22nd Meeting of the IRDR Scientific Committee

Xiamen

October 2019
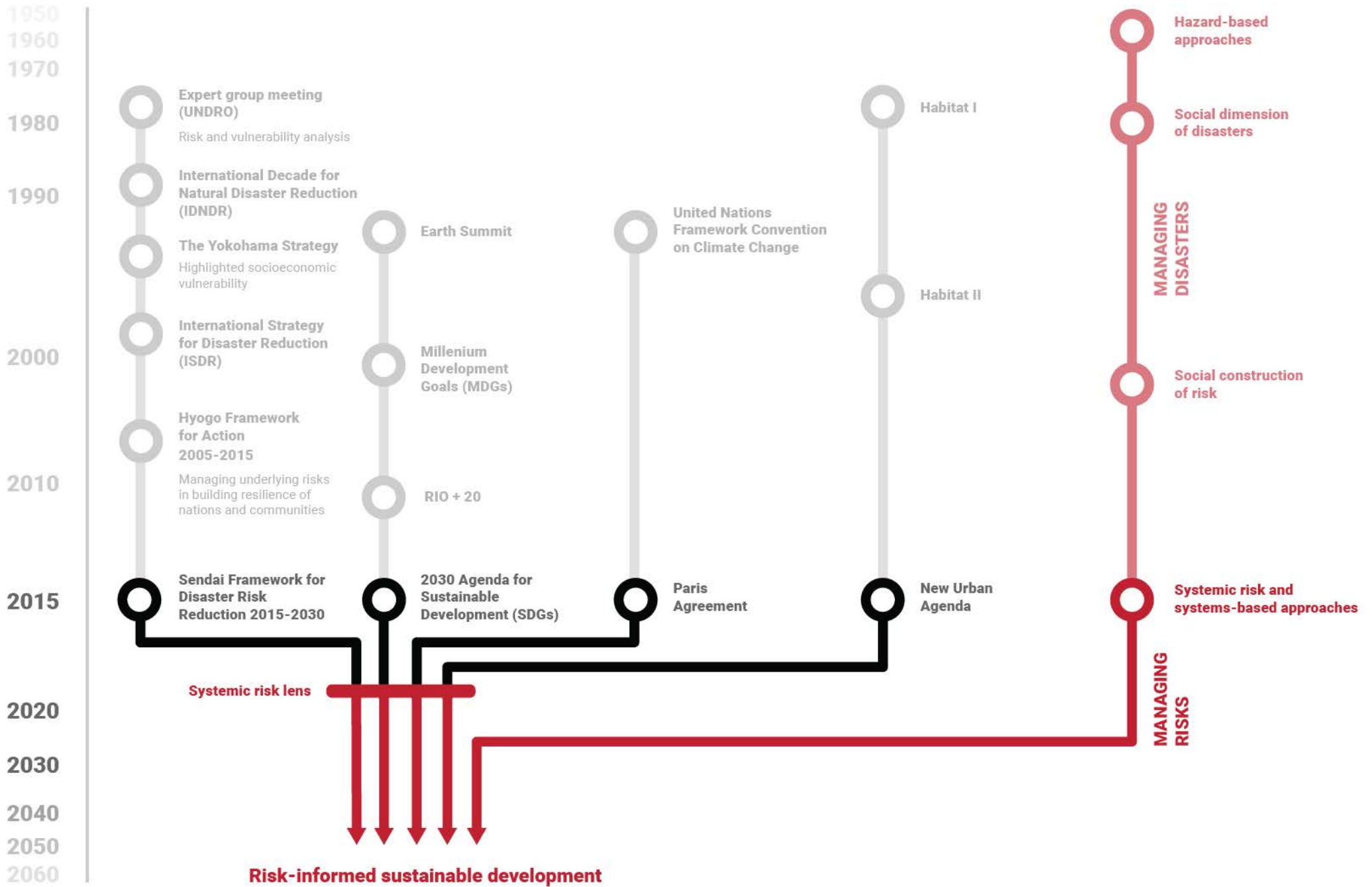
Marc Gordon

Global Risk Analysis and Reporting
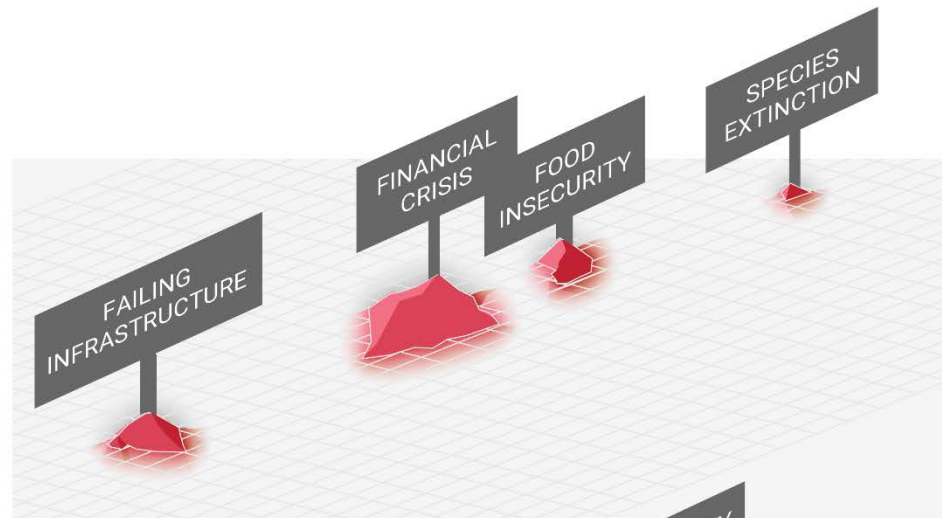
SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

Timeline axis (years):
1950, 1960, 1970, 1980, 1990, 2000, 2010, 2015, 2020, 2030, 2040, 2050, 2060

Left track:

Expert group meeting (UNDRO)
Risk and vulnerability analysis

International Decade for Natural Disaster Reduction (IDNDR)

The Yokohama Strategy
Highlighted socioeconomic vulnerability

International Strategy for Disaster Reduction (ISDR)

Hyogo Framework for Action 2005-2015
Managing underlying risks in building resilience of nations and communities

Sendai Framework for Disaster Risk Reduction 2015-2030

Second track:

Earth Summit

Millenium Development Goals (MDGs)

RIO + 20

2030 Agenda for Sustainable Development (SDGs)

Third track:

United Nations Framework Convention on Climate Change

Paris Agreement

Fourth track:

Habitat I

Habitat II

New Urban Agenda

Right track (MANAGING DISASTERS / MANAGING RISKS):

Hazard-based approaches

Social dimension of disasters

Social construction of risk

Systemic risk and systems-based approaches

Labels:

