DEAR

Disaster Emergency Assistance & Response

Connecting space-based observations with local response

Doan Huong Thanh · Nguyen Huy Thang

Space Innovation Challenge 2026

A common challenge across the world

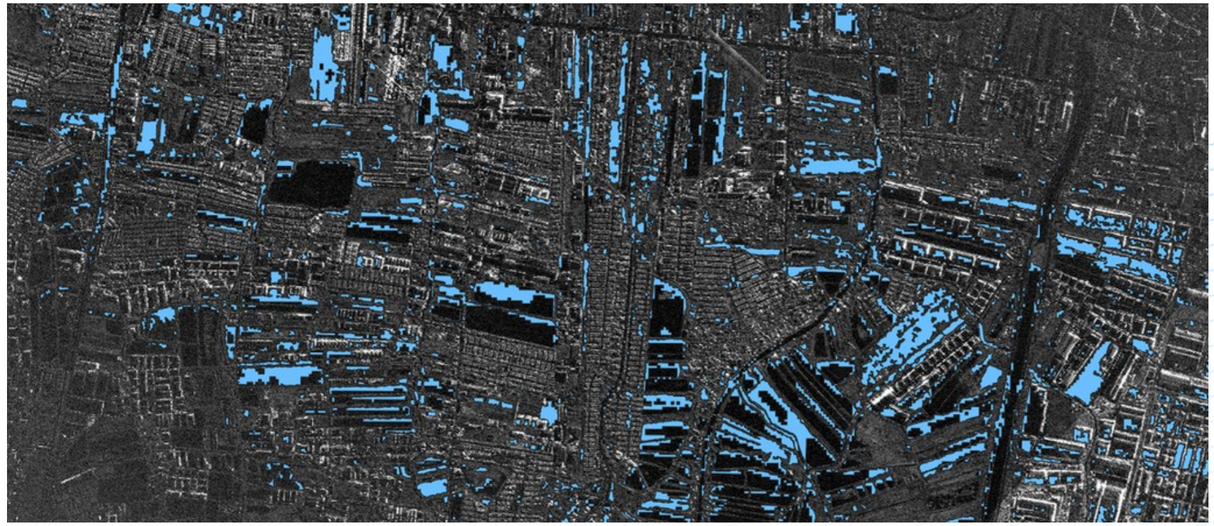


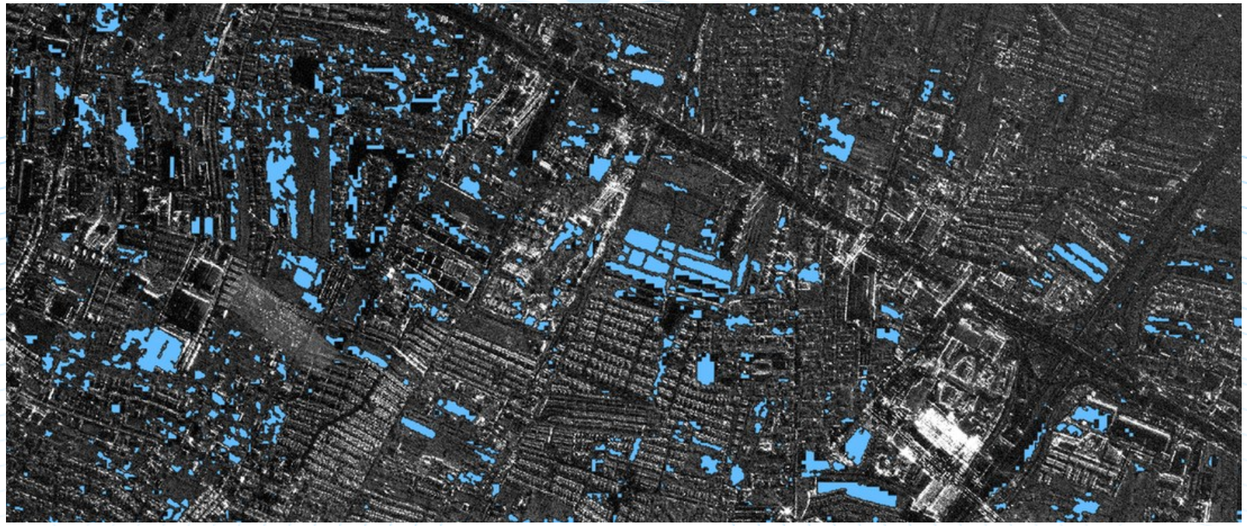


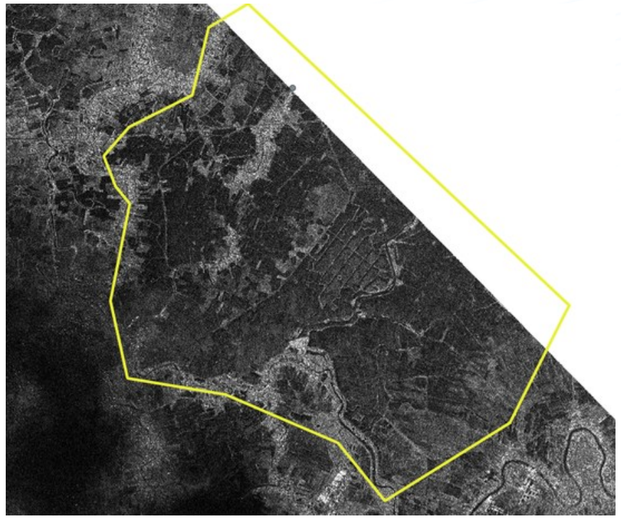
Heavy rainfall caused flooding in Thailand since mid-September 2026

Images in Bangkok, Thailand (2026)

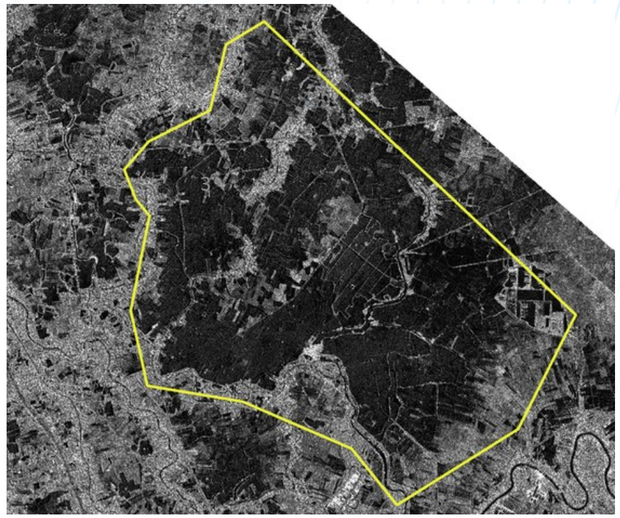
Exploring flood mapping in Thailand







25/09/2026



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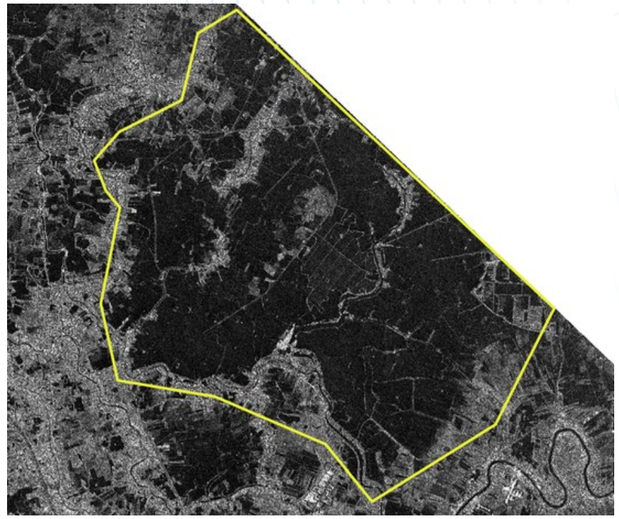

