DANISH REFUGEE COUNCIL

Research Report

March 2025

Mine Action and Livelihoods: Evidencing the Effects

The Danish Refugee Council (DRC) is a leading, international humanitarian displacement organisation, supporting refugees and internally displaced people across the globe. We work in conflict-affected areas, along the displacement routes, and in the countries where refugees settle.

We provide protection and life-saving humanitarian assistance and development and peacebuilding activities to ensure a dignified life for refugees, the displaced and displacement-affected people.

DRC was founded in Denmark in 1956.
Our vision is a dignified life for all displaced.

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On the cover page: Operator preparing for search, Iraq, 2023.

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DRC HMA team preparing for BAC operations Afghanistan, 2023.

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List of acronyms

APMBC	Anti-Personnel Mine Ban Convention
CCM	Convention on Cluster Munitions
CINA	Community in Need Aid
Danida	Danish Development Aid
DCA	DanChurchAid
DFID	Department of International Development
DG ECHO	Directorate-General for European Civil Protection and Humanitarian Aid Operations
DMA	Directorate of Mine Action
DMAC	Directorate of Mine Action Coordination
DRC	Danish Refugee Council
EO	Explosive Ordnance
EOD	Explosive Ordnance Disposal
EORE	Explosive Ordnance Risk Education
ERW	Explosive Remnants of War
FCDO	Foreign Commonwealth and Development Office
FGDs	Focus Group Discussions
FSD	Fondation Suisse Déminage
FSL	Food Security and Livelihoods
GFFO	German Federal Foreign Office
GICHD	Geneva International Centre for Humanitarian Demining
GMAP3	Global Mine Action Programme 3
HA	Hazardous Area
HDP	Humanitarian Disarmament and Peacebuilding
HH	Household
HI	Humanity and Inclusion
HMA	Humanitarian Mine Action
H2R	Hard-to-Reach
IDPs	Internal Displaced People
IHSCO	Health and Social Care Organization in Iraq
IM	Information Management
IMAS	International Mine Action Standards
IMSMA	Information Management System for Mine Action
INGOs	International Non-Governmental Organisations
KAP	Knowledge, Attitude, and Practice

KIIs	Key Informant Interviews
KOO	Kabul Orthopedic Organisation
LR	Land Release
MAC	Mine Action Centre
MAG	Mines Advisory Group
MATC	Mine Action Technical Cell
MCPA	Mine Clearance Planning Agency
MEAL	Monitoring, Evaluation, Accountability and Learning
NMAA	National Mine Action Authority
NMAC	National Mine Action Centre
NNGOs	National Non-Governmental Organisations
NPA	Norwegian People's Aid
NTS	Non-Technical Survey
QA	Quality Assurance
RMAC-S	Regional Mine Action Centre in the South
SHO	Shareteah Humanitarian Organisation
Sida	Swedish International Development Aid
SLF	Sustainable Livelihoods Framework
SOPs	Standard Operating Procedures
UN	United Nations
UNAMA	United Nations Assistance Mission in Afghanistan
UNMAS	United Nations Mine Action Service
UNMISS	United Nations Mission in South Sudan
UNOPS	United Nations Office for Project Services
USAID	United States Agency for International Development
UXO	Unexploded Ordnance
VA	Victims Assistance
WASH	Water, Sanitation, and Health
WRA	Weapons Removal and Abatement

Community members in Hesarak, Afghanistan, walking in the cleared area where an irrigation channel has been rehabilitated via a cash-for-work programme, 2024.

Executive summary

Funded by the Foreign, Commonwealth and Development Office (FCDO), and implemented by the Danish Refugee Council (DRC), this research project aims at generating evidence and extrapolate learning from ongoing and past Humanitarian Mine Action (HMA) initiatives to close the evidence gaps and establish the links between Mine Action outputs and outcome level changes, thereby informing a clear and more nuanced evaluation of how land clearance and explosive ordnance disposal contribute to peace, development and humanitarian objectives.

DRC's work covers all aspects of refugee issues based on humanitarian principles and human rights. Our overarching mission is to assist and protect refugees and to empower them towards a better future. DRC strives to provide sustainable solutions for refugees, displaced people and host communities coupled with the objective of enabling those we assist to live dignified lives. Humanitarian Disarmament and Peacebuilding (HDP) is one of DRC's four core sectors and it builds on over two decades of work in the sector under the Danish Demining Group identity. The sector relates to two specialised fields, Humanitarian Disarmament and Peacebuilding, that are interconnected and inextricably linked. In the short term, HDP works to reduce and prevent tensions and further conflict in situations of displacement and emergency. In the longer term, HDP promotes stability and durable solutions by addressing root causes of conflict both in the early recover and long-term stages. DRC is undertaking a review of its global theory of change and is designing integrated programme models, relying on the expertise of multiple sectors. The hope is that this research will further advance DRC's NEXUS[1] programmatic capacity as well as opportunities for integration of Mine Action into broader frameworks.

Relying on a desk and literature review as well as primary data collected through direct observation, household and online surveys, focus group discussions, satellite images and key informant interviews in Afghanistan, Iraq and South Sudan, this research attempts to unpack how clearance and explosive ordnance disposal lead to improved livelihoods, and how to measure this. A mix of traditional (qualitative and quantitative) and innovative data collection methods allowed us to triangulate the findings. For instance, satellite images show the impact on economic development, but don't say anything about the 'inclusive' or 'fair' nature of this development. Similarly, satellite imagery doesn't illustrate the decision-making process on the use of the released land. Mixing traditional and innovative data collection methods can therefore unlock opportunities for improved outcome measurement and assessment and inform better planning.

Data collected to answer the question **"Where and why there are gaps in evidence for causal linkage of HMA to livelihood outcomes and how best to fill them?"** reveal several key lessons. Civil society structures have highlighted a persistent focus on measuring outputs rather than outcomes. While some organisations are making progress, the overall measurement of livelihood outcomes remains limited. This is compounded by challenges such as lack of coordination, data integration and difficulties in using data for decision-making. Among National Mine Action Authorities and Centres, there is a strong interest in assessing the impact

1 The triple nexus is a proposition to deliver a comprehensive response, aiming to strengthen "collaboration, coherence and complementarity" between humanitarian, development and peace interventions "to reduce overall vulnerability and the number of unmet needs, strengthen risk management capacities and address root causes of conflict." Programming across the humanitarian-development-peace pillars and creating synergies and common goals already in the short-term emergency response, have a positive impact on longer term change. It can help expedite the achievement of durable solutions, avoid protracted displacement, stimulate spontaneous recovery activities within the affected population, including host and receiving communities, and help prevent renewed displacement, DRC Humanitarian Development Peace Nexus, Policy Position Paper, March 2022

of Mine Action. However, these efforts are often underfunded and inconsistent due to resource and capacity constraints. Similarly, most donors believe that the Mine Action community does not collect enough information to demonstrate the causal links between Mine Action activities and socio-economic outcomes. Only 22% of donors are satisfied with the data currently available. The aggregated analysis of primary data suggests that a combination of factors, including strategic gaps, lack of coordination, funding shortfalls and capacity constraints contribute to the sector's persistent focus on outputs. While there is a growing recognition of the need to measure the socio-economic impact of Mine Action, the above-mentioned barriers hinder progress. The sector needs greater clarity on how to quantify, measure and assess outcomes, improve data systems, and link Humanitarian Mine Action with broader humanitarian, peace and development initiatives. When considering which outcomes should be measured as a priority, it is important to recognise that ideal outcomes are context specific. This is confirmed by the diversity of preferences expressed by Mine Action actors and donors through key informant interviews and surveys. However, some interesting trends can be observed. Overall, return to cleared areas, increased agricultural development and productivity, and an increased feeling of safety are among the most frequently cited desired outcomes by both Mine Action actors and donors. Similarly, key informant interviews indicate that NMAAs and MACs are paying, or would like to pay, attention to economic returns following Mine Action, including changes in agricultural development. Acknowledging this, it appears that there's room for coordination with relevant government ministries and cluster lead agencies to achieve greater impact.

To answer the research question **"How and why changes in livelihood occur because of LR and EOD spot tasks**?", it is crucial to recognise that the outcomes and impacts of HMA activities are not entirely within the control of HMA stakeholders and are unlikely to be attributed to a single intervention or the clearance of a single task site. This complexity is even more prominent in areas where the same HMA organisation has operated for years or where other NGOs have conducted clearance and EOD. In such areas, the local economy adapts to the presence of HMA operators, influencing supply and demand dynamics, such as the sale of marking poles or the availability of low-skill labour at camp sites. Consequently, disentangling these benefits and establishing direct causal pathways between clearance activities and broader economic development is challenging. Other factors, including policy changes, conflict dynamics, social changes, and larger economic shifts, also affect outcomes and impact measurements. While the perception of land safety is essential for its productive use, attributing changes in outcomes solely to the clearance of a single task site would be misleading. Therefore, the analysis focuses on the contributions of clearance and EOD activities at specific points in time and limits observations to the locations where clearance occurred. Satellite imagery prior to contamination was also used to indicate the original land use where available.

For this analysis, it is also worth considering that the research was conducted in protracted conflicts where people and communities mainly live on subsistence economies. Findings might be different in urban environments and this needs to inform any elaboration of outcome indicators as well as timeframe. For instance, for this study, we analysed contexts where agriculture is a common productive use of land that has been cleared, and productivity is often tied to seasonal variations. This should be adequately factored in when defining timelines since a post impact assessment conducted at the wrong time might skew responses. To address and analyse this complexity, the researchers decided to use the Sustainable Livelihoods Framework (SLF) to propose a possible way forward for outcome measurement and assessment.

The analysis of survey responses from Afghanistan, Iraq, and South Sudan – for instance - provided insights into how residents perceive security and social dynamics following land release. This helped answer the sub-research question: *How has the release of lands affected the feeling of safety and social dynamics at the community level?* The SLF demonstrates that such benefits also impact social capital and, consequently, the livelihoods of community members. Findings also suggest that feeling of safety on the

use of land is a shared value and behaviour, that contributes to strengthening relations of trust and mutual understanding and, ultimately, to livelihoods. Further analysis highlighted how marginalised groups, such as women, the elderly, children, and people on the move, benefit from land release.

The role and engagement of NMAA and NMAC in integrated efforts and their ability to coordinate and prioritise effectively vary widely across the three countries. Their influence and position within the national institutional architecture are not static, and different institutional arrangements exist in each context. What emerges, however, is a strong need for coordination, strategic alignment, technical and financial resources and capacity.

While socio-economic outcomes and changes were observed across countries in all areas cleared, the research highlights the complexity of attributing outcomes solely to HMA activities due to various influencing factors. It emphasises the need for a nuanced understanding of clearance and EOD contributions, considering broader socio-economic dynamics, and the importance of effective coordination and funding to enhance Mine Action initiatives. Despite this, there is room for collective action, with knowledge sharing and retention as crucial, since "*you can't do what you don't know how to do.*" This presents an opportunity to design and implement a tool to measure HMA related outcomes, primarily for HMA operators, but in close coordination with state agencies and line ministries to strengthen strategic engagement and coordination to integrate HMA objectives with development, humanitarian, and peace plans. Details on the proposed toolbox and specific recommendations are at the report's end.

DRC deminer on a clearance task, Iraq, 2023.

1. Introduction

1.1. Project overview

DRC Humanitarian Disarmament and Peacebuilding (HDP) was awarded a contract for a total amount equal to £103,197 to conduct research on "the specific, measurable impact that the clearance of landmines and other explosive remnants of war (ERW) has upon beneficiary livelihoods".

UK funding for Mine Action saves lives, prevents injuries, releases land for productive use, informs further development programming, and contributes to security and stabilisation outcomes. The Global Mine Action Programme 3 (GMAP3) is the main programme for the UK's Mine Action efforts: mine clearance, explosive ordnance risk education (EORE) and capacity development in 10 countries across 3 continents. The objective of the research project is to generate evidence and extrapolate learning from ongoing and past Humanitarian Mine Action (HMA) initiatives to close the evidence gaps and establish the link between Mine Action outputs and peace, development and humanitarian outcomes, thereby informing a clear and more nuanced evaluation of GMAP's achievements and strengthening the value for money.

The geographical focus of this research project includes Afghanistan, Iraq, and South Sudan. The choice considers countries covered by the GMAP3 Business Case and those where DRC maintained a minimum presence of five years to have temporal depth and identify causal links from outputs to outcomes, as well as DRC's current capacity to access the same areas.

To collect primary data, the Research Team organised two in-country research trips to Afghanistan and Iraq. The purpose of these visits was to facilitate Key Informant Interviews (KIIs) with the Directorate of Mine Action Coordination (DMAC) in Kabul, the Directorate of Mine Action (DMA) in Baghdad and the Regional Mine Action Centre in the South (RMAC-S) in Basra. Further to these KIIs, the Lead Researcher and Deputy Lead Researcher have had meetings with representatives from UNMAS, national and international NGOs, local authorities and local communities. The visit to Iraq also allowed for the organisation of face-to-face training prior to the deployment of enumerators to conduct the survey. In Afghanistan, the survey was also preceded by a training session, which was then conducted both in person and over the phone, due to logistical considerations to access the affected communities as well as to minimise risks for women. In both Afghanistan and Iraq, DRC researchers prepared and conducted Focus Group Discussions (FGD) in close collaboration with national DRC staff.

To ensure alignment of data collection efforts, the Research Team organised KIIs online with the National Mine Action Authority NMAA-of South Sudan and other national and international Mine Action operators. As for data collection, the Research Team relied on strong HDP and MEAL teams who, following an online training prior to the deployment, conducted the survey and FGDs in Magwi, South Sudan.

Through face-to-face and online training sessions, the DRC Research Team shared information about the project, discussed its goals, and provided instruction on methodology and ethical standards. By sequencing data collection efforts consecutively (Iraq, 8 - 14 September; Afghanistan, 20 September – 5 October; South Sudan 28 October – 8 November 2024), the team ensured that each phase informed the next, allowing for adjustments to improve research practices while still enabling the aggregation and comparison of results across countries.

1.2. Objectives and research questions

Since the adoption of the Mine Ban Treaty and the Convention on Cluster Munitions, there has been broad agreement that explosive ordnance (EO) contamination "obstructs economic and social development[2]" and that national ownership and

2 Preambles of the "The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction" adopted in 1997 and the Convention on Cluster Munitions adopted in 2008.

Mine Action are needed to tackle the plight. Yet, 25 years after the adoption of the treaties, the Mine Action sector still lacks a clear causal evidenced pathway that shows how outputs (land release and removal of EO) lead to outcomes (improved livelihoods) and ultimately positive impact (safer and resilient communities).

This research builds on the acknowledgment that livelihoods can be interpreted in different ways[3] and that they are the product of a wide range of assets, systems and processes that can interact with each other and are themselves not static. Further, the research recognised that these elements are linked to social cohesion and peace outcomes. These assumptions laid the foundation to structure the analysis around two key research questions and connected sub-questions (see the table below).

Main research question	Sub Research Question	Sources and tools to collect evidence
Where and why there are gaps in evidence for causal linkage of HMA to livelihood outcomes and how best to fill them?	**What evidence is being gathered now, what would be useful to gather in future?**	**Primary data:** KIIs, donor survey **Secondary data:** project reports, Landmine and Cluster Munition Monitors, Mine Action Review, NMAA documentation (if available).
	Which factors at the national (AFG, IRQ, SSD) and international level have led to a persistent focus on outputs and have hindered these gaps from being closed?	
	What kind of livelihood outcomes should be measured and assessed as a priority?[4]	**Primary data:** KIIs, donor survey
How and why changes in livelihood occur because of Land Release and EOD spot tasks?	**How do land release and EOD spot tasks benefit the intended target group?**	**Primary data:** KIIs., FGDs, household survey **Secondary data:** project documents, satellite imagery
	How has the release of lands affected the feeling of safety and how have social dynamics[5] changed at the community level?	**Primary data:** FGDs, household survey **Secondary data:** Pre-clearance impact assessment, post clearance/endline impact assessment, satisfaction surveys, project documents, NMAAs records if available.
	To what extent and how do marginalised groups benefit from the release of land/ EOD spot tasks?	**Primary data:** FGDs, household survey **Secondary data:** Pre-clearance impact assessment, post clearance/endline impact assessment, satisfaction surveys, project documents, NMAAs records if available.
	How do the coordination and integrated actions of NMAA/NMAC and state agencies[6] lead to the clearance of land and EOD spot tasks, which in turn improves livelihoods through effective tasking and prioritisation?	**Primary data:** KIIs. **Secondary data:** literature review.

3 Strictly looking at its economic dimensions or also considering the feeling of safety and freedom of movement that can stem from land release.
4 Please, note that this was an additional research question added at a later stage of the research, when the Research Team decided to add the donor survey.
5 Social dynamics for this research, refer to the relationships among community members, including their commitment to help one another, cooperation among families, power relations among them, and ultimately social cohesion at community level.
6 Including at Capital and regional/municipal level.

DRC deminer conducting a task site briefing in Magwi, South Sudan.

The first set of questions explores where and why there are gaps in evidence on the causal linkages between HMA and livelihood outcomes, and how best to fill them. A thorough desk analysis, combined with findings from Key Informant Interviews (KIIs) with NMAAs/MACs and NGOs, Focus Group Discussions with EO-affected communities, and a donor survey, allowed us to understand why the Mine Action sector has had a persistent focus on outputs, looking at the evidence collected over the past decades available and the structural factors that have maintained the status quo for over 20 years. We also asked a range of respondents to identify what kind of outcomes should be achieved and monitored after clearance and demining. Answering these questions allowed us to take stock of the position and views of the Mine Action stakeholders and to identify areas for improvement for measuring impact and establishing causal linkages.

The second set of questions explored how and why changes in livelihoods occur as a result of mine clearance and EOD operations. Although its influence is inevitably limited by broader contextual factors, the Mine Action sector plays an important role in achieving outcomes. Based on this, we explored how land release and EOD spot tasks benefited the intended target groups in past DRC projects, how marginalised groups were consulted during clearance/EOD activities, to what extent they benefited from the release of land, and whether and how their sense of security and social dynamics changed. These questions allowed us to unpack and begin to identify the factors that may interact with land release to promote or hinder the realisation of livelihoods following clearance. The importance of collaboration between the HMA sector and development, peace and development actors led us to explore how coordination between Mine Action actors and development and humanitarian actors can help achieve and measure results.