Systemic risk lens

Risk-informed sustainable development

Realization of risk

FAILING INFRASTRUCTURE

FINANCIAL CRISIS

FOOD INSECURITY

SPECIES EXTINCTION

Context

HAZARD

EXPOSURE

VULNERABILITY

Driven by

HYPERCONNECTED FINANCIAL SYSTEM

INCREASING POVERTY

ENVIRONMENTAL DEGREDATION
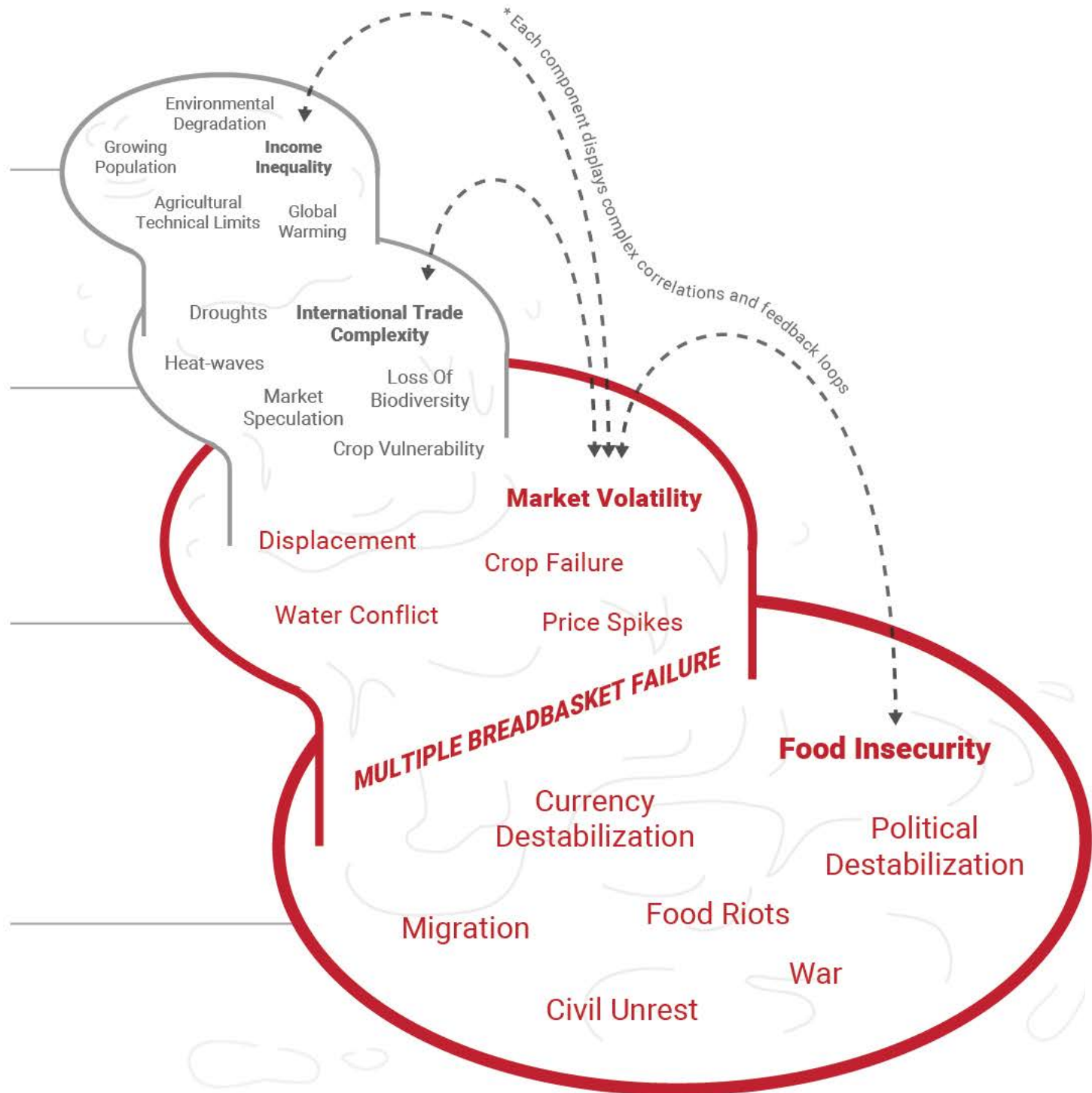
POORLY MANAGED URBAN DEVELOPMENT

CURRENT CONTEXT

Capacity to absorb negative events is being reduced slowly (e.g. population growth pushing the limits of agricultural technology)
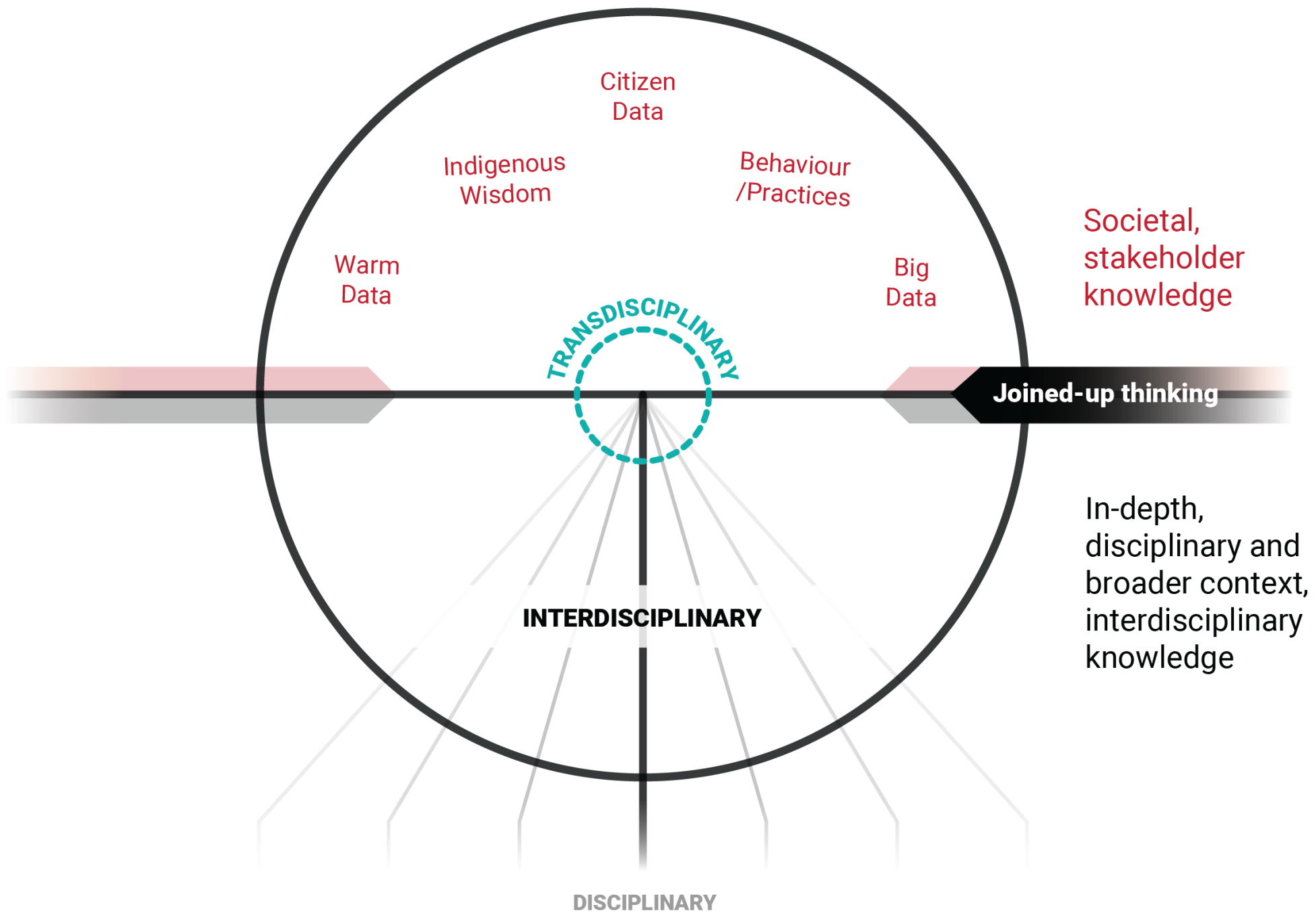
BUILDING STRESSORS

SUDDEN AND GRADUAL TIPPING POINTS

An event of great magnitude or multiple failures at the same time could suddenly exceed all remaining capacity
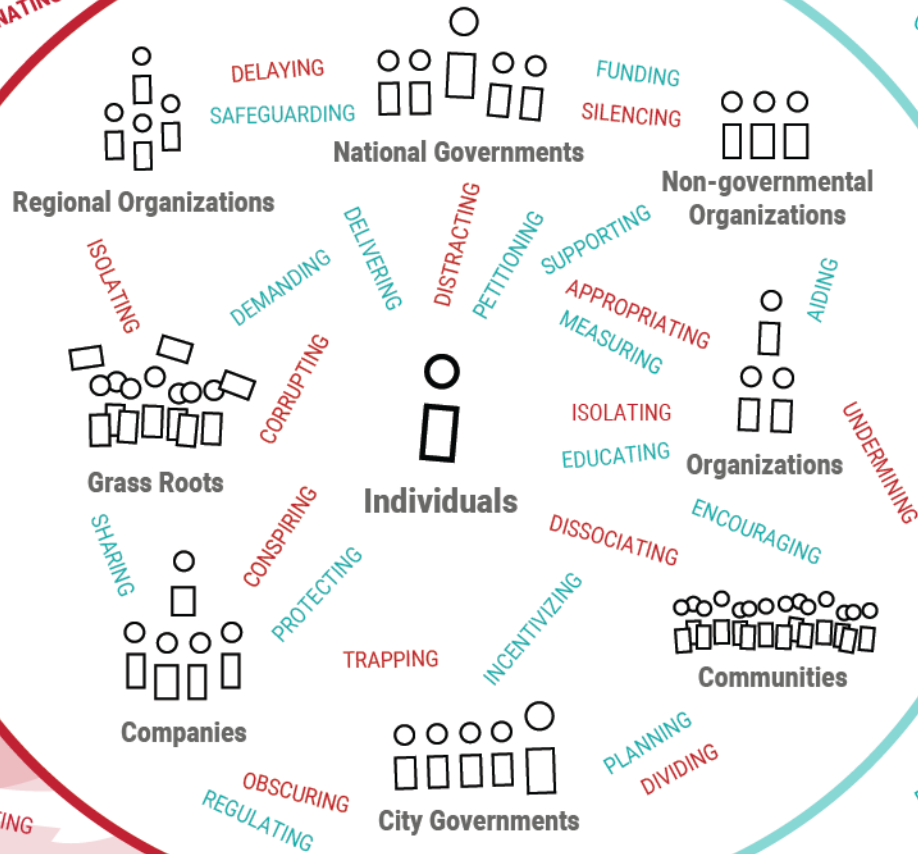
SYSTEMIC FAILURE