27/09/2026

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A Case study in Che Tao





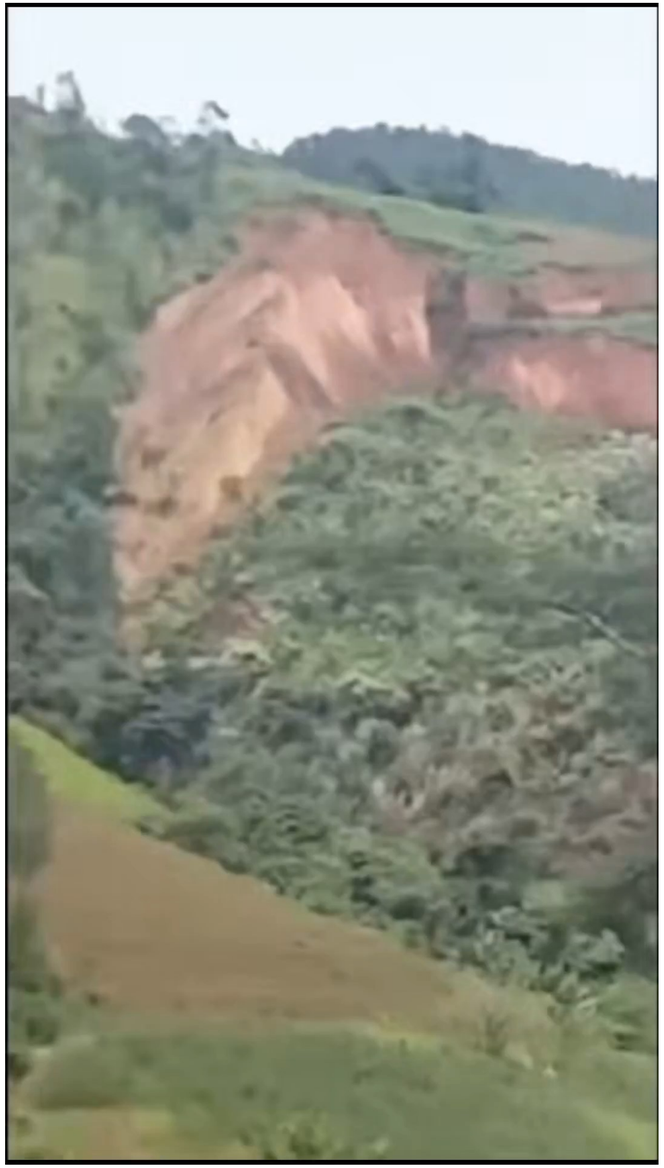


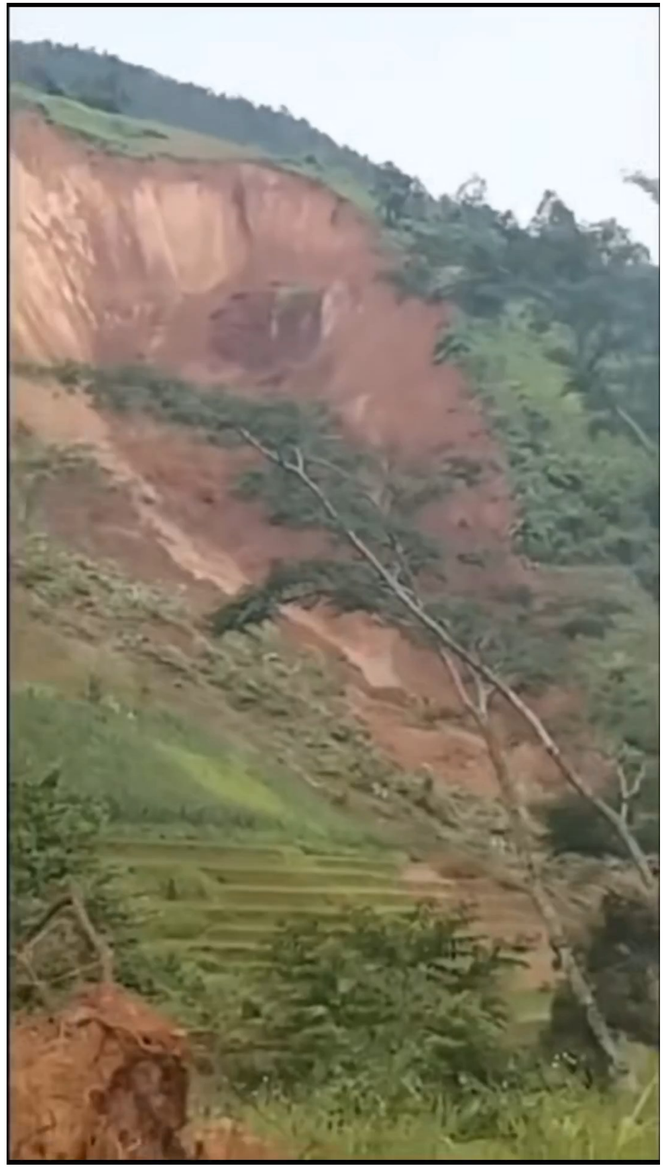




Che Tao’s July landslides cut off communities, then how do we know who needs help first, and how to reach them?

Landslide Footage in Vietnam [1]





Landslide Impact on Local Mobility [2]









Landslide Impact on Local Mobility [3]



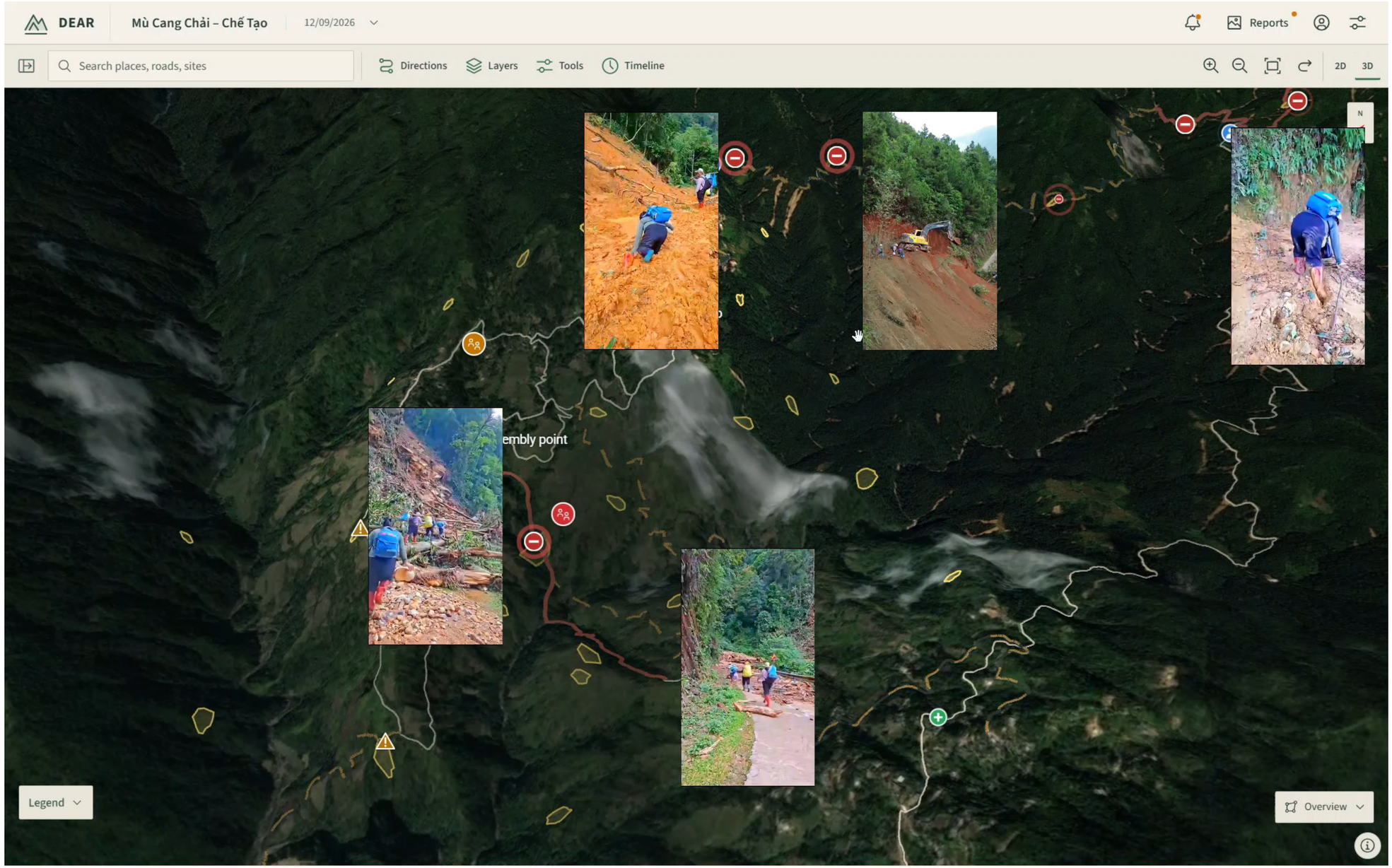








Landslide Impact on Local Mobility [3]



