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Organization

C  DATA

Data Integration and Standardisation - Challenges in Disaster Risk Reporting: the case of mortality

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Member of the UN Sustainable Development Solutions TRENDS Network

Member of the WHO Collaborating Centre on Mass Gatherings and Global Health Security

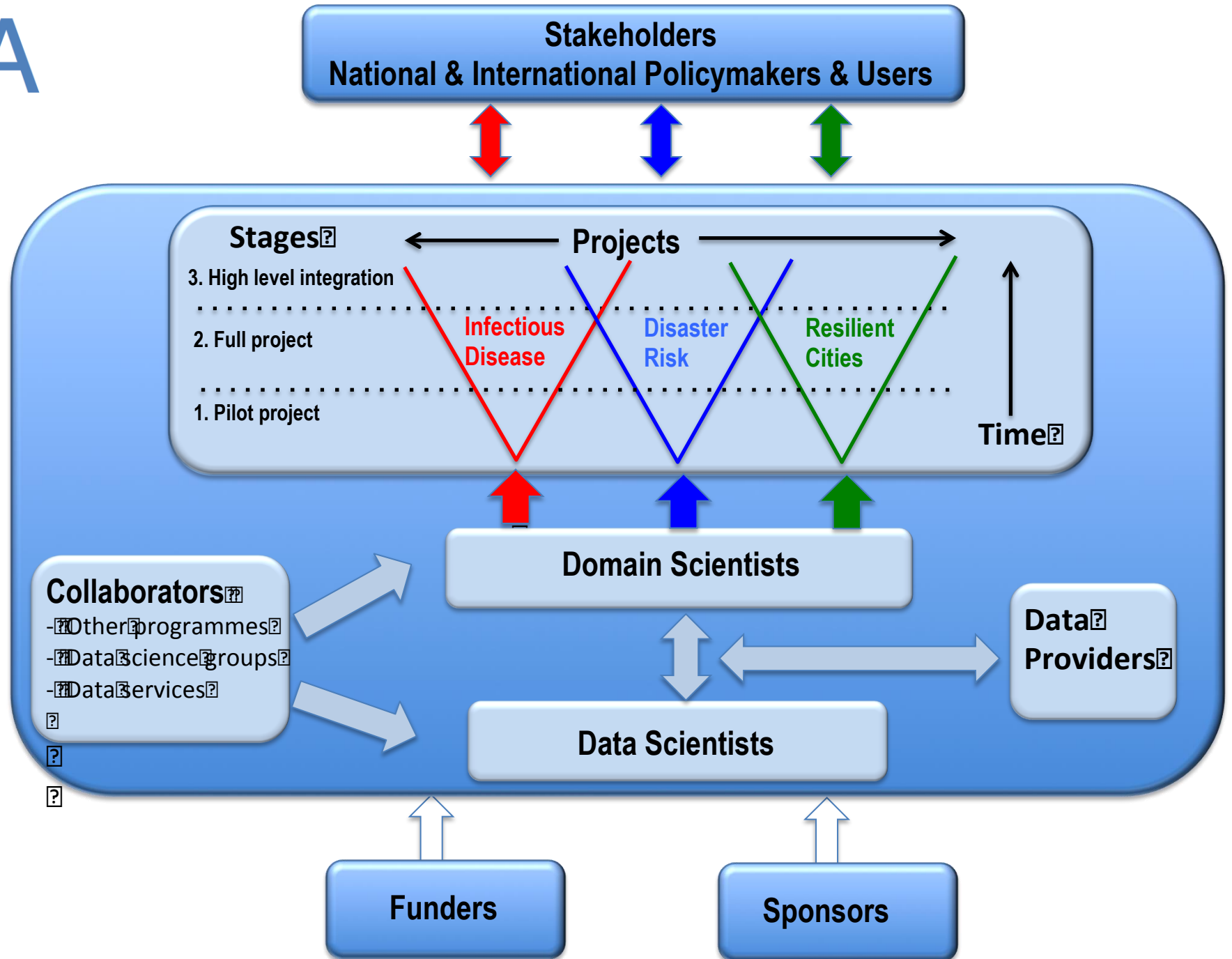


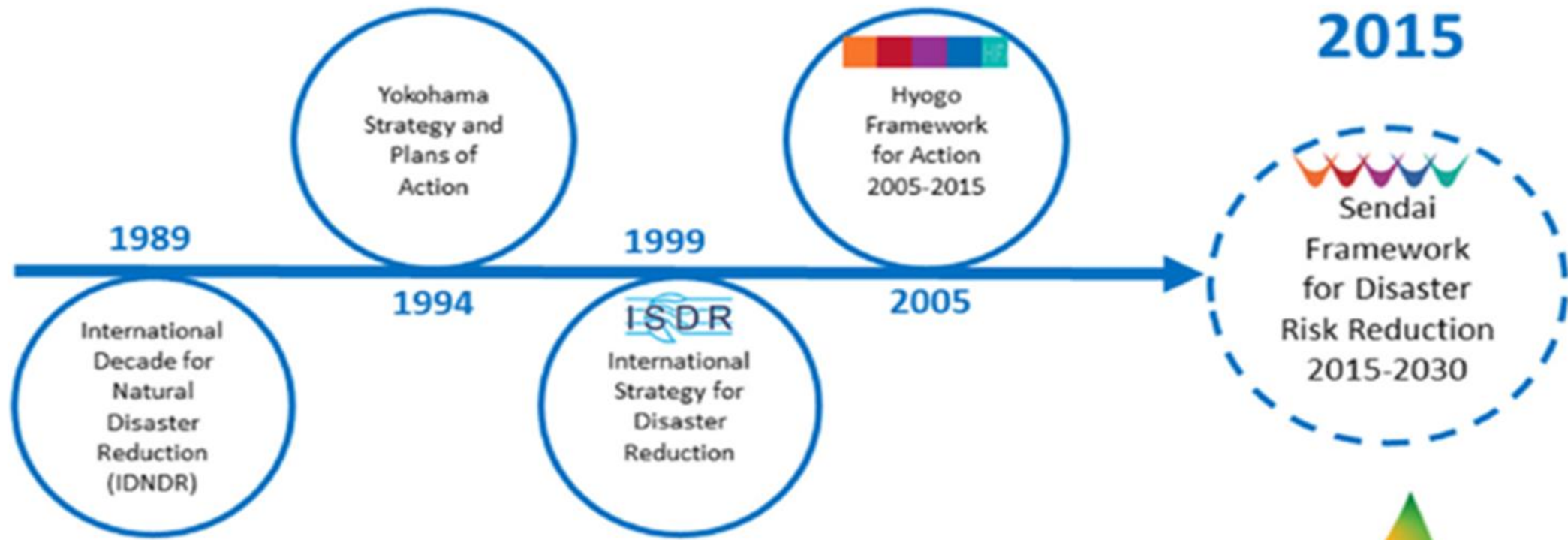
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Outline

- Data Integration and the flagship projects
- The Sendai Framework for Disaster Risk Reduction 2015-2030
- Sendai Framework Monitor
- The case of mortality
- Some concluding thoughts on Data Integration and Standardisation - Challenges in Disaster Risk Reporting







1992

United Nations
Framework Convention on
Climate Change



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21-CMP11

2000



**SUSTAINABLE
DEVELOPMENT
GOALS**



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Sendai Framework for Disaster Risk Reduction 2015 - 2030



United Nations



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Sendai Framework for Disaster Risk Reduction 2015-2030

The substantial reduction of disaster risk and losses in **lives, livelihoods and health** and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries



Sendai Framework for Disaster Risk Reduction 2015-2030

1 Global Outcome

13 Guiding Principles

4 Priorities for Action at all levels

7 Global Targets

7 GLOBAL TARGETS

Reduce

Mortality/
global population

2020-2030 Average << 2005-2015 Average

Affected people/
global population

2020-2030 Average << 2005-2015 Average

Economic loss/
global GDP

2030 Ratio << 2015 Ratio

**Damage to critical infrastructure
& disruption of basic services**

2030 Values << 2015 Values

Increase

Countries with national
& local DRR strategies
2020 Value >> 2015 Value

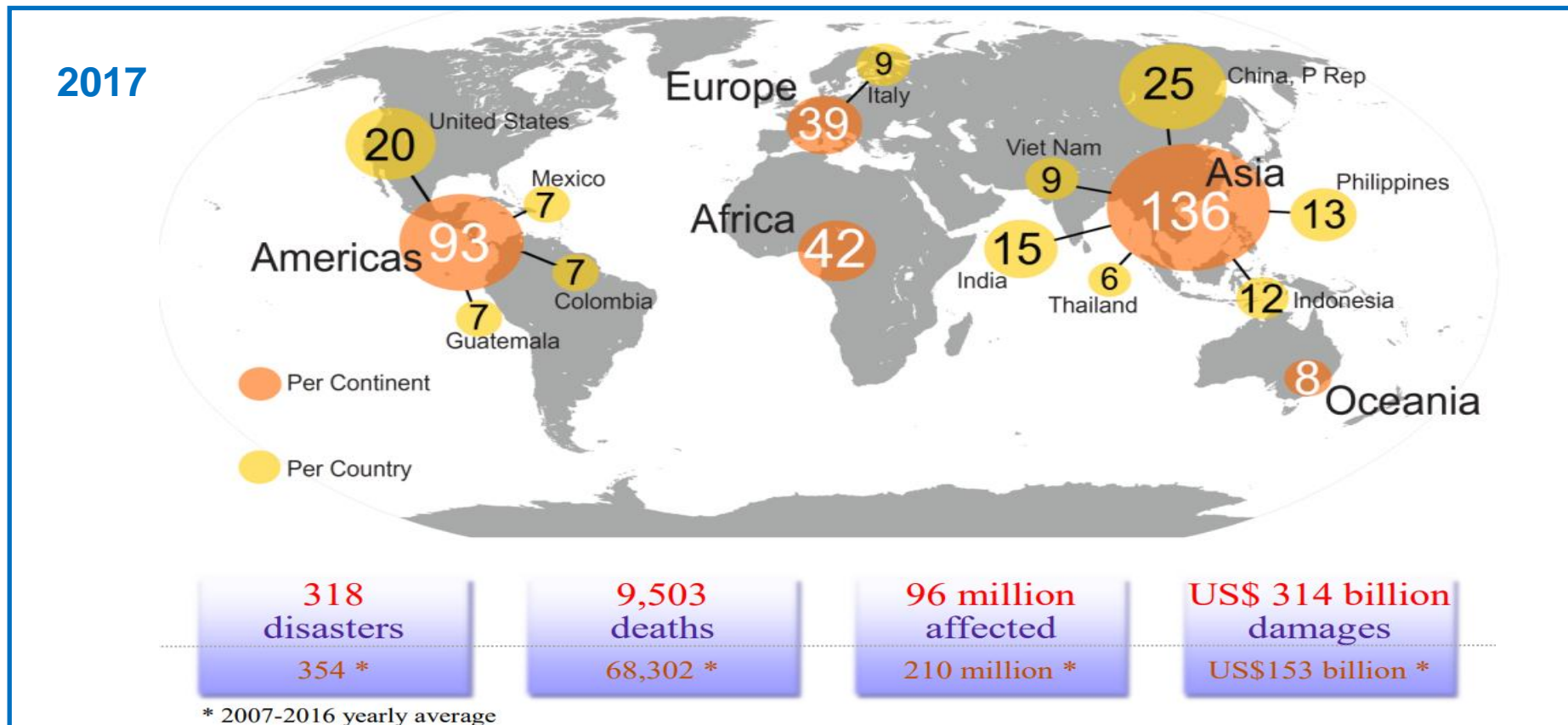
**International
cooperation**
to developing countries
2030 Value >> 2015 Value

Availability and access
to multi-hazard early warning
systems & disaster risk
information and assessments
2030 Values >> 2015 Values



Mortality burden of disasters

Despite declines in levels of some hazard attributable mortality, significant mortality persists

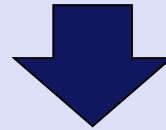




Sendai Framework: mortality

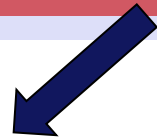
Global target A

Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015



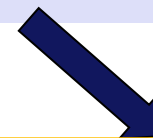
Indicator

Number of deaths attributed to disasters per 100,000 population



Component

Number of deaths attributed to disasters



Component

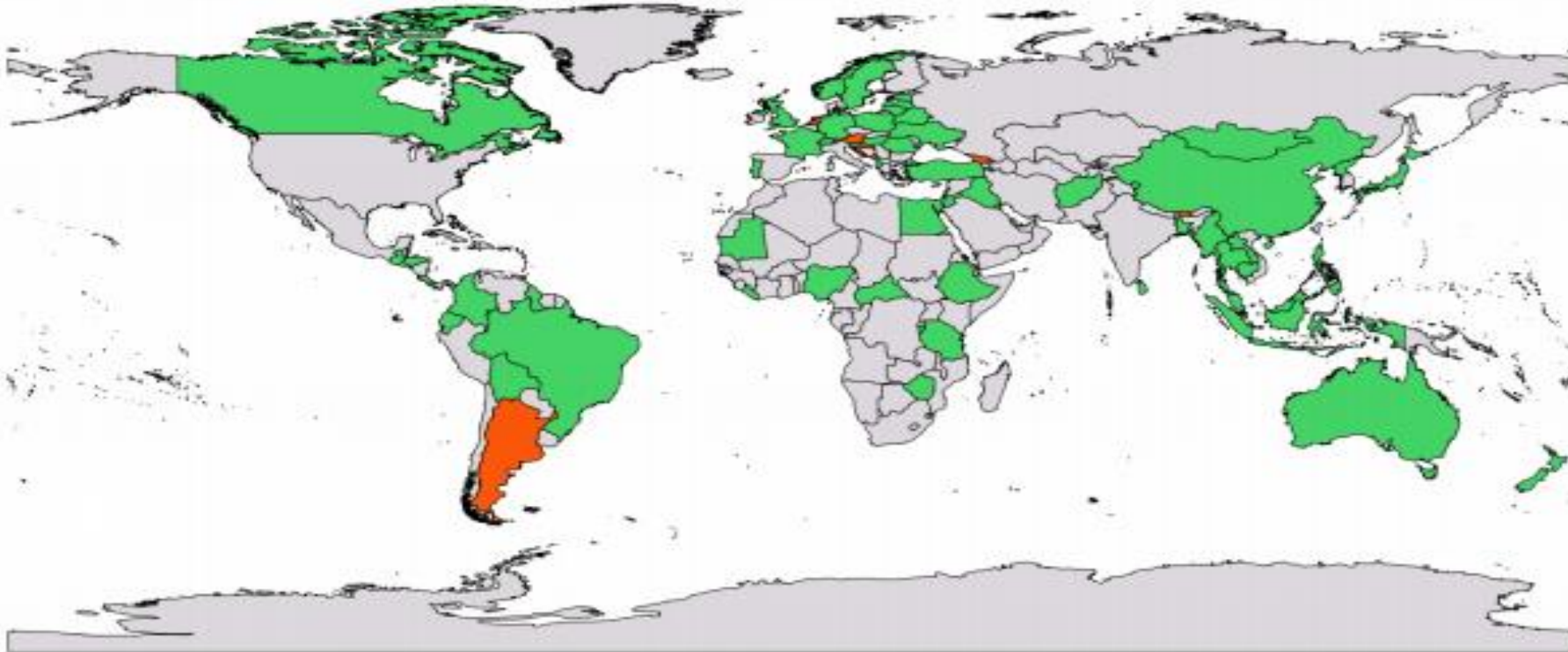
Represented population



UNISDR Preparedness Review 2017

Ability to monitor mortality

Indicator A2: Number of deaths attributed to disasters, per 100,000 population



Key issues to consider with defining, reporting and interpreting mortality data



SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION

LOGIN

MEASURING IMPLEMENTATION OF THE SENDAI FRAMEWORK

ANNOUNCEMENT

The Sendai Framework Monitor system is now live!

After the adoption of Sendai Framework in 2015, 38 indicators were defined to measure progress in achieving its 7 Global targets. This system is the official tool to report these indicators to both the Sendai Framework and SDG's reporting processes.