Environmental Degradation

Growing Population

Income Inequality

Agricultural Technical Limits

Global Warming

Droughts

International Trade Complexity

Heat-waves

Loss Of Biodiversity

Market Speculation

Crop Vulnerability

* Each component displays complex correlations and feedback loops

Market Volatility

Displacement

Crop Failure

Water Conflict

Price Spikes

MULTIPLE BREADBASKET FAILURE

Food Insecurity

Currency Destabilization

Political Destabilization

Migration

Food Riots

War

Civil Unrest

Where we are

Risk-informed systems-based approaches and decision-making

Where we need to be

Left circle:
Destructive
Where we are
Compliant
Proactive Effective
Reactive Survival
DISASTER MANAGEMENT
DISASTER
LIVING WITH UNCERTAINTY
RISK PREVENTION
DISASTER RESPONSE
Evolving Containment

Right circle:
DISASTER MANAGEMENT
RISK PREVENTION
Aligned Efficient
LIVING WITH UNCERTAINTY
DISASTER RESPONSE
DISASTER
Integrated Enabling
Sustainable
Where we need to be
Regenerative

Citizen Data

Indigenous Wisdom

Behaviour /Practices

Warm Data

Big Data

TRANSDISCIPLINARY

Societal, stakeholder knowledge

Joined-up thinking

In-depth, disciplinary and broader context, interdisciplinary knowledge

INTERDISCIPLINARY

DISCIPLINARY

RISK
Hazards are less predictable
Exposure is growing
Vulnerability is compounding

IGNORING
DESTROYING
PROCRASTINATING
COMPETING
CONCEALING

Regional Organizations
DELAYING
SAFEGUARDING
National Governments
FUNDING
SILENCING
Non-governmental Organizations

ISOLATING
DEMANDING
DELIVERING
DISTRACTING
PETITIONING
SUPPORTING
APPROPRIATING
MEASURING
AIDING

CORRUPTING
Grass Roots
ISOLATING
EDUCATING
Organizations
UNDERMINING

Individuals
ENCOURAGING

SHARING
CONSPIRING
PROTECTING
DISSOCIATING
INCENTIVIZING
Communities

TRAPPING
Companies

OBSCURING
REGULATING
City Governments
PLANNING
DIVIDING

GENDER EQUALITY
ACCOUNTABILITY
RECYCLING
REDUCING
CONSERVING
INVESTING
INCLUSION
EMPOWERING
REGENERATING

RISK-INFORMED SUSTAINABLE DEVELOPMENT

NATIONAL REPORTING

Sendai Framework Monitor

National DesInventar

Words into Action Guidelines

SUSTAINABLE SOCIETIES AND SYSTEMS (SENDAI FRAMEWORK, 2030 AGENDA, PARIS AGREEMENT, NUA)

GAR

PROVIDERS

Scope of hazards/ risks (Para. 15)

Exposure models

Probabilistic/ non-probabilistic hazard models

Intercomparison and ensemble models

Vulnerability models (social / ecological)

Systemic risk

Uncertainty

GRAF IMPACT CUBE

HUMAN ECOLOGICAL ECONOMIC INFRASTRUCTURE POLITICAL

GLOBAL
NATIONAL
SUBNATIONAL
LOCAL

HAZARDS EXPOSURE VULNERABILITY

GLOBAL RISK ASSESSMENT PLATFORM (GRASP)

Application Programming Interface (APIs)

Actionable insights, scenarios, tools, demonstrations, options and dashboards available to support the needs of users

Increased number of lower cost models and databases available and connected with more users as a result of increased standardization and economies of scale

More people can build risk models and understand the interactive nature of risk through time

Prevention of risk creation and reduction of existing risk

Proactive risk-informed decisions and action to mobilize finance, investment and communities

Transformed behaviours

Transdisciplinary, multi-science foundation and data sets

Interoperability and standards

Working practices and modalities

GRAF Working Groups Project Teams

GRAF Expert Group

GRAF Secretariat

Sendai Framework for Disaster Risk Reduction

Paragraph 15.

….disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risks.

…aims to guide the multi-hazard management of disaster risk in development at all levels as well as within and across all sectors

Disaster Risk Reduction Strategies

Risk Assessment

Access To Risk Information /Warnings

Cooperation

REDUCE

Addis Ababa Action Agenda

Sendai Framework

Resilience

sustainable development goals

RISK-INFORMED SUSTAINABLE DEVELOPMENT

Sustainable development goals

Agenda for Humanity

2030 Agenda

INCREASE

Prevention

Sustainable development

New Urban Agenda

Paris Agreement

Mortality

Affected People

Economic Loss

Basic Services Disruption

Infrastrcutue Damage

gar.unisdr.org

GΛR

**Global Assessment Report
on Disaster Risk Reduction**

2019

OIEWG Report 2016 (A/71/644)

Biological Hazards

- are of organic origin or conveyed by biological vectors, including pathogenic microorganisms, toxins and bioactive substances.

- Examples are bacteria, viruses or parasites, as well as venomous wildlife and insects, poisonous plants and mosquitoes carrying disease-causing agents.

OIEWG Report 2016 (A/71/644)

Technological Hazards

- originate from technological or industrial conditions, dangerous procedures, infrastructure failures or specific human activities.

- examples include industrial pollution, nuclear radiation, toxic wastes, dam failures, transport accidents, factory explosions, fires and chemical spills.

- Technological hazards also may arise directly as a result of the impacts of a natural hazard event.

OIEWG Report 2016 (A/71/644)

Environmental Hazards

- may include chemical, natural and biological hazards.

- can be created by environmental degradation or physical or chemical pollution in the air, water and soil.

- Hazards, or drivers of hazard and risk?
  e.g. soil degradation, deforestation, loss of biodiversity, salinization and sea-level rise.

Sendai Framework | 2030 Agenda for Sustainable Development
Multi-Purpose Data, Integrated Monitoring & Reporting

OIEWG called upon UNISDR to undertake **technical work and provide technical guidance** - together with the *international statistical community* - to operationalize the global monitoring frameworks of the Sendai Framework and SDGs, including:

1. a **review of data readiness** with respect to the indicators
2. **minimum standards** and **metadata** for disaster-related data and **statistics**
3. **methodologies** for measurement and **processing of statistical data**
4. **technical guidance material** for the testing and roll -out of the indicators and the web-based monitoring system

Sendai Framework | 2030 Agenda for Sustainable Development
Multi-Purpose Data, Integrated Monitoring & Reporting

0. Data Readiness Review 2017

1. Methodologies and Technical Guidance

   Technical guidance for monitoring and reporting on progress in achieving the global targets of the Sendai Framework

   https://www.unisdr.org/we/inform/publications/54970

2. Online Loss Data Collection Sub-system

3. Online Monitoring System

In support of the Sendai Framework
for Disaster Risk Reduction 2015 - 2030

UNISDR
United Nations Office for Disaster Risk Reduction

Sendai Framework | 2030 Agenda for Sustainable Development
Multi-Purpose Data, Integrated Monitoring & Reporting

0. Data Readiness Review 2017

1. Methodologies and Technical Guidance

2. Online Loss Data Collection Sub-system

   http://training.desinventar.net/migrate_Sendai.html

3. Online Monitoring System

In support of the Sendai Framework
for Disaster Risk Reduction 2015 - 2030

UNISDR
United Nations Office for Disaster Risk Reduction

Sendai Framework | 2030 Agenda for Sustainable Development
Multi-Purpose Data, Integrated Monitoring & Reporting

0.   Data Readiness Review 2017

1.   Methodologies and Technical Guidance

2.   Online Loss Data Collection Sub-system

3.   Online Monitoring System

https://sendaimonitor.unisdr.org/

UNISDR
United Nations Office for Disaster Risk Reduction

Global Target (a) - Substantially reduce global disaster *mortality* by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared to 2005-2015.

