



Strengthening evaluation  
effectiveness and impact

# Impact of mine action on development outcomes

Insights from a Geospatial Impact Evaluation in Afghanistan

George Bowles and Tom Gillhespy, Itad



# Introduction

## Summary

Insights from an on-going geo-spatial study to better understand links between mine action and longer-term development outcomes in Afghanistan. The study is funded by the UK's FCDO as part of its Global Mine Action Programme 2 (GMAP2). Itad have partnered with AidData to conduct the study, with support provided by the Directorate of Mine Action Coordination (DMAC)

## Format

Short presentation, followed by opportunity to ask questions

## Follow-up

We are running longer workshop in two weeks time to provide opportunity to discuss study in more depth (details to follow at end of presentation)

# Background

**Itad** are providing monitoring and evaluation services to the UK's Global Mine Action Programme 2 (**GMAP 2**)

Under **research component** of contract, objective has been to assess current evidence base for mine action and support sector to enhance that evidence base

## Initial literature review revealed:

- Few high-quality academic studies into the relationship between mine action and developmental outcomes and little high quality, peer reviewed statistical analysis
- In particular, very limited existing quantitative analysis
- Innovative work conducted by Chiovelli *et al*, which utilised analysis of Night Time Lights (NTL) to assess influence of landmine clearance on economic development in Mozambique

Itad partnered with AidData to conduct a geospatial study which seeks **to assess local socioeconomic impacts of landmine clearance over the past two decades in Afghanistan**. The study aims to:

- A. Contribute to evidence base on mine clearance and spatial development
- B. Build on the previous NTL study, using additional data sources, to test the potential of GIS-based approaches as a means for the sector to further understand it's impact

# Study approach

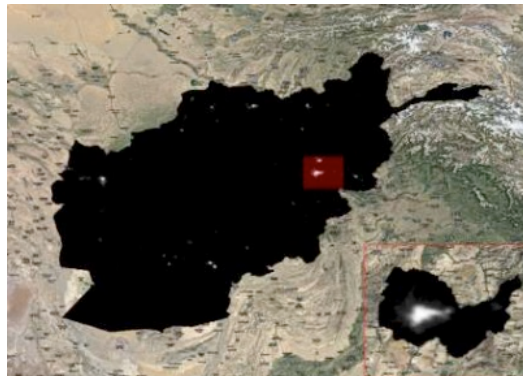
**Geospatial impact evaluation (GIE)** is an innovative approach for studying causal impacts of development interventions, utilising data about interventions (i.e. land release) plus available sources of historical outcome data, such as remotely sensed satellite data and large-scale surveys

## Data sources

- MAPA Geo-Data database of landmine hazardous areas and clearance dates.
- Nighttime lights (NTL) emission data as proxy of economic development
- USAID Measuring Impacts of Stabilization (MISTI) survey as measure of reported well-being, trust in government, and market access.
- Data on population levels and density
- Road network maps, to assess distance to roads and market access.
- Daytime satellite imagery to assess market access and changes to land use

## Analysis

Method called **difference in difference** allows us to estimate the causal impact of landmine clearance on areas that underwent clearance at a specific time by comparing their trajectories to the trajectories of localities where clearance did not take place



## Phase 1

Used NTL and other outcome data **the impact of releasing land on economic development, population growth, trust in government, self-reported wellbeing and market access**

## Phase 2

Combined daylight satellite imagery with classification and change algorithms **to investigate changes in land use following land release**



## Findings – Economic development

- **Strong evidence of a causal link between clearance of hazardous areas in Afghanistan and economic development**
- **Marked difference in economic gains for land released up to and after 2008.** Land released up to 2008 had no evident effect on economic development. By contrast, land cleared after 2008 led to a significant and substantial increase in economic activity
- Areas that showed significant economic increases after 2008 were more rural, less populated and had experienced slower preceding economic growth than those areas selected prior to 2008. In other words, the **greatest economic gains arose from those areas that were least developed at the time of clearance**

