Disaster Tracking System

for hazardous events and losses and damages

Accessible Arab Region: Advancing Risk Knowledge to Improve Disaster Early Warning System

29 November 2023, Rabat, Morocco

UNDRR
UN Office for Disaster Risk Reduction

Early Warnings for All

110 countries with sub-nationally disaggregated disaster losses and damages databases
+750,000 disaster events recorded since 1994.

desinventar.net

- **Comprehensive picture**: human, economic, housing and infrastructure losses at subnational levels

- **Nationally owned systems** (mostly): government definitions, no thresholds, data validated in country

- **Methodology and system**: homogeneous and customization (extension variables)

- **Analytics:** Overview profile, Customized statistics, and downloadable data for further analyses

- **DesInventar Sendai**: since 2018 Sendai Framework targets and indicators alignment, enabling stream-lined reporting including Sendai Framework Monitor and SDGs
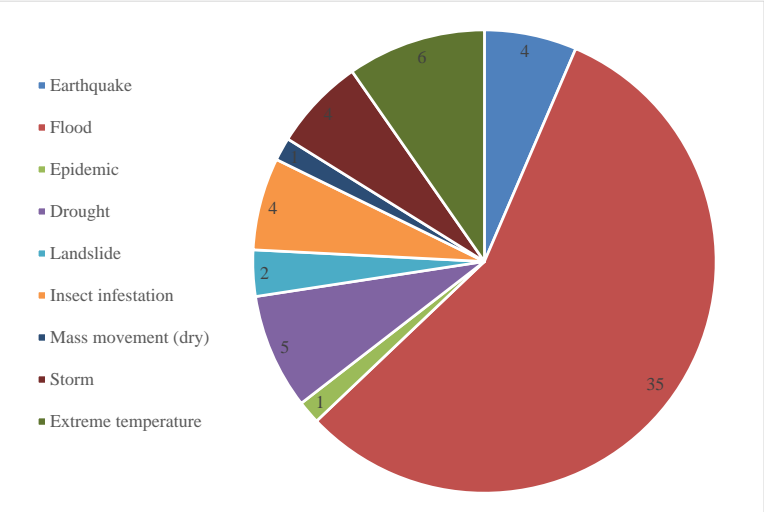
DesInventar:
- Events 732
- Most data available from 1960 - 2014
- **Localized:** Data available at regional, provinces and commune levels

Composition of Disasters   get it as Excel

Event	DataCards	Deaths	Injured	Missing	Houses Destroyed	Houses Damaged	Indirectly Affected	Directly affected	Relocated	Evacuated	Losses $USD	Losses $Local	Education centers	Hospitals	Damages in crops Ha.	Lost Cattle	Damages in roads Mts
Building slide	1						3										
CONFLICT	356	1650	3455	210	300418	19253	775786	659448							10912	759	
Covid-19	1	1															
DROUGHT	3995	3920				10	76642721	637							354725	2553647	
EARTHQUAKE	6	5	7		12		19544									1369	
FIRE	797	854	872		3668	1613	76717	5259							195560	1138	
FLOOD	1449	3303	23343		21681	8970	10359967	1359513			2429535		8	1	548725	357974	
FOREST FIRE	31	4			905		750660	2230							100084	11	
FROST	7						7560								10372		
HAILSTORM	250	67	11		1347	14	287623	39121							84445	3523	
HEAT WAVE	2						8										
Land slide	211	461	2745		1556	711	96871	133209							13715	1143	
Livestock Disease Outbreak	147														1015	19228	
OTHER	137	446	1172				10004								2551066	35699	
PLAGUE	7467	196	22335				363355								5305852	293962	
RAIN	39	32					77895								2870	122	
SNOWSTORM	1						763										
STORM	5						3900								115	150	
THUNDERSTORM	32	47	17		13										10	217	
WINDSTORM	22	3			199		3473								600	13	