Community Liaison Manager on a cleared area which has been cultivated by community members in Magwi, South Sudan, 2021.

2. Background and context

2.1. Literature review

If we look at "the specific, measurable impact that the clearance of EO has upon beneficiary livelihoods", we find limited literature. Quantitative cost–benefit analyses (Gibson et al. 2007; Cameron et al. 2010, Benini et al. 2003) offer some useful insights into the economic benefits of landmine clearance. Cameron et al. (2010), for instance, employed contingent valuation surveys to estimate the value of statistical life in rural Cambodia, demonstrating that the economic benefits of humanitarian landmine clearance exceed the costs. In our view, solely adopting this approach raises significant ethical questions as it assigns a monetary value to human life. Another quantitative approach includes Landmine Impact Surveys, which provide a baseline for output measurement, but not an indication of household-level outcomes and impacts (GICHD 2005). Beyond these traditional analysis, alternative quantitative approaches to investigate the impact of land clearance have relied instead on the use of satellite data (Bowles et al. 2022; UNMAS & Samuel Hall 2021; Chiovelli et al. 2018). Bowles et al. (2022) utilised a geospatial impact evaluation (GIE) approach in Afghanistan, highlighting the significant economic development of post-clearance. Similarly, Chiovelli et al. (2018) assessed the impact of demining in Mozambique, revealing that demining modestly boosts local economic activity.

These quantitative studies provide valuable findings, but their focus on economic parameters alone means they are often limited in scope and do not capture behavioural changes, or broader impacts on livelihoods, including feelings of safety and community cohesion. Furthermore, the time spans covered by most of these studies often did not allow insights into longer term effects. Such limitations compromise their ability to produce compelling evidence of the broader effects of Mine Action.

Short term qualitative studies provide in-depth analysis of specific cases but are not easily applied globally (Ikpe and Njery 2022; Ounmany 2021; Durham et al. 2015; Nedergaard 2014; Paterson et al. 2013). One notable example is a study from Durham et al. (2016) in Laos. Employing a realist evaluation approach, the researchers utilised the sustainable livelihoods framework[7] to examine how UXO clearance affects various livelihood assets (Durham et al. 2016). Through in-depth interviews and focus group discussions with community members and officials, the researchers found that UXO clearance significantly improved safety, agricultural productivity, and overall well-being. Moreover, a number of broader socioeconomic factors, their influence on impact as well as the extent to which they are sustained were identified. These included roads and irrigation systems, enhanced market access and boosted economic opportunities as well as institutional policies and practices, such as centralised decision-making, or agroclimatic patterns. This study highlights that the process of change from programme inputs to land use and outcomes is not an unambiguous, one-way progression. Despite documenting the breath of positive impact of Mine Action on livelihoods, these studies remain relatively few, are not widely validated, and are predominately conducted in relatively stable settings, making it difficult to generalise their findings to other contexts. Whilst the initial findings and flexibility of the sustainable livelihood framework point to its potential to be widely applied, this alone does not suffice to fully address the challenges of proving the broader long-term effects of Mine Action.

These qualitative insights form the foundation for mixed methods approaches, which, in turn, have tried to reconcile tensions between quantitative and qualitative methods (Durham et al. 2011). Some studies have started with qualitative research to develop culturally relevant

7 This approach, developed by the Department of International Development (DFID) in 1999, allows for a structured examination of how Mine Action outputs influence livelihood-related outcomes.

quantitative tools, ensuring that such tools reflect local perceptions and values (Durham et al. 2011). Such approaches have often involved community surveys, key informant interviews, and focus group discussions to gather data on various aspects of livelihoods affected by landmine clearance (Paterson et al. 2013; Durham et al. 2011; Harpviken et al. 2003; Andersson et al. 1995). Findings from these studies have shown significant improvements in infrastructure, safety, and community participation following clearance (Durham et al. 2011). However, some research has highlighted the complex social dynamics that can result from demining operations, such as the displacement of people and potential conflicts over land and resources (Harpviken 1999). The mixed results and methodological discrepancies across these studies further underscore the challenges in monitoring and documenting clear links between Mine Action and livelihood improvements.

In parallel to academic efforts, practitioners (UNMAS & Samuel Hall 2021; UNDP & GICHD 2017; Downs & Fox 2016; Moust & Vingne 2014; Mulli & Paterson 2012) have investigated the issue but obtained limited insights on if and how outcomes are achieved. These attempts stem from the rise and push for strengthening nexus, reporting against Sustainable Development Goals outcomes (and integrated programming as a modality for humanitarian endeavours and connected studies (NRC 2023, among many others). Despite these efforts, the literature on HMA remains sporadic, and demands more evidence (O'Brien 2022, Garbino 2019; Ounmany & Andriesse 2018; Durham J. et al. 2016).

With this literature review and through experience, the DRC Research Team has drawn multiple conclusions about the challenges related to evidencing the effects of Mine Action:

- The team concluded that there is still a significant focus on outputs rather than outcomes. In HMA, despite efforts from many in the sector, the primary focus of most land release efforts is measured in square metres cleared rather than what the cleared land is used for and how it impacts peoples' livelihoods. Changing the measurement lens to better understand the qualitative use and how this is influenced by other factors, rather than pure square metres, will open up for new insights and better programming.
- This focus is evident in both academic and practical approaches to mine action. Harpviken et al. (2003) highlight a slow shift from focusing on technical, quantitative outputs to addressing socio-economic impacts and human needs. However, subsequent evaluations, such as those by Paterson, Pound, and Ziaee (2013), suggest that many mine action programmes still prioritise measuring outputs over assessing socio-economic impacts. This discrepancy highlights the need for more comprehensive evaluation frameworks that can effectively link mine action activities to broader livelihood outcomes.
- Mixed results and methodological discrepancies in the literature highlight the challenges in establishing clear causal links between mine action and livelihood improvements.

2.2. Country profiles and desk review

Afghanistan

Afghanistan is a state party of both the Anti-Personnel Mine Ban Convention (APMBC) and the Convention on Cluster Munitions (CCM) and, with a legacy of decades of conflict, the country has one of the highest levels of explosive hazard contamination in the world, which requires an immediate and comprehensive response. According to the latest Cluster Munition Monitor, the estimated cluster munition remnant contamination (as of 31 December 2023), is small (less than 10km2)[8]. However, the anti-personnel landmine contamination is massive, with the national database estimating 176.33 km2 contaminated[9] at the end of 2023. According to the Landmine Monitor, civilians pay the toll of this massive contamination. Over the period between 2011 and 2021, Afghanistan recorded 17,057 casualties from EO, equal to 26% of global casualties, making it the leading country for EO fatalities.

According to the same source, Afghanistan also received 60% less funding in 2023 compared to 2022. In the context of declining international funding, the Directorate of Mine Action Coordination (DMAC) and, in general, the coordination body, has faced challenges that have had significant consequences. The disruption of the Information Management System for Mine Action (IMSMA) meant that between August 2021 - October 2023 new information was not entered in the system on a regular basis, and that newly identified hazards were not included in the planning and prioritisation process, thus continuing to pose a risk to safety. While the database has since been updated, the immediate impact on data collection, analysis and sharing is clear. Lastly, the Landmine Monitor report, indicates that more than 1,000 casualties were recorded each year between 2018 and 2021 while 2022 witnessed a sharp decrease in recorded casualties from 1,074 (in 2021) to 301 due to delays in recording during the takeover of the Taliban. DMAC official figures, albeit slightly different, show a similar trend[10]. In 2023, the number went up again to 651 casualties recorded[11].

In Afghanistan, DRC has conducted operations under HDP (initially DDG, until the transition in 2021) sector since the late 1990s. Following the regime change in 2021, DRC expanded HMA operations in areas previously inaccessible due to active conflict, making HMA even more relevant as people tend to go back to their areas of origin. Cognisant that Humanitarian Disarmament and Peacebuilding programmes don't happen in a vacuum, as conflict-affected communities have a wide range of priorities and needs that extend beyond addressing the threat caused by explosive weapons and armed violence, DRC Afghanistan is currently undertaking specific efforts to increase impact through the implementation of recovery programmes in hard-to-reach (H2R) areas following clearance operations. This has facilitated access to water for agricultural use, as well as mitigated the impact of flash floods through the implementation of low-tech earthworks. The aim is to support the resumption and expansion of agricultural activities, create job opportunities, and strengthen community resilience to climate change. Ultimately the goal is to shift towards long term programming and to transition towards resilience building with a strong focus on climate adaptation.

The desk review of project documents from Danida, ECHO and Sida from 2018-2023 reveals strong joint planning and interventions across sectors in Afghanistan. With a focus on emergency programming and H2R areas as well as the use of various donor funds to complement interventions, DRC has implemented joint assessments, Cash-for-Work programmes and Water, Sanitation, and Health (WASH) interventions to maximise clearance related outcomes. In Parwan and Kabul provinces, which were visited for the purpose of this research, these integrated efforts have been documented via case studies that demonstrate close community engagement and capacity building to

8 Cluster Munition Monitor 2024, *https://backend.icblcmc.org/assets/reports/Cluster-Munition-Monitors/CMM2024/Downloads/Cluster-Munition-Monitor-2024-Web.pdf*

9 Landmine Monitor 2024, *Landmine-Monitor-2024-Final-Web.pdf*

10 Private Advocacy note Localization and Humanitarian Mine Action (HMA) in Afghanistan: Steps required to strengthen locally led responses. "Without you, we are incomplete. And without us, you are not complete, Danish Refugee Council, November 2023.

11 Landmine Monitor 2024, *https://backend.icblcmc.org/assets/reports/Landmine-Monitors/LMM2024/Downloads/Landmine-Monitor-2024-Final-Web.pdf*

ensure social cohesion and conflict mitigation to identify community-level safety and development priorities.

Beyond case studies, project documentation outlines several key outcomes focused on improving safety, socio-economic conditions, and sustainable livelihoods in conflict-affected areas. The log frames specifically highlight outcomes such as improved safety and socio-economic conditions, reduced risks of casualties and injuries, and enhanced sustainability of livelihoods through economic empowerment. To measure and assess these outcomes, HMA teams cooperate closely with the Monitoring, Evaluation, Accountability and Learning (MEAL) unit and use various indicators, including the percentage of community members reporting improved economic conditions due to land clearance, perceptions of safety, and increases in income levels among participants in economic recovery programmes.

As per national Standard Operating Procedures (SOPs), Afghanistan has comprehensive Hazard Area forms combined with completion reports/handover certificates that predominantly focus on formal characteristics of the land and are signed by community development committees and local authorities. Through the alignment of assessment forms and processes, this has allowed for monitoring and evaluating the satisfaction of some of the project outcomes mentioned above. In turn, annual reports provide insights into the progress and impact of mine action activities. For instance, DRC's clearance efforts in the East Region of Afghanistan have successfully released over 3 million square meters of land, benefiting more than 10,000 individuals by reducing the risk of explosive ordnance and improving access to cleared land for productive use.

A specific example from the Sejawand village (Longar province) further illustrates the comprehensive approach taken to assess the impact of mine clearance in Afghanistan. Before the intervention in the village, a baseline survey was conducted to understand the social and economic conditions of the population, their interactions with contaminated land, and their access to basic services. Following the clearance activities, an endline survey was conducted, revealing that 84% of respondents felt that mine clearing work had significantly benefited the community, with 82% reporting a sense of safety in daily activities. Additionally, 82% of respondents reported using the cleared land for various purposes, including grazing, agriculture, and resource collection, showing the positive impact of the intervention on both safety and livelihoods.

The table 1 below shows the linkages and sequencing of the different sectoral interventions that underpin our programmatic approach to facilitate integrated programming (provided that adequate resources are secured).

Table 1. Sequencing different sectoral interventions - DRC's programmatic approach in Afghanistan

Step 1: Integrated Assessments
DRC strategic focus is on hard-to-reach areas across Afghanistan, with 70% of our target locations in 2023 being classified as hard-to-reach. Applying a newly developed task selection process that takes into account the potential for operational interventions, DRC teams identify priority tasks for land clearance activities. Before the start of the intervention, joint teams including HMA, MEAL and Economic Recovery members conduct a series of assessments to identify hazards and establish a baseline for the prioritization of clearance in accordance with community perspectives and potential for development of productive land and assets.

Step 2: Humanitarian Mine Action
HMA staff initiate operations by conducting detailed re-survey of hazardous areas to clearly define the boundaries of safe and unsafe areas. Subsequently, clearance teams are deployed based on detailed task implementation plans to clear and release unsafe areas. To supplement these activities, a localised and targeted approach to EORE is implemented and emergency victim assistance can also be utilised to support survivors of EO-related accidents.

Step 3: Recovery & Climate Resilience Interventions
Following the completion of land clearance operations, DRC economic recovery teams implement recovery interventions based on the priority needs identified through the baseline assessments and extensive community consultations. The design of the interventions takes into account the preferences of men and women within the community, and it is tailored to their specific needs. Acknowledging the needs arising from climate change and sudden onset events such as floods, DRC teams train community members in the implementation of low-tech earthworks aimed at mitigating the risk of disasters. These can include - among others - terracing, the excavation of trenches, and the planting of trees on previously contaminated land.

Step 4: Impact Evaluation
At pre-established times during the implementation of the activities, DRC MEAL teams conduct a multi-sector evaluation to measure the joint impact of HMA and recovery interventions, to evaluate the effectiveness of the response, and inform future programming. DRC impact evaluations are designed to go beyond the measurement of sectorial outcomes to capture the effect of the intervention on composite indicators.

Ultimately, mainstreaming of EORE, EOD and VA survey efforts in emergency response and deployment of multi-sectoral quick response teams across the various grants facilitated joint responses and flexibility depending on the needs encountered at community level. Based on a variety of good practices and joint-up approaches, revealed by case studies, project documentation and Key Informant Interviews (KIIs) held during the field visit, the case of Afghanistan served as an interesting example to better understand what constitutes a conducive environment to maximise clearance related outcomes.

Iraq

Iraq, a state party of both the APMBC and the CCM, is dealing with contamination by improvised landmines in areas liberated from the Islamic State – in addition to legacy mine contamination from the 1980–1988 war with Iran, the 1991 Gulf War, and the 2003 invasion by a United States (US)-led coalition[12]. Most of the contamination is located in the territory governed by Federal Iraq. Significant mine and cluster munitions contamination in the Basra governorate is still present since the Iraq-Iran war in the 1980s and the Gulf Wars of 1991 and 2003 and has rendered hundreds of millions of square meters of previously arable land unusable.

According to the Landmine Monitor 2024, Iraq was one of the States Parties recording the highest number of casualties, with 102 casualties recorded that year[13]. Since the beginning of 2025, on average one civilian casualty is recorded weekly. Nonetheless, Iraq also saw a decrease of more than 20% in international funding in 2023, a decline that continued into 2024 and 2025.

With this research, DRC focused on Basra, a province in Southern Iraq where DRC has been implementing HMA projects for over 10 years and where it has successfully helped farmers reclaim their land and resume farming, in addition to facilitating government investment in housing infrastructure thanks to the support of the Office of Weapons Removal and Abatement (WRA)-funded programmes.

Basra is well-known for its agriculture as it is located on the Shatt-Al-Arab waterway. Hit hard by several waves of conflict, which left it widely contaminated by landmines, cluster munition remnants and other Explosive Remnants of War (ERW), the area is characterised by widespread poverty, lack of basic service provision for the residents and inefficient governance which contrasts with the significant wealth generated by its oil production. Most of the population is concentrated in urban areas, mostly Basra city, as rural areas are not covered by essential services, are subjected to environmental degradation and problems of landmine and other EO contamination, which has been obstructing socio-economic development efforts for years. Current contamination continues to pose a direct challenge to the rehabilitation and construction of critical infrastructure and economic development[14]. It is also one of the governorates most severely impacted by climate change, having witnessed some of the highest number of water crises-induced internal displacement throughout the past decade, due mainly to water scarcity, pollution and soil salinity. Displacement is a key driver of tensions as it increases pressure on shared scarce resources, including land and water, and exacerbates perceptions around unequal distribution of these resources. EO contamination exacerbates those conflict drivers as it further reduces the land available for cultivation, and the lack of agricultural activity and irrigation worsens soil quality.

Over the course of the research project, DRC had to suspend mine action operations in Basra due to a funding shortage. The DRC Research Team conducted the field visit despite the operational halt. For the purpose of the visit and data collection, former HDP colleagues were recruited to support in conducting the survey and the facilitation of the focus group discussions.

A desk review of project documentation in Iraq revealed that DRC demining activities took place in Al-Zubair Shatt Al-Arab- Al-Salahia, Nashwa, north of Basra, Al Hartha, Al-Biban, and Al-Salahia. In Al-Zubair Shatt Al- Arab- Al-Salahia and Rumaila demining activities enabled farmers to return to cultivating dates, tomatoes, watermelons, and vegetables on land cleared by DRC. Communities have begun making productive use of agricultural land again, creating sustainable livelihoods. Further to this, since August 2022, DRC has worked on clearing 6,000,000 sqm task number DRC-124 of contaminated land in Al-Biban, which Basra government planned to use to construct new housing projects and agriculture projects as this area is very close to a big water supply. According to DRC's internal reports, the housing industry has boomed in Shatt Al-Arab, Al-Acwat, Al-Biban, and Al-Salahia, and people have begun moving back onto cleared land into newly built houses.

12 Landmine Monitor 2023. Please see Landmine-Monitor-2023, *https://backend.icblcmc.org/assets/reports/Landmine-Monitors/LMM2023/Downloads/Landmine-Monitor-2023_web.pdf*

13 Landmine Monitor 2024.

14 DRC project proposal submitted to WRA in December 2021.

A member of the DRC's EORE team conducts a session in Ninewa, Iraq, 2023, to educate children about local risks.

Despite these accomplishments, mainly reported through project documents, scoping interviews and case studies, project objectives were set at the output level only. The donor's metrics focused on measuring the number of square meters cleared, reduced, and cancelled; the number of surveys conducted; the number of beneficiaries; and the number of items destroyed. While these metrics facilitated the measurement of output achievement, the lack of a requirement to measure socio-economic benefits from mine action activities combined with a predominantly 'traditional HMA programming' of DRC teams led to some evidence gaps.

