



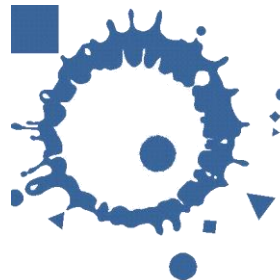
USAID
FROM THE AMERICAN PEOPLE



Update of EM-DAT activities

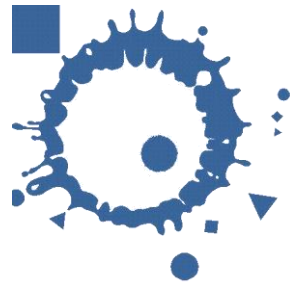
TAG Meeting, Brussels, 16-17 October 2019

Regina Below, Valentin Wathelet and Joris van Loenhout



Centre for Research on the Epidemiology of Disasters

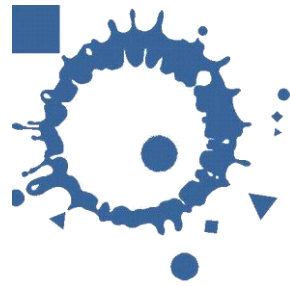
Main outputs/recommendations of the TAG-Meeting (Washington DC., Oct. 2016)



- **Formalize cooperation with the following partners: USGS, Smithsonian institute, Darmouth Flood Observatory (DFO) and organize meeting(s) & partnerships to work on data gaps and information sharing**
 - **Continue to work closely with the satellite community (geo-referencing)**
 - **Automatize several EM-DAT functions (i.e. the validation, data entry and geo-referencing process), as well as developing the online mapping tool**
 - **Divert our resources to do more work at the sub national level**
-

Main activities

Oct.2015 – Sep.2020

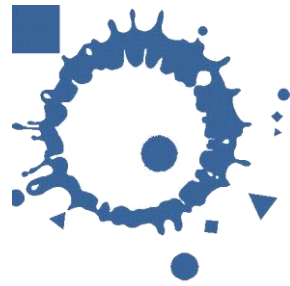


Activity 1 - EM-DAT: Maintenance of the database, visibility and usability

Activity 2 - EM-DAT: Development and implementation of a mapping and query interface for geo-referenced EM-DAT data

Activity 3 – Improving disaster data collection at national and regional level

Activity 1 - EM-DAT: Maintenance of the database, visibility and usability

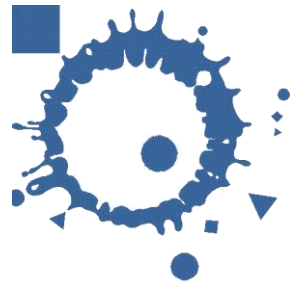


Sub-activity 1: Maintenance of the EM-DAT database

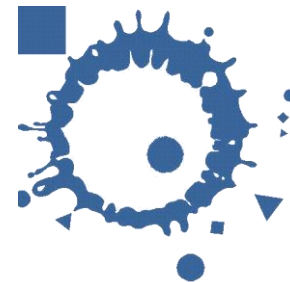
Sub-activity 2: Improve EM-DAT analytical products

Sub-activity 3: Long-term agreements with specialized institutions

Sub-activity 1: Maintenance of the EM-DAT database



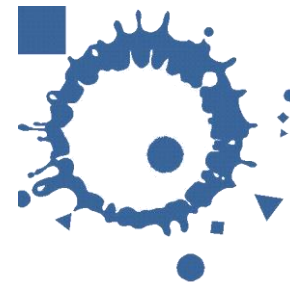
- **Maintenance of the database with up-to-date data: consists of collecting, recording and validating new entries**
 - **Technical assistance and website management**
 - **Management of data requests and replies for the data users**
-



Sub-activity 2: Improve EM-DAT analytical products

Publications:

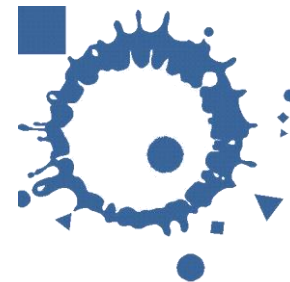
- **Editing and dissemination of the EM-DAT newsletters (14)**
 - **Production of the Annual Disaster report (4)**
 - **Preparation of additional reports (10)**
 - **Press releases (UCL, UNISDR)**
-



