















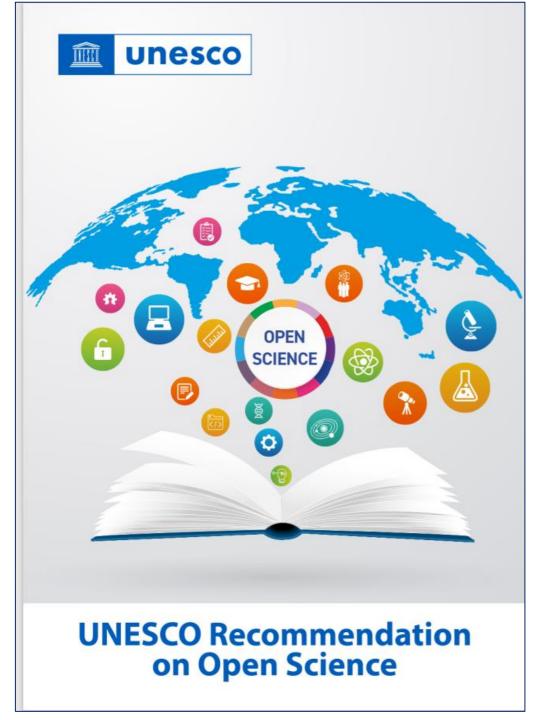
# European Open Science Conference Symposium 2022 Wednesday 16 November 2022

# Data Policy for Open Science in Disaster Situations

# Learnings from COVID-19 for public health on the need for data policy

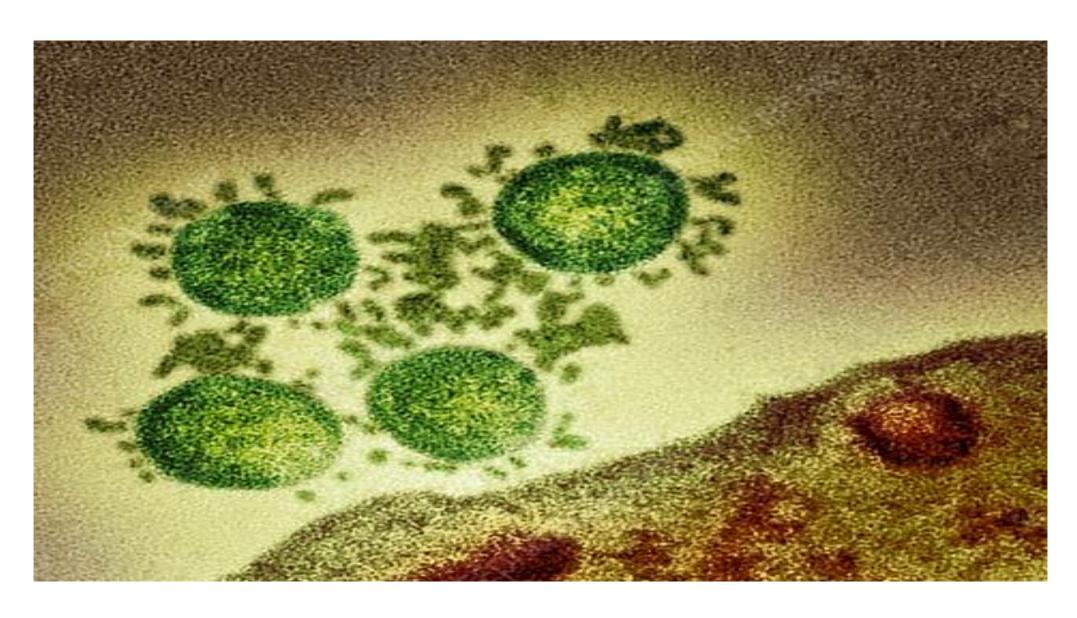
#### **Professor Virginia Murray**

Head of Global Disaster Risk Reduction, UK Health Security Agency
Member of CODATA international Science Council Executive Committee
Chair of UNDRR/ISC technical working group for Hazard Terminology and Classification Review
Co-chair of the WHO Thematic Platform Health and Disaster Risk Management Research Network
Member of Integrated Research on Disaster Risk (IRDR) Scientific Committee
Co-Chair of IRDR Disaster Loss Data (DATA)
Member of the WHO Collaborating Centre on Global Health Security





