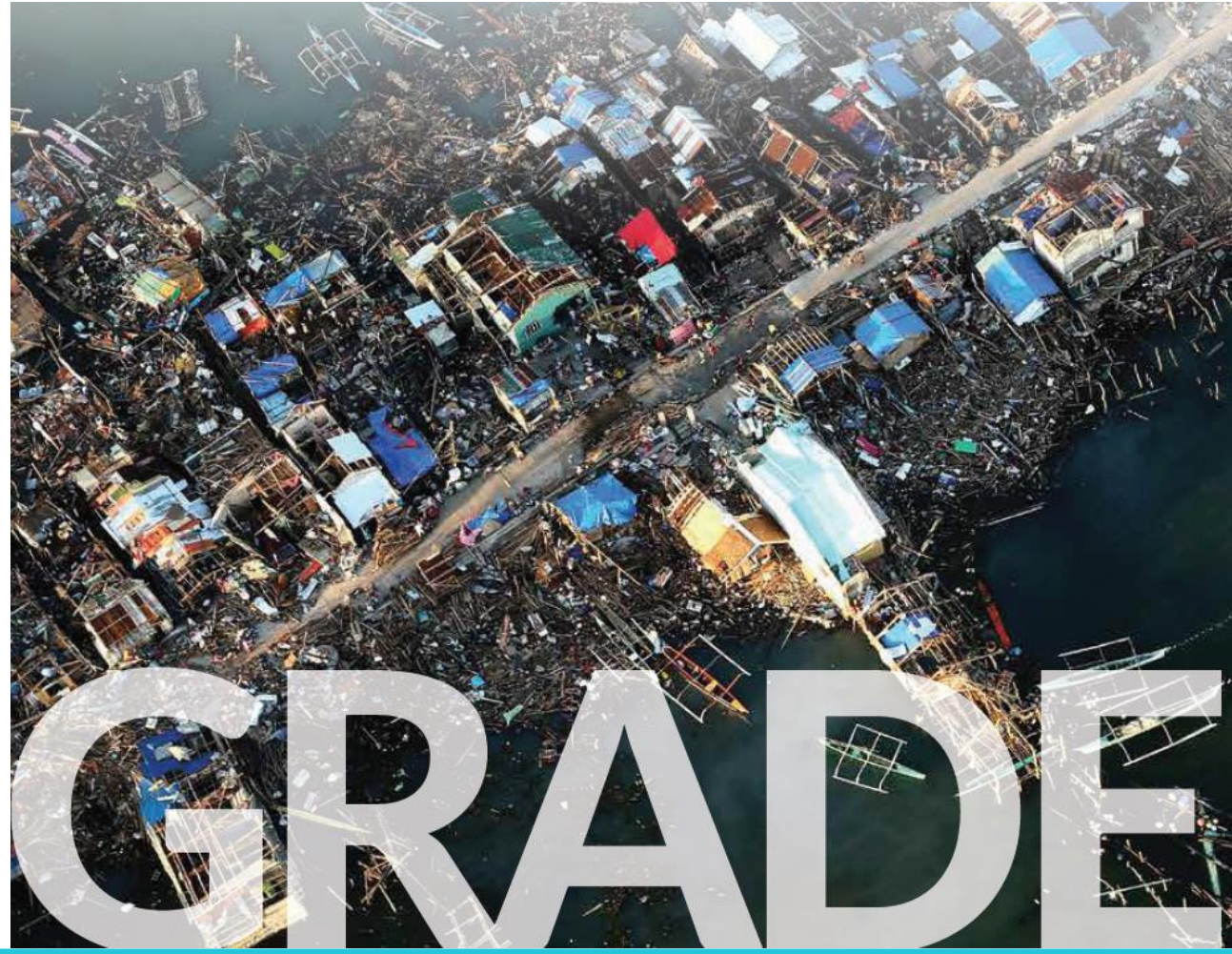
The Global RApid-post-disaster Damage Estimation Approach



WORLD BANK GROUP
Social, Urban, Rural & Resilience

D-RAS
DISASTER RISK RESILIENCE ANALYTICS AND SOLUTIONS
KNOWLEDGE SILO BREAKER

Cyclone Idai (Mar. 2019), Central Mozambique (Photos – Getty images).