GLOBAL TARGETS

Reporting year:

2017



PROGRESS OF GLOBAL TARGETS

<https://sendaimonitor.unisdr.org/>

COUNTRY REPORTING OVERVIEW

195

countries total

147

not started

48

in progress

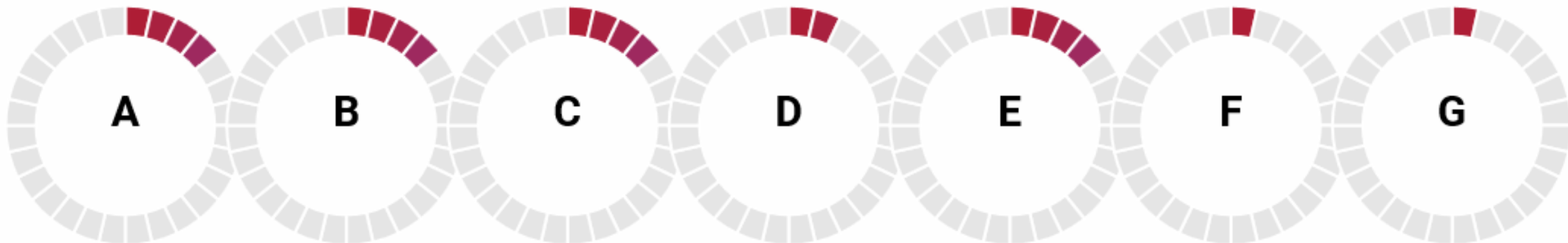
0

ready for validation

0

validated

TARGET REPORTING OVERVIEW



Mortality

People affected

Economic Crisis

Infrastructure

Disaster Services

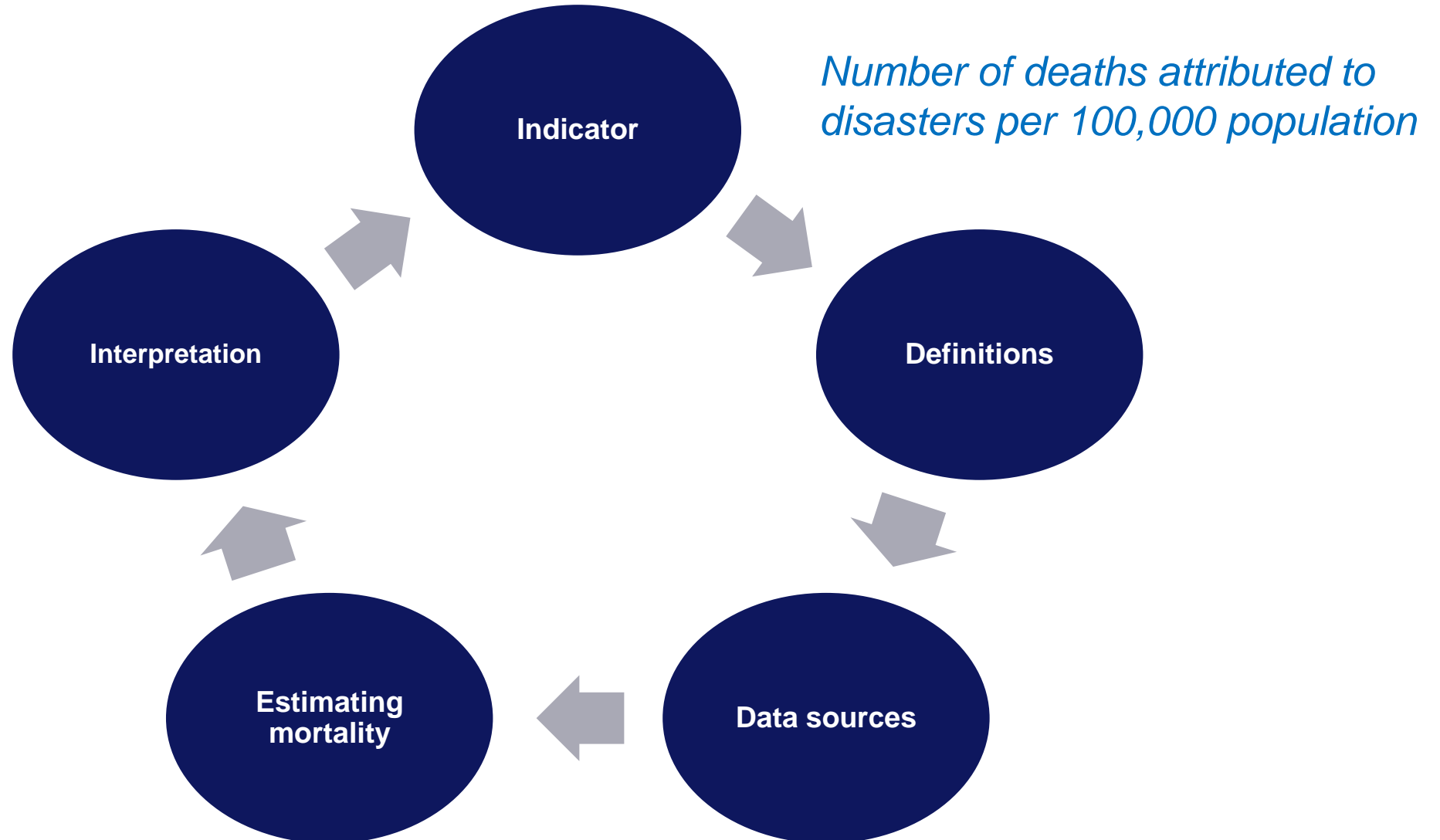
Production

International Cooperation

Education and risk inform

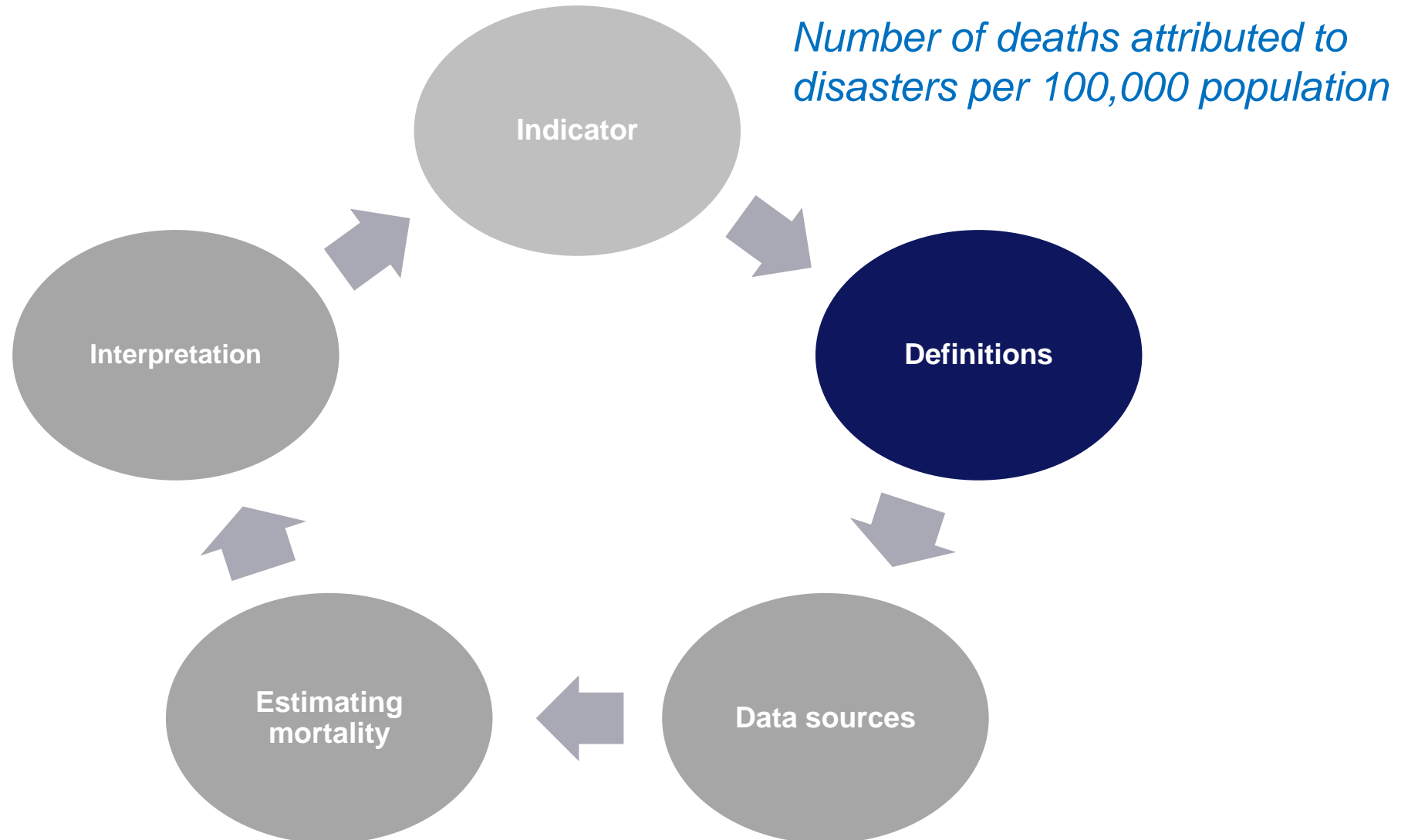


Disaster mortality data





Disaster mortality data



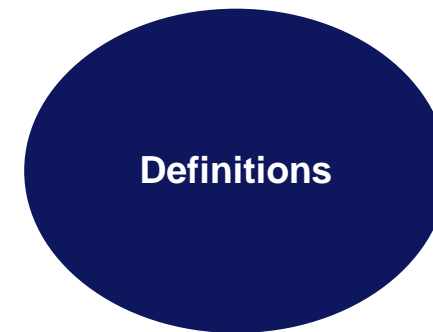


Disaster mortality data

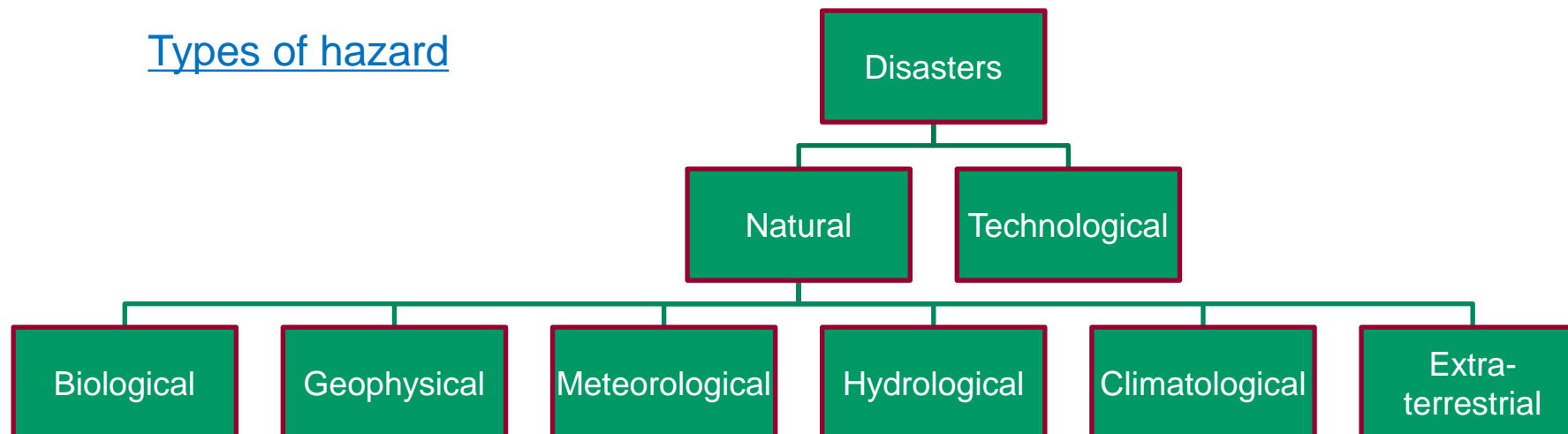
UN General Assembly adopted Disaster definition February 2017

A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts”

→ List of included types of hazards



Types of hazard





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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**;



