

Satellite imagery processing and analysis

Problem statement

How can non-technical survey processes be enhanced with spatial indirect evidence collated from new technologies, namely satellite imagery, for more efficient and reliable non-technical survey outputs, minimizing the risk of overlooking hazardous areas and misallocating resources?

Key challenges include the lack of knowledge, understanding, and trust in the capabilities of satellite imagery processing and analysis.

Key factors/requirements

- Defining indirect evidence: establish criteria such as land-use changes, vegetation anomalies, and battlefield indicators.
- Data accessibility: ensure access to high-resolution satellite imagery and spatial data.
- AI integration: use machine learning to automate evidence detection and streamline analysis.
- Ground validation: conduct field verification to ensure model reliability.
- User training: provide training on geographic information systems (GIS) and satellite analysis for technical professionals and awareness for non-experts.
- System integration: align with practices in national mine action standards, IMSMA Core, and desktop assessments.
- Global standards: develop best practices and standards to support adoption.

Proposed response

Creation of a technical guide for identifying indirect evidence of contamination using satellite imagery, defining clear methodologies, data sources, thresholds, and workflows, all supported by AI-driven automation for analysis. The guide will be tested and refined through case studies, ground truthing, and stakeholder feedback. Integration into national mine action standards will be promoted to ensure alignment with operational practices.

Road map for implementation

- Phase 1 – Guide development: create a comprehensive guide with criteria, data sources, thresholds, and AI-driven methodologies.
- Phase 2 – Validation: validate through case studies, ground truthing, and stakeholder feedback for reliability.
- Phase 3 – Dissemination: share the guide via training for GIS/remote sensing professionals and awareness campaigns.
- Phase 4 – Integration: integrate into existing international and national mine action standards, IMSMA Core, and desktop assessments.