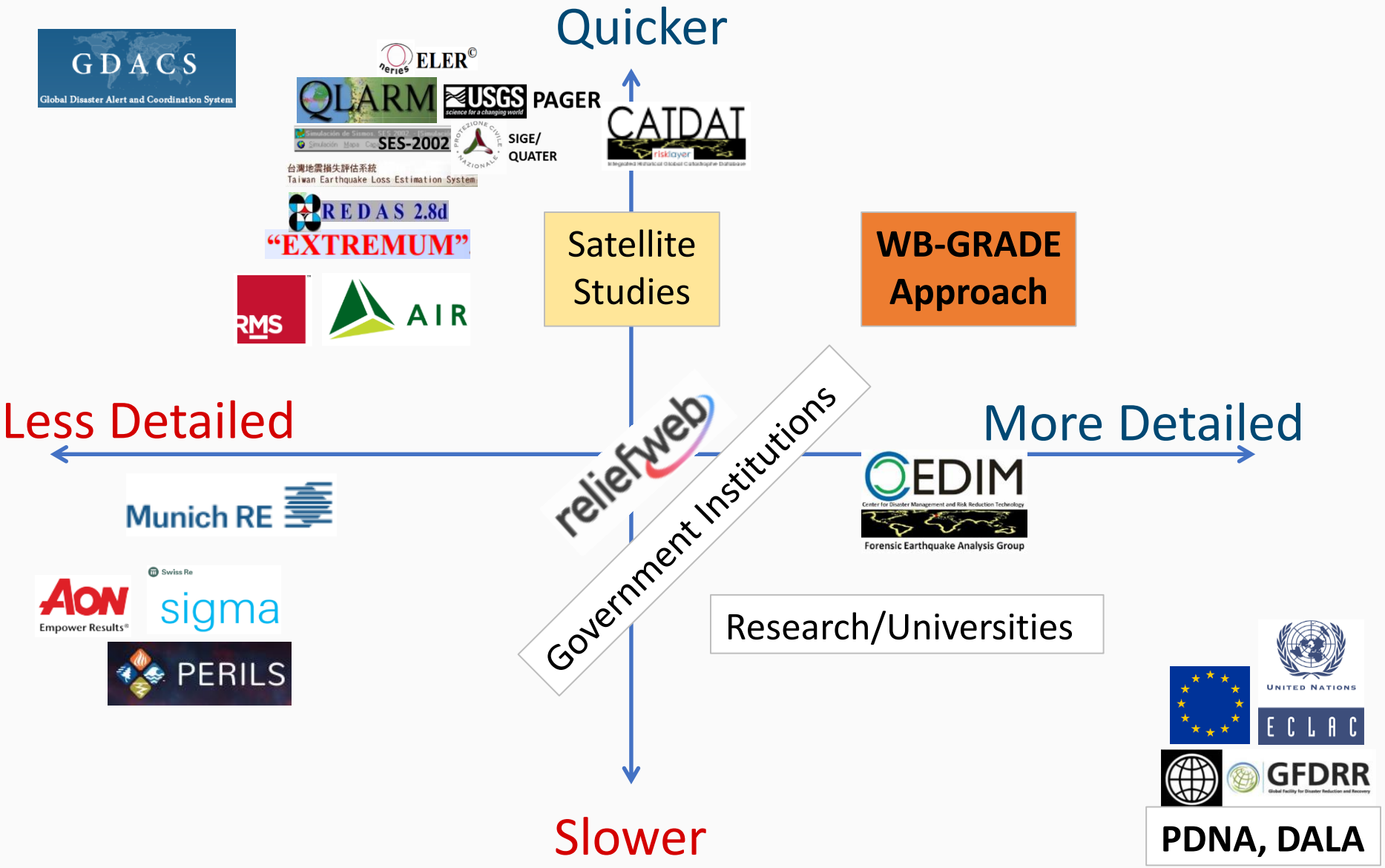
The day after, Government grappled with questions such as:

How do we assess damages?

Where are the damages distributed?

What is the socio-economic impact?