For instance, the intended use of land cleared, reduced, and cancelled is not mentioned throughout the quarterly reports (this information, however, is present in the relevant completion reports). Even when DRC declared to conduct battle area clearance in high impact EO contaminated areas (with high priority on agricultural areas and projects aiming at restoring access to essential services and infrastructure) it remained unclear, in the reports, who set those priorities and if and how DRC could influence that. The desk review of project documents reveals a lack of joint planning and cross-sector interventions in southern Iraq. This was also due to the fact that since 2014, very limited funding from DRC' most traditional donors, was available for Basra area. Majority of the funding was channelled to the post-ISIS response in the North of the country, which made it extremely difficult to plan cross-sector, in the South. As a result, DRC Iraq has not developed joint assessments or implementation tools aimed at maximising clearance related outcomes. Despite the predominance of a more siloed approach focused on outputs and the lack of incentives and resources to implement an integrated programme, research conducted during the inception phase suggests that Iraq remains an important case study as programming had positive impacts. Findings will be further discussed later in this report.

Similarly, initial scoping interviews reveal that the programme lacked a formalised prioritisation tool to assess priorities and operational capacities to conduct a task. Reportedly, such assessments are conducted upon consultation with the mine action team. Given the limited information on outcome-level changes in the project reports as well as the dynamics around measuring and influencing them, the case of Iraq remains key to assess, in how far livelihood improvements are a 'natural' by-product of mine action interventions.

South Sudan

South Sudan is part of the APMBC and the CCM. The country is contaminated with anti-personnel mines and cluster munition remnants. According to Mine Action Review, cluster munition contamination is ranked as medium, with national authorities estimating 10.19 Km2 contaminated[15]. In addition, the anti-personnel landmine contamination is ranked as medium, with national estimates indicating 5.32km2 contaminated with anti-personnel landmines.[16] According to the Landmine Monitor, South Sudan is also one of the countries where casualties were recorded in 2024. Most of the contamination is concentrated in the Southern part of South Sudan close to its border with Uganda - considered the breadbasket of the country. Whilst contamination of ERW is also significant in the Northern part of the country, access and comprehensive survey efforts in these areas have been hampered due to ethnic violence, armed clashes as well as the negative effects of climate change.

Albeit the varying regional impact across the country, the explosive ordnance contamination has blocked access to critical infrastructure, such as schools and hospitals, as well as agricultural lands desperately needed to improve food security in the country. South Sudan has seen this situation exacerbated by climate change impacts which trigger instability and inter-communal violence in a postwar context. In 2023, the eruption of civil war in Sudan, let to an influx of South Sudanese "returnees" putting further pressure on the humanitarian system and local resilience capacities in the country.

DRC is undertaking specific efforts to increase impact through enabling opportunities for joint mine action, peacebuilding, and emergency efforts to address multiple needs. For instance, under Canadian and Danish funding focused on preventing use of children in armed groups and fostering social cohesion in border areas between South Sudan and Ethiopia, DRC provided psychosocial and livelihood support whilst also providing training on EORE and conflict mitigation to local peace committees. Consortium efforts in Wau and Bentiu (not as much affected by contamination), such as Complementary action for resilience building (CARB) funded via USAID, implemented integrated programming to strengthen household resilience via Economic Recovery, Protection, and Peacebuilding efforts.

DRC's clearance efforts predominately take place in Magwi, located within an area of high agricultural potential and accessible in both the rainy and dry seasons. In 2023, Magwi remained relatively calm and farmers in the region slowly but surely recovered from the farmer and pastoralist conflict which occurred in March 2022, leading to displacement and disruption of livelihoods of the affected population. The relative stability in 2023 allowed the agricultural community to return and re-engage in farming activities. Through its localisation efforts, DRC is also striving to promote integrated approaches and responses through collaboration with a national NGO Community in Need Aid (CINA) in Magwi and Akobo via secondments and training as well as partnerships with local agricultural and land rights partners to facilitate productive land use after clearance.

A desk review of project documents in South Sudan shows that the DRC team in South Sudan is committed to integrate its HMA programme with economic recovery to achieve durable solutions. With this objective, the country team has developed a prioritisation matrix to inform the selection of high-impact task sites. Project proposals, reporting templates and log frames that identify outcome and outcome indicators also offered an incentive to develop and improve MEAL practices at outcome level.

Documentation on projects funded by the German Federal Foreign Office (GFFO) reflects a clear effort to define project outcomes and to evidence their achievements in South Sudan. The log frame identifies key outcomes, including reducing mine/ERW-related deaths and injuries, empowering communities to manage these risks, and developing guidelines to inform Non-Technical Survey (NTS) procedures while supporting economic recovery and peacebuilding efforts. Both the log frame and supplementary project documents (such a satisfaction survey conducted during summer 2024) specify detailed outcome indicators and provide methodologies for assessing these.

For instance, Outcome 1 is evaluated through household surveys and IMSMA database reports, focusing on the

15 Cluster Munitions Remnants, 2024
16 Landmine Monitor, 2024

percentage of Land Release beneficiaries who report increased feelings of safety following clearance. Outcome 2 is assessed using surveys and focus groups to capture the enhanced capacity of national actors, perceptions of equitable mine action delivery and perceived gains in quality of life. Outcome 3 also involves monitoring improvements in livelihoods through surveys and tracking the adoption of innovative approaches by partner organisations. These outcomes are typically monitored through end-line surveys, with some evaluations taking place after nine months. DRC's field MEAL Officers play a crucial role in supporting the measurement and assessment of these outcomes, ensuring that data collection is disaggregated by factors such as type of displacement, gender, age, and location. Outputs, in contrast, are tracked monthly through an output tracking table stored on DRC's data management system. Interim reports provide additional insights into the progress and impact of mine action activities. For example, 900 individuals have reportedly benefited from the clearance of 185,700 square meters of land in Magwi and Maban, by providing them with safe access to land for agriculture, housing, and other productive uses.

Similarly, documentation under a three-year project, 1 September 2020 - 31 August 2023, funded by the Dutch Ministry of Foreign Affairs, also emphasises the importance of evidencing the effects of mine action on livelihoods and other critical outcomes. The log frame outlines crucial outcomes, such as reducing mine/ERW-related deaths and injuries, improving conditions for socio-economic development, and enhancing national capacity for Mine Action. Each of these outcomes is supported by specific indicators, offering a structured approach to measuring progress. For Outcome 1, the reduction of harm through safer behaviour and Land Release is assessed using pre- and post-clearance assessments, household surveys, and the number of EOD spot tasks conducted. Similarly, Outcome 2, which aims to improve livelihoods and access to basic services, is monitored by tracking the number of direct and indirect beneficiaries and their reported improvements in these areas. Outcome 3, focused on building national capacity, is evaluated through pre- and post-tests that measure beneficiaries' confidence and knowledge in conducting mine action tasks, as well as their perceptions of equitable mine action delivery. During the implementation of the Dutch funded initiative, FCDO and the Dutch MoFA have partnered to develop a Sector-Wide Theory of Change for Mine Action[17] and associated Indicators' Bank. At the time of writing, the logframe currently used by the Global Mine Action Programme (GMAP) and Mine Action Cluster Munitions (MACM) are built from the same indicator bank and work towards the same Theory of Change, offering opportunities for increased joint planning and measurement of HMA related outcomes.

The interim reports and evaluations provide valuable information on how mine action in South Sudan has contributed to livelihoods to date. A Knowledge, Attitude, and Practice (KAP) survey conducted at the end of the project in 2023 reveals significant findings. According to the survey, demining activities have saved lives and released land for livelihood opportunities, while simultaneously facilitating improvements in access to basic services. The KAP survey highlighted that 92% of respondents reported being prevented from carrying out livelihood activities due to land contamination before clearance. Focus group discussions corroborated these findings, with participants emphasising how land clearance has facilitated access to farmland, essential services, and infrastructure, thereby significantly improving their economic conditions and overall perceptions of safety. However, findings from GFFO- and Dutch- funded surveys referenced above also highlighted challenges in ensuring that relevant Economic Recovery interventions would follow clearance, to maximise productivity of land, primarily due to challenges identifying and securing agreements from agencies that would be able to deliver tailored activities within the windows of time required. Consequently, it can be deduced that DRC's main contribution to these positive results derived from the prioritisation system, designed to identify tasks with the strongest potential to improve livelihoods outcomes (table 2). The programme is currently exploring options to more consistently identify appropriate referrals, including through dedicated DRC Economic Recovery capacities embedded directly within HMA operations and office.

Task allocation in South Sudan is mainly coordinated via the NMAA and UNMAS but gives NGOs high amounts of flexibility in terms of priority locations. Based on this, DRC has been selecting task sites via its prioritisation matrix, where tier one task sites were prioritised based on physical safety and freedom of movement, agriculture and returns and resettlement (see overleaf).

17 https://www.itad.com/knowledge-product/mine-action-sector-wide-theory-of-change

Table 2. DRC matrix to assess impact priorities in South Sudan

Impact priorities for mine clearance and possible responses			
Tier	**Priority**	**Definition**	**Remarks**
Tier One	Impact priority A *Physical Safety and Freedom of Movement*	Communities/humanitarian agencies living in close proximity to, or regularly using, areas that the community believed to be contaminated, and particularly where casualties have occurred.	Targeted clearance, aimed at points that may be of particular impact (such as water points, bridges, routes). High priority tasks within this group include those assisting priority beneficiary criteria (vulnerable women, marginalized young men, or food insecure individuals demonstrating agricultural capacity)
	Impact priority B *Agriculture*	Areas believed to be contaminated, where other humanitarian agencies are engaged in FSL and/or HLP programming	High priority tasks within this group include those assisting priority beneficiary criteria (vulnerable women, marginalized young men, or food insecure individuals demonstrating agricultural capacity)
	Impact Priority C *Returns and Resettlement*	Areas that are observing returns, or where evidence (e.g. intention survey data) indicates that returns or resettlement are imminent, and there exists an environment that is conducive to allocating land for returnee agriculture or housing.	
Tier Two	Impact Priority D *(Potential (unconfirmed socio-economic value*	Areas that are believed to be contaminated, where ownership by members of the community can be confirmed (or support is available to resolve HLP disputes / challenges), and where the land is of potential value for agriculture or other use.	Use CL processes to limit work to land that is likely to be used.
Tier Three	Impact Priority E *Convention Compliance*	All other areas of potentially useful land (i.e. Where the benefit of clearance is greater than the cost of clearance). The completion of Priority Five tasks will contribute to a country achieving 'impact free' status and convention compliance.	Only when there are no tasks available under Tier One and Tier Two.

Conclusions from the desk review

The desk review examined three different contexts – Afghanistan, Iraq and South Sudan - and relevant project documents. Despite having analysed initiatives implemented and project documents produced by the same organisation (DRC), the examination led to uncover the following:

1. Outcome measurement and assessment is not approached consistently and varies between country programmes, based on the context – see below.

2. Even in contexts where there is outcome measurement, it is difficult to conclusively establish a causal link between outputs (land release etc) and outcomes, particularly because there is often a dearth of baseline data.

3. Donors' reporting requirements can constitute a potentially necessary external incentive to fill the evidence gap between outputs and outcomes.

4. The persistent focus of the mine action sector on outputs (reinforced via donor guidelines, country-level completion deadlines, etc.) has resulted in limited outcome measurement and assessment.

5. The potential to integrate mine action programmes with other sectors constitutes an internal incentive to improve planning and MEAL practices, therefore leading to close the evidence gap. In Iraq, for instance, the absence of protection or economic recovery programmes in Basra didn't offer incentives for joint outcome measurement and assessment. On the contrary, in South Sudan and Afghanistan, DRC took steps to foster programmatic integration amongst sectors in the same areas and provinces. This led to the development of specific tools such as multi-sectorial needs assessments, prioritisation matrices, and base- and endline clearance impact assessment.

6. There are evidence gaps in *how land release prioritisation and methods inform and influence mine action planning and tasking and lead to livelihood improvement and economic development*; *how outcomes achieved compare with the outcomes laid out in the design phase; and how clearance can facilitate the return of refugees and IDPs*. Such evidence gaps make effective prioritisation difficult and lead to a limited understanding of the effectiveness and efficiency (value for money) of mine action programmes in aligning with development programmes, policy objectives of poverty reduction and governance ambitions set by donors and EO-affected countries.

7. Yet, the absence of outcome measurement and assessment is not an indication of absence of outcome. While evidencing the achievement of project outcomes has been more advanced in Afghanistan and South Sudan, this does not imply that socio-economic benefits were absent in Iraq. On the contrary, evidence suggests that there was a positive impact on livelihoods and economic activities in Iraq where roads were restored, housing infrastructures built, and farmers returned to work on their lands.

8. The Research Team carried out a desk review that was as comprehensive as possible. However, gaps in data collection may have led to inaccuracies.

DRC enumerator Ghufran Muayed Hafidh conducts the household survey in Al Zubair, Iraq, 2024.

3. Methodology

3.1. Data collection methods and sampling strategy

The Research Team selected specific areas in each country for data collection, prioritising locations that have been cleared and released between one and three years ago, that were accessible within the research project time span and where security and safety could be guaranteed to the Research Team.

Areas selected for this survey are:

- Al Autba village in Al Shatt Al Arab District, and Al Safwan in Al Zubair District, Iraq.
- Munai Village, Hesarak and Jabal al-Saraj, Parwan (HH surveys, FGDs) and Liwal Village, Surobi Provinces, Afghanistan, (only FGDs).
- Diopok, Amika, Magwi, Okila; Eastern Equatoria; South Sudan.

The Research Team calculated the sample size using the Yamane formula. The Yamane formula requires knowledge of the population size (e.g., the number of beneficiaries or target population), and may be used when dealing with finite populations. This approach had been successfully used by DRC in a previous KAP survey in South Sudan. The population size of individuals living next to the released lands were communicated by village chiefs and community members and this allowed DRC to determine the minimum number of people to survey.

Enumerators strived to survey an equal number of men and women although this was not always possible. In Iraq, for instance, surveys primarily happened within households, where men tended to reply on behalf of the family. Household survey remained the preferable option despite this limitation, since families stayed at home during the day to cope with the high temperatures and worked the lands early in the morning (often starting at 4 am). In Afghanistan, acknowledging the specific challenges such as safety risks as well as accessibility, enumerators adapted modalities (including via phone interviews) to ensure adequate representation from different community groups.

Snowball and quota sampling was used to select participants for FGDs, in close cooperation with the chiefs of villages. Quota sampling helped to ensure representation of marginalised groups, particularly persons with disabilities and women (for which separate FGDs were held).

Moreover, DRC used a combination of purposive, and quota sampling methods. Purposive/Expert sampling was conducted to identify key informants from national authorities, local partners, relevant UN Agencies, and international mine action operators for KIIs. For the KIIs, the DRC Research Team conducted 27 interviews (11 in Afghanistan, 12 in Iraq and 4 in South Sudan) in total, grouping, sometimes, multiple respondents from the same organisations. The final number in each country varied based on reaching saturation, meaning the point at which no new information is being uncovered in the interviews. In all countries, interviews involved national and international NGOs, UNMAS representatives and NMAA/MACs representatives. The different size of the sample also indicates different sizes of the mine action sector across the countries included in this research.

Lastly, a short survey (approximately 10 questions) was conducted between December 2024 and January 2025 to collect input from donors working at Capital and Geneva level to better understand where and why there are gaps in evidence to establish a causal linkage between Humanitarian Mine Action (HMA) and livelihood outcomes, how best to fill them and how to best align mine action efforts with humanitarian and development endeavours. Responses were completely anonymised and personal views encouraged. 23 individuals responded to the survey – out of

them, 22 declared working for a state agency, and only 1 for another institution (other than a state or a private institution or foundation). In this case, the DRC Research Team also adopted a purposive/expert sampling, identifying ideal respondents working for disarmament and/or mine action units at capital level, as well as disarmament delegates to the UN in Geneva, Switzerland.

3.2. Ethical considerations

The DRC Research Team adhered to DRC's ethical standards and respected the principles of informed consent, voluntary participation, anonymity, confidentiality and data security, and do no harm.

All participants were provided with detailed information about the study's purpose, procedures, and their rights as participants. Researchers and enumerators emphasised that participation was voluntary and that participants could withdraw from the study at any time without consequence. Researchers and enumerators also obtained informed consent to proceed and take pictures. Finally, given constrained funding environments, including reductions in 2023/4, expectations of participants were also managed and detailed information regarding the potential follow-ups/ next steps was provided. This approach applied to all the data collection tools developed by the. Research Team

All collected data were anonymised, with personal identifiers being removed and replaced with unique codes. As such, we limited risks to trace individual responses back to any participants, whose identities remain confidential when analysing and reporting the results. The Research Team stored the data securely in compliance with the General Data Protection Regulation. Digital data is stored on secure and internal SharePoint spaces, and access to the data is restricted to the members of the Research Team. The data collected will be retained only for as long as necessary to achieve the research objectives and will be deleted afterwards.

Finally, to respect participants' time and responsibilities, the Research Team designed short surveys and concise focus group discussions. This approach acknowledged that participants had other commitments – whether work, caregiving, or daily activities – ensuring that their involvement was meaningful yet minimally disruptive of their daily routine. Prioritising ethical considerations, the team sought to balance rigorous data collection with respect for participants' well-being and time constraints.

3.3. Gender, diversity and inclusion

DRC's vision is that everyone no matter age, gender and diversity equally benefit from programming, based on need. This can be done through thorough assessments, a diverse workforce and appropriate and adapted programming – considering conflict dynamics, gender norms, ethnicity, residence and social status as well as other context relevant diversity factors.

Via its Age, Gender and Diversity Mainstreaming Policy, DRC applies an age, gender and diversity-sensitive approach to all its programming. With this research, DRC wanted to move beyond the sole focus on gender and take a more comprehensive look at other diversities. Research tools therefore allowed for data collection on demographic data that included information on gender, age, displacement status, disability status, and presence of a person with disability in the household and working affiliation. Particular attention was paid to ensuring inclusivity and diversity of perspectives when carrying out KIIs and FGDs. Guided by DRC teams' expertise in the three country contexts, DRC mobilised mixed gender enumerators teams, and organised women-only consultations.

The Research and Advisory teams reflect full gender parity and mobilised mixed-gender MEAL teams to conduct community surveys, consultations and ensure representation. Further, some DRC staff in country programmes have themselves been displaced at one point or come from communities affected by contamination. Data were disaggregated by gender, age, residence and disability status.

