

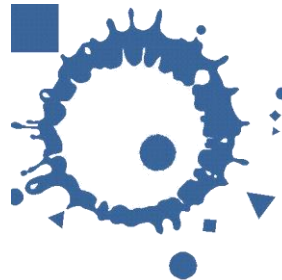


**USAID**  
FROM THE AMERICAN PEOPLE



# Georeferencing EM-DAT

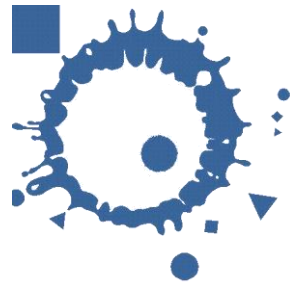
Valentin Wathelet



Centre for Research on the Epidemiology of Disasters

# Why ?

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## **Country level data**

Good time scale but poor spatial scale

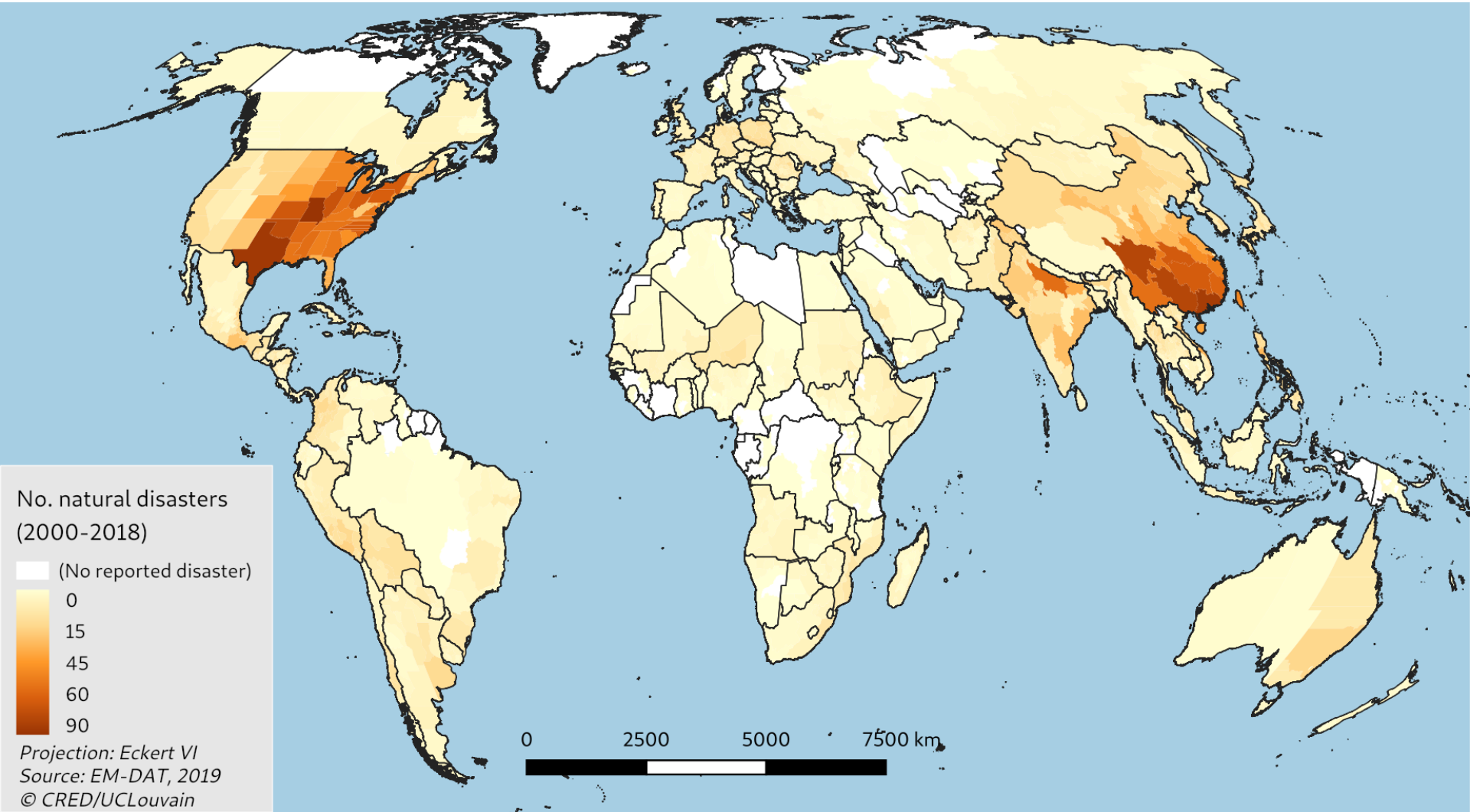
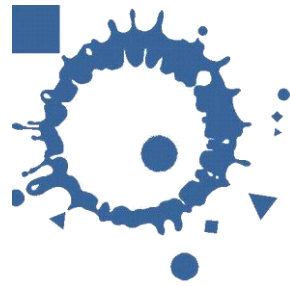
- Meaningful for continent-level studies
- Limits the usability of other spatial information (population density, satellite data sources)