Existing Post-Disaster Tools



The Solution:

Global **Rapid** Post disaster damage assessment (GRADE)

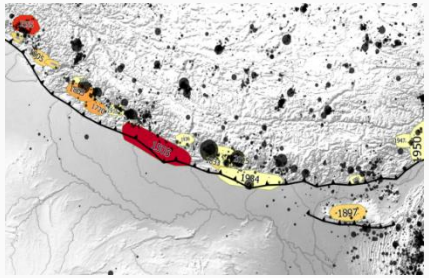
Existing Methods

2 months

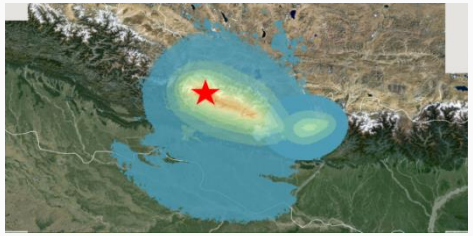
GRADE

2 weeks

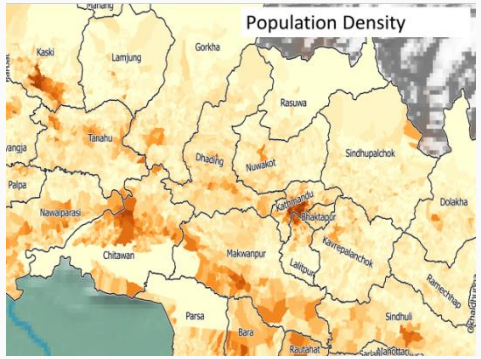
GRADE Skill is in its Analysis



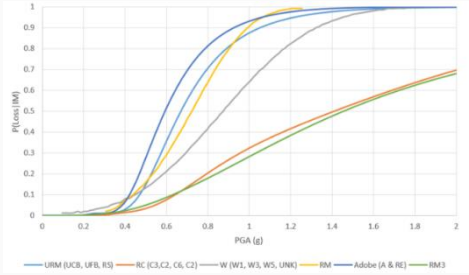