Sub-activity 2: Improve EM-DAT analytical products

User survey (January 2017 to January 2018)

- **1375 surveys**
 - **2 parts (Qualtrics):**
 - (1) general information/questions on the website activity/frequency (10Q)**
 - (2) Satisfaction survey – online database search tools and website (10Q)**
 - **Multiple choice + 2 opened questions**
-



Sub-activity 2: Improve EM-DAT analytical products

Results

Users :

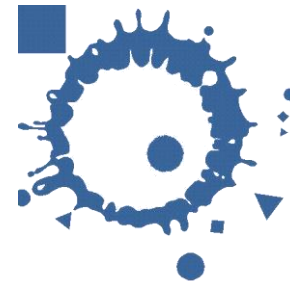
- 53% academic & research institutions**
- 13% governmental organizations**

Professional reasons, looking for specific statistics

Public: young (29% from 20-29 and 26% from 30-39)

Top 3 ranking countries: USA, UK and India

Overall quite satisfied (around 70%)



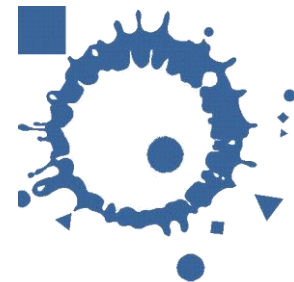
Sub-activity 2: Improve EM-DAT analytical products

Results

2 Opened Q : Improve EM-DAT website and data access policy

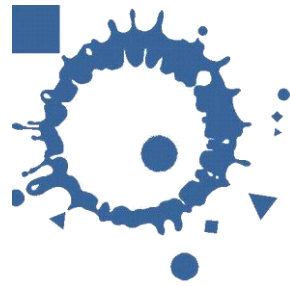
- **Facilitate the access and export of the data**
 - **Make the website and access more user friendly, improve visualization and search options and make the access more compatible with mobile devices**
 - **Add detailed information or additional indicators/disaggregated data**
 - **Improve the quality of historical data, cross check with national database or have sub-national disaggregated data**
 - **Provide Geocoded data or Geo-spatial component**
-

Sub-activity 3: Long-term agreements with specialized institutions



- **Setting of a collaborative network with organizations involved in disaster risk reduction (DRR) and humanitarian response agencies: USGS/Pager Group, USGS/Eros Group, Smithsonian Institution Global Volcanism Program and Nasa**
- **Earthquake data : 1380 events recorded in EM-DAT**
 - **Review/correction Lat/long**
 - **Review/correction Richter scale**
 - **Review/correction Date/local time**
 - **Classification and associated disasters (e.g. tsunami)**
 - **Adding epicentre**
 - **Using mainly NOAA (NGCD) and USGS Database**
- **Volcano data : 250 events recorded in EMDAT**

Activity 2 – EM-DAT: Development and implementation of a mapping and query interface for geo-referenced EM-DAT data



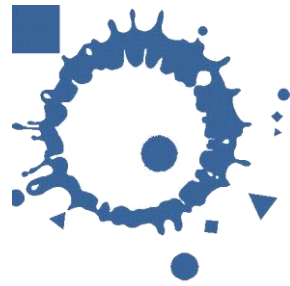
Sub-activity 1: Creation of the basis needed for the mapping interface

Sub-activity 2: Development of the mapping interface

Sub-activity 3: Additional options

- Population data from Landsan : calculate the population living in the chosen area (PPE).
 - Users of the mapping interface will have the opportunity to send feedbacks or remarks in order to improve the service consistently with the user needs.
 - In the context of the emerging technologies and the development of multiple numeric devices, the interface will be developed in order to be compatible with tablets and smartphones.
-

Why ?