Community Landslide Cleanup Efforts [4]



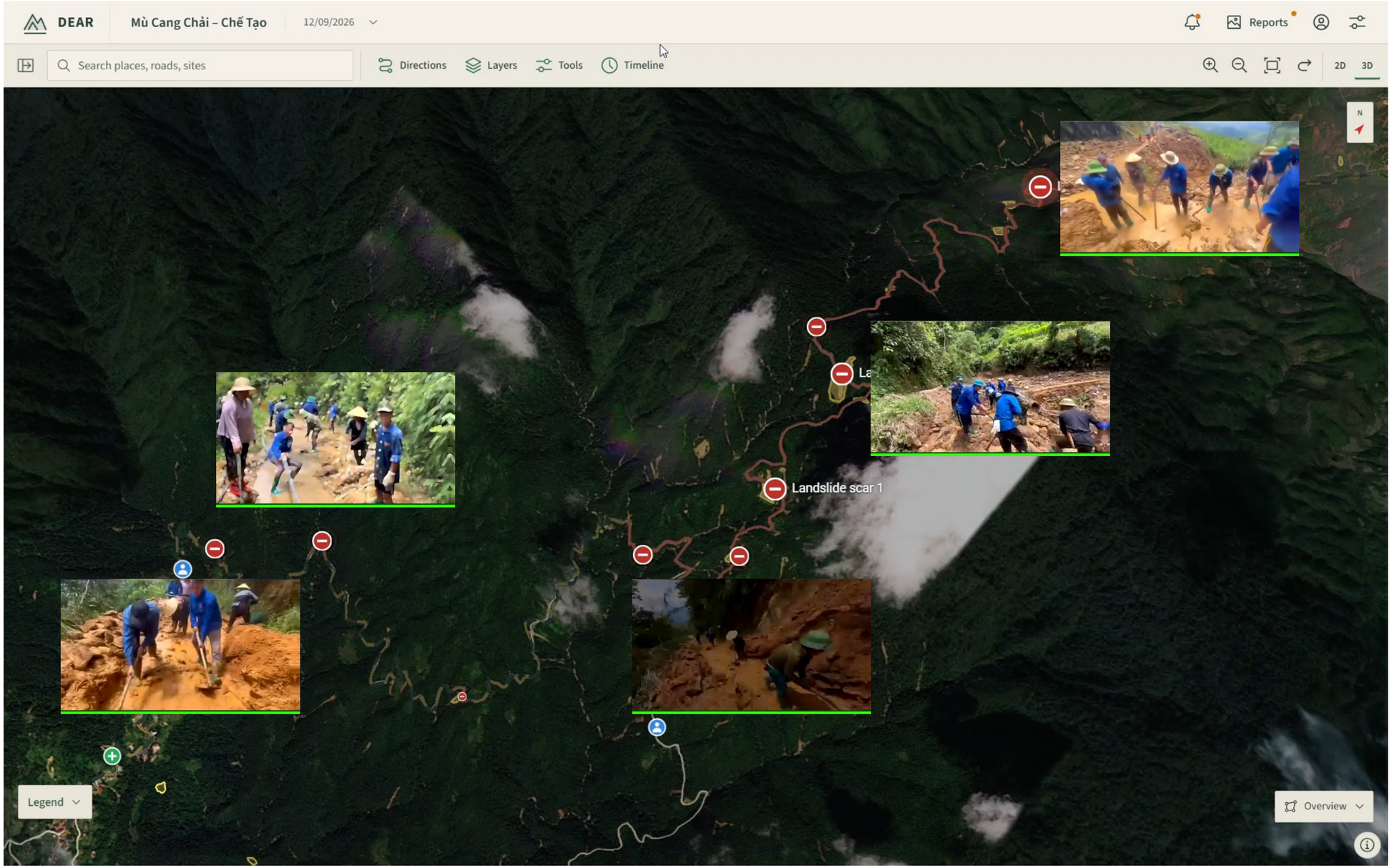








Community Landslide Cleanup Efforts [4]



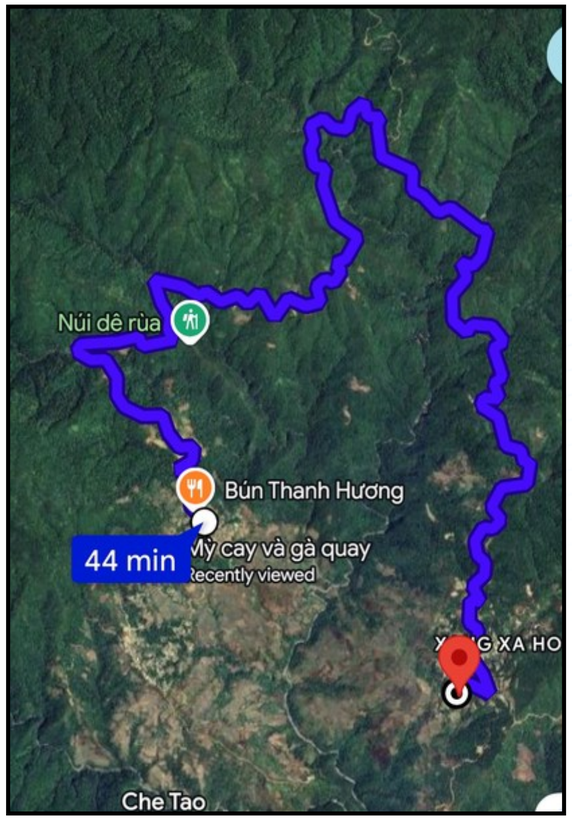
What is DEAR?