Historical damage data



Event scientific data

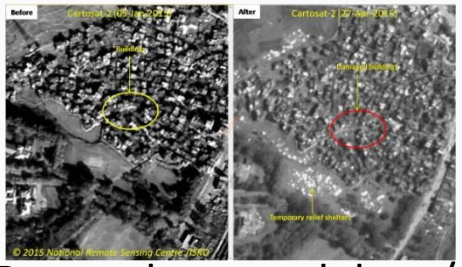


Census data

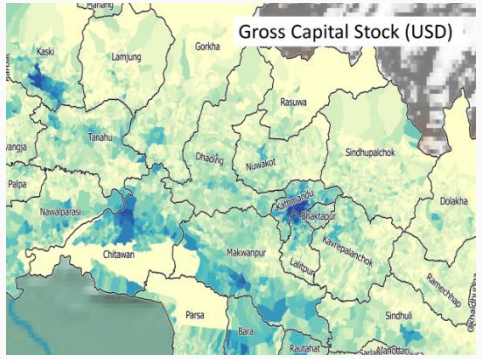


Vulnerability/Built Data

Expert knowledge



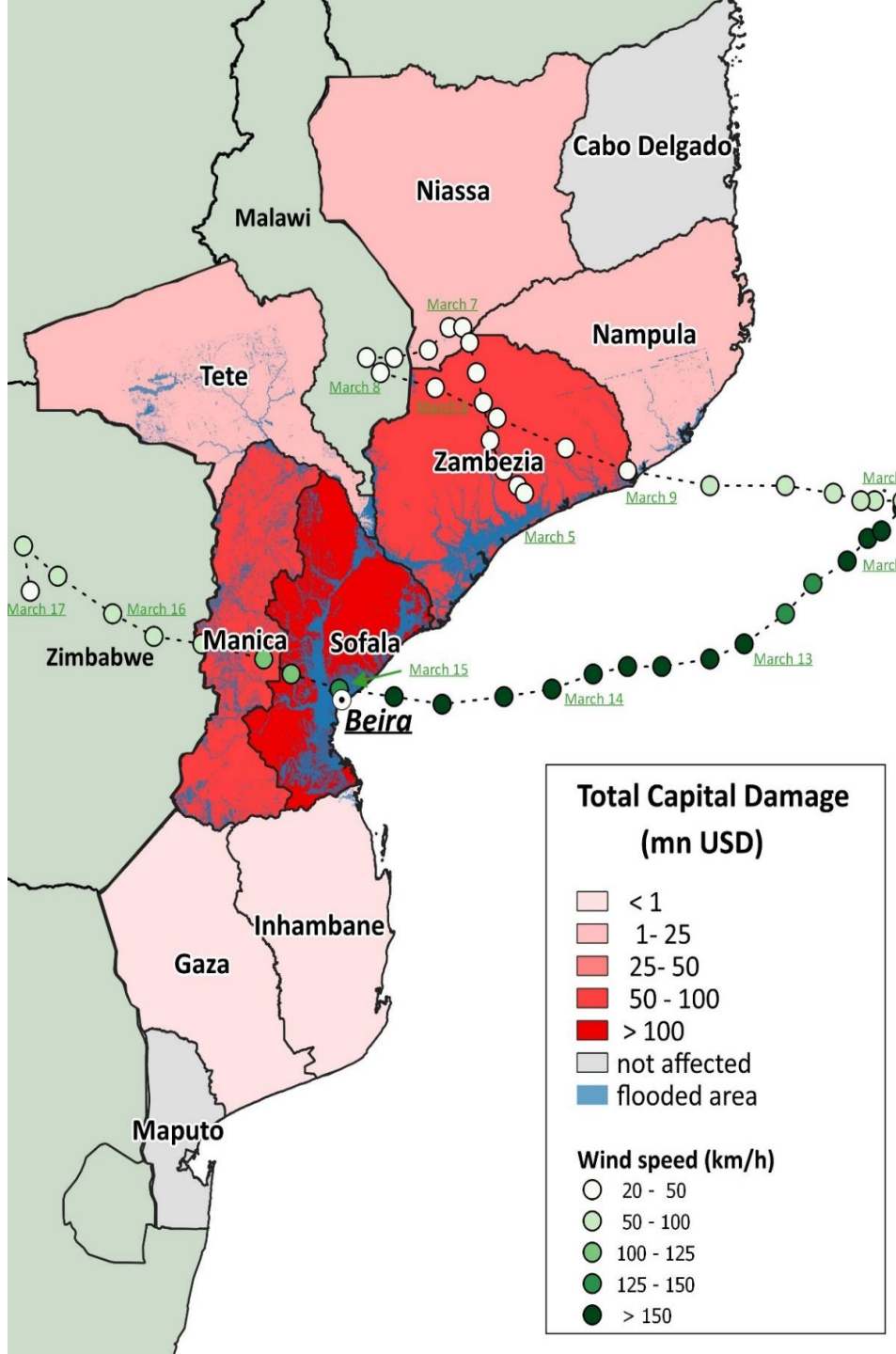
Remotely-sensed data / Social Media



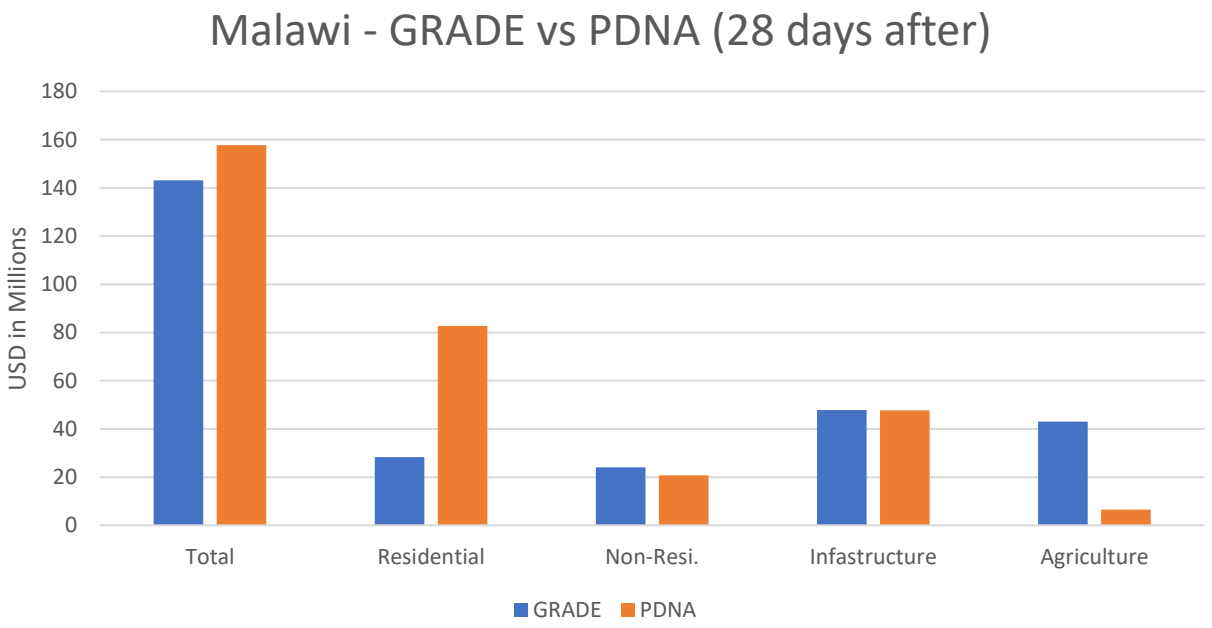
Socioeconomic data

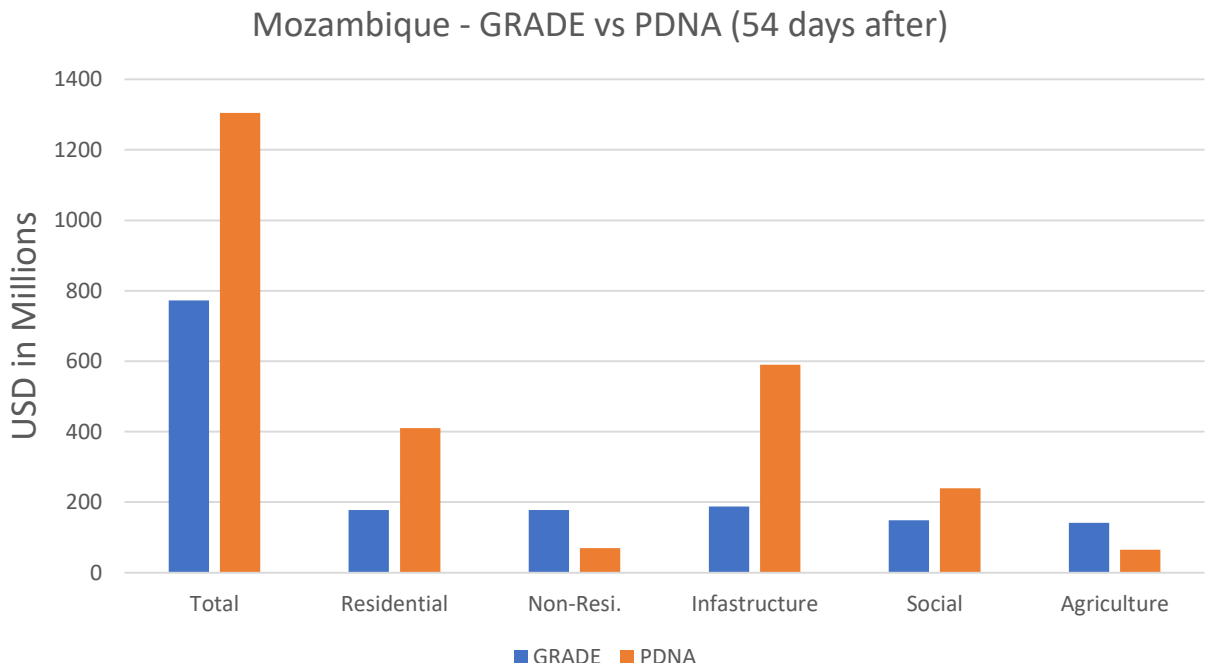
Cyclone Idai Mozambique (Mar. 2019)

Provinces	Residential	Non-Residential	Infrastructure	Province Total
Sofala	131.2	88.2	140.8	**360.1**
Zambezia	11.5	21.9	21.9	**55.3**
Manica	22.6	18.2	12.6	**53.4**
Nampula	8.0	15.4	1.5	**25.0**
Tete	4.1	4.8	8.4	**17.3**
Other Provinces	0.2	0.4	3.2	**3.7**
Sector Total	**177.6**	**148.9**	**188.4**	**514.8**