A-1 (A-2 + A-3)	Number of deaths and missing persons attributed to disasters per 100,000 population.
A-2	Number of deaths attributed to disasters, per 100,000 population.
A-3	Number of missing persons attributed to disasters, per 100,000 population.

Global Target (b) - Substantially reduce the number of *affected people* globally by 2030, aiming to lower the average global figure per 100,000 between 2020-2030 compared to 2005-2015.

B-1 (B-2, B-3, B-4, B-5)	Number of directly affected people attributed to disasters, per 100,000 population
B-2	Number of injured or ill people attributed to disasters, per 100,000 population
B-3	Number of people whose damaged dwellings were attributed to disasters.
B-4	Number of people whose destroyed dwellings were attributed to disasters.
B-5	Number of people whose livelihoods were disrupted or destroyed, attributed to disasters.

Global Target (c) - Reduce *direct disaster economic loss* in relation to global gross domestic product (GDP) by 2030.

C-1 (C-2 to C-6)	Direct economic loss attributed to disasters in relation to global gross domestic product
C-2	Direct agricultural loss attributed to disasters
C-3	Direct economic loss due to all other damaged or destroyed productive assets attributed to disasters .
C-4	Direct economic loss in the housing sector attributed to disasters.
C-5	Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters .
C-6	Direct economic loss due to cultural heritage damaged or destroyed attributed to disasters .

Global Target (d) - Substantially reduce *disaster damage to critical infrastructure and disruption of basic services*, among them health and educational facilities, including through developing their resilience by 2030.

D-1 (D-2 to D-4)	Damage to critical infrastructure attributed to disasters.
D-2	Number of destroyed or damaged health facilities attributed to disasters.
D-3	Number of destroyed or damaged educational facilities attributed to disasters.
D-4	Number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters.
D-5 (D-6 to D-8)	Number of disruptions to basic services attributed to disasters.
D-6	Number of disruptions to educational services attributed to disasters.
D-7	Number of disruptions to health services attributed to disasters.
D-8	Number of disruptions to other basic services attributed to disasters.

Global Target (e) - Substantially increase the number of countries with *national and local disaster risk reduction strategies* by 2020.

E-1	Number of countries that adopt and implement national DRR strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030.
E-2	Percentage of local governments that adopt and implement local DRR strategies in line with national DRR strategies.

Global Target (f) - Substantially enhance *international cooperation* to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.

F-1	Total official international support, (ODA plus other official flows), for national DRR actions.
F-2	Total official international support (ODA plus other official flows) for national DRR actions provided by *multilateral* agencies.
F-3	Total official international support (ODA plus other official flows) for national DRR actions provided *bilaterally*.
F-4	Total official international support (ODA plus other official flows) for the *transfer and exchange of DRR related technology*.
F-5	Number of international, regional and bilateral programmes and initiatives for the transfer and exchange of science, technology and innovation in disaster risk reduction for developing countries.
F-6	Total official international support (ODA plus other official flows) for disaster risk reduction *capacity building*.
F-7	Number of international, regional and bilateral programmes and initiatives for DRR related capacity building in developing countries.
F-8	Number of developing countries supported by international, regional, bilateral initiatives to strengthen their *DRR related statistical capacity*.

Global Target (g) - Substantially increase the availability of and access to *multi-hazard early warning systems* and *disaster risk information and assessments* to the people by 2030.

G-1 (G-2 to G-5)	Number of countries that have multi-hazard early warning systems.
G-2	Number of countries that have a multi-hazard monitoring and forecasting system.
G-3	Number of people per 100,000 population that are covered by early warning information through local governments or through national dissemination mechanisms.
G-4	Percentage of local governments having a plan to act on early warnings.
G-5	Number of countries that have accessible, understandable, usable and relevant disaster risk information and assessment available to the people at the national and local level.
G-6	Percentage of population exposed or at risk from disasters protected through pre-emptive evacuation following early warning.