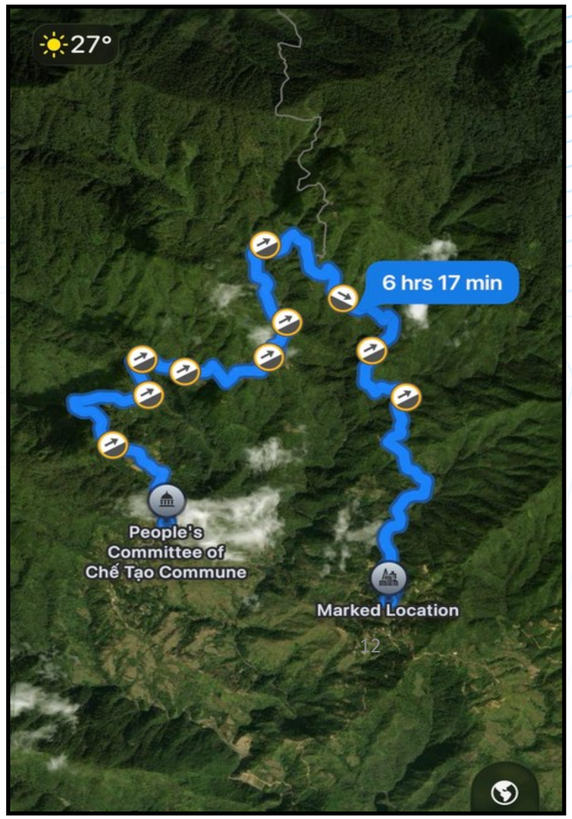
DEAR solution

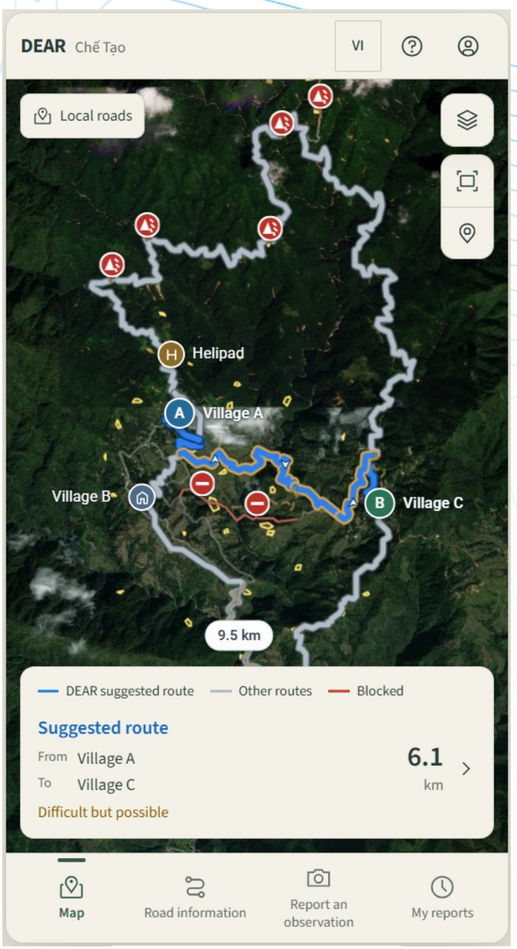


DEAR turns satellite analysis into clear route maps, showing which roads are passable, which are blocked, and where hazards like landslides affect the route.

What is DEAR?



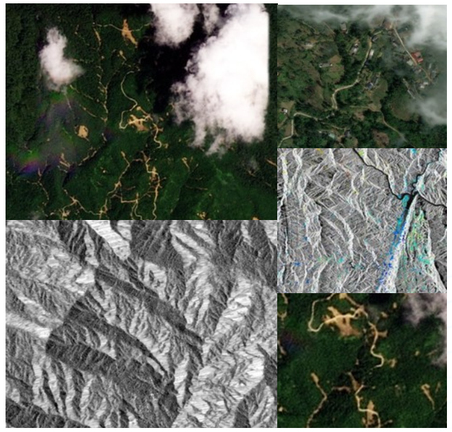




United Nations | Accessibility Guidelines for UN Websites

Our plan is not to build a whole new map system,
but to build a solution that combine existing maps with latest satellite data

What is DEAR?



Satellite Data Provider

SAR Data & Acquisition Updates

Data & Tasking Requests

DEAR

Disaster **E**mergency **A**ssistance & **R**esponse

Official Data & Response Guidance

Rescue Priority Maps

The Viet Nam Meteorological and Hydrological Administration

Vietnam Disaster and Dyke Management Authority

Authority-Approved Alerts & Routes

Local Reports & Help Requests

GREEN SM

The residents

Why DEAR?

For Communities

- **No new app:** Access guidance through existing map platforms.
- **Trusted updates:** Receive timely, verified information.
- **Emergency support:** Request help and access authority-approved routes.



For Governments

- **System integration:** Improve existing disaster management systems.
- **Verified information:** Support monitoring, reporting, and response decisions.
- **Faster search & rescue coordination:** Mobilize police, fire, and medical services where needed.
- **Smarter satellite tasking:** Use AI to accelerate data requests and identify cost-efficient options.



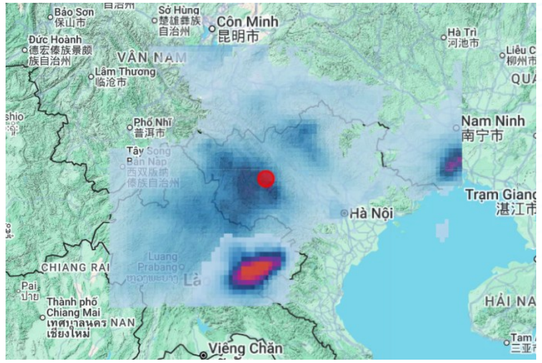
For Business Partners

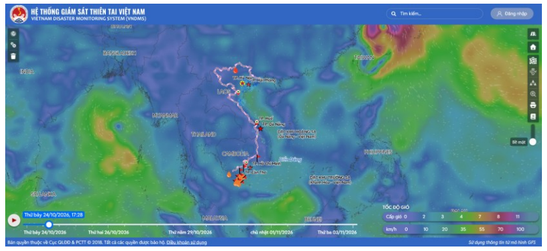
- **Added value:** Connect satellite data and map services to disaster response needs.
- **More opportunities:** Generate new demand for satellite data and tasking.



How DEAR works?

Step 1: DEAR autonomously detects unusual conditions to identify areas that need closer monitoring.





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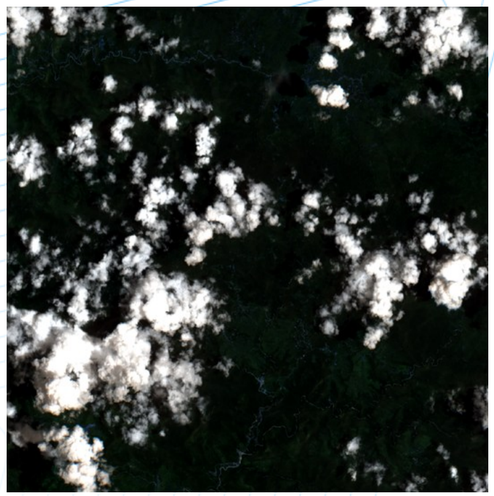
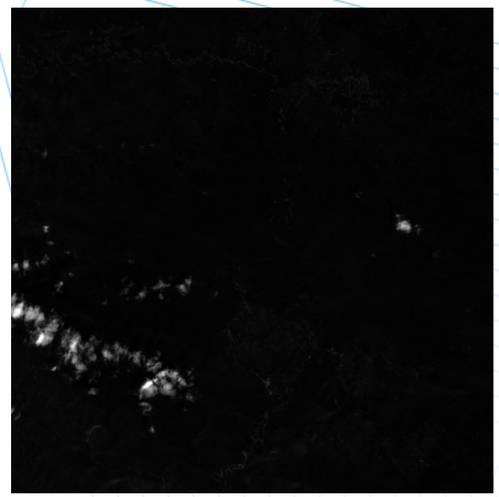
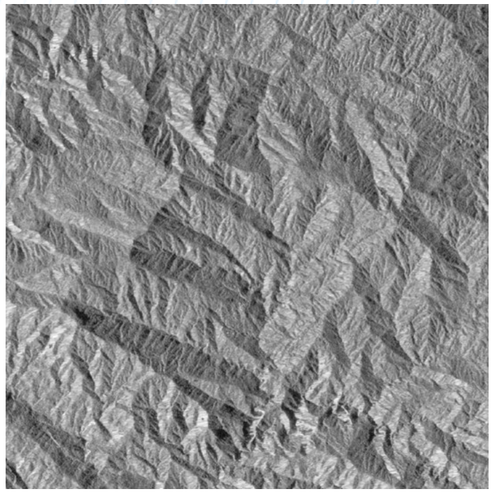










