDRM framework describes key principles, approaches, components and functions required to manage the risks of all types of emergencies and disasters.

- While evidence and research has been used to inform effective Health EDRM, many uncertainties remain that require further studies.

- This book provides guidance and case studies on conducting and commissioning research that meets the needs of users and communities at risks of emergencies and disasters.

Contact Information

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