## **Georeferenced data**

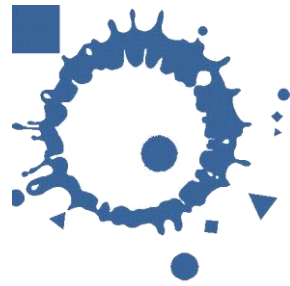
Better spatial granularity

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

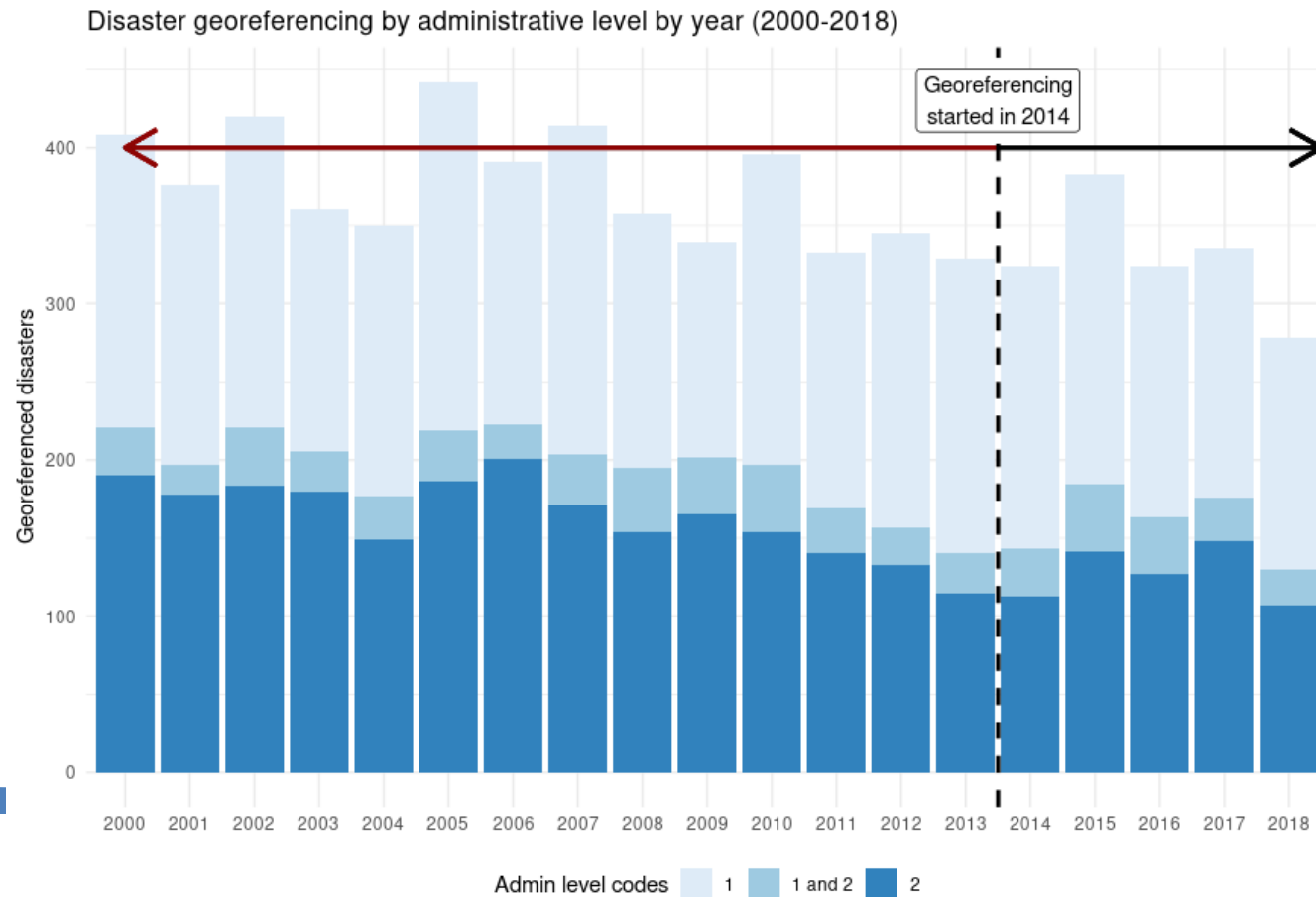
# No. Natural disasters (admin 2 level, 2000-2018)