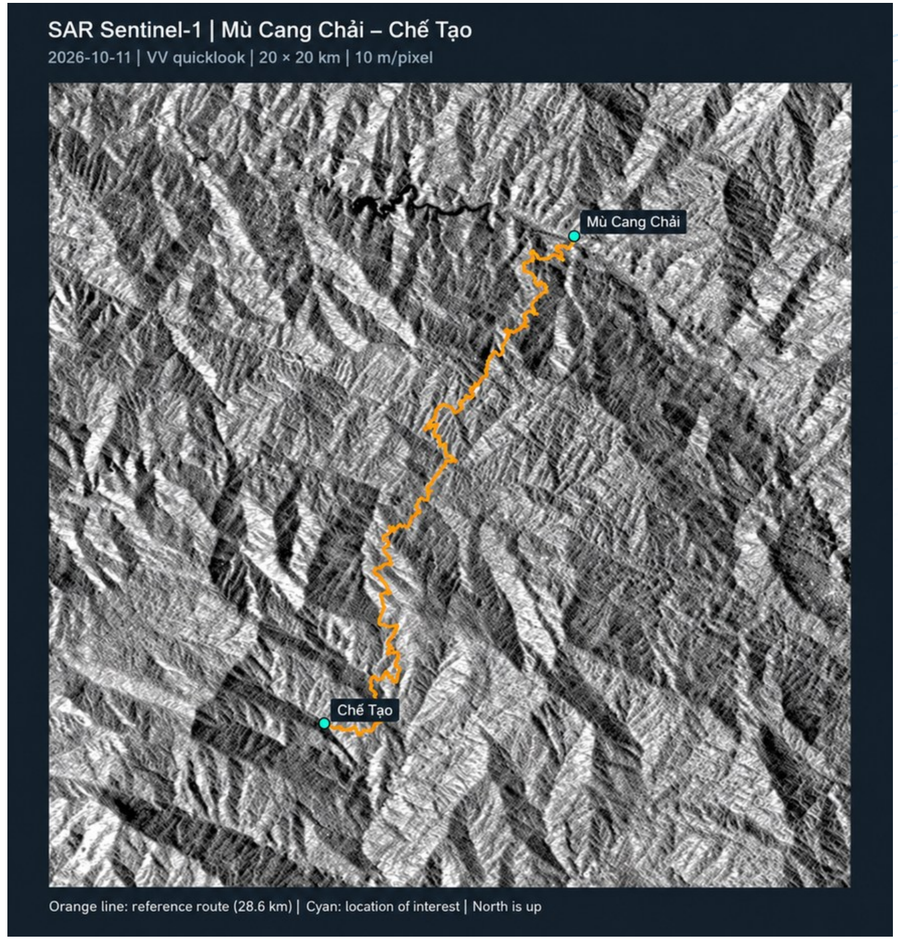
Pre-event

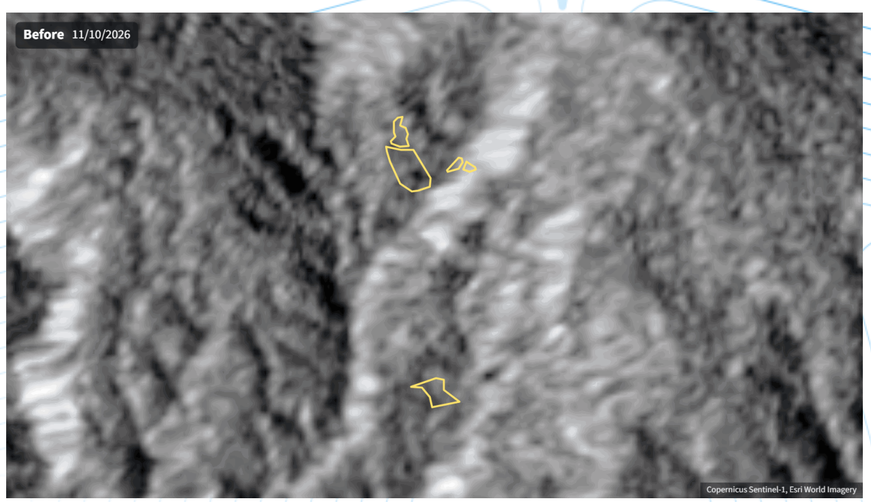
During event

Post-event

How DEAR works?

Step 2: DEAR analyses existing data, typically at lower resolution, to prioritize areas for satellite tasking.







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We observed changes in the satellite data at the mapped landslide location.

How DEAR works?

Step 3: DEAR suggests a list of satellite tasking options for authorities to select and approve.

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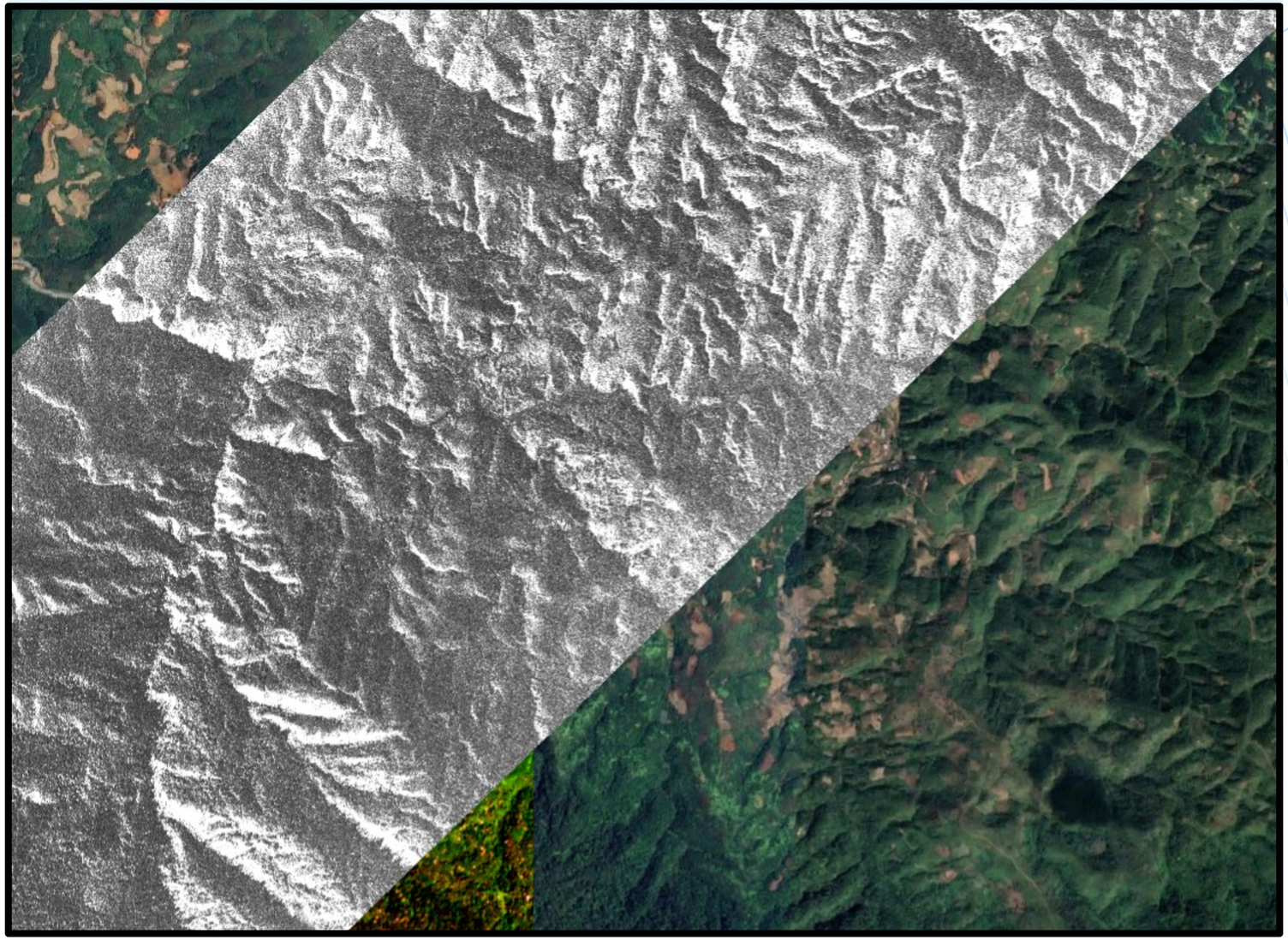
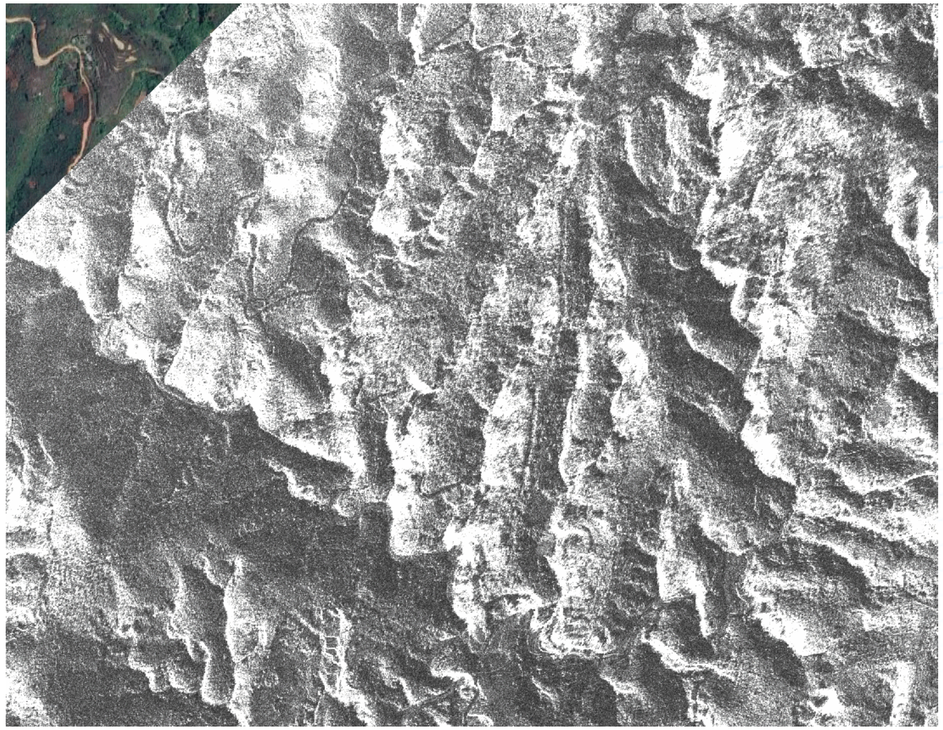