Disaster tracking to inform MHEWS at national and local levels

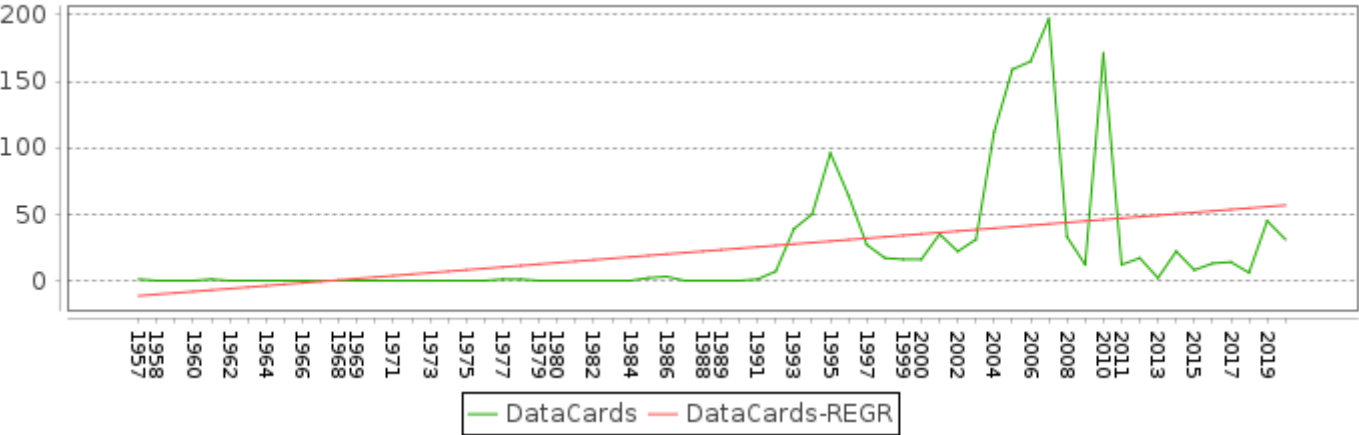**Which types of hazards are present in the country:** Composition of disasters

Legend:
- Earthquake
- Flood
- Epidemic
- Drought
- Landslide
- Insect infestation
- Mass movement (dry)
- Storm
- Extreme temperature

Which areas get most affected: People affected by floods in Jordan

- 0/No Data
- <= 100
- 100 <= 1000
- 1000 <= 10000
- 10000 <= 50000
- 50000 <= 100000
- > 100000
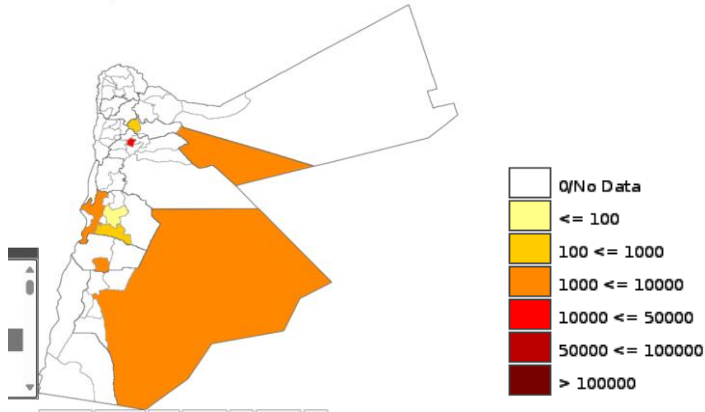
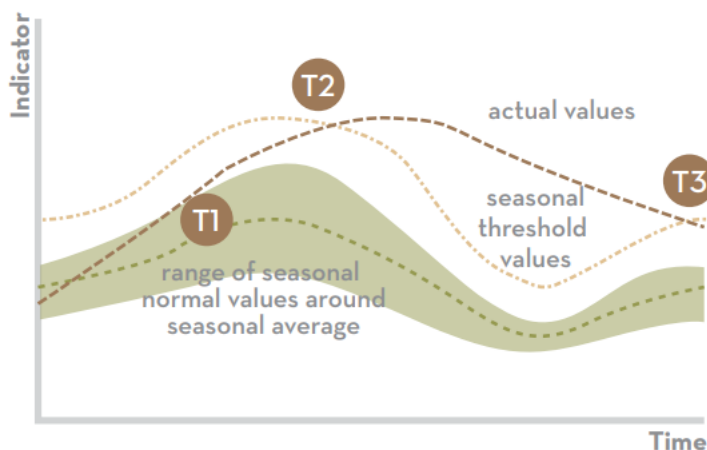**Which areas get most affected:** Frequency of forest fires in Lebanon