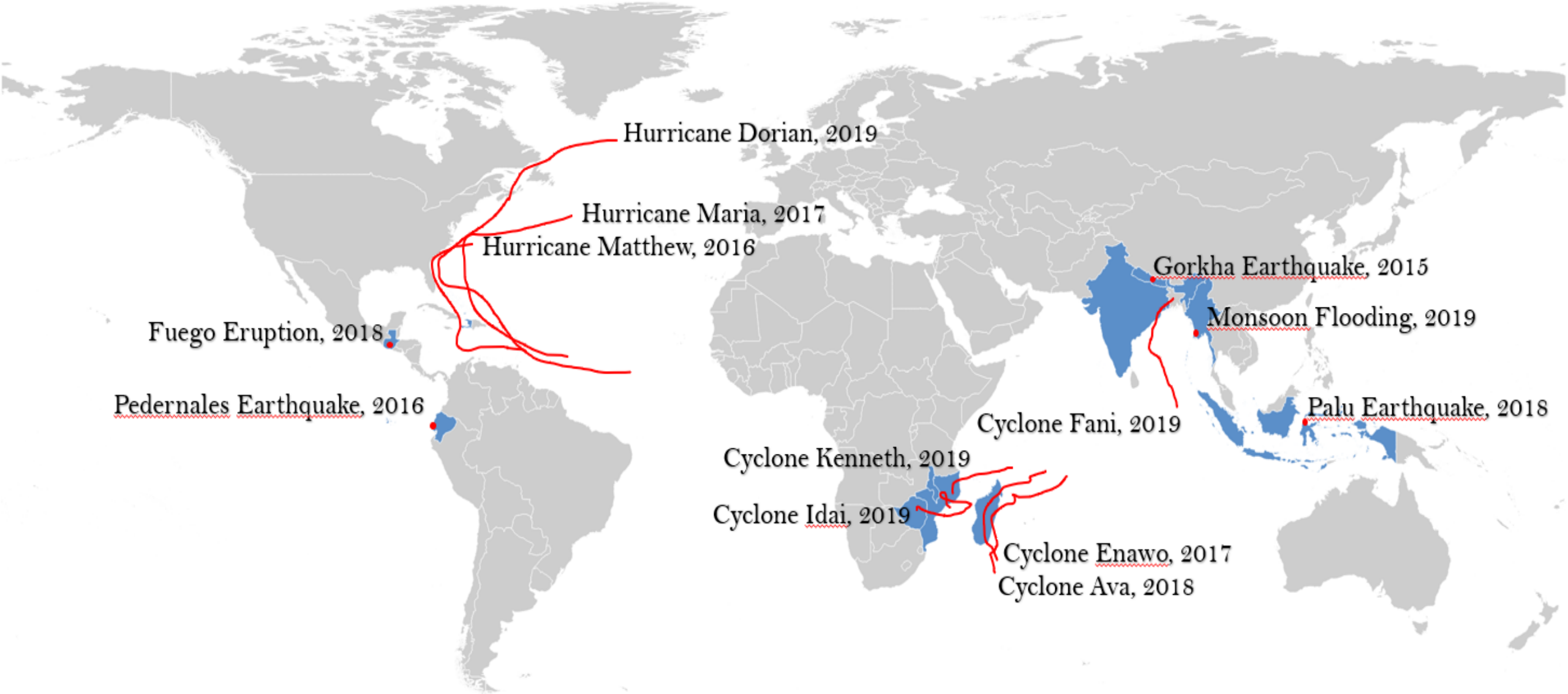


Comparison of GRADE and PDNA
Cyclone Idai – Malawi and Mozambique

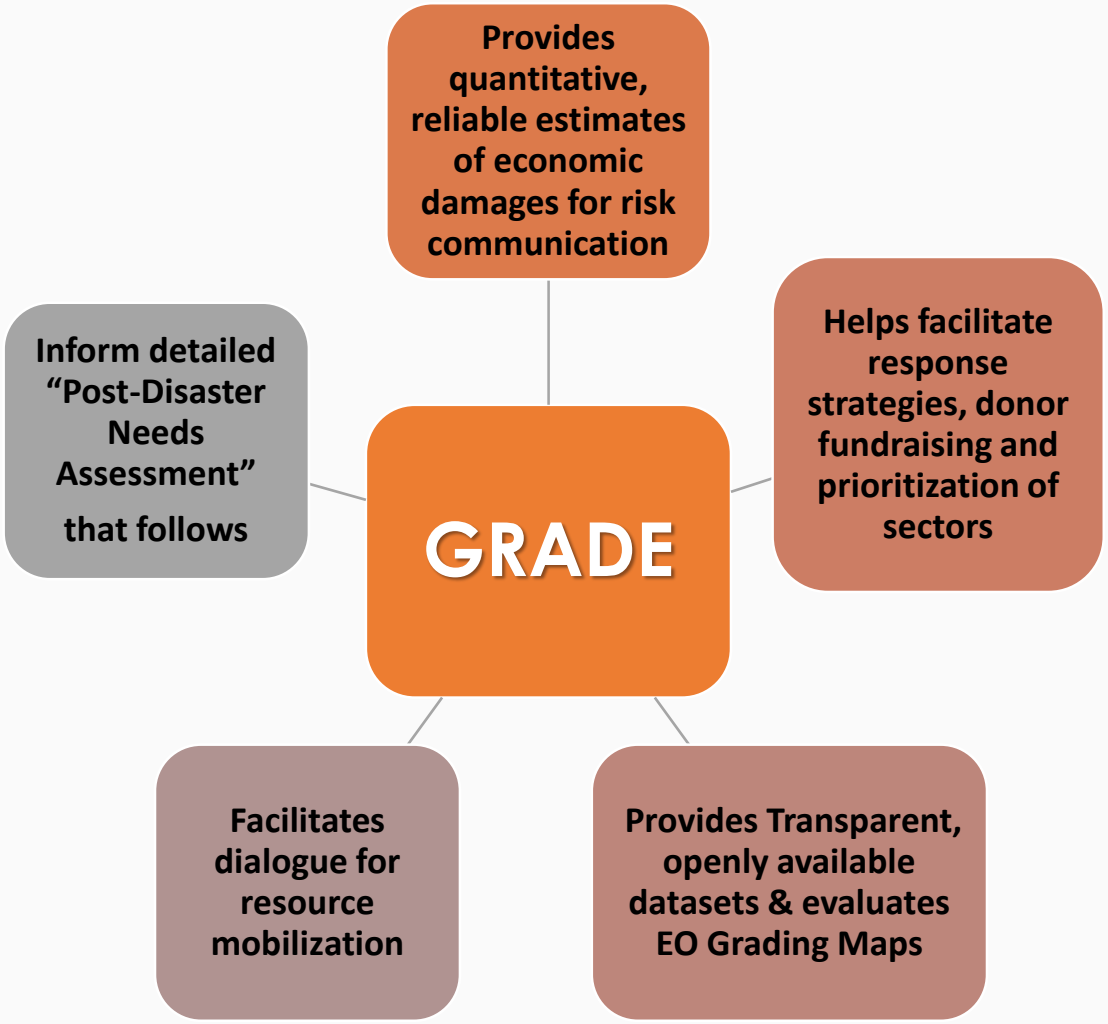




In the last 5 years, GRADE applied