How DEAR works?



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Step 4: DEAR analyses the newly acquired data to assess affected areas and road accessibility.



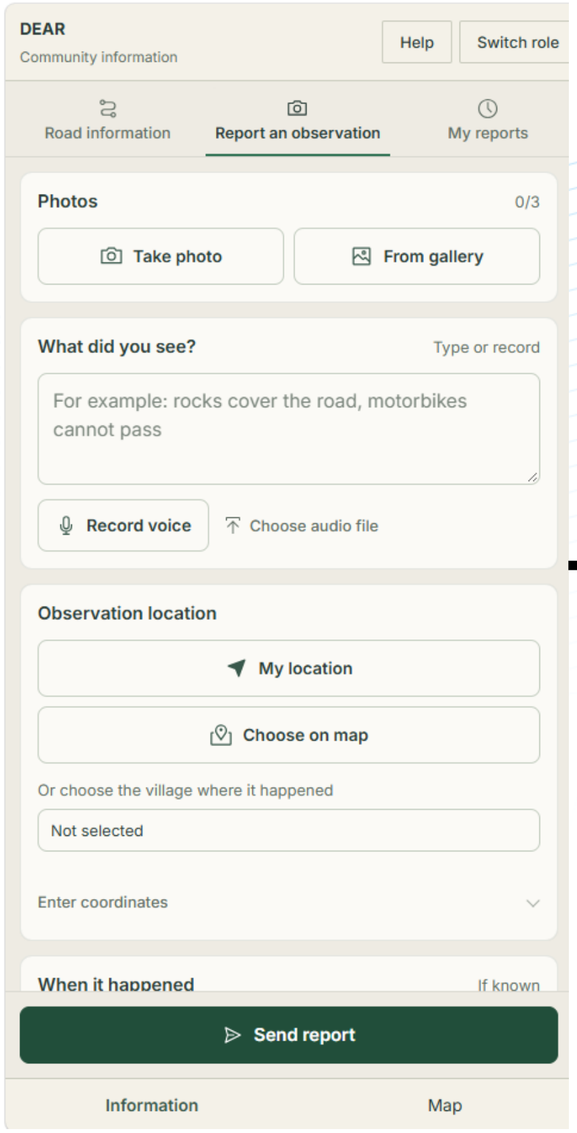
Step 5: DEAR maps potentially safe routes and sends them to local authorities for review and decision-making.

Higher-resolution data reveals finer.

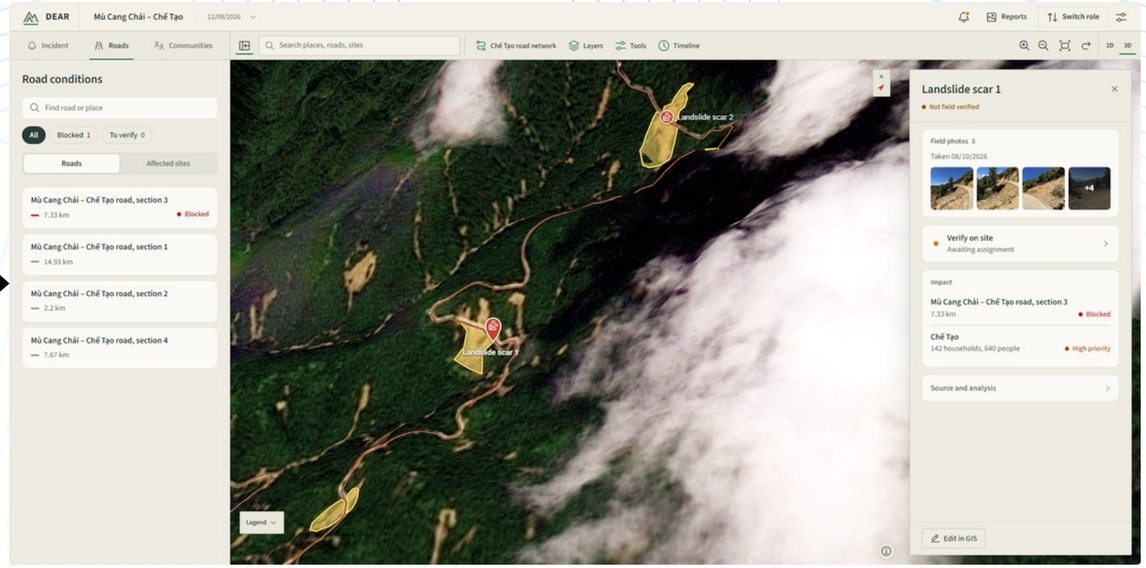
How DEAR validate information from local resident?







Mobile app for resident



Web app for administration (Huy)

VNeID is Vietnam's official digital identity app, connecting citizens with public services.

Satellite observations supported by field evidence in Che Tao





We mapped the landslide locations documented during our field survey.

Limitation: điểm giải đoán được ở trên sentinel + landslide scar

Che Tao as an inspiration for future development





Photos shared with participants' consent.