Primary Categories of Macro-Threats



1 Financial Shock



2 Trade Dispute



3 Geopolitical Conflict



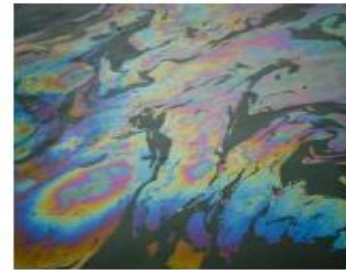
4 Political Violence



5 Natural Catastrophe



6 Climatic Catastrophe



7 Environmental Catastrophe



8 Technological Catastrophe



9 Disease Outbreak



10 Humanitarian Crisis



11 Externality



12 Other Shock



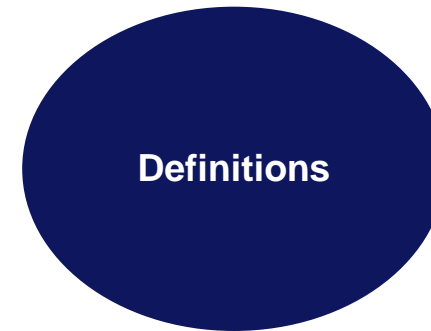
Disaster mortality data

Death

“The number of people who died during the disaster, or directly after, as a direct result of the hazardous event”

- **Direct and indirect**
 - Drowning from flooding
 - Carbon monoxide poisoning following storms
- **Short-term and long-term**
 - Heatstroke from heatwaves
 - Malnutrition following droughts

→ Resulting types of deaths and timescale of impact of each type of hazardous event





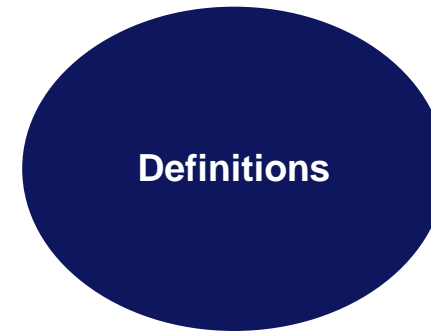
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Disaster mortality data