PROGRESS OF GLOBAL TARGETS

COUNTRY REPORTING OVERVIEW
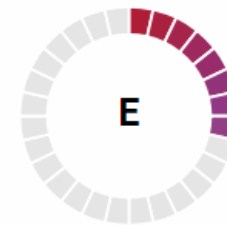

3 ready for validation

8 validated

D
Critical
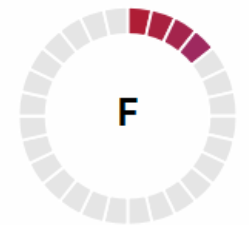[infra]structure &
[s]ervices

[Not] started
[in pr]ogress
[rea]dy for validation
[vali]dated

E
Disaster risk
reduction
strategies

135 Not started
16 in progress
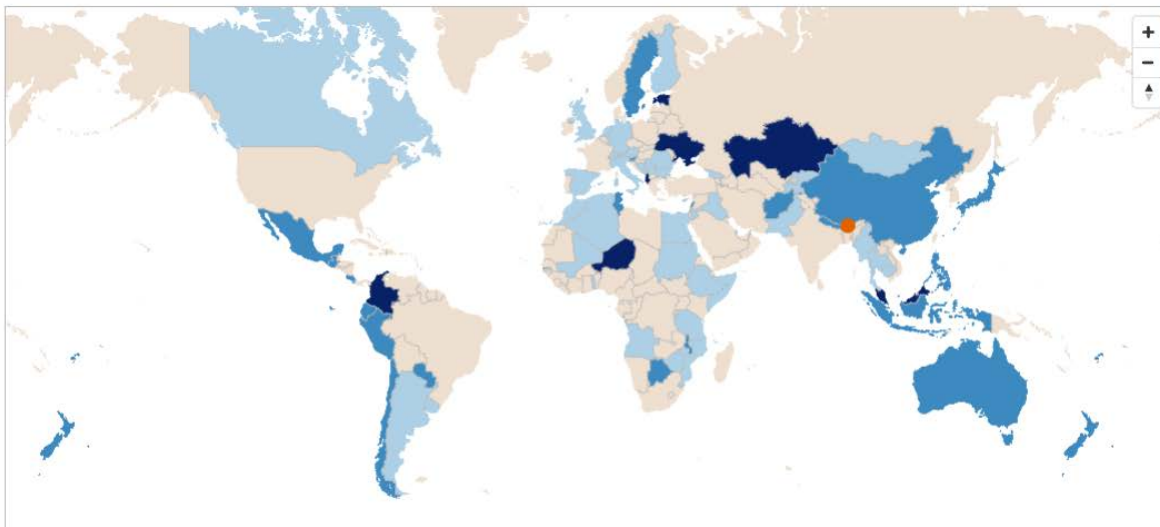22 ready for validation
22 validated

F
International
cooperation

171 Not started
9 in progress
6 ready for validation
9 validated

GLOBAL TARGETS

Reporting year: 2018

TARGET REPORTING: MAP
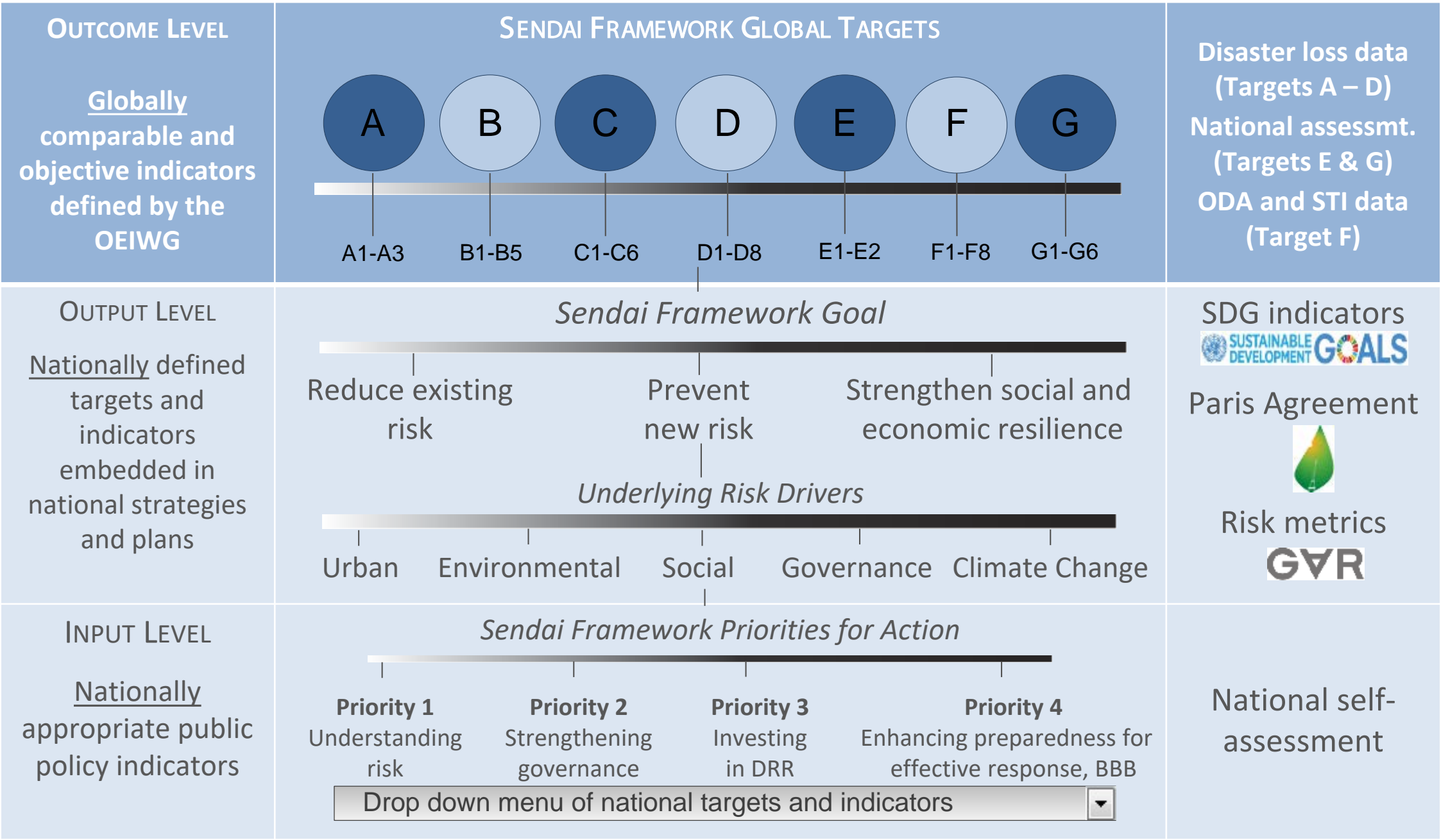

[inf]ormation

[...]on

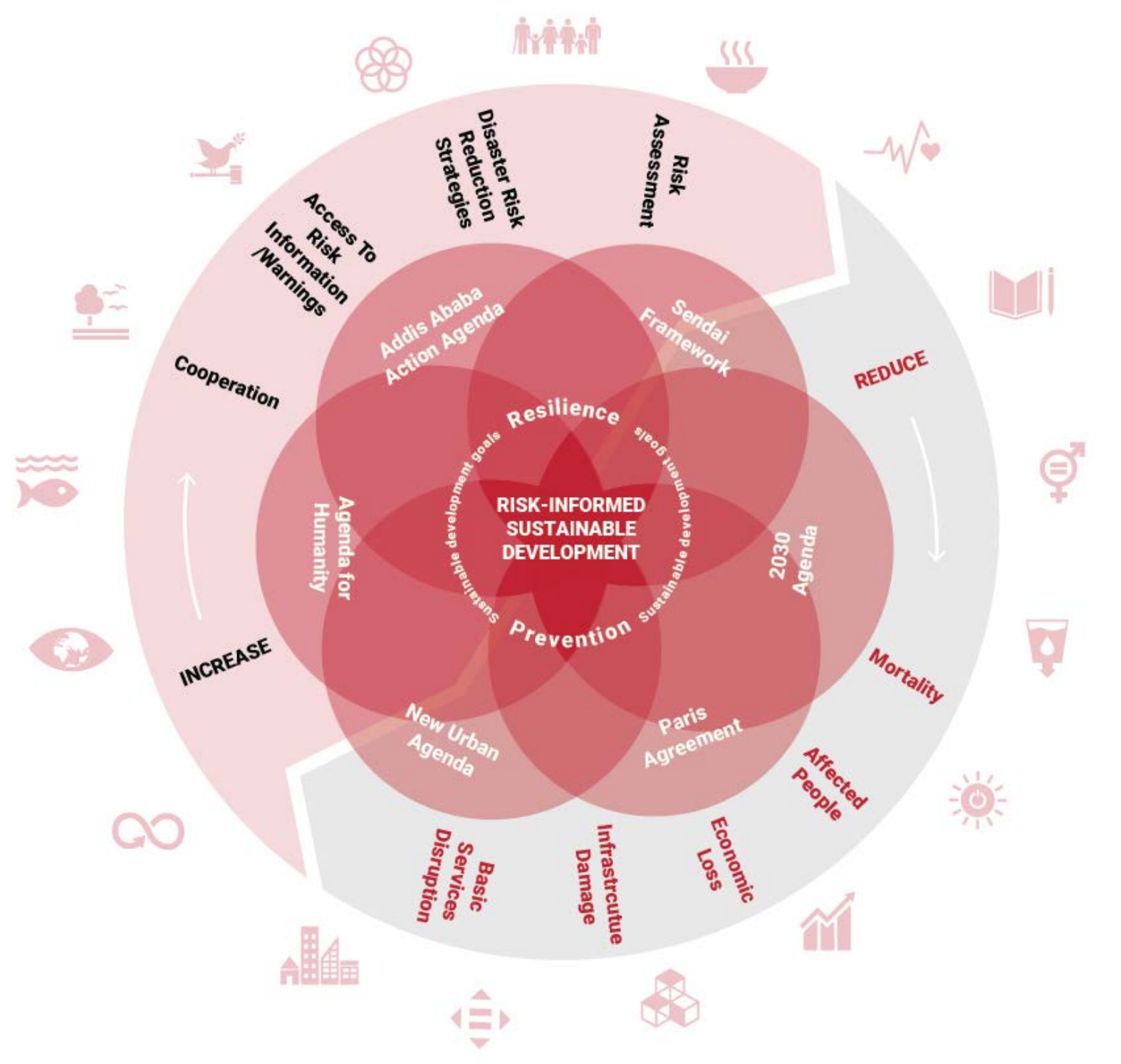# Architecture of the Sendai Framework Monitoring System

Sendai Framework Outcome

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

PROCESS · DATA

OUTCOME LEVEL Globally comparable and objective indicators defined by the OEIWG	SENDAI FRAMEWORK GLOBAL TARGETS A B C D E F G A1-A3 B1-B5 C1-C6 D1-D8 E1-E2 F1-F8 G1-G6	Disaster loss data (Targets A – D) National assessmt. (Targets E & G) ODA and STI data (Target F)
OUTPUT LEVEL Nationally defined targets and indicators embedded in national strategies and plans	*Sendai Framework Goal* Reduce existing risk · Prevent new risk · Strengthen social and economic resilience *Underlying Risk Drivers* Urban · Environmental · Social · Governance · Climate Change	SDG indicators SUSTAINABLE DEVELOPMENT GOALS Paris Agreement Risk metrics GAR
INPUT LEVEL Nationally appropriate public policy indicators	*Sendai Framework Priorities for Action* **Priority 1** Understanding risk **Priority 2** Strengthening governance **Priority 3** Investing in DRR **Priority 4** Enhancing preparedness for effective response, BBB Drop down menu of national targets and indicators	National self-assessment