DEAR development roadmap



USD 579.75M

funded by **Kind Heart Foundation** for natural disaster and social development



VIETNAM | **SOUTHEAST ASIA** | **WORLD**

Foundation
Kind Heart Foundation commitment for a better life for everyone

12/2027
Pilot in 6 disaster-prone provinces

6/2028
Nationwide deployment in Vietnam

6/2029
Pilot in another SEA country

6/2030
Full-scale deployment in another SEA country

2031+
Platform for disaster-prone countries worldwide

Powered by Vingroup's international partnerships and investments

Expected impact for local response







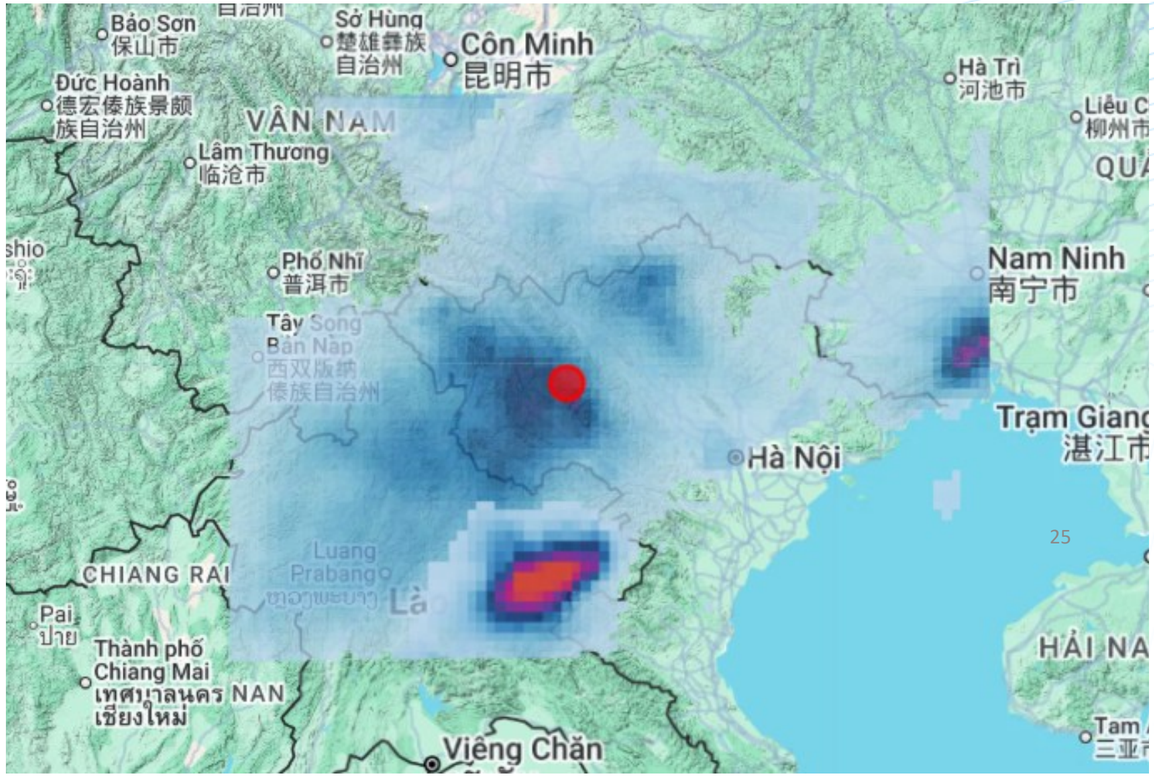


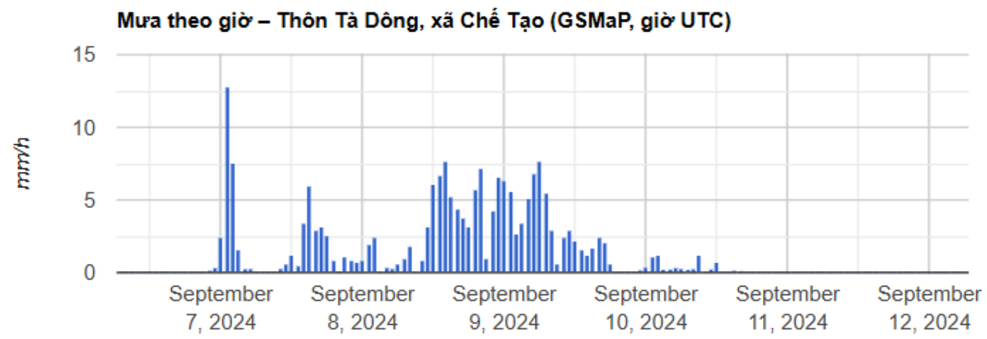
Faster response.
Better access.
More lives saved.

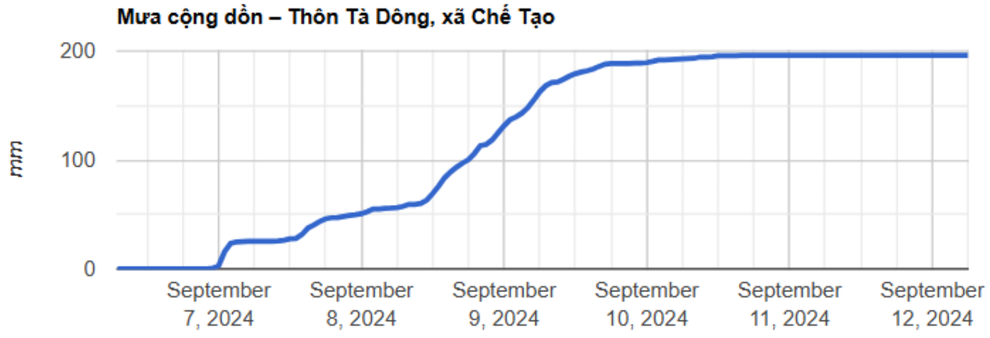
Photos shared with participants' consent.

THANK YOU

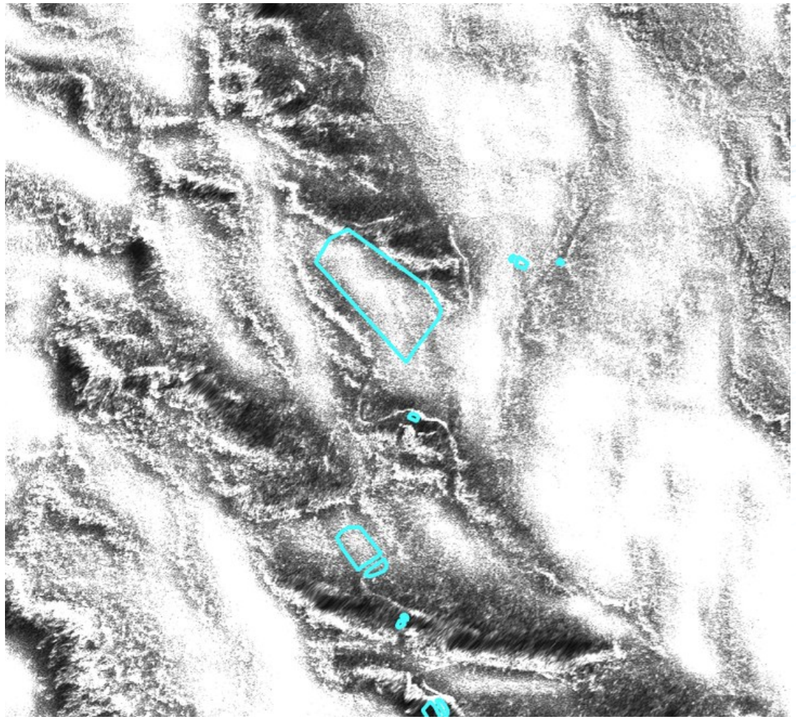
GSMAP showing rainfall quantity in Che Tao one week before the hazard