For this research, DRC has also consulted with members of the Gender Diversity Working Groups as well as internal DRC staff working on Protection and Age, Gender and Diversity Mainstreaming to inform the design and methodology of the research.

3.4. Data analysis

3.4.1. Quantitative and qualitative analysis

The analysis for this research relied on both qualitative and quantitative data and methods. The DRC Research Team further triangulated the primary data, with secondary data extracted from project documents as well as open-source satellite data (see 3.4.2).

For all data gathered, a thematic analysis was conducted and guided by the Sustainable Livelihoods Framework (SLF) – figure 2 below/next page. The application of this approach, developed by the Department of International Development (DFID) in 1999, allows for a structured examination of how mine action outputs influence livelihood-related outcomes.

"The sustainable livelihoods framework presents the main factors that affect people's livelihoods, and typical relationships between these…. In particular, the framework:

- *Provides a checklist of important issues and sketches out the way these link to each other.*
- *Draws attention to core influences and processes; and*
- *Emphasises the multiple interactions between the various factors which affect livelihoods.*

It [the framework] doesn't work in a linear manner and does not try to present a model of reality[18]".

This analytical framework allowed the Research Team to investigate how and to what extent mine action outputs can lead to livelihood and socio-economic outcomes. Within this research, and in line with the Sector-Wide Theory of Change for Mine Action and User Guide developed by Itad, we referred to *outputs* as "specific, direct, deliverables. Fully and directly attributable to the interventions as in the control of the implementer. They are intended to provide the conditions for outcomes to occur[19]" and to *outcomes* as "the likely or intended effect of the outputs. This is the critical contribution the intervention is hoped to make to higher strategic objectives, within the lifetime of the intervention. Partially attributable to the intervention. Other factors including other national and internationally funded initiatives may also contribute to these outcomes. Outcomes are less predictable, as they are about behaviour change[20]".

The SLF highlights the key factors influencing people's livelihoods and the typical relationships among them. Most importantly**, the framework acknowledges that livelihoods are the product of a wide range of assets, structures and processes that can interact in different ways as they shift and evolve themselves.** This is linked to the importance of correctly and appropriately defining the assumptions[21] in a project to help with monitoring and measuring if success is achieved, if not why, and if the external conditions influencing the achievement of such outcomes could be anticipated, or not.

For the purposes of this research, the following was considered:

- Conflict and contamination are analysed as part of the "Vulnerability context", namely "Trends and shocks".
- Land released is labelled as "asset", particularly "natural capital". Further to this, the Research Team analysed other natural capital assets such as forests and water resources. In addition, the research investigated the presence of other assets such as physical capital (secure shelter and buildings, adequate water supply and sanitation, clean and affordable energy infrastructures) and financial capital (looking mainly at proxy variables).
- Mine Action policies and strategies, task order process and prioritisation are labelled as "processes" influencing demining, land release and ultimately the land allocation system.
- National Mine Action Authorities (NMAAs) and National Mine Action Centres (NMACs) are labelled as "public sector structures", with national NGOs and CSOs as "civil society structures".

18 Sustainable livelihoods guidance sheets, DFID, 1999
19 Sector-Wide Theory of Change for Mine Action and User Guide, Itad, 2022-2023
20 *Ibidem*
21 Assumptions are conditions that are assumed to be present for the intervention to be successful. It is important to identify and elaborate them according to the context we are operating in, asking ourselves: to be successful, what are the conditions we need?

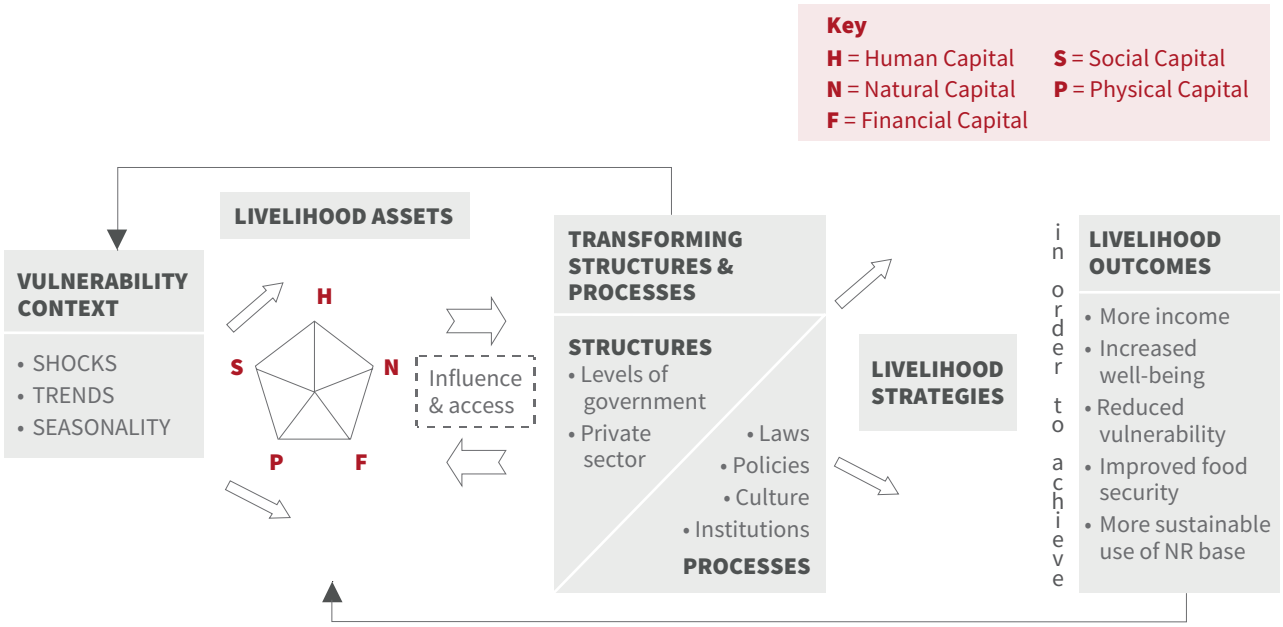
The Research Team concluded that the SLF, recognising that livelihood is the product of multiple factors and that the relationship between Mine Action outputs and outcomes is not linear, is instrumental in addressing the issues identified in the literature and desk review. The SLF can help design a toolbox to promote better integrated programming and tracking of causal links between Mine Action outputs and livelihood-related outcomes.

Similarly, according to an INTRAC[22] for civil society paper on *attribution and contributions* published in 2017, the term contribution is usually understood to mean that an intervention or agency was one amongst a number of influences that helped produce a change or set of changes. Other influences could include the actions of other individuals or agencies not engaged in the intervention; previous initiatives that helped lay the groundwork for success or failure; or external factors, such as changes in the wider physical, socio-economic or political environment.

For this research, the SLF is primarily used to assess if changes occurred at community and national level, in the wider physical, natural or political environment and how all these changes might have interacted with one another to achieve outcome change.

Therefore, this framework guided the development of our research tools and analysis. We categorised and analysed qualitative data to identify key themes related to the vulnerability context, assets, processes, and structures influencing livelihoods. We also coded the qualitative data to extract themes and patterns and further interpret them in the context of the SLF. Lastly, to answer the first research question linked to the gaps in evidence, qualitative data was analysed to understand current data collection practices as well as the main challenges to collecting comprehensive evidence.

Figure 1. Sustainable Livelihood Guidance Sheets, April 1999, DFID



In parallel to the qualitative work, quantitative data from surveys was analysed using descriptive statistics, including frequencies and percentages, to summarise the data.

22 Please see https://www.intrac.org/

3.4.2. Analysing satellite imagery

Qualitative and quantitative data collected through interviews, FGDs and surveys has historically been the only method viable for gathering evidence on the outcomes of Mine Action. However, this type of data collection is not always possible due to various constraints including funding, safety and access, especially after the project ends.

The sector may increasingly be able to look towards remote sensing to complement direct data collection. Direct observation of land use changes from high resolution satellite images can show agricultural and infrastructure expansions directly related to Mine Action interventions. Night-time light emissions can be used as a proxy indicator for increased economic activity following land release. Other geocoded dataset like the Armed Conflict Location & Event Data, ACLED, data could possibly also be used to indicate less accidents in areas where Mine Action activities has happened.

For this research, high resolution satellite imagery was used to validate the findings from the desk review, FGDs and surveys. Satellite imagery was sourced and analysed for every clearance site covered by the research project. In addition to validation of the collected data, the research project also aimed at determining how and when visual observation of changes in land usage from satellite data can be useful for outcome monitoring. Other remote sensing data, like night-time light emissions and geocoded datasets, can possibly be useful for analysis of impact on a wider geographical area. However, for the purpose of this research visual analysis of satellite data was used as this allows for detailed analysis of each task covered by the research.

High resolution imagery with spatial resolution of less than 1m is often required to determine changes in land usage following clearance. Individual and low scale crop growth or establishment of tread-paths are often not possible to visibly detect using lower resolution imagery. Over the past 5-10 years, high resolution satellite imagery (below 1m per pixel) has become increasingly available. Pricing has been lowered and very low-cost or free options like the ESRI basemaps and Google Earth imagery have increased both its spatial and temporal resolution. Both ESRI and Google allow the use of its basemaps for research and/or non-for-profit purposes free of additional charge[23]. The Research Team assessed that neither purchasing satellite imagery, nor using a specialised GIS software was required and decided that using Google Earth images would meet the purpose of this study.

For analysing land usage following clearance at least one image prior to clearance and one following clearance is required. For best results an image should be available immediately following completion of clearance and again after 1 and 2 years. Availability of this data makes it possible to conduct an analysis on when and how economic activities occur, with a focus on how long after clearance this is observed. An initial search before the research project commenced confirmed that basemaps from Google and ESRI had both the required spatial and temporal resolution required to conduct an analysis. However, the coverage of South Sudan was found to be poor with both low spatial and temporal resolution meaning it was not possible to find freely available data to conduct the analysis in this country. The research project therefore planned to purchase imagery from commercial suppliers for the South Sudan analysis. Before the start of the actual analysis in August 2024 Google had however released additional imagery covering South Sudan. The images were both with high enough spatial and temporal resolution to conduct an analysis.

The visual analysis looked at four overall categories of visual evidence:

- **Changes in vegetation** – e.g. changes to ordered vegetation suggesting agricultural or gardening usage
- **Changes in transit usage** – e.g. establishment of footpath, road or similar suggesting people are transiting through or to the area.
- **Changes in housing** – e.g. establishment of a new building, refurbishment of an existing building suggesting presence of people and new use of the area.
- **A visual inspection of the landscape to identify natural and physical assets, as well as proxies for financial assets.**

23 Please see *https://doc.arcgis.com/en/arcgis-online/reference/static-maps.htm*
https://about.google/brand-resource-center/products-and-services/geo-guidelines/#google-earth

Solar panels were built following clearance by DRC demining teams in Surobi, Afghanistan, 2024.

For each location the four above categories were assessed before and after completion of clearance. When possible, the visual information was correlated with information from the Non-Technical Survey reports and clearance reports to gain additional information on type of contamination, background of contamination and detailed dates for NTS and land release progress. Only information available in existing documentation was used and the analysis was done without knowledge of survey and KII data. In total 13 clearance sites (3 in Iraq, 4 in Afghanistan and 6 in South Sudan) were analysed using satellite imagery. The selected sites are all located within the areas where FGDs and surveys have been carried out. In total, 6 maps showing changes to natural capital (land usage) and physical capital (building mass, routes, roads, footpaths etc) were produced. These maps visibly present changes that happened following clearance. It is important to note that not all economic activity is detectable using satellite imagery. Home based economic activity that women often engage in would not be visible unless a house is expanded or similar physical change to housing occur.

For Afghanistan, two task sites were selected for the satellite imagery analysis. Task ID: MF-0073, recognising that we had enough survey responses to triangulate the data in Hesarak with these images. In the Hesarak task site, a mountainous area, DRC built a water channel and undertook some planting of trees. The task site is also close to a residential area where the community lives and works.

In contrast, the second task selected, in Surobi (task ID: BF-0612) saw a different use of the land following clearance, since solar panels were installed in the areas previously contaminated. In this area, 2 FGDs were conducted among affected communities that had worked to set up and built the plant or families that benefitted from the short-term employment at the site. However, no KIIs or surveys were conducted in this area. Once the solar panels were installed, they benefited around 10,000 families both in Surobi and Kabul – based on these large figures and high population density around the task site, DRC decided to focus only on FGD at this particular task site. The third task site in Parwan was not selected since the change in terms of land use mainly benefited a smaller scale community/residential area. Clearance was undertaken on a residential plot, and additional road work took place after clearance to connect the area to the main road. In addition, the landowner enlarged his garden and made it accessible for community members to hold informal gatherings, consultations among elders and social events.

Areas in Iraq were identified and selected based on their varying proximity to a city. While the village of Al Autba (Task ID: DRC-SI-107-HZ-SI-6950) in the Shatt Al Arab district is very close to the city of Basra, the road leading to Iran, a water canal and essential services, Safwan (Task ID: DRC_114_HZ_SI_60734) is a more remote village. Residents and farmers in Safwan, especially those consulted for this research, are further away from the main market than in Al Autba and complained about the lack of water and energy sources as well as the absence of government plans in the area. For both sites, the DRC Research Team collected sufficient information through the HH survey and FGDs to triangulate the findings. Although both sites are located in Basra Governorate, the differences in landscape and proximity to basic services provided a good basis for comparative analysis and to identify how the availability, or lack thereof, of different assets, may affect clearance related outcomes.

Two tasks were selected for South Sudan because satellite imagery allows comparison of areas where construction has drastically changed the environment after clearance (Task ID: CR-G4S-010B-21) and another area where land use did not show significant changes before and after clearance (Task ID: CR-MAG-009B-19). The analysis of different sites and different uses showed that the safety of individuals and communities living in the surrounding areas increased, while their practices didn't change. KIIs were useful to identify why and how behaviour and land use didn't change although clearance increased feeling of safety.

3.5. Limitations

While data collection methods remained consistent across countries, some discrepancies arose due to differences in local contexts, researchers' and respondents' availability, and varying levels of community engagement. Different sensitivities around direct engagement with women across countries also influenced the organisation of FGDs, and household surveys. In both Afghanistan and Iraq, international researchers facilitated FGDs closely cooperating with and relying on DRC HDP and/or MEAL national colleagues. This might have introduced limitations in translation accuracy and contextual understanding. However, both researchers closely followed up on key points with their colleagues, and exchanged prior, during and following data collection, ensuring a constant exchange to limit misinterpretation. In South Sudan, the survey and the FGDs were conducted by national staff following an online training, held in October 2024. Despite these minor discrepancies, the comparability of findings remained intact, thanks to the close collaboration and continuous support of national colleagues who are well-acquainted with DRC HDP and the surveyed communities. Additionally, the Research Team used the Sustainable Livelihoods Framework as an analytical tool to identify commonalities and context-dependent variables.

Several biases must be considered when interpreting the findings. As the Research Team belongs to the same organisation, there is a risk of unintentional bias in data interpretation. Similarly, while FGDs involved community members and KIIs interviewed several representatives of other organisations, household surveys were only held around tasks cleared by DRC. This is a significant limitation since the choice might have been biased, and the research automatically excluded areas cleared by other operators whose other approaches might have led to different contributions in the same environment. Additionally, response bias may have occurred if survey and FGD participants provided "socially desirable" answers or were influenced by their relationship with DRC staff. Lastly, while the research uncovered positive examples, findings are primarily based on self-reporting from the NMAA/NMAC, national and international NGOs, and UNMAS, which could introduce some bias.

Satellite image analysis was done using only freely available data. While this approach makes replication of results and application in other settings easier, it also limits the amount of data available. In cases where no image was available following clearance, or only shortly after clearance, this limits the usability of data for the intended purpose. Due to the low availability of post clearance imagery, it has not been possible to analyse the full period from clearance completion to start of economic activity, thus the analysis only provides a snapshot of a particular moment at varying durations following land clearance.

The methodological approach had certain limitations, particularly in establishing causal links between Mine Action activities and livelihood improvements due to the absence of baseline data. Data was collected before land release for most of the projects, but the methodology was not consistent and not universally applied, making it difficult to compare pre- and post-intervention conditions or assess the direct impact of land release on livelihoods. Additionally, the potential underrepresentation of marginalised groups – such as the elderly and people with disabilities – could also have affected the reliability of findings. In fact, while the Research Team made a clear effort to organise FGDs with women and refugees only, they didn't do the same with people with disabilities or older people. This has led to a more limited overview of the perceptions of these groups.

In most cases, the Research Team did not encounter any access problems, nor did security or logistical constraints prevent visits to certain locations. Where these issues were encountered, reliable adaptations were used to gather data. Nevertheless, the decision to survey remote or rural areas with small populations may have skewed the results due to low representation, reducing statistical power. For example, marginalised groups (the elderly, people with disabilities, etc.) may have been under-represented in the sample due to the small size of the populations surveyed. This can lead to limitations in our methodological approach due to limited statistical power and due to sample size and consequent challenges in establishing causal relationships. This in turn posed challenges in drawing broader conclusions from the data.

DRC Quick Response Team team member conferring with community members before conducting an Explosive Ordnance Disposal (EOD) spot task. Herat, Western Afghanistan, 2023.

4. Findings

This section is structured around the two key research questions: 'Where and why do gaps exist in the evidence for the causal linkage between HMA and livelihood outcomes, and how can they be addressed?' and 'How and why do livelihood changes occur as a result of Land Release and EOD spot tasks?'. The findings are further analysed for each sub-research question. Depending on the specific question and objective, both primary and secondary data have been used to inform the responses.

4.1. Where and why there are gaps in evidence for causal linkage of HMA to livelihood outcomes and how best to fill them?

4.1.1. What evidence is being gathered now, and what would be useful to gather in the future

The analysis of the responses to the question *"What evidence is being gathered now?"* illustrates several elements related to MEAL in Mine Action, and the measurement – or lack thereof - of socio-economic outcomes. Findings are based on the KIIs held in Afghanistan, Iraq and South Sudan.