Represented population

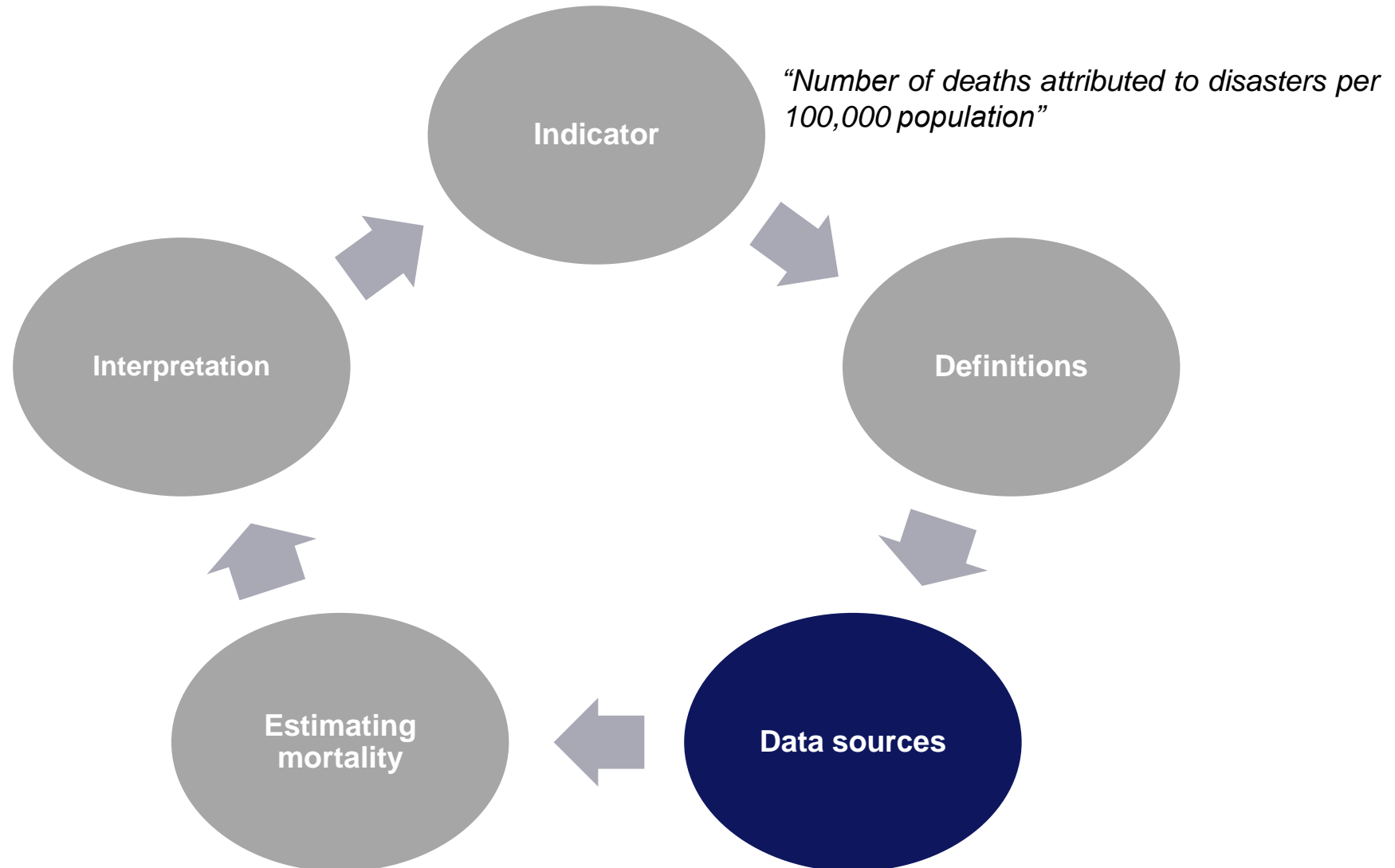


→ Acknowledge in interpretation





Disaster mortality data





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Disaster mortality data



Population

- National census
- Inter-census estimates

→ Acknowledge in interpretation

Data sources



Disaster mortality data

Number of deaths

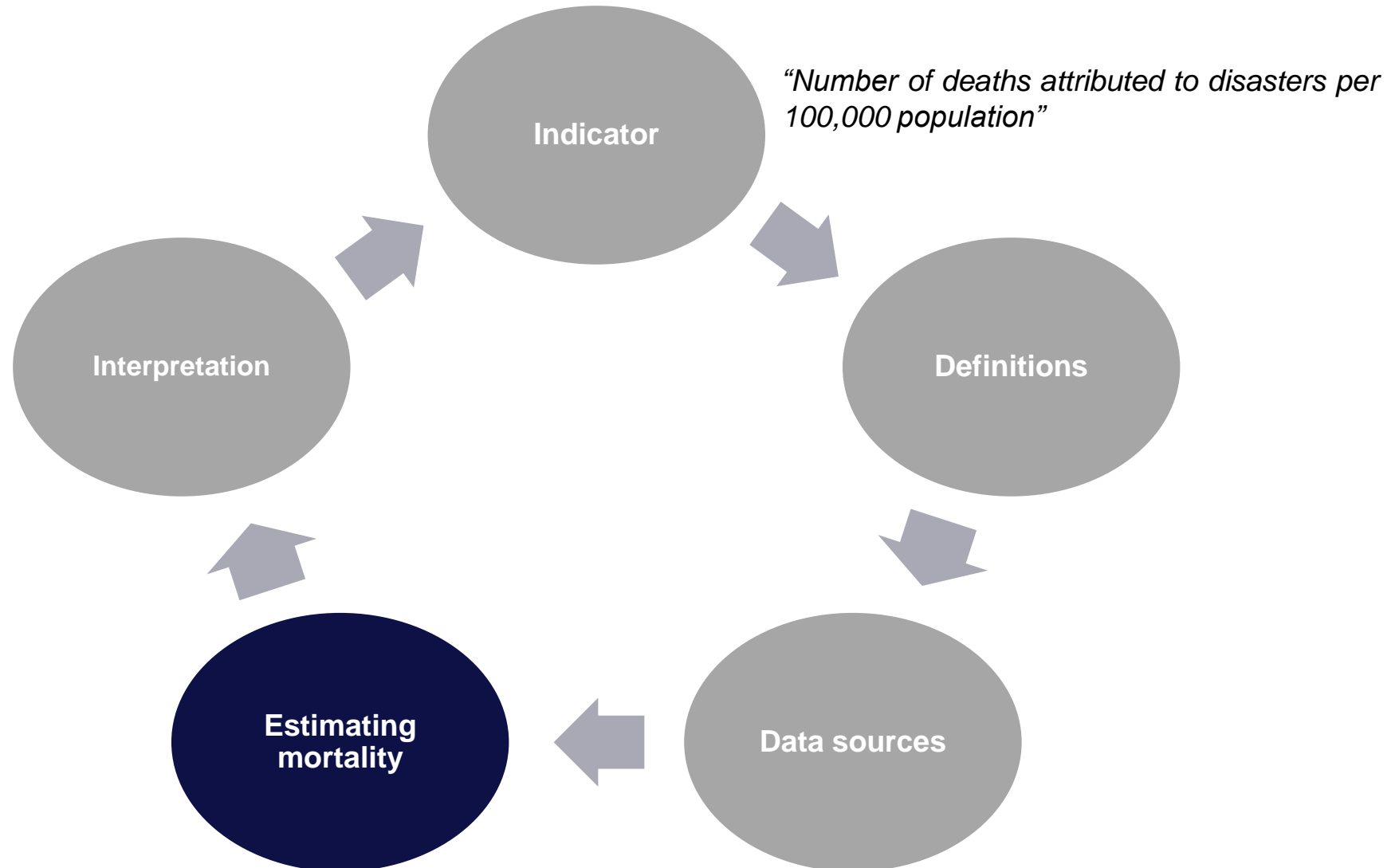
- Range of data owners
- Range of data sources
 - Civil Registration and Vital Statistics Systems
 - Active mortality surveillance
 - Surveys
- Varying quality of data sources
- Disaggregated data required

→ Data source quality marker

Data sources



Disaster mortality data





Disaster mortality data

Civil Registration and Vital Statistics Systems

- Counting relevant deaths
- Excess mortality estimates

Active mortality surveillance

- Sum of deaths

Surveys

- Estimated total number

- Allow for range of estimates
- Capacity to update estimates

Estimating
mortality



Disaster mortality data

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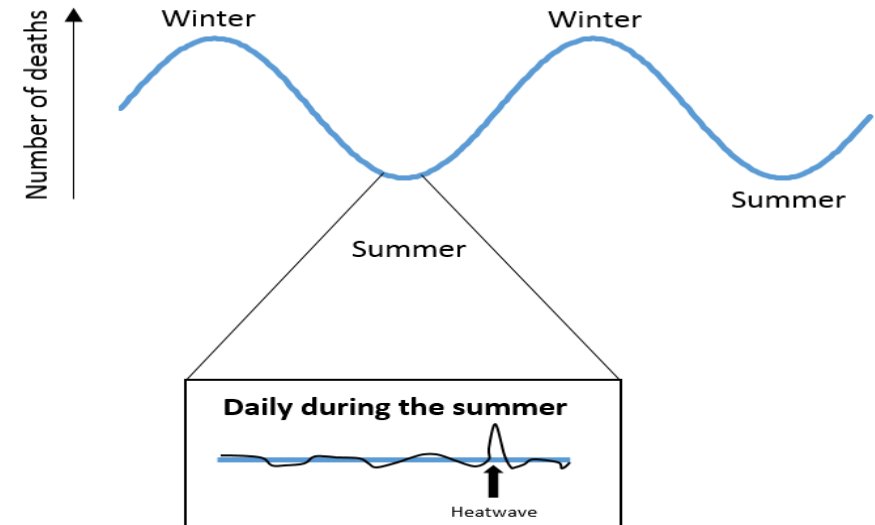
Civil Registration and Vital Statistics Systems

- Counting relevant deaths
- Excess mortality estimates

- ➔ Framework for type of death and time to death
- ➔ Statistical analysis may be required

Estimating mortality

- Cause of death
- Time of impact after event

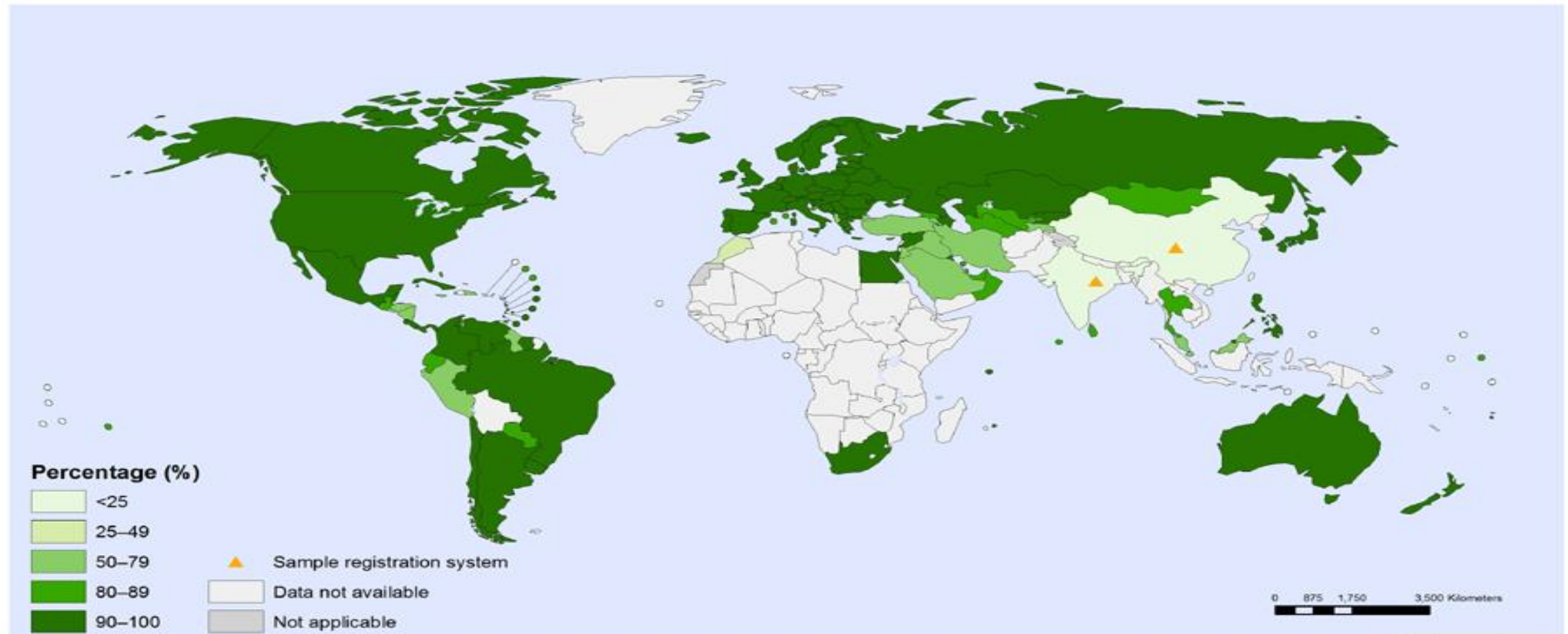


Blue = expected number of deaths, black = observed number of deaths



Ability to monitor mortality

Civil registration coverage of cause of death (%), 2004–2012



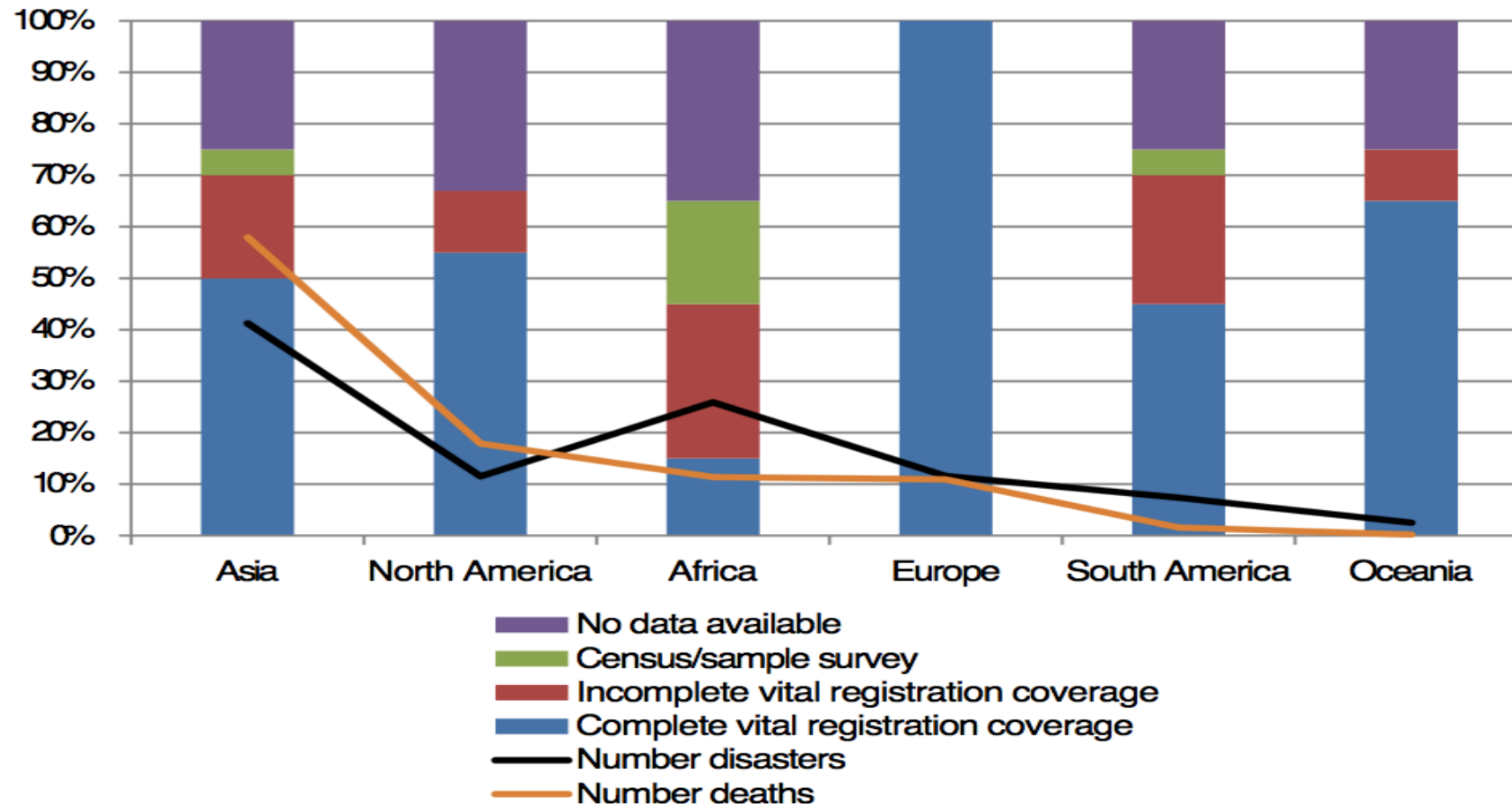
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Health Statistics and
Information Systems (HSI)
World Health Organization



Disaster mortality data

Proportion of countries by region where vital registration data available (WHO) and proportional disaster impact (EMDAT)





Disaster mortality data

Protecting and improving the nation's health

Active mortality surveillance

- Sum of deaths

Surveys

- Estimated total number

- Coverage
- Sampling bias

→ Acknowledge in interpretation

Estimating
mortality

SPECIAL ARTICLE

Mortality in Puerto Rico after Hurricane Maria

Nishant Kishore, M.P.H., Domingo Marqués, Ph.D., Ayesha Mahmud, Ph.D.,
Mathew V. Kiang, M.P.H., Irmay Rodriguez, B.A., Arlan Fuller, J.D., M.A.,
Peggy Ebner, B.A., Cecilia Sorensen, M.D., Fabio Racy, M.D., Jay Lemery, M.D.,
Leslie Maas, M.H.S., Jennifer Leaning, M.D., S.M.H., Rafael A. Irizarry, Ph.D.,
Satchit Balsari, M.D., M.P.H., and Caroline O. Buckee, D.Phil.

ABSTRACT

BACKGROUND

Quantifying the effect of natural disasters on society is critical for recovery of public health services and infrastructure. The death toll can be difficult to assess in the aftermath of a major disaster. In September 2017, Hurricane Maria caused massive infrastructural damage to Puerto Rico, but its effect on mortality remains contentious. The official death count is 64.

METHODS

Using a representative, stratified sample, we surveyed 3299 randomly chosen households across Puerto Rico to produce an independent estimate of all-cause mortality after the hurricane. Respondents were asked about displacement, infrastructure loss, and causes of death. We calculated excess deaths by comparing our estim:

From the Departments of Epidemiology (N.K., A.M., C.O.B.), Social and Behavioral Sciences (M.V.K.), and Biostatistics (R.A.I.) and the Center for Communicable Disease Dynamics (N.K., A.M., C.O.B.) and the François-Xavier Bagnoud Center for Health and Human Rights (A.F., J. Leaning, S.B.), Harvard T.H. Chan School of Public Health, Harvard University, the Department of Emergency Medicine, Beth Israel Deaconess Medical Center and Harvard Medical School (F.R., S.B.),

Conclusions

This household-based survey suggests that the number of excess deaths related to Hurricane Maria in Puerto Rico is more than 70 times the official estimate.