### So what?

- In line with findings from Mozambique study, provides important support for assumption of mine action's contribution to economic development
- Difference after 2008 may reflect the influence that approaches to prioritisation can have on long-term development outcomes

## Other findings



### Farmland

The study found **no evidence of a significant expansion of farmland as a result of clearance**

### So what?

- Reinforces understanding that land release supports putting out of use farmland back into use, rather than creating new farmland



### Satisfaction in government

Clearance found to be associated with an increase in satisfaction with district government, but with a negative effect on perception of how multi-level government effectiveness

### So what?

- Further research is required to test these findings and to understand the factors influencing them. Increased satisfaction in district government may reflect improved provision of services in the absence of landmines, improved access to pre-existing services, or improved local security, for example
- Findings should thus be treated cautiously, but do indicate the potential influence of mine action in this area

# Limitations

**NTL as a proxy indicator:** NTL studies are best suited to identifying changes in areas that are already electrified

- Implication is that use of NTL as proxy would most likely result in underestimation of impact on economic activity
- Study also used land use analysis to examine some aspects of economic development that would not be visible as NTL but was limited to identifying land use that changes or stays the same, rather than changes in productivity, for example

**Understanding population movements:** The study did not find any evidence of links between population movements and land release which is possibly due to limitations in the data

## **Utility of other data sets, and access to additional datasets**

- MISTI survey data was collected over a relatively short time frame making it hard to detect long term changes and narrowed the sample of clearance activity, meaning some findings inconclusive
- Unable to access a number of other potentially useful datasets such as International Organisation for Migration (IOM) data on flows of Internally Displaced Persons (IDPs) and refugees, and UNICEF data on health and education outcomes

# Implications and recommendations



## GIE and GIS-based research

- Study, and previous Mozambique study, has demonstrated value of these approaches – cost effective, can cover large areas and overcome access issues
- Additional data sources (high resolution imagery, health, education and population data) has potential to generate additional insights

**It is recommended that donors, individually or in partnership, support other studies**, using similar approaches in other geographical areas and additional data sources, as a cost-effective means of building the evidence base on mine action outcomes



## Other research

Study identified apparent change in the outcomes of mine clearance around 2008. This was around the time when Afghanistan submitted an extension request under the Ottawa Treaty

It is recommended that research be conducted **into changes in the way that clearance was prioritised in Afghanistan** and possible links to the findings of this study. Further research in Afghanistan could also **look at additional data sets**, such as IOM population movement data and UNICEF health and education data



## Policy and practice

Study supports expectation about the positive impact of clearance on economic development but faced limitations in terms of available data on land use

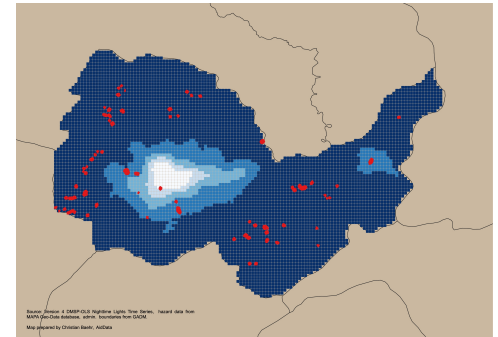
**The mine action sector should draw confidence from the findings of this study. Stakeholders should now explore ways to better complement these methods with the data collection resources it has available**

# Next steps

Itad, with AidData, will be **continuing the Afghanistan GIE study with a Phase 3** over the next year, with funding continuing to be provided by the UK's FCDO as part of its Global Mine Action Programme 2 (GMAP2)

**Phase 3** currently in early design phase, but will likely:

1. Continue to explore **impact of clearance on development outcomes** by utilising **additional data sources and analyses approaches**
2. Examine links between **mine action and community resilience**



We are holding **remote workshop on June 15<sup>th</sup>** to reflect in more depth on the study to date and its implications, and allow us to incorporate any feedback into the next phase. **We can circulate details for anyone who is interested in participating.** You can contact us at [george.bowles@itad.com](mailto:george.bowles@itad.com) for more info.

# Q&A

Any questions or feedback?



Thank you for listening.