"Civil Society Structures" - Perspective from INGOs, NNGOs and International Organizations

There is a persistent focus on output measurement over outcomes

Many KIIs respondents indicate that data collection remains heavily focused on outputs, such as the amount of land cleared, or the number of Explosive Ordnance (EO) removed. This is evident in statements like, "We always focus on how much land has been cleared, how many items are found, how many people live in that area" from one respondent in Iraq. Several responses also suggest that organisations prioritise efficiency and primarily measure square meters cleared or the number of explosive ordnance disposal (EOD) tasks completed, rather than long-term socio-economic impact.

Some organisations are making strides, but the measurement of livelihood outcomes remains limited

Some organisations are improving impact measurement. One of the international Mine Action operators, for instance, said his organisation deploys community liaison facilitators and third-party evaluators to track the use of cleared land and measure and assess livelihood outcomes. Another respondent cited specific cases, such as the iron bridge in Falluja, where infrastructure projects have been assessed for their broader impact. Another operator is piloting a livelihood survey in Kandahar, Afghanistan. The shift from case studies to more structured surveys, indicates progress in measuring long-term impact.

Nonetheless, while some organisations have begun incorporating livelihood assessments, responses indicate that the scope remains narrow and assessments are rarely conducted in a consistent way, even within the same organisation. For example, one respondent in Afghanistan noted that livelihood indicators focus on land use but do not measure monetary value. Similarly, another respondent in South Sudan noted that livelihoods cover a variety of different aspects. The Mine Action community has a tendency of looking at it predominately from a binary perspective, whether released land is generating income or not. As the SLF demonstrates, there are many more elements to it. KII participants recognised this but also pointed to lack of consistency and capacity to go beyond this, often disregarding the impact clearance efforts may have on routines/behaviours at community-level, how they impact safety, etc. An interviewee in Iraq acknowledged that land use is tracked, but broader economic and social impacts remain underexplored. Another respondent in Iraq indicated having developed prioritisation matrix in another country and having adopted it in Iraq because the same organisation wasn't applying the same working methodologies globally. Few organisations stated they have started integrating livelihood outcome measurement and assessment, but large-scale assessments are still sporadic.

Lack of coordination and data integration

Several respondents also referred to the fragmentation of data collection efforts, that, combined with the lack of a central repository for Mine Action data, as it was mentioned in Iraq, poses challenges to data collection before and after clearance, leading to inefficiencies in linking Mine Action to broader socio-economic sectors. The lack of trust and ownership further hinders comprehensive data utilisation.

We are collecting sufficient information to prove socio-economic improvements, but it is too restricted to our polygons, where we work. We don't have coordination mechanisms. Coordination is not there, no trust, no ownership. K_IRQ_10

Challenges in data utilisation for decision-making

Respondents acknowledge that while substantial data is collected, it is often underutilised due to the focus on short-term efficiency metrics. A stakeholder in Iraq pointed out that while organisations gather data, its application to decision-making remains limited.

The responses to the question "What would be useful to gather in the future?" highlight several areas that, if enhanced, could lead to improved data collection and impact assessment in Humanitarian Mine Action.

Several respondents in Iraq suggested several ways to improve data collection, including the use of satellite imagery, longitudinal studies, and geospatial data tracking land use changes. The incorporation of these methods would enable a more comprehensive understanding of the long-term impact of mine clearance. Multiple respondents emphasise the necessity of tracking households and communities over time to assess socio-economic outcomes. With some explicitly mentioning the value of case studies of successful land use and community feedback surveys in establishing a causal link between Mine Action activities and livelihood improvements. Returns of internally displaced persons to released areas have also been pointed out by one colleague in South Sudan.

Overall, there was a strong push among interviewees across countries for more qualitative data collection at the community level to understand the broader socio-economic impacts of mine clearance. Perception surveys and feedback from affected communities are seen as critical in capturing the lived experiences and challenges of those impacted by demining efforts.

I don't like talking of sqm cleared, especially in the case in Iraq. We have examples of sqm where the n of sqm is really not important, see the Al Shifa hospital, cleared in 18 months. Outcomes can now be measured 8 years later (2017/18). Medical equipment were re-located there, then, the year after, Germany built another section of the hospital, that wouldn't have been possible without clearance. Then reopening of a wing in the hospital. K_IRQ_12

Several responses also stressed the need for consistent measurement criteria before and after clearance to accurately capture changes over time. Post-clearance surveys should be conducted at strategic intervals, with some respondents advocating for assessments beyond the typical six-month period, particularly for agricultural impacts that require multiple harvesting seasons to measure and assess the achievement of outcomes. Other peers who took part in the KIIs said that expanding data collection to include environmental and economic assessments is also necessary to establish a more holistic understanding of mine clearance benefits.

Despite the recognition of the need to enhance data collection, one respondent cautioned against collecting excessive information without clear objectives. Ensuring that only relevant and actionable data is gathered will prevent inefficiencies, reduce resource burdens and survey fatigue. This observation points to the need to have an effective debate regarding how much MEAL needs to be adapted and how much information needs to be collected so that Mine Action operators and national authorities ultimately 'do enough' to facilitate development and minimise negative impacts (land grabbing, ineffective land use, etc.).

"Public Sector Structures" - NMAAs and MACs' perspectives

According to the NMAAs and MACs interviewed, there is a strong interest in assessing the impact of Mine Action. However, efforts are often underfunded and inconsistent due to resource constraints. Significant efforts to gather evidence include efforts in Afghanistan to conduct post-clearance assessments, although funding constraints have reduced their scope. Efforts included post-demining impact assessments (in 10%/15% of HAs), annual planning, desk reviews and livelihood surveys, which were conducted on a regular basis between 2010 and 2020.

In Iraq, on the other hand, while pre-clearance data is available, post-clearance information is lacking, making it difficult to establish a clear link between Mine Action and socio-economic outcomes. According to respondents, financial and human resource constraints are hampering improved measurement efforts, and many areas remain unmeasured. This means that there is not full certainty about how the land is used following clearance and, more broadly, land release. However, there seemed to be consensus on the NMAA side that time and resources should be dedicated to investigating if and why the expected development occurred as this would improve understanding of the impact of clearance and would enhance tasking. There is an urgent need for more technical and financial support to gather data pre and post clearance, particularly on levels of contamination, soil conditions and machinery required, as large areas remain contaminated. This could inform effective prioritisation and ultimately facilitate measuring impact. In South Sudan, the NMAA expressed a strong interest in pre- and post-impact assessments to measure the impact of cleared land on communities, similar to what UNMAS is doing via case studies or in place of NMAA to support their extension requests or planning. However, as in the other countries, NMAA interlocutors complained about a lack of adequate funding. A different trend would allow them to improve coordination, data management and cooperation with other ministries.

"Public Sector Structures" - Donors' perspectives

According to a donor survey, 78% of respondents believe that the Mine Action community doesn't collect sufficient information to demonstrate the causal link between Mine Action activities and socio-economic outcomes, and only 22% are satisfied with the data currently available.

Donor representatives who don't think the Mine Action community collects enough information point to a wide range of options that could encourage better measurement. These include increased coordination with other sectors to define common results/outcomes (39%), strengthened MEAL mechanisms and outcome indicators (22%), longer contracts (20%), increased funding for baseline and longitudinal data collection (12%). A minority gave 'other' as an option (7%).

22% of respondents who are satisfied with what is currently being collected pointed to existing good practices such as baseline studies, outcome and impact monitoring, evaluation with affected communities, international fora such as the Mine Action Support Group and demining conferences for better information exchange and coordination, internal and external Quality Assurance and Quality Control (QA/QC) according to the IMAS and pre and post clearance visits and impact assessments.

Donor respondents also provided some examples of instances where outcomes and impact could be quantified and measured. These include farmers' productive use of the land returned to them, increased yields in agricultural production, measuring income increases over time, population growth and density in released areas, increased incomes for farmers involved in project compared with control villages and increased feeling of safety.

Interestingly, one respondent noted the issue of timing, stating that the results achieved by funded Mine Action projects are good, but the outcomes and results become more structured in the long term; this raises the question of when the most appropriate time is to conduct post-impact evaluations. Another participant stressed the importance of establishing baselines, which would make it possible to assess the evolution of socio-economic aspects after clearance, although this person also recognised the challenges associated with emergency contexts.

4.1.2. Factors at international and national level leading to a persistent focus on outputs and preventing the Mine Action sectors from closing the gaps

The aggregated analysis of primary data above demonstrates that a combination of factors that include strategic gaps and lack of coordination, funding shortfalls and capacity constraints, as well as a tendency to replicate what has been done for several years as reasons for the sectors' persistent focus on outputs across the three countries. While there is growing recognition of the need to measure the socio-economic impact of Mine Action, the abovementioned barriers hinder progress and harmonisation of efforts. The sector requires stronger clarity on how to quantify, measure and assess outcomes, improved data systems, and a more integrated approach linking Humanitarian Mine Action with broader humanitarian and development initiatives.

"Civil Society Structures" - Mine Action operators' perspectives

Lack of coordination and strategic follow up

In Iraq, KII respondents lamented the absence of clear strategies for land use after clearance. They also pointed to existing coordination challenges in gathering and utilising data to monitor measurable indicators within the Humanitarian Mine Action (HMA) strategy. Interviewees in both South Sudan and Iraq, stated that prioritisation mechanisms often do not incorporate expected land use and links with other development and humanitarian projects, therefore missing the opportunity to offer an incentive for outcome measurement and assessment. Internal competition within the sector has also been pointed out as problematic.

Can we do better? Yes. Is it too late? Not necessarily!
K_SSD_02

Funding shortfalls and capacity constraints in impact measurement

There is a need for better pre- and post-surveys to understand the socio-economic impact of demining efforts, but the HMA sector lacks the resources to conduct longitudinal studies tracking households over time. One respondent in South Sudan mentioned that in the national strategy, there's something on prioritisation and impact including studies, but that his organisation has no capacity to do that.

Donors' primary focus on outputs

According to NGOs, up until now, HMA donors have tended to prioritise quantitative metrics such as square meters cleared over qualitative impact assessments. Further to this, funding cycles and donor requirements emphasise short-term results, such as six-month assessments post-clearance, but with limited funding available for comprehensive follow-up. According to the respondents, donors show varying levels of commitment to impact measurement; with some prioritising outcome measurement, and others not providing incentives for deeper socio-economic analysis. While donors express interest in MEAL and post-clearance assessments, some interviewees say that they often do not allocate funds to support them or work in silos and are disconnected from the other relevant Ministry of Foreign Affairs departments and agencies.

"Public Sector Structures" - NMAAs and MACs' perspectives

Funding shortfalls and capacity constraints in impact measurement

In all countries, NMAAs/MACs expressed interest and willingness to measure and assess the achievement of outcome, but explained they are unable to conduct post-clearance surveys due to the financial challenges and, connected to these, capacity constraints. In South Sudan and Afghanistan, NMAA interlocutors have also referred to their previous efforts in impact measurement but then cited overall funding decrease as one of the main reasons of why they were discontinued. At least one respondent in each country stated that cleared land is sometimes not handed over due to a lack of capacity for Quality Assurance (QA). This then in turn hampers conducting any other additional follow up to monitor if development, peace or humanitarian outcomes were achieved. According to a respondent in Iraq, the absence of proper follow-up mechanisms results in a limited understanding of why expected development does not occur after demining. The reporting format of the APMBC and CCM also don't offer an incentive for outcome measurement and assessment, since there is no action related to that. All questions therefore relate to square meters released, and there is no space to reflect on outcome level changes. The NMAA's role ends with the handover, as a respondent from the NMAA/MAC in South Sudan pointed out.

Capacities can also be constrained by history of conflict and contextual dynamics. In South Sudan, for instance, Wau is the only location where the NMAA still have regional level representation, because properties and office were destroyed in Yei and Malakal" (K_SSD_03) this has led to disconnects between local and capital level priorities as well as gaps in feedback mechanisms to inform national clearance priorities.

"Public Sector Structures" - Donors' perspective

When asked if donors use mechanisms and tools to assess whether land released by Mine Action operators is used for socio-economic benefits, 61% of respondents said no and 39% said yes. Of those who do measure socio-economic benefits, respondents indicated several types of reporting mechanisms they rely on. These include case studies (21%), field visits (18%), final external evaluations (16%), mid-term reviews (13%), community feedback mechanisms (11%), donor coordination meetings (8%) and other modalities (8%). Only 5% of the respondents indicated information exchanges with NMAA/MACs.

In addition, when asked whether their department would like to increase the budget to facilitate this (e.g. by increasing the percentage of MEAL-related costs), donors' responses show an interesting divide, with 57% believing that their department would not increase resources for results measurement and 43% believing that they would. Despite this divide, it is worth mentioning that outcome measurement and assessment doesn't imply significant increased costs, but rather a change in the methodology and adoption of more systematic approaches.

4.1.3. Outcomes that could be measured and assessed as a priority

The Research Team recognises that ideal outcomes don't exist globally but are context dependent. In addition, there is no agreement within the sector regarding the required level of detail beyond the existing IMAS 05.10 on information management[24]. This is confirmed by the diversity of preferences expressed by Mine Action actors and donors through key informant interviews and the survey. However, some interesting trends can be observed:

- Overall, *return to cleared areas, increased agricultural development and productivity, and an increased feeling of safety* are among the most frequently cited desired outcomes by both Mine Action operators and donors. Similarly, KIIs indicate that national Mine Action authorities and centres pay, or would like to pay, attention to the economic returns following Mine Action, including changes in agricultural development.
- At first glance, it appears that there is room for coordination with relevant government ministries and cluster lead agencies to strengthen joint planning and achieve common outcomes and ultimately better impact.

"Civil Society Structures" - Mine Action operators' perspectives

Based on the responses provided by Mine Action operators, key livelihood outcomes can be grouped into several overarching themes. The majority of responses emphasise the need to measure agricultural development and productivity as a core livelihood outcome. Ensuring access to food and food security is closely linked to this, where agricultural recovery is crucial for overall economic stability. Some respondents suggest broadening the focus beyond farming to include alternative land uses and qualitative assessments. Infrastructure development is seen as a critical factor in post-clearance recovery, with a particular focus on agriculture-related infrastructure. Some respondents highlighted the importance of access to essential services such as power plants and energy distribution grids, water supply and education infrastructures.

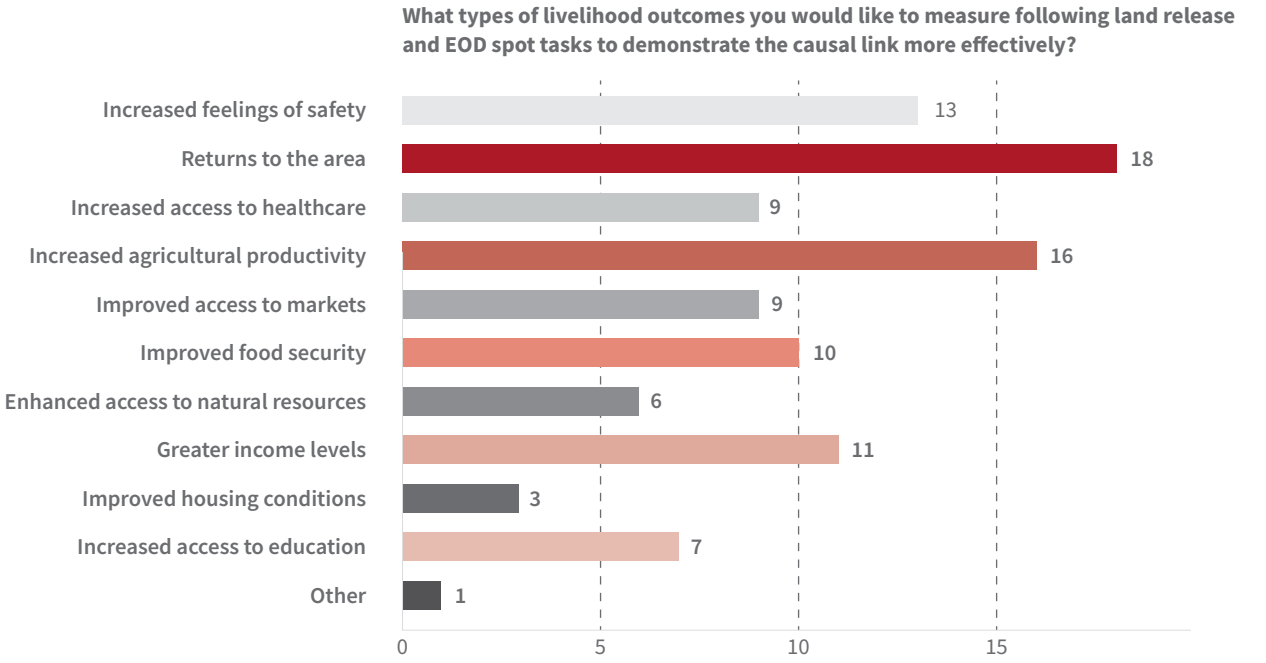
24 *https://www.mineactionstandards.org/standards/05-10/*

The return of Internally Displaced Persons (IDPs) is a major concern and was the third outcome mentioned, in order of priorities. Some respondents said that while measuring return numbers is important, it would be good to go beyond quantitative data to assess qualitative aspects, such as whether returnees find the conditions satisfactory and sustainable. Economic recovery is a secondary but significant concern. Some respondents mention the need to measure income levels and market access, although a key challenge, for many, is the inability to conduct a structured market system analysis. Although not as frequently mentioned, social well-being factors such as housing, education, and mental health are recognised as important for sustainable recovery.

Donors' perspectives

When asked 'what types of livelihood outcomes you would like to measure following land release and EOD spot tasks to demonstrate the causal link more effectively' (Figure 2), donor respondents have indicated[25] returns to the area (18%), increased agricultural productivity (16%), increased feeling of safety (13%), greater income levels (11%), improved food security (10%), increased access to healthcare (9%), improved access to market (9%), increased access to education (7%), enhanced access to natural resources (6%), improved housing conditions (3%) and other (1%).

Figure 2. Preferred outcomes to measure, according to HMA donors



25 Please note that multiple choices were allowed, and each donor respondent could indicate the five preferred outcomes. Percentages indicate an aggregation of responses given by 23 individuals.

4.2. How and why changes in livelihood occur because of Land Release and EOD spot tasks

4.2.1. The extent to which land release and EOD spot tasks benefit the intended target groups

To answer this question, the DRC Research Team began by analysing project documents (proposals, mid-term and final reports) to determine which target groups had been identified at the outset of the HMA initiative. These findings were then triangulated with satellite imagery to identify changes in natural capital and land usage, as well as with information gathered through KIIs and FGDs.