# COVID-19





**Health Topics >** 

Countries v

Newsroom v

Emergencies v

Data v

About Us v

Home / Newsroom / Spotlight / A year without precedent: WHO's COVID-19 response







https://covid19.who.int/

Globally, as of 6:19pm CET, 15 November 2022, there have been 632,533,408 confirmed cases of COVID-19, including 6,592,320 deaths, reported to WHO. As of 9 November 2022, a total of 12,885,748,541 vaccine doses have been administered.

# INTERNATIONAL

# REGULATIONS

(2005)

THIRD EDITION



While disease outbreaks and other acute public health risks are often unpredictable and require a range of responses, the **International Health** Regulations (2005) (IHR) provide an overarching legal framework that defines countries' rights and obligations in handling public health events and emergencies that have the potential to cross borders.

## Timeline: WHO's COVID-19 response

Click on the action circles below the chart to find out more.





# A COORDINATED GLOBAL RESEARCH ROADMAP: 2019 NOVEL CORONAVIRUS

**MARCH 2020** 

There is broad consensus on the need for research to: focus on actions that can save lives now; facilitate actions so that those affected are promptly diagnosed and receive optimal care; and catalyse the full integration of all innovations within each research area.

Moreover, there is an imperative to support research priorities in a way that leads to the development of sustainable global research platforms pre-prepared for the next disease X epidemic. This will allow for accelerated research, innovative solutions and R&D of diagnostics, therapeutics and vaccines, as well as the timely and equitable access to these life-saving tools for those at highest risk.



#### Figure 1. Principles to guide the implementation of the Global Research Roadmap

#### Powering research

An understanding that science and research stays at the heart of the response

A global research and innovation roadmap, facilitated by WHO, to enable the implementation of priority research

#### Coordinating research

A series of critical research efforts so that those affected are promptly diagnosed and receive optimal care

A commitment to develop frameworks that would accelerate development, production and access to medical countermeasures

#### Committing to fair and equitable access

An unambiguous commitment to global solidarity and equitable access to advances made

A global effort to enable the scaling-up of any successful intervention

A coordinated effort to facilitate effective, fair and equitable access based on public health needs

#### Facilitating future research actions

A coordinated effort to maintain repositories of products pipelines, protocols, procedures, and tools

A series of efforts enabling critical support for regulatory and ethics, and, use of platforms for developing vaccines and therapeutics that can be useful beyond COVID-19.



@ Image credit



# COVID-19 RESEARCH AND INNOVATION ACHIEVEMENTS

**APRIL 2021** 





#### Global picture of research funding aligned to WHO Research Roadmap

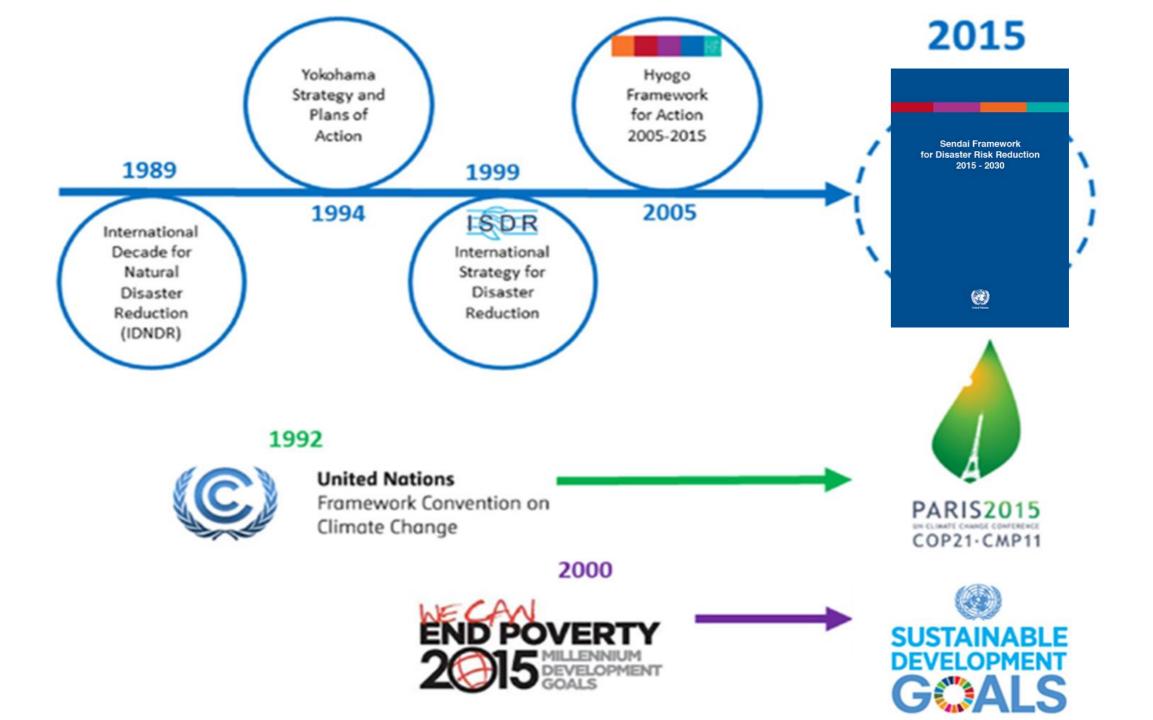
#### WHO priority sub-area

Roadmap research thematic area	a	ь	c	d	e	f	N/A	Total funding amount (\$)
1. Virus: natural history, transmission	823	605	170	598	123	85	49	821.4M
2. Animal and environmental reseach	72	6	7				3	16.9M
3. Epidemiological studies	611	259	72	258			132	370.5M
Clinical characterization and management	466	767	11	651	27	7	182	1,207.9M
5. Infection prevention and control	186	311	457	308			193	288.1M
6. Candidate therapeutics R&D	796	93	17	231	43		82	629.7M
7. Candidate vaccines R&D	219	41	34	8	17		80	1,618.5M
8. Ethics considerations for research	36	15	30	47	16		25	32.4M
Social sciences in the outbreak response	978	168	497	170	22	38	1,634	732.8M
Unallocated							725	0.0M

Credit: UKCDR and GloPID-R COVID-19 Research Project Tracker, 2020

COVID Circle, a joint initiative between UKCDR and GloPID-R is seeking to align and strengthen the global efforts on COVID-19 in resource- limited settings. GloPID-R is also currently in the process of growing its membership, especially in LMICs in Latin America, Asia and Africa.

r-d-achievements-report\_v42.pdf (who.int)



# Sendai Framework for Disaster Risk Reduction 2015-2030

TARGETS

GLOBAL

1 Global Outcome

13 Guiding Principles

4 Priorities for Action at all levels

7 Global Targets

# Reduce

## Mortality/

global population

## Affected people/

global population
7020-2030 Average << 2005-2015 Average

## Economic loss/

global GDP

2030 Rutto << 2015 Rutto

& disruption of basic services 2030 Values << 2015 Values

# Increase

& local DRR strategies
2020 Value >> 2015 Value

# International cooperation

to developing countries 2030 Value >> 2015 Value

Availability and access
to multi-hazard early warning
systems & disaster risk
information and assessments
2010 Values >> 2015 Values



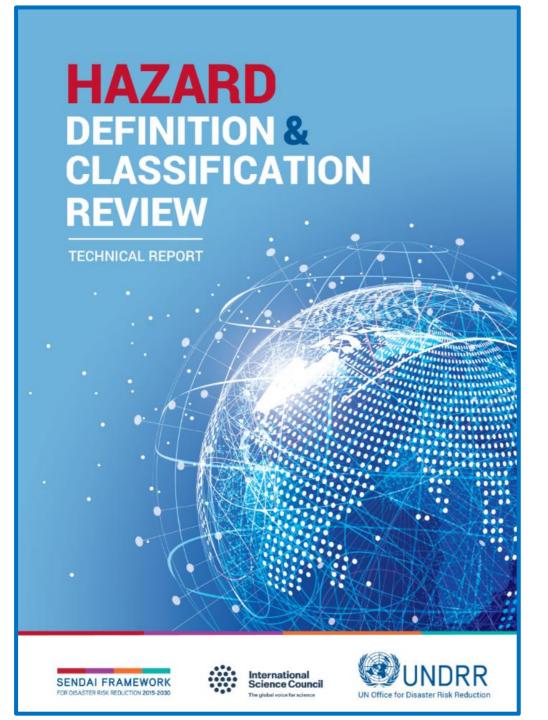


# Sendai Framework for Disaster Risk Reduction 2015-2030

To strengthen technical and scientific capacity to capitalize on and consolidate existing knowledge and to develop and apply methodologies and models to assess disaster risks, vulnerabilities and exposure to all hazards; (paragraph 24 j)

Sendai Framework for Disaster Risk Reduction 2015 - 2030







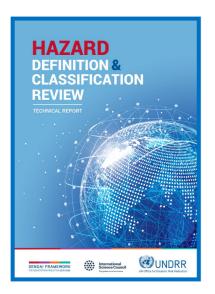


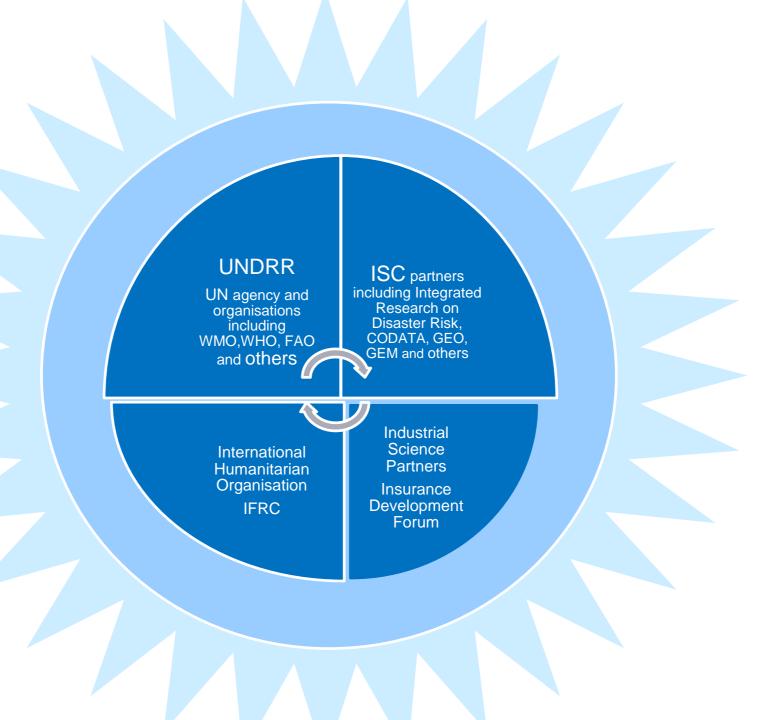
# UNDRR / ISC Hazard Definition and Classification Review TECHNICAL REPORT July 2020

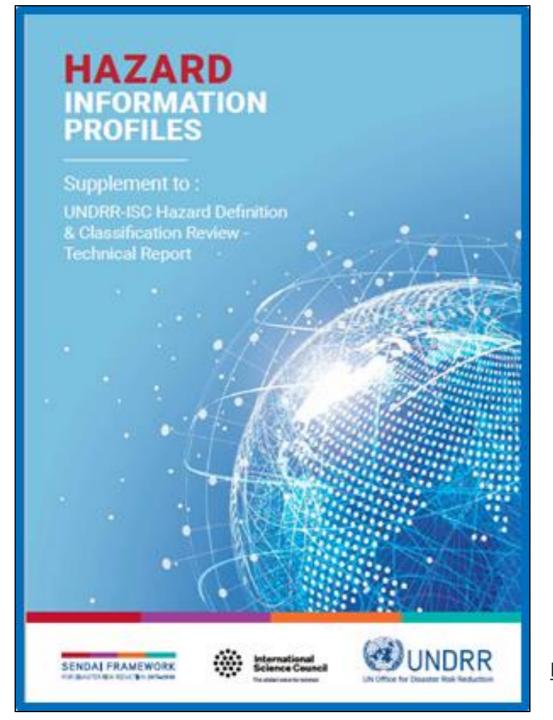
https://council.science/publications/hazards/ https://www.undrr.org/publications















# Hazard Information Profiles Supplement to UNDRR / ISC Hazard Definition and Classification Review Technical Report October 2021

https://council.science/wp-content/uploads/2020/06/Hazard-Information-Profiles-Supplement-to-UNDRR-ISC-Hazard-Definition-Classification-Review-Technical-Report-2021.pdf

https://www.undrr.org/publication/hazard-information-profiles-supplement-undrr-isc-hazard-definition-classification







#### **Number**

## **HAZARD**

#### **Primary definition**

Brief Definition of hazard: no more than 3 lines/2 sentences.

Sourced from the highest possible authority and be applicable to all parties and preferably a simple UN definition but also recognised as the highest level that UN member states can use and apply.

REFERENCE/ hyperlink/Web site

#### Scientific definition

Expanded scientific definition that is preferably measurable, modellable and statistically relevant

REFERENCE/ hyperlink/Web site

#### Metrics, numerical limits or defined guidelines

Any globally agreed metrics, numerical limits or guidelines defined Should be globally agreed as a recognised standard, if it is only at a regional level than state this as a reference.

REFERENCE/ hyperlink/Web site

# Key relevant UN Conventions and regional conventions / multilateral treaty

REFERENCE/ hyperlink/Web site

#### Any essential annotations

Such as drivers, outcomes and risk management REFERENCE/ hyperlink/Web site

#### **Ownership of Definition(s)**

UN or Scientific Agency or Organisation who holds the updating responsibility for the Primary

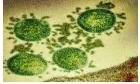












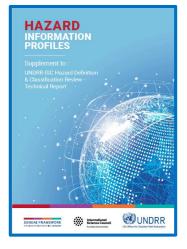




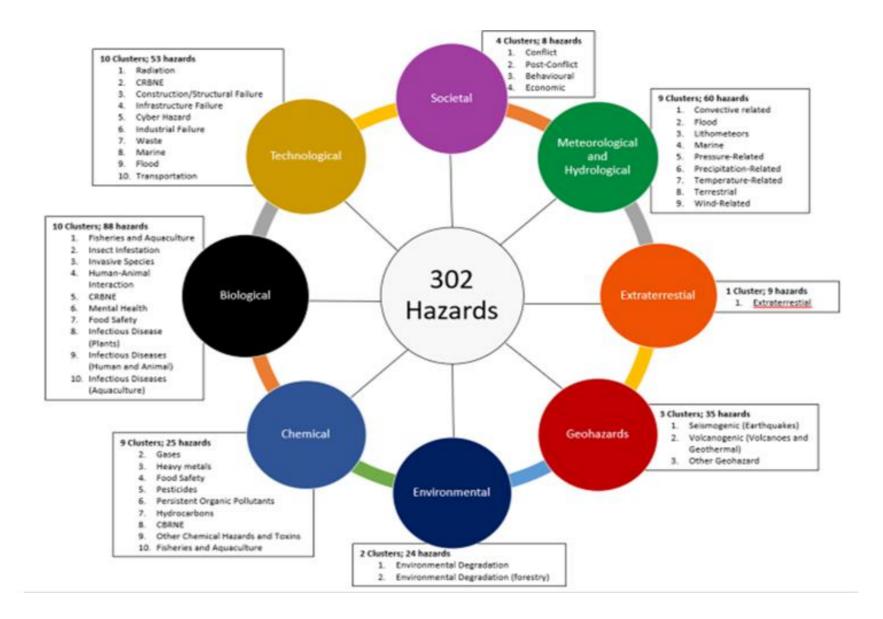


## International Science Council





## **UNDRR / ISC Hazard Information Profiles**



TL0009 / TECHNO

Dam Fail

Dam failure

foundation,

results in a

people or pr

ICOLD, 2015, Def

icold-cigb.org/G

Dam break, Dam burs

Additional scientifi

Dams are commonly

typically constructed

even a small dam car

ment leading to a bre

of water involved. In

damage to property

Two summary examp

· Brumadinho dam d

leading to at least

than 250 people de

Shaw, 2019; Thom

period and is cons

at Brumadinho sho

predisposing the fa

management com

the failure of the Br

· Ajka Red Sludge R

Kolontar, Hungary

The waste material

significant ecologic

not been performe

A review of failure m

United States has be

fied by date, location,

Annotations

Synonyms

Reference

Definition

MH0035 / METEOR

ET0009 / EXTRATERR

EN0020 / ENVIRO

Definition

Coastal ero

results from

the interac

with the co

810066 / BIOLOGICAL / Infe CH0017 / CH

GH0006 / GEO!

#### Drought

#### Definition

A drought is prolonged de large area ar

#### Reference

WMO, 2020, Guid World Meteorolo wcp/ccl/docume OFEXTREMEWE.

#### <u>Annotations</u>

#### Synonyms

Not identified

#### Additional scientific

Drought is described potentially damaging deficiency of precipita

Whereas drought may number of time scale impact many sectors

Droughts can be char hydrometeorological various drought indica of such conditions. It can adversely affect a security, and personal droughts occur, in ter (WMO and GWP, 2016

The drought commun no date b):

- · Meteorological drou of dryness and the
- Hydrological drough precipitation shortf
- · Agricultural drought ences between actu
- Socioeconomic dro hydrological, and a weather-related sho

#### Near-Eart

#### Definition

A near-Earth of brings it to with astronomical u orbit (UN OOS/

#### References

UN OOSA, no date Outer Space Affairs October 2020.

#### Annotations

#### Synonyms

Not identified.

#### Additional scientific d

The definition above incl objects (NEOs) generally them into orbits that allow

#### Metrics and numeric li

A near-Earth asteroid is Earth's orbit and it has a

#### Key relevant UN conver

The Committee on the Po to govern the exploration date)). The Committee w related activities that co problems arising from th

#### Examples of drivers, o

The International Asteroi for an international response detecting, tracking, and plans and protocols to as responses. Currently, IAV

IAWN has proposed the Earth's atmosphere, and sphere, ionosphere, and

- · The probability that an
- . The probable size, or a
- · How far in the future the

#### Tsunar

Tsunami ('tsu'). It period, us occurring

Definition

#### Reference

IOC, 2019, T Series, 85. F 88226?posl

#### Annotations

#### Synonyms

Not found.

#### Additional scie

A tsunami may landslides, and reach enormou waves with a typ water, inundatir cause great dar

Tsunami-like pl IOC, 2019).

The Intergovern (IOC, 2019):

Travel time: Tin

Arrival time: Tir

Inundation or In larly to the shor

Inundation (ma ured for each di

Inundation area

Inundation heig at the time of ts topographic hei

Inundation line vegetation is so

#### Oil Po Coasta

#### Definition

Oil poll from sh Marine

#### Reference Global M

sources.

Annotation

Synonyms

Additional

Oil spill.

References Mentaschi, L observations s41598-018-30

#### Annotations

#### Synonyms

Additional scient

The coast is a dyr

as reflected in the

ronment that mar

consequences of

the underlying pro

erosion in some a

standing patterns

and both the mari

infrastructure, but

Marine processes

of types of current

reflecting the loca

fluvial processes,

are among the mo

coastal zone with

Metrics and num

Mentaschi et al. ()

established a land

together with area

of 11,500 km2. The

of 600 m, followed

shore erosion of 5

Key relevant UN

None identified.

#### Shoreline process

Oil discharg of ocean-ba sources are and reception from loadin

Constant so municipaliti many more Pollution Inf

Oil spills car wildlife spe oil spills. Oi example:

- Seabirds hypothern their incre affect the
- · Marine ma habits and congested
- Fish can a Although are unfit fo
  - Sea turtle through t hatched to

Oil spills als that live with beaches oil seagrasses

#### Monkeypox

#### Definition

Monkeypox is a vira those of smallpox

#### Reference

WHO, 2019. Monkeypox. V detail/monkeypox Access

#### Annotations

#### Synonym

Not identified.

#### Additional scientific descript

Monkeypox is a viral zoonosis (a in smallpox patients, although it is caused human smallpox (WHO, 2 cination, monkeypox has emerge proximity to tropical rainforests (

Monkeypox is mostly transmitted spread through human-to-human cases (WHO, 2018).

Common symptoms include feve rashes appear beginning on the f (WHO, 2018).

Human monkeypox was first iden a 9-year-old boy in a region when rural, rainforest regions of the Co endemic (WHO, 2019a).

Since 1970, human cases of mon Republic, the Democratic Republ and South Sudan. In 2017, Nigeri The true burden of mankeypox is Democratic Republic of Congo by positive for varicella virus and so monkeypox could explain a chan-

The virus has been exported from patients were reported to have ha imported into the country from G 2018 and December 2019, and to (WHO, 2019a).

Two distinct genetic clades of the found to be more virulent and tra this is the only country where bo

#### s00007 / SOCIETAL / Behavioural

#### Stampede or Crushing (Human)

#### Definition

Stampede or crushing is the surge of individuals in a crowd, in response to a perceived danger or loss of physical space. It often disrupts the orderly movement of crowds resulting in irrational and dangerous movement for self-protection leading to injuries and fatalities (Illivas et al., 2013).

#### Reference

Illiyas, F., S. Mani, A. Pradeepkumar and K. Mohan, 2013. Human stampedes during religious festivals: a comparative review of mass gathering emergencies in India, International Journal of Disaster Risk Reduction, 5:10-18.

#### Annotations

#### Synonyms

Crush, Mass panic, Crowd disaster,

#### Additional scientific description

With population growth and a constant increase in human travels, mass gatherings are becoming more frequent and attract increasing numbers of participants (Johansson et al., 2012). Mass gatherings can be defined as a concentration of people at a specific location for a specific purpose over a set period of time, and which has the potential to strain the planning and response resources of the country or the community (WHO, 2015).

Mass gatherings are either spontaneous, such as at train stations during rush hour (Johansson et al., 2012) or are planned. such as at sport, cultural, religious, or political events (WHO, 2015). The Hajj pilgrimage in Saudi Arabia and the Kumbh Mela in India are the biggest regular mass gatherings globally, bringing millions of pilgrims together (Ahmed et al., 2006; Illiyas et al., 2013). Mass gatherings may affect health in different ways and crowd disasters may occur, including the collapse of infrastructure, fire incidents, terrorist attacks, violence riots, and human stampedes (Soomaroo and Murray, 2012; WHO, 2015; Still, 2019).