Sendai Framework | 2030 Agenda for Sustainable Development
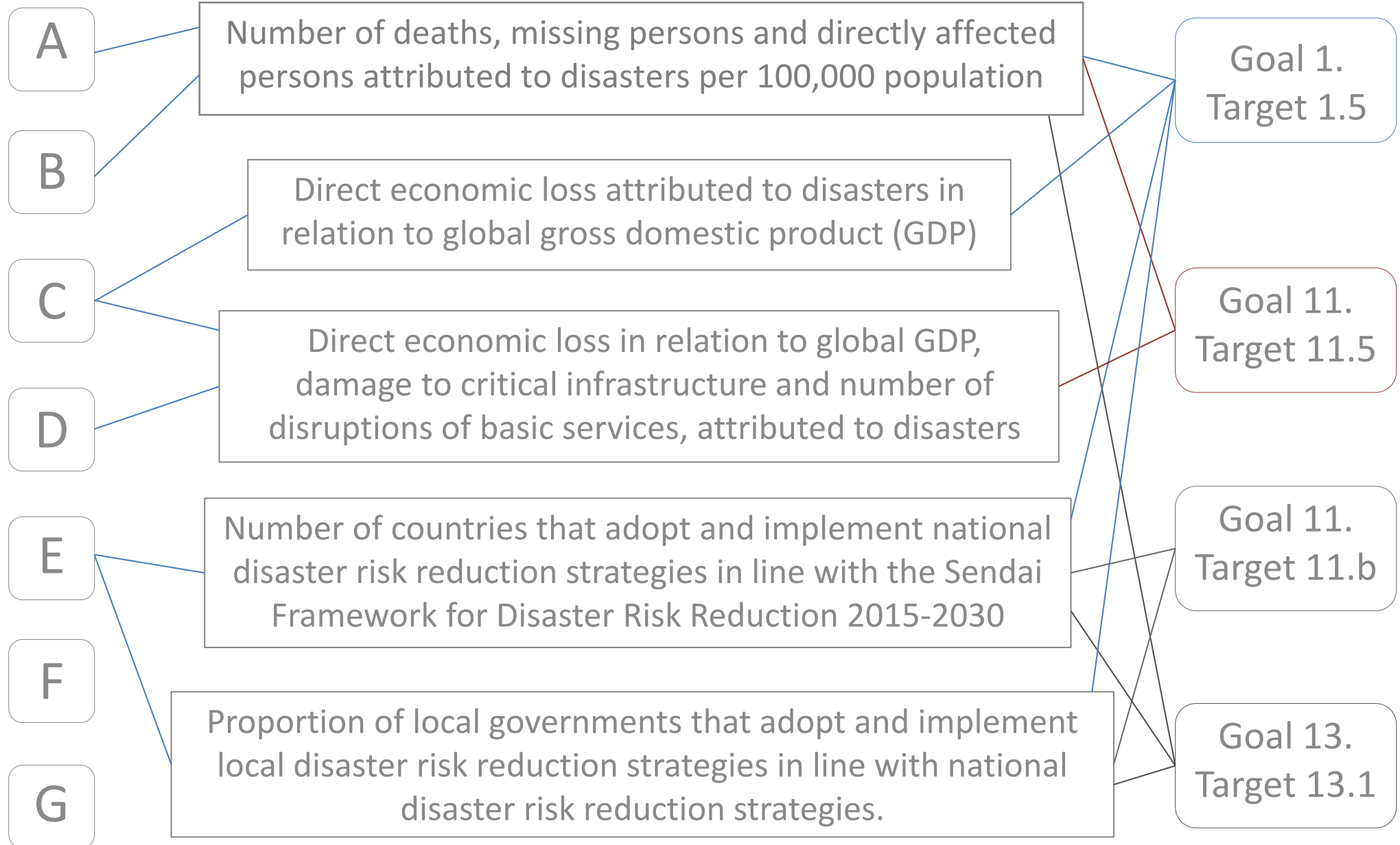## Multi-Purpose Data, Integrated Monitoring & Reporting

- **IAEG-SDGs** recognizes the OIEWG. Identifies UNISDR as custodian agency, December 2015

- **UN General Assembly endorsed** the recommendations of the OIEWG contained in its report A/71/644, February 2017 http://dev.preventionweb.net/files/50683_oiewgreportenglish.pdf

- **UN Statistical Commission, 48th Session, March 2017:** endorsed Report of the IAEG-SDGs | Note by the Secretary-General - E/CN.3/2017/2* proposing the recommended indicators of the OIEWG

  - 3 SDGs: Goal 1, 11, 13.
  - 4 SDGs Targets
  - 10 SDGs indicators

https://unstats.un.org/unsd/statcom/48th-session/documents/2017-2-IAEG-SDGs-E.pdf

SUSTAINABLE DEVELOPMENT G**O**ALS

UNDRR
UN Office for Disaster Risk Reduction

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

Multi-Purpose Data, Integrated Monitoring & Reporting

Sendai Framework for Disaster Risk Reduction 2015 - 2030

SUSTAINABLE DEVELOPMENT GOALS

Target

A

B

C

D

E

F

G

Number of deaths, missing persons and directly affected persons attributed to disasters per 100,000 population

Direct economic loss attributed to disasters in relation to global gross domestic product (GDP)

Direct economic loss in relation to global GDP, damage to critical infrastructure and number of disruptions of basic services, attributed to disasters

Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030

Proportion of local governments that adopt and implement local disaster risk reduction strategies in line with national disaster risk reduction strategies.

Goal / Target

Goal 1. Target 1.5

Goal 11. Target 11.5

Goal 11. Target 11.b

Goal 13. Target 13.1

Sendai Framework | 2030 Agenda for Sustainable Development
Multi-Purpose Data, Integrated Monitoring & Reporting

Global partnership for disaster-related statistics

❑ Instructions from Member States in the OIEWG - Report A/71/644, and the IAEG-SDGs

❑ **UN World Data Forum 2017** – *Aligning 2015 agreements through multi-purpose disaster-related data and statistics.*

❑ Recommends **Global partnership for disaster-related statistics** be established

SUSTAINABLE DEVELOPMENT GOALS

UNDRR
UN Office for Disaster Risk Reduction

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

Sendai Framework | 2030 Agenda for Sustainable Development
Multi-Purpose Data, Integrated Monitoring & Reporting

Global partnership for disaster-related statistics

Purpose: to maximize the utility of the number of ongoing efforts

Objectives

- Consensus on statistical conventions (groupings and metadata)

- Guidance materials developed to support integrated work of DMAs and NSOs in the application of statistical conventions

- Endorsement by the UN Statistical Commission of agreed global statistical conventions and guidance for disaster-related statistics

Sendai Framework | 2030 Agenda for Sustainable Development
Multi-Purpose Data, Integrated Monitoring & Reporting

- □ Progress in implementing the Sendai Framework **assessed biennially** by UNISDR in the context of evolving risk trends (GRAF).

- □ Presented in successive GARs, and at Global and Regional Platforms.

- □ SDGs Report submitted **annually** to the High Level Political Forum for Sustainable Development (HLPF).

gar.unisdr.org

GAR

Global Assessment Report
on Disaster Risk Reduction

2019

2019 Global Assessment Report on Disaster Risk Reduction (GAR19)

0. Systemic risks, the Sendai Framework and the 2030 Agenda

I. The Sendai Framework – a broader view of the world at risk

II. Implementation of the SF and disaster-risk informed sustainable development

III. Creating the national and local conditions to manage risk

- Systemic risk and systems-based approaches.

- From hazard-by-hazard view of the world, to understanding the multi-dimensional nature of risk through time.

- Complex and dynamic interaction of social, economic, political and ecological systems.

- Collective intelligence.

- GRAF

SUSTAINABLE DEVELOPMENT G🟠ALS

UNDRR
UN Office for Disaster Risk Reduction

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030
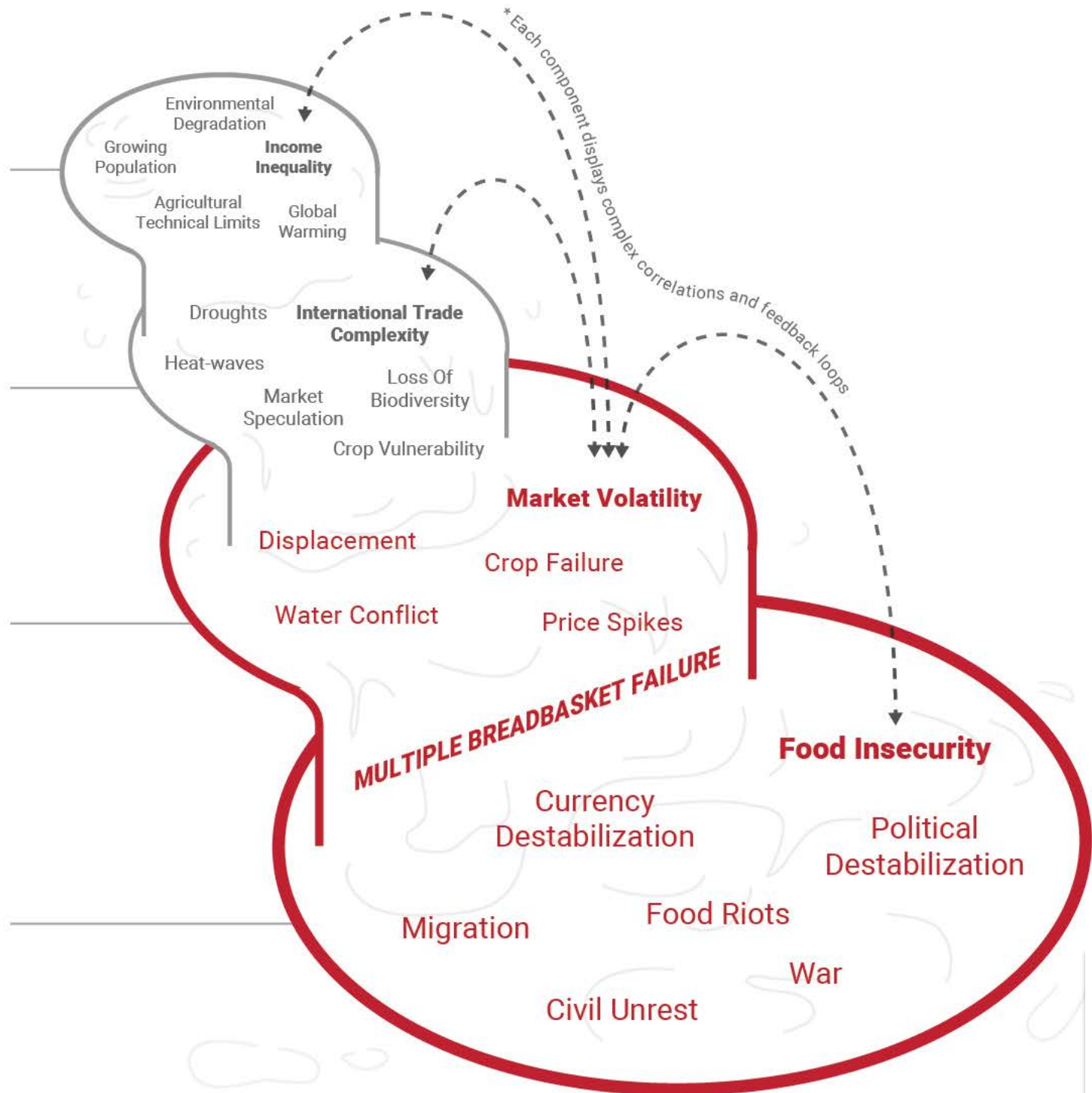
CURRENT CONTEXT

Capacity to absorb negative events is being reduced slowly (e.g. population growth pushing the limits of agricultural technology)

BUILDING STRESSORS

SUDDEN AND GRADUAL TIPPING POINTS

An event of great magnitude or multiple failures at the same time could suddenly exceed all remaining capacity

SYSTEMIC FAILURE

Environmental Degradation

Growing Population

Income Inequality

Agricultural Technical Limits

Global Warming

Droughts

International Trade Complexity

Heat-waves

Loss Of Biodiversity

Market Speculation

Crop Vulnerability

* Each component displays complex correlations and feedback loops

Market Volatility

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Crop Failure

Water Conflict

Price Spikes

MULTIPLE BREADBASKET FAILURE

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Migration

Food Riots

War

Civil Unrest

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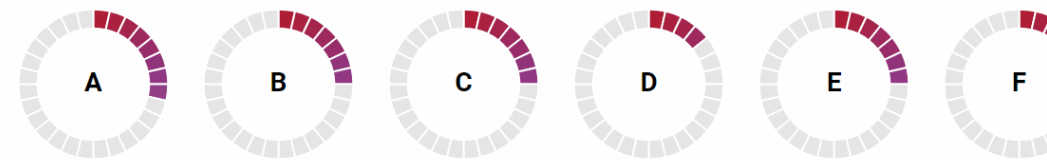II. Implementation of the SF and disaster-risk informed sustainable development

III. Creating the national and local conditions to manage risk

1. Δ scope of hazards and risks. Natural and human-induced

2. Δ risk science and organisations

3. Hazard-by-hazard…

4. Probabilistic, deterministic, and……

5. Δ in technology

6. Special Section on Drought

SUSTAINABLE DEVELOPMENT G✺ALS

UNDRR
UN Office for Disaster Risk Reduction

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

2019 Global Assessment Report on Disaster Risk Reduction (GAR19)

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PROGRESS OF GLOBAL TARGETS

COUNTRY REPORTING OVERVIEW

195	120	62	7	6
countries total	Not started	in progress	ready for validation	validated

TARGET REPORTING OVERVIEW

A B C D E F

II. Implementation of the SF and disaster-risk informed sustainable development

III. Creating the national and local conditions to manage risk

1. Risk reduction across the 2030 Agenda

2. Progress in implementing the SF Global Targets

3. Beyond the indicators

2019 Global Assessment Report on Disaster Risk Reduction (GAR19)

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III. Creating the national and local conditions to manage risk

DRR strategies and plans:

1. Regional to National
2. National / local
3. Integrated in development planning & budgeting
4. Integrated in climate adaptation strategies & plans
5. Urban strategies and plans
6. In fragile and complex contexts

Technical Guidance Note on Data and Methodology to Estimate Global Progress in the Number of Countries with National and Local Disaster Risk Reduction Strategies to Measure the Achievement of Target E of the Sendai Framework for Disaster Risk Reduction

United Nations Office for Disaster Risk Reduction

E

SUSTAINABLE DEVELOPMENT G**O**ALS

UNDRR
UN Office for Disaster Risk Reduction

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

The Sendai Framework – New Hazard and Risk Scope

- The Sendai Framework addresses the risk of small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards….

- ……and related environmental, technological and biological hazards and risks…..

- ……and calls for a better understanding and address of the dynamic interactions with systemic risk….

- Demanded re-examination of the current risk assessment approaches, to cover the full scope of the Sendai Framework

AAL per Million USD

- No data
- 101 - 500
- 501 - 1,000
- 1,001 - 1,800
- 1,801 - 4,000
- 4,001 - 5,000
- 5,001 - 7,000
- 11,001 - 45,000
- 45,001 - 51,000

Developing a new approach to global risk assessment for the Sendai Framework & 2030 Agenda

End-user assessment conducted with 11 governments (Oct. 2017) on challenges in using risk information :

- Many risk models can only be used if adapted to context

- Unavailability of some data impedes application of risk models

- Risk information is not currently unified nor standardized incl. format, content, scale, administrative division

- Most respondents indicated a low level of familiarity with all / most risk metrics or tools

The Global Risk Assessment Framework (GRAF)
Expert Meeting (Nov. 2017) - Recommendations

UNISDR to lead establishment of a Global Risk Assessment Framework

- utilising existing data / models / assessment, connecting systems, revealing interdependencies, collectively identifying solutions at scale

- underpinned by robust practices and standards

- emphasise / improve understanding of vulnerability, exposure & impact

- develop common list of hazards, data standards and risk metrics

- convert and translate risk modelling outputs into usable and applicable information

- meet demand for openly accessible data, products & services

- establish Expert Group to guide design and iterative development

GRAF – Rationale and Principles

GRAF is….

a trusted space to broker, coordinate, harmonize and connect action using a shared methodology to develop a shared understanding of risks focused on the needs of users of risk information

AAL per Million USD

- No data
- 0 - 100

Organising Principles

Open / Transparent	Trusted
Collaborative	Practical
Universal	Living with uncertainty

- 501 - 1,000
- 1,801 - 4,000
- 5,001 - 7,000
- 11,001 - 45,000
- 45,001 - 51,000

FROM THE
HYOGO FRAMEWORK
2005

THROUGH THE
SENDAI FRAMEWORK
2015

TO THE GLOBAL RISK
ASSESSMENT FRAMEWORK – GRAF
2020+

Global Risk
Model Metrics
=

3.6

HAZARD		EXPOSURE		VULNER-ABILITY	SCALE
Earthquake	X	Structural	X	Economic	Global
Tsunami					National
Riverine Flood					
Cyclonic Wind					
Storm Surge					

