

INTRODUCTION

Epidemic Response Mapping

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1-2 SENTENCE FRAMING

When epidemics strike fast-growing settlements, **up-to-date base maps** are as critical as case data: responders cannot find, count, or reach communities they cannot see.

Volunteer mappers rapidly turn **fresh VHR imagery** into **buildings, residential areas, and roads** in OpenStreetMap - but only if the imagery license permits **derived works**.

Results are used by field responders (e.g., MSF, WHO, health ministries) and information managers via HDX.

TIMEFRAMES & URGENCY

Two time horizons drive imagery needs in epidemic response:

1) Rapid base mapping

- a) Tasking within days of declaration; existing basemaps are 2-4 years old
- b) Map data delivered while it can still guide the response.

2) Sustained response & preparedness

- a) Repeat coverage as the outbreak spreads to new health zones
- b) Open archives support preparedness and AI/ML training

STAKEHOLDERS

Field responders:

- MSF, WHO, national & provincial health authorities
- logistics & supply teams

Information managers:

- IMWG GIS, MapAction, HDX users

Humanitarian mappers:

- HOT, OSM DRC & OSM Uganda communities

Imagery providers:

- Vantor, Satellogic

Communities in affected health zones

THE DECISION CHALLENGE

THE SITUATION: DRC Ebola outbreak

WHO IS AFFECTED?

In May 2026 WHO declared DRC's 17th Ebola outbreak a public health emergency of international concern, centered on Ituri Province and spreading to North Kivu and Uganda, with nearly 250 confirmed deaths by late June.

WHAT ARE THE DATA NEEDS?

Responders need to identify:

- 1) where people actually live (buildings, residential areas, settlement points),
- 2) how settlements have grown since the 2022-2024 imagery behind open basemaps,
- 3) road access and constraints for supply delivery, and
- 4) health facilities and points of care.

THE DECISION CHALLENGE

WHAT DECISIONS NEED TO BE MADE?

- Where to deploy vaccination, case-finding, and community engagement teams
- How to route supplies into affected health zones given road and access constraints
- Which settlements need surveillance as the outbreak spreads
- Where population has grown or moved since the last basemap or census

WHY ARE THEY DIFFICULT WITHOUT THIS DATA?

- Small structures need full-color imagery at 70cm GSD or better; open basemaps date from 2022-2024
- Insecurity keeps contributions remote: local volunteers map online to mitigate risk

HOW WOULD SATELLITE IMAGERY BE USED?

- Volunteers trace buildings, residential areas, and roads into OSM through the HOT Tasking Manager
- OSM data exported to HDX, scoped to activation AOIs, for MSF and partners
- Imagery hosted openly on OpenAerialMap so everyone works from the same picture

IMPACT, RISKS & GOVERNANCE QUESTIONS

WHAT CHANGES

WITH OPEN IMAGERY

- Common Space brokered **Satellologic** tasking within days of the declaration; Satellologic released 50cm-1m scenes under **CC BY-NC 4.0**
- Open scenes republished on **OpenAerialMap**, alongside 18 open-data scenes from Vantor
- Everyone works from the same recent imagery: field teams, remote volunteers, and local OSM communities
- Up-to-date base data flows to HDX for the whole response, not just one licensed organization
- Open archives persist for preparedness and AI/ML training, instead of disappearing behind per-crisis agreements

POTENTIAL RISKS

- CC BY-NC alone does not permit tracing into OSM (ODbL), and Planet's terms prohibited digitization outright - the imagery's main intended use
- Ad hoc access (Box links, per-user sanctions vetting) slows response and can exclude local actors
- Local OSM communities can be the last to learn that imagery was released over their own areas
- Detailed imagery of outbreak-affected communities risks stigmatization and misuse amid conflict

GOVERNANCE QUESTIONS

- ? *Who should have access — open to all, tiered, or restricted to vetted users? Open by default; vetting excluded local responders.*
- ? *How should tasking be prioritized — who decides which crises get imaged first? A standing surge mechanism with community-requested AOIs, not one-off broker relationships.*
- ? *What safeguards are needed — consent, anonymization, access controls? License terms must explicitly permit derived works in OSM; Vantor's OSM tracing clause is the model.*
- ? *Who decides — and how are affected communities included? OSM DRC and Uganda communities help set tasking and release priorities.*
- ? *What accountability mechanisms are needed if something goes wrong? A clear channel to affected communities and a plan for responding to misuse.*