Variable: Directly affected + Indirectly Affected
- 0/No Data
- <= 1
- 1 <= 10
- 10 <= 100
- 100 <= 1000
- 1000 <= 10000
- > 10000
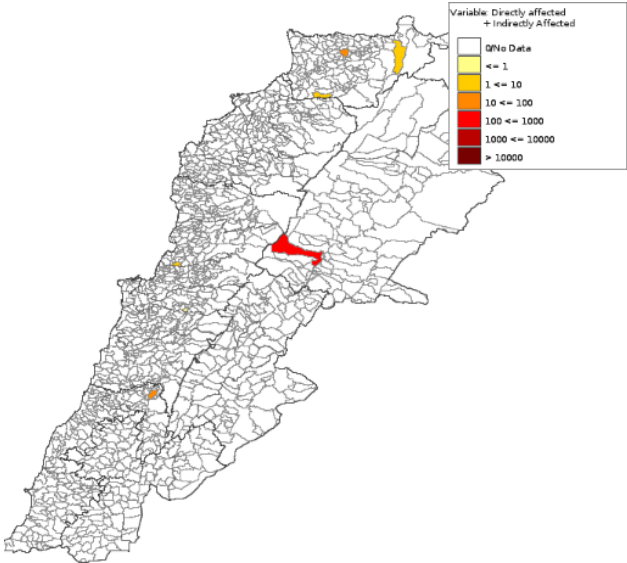
What is the trend in disasters: Frequency of floods

DataCards — DataCards-REGR

Historic data for impact-based analysis and early actions identification

Example: Ethiopia

inventar
Disaster Information Management System

Impact –hazard curves for setting EA triggers

What impacts in the past? Which seasonal and spatial patterns?

Establishing thresholds for EW indicators
Source: IFRC.

Identification of Early Action/AA protocols

What sectors had been affected and how in the past?

Drought events

Agriculture	Provide cash to vulnerable farmers and pastoralists
	Procure & distribute drought-tolerant seeds
	Conduct animal health treatment campaign
	Provide livestock supplementary feed
Education	Enable & safeguard access to clean water in schools
	Provide cash to households with school children
Health	Re-activate & strengthen Rapid Response Teams
Nutrition	Promote, protect & support Maternal, Infant and Young Child Nutrition practices
	Conduct screenings to detect acute child malnutrition

ANTICIPATORY ACTION — AIM

Source: Ethiopia Anticipatory Action Framework OCHA/ CERF

Challenges and needs

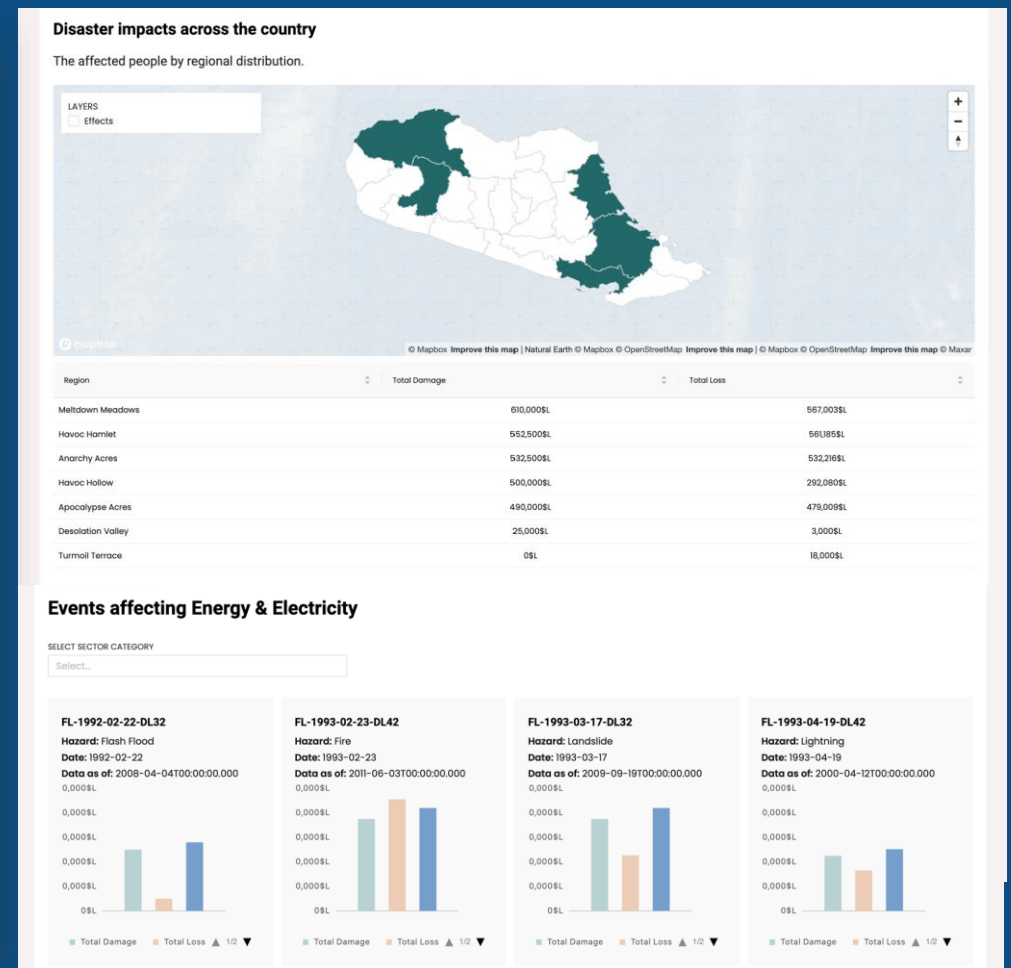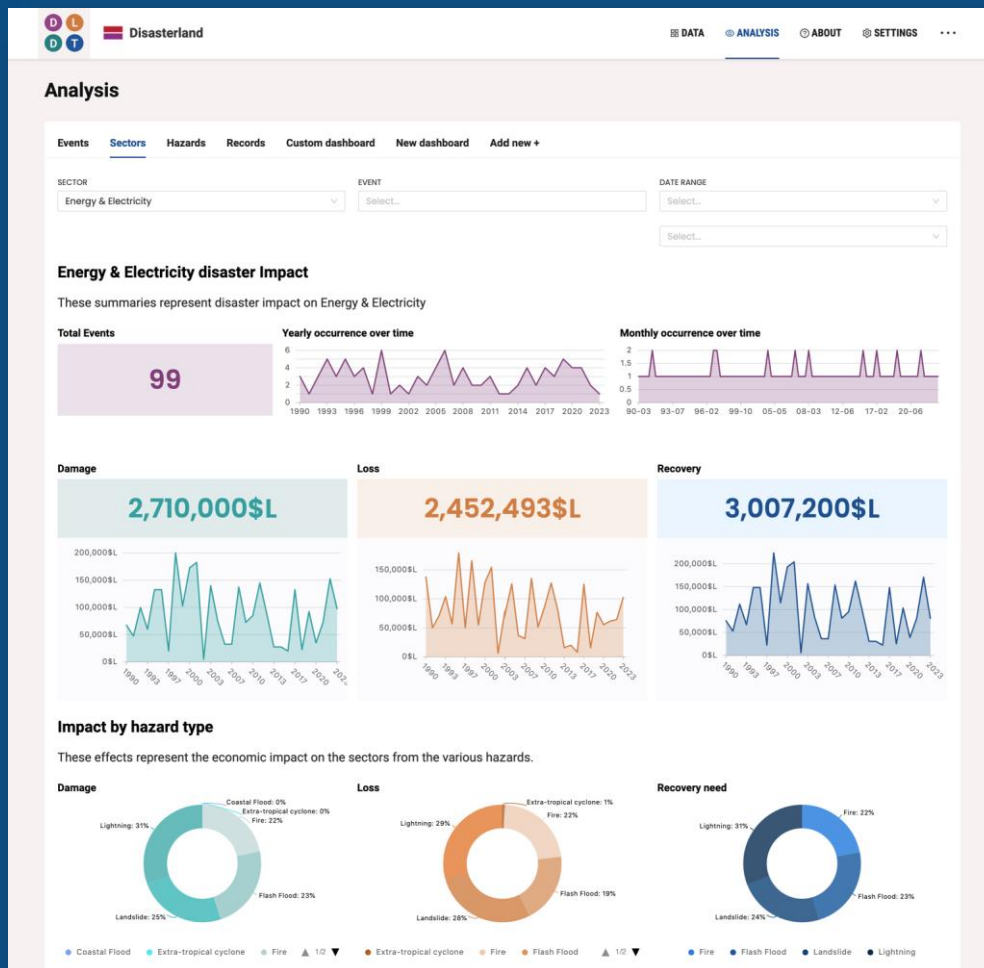| Challenges and limitations	Needs and responses
Relationship b/w hazard and impacts not clear or consistent	Better tracking of hazards and disaster impacts: Engagement of NDMOs and NMHS
Lack of data to understand and address differential impacts across populations	Disaggregated data to understand differentiated impacts on different sectors, different groups
Governance and institutionalization	Government ownership, data governance first, maturity alignment, people-centred rollout
Supply driven and technology-first	Use cases (why) for demand driven data value chains – early warnings being a critical use case
Data management and analysis	Strong analytics and visualization focus with support and services
Costing losses and damages	Better data standards & methodologies; Stronger engagement of statistical offices

A new generation disaster tracking system

Tracking hazardous events and losses & damages

Data quantity

Data Quality

Data Governance

Capacity Development

Prototype examples: New disaster tracking system for hazardous events and losses and damages

Example: Analysis by sector - dashboard

Prototype examples: Responsive mobile design

Use cases, data value chain, users and producers

Identify use cases

= *purposes for which data is used;* Inform collection, analysis and product development

Use cases

- Evidence and understanding of disaster and climate change impacts
- Building, informing, and calibrating vulnerability and risk models
- Informing early warning systems (impact-based forecasting), early action, preparedness for response and recovery
- Informing resilient recovery - post-disaster needs assessments
- Better disaster risk reduction financing and informed insurance products
- Benchmarking success (or failure) of resilience building measures

Act: Decision support & tools

for better policies and programs at all levels.

IDENTIFY → ACQUIRE → TRANSFORM → ANALYZE → VISUALIZE → INTERPRET → ACT

Data users and producers

- National Governments – also Sub-national / Local Governments
- Development Partners including Regional Organisations
- Humanitarian Actors
- Financing Sector and Insurance Sector
- Science and Technology Networks
- UN System

Innovation – 'Cataloguing Hazardous Events' (WMO-CHE)

Event Type

- Drought
- Flood
- Heat wave
- Cold wave
- Tropical Cyclone
- Hail
- Etc.

Event record

Event

3b3a30ec-03f3-445d-8f86-76cb5447e9ee

- Event Identifier (UUID)
- Originator
- Record creation
- Event start
- Event end
- Event type
- Spatial area
- Hazard specification
- Event Description
- Event linkage
- Status

Event Database

Loss & Damage Community Database
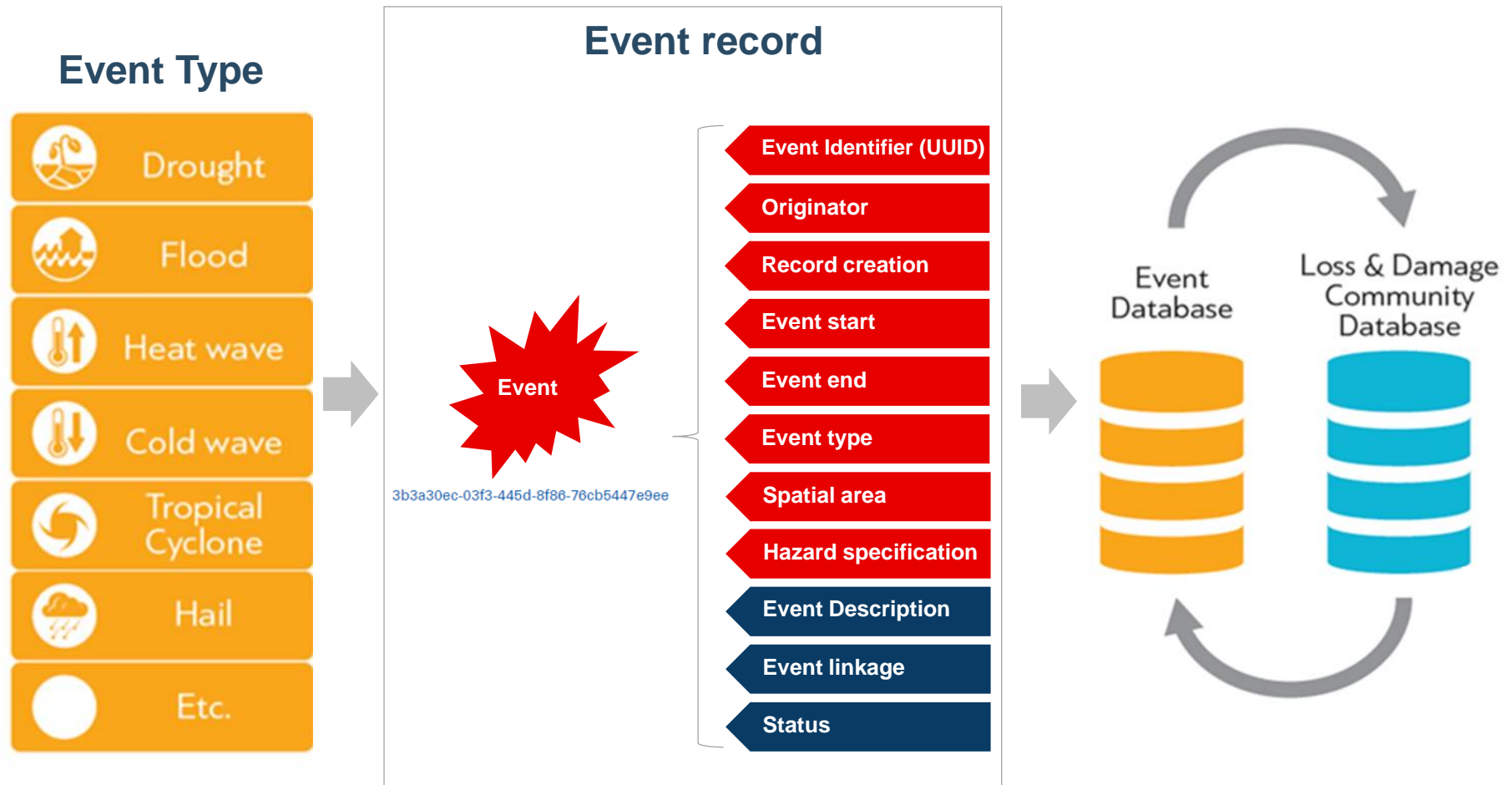
- **Systematic recording of physical parameters of hazardous events** by National Meteorological and Hydrological Services (NMHS) and other mandated agencies
- **Methodology approved** by WMO Congress in 2019, **Implementation plan and guidance approved** by WMO Executive Council 76 in 2023 (Feb)

Strengthen interoperability – Cataloguing of hazardous events (CHE), event effects, statistics / classifications (standards / protocols)

CHE + Losses & Damages + Statistics
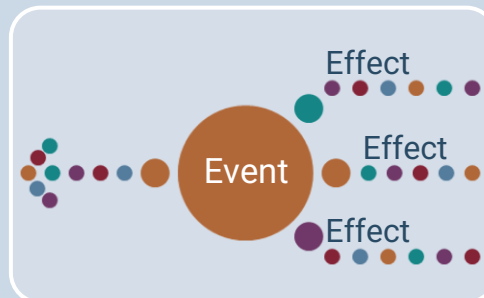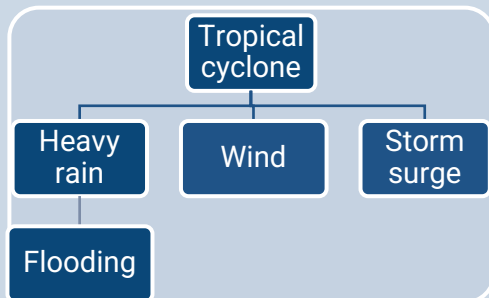
Cataloguing of hazardous events (CHE)

by

National Hydro Met Agencies, Geological Surveys, Volcanic / Seismic Observatories, Public Health, etc.

Recording of event effects – losses, damages, disruptions etc.

by

National Disaster Management Offices (NDMO) / DRR agencies / Civil Protection, etc.

Statistical baselines and context info – demographics, classifications etc.

by

Statistics Offices, Sector Entities, etc.

Strengthen standardization - methodologies (selection)

1972
- Damage and loss assessment (**DaLA**)

1994
- DesInventar

2007
- Post disaster needs assessment (**PDNA**)

2015
- **Sendai Framework**

2016
- Cataloguing of hazardous events (**CHE**)

2017
- Report of the **OIEWG** on indicators and terminology…
- **SDG metrics alignment** for Sendai
- Data **readiness** review

2018
- **Technical guidance** for monitoring and reporting ... Sendai
- Sendai Framework Monitor **online portal**
- **Disaster-related statistics**

2020
- **Hazard definition** and classification review

2021
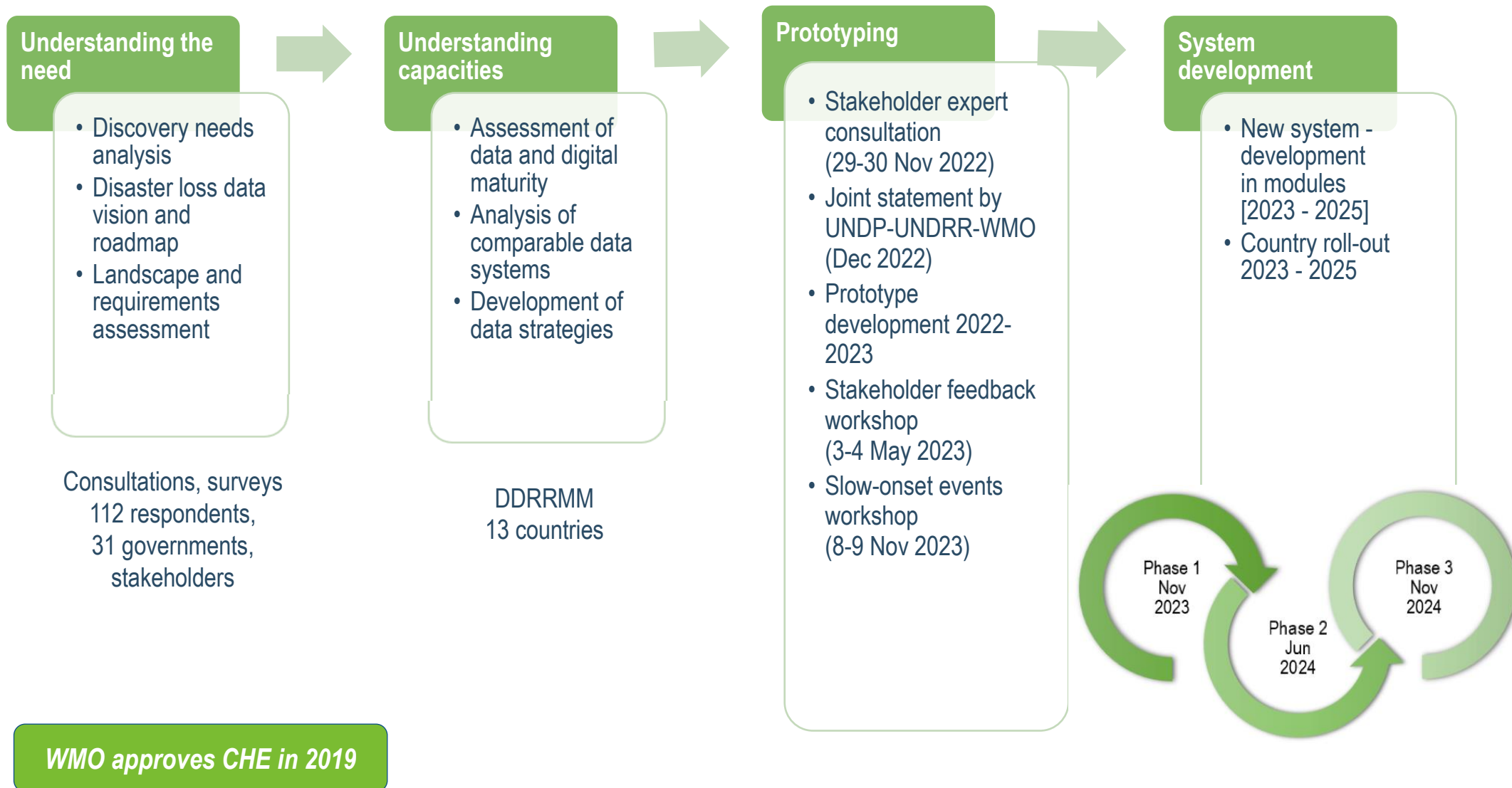- Hazard information profiles (**HIPs**)

2022
- Data and digital **maturity** for DRR (**DDRRMM**)

Strengthen governance & implementation

Governance Country / Member States Ownership	• Country / Member States ownership – Government official data • Translation • Institutional mechanisms to ensure multi-departmental or external data sourcing • Synergies – between national regulatory frameworks and international frameworks • User profiles – group for data input, viewing data, and creating reports
Data standards & methods	• Core variables for comparability • Documentation of standards and methods • Continue developing methodological frameworks for assessment • Strengthen collaboration with the statistical community and specialised agencies • Quality assurance tools – record duplication, missing data, open records, etc. • Data exchange, synchronisation, sharing – regional and global dashboards • Customisation – sectors, assets, categories etc.
Capacity development & technical support	• Technical support package, assistance, methodological guidance, manuals, training, etc. by UNDRR, UNDP, WMO and other partners. • Digital Disaster Risk Reduction Maturity Model (DDRRMM) • Regional and peer to peer learning promoted, communities of practice • Support to strengthen governance - not only on technological solutions • Learning layers with links and help
Use cases	• Common data uses facilitated, documented and shared

Approach - co-design and planned implementation

Understanding the need
- Discovery needs analysis
- Disaster loss data vision and roadmap
- Landscape and requirements assessment

Consultations, surveys
112 respondents,
31 governments,
stakeholders

Understanding capacities
- Assessment of data and digital maturity
- Analysis of comparable data systems
- Development of data strategies

DDRRMM
13 countries

Prototyping
- Stakeholder expert consultation (29-30 Nov 2022)
- Joint statement by UNDP-UNDRR-WMO (Dec 2022)
- Prototype development 2022-2023
- Stakeholder feedback workshop (3-4 May 2023)
- Slow-onset events workshop (8-9 Nov 2023)

System development
- New system - development in modules [2023 - 2025]
- Country roll-out 2023 - 2025

Phase 1
Nov
2023

Phase 2
Jun
2024

Phase 3
Nov
2024

WMO approves CHE in 2019

2023 delivery date for next generation disaster losses tracking system

Tejas Tamobhid Patnaik/UNDRR

There was representation from some 40 countries during a two-day Technical Forum on 'Tracking of hazardous events and disaster losses and damage' hosted by the UNDRR Bonn

Fast forwarding disaster tracking system to slow-onset events

Keeping track of disaster losses and damages

Bonn, 8 May 2023

Six months after an initial workshop, more than 100 experts representing 30 countries and 20 international agencies came together in Bonn last week for a second technical workshop, Validation of the prototype for the new hazardous events and disaster losses and damages tracking system.

Three past months have seen numerous disasters around the world – catastrophic earthquakes in Türkiye and Syria

Related links

Disaster Losses and Damages tracking system

2023 delivery date for next gener disaster losses tracking system

Questions and discussion

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www.undrr.org/disaster-losses-and-damages-tracking-system

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Management officer
UNDRR – Regional office for Arab States

Are we doing enough to reduce disaster impacts on lives and livelihoods?