

INTRODUCTION

Damage Assessments

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1-2 SENTENCE FRAMING

In recent armed conflict, we have observed an **increase in attacks on critical civilian infrastructure** (e.g., hospitals, WASH, displacement camps).

In order to best serve displaced civilian populations and civilians caught in armed conflict, we need to know the **locations of damage**, as well as the **extent and severity** of damage. This task is well-suited to **VHR EO** data.

Results of EO-based damage analyses are used by IGOs (e.g., ICRC, UN) and INGOs (e.g., Oxfam, Amnesty International, Human Rights Watch).

TIMEFRAMES & URGENCY

There are two distinct time horizons on which EO-based damage analyses can be carried out:

- 1) **Rapid damage mapping**
 - a) Historically conducted by REACH, UNOSAT, journalists, etc.
 - b) Quickly highlight areas of severe damage in high intensity conflict-affected areas
- 2) **Long-term investigations**
 - a) Human rights investigators and academics
 - b) Support justice & accountability mechanisms and redevelopment / recovery efforts

STAKEHOLDERS

- Analysts & humanitarian decision-makers in:
 - humanitarian & human rights INGOs
 - local NGOs / civil society
 - IGOs
 - IFIs (e.g., World Bank)
- Academic researchers who:
 - support ongoing humanitarian efforts
 - conduct peer-reviewed research for years after cessation of hostilities
- Journalists
 - Public-facing where NGOs / IGOs cannot be
- Humanitarian mappers
 - OSM
- Civilians affected by conflict

THE DECISION CHALLENGE

THE SITUATION: Myanmar

WHO IS AFFECTED?

Following a military coup in **2021**, the military junta has attacked various minority groups across the country, especially in Rakhine, Karenni, and Shan States. Civilian infrastructure, including housing and whole villages, have been burned and civilians displaced. Other armed actors are also active in country, complicating the situational awareness picture and making attribution/linkage difficult.

WHAT ARE THE DATA NEEDS?

Humanitarians need to identify:

- 1) where the **ethnic violence** is taking place,
- 2) which **villages** have been attacked,
- 3) how many **structures** have been destroyed/burned, and
- 4) approximately how many **civilians** have been displaced, both internally and externally (e.g., to Bangladesh). Planning for early recovery (e.g., shelter needs) is of primary importance.

THE DECISION CHALLENGE

WHAT DECISIONS NEED TO BE MADE?

- How to protect and support vulnerable populations
- How to ensure safe passage from armed conflict-affected areas to safe areas
- How many resources and what type of resources are needed (e.g., shelter, WASH infra, healthcare)
- What is the estimated rebuild cost to rebuild
- How to determine *when* is safe for civilians to return

WHY ARE THEY DIFFICULT WITHOUT THIS DATA?

- Areas are hard to reach due to security on the ground and mistrust of any local data collection
- Area affected is very large; impossible to achieve goals without EO

HOW WOULD SATELLITE IMAGERY BE USED?

- Impact and change detection of conflict on infrastructure and the environment
- Building-level damage assessments and estimation of number of structures (e.g., housing) damaged or destroyed
- War crimes prosecutions, seeking accountability for damage to protected infrastructure (e.g., healthcare facilities)

IMPACT, RISKS & GOVERNANCE QUESTIONS

WHAT CHANGES

WITH OPEN IMAGERY

- Better AOI coverage (equitable attention paid to less newsy conflicts); more accessible **VHR** imagery, which is often needed for building-level damage assessments
- Civilians can now access recent VHR imagery where before it would have been impossible
- AI/ML building damage assessments, although use with caution due to under- and over-estimation
- Better civilian protection because local/regional NGOs and diaspora can monitor military movements; anticipatory action to protect civilians prior to violence
- Accountability: national and international actors can access archives of imagery showing damage and potential violations of IHL/ICL/IHRL over the long-term for judicial accountability.

POTENTIAL RISKS

- misinterpretation / inaccurate understanding resulting in misallocation of resources. Missing areas that have been affected.
- Targeting of undamaged or partially damaged infrastructure
- Publishing without legitimacy (actors without organizational affiliation) / increasing individual vulnerability - citizen gets questioned by authorities
- Misinformation / Disinformation / Risk of political manipulation

GOVERNANCE QUESTIONS

- ? *Who should have access — open to all, tiered, or restricted to vetted users?* Vetted users.
- ? *How should tasking be prioritized — who decides which crises get imaged first?* Representation to cover conflicts that have been deprioritized by VHR EO companies in their collections
- ? *What safeguards are needed — consent, anonymization, access controls?* Risk to individuals due to governmental internet traffic monitoring. Implied consent if impending attack by armed actors. Systematized risk mitigation plan based on HOT's framework as an example. Best practices document that implements the CS Principles.
- ? *Who decides — and how are affected communities included?* Inclusion via local/regional NGOs, e.g., MIMU HDP NEXUS 5W (local humanitarian coordination)
- ? *What accountability mechanisms are needed if something goes wrong?* Suggest creating plan in case of misuse or abuse of CS data. Dedicated liaison.