It is important to note that this analysis is based on the recognition that outcomes and impacts are not entirely within the control of HMA actors and are unlikely to be linked to a single HMA intervention, even less to the clearance of a single task site. This is particularly true in areas where the same HMA organisation has been working in adjacent locations for years, or where other NGOs have carried out clearance and EOD. In these areas, in addition, depending on the levels of contamination and duration of HMA responses, the local economy also in turn adapts to the presence of operators and their clearance activities, i.e. via adaptation of supply and demand, for example selling poles used for marking or availability of low-skill labour at camp sites, etc. Thus, disentangling these potential benefits and establishing direct causal pathways between only clearance activities and economic development at large remains quite complicated. Other changes in livelihood potential including policy changes, changes to conflict dynamics and safety, social changes or larger scale economic changes would also influence outcomes and impact measurements. While the perception of safety of land may be a prerequisite for productive use of that land, the following analysis should be read with the understanding that it would be wrong to attribute changes in outcomes to clearance of a single task site. Therefore, we will refer only to the contributions made by the clearance and EOD activities carried out at a particular point in time as well as limit the changes observed to the location where clearance took place. Nonetheless, where available, satellite imagery prior to the respective contamination was also used to indicate how the area was potentially used 'originally'.

AFGHANISTAN

Proposal documents for Afghanistan from Danida, ECHO and Sida funded projects revealed a focus on community members affected by EO contamination and conflict as well as displaced communities and vulnerable groups as intended direct and indirect beneficiaries. Moreover, the location of accidents and level of contamination were taken into account when selecting task sites and delivering explosive ordnance risk education. The majority of projects implemented at the below-mentioned task sites were designed in combination with other sectors in multi-sectoral interventions to maximise land use and access to basic services of beneficiaries. Geographic locations were kept relatively flexible according to contamination levels as well as according to the highest needs in country. Efforts in the below-mentioned provinces included both flexible quick response teams based on hotline/emergency requests and more location-focused/static clearance efforts.

The final reports reviewed illustrate that clearance efforts took place in Hesarak, Parwan and Surobi provinces among others and that beneficiaries were from conflict/displacement affected communities, mainly using the released land for agricultural activities, gaining access to basic services and additional skills to use their land more productively, ultimately increasing their self-reliance and sufficiency. Coordination with authorities at national and local level also further supported land use. Satellite images and focus group discussions confirmed these findings and positive impact.

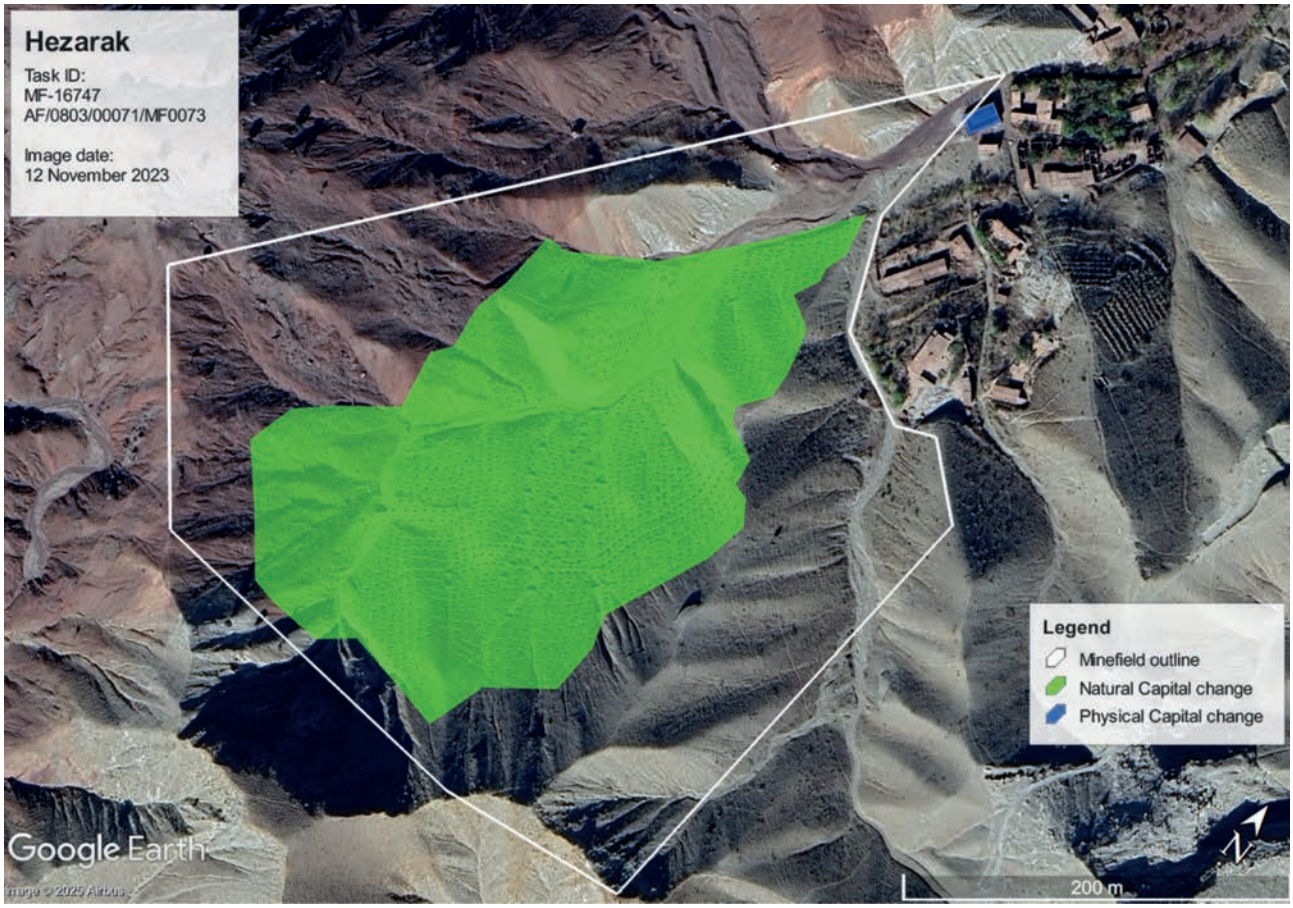
Hezarak

Clearance on this task site took roughly eight weeks, and satellite images analysed were available three years and three months prior, during and one year and three months after clearance, allowing for a relatively comprehensive overview in terms of how land use changed.

After clearance a new pattern of what appears to be dugout areas appear in the cleared area. These patterns could be part of a system to contain water in the area and avoid downflow of material with heavy rains. In addition, a new building in the northern part of the cleared area has appeared. This building contains what appear to be solar panels and could be part of electrical infrastructure to

supply the surrounding buildings with power. Vicinity to what appears to be a residential area is clear – the minefield borders a house. Considering 8 AP mines were found on this particular task site (42 in the district in total), this visibly shows the impact on safety for residents in housing close by. In the corresponding FGDs, respondents confirmed that following clearance, a water channel was rehabilitated, including infrastructure to minimise impact of flash floods (such as super passages and protective walls) as well as an access point for women to wash their clothes via a cash-for-work scheme for a total of 106 community members. To further enhance disaster preparedness and reforestation, DRC also planted fruit and walnut trees, including a nursery via terraces. According to DRC staff this will serve community members as a reliable source of income in the coming three years, fostering local resilience. Community members confirmed that the rehabilitation of water channel significantly improved their access to basic services and livelihoods, as distances and means of fetching water were eased, and agricultural activities were less dependent on seasonal availability of water. Finally, given that 12 accidents had occurred in the district prior to DRC's intervention, DRC also provided cash for three of these survivors/their families. During the FGD, four of them participated, while 2 of them had received assistance from DRC.

Figure 3. Change in land usage following clearance. Hezarak site, Afghanistan



Surobi

In Surobi, clearance efforts were ongoing for a two-week period only, with satellite images only available prior to clearance. DRC started clearing this area following a request from the national authorities – as it is on government-owned land and was planned to be used for the construction of two solar plants. This request was shared with all Mine Action partners and DRC had capacity at the time to respond to it – it thus demonstrates how both local and national authorities as well as the Mine Action sector coordinated and the benefits that can have for future land-use.

The plans to use the land for energy purposes, largely correspond to the findings from the imagery, given the high and low voltage electrical power lines in the northern-eastern and south-north in the south-eastern parts respectively.

Participants of the FGDs which included community members that had worked at the solar plant to construct it during the first phase as well as the managers of the plant, said that the plant now supplies energy to roughly 10,000 families in Kabul and Surobi. In addition, a second phase to construct additional panels is underway. While the satellite images were not available following clearance – pictures taken during the field visit confirm these activities (please see picture on page 34). Prior to the construction of the solar plants, community members were using the areas for grazing for animals but said that there were alternative areas available to do this following the construction of the plants.

Figure 4. Change in land usage following clearance. Surobi site, Afghanistan

IRAQ

The desk analysis of project proposals developed by the DRC HDP team in Iraq over the past 5 years revealed that efforts in Basra, aimed at improving the situation for the most vulnerable people. Namely, those who would use the cleared land for agriculture, grazing, resettlement or other socio-economic purposes. According to the same documentation, the intended indirect beneficiaries were those people who benefit from clearance within the wider community, as their feeling of safety and ability to move around without the risk of being injured or killed by explosive hazards will be increased through the removal of dangerous items or provision of EORE sessions.

The final reports and latest updates confirmed that the work was being carried out in the Shatt al-Arab and Al-Zubair districts, among others, identified through task orders from the DMA/RMAC-S. The sites selected for the task orders included those used for agriculture, as well as land identified for the construction of low-cost housing and a sports village in Shatt al-Arab district. The same reports show a disaggregation of data on land beneficiaries by age and gender. With the support of WRA-funded programmes in Iraq, DRC has been able to help farmers regain their lost land and resume farming. This information from the desk review is further corroborated by the analysis of satellite imagery and the results of FGDs.

In both Al Autba and Safwan, the analysis confirms that clearance and EOD spot tasks benefited the intended target groups through the release of land and allowing for agriculture, grazing, resettlement or other socio-economic activities.

Al Autba village

One of two tasks chosen in Iraq for analysis using satellite imagery is located in Al Autba village. This task is a combined minefield and battle area and is located approximately 7 km north of Basra city. Clearance of this task was completed on 14 October 2021, and the task start date is registered as 28 June 2021. For analysis of satellite images covering the task area the temporal resolution of available imagery is relatively good. For this analysis, imagery dated 11 March 2021, 3 May 2022, and 2 March 2024, was used. Imagery has thus been available approximately 7 months prior to clearance and 6½ months and 2 years 6 months following clearance.

From available satellite imagery prior to the start of clearance on 28 June 2021, there appear to have been no major developments except for a few buildings being constructed within the minefield area between 2013 and 2016.

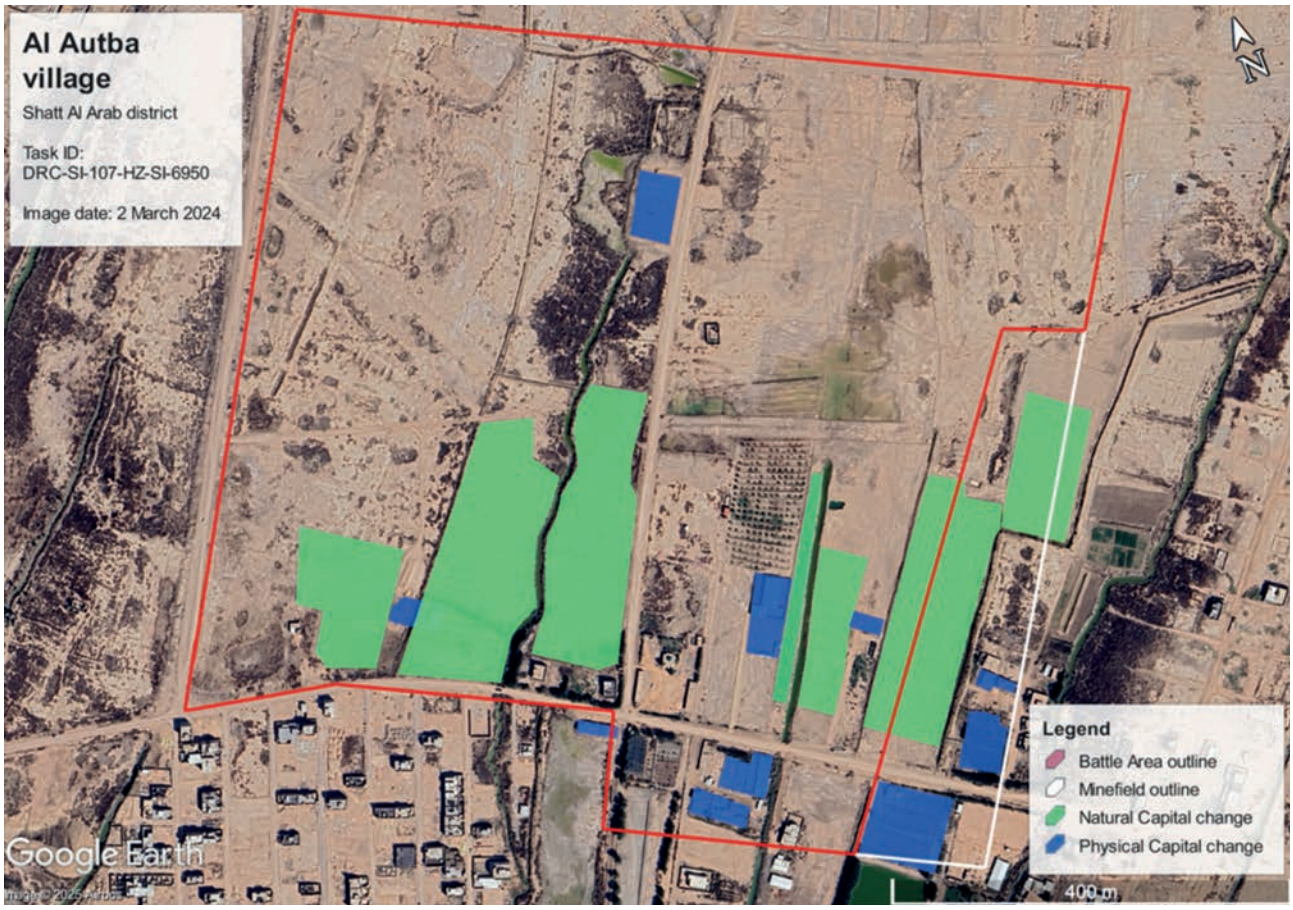
In analysing the changes between pre and post clearance, some features stand out. Several areas are being prepared or are already in use as agricultural land in the last image from 2 March 2024. This is visible across the whole southern area and in particular covers most of the previous minefield area. In the northeastern corner ground preparation indicates, that the area is to be used for construction of various sized buildings.

Natural capital in the form of both usable land and water resources are visibly present in the area, before and after clearance. A waterway crosses the area from north to south and the land is accessible and usable for various purposes. Physical capital in the form of several buildings is present.

The map below highlights changes in the use of natural and physical capital, showing developments in land usage. Community members seem to have allocated additional areas for agricultural purposes, and several new buildings are visible in the latest image. As the visual analysis of satellite imagery confirms, that the development of the site happened close to the date of task completion, it is likely that the impact of clearance has been the release of productive land in addition to improved safety.

The FGDs revealed that the area is being used, and will continue to be used, for several purposes: the construction of a new school, the installation of small power infrastructures, and farming. Additionally, around 40-50 people are either expected to return or have already returned to reside or cultivate the cleared area. These findings align with satellite data, which confirm that the land is primarily being utilised for agricultural and other productive purposes.

Figure 5. Change in land usage following clearance. Al Autba, Iraq



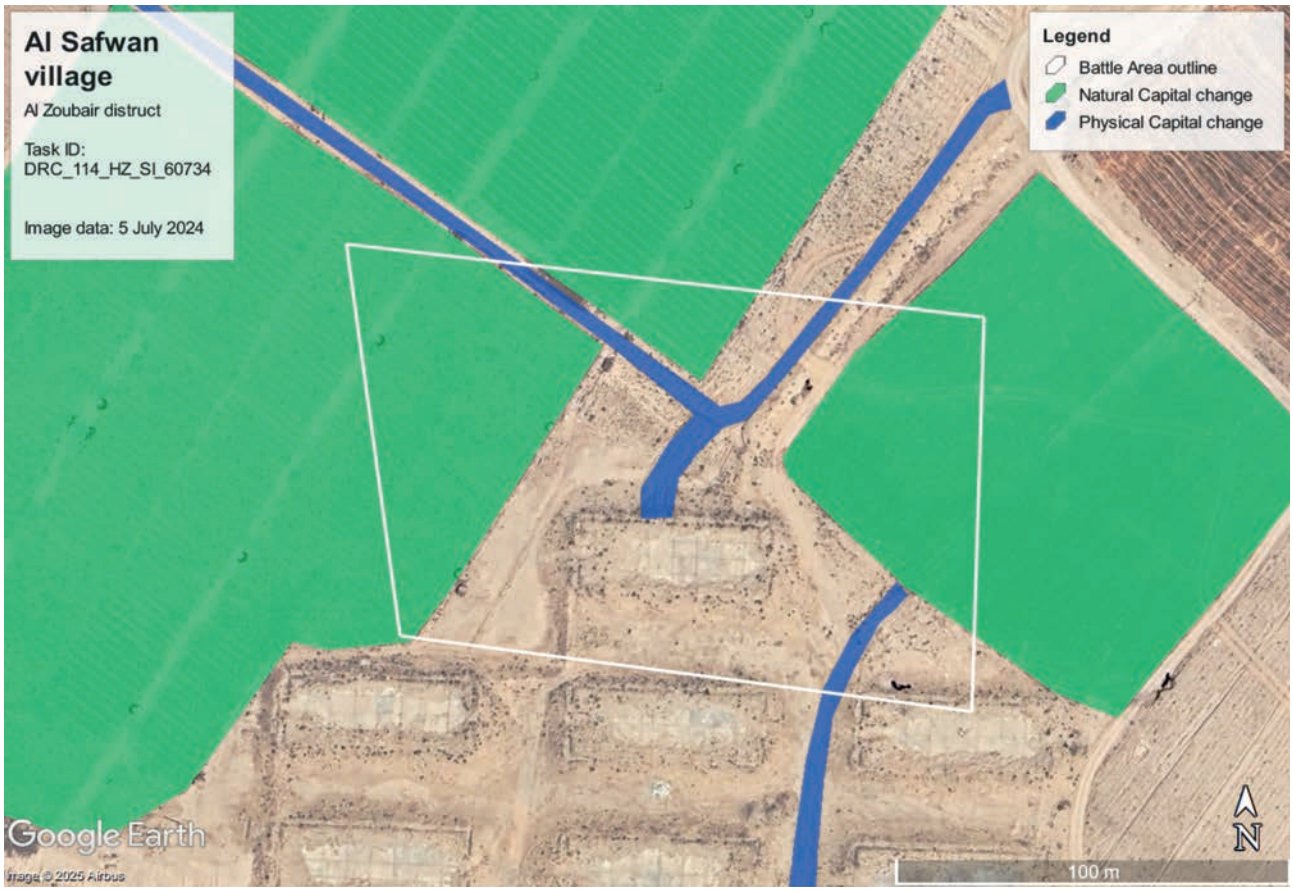
Al Safwan

This task is classified as a Battle Area Clearance task, and it is located approximately 6 km northwest of Safwan city. Clearance of this task was completed 31 January 2022, and the task start date is registered as 26 January 2022. Temporal resolution of available imagery for this task is relatively good and imagery with dates 23 August 2004, 1 September 2010, 7 August 2021, 9 September 2021, 29 December 2022 and 7 July 2024 was used. Relevant imagery was thus available approx. 17 years 5 months, 5 and 6 months prior to clearance, and 10 months, and 2 years 4 months following clearance.