Country level data

Good time scale but poor spatial scale

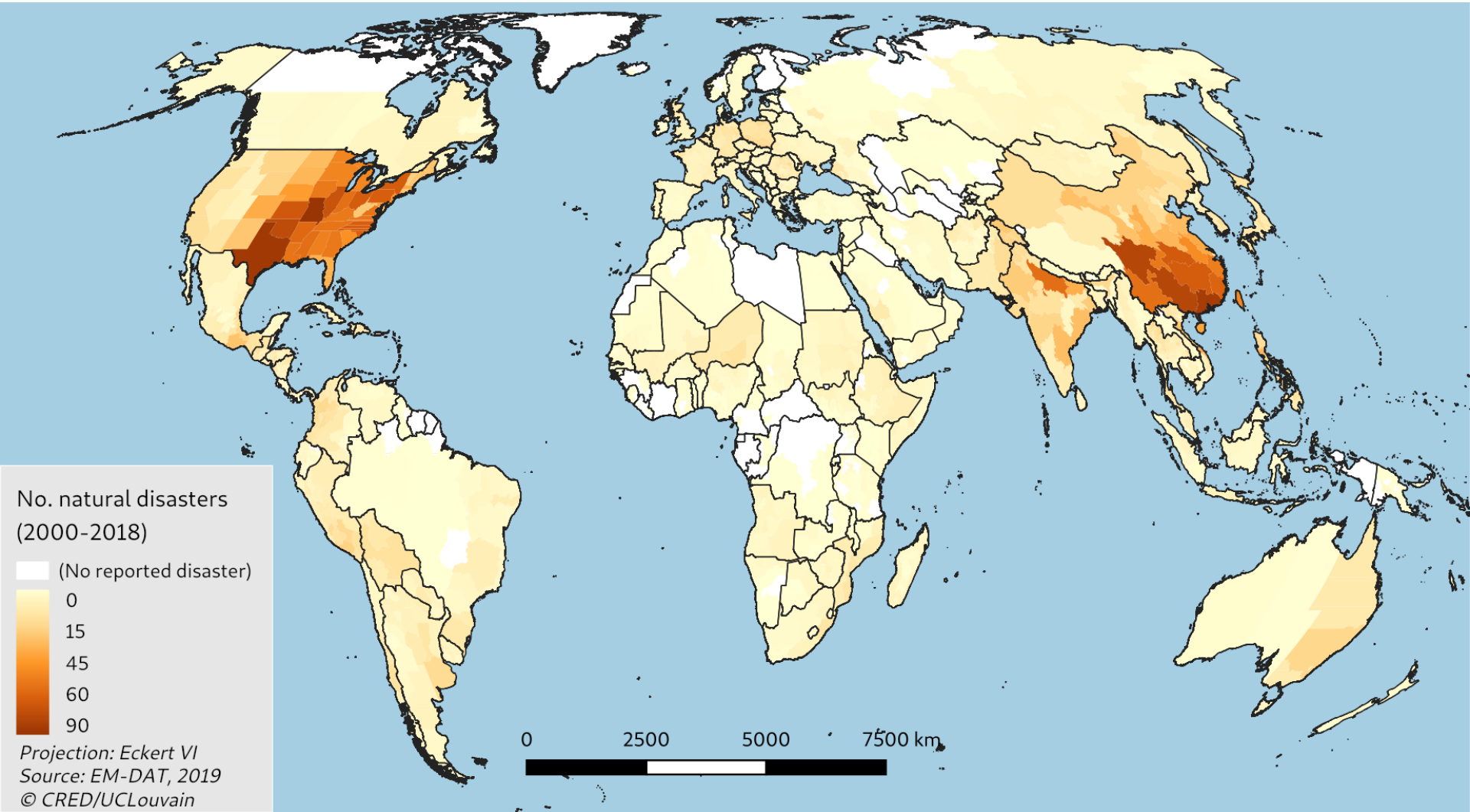
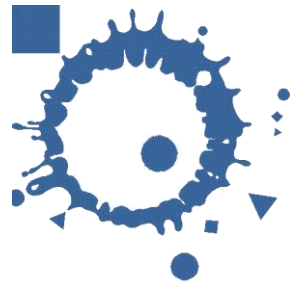
- Meaningful for continent-level studies
- Limits the usability of other spatial information (population density, satellite data sources)