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Disaster mortality data

The Guardian
UK edition ▾

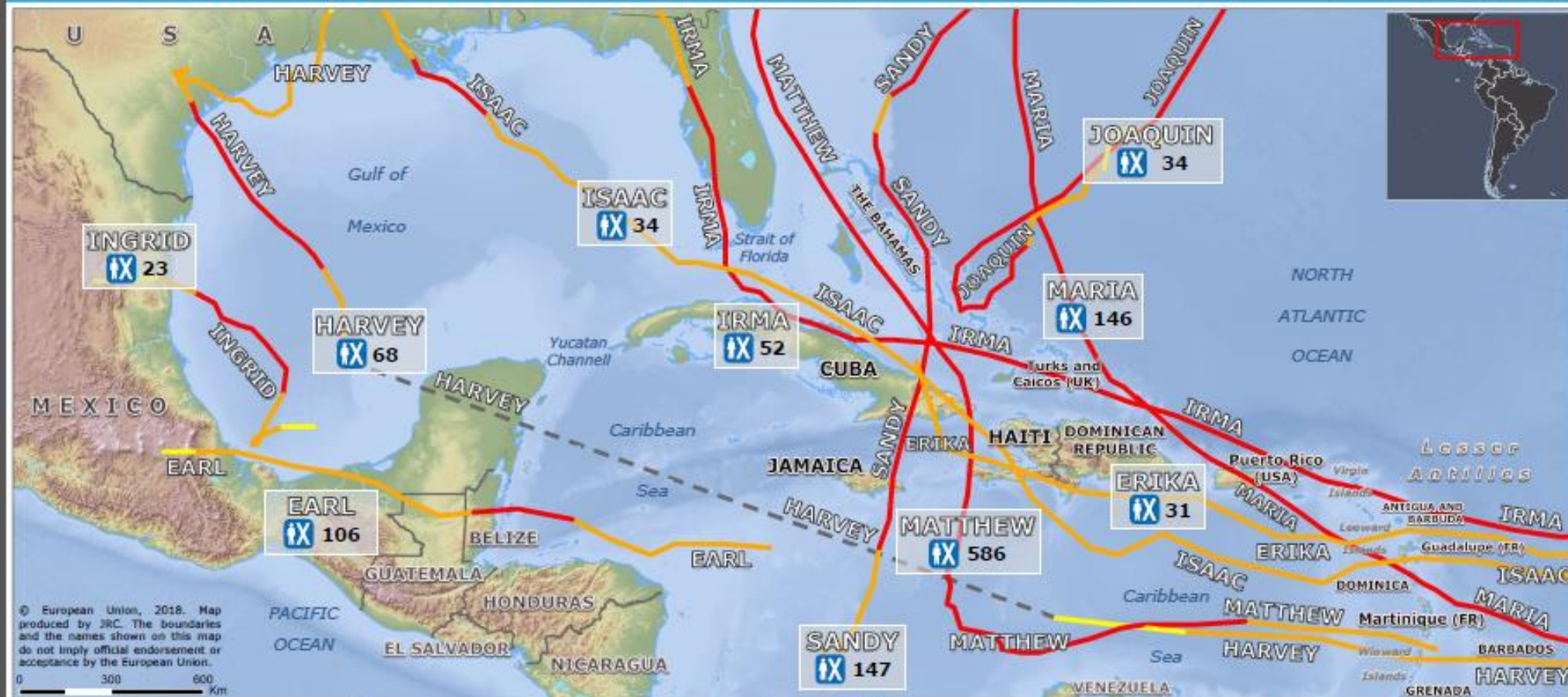
Puerto Rico sues to obtain data on deaths from Hurricane Maria

Lawsuit filed as a growing number of critics say the official toll of 64 deaths due to the storm is a severe undercount

Puerto Rico's Hurricane Maria Death Toll Could Exceed 4,000, New Study Estimates *The New York Times*

Media Reports About The Death Toll In Puerto Rico Are Needlessly Confusing

The Caribbean | Hurricane Season Overview 2012-2017



© European Union, 2018. Map produced by JRC. The boundaries and the names shown on this map do not imply official endorsement or acceptance by the European Union.

TROPICAL CYCLONES TRACK Intensity

- > 118 km/h
- 63 - 118 km/h
- < 63 km/h
- Tropical Wave/Low

Season

- 2012
- 2013
- 2015
- 2016
- 2017

Fatalities

Source: GDACS, CRFD-BNDAT, NOAA, DG ECHO



TROPICAL CYCLONES GDACS ALERT LEVEL

	August	September	October	
MARIA			Red	2017
IRMA		Red	Red	
HARVEY	Yellow			2016
EARL	Yellow			
MATTHEW			Red	2015
ERIKA		Yellow		
JOAQUIN			Green	2013
INGRID		Green		
ISAAC		Green		2012
SANDY			Yellow	

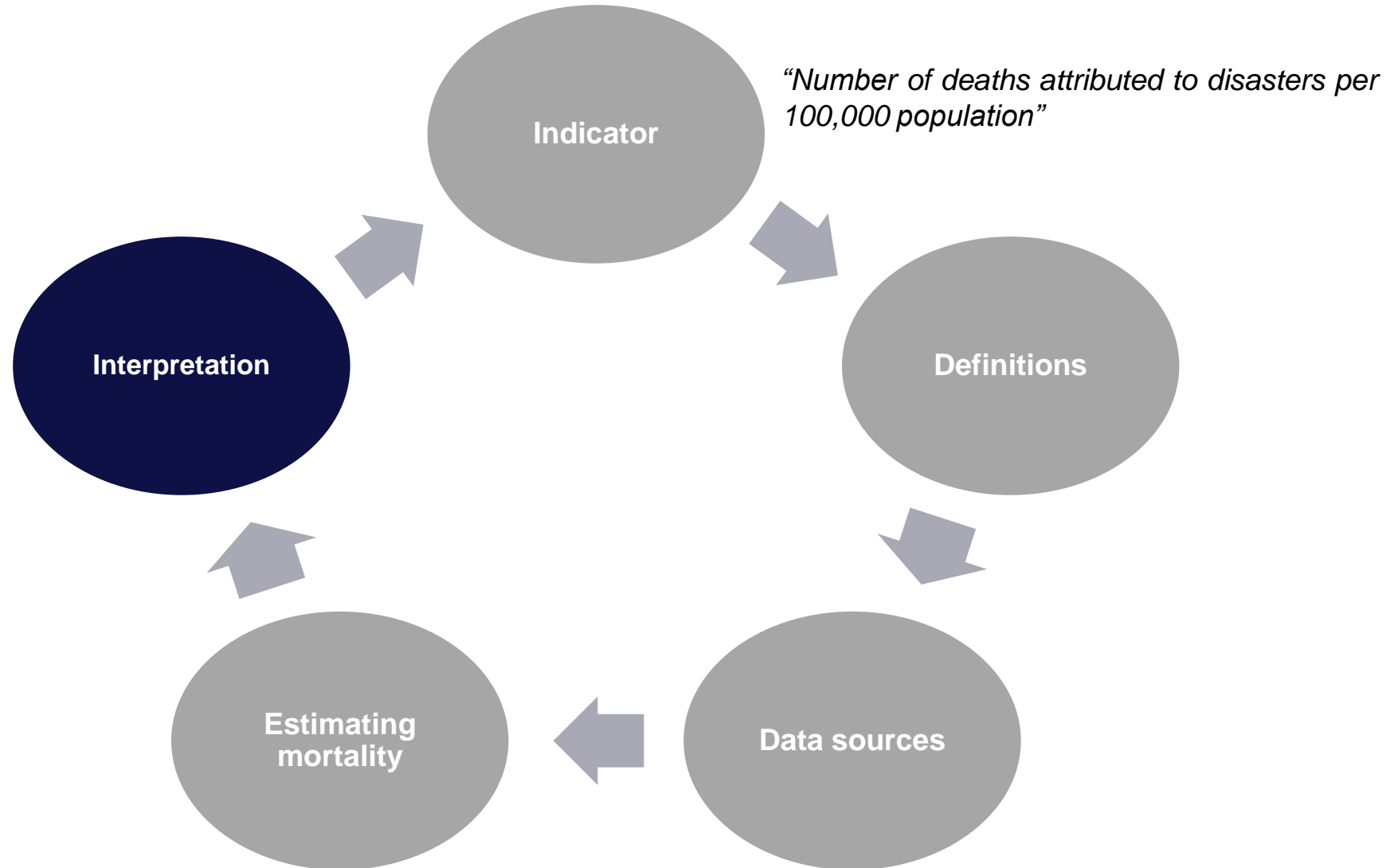
Legend:

- Green: Moderate Event
- Yellow: Potential local disaster
- Red: Potential severe disaster

https://reliefweb.int/sites/reliefweb.int/files/resources/ECDM_20180717_Caribbean_Hurricane-Season-2.pdf

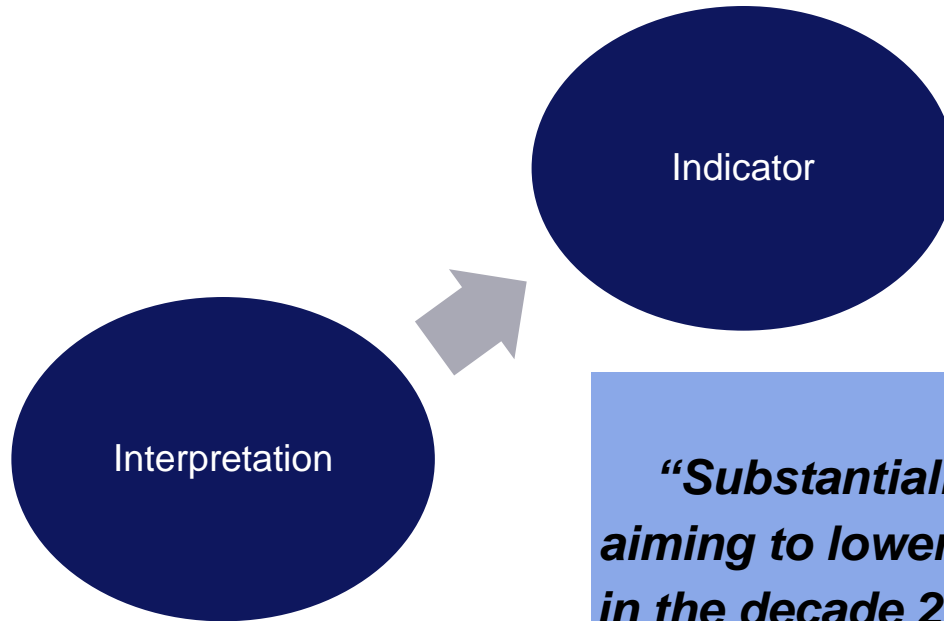


Disaster mortality data





Disaster mortality data



Global target

“Substantially reduce global disaster mortality by 2030, aiming to lower the average per 100,000 global mortality rate in the decade 2020–2030 compared to the period 2005–2015”

- Clear definition of baseline needed
- Consider inter-country comparability



Role of the health sector

- Clear link to Sustainable Development Goals



- Role of the health sector in Sendai Framework monitoring and reporting
 - Provision of data
 - Verify national disaster data
 - Engage with a range of sectors and stakeholders
- Technical guidance for health on key targets and indicators



Summary

- We cannot manage what we cannot measure
- Accurate measurement of disaster mortality is difficult
- Users of data are rarely the data owners
 - Need to ensure data is accessible and available
 - A collaborative effort across sectors is required
- More detailed technical guidance on measuring disaster mortality can help to improve reporting, comparability and usability and requires data integration and standardisation
 - How countries should count deaths within their resources
 - What sources of data should they use
 - What causes of death should they monitor
 - How is the baseline defined and measured





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- Helen K Green, Oliver Lysaght, Kevin Blanchard and others, Global Disaster Risk Reduction, Public Health England –
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- Bapon, Fakhruddin and others, Disaster Risk Reduction and climate resilience, Tonkin+Taylor
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- Qunli Hang and others – IRDR
- Andrew Collins and other – UNISDR STAG and ISC Data workign group





**Kazakhstan
Drought-2010**

**Kyrgyzstan
snowstorm -2014**

**Mongolia
Wildfire-2010**

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<http://jms.imde.ac.cn>

<https://doi.org/10.1007/s11629-018-4842-4>

An international program on Silk Road Disaster Risk Reduction – a Belt and Road initiative (2016-2020)

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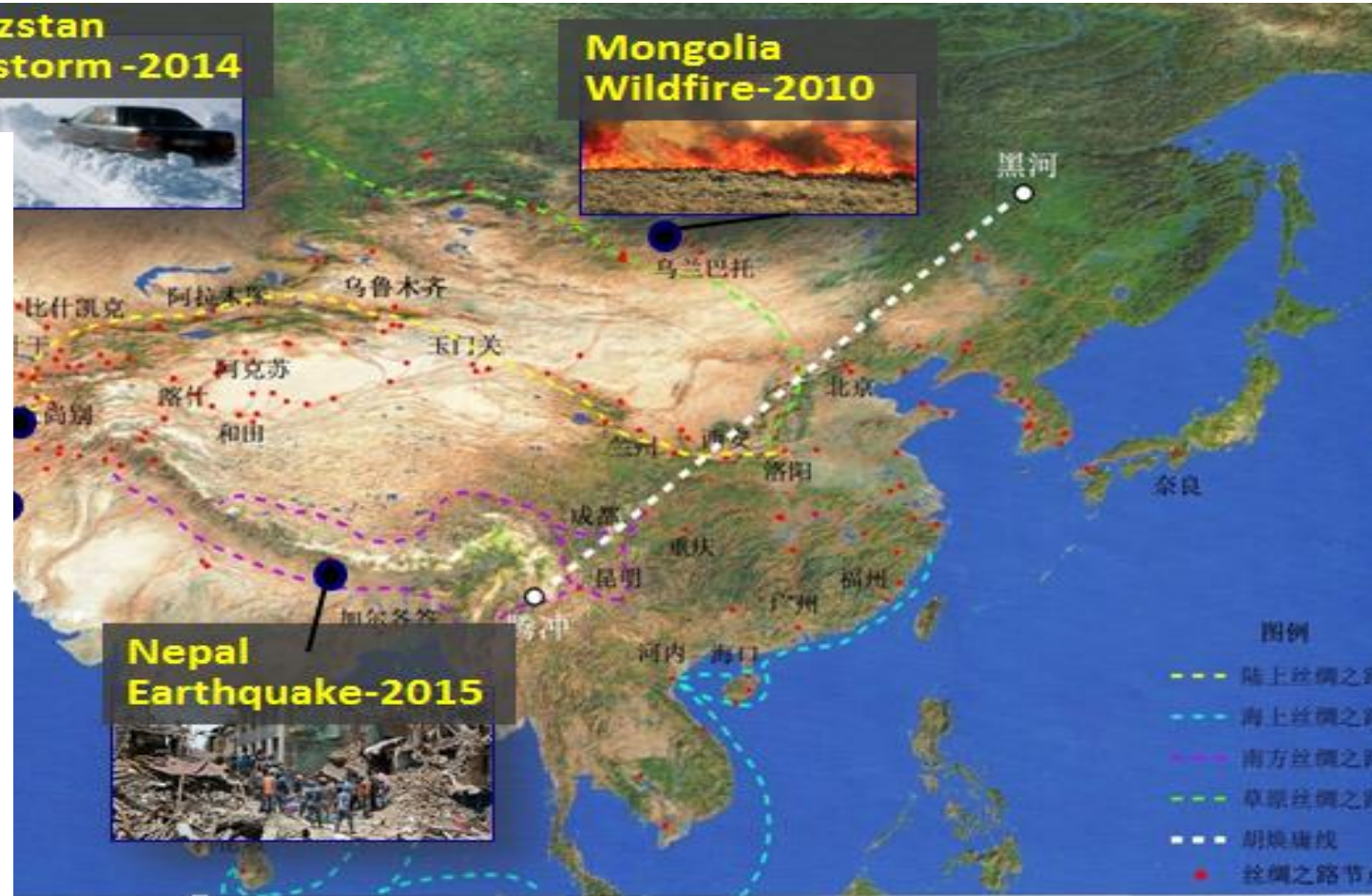
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8 Internal Quality Assurance Unit & Center for International Affairs, University of Ruhuna, Matara, Sri Lanka

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图例

- 陆上丝绸之路
- 海上丝绸之路
- 南方丝绸之路
- 草原丝绸之路
- 胡焕庸线
- 丝绸之路节点

DISASTER RISK REDUCTION & OPEN DATA NEWSLETTER

DRR and data in the news

[Scientific collections and databases review by MBIE, New Zealand](#)

[LINZ report on 15 August will improve datasets for resilience in New Zealand](#)

[IBM with humanitarian organisations as partners launched Call for Code Global Initiative to support disaster recovery](#)

[KDDI, OYO and Toyota using IoT to gather data for](#)

Publications on DRR and data

[Assessing the Real Cost of Disasters- the need for better evidence](#)

[Development and Implementation of the World Health Organization Emergency Medical Teams: Minimum Technical Standards and Recommendations for Rehabilitation](#)

[Atlas of Sustainable Development Goals 2018 by the World Bank](#)