in 15 countries, covering earthquakes, cyclones, floods and volcanic eruptions



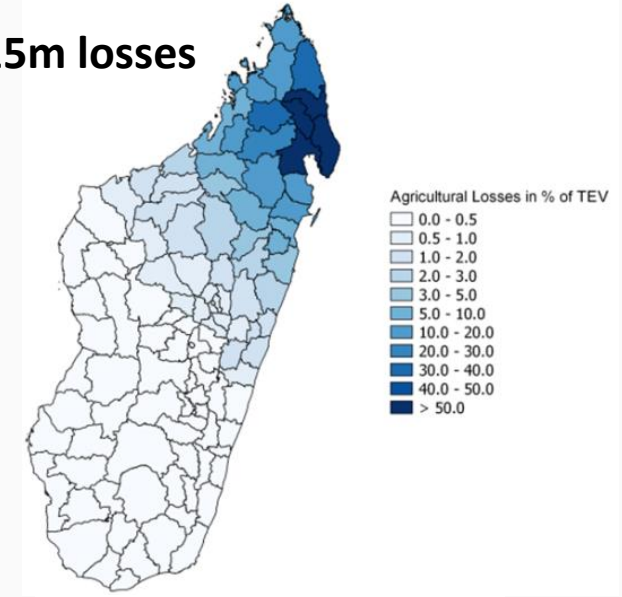
The uses of GRADE approach



GRADE Product (Cyclone Enawo and Ava)