Georeferenced data

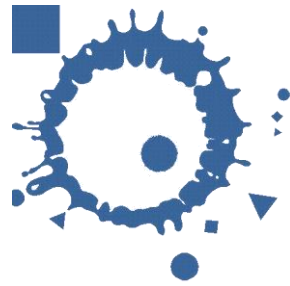
Better spatial granularity

- Locate higher risk areas
 - First step for a better risk/vulnerability analysis
 - Connect/compare to other spatial data sources (e.g. meteorological, geological data)
-

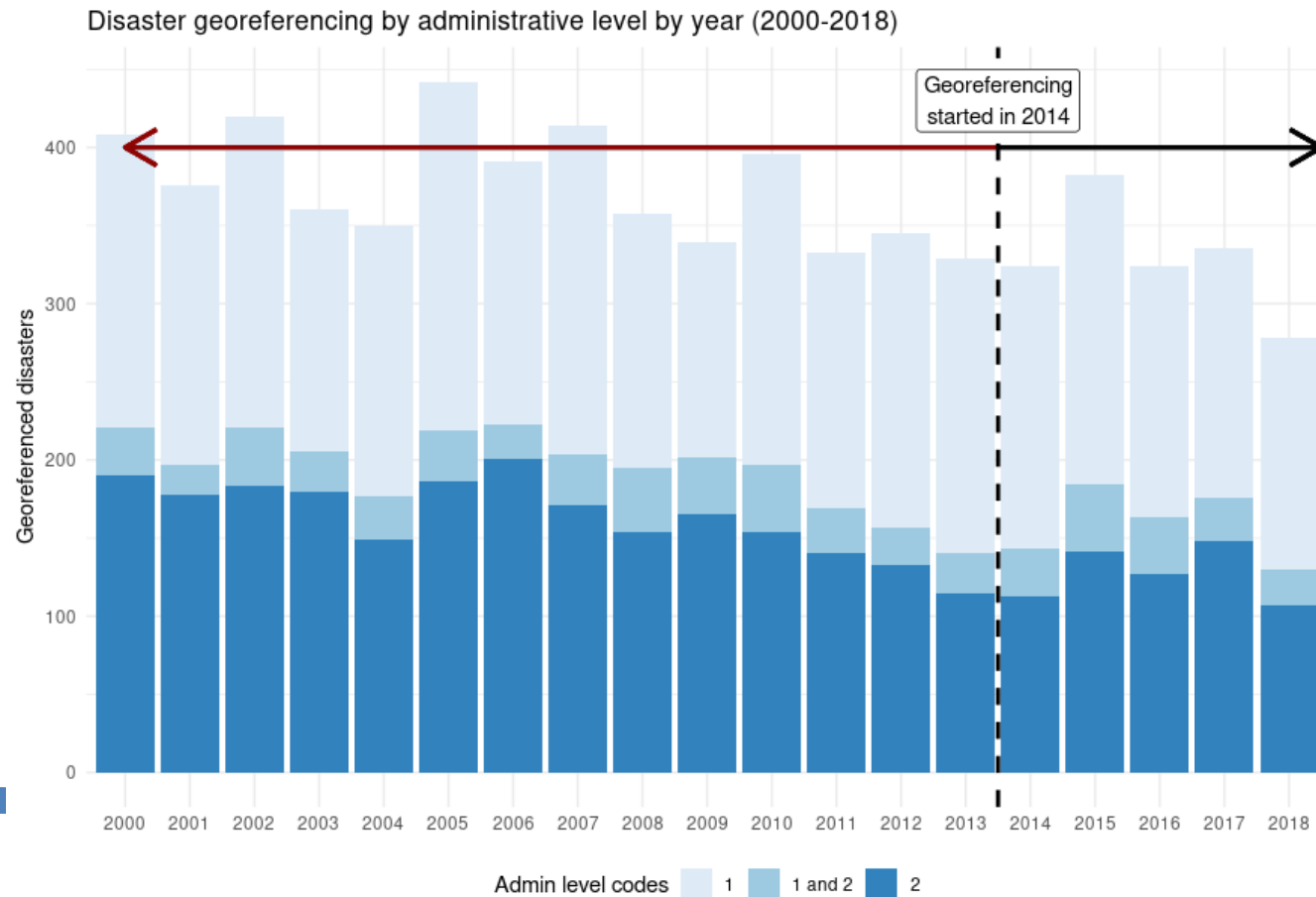
No. Natural disasters (admin 2 level, 2000-2018)



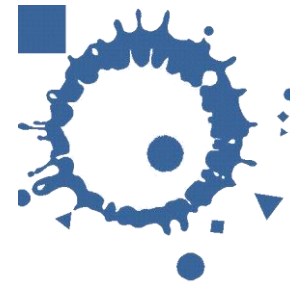
State of georeferencing



- Started in 2014, for natural disaster from 2000 - onwards
- Worldwide, at ADM 2 and/or ADM1 level



Methodology



FROM: Text description extracted from sources

TO: Indexed to admin. units in the GAUL 2015 tables and shapefiles (FAO2015)

TOOLS: Search engines such as Geosetter

Example of the results of geocoding two disasters in Angola:
codes of the affected administrative units (Level 1 or Level 2)
and coordinates of their centroids

Year	Seq	Country name	Location	Adm1 code	Adm2 code	Lat centroid	Long centroid
2000	2	Angola	Dombre-Grande (Baia Farta-Benguela Province), Massangano (Carnabombe-Kwanza Norte Province)		4214/4291	-13.1/-9.5	13.1/14.5
2001	146	Angola	Namibie city, Macala, Lucira (Namibie), Bibala, Camacuão (Namibie province), Luacho, Senje, Muhaningo, Seco, Dombre-Grande, Canto (Baia Farta-Benguela province), Lubango, Quipongo, Caluquembe (Huila province), Namacunde, Xangongo (Ombadja), Onjiva (Cuanhama) (Cunene province), Luanda city, Bengo province	408/398	4339/4337 4338/4214 4284/4287 4276/4261 4262/4258 -/	-14.7/-14.6 -14.0/-13.1 -14.9/-15.0 -14.0/-17.0 -16.7/-16.4 -8.9/-8.9	12.4/13.1 13.0/13.1 13.6/14.5 14.5/16.6 14.9/16.3 13.3/13.9

Location

Mullaithvu, Kilinochchi, Mannar, Vavuniya, Jaffna districts

Georeferencing

Locations
Shapefiles

Gaul version: 2015

Insert ADM1/2:

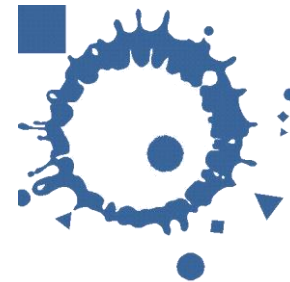
ADM1_C...	ADM1_NAME	ADM2_C...	ADM2_NAME	Delete
2740	Northern	25839	Jaffna	⊖
2740	Northern	25840	Kilinochchi	⊖
2740	Northern	25841	Mannar	⊖
2740	Northern	25842	Mullattivu	⊖
2740	Northern	25843	Vavuniya	⊖

☐ Partial Georef.
☐ .shp to update
☐ Details
☐ Srcs consulted

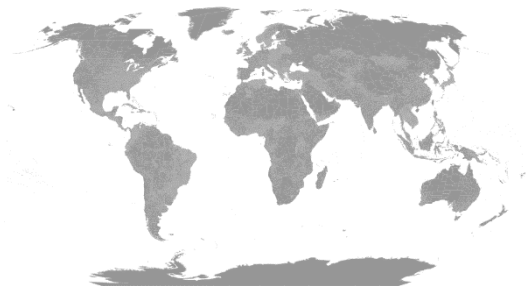
Comments:

Cancel Save

Workflow



GAUL Shapefile



EM-DAT

Example of the results of geocoding two disasters in Angola:
codes of the affected administrative units (Level 1 or Level 2)
and coordinates of their centroids

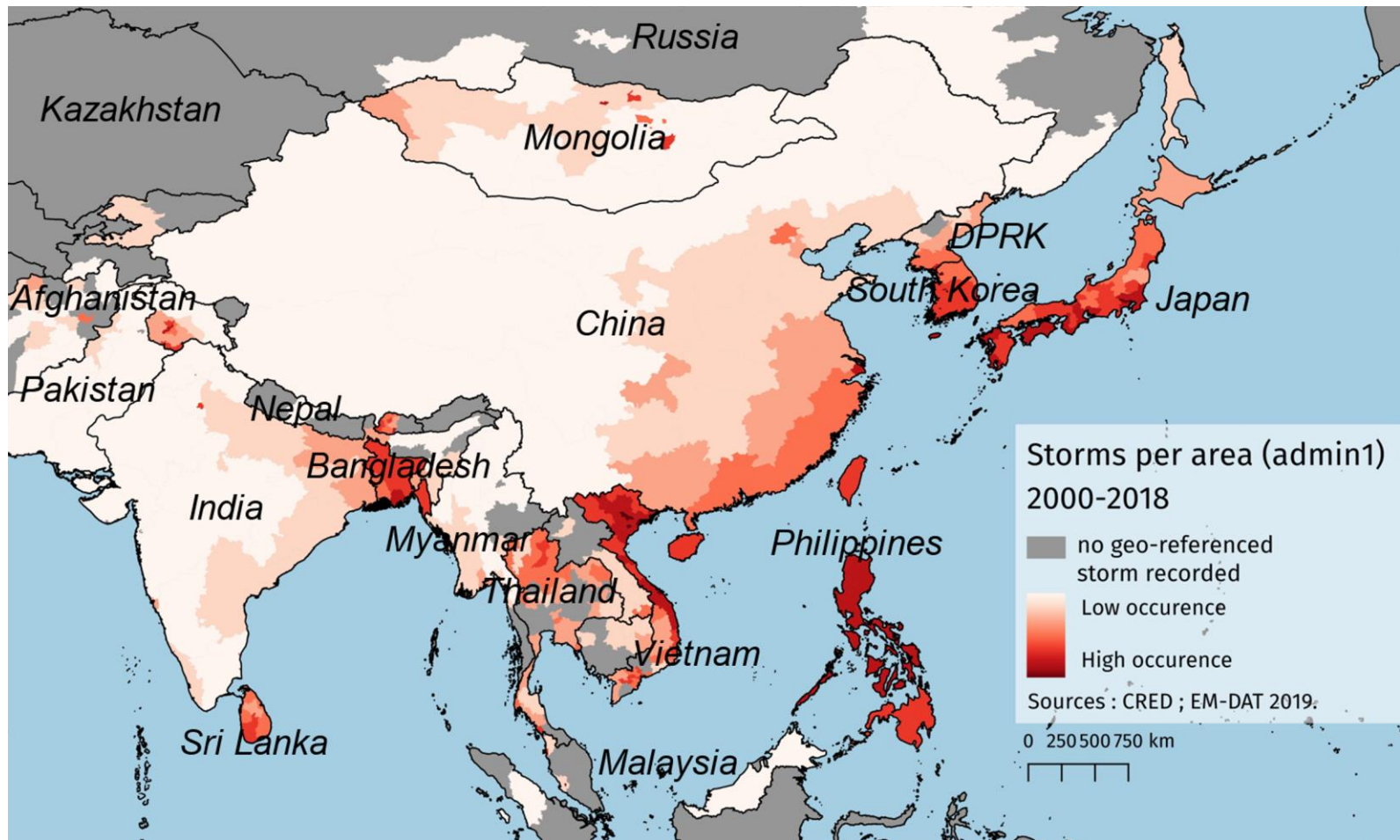
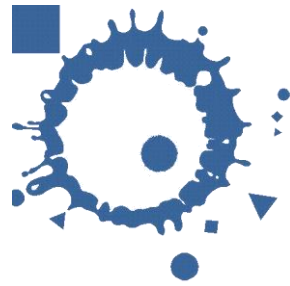
Year	Seq	Country name	Location	Adm1 code	Adm2 code	Lat centroid	Long centroid
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Extract affected administrative units

Disaster Shapefile

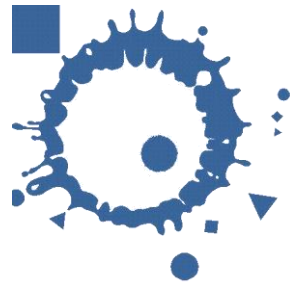


Outputs



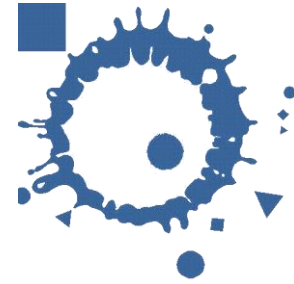
From: Annual Disaster Statistical Review 2018

Challenges



1. Impact data at the country-level
 2. Quality of georeferencing depends on :
 - Data reporting
 - Precision in the location description
 - GAUL dataset : stable since 2015, but administrative units change over time
-

Regional EM-DAT tool



EM - DAT

Data Analysis

Valentin Wathelet, Bangladesh (Admin)

Explore

Submit a disaster

User list

Search filters

Country

Bangladesh

Group

From

2009

To

2019

Deaths: min

Deaths: max

Affected: min

Affected: max

Filter

Reset Filter

All filtered disasters: 93

Map

Satellite

BANGLADESH

DISASTER TYPES

Drought : 1

Earthquake : 5

Extreme temperature : 4

Flood : 15

Industrial accident : 7

Landslide : 5

Mass movement (dry) : 1

Miscellaneous accident : 7

Storm : 22

Transport accident : 23

Volcanic activity : 3

AGGREGATED INDICATORS

Deaths : 4464

Affected : 36297496

Damage : 1636000 K\$

Disaster number	Type	Start year	Total Affected	Total Deaths	Validated
BGD-2009-0294	Landslide	2009	500000	6	true

DISASTER DETAILS

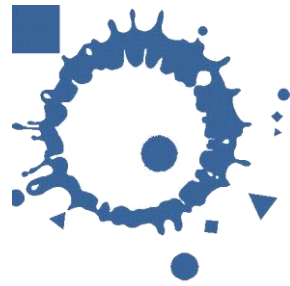
Disaster group :

Natural

Coordinates (lat., long.) :

25.26, 89.09

Regional EM-DAT tool



- Based on EM-DAT
- Possible to involve local data providers (gov/adm) in the collection process
 - Human & economic impact
 - Sub-national impact
- Direct rendering of the impact

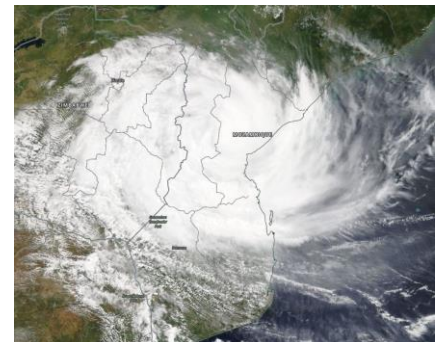
The screenshot displays the 'Data Analysis' section of the Regional EM-DAT tool. The interface includes a sidebar with three icons: 'Explore', 'Submit a disaster', and 'User list'. The main content area features a 'Place' dropdown menu set to 'United States of America'. Below this, there are input fields for 'Latitude' and 'Longitude'. A text box indicates the 'Location (legacy)' as 'Texas, Oklahoma, Arkansas, Alabama, Georgia, Kentucky, Louisiana, Missouri, South Carolina, Tennessee provinces'. A 'Map of impact areas' section shows a map of the United States with the specified states highlighted in red. The map includes labels for various cities and states, and a Google Maps logo is visible in the bottom left corner.

Activity 3

- Sub-activity 1: Undertake detailed case studies of disaster data collection process
- Sub-activity 2: Conduct regional workshops and training
- Sub-activity 3: Undertake data use demonstration stud(y)(ies) with national partners

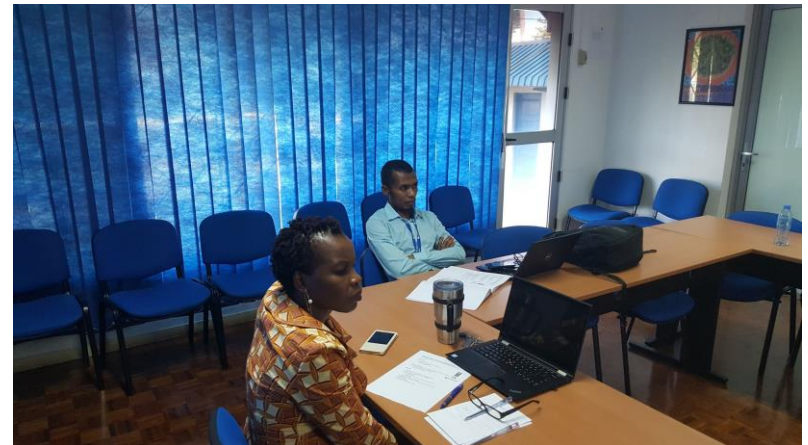
Sub-activity 1: Case Studies

- Assess disaster impact on a sub-national level
- Selection of high-impact disasters with regional variation
- Three case studies finalized / in progress
 - Typhoon Haiyan (Philippines) – finalized
 - Gorkha Earthquake (Nepal) – being finalized
 - Typhoons Idai & Kenneth (Mozambique) – in progress
- More detailed presentation tomorrow



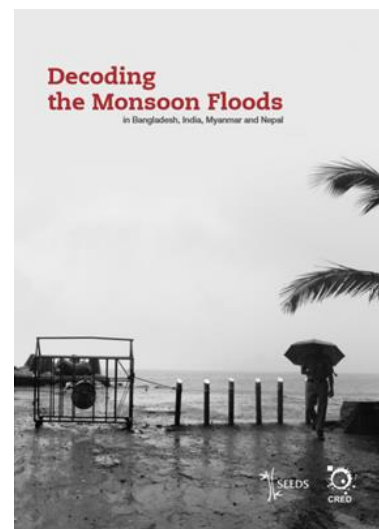
Sub-activity 2: Regional Workshop 1

- Workshop on Disaster Data Collection in Mozambique
- Organised in collaboration with UNDP
- Participation from other UN agencies, e.g. WHO, UNFPA



Sub-activity 2: Regional Workshop 2

- Workshop on “Decoding the Monsoon Floods in Bangladesh, India, Myanmar and Nepal”, organized in New Delhi, India
- Topic was the impact of floods on human settlements
- In collaboration with SEEDS Asia



Sub-activity 2: Training

- Training on application of statistical software on disaster data
- Carried out by EM-DAT staff during Nepal mission
- Participants from Handicap International and Care Nepal



Sub-activity 3: Data Use Demonstration Study

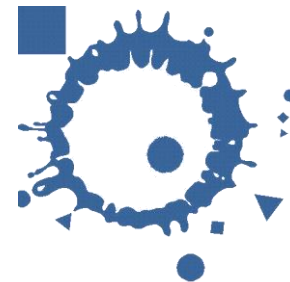
- Training on REM-DAT in New Delhi, India
- Aimed to develop a framework for database of disaster trends and local vulnerabilities
- Organised in collaboration with SEEDS Asia



Sub-activity 2 & 3: Upcoming Events

- Keynote lecture at annual meeting of Asian Disaster Reduction & Response Network (ADRRN), attended by > 40 NGOs in Asia-Pacific region
 - Coherence between global politics and local implementation
 - Part of sub-activity 2
 - Scheduled for November 2019
- Ministerial Conference in Asia
 - Planning with UNDRR to organize data demonstration side events
 - Part of sub-activity 3
 - Scheduled for June / July 2020





Thank you

www.emdat.be