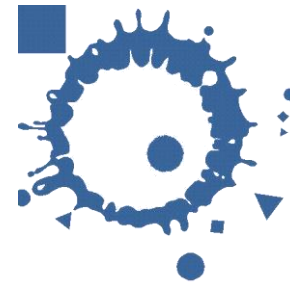
# State of georeferencing



- 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 (Carnamombe-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:

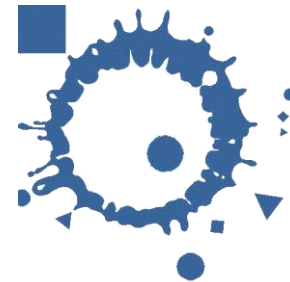
ADM1_C...	ADM1_NAME	ADM2_C...	ADM2_NAME	Delete
2740	Northern	25839	Jaffna	⊖
2740	Northern	25840	Kilinochchi	⊖
2740	Northern	25841	Mannar	⊖
2740	Northern	25842	Mullattivu	⊖
2740	Northern	25843	Vavuniya	⊖

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

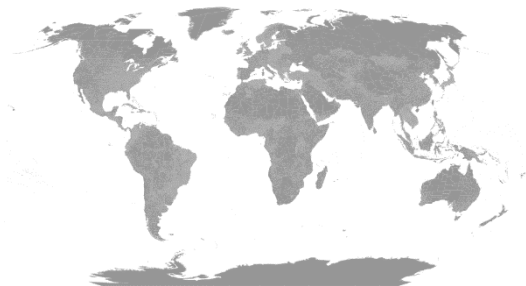
Comments:

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

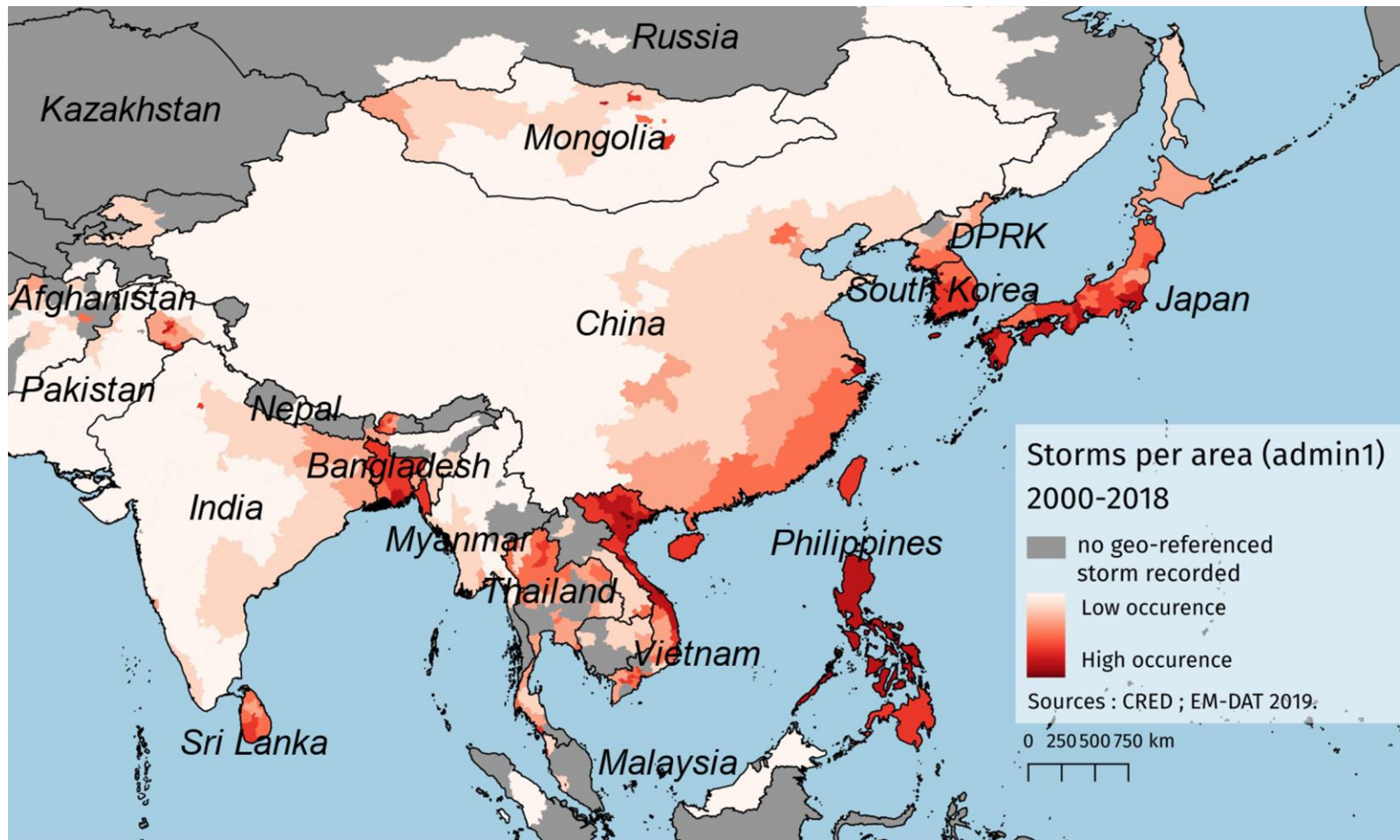
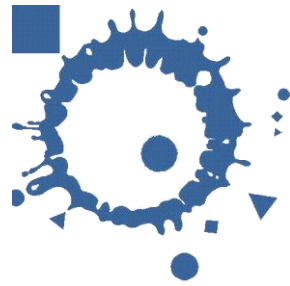
Year	Seq	Country name	Location	Adm1 code	Adm2 code	Lat centroid	Long centroid
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Extract affected administrative units

## Disaster Shapefile



# Outputs

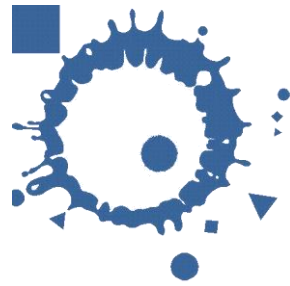


From: Annual Disaster Statistical Review 2018



# Challenges

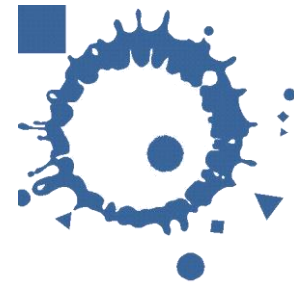
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1. Impact data at the country-level
  2. Quality of georeferencing depends on :
    - Data reporting
    - Precision in the location description
    - GAUL dataset : stable since 2015, but administrative units change over time
-



# Regional EM-DAT tool (in dev.)



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

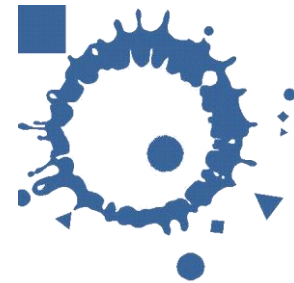
Disaster group :

Natural

Coordinates (lat., long.) :

25.26, 89.09

# Regional EM-DAT tool (in dev.)



- 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