

Disaster Loss DATA Project

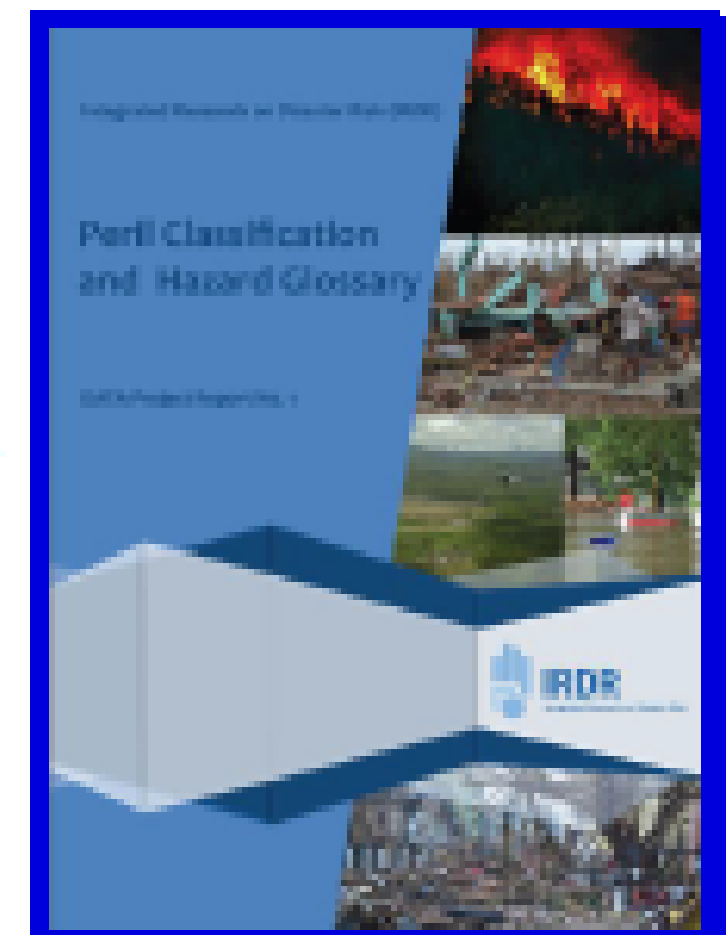
Virginia Murray & Bapon Fakhruddin
19th Science Committee Meeting
15 April 2018

Disaster Loss DATA

Objectives:

To study issues related to the collection, storage, and dissemination of disaster loss data.

1. Bring together loss data stakeholders and develop and utilise synergies.
2. Identify the quality of existing data and what data are needed to improve disaster risk management.
3. Develop recognised standards/protocols to reduce uncertainty in the data.
4. Define “losses” and create transparent methodologies for assessing them.
5. Advocate an increased downscaling of loss data to sub-national geographical levels for policy makers.
6. Educate users regarding data interpretation and data biases.



Integrated Research on Disaster Risk (IRDR)

Measuring Losses from Disasters: Guidelines on Human and Economic Impact Indicators

IRDR Working Group DATA Report No. 2
March 2015 (Version 1.0)

Integrated Research on Disaster Risk

Peril Classification and Hazard Glossary

DATA Project Report No. 1

Cambridge Centre for Risk Studies Working Paper Series

A Check to the System – Research Programme of the Cambridge Centre for Risk Studies
Cambridge System Shock Risk Framework

A Taxonomy of Threats for Macro-Catastrophe Risk Management

University of Cambridge
Andrew Coburn, Daniel Ralph, Michelle Taveira, Simon Kuffler, Gary Downman

Working Paper 2013/07 20
Draft July 2013
Availability for download at
www.risk.jon.cam.ac.uk

Gap Analysis on Open Data Interconnectivity for Disaster Risk Research (Penultimate Version)

A study report of the CODATA Task Group on Linked Open Data for Global Disaster Risk Research

Carol SONG LI GUOQING

A WORLD THAT COUNTS
MOBILISING THE DATA REVOLUTION FOR SUSTAINABLE DEVELOPMENT

A Strategic Framework for Emergency Preparedness

Coherence between the Sendai Framework, the SDGs, the Climate Agreement, New Urban Agenda and World Human Summit, and the role of science in their implementation

UNEP, IRDR

Disaster loss data in monitoring the implementation of the Sendai Framework

UNEP, IRDR

Disaster-related Data for Sustainable Development
Sendai Framework Data Readiness Review 2017
Global Summary Report

"The more governments, UN agencies, organisations, businesses and civil societies understand risk and vulnerability, better equipped they will be to mitigate when they strike and save more lives"

UNEP, IRDR

"Access to information is critical to successful disaster risk management. You cannot manage what you cannot measure."