Stampedes are often described as the "disruption of the orderly movement of crowds...leading to injuries and fatalities" (Illiyas et al., 2013), often "in response to a perceived danger, loss of physical space", or "a will to attain something seen as gratifying" (Ngai et al., 2009; Burkle et al., 2011; Illiyas et al., 2013). They carry high mortality rates and are, besides heat-related illnesses, the most common cause of mortality in mass gatherings (Steffen et al., 2012; Still, 2019)

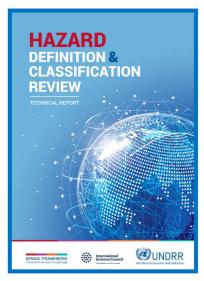
Most human stampede casualties result from traumatic asphyxia caused by external compression of the thorax and/or upper abdomen, resulting in complete or partial cessation of respiration. It has been reported that significant compression forces can be present with even moderate crowds; forces of up to 4500 N (1000 lb) can be generated by just six to seven people pushing in a single direction with forces large enough to bend steel railings (Ngai et al., 2009).

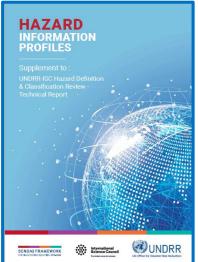
Although survivors of human stampedes and autopsy reports suggest traumatic asphyxia as the primary cause of death, other mechanisms have been considered, including myocardial infarction, direct crushing injury to intrathoracic or intraabdominal organs, head injury, and neck compression. All these mechanisms are possible; however, little actual supportive evidence exists. It has been concluded from autopsy findings that "people who succumb in these scenarios typically die (standing up) in a vertical position" due to compression force and "do not collapse to the floor until after the crowd density and pressure have been relieved. Compressive forces applied front to back or vice versa resulted in ventilatory failure, whereas those experiencing compressive forces from side to side were spared, presumably because chest expansion was not compromised to the same extent" (Ngai et al., 2009).



## Recommendations



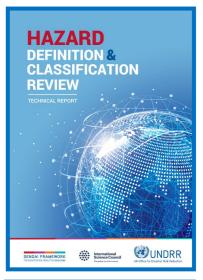


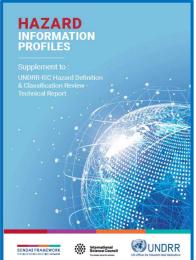


- Regular review and update
- Use this hazard list to actively engage policymakers and scientists in evidencebased national risk assessment processes for actions aimed at managing risks of emergencies and disasters
- Address cascading and complex hazards and risks

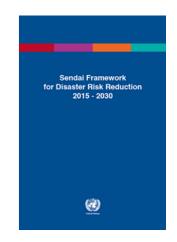








The UNDRR/ISC Hazard Definition and Classification Review Technical Report and Hazard Information Profiles support Sendai Framework for Disaster Risk Reduction 2015-2030, Sustainable Development Goals of Agenda 2030 and Paris Agreement on Climate Change by providing a common set of hazard definitions for monitoring and reviewing implementation







Our mandate

**Programmes** 

**Projects** 

Resources

Media

Events

About us

**Community Platform** 

Reform

Search

Q

Home — Media — Press Releases — Early Warning systems must protect everyone within five years

Main · News · Press Release · News from Members · Multimedia · Contact us



# Early Warning systems must protect everyone within five years

Tags: WMO Disaster risk reduction Climate change Observations Forecast Disasters

23 Published 23 March 2022

Press Release Number: 23032022

#### UN unveils ambitious target to adapt to climate change and more extreme weather

Within the next five years, everyone on Earth should be protected by early warning systems against increasingly extreme weather and climate change, according to an ambitious new United Nations target announced today.

#### Latest WMO News

"Science for Climate Action" pavilion by WMO, IPCC and MERI Foundation at

# Data policy for Open Science in crisis situations Data-enabled Society for Health: Challenges and Opportunities