HAZARD	EXPOSURE	VULNER-ABILITY	SCALE	SYSTEMS
Earthquake	Structural	Economic	Global	Human
Volcano	Agriculture	Social	National	Ecological
Tsunami	Basic Services	Environ-mental	Local	Economic
Flooding				
Fire				
Biological				
Technological				

HAZARD	EXPOSURE	VULNER-ABILITY	SCALE	SYSTEMS
Earthquake	Structural	Economic	Global	Human
Volcano	Agriculture	Social	Regional	Ecological
Tsunami	Basic Services	Environmental	National	Economic
Flooding	Housing	Governance	Sub-national	Political
Drought	Critical Systems	Legal	Metropolitan	Cultural
Fire	Subsystems	Security	Local	Financial
Biological	Natural Capital			
Chemical				
Industrial				
NATECH				
Nuclear				
Radiological				

SHARED METRICS
(2030 Agenda, Paris, Sendai, New Urban Agenda)

Systems thinking

Coherence & interlinkages

Education

International organisations

National Governments

Science & Academia

Global Risk Assessment Framework

Risk-informed decision-making & transformed behaviors

Sub-National Governments

Faiths & Communities

Local Governments

Insurers

Private Sector Business

Investors

User Groups

Managing uncertainties

Correlations & dependencies

INPUTS

Science & academia
Indigenous wisdom
Private Sector
Others

PRODUCTS

in all geographies
for all users
at all scales

SHARED UNDERSTANDING

NATIONAL REPORTING

Sendai Framework Monitor

National DesInventar

Words into Action Guidelines

SUSTAINABLE SOCIETIES AND SYSTEMS (SENDAI FRAMEWORK, 2030 AGENDA, PARIS AGREEMENT, NUA)

GAR

PROVIDERS

Scope of hazards/ risks (Para. 15)

Exposure models

Probabilistic/ non-probabilistic hazard models

Intercomparison and ensemble models

Vulnerability models (social / ecological)

Systemic risk

Uncertainty

GRAF IMPACT CUBE

HUMAN ECOLOGICAL ECONOMIC INFRASTRUCTURE POLITICAL

GLOBAL

NATIONAL

SUBNATIONAL

LOCAL

HAZARDS EXPOSURE VULNERABILITY

GLOBAL RISK ASSESSMENT PLATFORM (GRASP)

Application Programming Interface (APIs)

Actionable insights, scenarios, tools, demonstrations, options and dashboards available to support the needs of users

Increased number of lower cost models and databases available and connected with more users as a result of increased standardization and economies of scale

More people can build risk models and understand the interactive nature of risk through time

Prevention of risk creation and reduction of existing risk

Proactive risk-informed decisions and action to mobilize finance, investment and communities

Transformed behaviours

Transdisciplinary, multi-science foundation and data sets

Interoperability and standards

Working practices and modalities

GRAF Working Groups Project Teams

GRAF Expert Group

GRAF Secretariat

The Global Risk Assessment Framework (GRAF)

Vision

To improve understanding of complex risk and where relevant and applicable, to transform behaviours and catalyse a proactive decision-making culture by democratizing everyone's understanding of the systemic nature of risk through time.

1. Improve understanding
2. Provide actionable insights
3. Support decision-makers to maximise synergies
4. Build trust in assessments
5. Foster open and collaborative culture
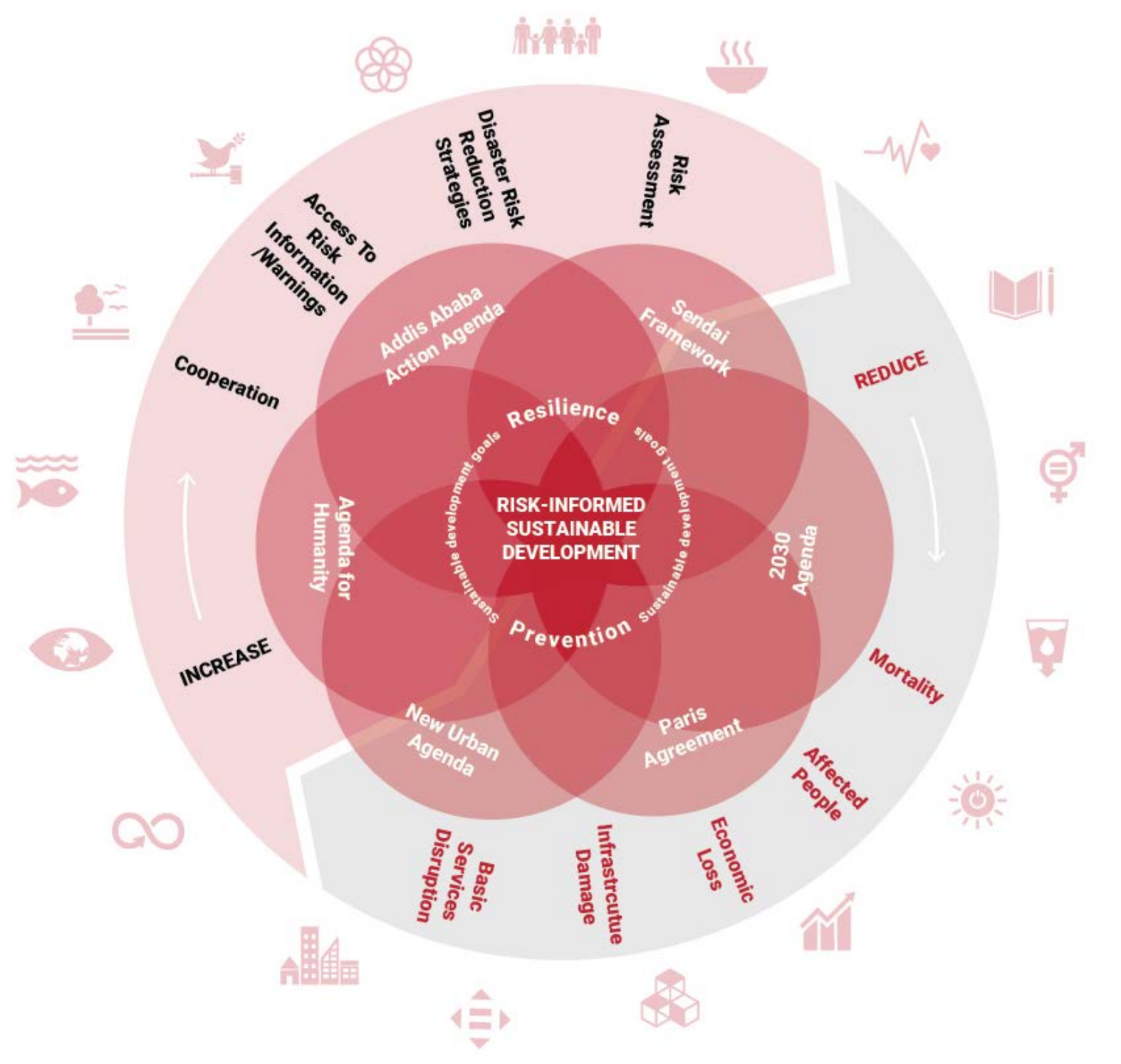6. Mobilize finance and de-risk investments

(Near term) Value Proposition for GRAF:

GRAF offers solutions to realize the 2030 goal of the Sendai Framework and the outcome of risk-informed sustainable development. Under the auspices of the United Nations, the GRAF is unique in providing actionable options to address vulnerability, exposure and emerging systemic risks.

For **governing authorities at the regional, national and local levels**, the GRAF enables risk-informed action to reduce cost, loss, and damage to build resilience in communities. It allows Member States to track progress and identify effective benchmarks measuring achievement of the outcome and goal of the Sendai Framework.

For **risk professionals**, the GRAF enhances the quality and reach of their work by facilitating collaboration with peers across disciplines and enabling access to unique tools, resources and connections. The GRAF provides a rich environment for collaboration, and a mechanism for practitioners and scientists to enhance the impact of their contributions to achieving the Sendai Framework goal.

For **donors and investors**, the GRAF optimizes their investments and maximizes their impact in relation to risk reduction by highlighting gaps and exposing new opportunities for investigation and development.

Thank you

SUSTAINABLE DEVELOPMENT G⊙ALS

UNDRR
UN Office for Disaster Risk Reduction

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030