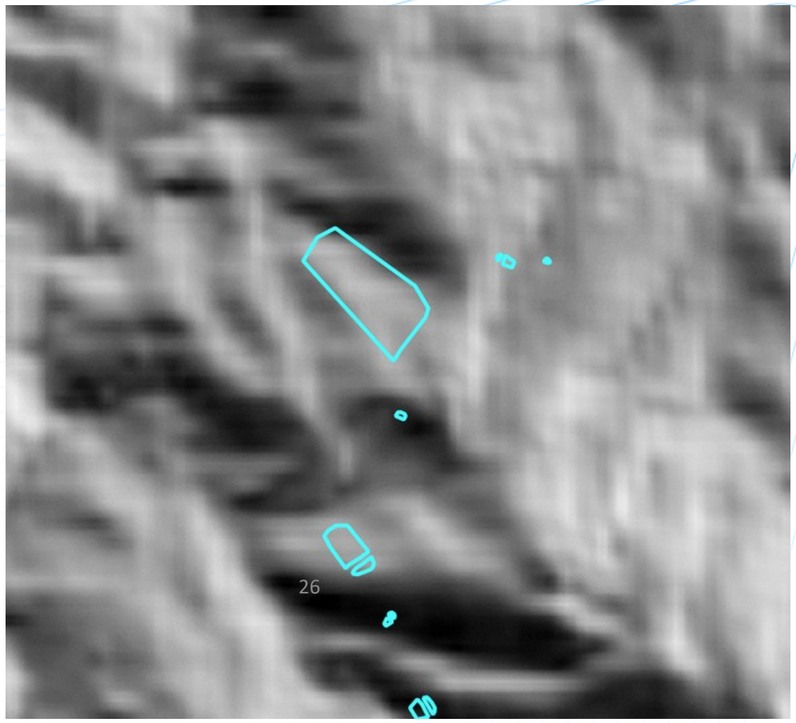


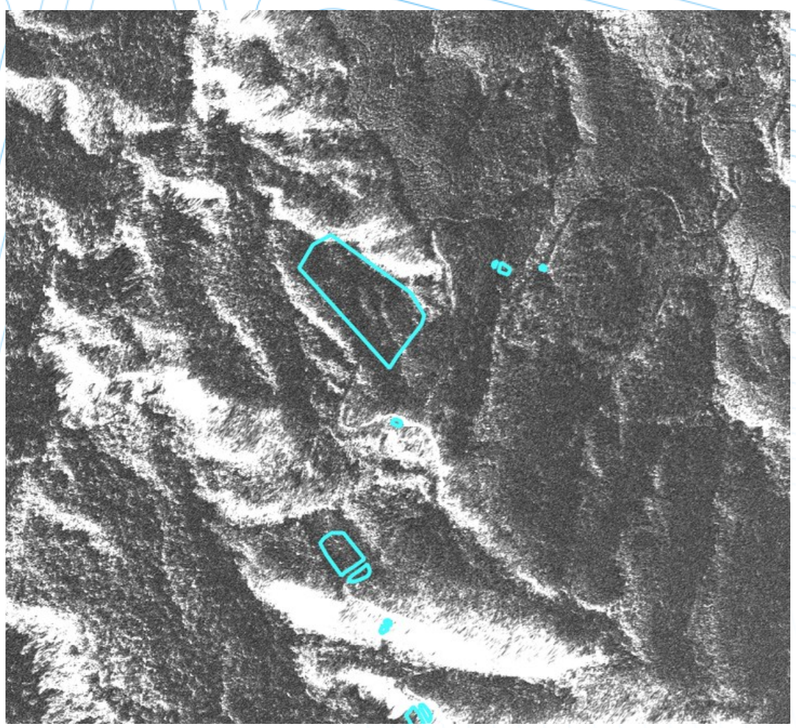




APPENDIX







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Higher-resolution data reveals finer detail within the mapped landslide areas.

APPENDIX



The only road to reach Che Tao commune from Mu Cang Chai, with over 200 landslide spots, ranging from small to large.

APPENDIX



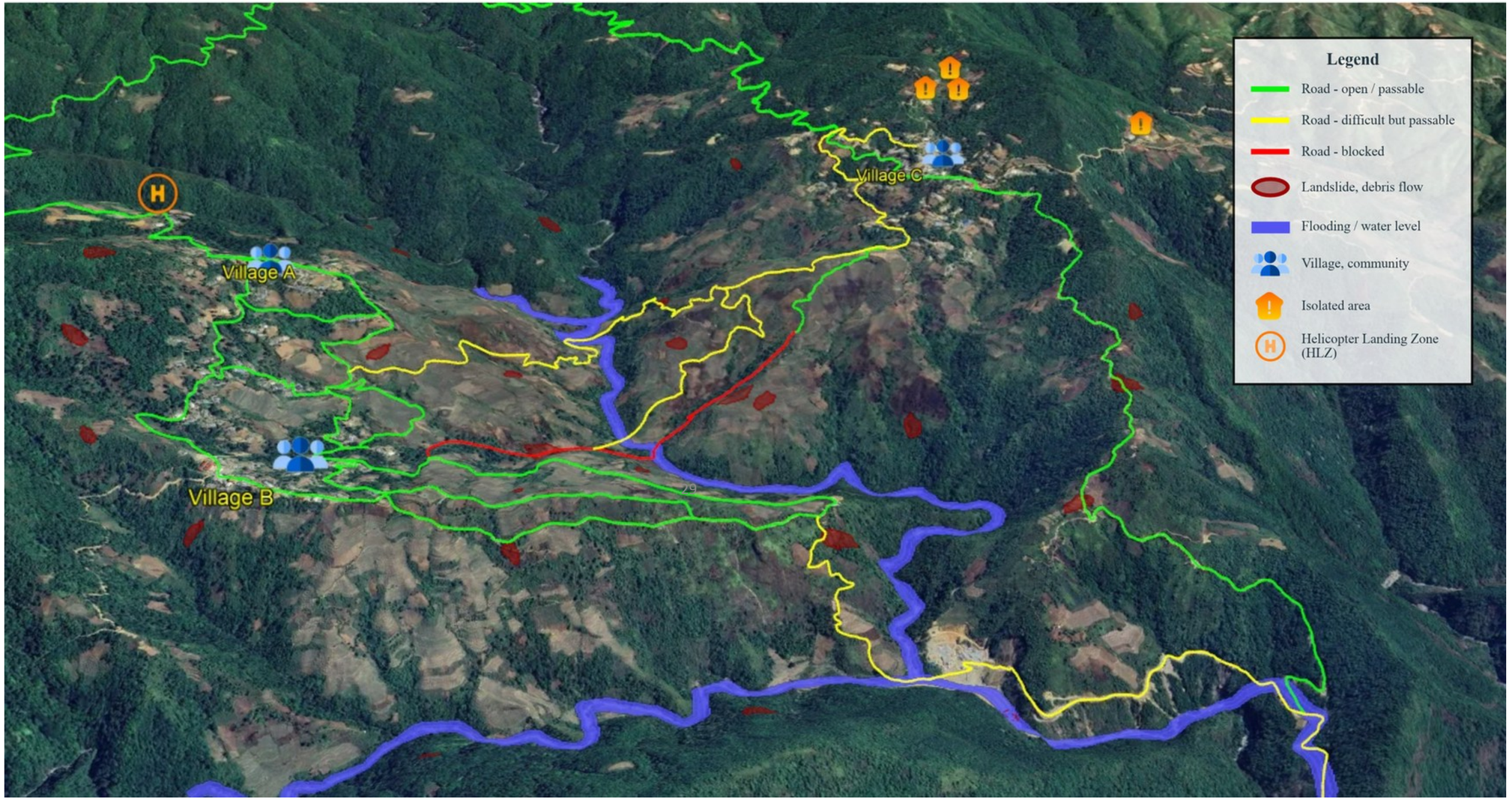




We saw the damage to homes. We heard residents' experiences. We learned about local response challenges.

Photos shared with participants' consent.

Figure 2: Rescue Priority Map



APPENDIX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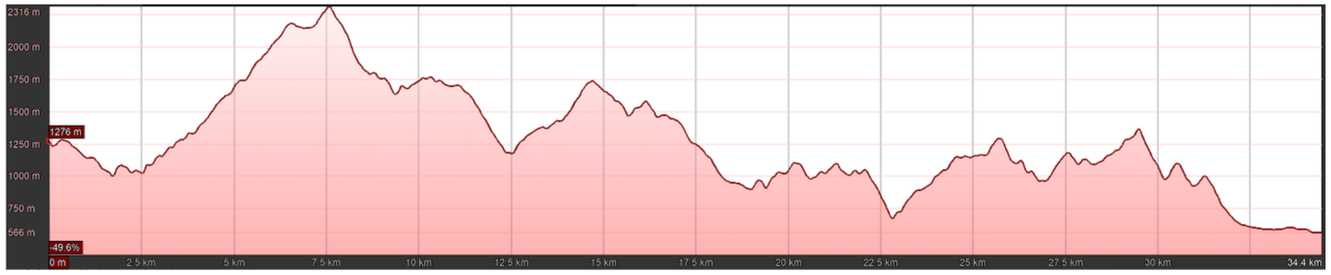
PlanetScope 1/9, 12/9/2026 © Planet Labs PBC, Imagery © Esri, Maxar, Earthstar Geographics, and the GIS User Community, © OpenStreetMap

APPENDIX


Than Uyen
1276 m
0 m
-49.6%
Image © 2026 Airbus
Image © 2026 CNES / Airbus
Image © 2026 Maxar Technologies




2316 m
2000 m
1750 m
1500 m
1276 m
1250 m
1000 m
750 m
566 m
-49.6%
0 m
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22.5 km
25 km
27.5 km
30 km
34.4 km