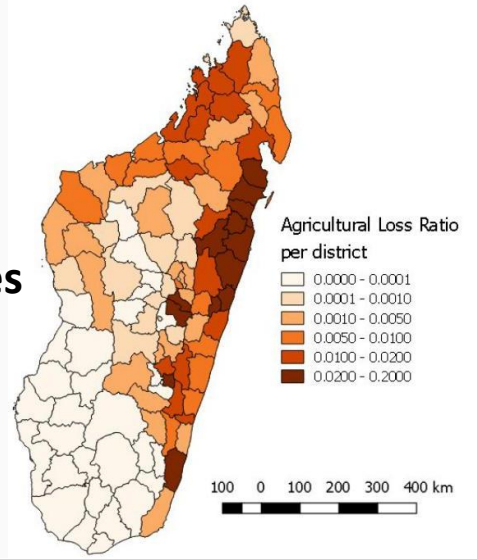
	Popul. Affected	Popul. Displaced	Killed	Missing	Houses Destroyed	Houses Damaged
TC Enawo (2017)	295,950	84,660	81	18	40,520	69,654
TC Ava (2018)	161,000	55,000	51	22	3,231	11,951
TS Eliakim (2018)	15,772	6,282	17	0	648	1,522

~US$415m losses



vanilla counted for 40% of losses

~US$195m losses



Central Sulawesi Earthquake and Tsunami Global Rapid Post Disaster Damage Estimate (GRADE) Report

Main Findings

1. The **total economic damages** are estimated at over US$500 million (approximately IDR 8 trillion):
   - **Housing** - US$180 million (~IDR 2.7 trillion);
   - **Commercial/industrial buildings** - US$185 million (~IDR 2.82 trillion);
   - **Infrastructure** - US$165 million (~IDR 2.5 trillion).

Province	District	Housing	Non-Residential	Infrastructure	Total
Central Sulawesi	Palu	106.7	134.8	94.9	336.4
Central Sulawesi	Donggala	41.1	35.7	45.6	122.4
Central Sulawesi	Sigi	19.8	8.7	16.2	44.7
Central Sulawesi	Parigi Moutong	8.5	3.8	5.4	17.7
West Sulawesi	Pasangkayu	3.4	1.5	2.3	7.2
Central Sulawesi	Poso	1.3	0.5	0.3	2.1
	Total	**180.8**	**185.0**	**164.7**	**530.5**

2. **Key affected sectors** include housing, commercial and / or industrial buildings, and infrastructure.

3. The high impact on commercial / industrial buildings could affect operations and recovery in the **retail and tourism, education and health sectors.** Government public buildings were also affected. The impact on education buildings was also considerable.

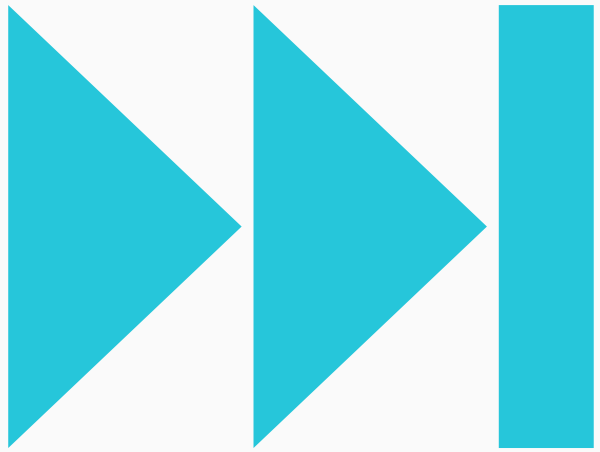
Losses to equipment external to these assets (e.g., cars) and impacts on economic flows (e.g., business interruption) are not included in this assessment.

Next Steps

- Provide findings to GoI, contributing to more detailed damage, loss and needs assessments; identifying the sectoral recovery needs; and informing recovery planning.
- Carry out asset-specific assessments to inform recovery/reconstruction investments.

The GRADE process

Next steps:



- **Regional experts**
- **CEDIM repository of data**
- **Training workshops**
- **Collaboration with Private sector**

Disclaimer: