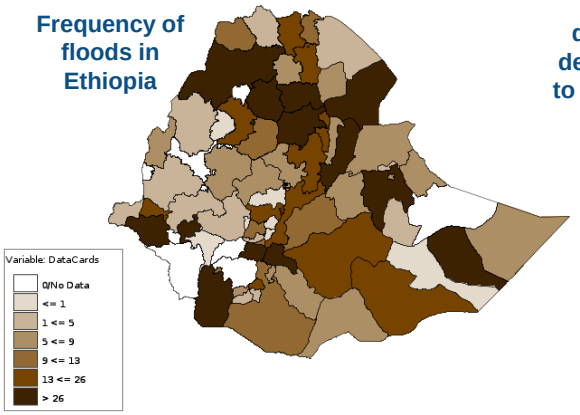
New tracking system for hazardous events, losses and damages

UNDP, UNDRR, WMO collaboration

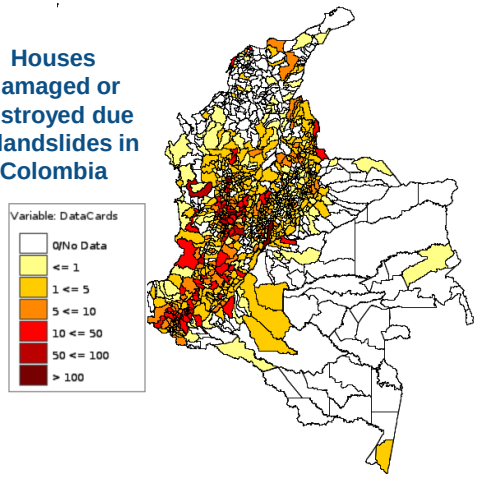
desinventar
Disaster Information Management System
desinventar.net

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

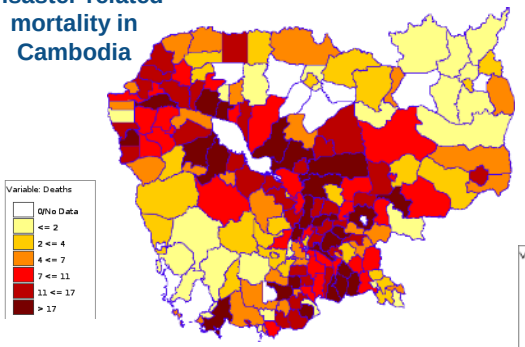
Frequency of floods in Ethiopia



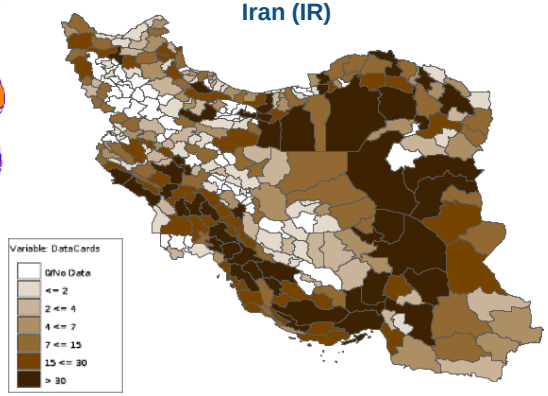
Houses damaged or destroyed due to landslides in Colombia



Disaster-related mortality in Cambodia



Frequency of earthquakes in Iran (IR)

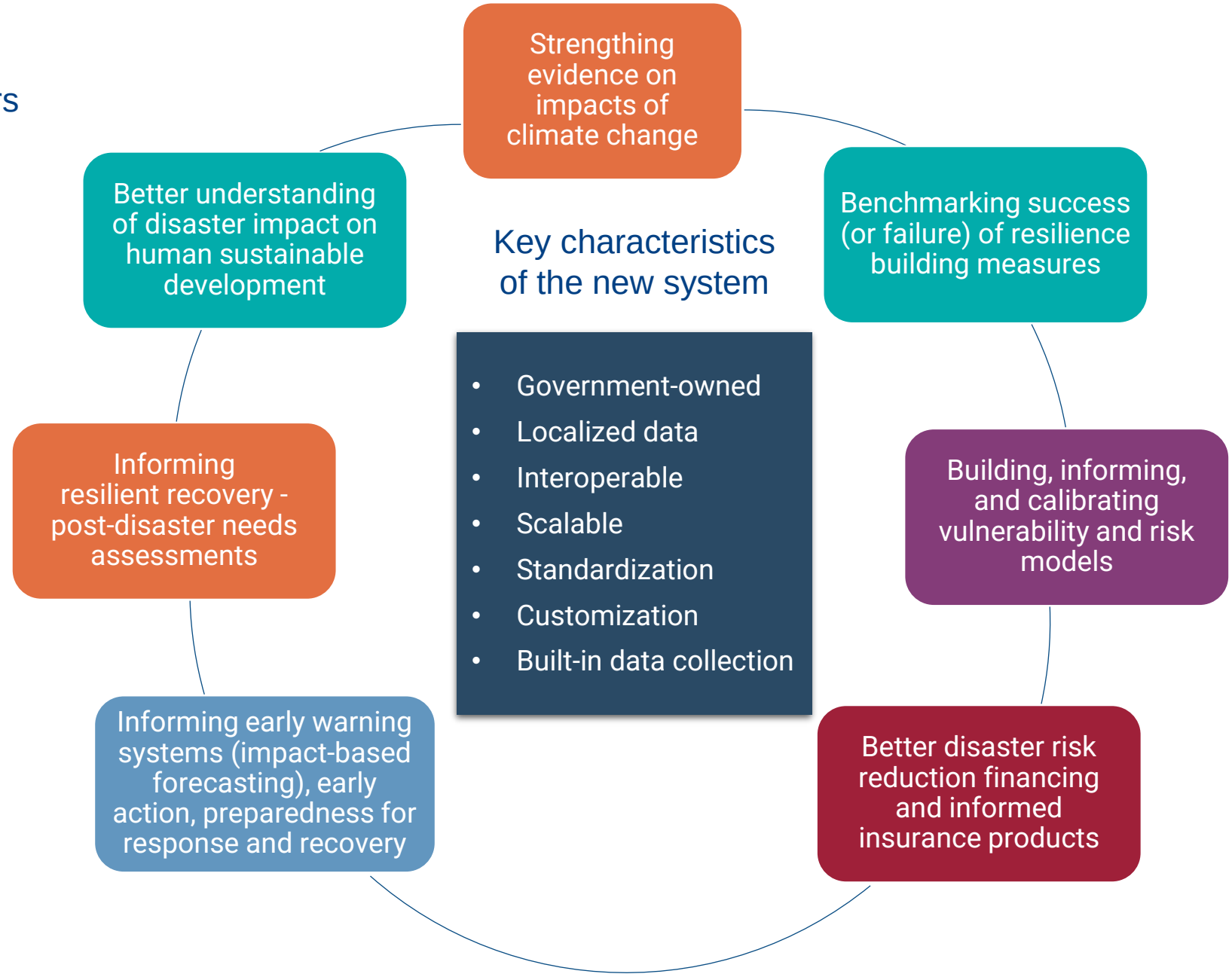


- **Comprehensive picture:**
  human, economic, housing and infrastructural losses at subnational levels
  (up to 3 geographic disaggregation levels)
- **Nationally owned systems (mostly):**
  disaster effects – data collected and validated within country
  (no thresholds, government definitions)
- **Methodology and system:**
  collection and analysis of homogeneous disaster data at all scales (small, medium, and large); generated from lowest administrative levels. Customization possible through *extension* variables.
- **DesInventar Sendai:**
  since 2018, closer alignment with relevant Sendai Framework targets and indicators, enabling streamlined reporting to SDGs and the Sendai Framework

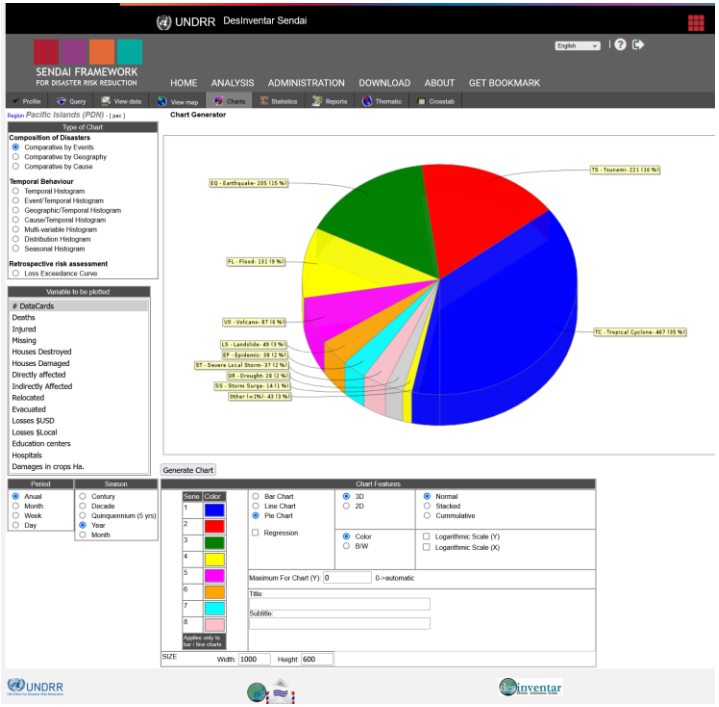
Why tracking hazardous events and losses and damages? Support use cases (old/new)

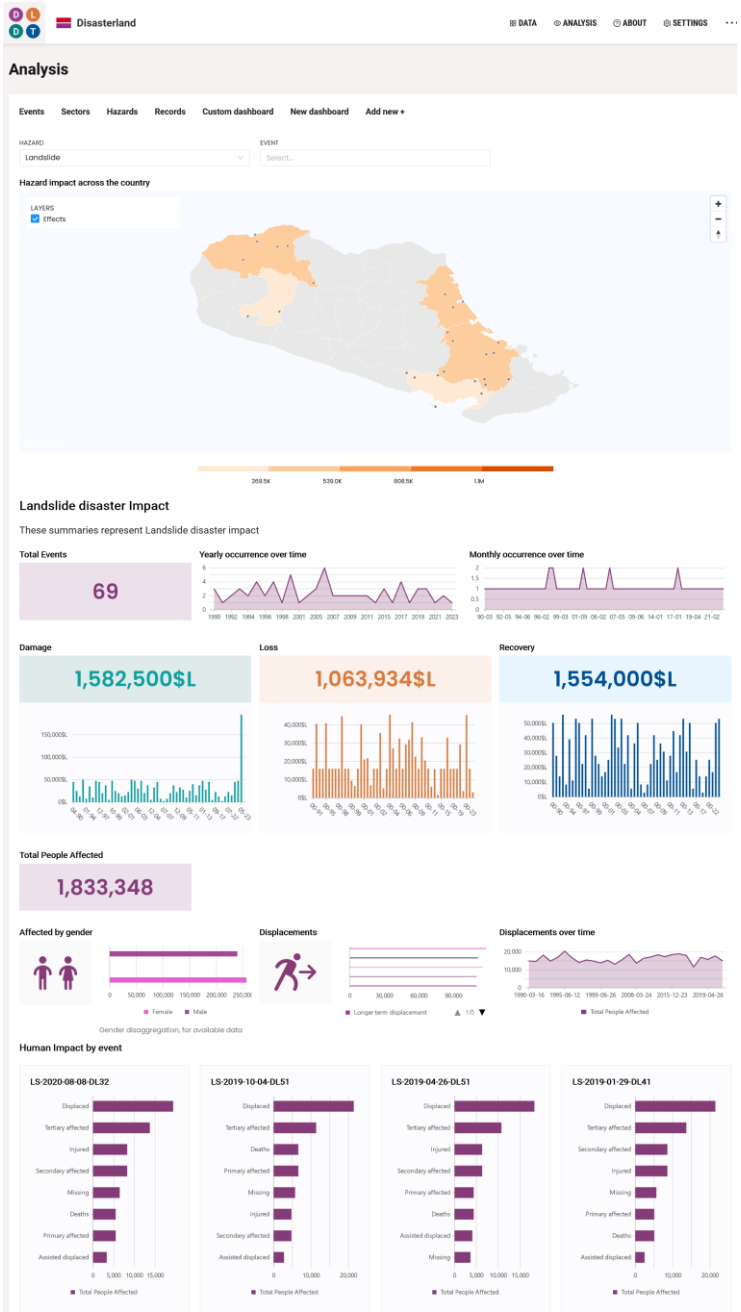
Data users and producers

- **National Governments**
- Sub-national/ Local Governments
- Development Partners
- Regional organizations
- Humanitarian Actors
- Financing sector
- Insurance sector
- Science &Technology networks
- UN System



Why a new tracking system? Respond to new & persistent challenges





Diverse challenges and limitations

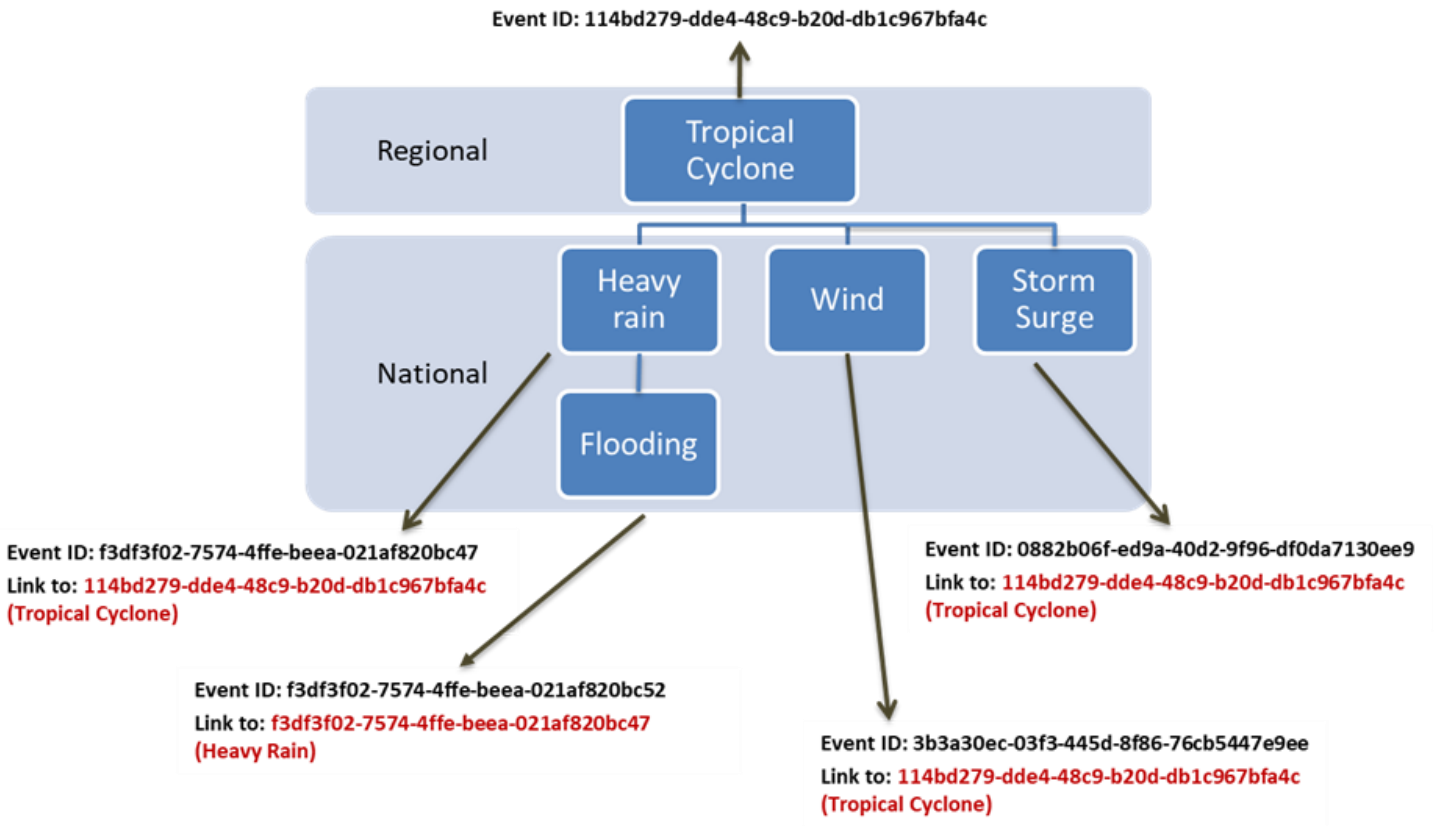
Governance, institutionalization, data management capacities, coordination (horizontal / vertical), disaggregated data gaps / accessibility, technology, costing damage, loss estimation etc.

- Needs & technology are changing significantly
- Underlying risk, triggers, causes need better understanding
- Cascading events and impact need better understanding
- Data standards & methodologies are evolving
- Data from multiple sources need integration

Innovate ‘Cataloguing Hazardous Events’ (WMO-CHE)

- Basis for **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)

Cascading Events



Strengthen analysis and dashboards

Built-in analytics

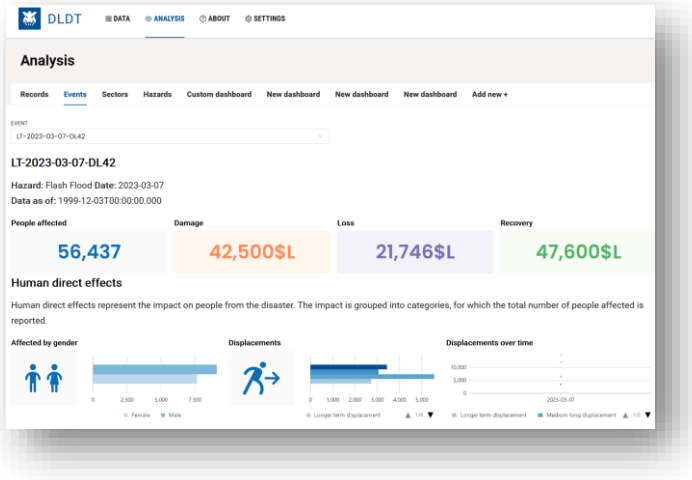
- Pre-defined indicators and variables (records, events, sectors, hazards)
- Visualized as charts, maps, cards, tables etc.

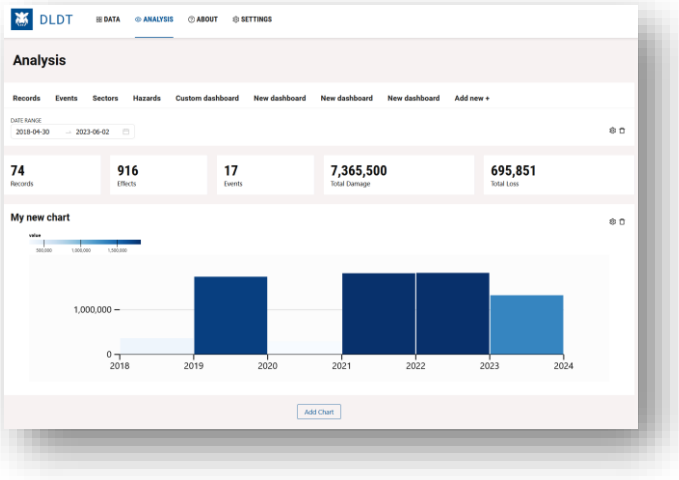
Self-serve analytics

- Users select specific indicators and variables
- Specific visualizations for user / country needs

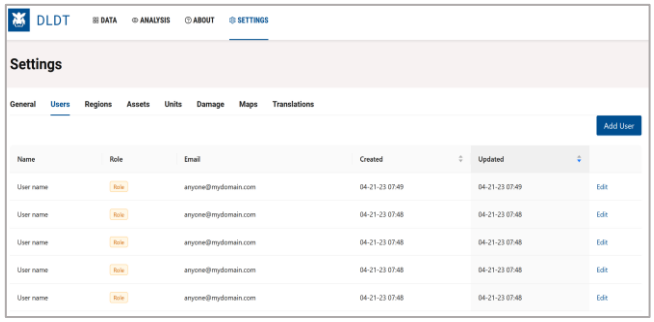
External analytics & data reports

- Users export data to external data analysis and visualization tools
- e.g., PowerBI, Excel, R, Superset, etc
- The system will have an API that can connect to other systems



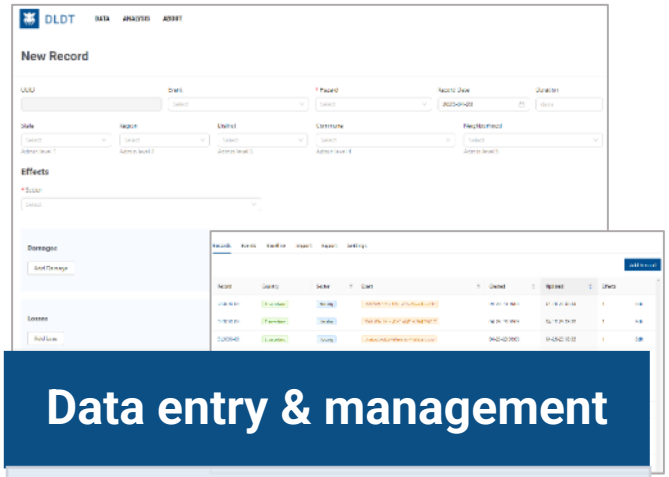


Information architecture - modules of the system



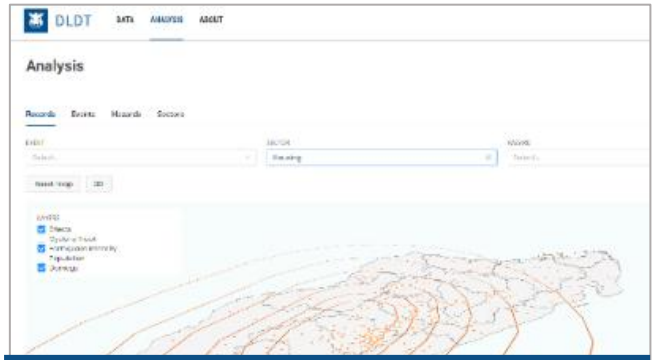
Administration module

- Assign roles to users for data entry, validation, edit, etc.
- Recording of data from multiple types and format of assessments
- Link data records to (disaster) events, to sectors, to geographies, to hazardous events, etc.
- Facilitate review, update, validation process



Data entry & management

- Role-specific data entry (physical hazard and impact)
- All type of events with some standard / core variables
- Support primary data collection and assessment processes
- Easier aggregation/ disaggregation
- Metadata



Analysis module

- Pre-built visualization templates (dashboards)
- Add external contextual information to support impact analysis (e.g., demographics, GDP)
- Customized analytical functions (queries, graphs, statistics, maps)
- Exports

Strengthen standardization - methodologies (selection)

Since 1994
DesInventar …
Since 1972
- Damage and loss assessment (**DaLA**)

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

2015
- **Sendai Framework**

Since 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

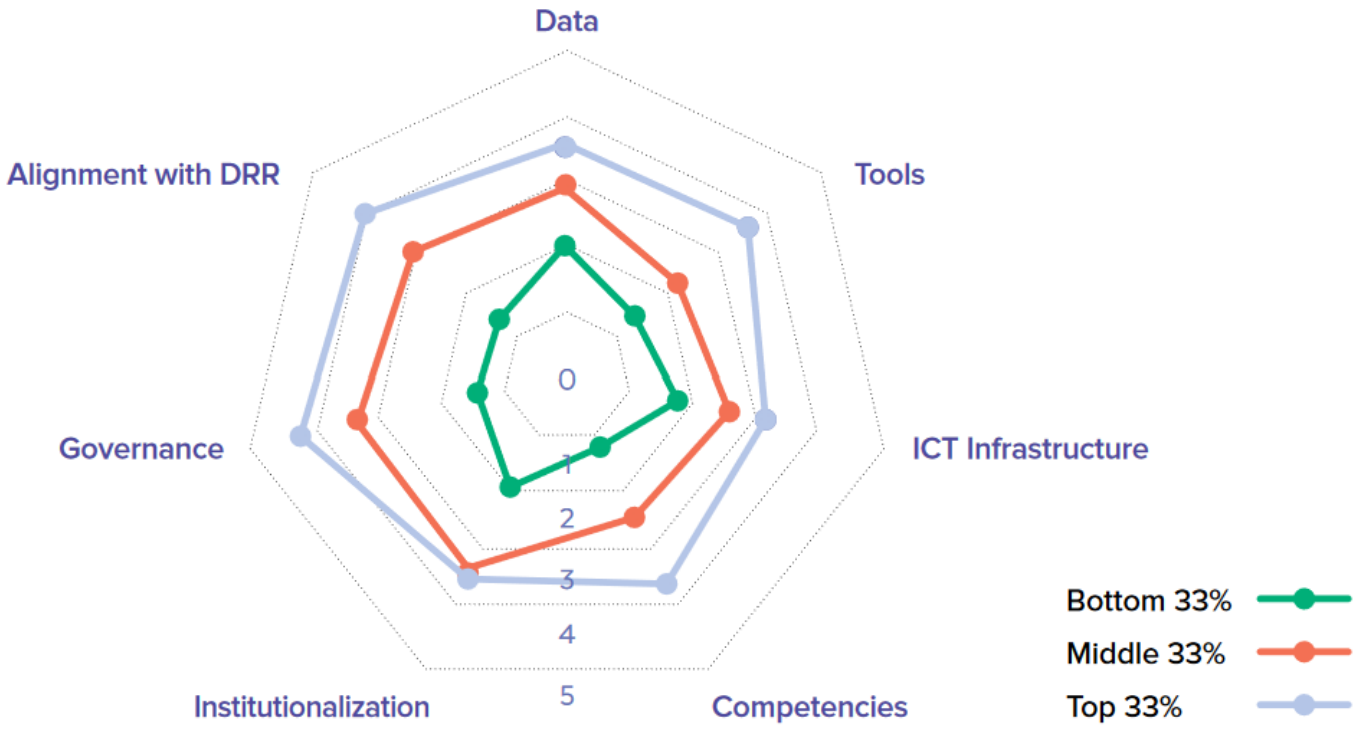
2021
- Hazard information profiles (**HIPs**)

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

Digital Disaster Risk Reduction Maturity Model (DDRRMM)

Average DDRRMM scores by maturity cluster (13 countries)

7 components, 23 subcomponents



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)

Nov 22: 175 participants (in-person and virtual), 40 governments, 50 international organizations
May 23: 100 participants (in-person and virtual), 30 governments, 20 international organizations

System development

- Minimum Viable Product
- New system - development in modules [2024 - 2025]
- Country roll-out 2025 - 2026

Thank you.