UNEP, IRDR

EXECUTIVE SUMMARY
SCIENCE FOR DISASTER RISK MANAGEMENT

Digital Risk Management Knowledge Centre

26-27 June 2017
OECD Conference Centre

Governing better through evidence-informed policy making

Conference summary

POLICIES

COUNTING ON THE WORLD
Building Modern Data Systems for Sustainable Development

TRENDS



Disaster Risk Reduction & Open

Publications of DRR and Data

[Economic development and declining vulnerability to climate change](#)

[Words into Action guideline: Implementation guide for local resilience strategies \(Public consultation version\)](#)

[Index-based flood insurance \(IBFI\) in Bihar](#)

[A framework for healthcare disaster resilience: a view to the future](#)

[South African risk and vulnerability atlas](#)

[Using insurance in adaptation to climate change](#)

[Forecast-based financing: case studies from Togo and Uganda](#)

[Urban wetlands management in Colombo](#)

[Financing climate change adaptation: Mainstreaming into development](#)

DRR and Data in the News

[Disaster damage and loss database to enhance resilience](#)

[Inaccurate data analysis may affect Puerto Rico's recovery](#)

[Open Data Watch - Ready to Measure: Phase Two Ambitions](#)

[Estonian ICT Company is developing a new early warning system using satellite open data](#)

[New early warning system project in Georgia provides increased protection for 1.7 million people from the heightened risks of climate change](#)

[OGC requests information for its Disasters Interoperability Concept Development Study](#)

[Measuring the economic impact of cyclones in Madagascar](#)

[Peering beneath the powder: Using radar to understand avalanches](#)

[USA: New model shows towns on the wrong side of an Illinois levee district are treading water](#)

[UK: Scientists create world's first 3D thermal image of volcano](#)

[US: National flood insurance is underwater because of outdated science](#)

[Philippines: Experts push for open data law to reduce disaster risk](#)

[Modelling future earthquake and tsunami risk in Southeast Japan](#)

[Regional Data Cube to Help Manage Food Security in Africa](#)

[New satellite technology tool transforms central Africa's ability to manage food security](#)

Upcoming DRR and Data Events

[2nd Asian Science and Technology Conference for Disaster Risk Reduction](#)

[Diversity in Disaster Conference](#)

[Resilient Cities 2018](#)

[2nd International Symposium on Natural Hazards and Disaster Management \(ISHAD\) 2018](#)

[Global Conference for Prosperity through Hydrological Services \(HydroConference\)](#)

[ICT4D Conference](#)

Comments? Suggestions? To submit contributions, please contact:

- [Prof. Virginia Murray, Consultant in Global DRR – Public Health England](#)

Stocktake of New Zealand/Global Loss Data Collection Activities



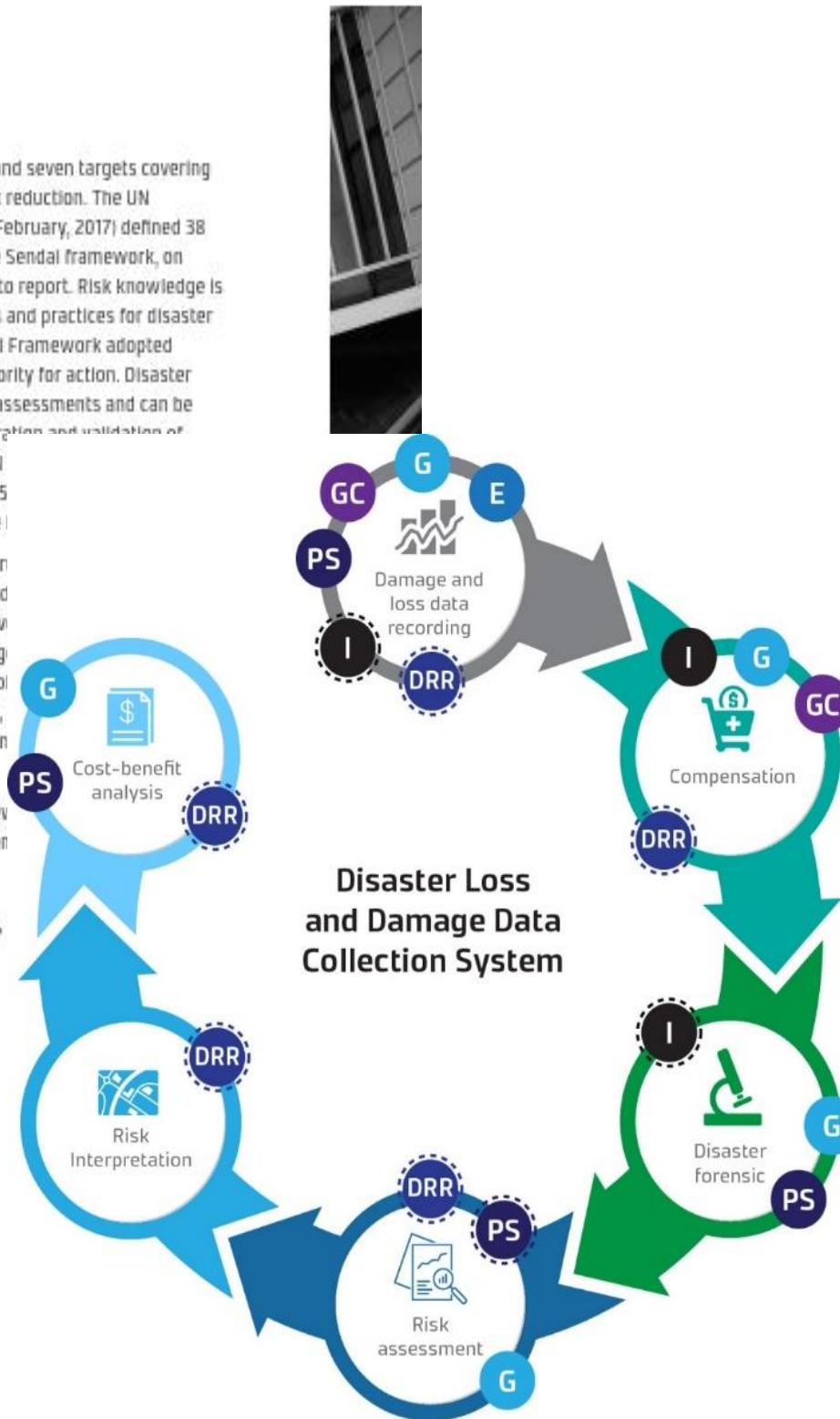
Disaster Loss Data: Raising the Standard

Overview

The UN Sendai Framework has four goals and seven targets covering global, national and local level disaster risk reduction. The UN General Assembly (Resolution A/71/644, 2 February, 2017) defined 38 indicators for monitoring the targets of the Sendai framework, on which participating countries are required to report. Risk knowledge is vital in developing robust, effective policies and practices for disaster risk management. Consequently the Sendai Framework adopted 'Understanding disaster risk' as its first priority for action. Disaster loss data is fundamental for accurate risk assessments and can be critical in providing a baseline for the calibration and validation of results using verifiable information. The UN framework for Disaster Risk Reduction 2015 amassing of disaster loss data in a useable

National disaster loss databases are also acting upon risk information that, in turn, aid making and risk governance. They also serve for reporting on the Sendai Framework target pivotal to the comprehensive assessment of interpretation, with standardized loss data, also provide loss forecasting data in reference historical loss modelling.

This white paper describes standard framework and protocols for loss data collection system



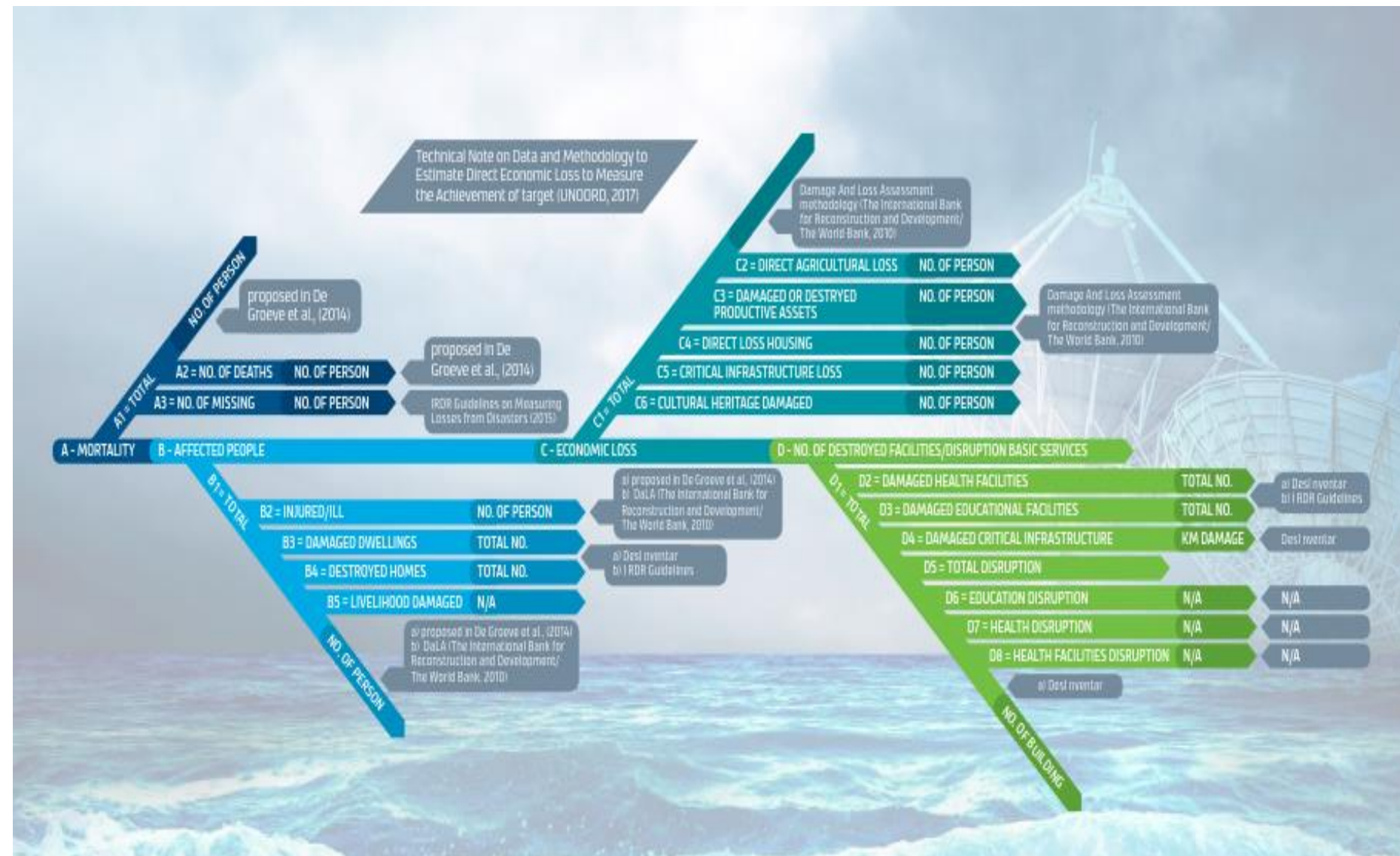
Legend

Read/Write data access	Read data access	
		Government
		Experts
		DRR Researchers
		Private Sector
		General citizenship/volunteers
		Insurance agents



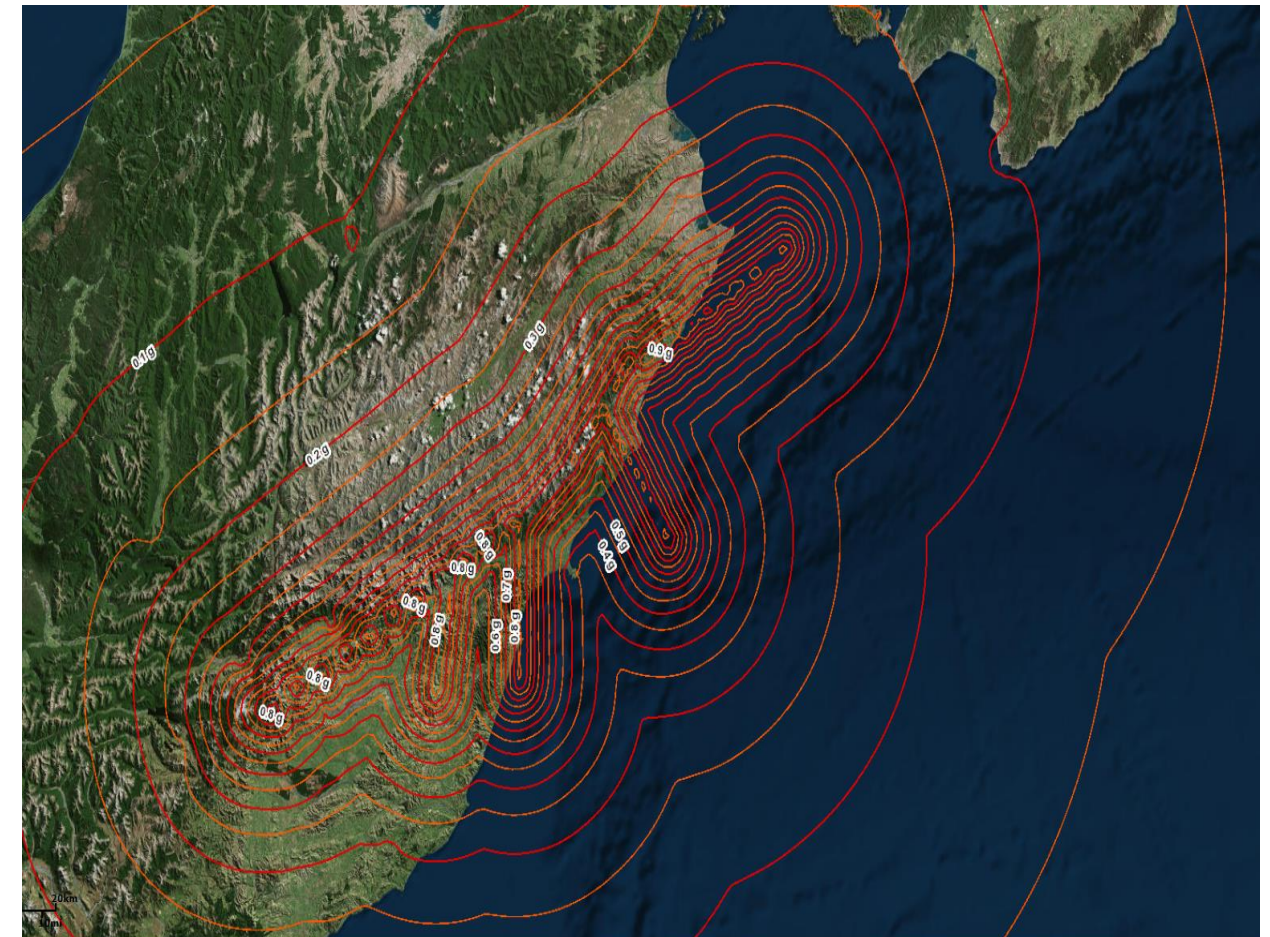
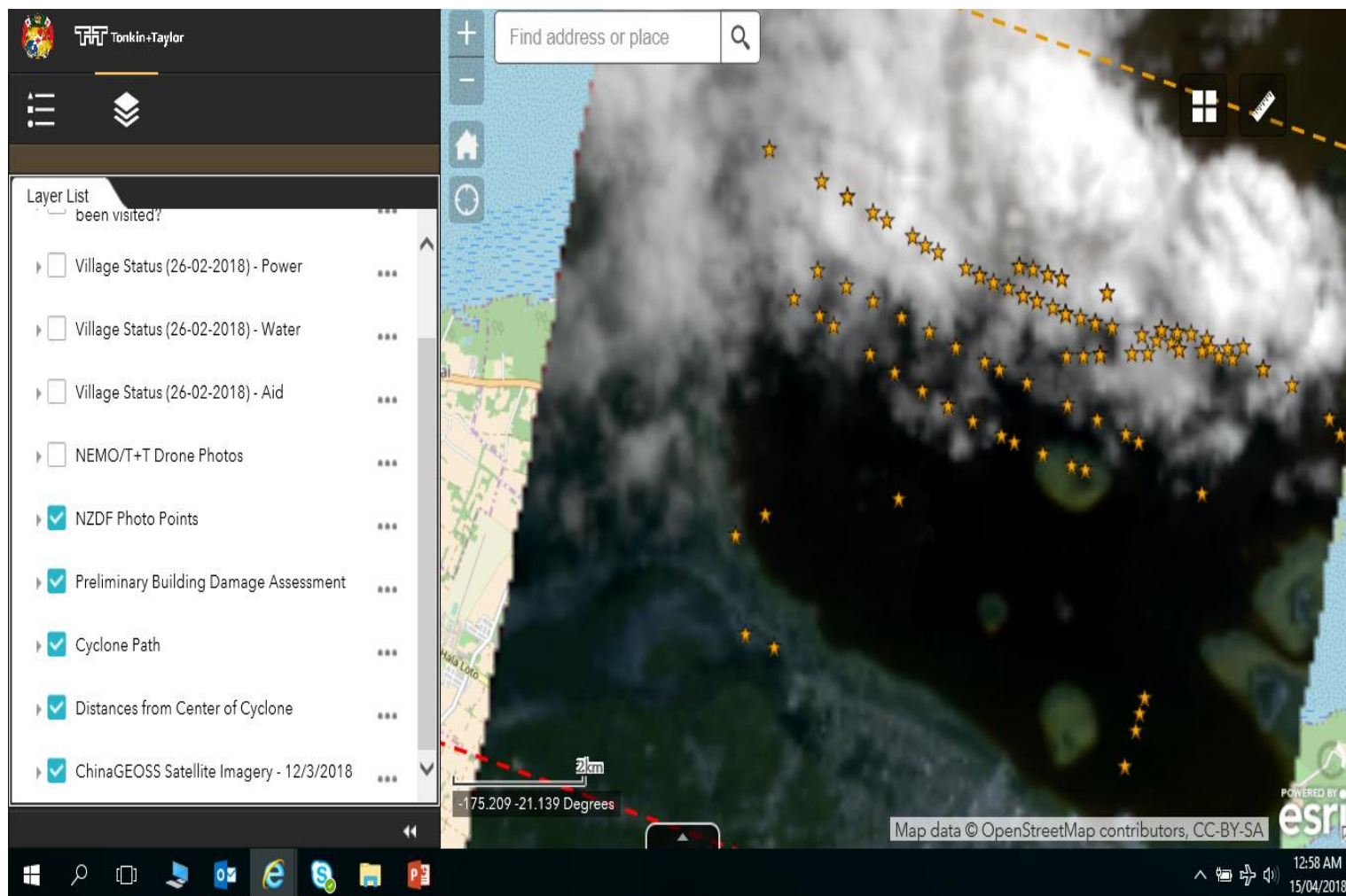
Protocol to Collecting Disaster Loss DATA

- Protocols are being applied/applying by
 - NZ Government
 - Bangladesh
 - Indonesia
 - Sri Lanka
 - Fiji
 - Samoa



Rapid Damage assessment

- With support from
 - China GEOSS
 - RADI/CODATA LODGD



Kaikuora damage assessment,
NZ 2017/2018

Tonga Cyclone Gita damage assessment 2018

Helen K. Green¹, Oliver Lyaghty^{1,2}, Keith Blanchard¹, Virginia Murray¹
¹ Public Health England; ² London School of Economics and Political Science

How data and measuring implementation of the

measuring progress towards the implementation of the Sendai Framework: how

Keith Blanchard¹, Virginia Murray¹

Public Health England

Introduction

Disasters are known to exact a heavy toll globally, however the degree to which we can accurately quantify this impact remains challenging. The Sendai Framework for Disaster Risk Reduction (2015-2030) represents the first international effort to systematically measure the effectiveness of disaster-impact reduction through a set of indicators and targets. Target A of the Framework aims to "substantially reduce global disaster mortality by 2030" (Figure 1).

Figure 1: Global target to substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2020-2024.

Estimating Disaster Mortality: How Can It Be Done?

The Sendai Framework calls for each country to determine how mortality data is collected (Figure 2).

Official disaster-mortality estimations have traditionally been made through:

- Counting deaths in vital registration systems where available;
- Household capital surveys.

Vital registration systems

- Considered to produce the most thorough and accurate mortality statistics (Rammohan et al. 2014).
- More than 100 nations, primarily in low- and middle-income countries, lack functioning systems (Figure 3), resulting in ~80% of deaths unaccounted for globally (Khan et al. 2015).
- Discrepancies in coding practices can further distort how accurately systems reflect mortality (Choudhary et al. 2008).

Household surveys

- Can usually fill data gaps.
- Unable to statistically measure mortality if not

Figure 3: Proportion of countries by region where vital registration data available (VSD) and conventional disaster impact (CDI) (EMDAT)

Gap analysis on open data interconnectivity for disaster research

Guoqing Li^{a,b,c}, Jing Zhao^{a,c}, Virginia Murray^{d,e}, Carol Song^f, Lianchong Zhang^{a,c}

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- ^b Hainan Key Laboratory of Earth Observation, Sanya, China,
- ^c University of Chinese Academy of Sciences, Beijing, China
- ^d Public Health England, London, United Kingdom
- ^e Integrated Research on Disaster Risk (ICSU/ISSC/UNISDR)
- ^f Rosen Centre for Advance Computing, Purdue University, West Lafayette, USA

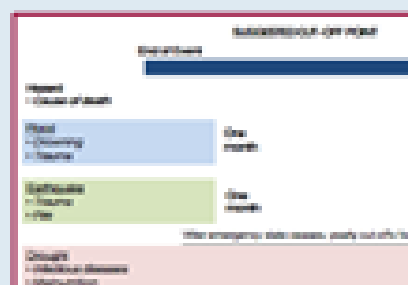
There are issues with estimating disaster mortality, including defining, reporting and parsing data. This paper outlines the three difficulties and provides some suggested recommendations.

Defining Disaster Mortality

Definition of population, disaster and death need to be standardized for data comparable across countries and time.

Sendai Framework definitions are:

- Population**
A nation's total population (rather than population at risk)
- Disaster**
"Serious disruption of the functioning of a community or a socially organized institution, involving with considerable event loading with consequences, vulnerability and capacity, in one or more of the following: human, economic and environmental losses or impacts" (UNISDR 2014)
- Disaster deaths**
"The number of people who died during disaster, or directly after, as a direct result of a disaster event" (UNISDR, 2017).



EU Loss Data Workshop, Brussels

16-17 April 2019

- Representatives from DRR National Platforms
- Technical experts on loss data
- Organisations contributing to loss data collection & reporting at local, regional, national, EU and international level.

- Improving coordinated multi-stakeholder mechanisms for data collection based on identified needs, such as Sendai reporting and National Risk Assessments





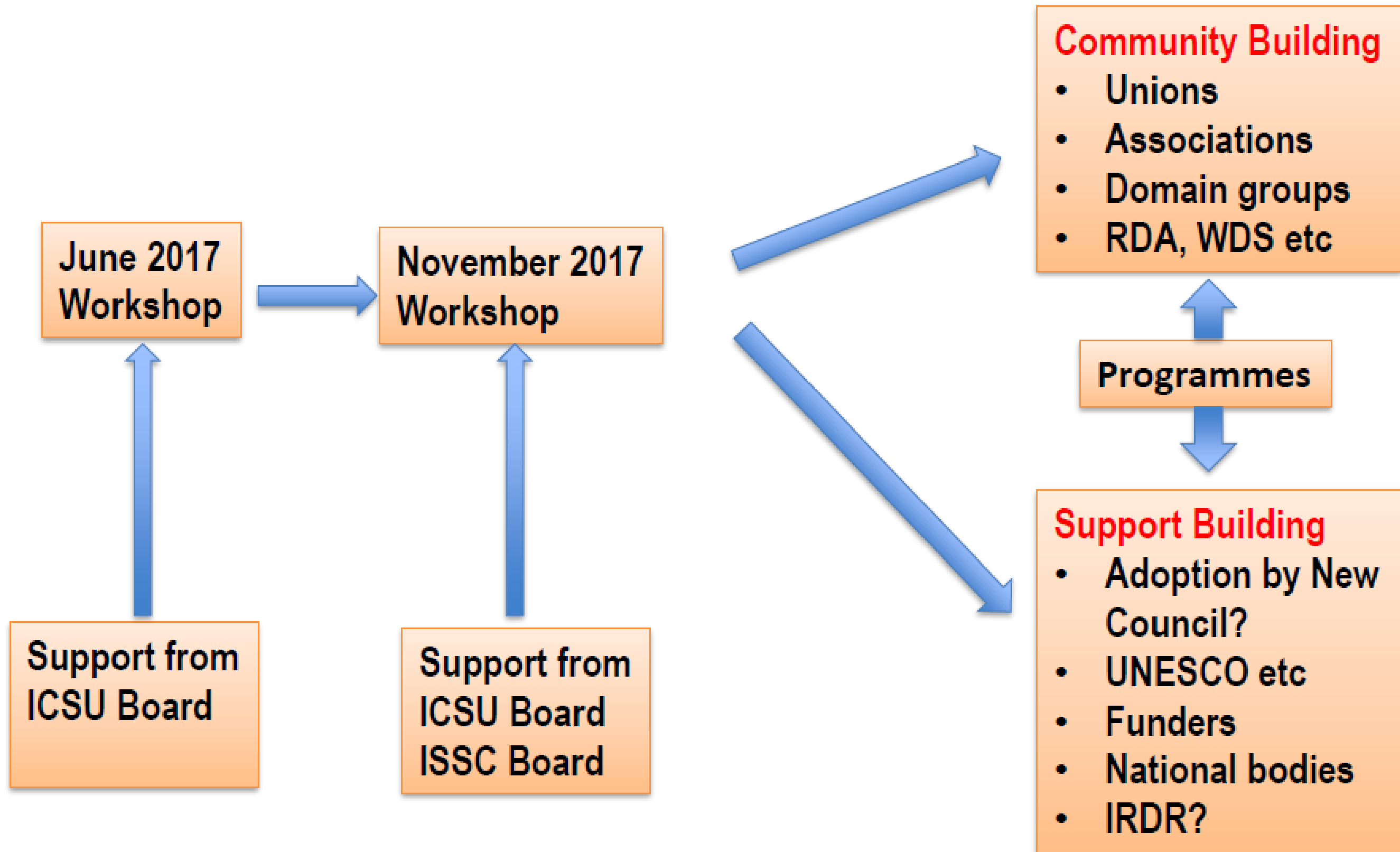
REPORT OF THE
EXPERT MEETING ON THE GLOBAL RISK ASSESSMENT FRAMEWORK
IN SUPPORT OF
THE SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION 2015 – 2030
THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT
AND
THE PARIS AGREEMENT

Geneva, 20-21 November 2017

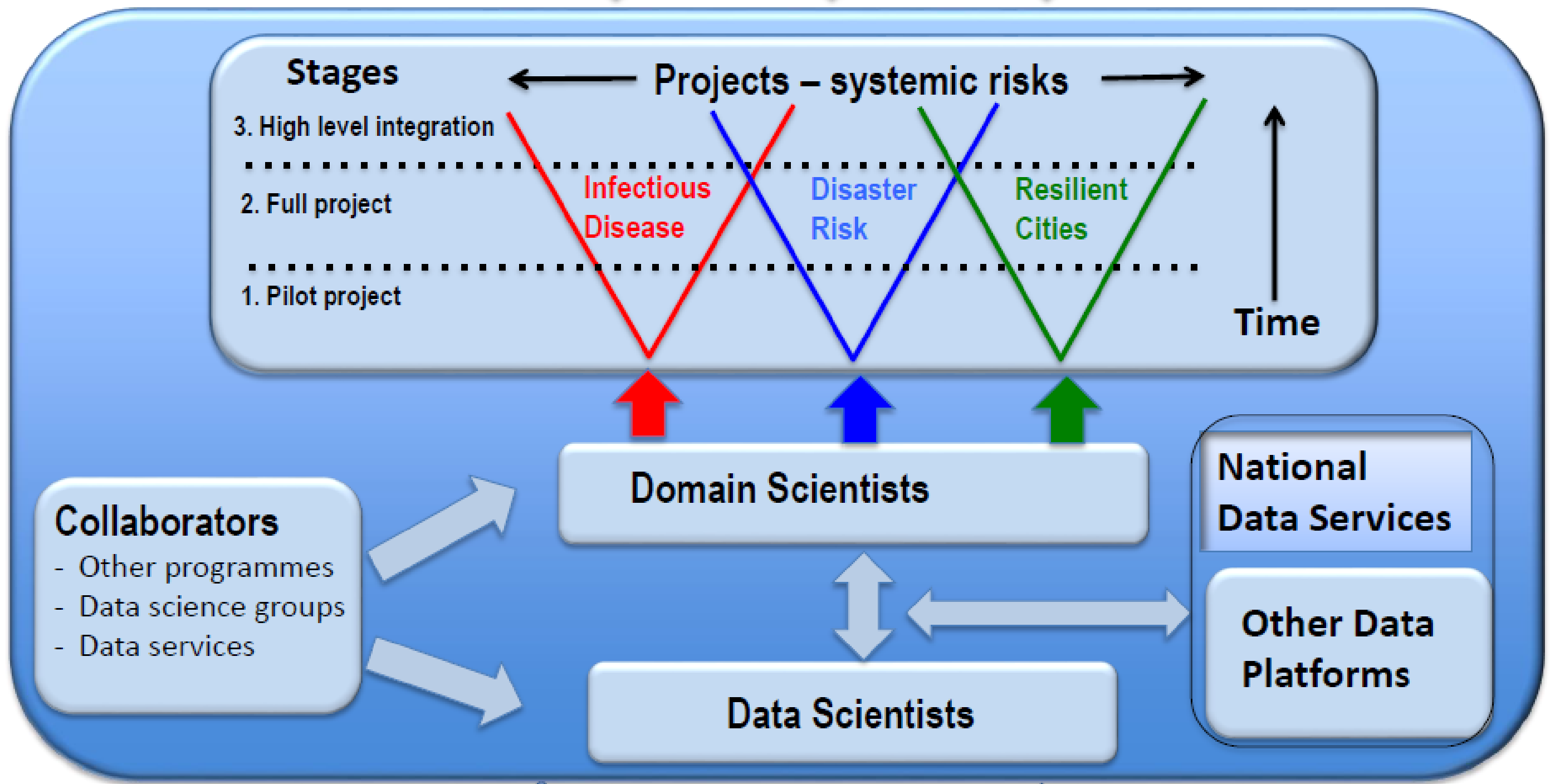
CODATA convened workshops in June 2017 (ICSU, Paris) and November 2017 (Royal Society, London) to prepare a **Commission on Data Standards** to address issues of interoperability and data integration in particular for interdisciplinary research areas.

The initiative is now moving forward with three pilot case studies, examining the issues of data availability and interoperability in relation to infectious disease, **disaster risk** and resilient cities.

ICSU-ISSC-CODATA Process



Stakeholders
National & International Policymakers & Users



Funders

Sponsors

1.1 PILOT PROJECT 1B – DISASTER RISK REDUCTION

Project Leaders – Virginia Murray (Consultant in Global Disaster Risk Reduction, Public Health England), Kevin Blanchard (Senior Environmental Scientist, in Global Disaster Risk Reduction, Public Health England), Helen Green (Public Health Registrar, Public Health England)

Vision

Disasters can significantly set back progress towards sustainable development and many are exacerbated by climate change. Evidence indicates that exposure to risk of persons and assets in all countries has increased faster than vulnerability has decreased. There are new risks and a steady rise over time in disaster related losses, with a significant economic, social, health, cultural and environmental impact in the short, medium and long term, especially at the local and community levels. Recurring small-scale disasters and slow-onset disasters in particular affect communities, households and small and medium-sized enterprises, and constitute a high percentage of all losses. All countries, especially developing countries where the mortality and economic losses from disasters are disproportionately higher, are faced with increasing levels of possible hidden costs and challenges in order to meet financial and other obligations.

Disaster risk reduction requires a multi-hazard approach and inclusive risk-informed decision-making based on the open exchange and dissemination of disaggregated data (including by sex, age and disability). We require easily accessible, up-to-date, comprehensible, science-based, non-sensitive risk information, complemented by traditional knowledge, as data on disaster impacts have been poorly documented so it is difficult to manage what cannot be measured. Furthermore, data that characterise many of the factors that influence this knowledge are available, but remain in siloes within the various domain-specific communities, formats and ontologies that created them.

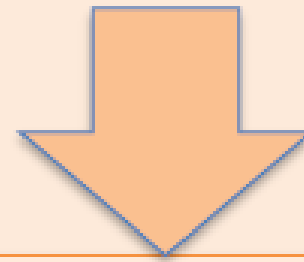
Open Science?

Open to Whom?

To other
Scientists



**Open Data + Open Access Publishing
= Science talking to itself, but more efficiently**



With
Society



**Learning to talk with (not talk to)
other societal stakeholders**

- **Business**
- **Policymakers**
- **Diplomats/Governments**
- **Communities**
- **Citizens**

IRDR DATA Project Plan 2018-2020 with a specific timeline

- **Objectives:** to deliver the IRDR DATA Project objectives and to partner if requested with UNISDR GRAF with other data partners
- **Scientific Questions:** Sendai Framework coherence with SDGs and Paris where possible – via the CODATA Commission on Data Standards data availability and interoperability
- **Plan Activities** Research bid to be submitted in September 2018 and to widen DATA partnership network: UNISDR GRAF/ UNSDSN/ Global Partnership/UN Statistical Commission/ CODATA and CODATA LODGD/ INGSA/ others
- **Deliverables:** Build network and deliver a funded programme; link to UNISDR GRAF, KAN and other partners
- **Support Needed** to grow DATA network and partnerships and project funding