A historical analysis shows that the land has been used for agricultural activities in 2004. These activities are no longer visible in the image available during 2010. Only following clearance and land release does the land again appear with clear signs of agricultural activities.

The latest image, taken in July 2024, clearly shows changes in both natural and physical capital compared to the image taken 5 months before clearance began. The area now shows additional areas of structured growth, suggesting that new roads and paths have been created for agriculture. From the image analysis it is thus likely that the main impact of clearance has been the release of productive land and increased safety for people living, working and moving through the area. This correlates well with the evidence from the FGDs and survey data, where respondents confirm that the area is now used for growing tomatoes during the winter period.

Figure 6. Change in land usage following clearance. Al Safwan, Iraq



SOUTH SUDAN

The desk analysis of project proposals developed by the DRC HDP team in South Sudan over the past 5 years revealed that efforts in Magwi aimed at targeting the most vulnerable groups, including marginalised women and girls, disenfranchised male youth, children and displaced communities.

The final reports and recent updates confirmed that DRC HDP, in collaboration with the DRC protection sector and other agencies, prioritised women, children and marginalised groups in our programming. This included targeted awareness-raising and referrals to ensure that these vulnerable groups received essential protection assistance. Relevant support included securing land for use and/or ownership by beneficiaries of land release, training to develop agricultural skills, and the provision of agricultural tools, seeds and livestock. Operational statistics confirm that women and men, girls and boys benefitted from EOD spot tasks and land release activities. With the support of Dutch MFA and GFFO-funded programmes, DRC has been able to help local communities, especially the most marginalised, to benefit from land release and EOD activities.

This information from the desk review is further corroborated by the analysis of satellite imagery and the results of the FGDs. In both Magwi Southeast and Magwi Southwest, the analysis confirms that clearance and EOD spot tasks have benefited the intended target groups through the release of land.

According to the women involved in the FGDs, the economic impact of these efforts has been modest. They stated that they are part of a poor community and that the primary use of the cleared land was to feed their families rather than to sell a small surplus on the market. Regardless of the economic benefits, it is, however, clear that clearance and EOD have contributed to increasing safety for women living in poverty. In another case, people on the move said, that their overall satisfaction with the increased feeling of safety was overshadowed by concerns about tensions with the host community. To address these issues, there is a need for continued clearance efforts

combined with a thorough conflict analysis and conflict-sensitive approach, as well as further community engagement to rebuild trust and ensure comprehensive support for livelihoods and economic development.

Magwi Southeast

One of two tasks chosen for satellite image analysis in South Sudan is located in the southeast part of Magwi town. The task is split into two polygons as shown below in the map and categorised as a Battle Area Clearance task. Clearance of this task was completed on 13 December 2021, and the task start date is registered as 15 November 2021. The temporal resolution of available imagery for Southern Sudan is unfortunately low. For this analysis, imagery dated 20 January 2020, and 16 February 2023, was used. Imagery has thus been available approx. 11 months prior to clearance, and 2 years 1 month following clearance.

Changes in physical and natural capital are clearly visible in the map below. Changes are most substantial within the cleared area where two large buildings, one road and several paths appear following clearance. The use of the land has also changed, with patches of land clearly visible as cultivated after clearance (these are shown in green below).

From FGDs it is confirmed that men consulted through a FGD stated that the clearance work supported livelihood to a smaller extent and provided access roads to the market. The new buildings within the cleared area houses are part of a health facility. This corresponds well with the increased transport (road and paths) and the size of the visible buildings.

Non-Technical Survey and Completion reports also show that only three items were found in total. It is thus possible, that the land usage in terms of agricultural benefits has not been significantly impacted by clearance, but rather, that normal developments in the area would have happened no matter if clearance was completed or not. However, the impact of clearance on the safety of current activities including construction of buildings is clearly visible.

Figure 7. Change in land usage following clearance. Magwi, South Sudan

Magwi Southwest

The task is located in the southwestern part of Magwi town and is split into two polygons. The task is categorised as a Battle Area Clearance task. Clearance of this task was completed on 22 June 2022, and the task start date is registered as 29 August 2022. For the analysis imagery dated 19 March 2014, 20 January 2020, and 16 February 2023, were used. Imagery has thus been available approx. 8 years and 3 months and 2 years 6 months prior to clearance and 5 months after clearance. The task is split in two areas with a smaller northern area and a larger southern area.

As the latest image prior to clearance dates 2 years and 6 months prior to clearance it cannot be confirmed whether the changes visible in the below map have happened during the period prior to or following clearance. From the visual evidence available it appears, however, that the area has not seen considerable changes in its usage following clearance. Both before and following clearance it has been used for residential purposes with scarred gardening and agricultural activities.

Albeit hard to attribute directly to clearance, from 20 January 2020 to 16 February 2023, a total of 25 new buildings appeared within the cleared areas. Also, especially in the southern area of the larger Battle Area polygon new paths have appeared leading to new residential areas. A road also appears going west to east and crossing the southern polygon. Comparing chances occurring inside the cleared areas with changes happening outside there appear to be little difference. This could imply that clearance has not substantially changed the use of the land. This may also imply that the main impact of the clearance of land has been the increased safety for the population living and moving through the area.

FGDs and surveys indicate that the area has housed displaced persons as well as host communities. This correlates well with findings from the image analysis and confirms, that the use of land has not changed significantly following clearance. It also confirms the visible evidence, that additional households have settled in the area leading to increased transport usage, leading to the creation of additional roads and paths (figure 8).

Figure 8. Change in land usage following clearance. Magwi, South Sudan

4.2.2. How the release of lands has affected the feeling of safety and social dynamics changed at community level

The analysis of the responses to the survey conducted in Afghanistan, Iraq and South Sudan shed light on how residents perceive security and social dynamics in the community following land release, thereby helping to answer the following research question: *How has the release of lands affected the feeling of safety and social dynamics at the community level?* As the SLF demonstrates such benefits in turn also impact social capital and with it – livelihoods of community members.

Community perceptions of safety following land release

To what extent do community members perceive the released land as safe or very safe for use? Survey respondents across Afghanistan, Iraq, and South Sudan generally reported high levels of confidence in the safety of cleared land (table 3). Overall, the percentage of respondents who feel the land is safe for general use is consistently high across all three countries: 98.92% in Afghanistan, 100% in Iraq, and 98.55% in South Sudan. These results highlight generally positive outcomes of land release, particularly in the increasing feeling of safety.

However, when asked about specific activities such as cultivating, allowing children to play, and walking around the village, these perceptions vary. Shatt Al Arab, in Iraq, stands out, with respondents consistently expressing high safety levels across all activities, suggesting a strong sense of security. In contrast, Al Zubair in Iraq and Parwan in Afghanistan show lower safety perceptions, particularly regarding children's safety and cultivating. These observations are not fully aligned with the findings from the focus group discussions. In Al Zubair, participants indicated they felt safe using the land for cultivation and even for children to play on. Likewise, in Parwan, participants, particularly women, expressed feeling safe using the cleared land.

The most important factor is the feeling of safety, people feel safe, and come back to their village. F_AFG_1

Hundreds of families had left their lands because of the war and the danger of the farms because they contain dangerous war pollutants, but now families have returned. F_IRQ_3

We are satisfied, …, we feel safer. F_SSD_2

Table 3. Safety perceptions by country and location

Country	Location	Safe to Use (%)	Safe Cultivating (%)	Safe for Children (%)	Safe Walking (%)
Afghanistan	Hesarak	97.78	97.78	100.00	97.78
	Parwan	100.00	25.00	25.00	25.00
	Overall	98.92	60.22	61.29	60.22
Iraq	Al Zubair	100.00	57.69	69.23	80.77
	Shatt Al Arab	100.00	94.74	100.00	100.00
	Overall	100.00	75.51	83.67	89.80
South Sudan	Diopok and Amika	98.08	75.00	100.00	98.08
	Okila and Magwi	100.00	58.82	94.12	94.12
	Overall	98.55	71.01	98.55	97.10

I feel somehow safe, why I am saying this is because I still believe that some of the items are still buried deep down so if they got exposed to rain or running water it could be dangerous again for the community – F_SSD_3

The reported absence of accidents and dangerous items in many of these areas (table 4) may also reinforce perceptions of safety. In locations such as Basra, Hesarak, and Diopok – where safety levels are relatively high – there is also a significant absence of reported hazards. Nonetheless, in areas like Parwan, despite a similar absence of reported hazards, feelings of safety remain more reserved, suggesting that physical clearance alone does not always translate into a complete sense of security. Reasons for this are likely diverse, but could include remaining contamination in the surrounding area and potential of items being moved via melting snow or floods, and resulting concerns of safety due to other factors such as criminality or conflict.

Table 4. Accidents and dangerous items reported by country and location

Country	Location	No Accidents (%)	No Dangerous Items (%)
Afghanistan	Hesarak	97.78	88.89
	Parwan	100.00	100.00
Iraq	Al Zubair	100.00	100.00
	Shatt Al Arab	84.21	94.74
South Sudan	Diopok and Amika	100.00	96.15
	Okila and Magwi	94.12	94.12

FGDs offer additional context to these findings. For instance, in Amika, South Sudan, community members shared that the cleared areas in their village are perceived as safe and are used by children, women, and men without harm. However, concerns remain about uncleared areas outside their community, which residents associate with risks, particularly to children. These concerns stem from activities such as waste burning, construction, and farming near uncleared zones. Such apprehensions might help explain why, in some cases, the absence of reported hazards or accidents in cleared areas does not fully translate into higher perceptions of safety, as fears linked to uncleared or neighbouring areas may still weigh heavily on respondents' feeling of safety.

Community perceptions of social dynamics following land release

Survey results (figure 9) show that, albeit limited agreement on the presence of community meetings regarding land use, there is strong consensus across most locations that the community has worked together to cultivate the land. DRC had varying influence in facilitating these meetings across the three countries. Regardless of the extent of DRC's influence, the presence of meetings suggests a shared commitment to collaboration at the community level, a critical aspect of social capital. The agreement on joint efforts to utilise the land implies that, while formalised meetings may be lacking, informal cooperation and mutual support are prominent in managing and benefiting from released land. Exchanges with

DRC staff also highlighted that handover procedures as well as regular EORE and community liaison play an important role in instilling confidence regarding land use.

Findings from the focus group discussions show varying perspectives on the extent of community collaboration in cultivating the land. In Hesarak, Afghanistan, participants noted that families often support one another and share resources to make use of the land. While, in areas like Amika, South Sudan, and Al Zubair, Iraq, participants reported that land use tends to be more individualistic, with community members working independently. At the same time, discussions in locations like Amika, South Sudan, highlighted that community support mechanisms remain in place, particularly for vulnerable groups or in situations requiring collective effort. While large-scale collaborative projects may be less frequent, community members reported assisting one another with tasks such as building homes, farming, and providing resources like firewood and water. Thus, even in places where land use appears more individualistic, systems of mutual support continue to play an important role, indicating that individuals and communities can rely on social capital.

Our community has some vulnerable people mostly the old age group, we sometimes support them with firewood, water and even cleaning their residential areas. F_SSD_3

When I look at the way we face issues in the community, I think the approaches depend on the cases, if it is something small the family can finish it within the home, but bigger cases will be referred to the chief and the elders. F_SSD_3

In terms of engagement with authorities and decision-makers, the survey data reveal more variability. Locations such as Parwan in Afghanistan report higher levels of authority consultation, while others, like Al Zubair and Shatt Al Arab, show lower levels of agreement. This variation implies that authority involvement is inconsistent, which may affect social capital in areas where government engagement is weaker. Some extracts from the focus group discussions may help explain these findings. In Al Zubair, participants suggested that, even following clearance, there was no support from local authorities for cultivation, which hampered people's ability to use the land.

Interestingly, across nearly all locations, respondents report low levels of land-related tensions[26]. This broad acceptance of shared access and low conflict reflects a cohesive social fabric that could support peaceful and inclusive use of the land, reinforcing a foundation of social capital essential for sustainable community use of cleared land. Moreover, these findings are supported by focus group discussions. Even in locations like Amika, where focus group participants noted a lack of community collaboration in using the land, they reported no significant conflicts. A similar observation was shared by participants in Parwan.

Fortunately, the members of the community have unity and trust in each other and carry out the work in consultation with each other. F_AFG_1

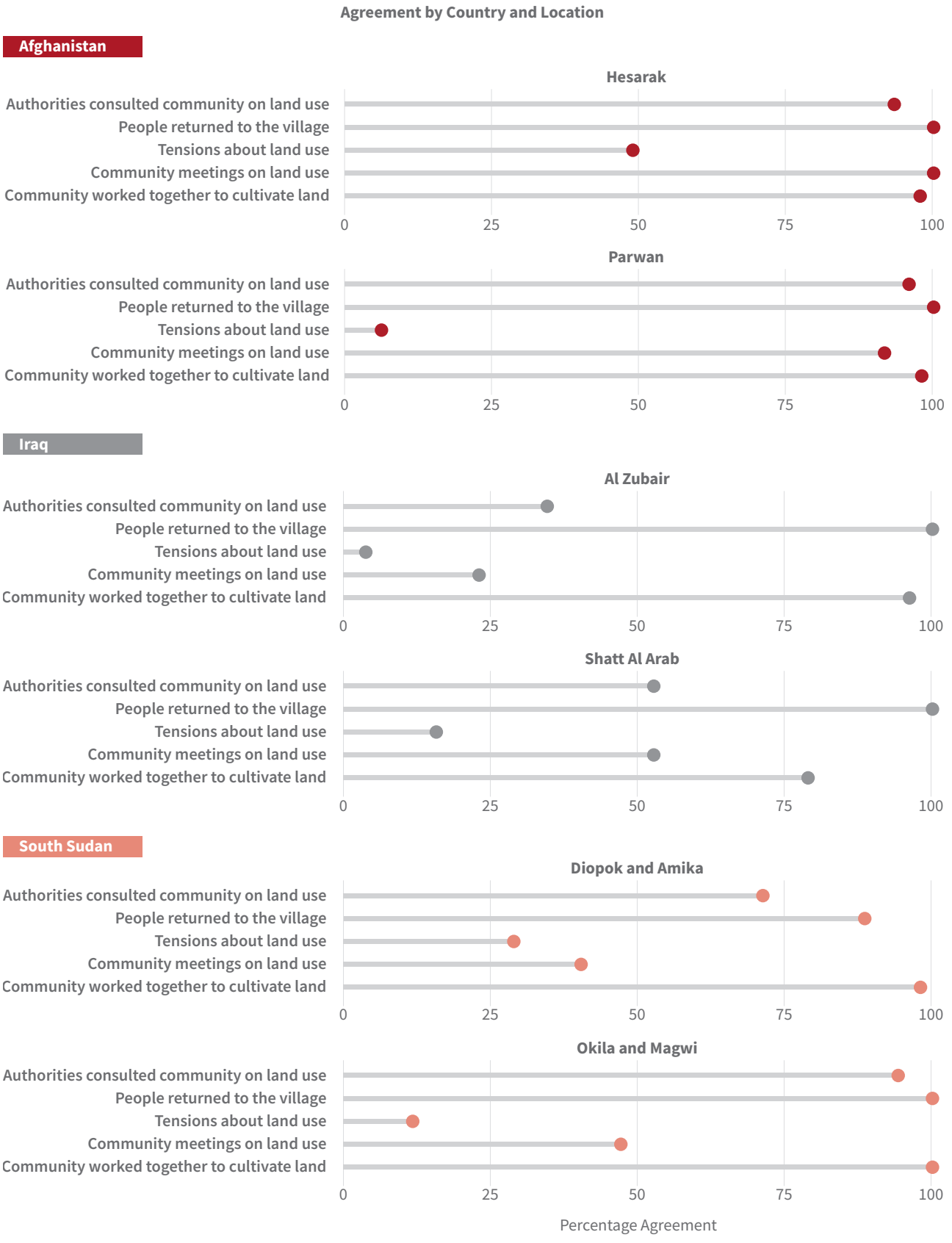
We are just using the land individually and of course with no conflict with one another F_SSD_4

Since the clearance was done, there was no serious tension that we experienced in this community related to land issues F_SSD_3

Tensions were reported in Diopok, South Sudan, where refugees and other people on the move faced issues with the host community. Please, see the next chapter for a more thorough analysis.

26 The reasons for this are diverse and the team was not able to further explore how clearance efforts or other components of the mine action response contributed to this.

Figure 9. Survey results on community perceptions of social dynamics following land release



Social dynamics might further be affected by economic gains and development, considering that, due to several reasons, it is in the very nature of growth to modify structures and relations at the various levels[27]. For this reason, we inquired the extent to which survey respondents agree with various indicators of support and economic benefits directly following land release (figure 10) or provided in connection with clearance efforts either by DRC or other partners (for example training on land rights, cash for victims or training to in agricultural methods). Overall, agreement levels are high across most statements, particularly regarding economic benefits, increased agricultural productivity, and profits from agricultural activities. On the contrary, variation is observed in responses about receiving support or training for land use and having resources for profitable activities. These disparities highlight potential gaps and variations in the resources and training provided to communities, which could be key for maximising the benefits of cleared land. Despite these differences, the high levels of agreement across the remaining statements suggest that land release is contributing to improvements in livelihoods and fostering opportunities for collective engagement. Overall, investment in training for better land use would contribute to building up the human capital asset base, while other monetary support (such as cash grants) would affect the financial capital. The servicing of the two capital assets would mean that through an integrated Mine Action and economic recovery approach, there is the opportunity to further contribute to all five of the assets mentioned in the SLF.

Focus group discussions support some of these findings, question others, and provide valuable context on the factors influencing economic gains. In Amika village, South Sudan, one participant argued that land release has positively impacted farmers. However, others noted that much of the cleared land is being used for residential purposes with limited livelihood activities. Additionally, one participant mentioned a lack of financial support to initiate profitable activities, contrasting with survey respondents from Amika who reported receiving support for land use. In both Al Zubair and Shatt Al Arab, participants highlighted economic gains in their communities following clearance, particularly benefiting farmers, which may imply the presence of financial capital.

Yes, the farmers depend on cultivating the land, it is very important that the land is free of war remnants to plough it and scatter the seeds in the soil and all this process returns a good financial income to the farmer and the landowner
F_IRQ_3

(…) my family lives in the cleared area but within the residential part, so we are getting nothing economically from the land since we are not building commercial houses
F_SSD_3

To conclude this section, it is noteworthy that agriculture serves as a significant source of livelihoods in all three countries included in our research. Therefore, communities heavily rely on natural and physical assets. Further research is recommended to assess the relevance of SLF for sites in other livelihood zones - e.g. agropastoral and even urban, non-agricultural lands.

27 François Bourguignon, Chapter 27 - The Effect of Economic Growth on Social Structures, Handbook of Economic Growth, Elsevier, Volume 1, Part B, 2005.

Figure 10. Survey results on community perceptions of economic gains following land release

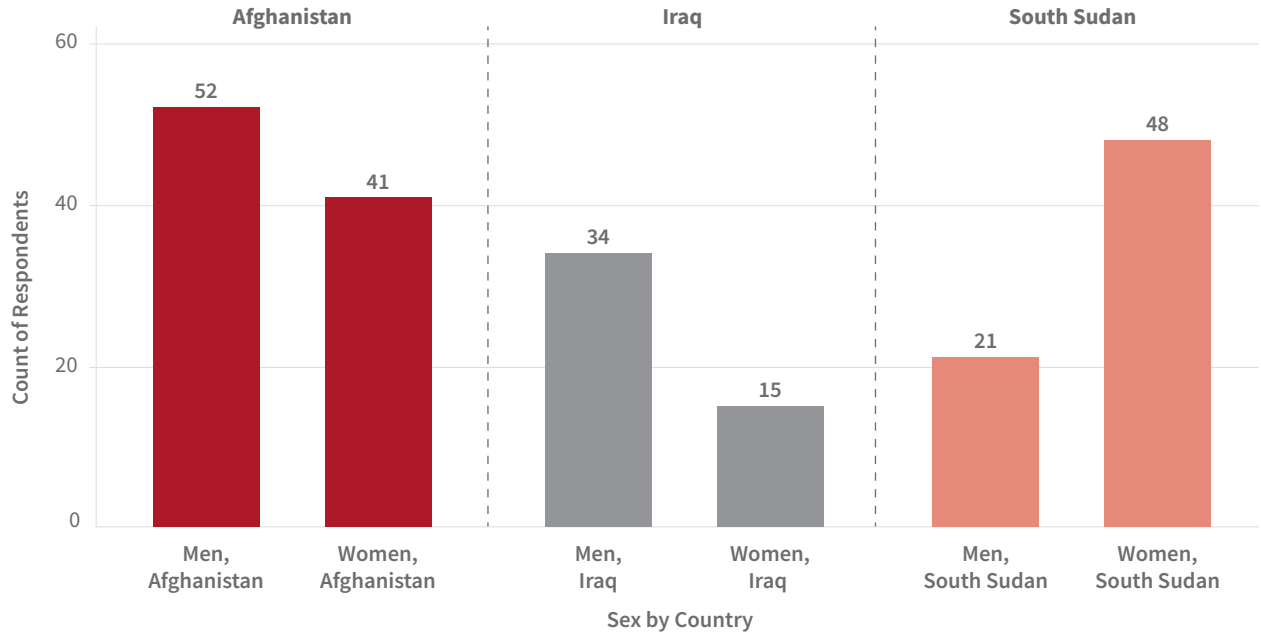
A family in Al Zubair, Iraq, prepares their land for cultivation after DRC cleared it, Iraq, 2024.

4.2.3. To what extent and how do marginalised groups benefit from the release of land/EOD spot tasks?

The analysis of the responses to the surveys and focus group discussions conducted in Afghanistan, Iraq and South Sudan shed light on how groups that are usually under-represented and marginalised - such as women, the elders, children, and people on the move - benefit from land release, thereby helping to answer the following research question: *To what extent and how do marginalised groups benefit from the release of land/EOD spot tasks?*

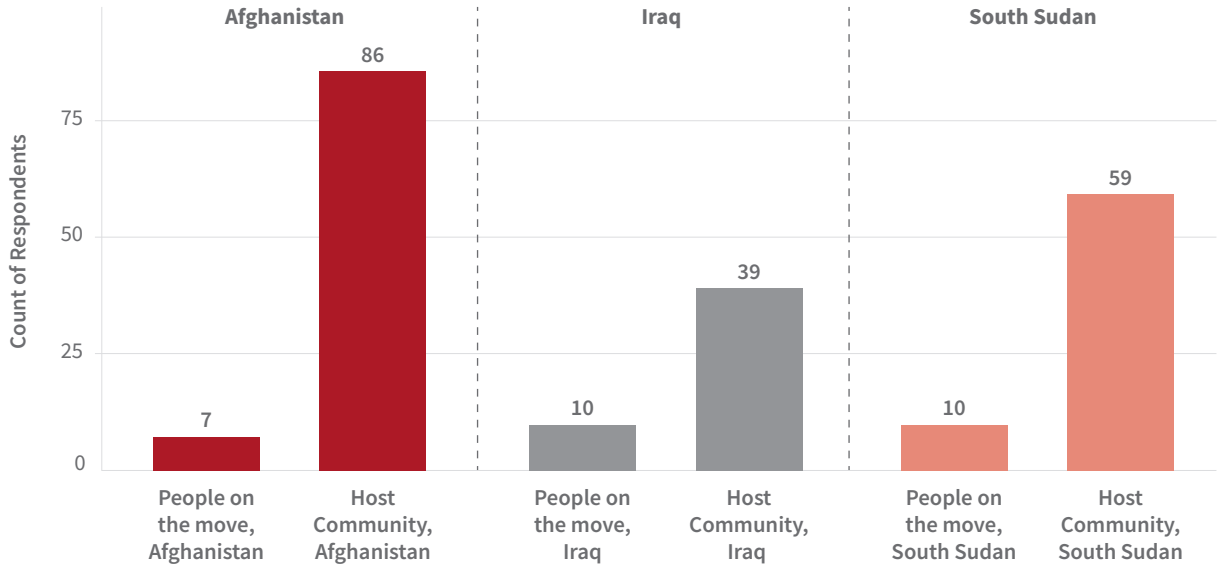
In total, 211 people were surveyed in three countries. 104 were women: 15 in Iraq, 48 in South Sudan and 41 in Afghanistan (Figure 11).

Figure 11. Men and Women respondents, by country



Amongst the 211 respondents 27 were **people on the move** (IDPs, refugees and returnees): 7 in Afghanistan, 10 in Iraq, 10 in South Sudan (Figure 12). An additional group of IDPs and refugees was consulted in South Sudan during a focus group discussion.

Figure 12. Respondents' residence status, by country



When analysing results collected through the survey across all locations and countries, it appears that women's and men's feeling of safety following clearance is relatively similar, and no differences between genders are observed (table 5). These findings are further supported by focus group discussions, reflecting comparable perceptions of safety between gender groups when farming, walking, or allowing children to play.

A notable exception arises in Parwan, Afghanistan, where women report extremely low confidence levels when walking, cultivating and when children play (between 0 and 5.26%). At the opposite, men express higher confidence rates, ranging between 37.93% and 41.38%. Interestingly, this contrasts sharply with the focus group discussions, during which women expressed confidence in the land release process. A possible explanation of this lack of alignment is that the scale might have been reversed during the survey or explained wrongly. Another option is that, in focus groups, women may feel more comfortable sharing positive views due to shared experiences and/or group support, whereas in surveys, their responses may be reflecting personal or household-level concerns.

We feel good and we and our children feel completely safe, unlike before when the land was contaminated with landmines, we could not roam freely, and we were worried about our children going out - F_AFG_1

Everyone - men, women, boys and children can use the land without any problem - F_AFG_1

Another notable exception arises in Amika, South Sudan, where men express lower satisfaction rate (46.15%) with regards to feeling of safety when cultivating, opposed to women (70%). When triangulating these results with the focus group discussions with men and women, these are confirmed. Some women expressed satisfaction; some others lamented that the work was not done properly. In the focus group discussion with men, dissatisfaction was expressed more strongly as concerns remain about the uncleared areas, which pose risks, particularly to children, with residents expressing apprehension about their safety during activities like waste burning, construction, and farming.

Table 5. Percentage of respondents reporting feeling safe or extremely safe by safety aspect, country, location and sex

Country	Location	Sex	Safe to use YES (%)	Safety when cultivating (%)	Safety for Children (%)	Safety when Walking (%)
Afghanistan	Hesarak	Men	95.65	100.00	100.00	100.00
		Women	100.00	95.45	100.00	95.45
	Parwan	Men	100.00	37.93	41.38	37.93
		Women	100.00	5.26	0.00	5.26
	Overall	Men	98.08	65.38	67.31	65.38
		Women	100.00	53.66	53.66	53.66
Iraq	Al Zubair	Men	100.00	58.82	64.71	82.35
		Women	100.00	55.56	77.78	77.78
	Shatt Al Arab	Men	100.00	92.31	100.00	100.00
		Women	100.00	100.00	100.00	100.00
	Overall	Men	100.00	76.47	82.35	91.18
		Women	100.00	73.33	86.67	86.67
South Sudan	Diopok and Amika	Men	100.00	71.43	100.00	92.86
		Women	97.37	76.32	100.00	100.00
	Okila and Magwi	Men	100.00	42.86	85.71	85.71
		Women	100.00	70.00	100.00	100.00
	Overall	Men	100.00	61.90	95.24	90.48
		Women	97.92	75.00	100.00	100.00

Apart from the few instances mentioned above, the consistency of results suggests that gender does not significantly influence feelings of safety following clearance and EOD activities. See above, Table 3.

According to the survey, it is not possible to observe significant variances between men and women with regards to the level of information shared with them during land release. While levels of agreement with the statement "***I felt well informed during land release***" vary among locations, it is interesting to observe similar responses given by men and women in Hesarak and Parwan, Afghanistan; Al Zubair, Iraq; Amika and Diopok, South Sudan. The only significant variance is reported in Shatt Al Arab, Iraq, where women reported not having been well informed, as opposed to men. Interestingly, focus group discussions revealed more nuances, with women in Al Zubair declaring that they don't have information on how to report dangerous objects, implying that it is not their usual role.

We are women and do not have these contacts, but my husband has a card that was distributed to the local people and contains the number to report any war pollution as well as contacting the mukhtar to inform him about the presence of any cluster bombs. F_IRQ_4

Similarly, when asked if "***authorities consulted the communities***" prior and during clearance, surveyed men and women have expressed similar level of agreements in each location. While significant variances are observed between and within countries, these variances seem linked to other external factors and not gender roles. However, for this question too, focus group discussions offer further information and nuances. Findings mainly indicate that consultation with communities have happened via the elderly or via the head of the households, usually men. This may reflect gender roles and dynamics that are specific to the location and countries included in this study.

Children in Afghanistan remain amongst the highest EO casualties per year with 8 out of 10 EO accidents involving children. Kandahar, Southern Afghanistan, 2023.

The elders of the village gather and consult. F_AFG_1

All the people of the village were involved. The elders of the village gather and consult with each other. F_AFG_4

My father had large farms near the mountain, and it contained hundreds of cluster bombs, so he went and informed the mayor about it and in turn the mayor went to RMAC and informed them about the contaminated land and in less than one month the teams cleared the area. F_IRQ_3

For an ideal measurement tool, instead of asking if authorities consulted the communities, a more appropriate question would be "were you consulted during the land release process and to identify the priority areas to clear". Such question will likely provide more granularity on differences between women and men, provided that demographic data are collected during the survey itself.

When asked if "***only men can access released lands***" and "***land is safe for adults only***", survey respondents have unanimously *strongly disagreed* or *disagreed* in all countries and districts surveyed. Additionally, while children were not consulted for this survey, men and women have expressed similar views during focus group discussions, therefore corroborating the survey findings.

Everyone - men, women, boys and children can use the land without any problem. F_AFG_1

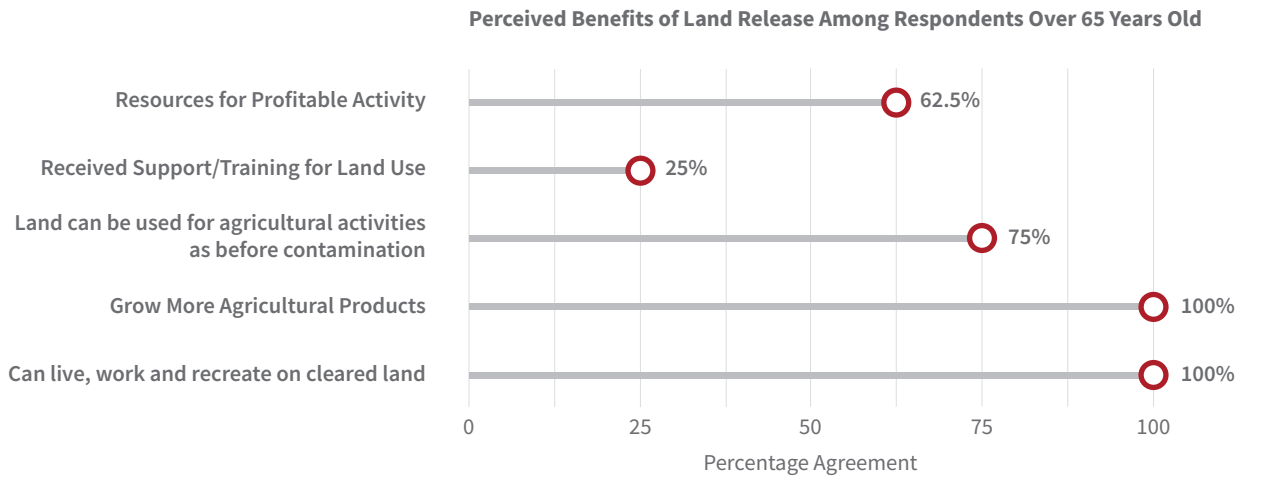
Yes, I allow them [children] to play in the land after it has been completely cleared of mines. F_IRQ_3

In this community, it is evident that individuals utilise the land according to their specific needs. For instance, children engage in playing football in the cleared areas, while the elders employ the land for agricultural purposes. From my perspective, I observe that all members of the community are safe in their various uses of the land, and I perceive no significant differences in these activities. F_SSD_2

A possible explanation stemming from visits to the areas, is that families work lands together and therefore everyone access the same plots that have been released by Mine Action operators. This might explain such overarching disagreement. A more in-depth analysis of housing, land and property rights might have probably shed light on inequalities within communities, between men and women. This is another recommended area for further research.

Elders were consulted in Iraq, Shatt Al Arab district, Autba village, where two men over 65 took part in the focus group discussion, and Al Zubair, Safwan Village, where one man and one woman over 65 took part in focus group discussion there (Figure 13). In South Sudan, no FGD-participants declared having reached 60 years old although one identified himself as an elder. In Afghanistan, three men over 65 participated in FGDs. The graph below shows how respondents over 60 years old (n = 8) reacted to some statements. Overall, findings are similar to those from the FGDs, as there is nothing indicating "impossibility of the elders to benefit from the released land". Researchers however acknowledge that the sample is small.

Figure 13. Perceived benefits of land release among respondents over 65 years old



During the observation and data collection with residents in demined areas, it emerged that older individuals still play an active role in the community. They participate in decision-making processes as heads of households, community representatives (such as Mukhtars and Sheikhs in Iraq), or key figures in addressing community matters and conflict resolution (in South Sudan). No comments were made with regards to the impossibility of the elderly to benefit from the released land. Additionally, throughout the data collection process, several respondents highlighted the importance of community-level collaboration and mutual support, which includes assistance for those community members in a vulnerable situation and with specific needs.

As an elder in this community, I want to emphasise that we have always supported each other in various ways, including financial and in-kind contributions like food items and soap, particularly to help the most vulnerable, such as the elderly.
F_SSD_4

The elders of the village gather and consult with each other.
F_AFG_4

I would say that all categories of people in the community are using the land; children are playing and opening up a new playground and we, the elders, are using the land a lot for housing purposes and the land is being used by everyone.
F_SSD_1

Herat, Afghanistan, 2022.

In Diopok, South Sudan, tensions have arisen between **displaced people, refugees, and the host community** following the clearance of land. During FGDs, both men and women on the move reported that the original landowners are now attempting to evict them, particularly targeting returnees from the Sudan war. The land has already been subdivided into residential plots for sale, and current residents who cannot afford the acquisition price are left with no alternatives. This situation is especially challenging for returnees, who are not originally from the Magwi town area, as they face additional restrictions. Respondents expressed deep dissatisfaction with the actions of the original landowners, feeling excluded from the plot allocation process. They noted a lack of transparency about costs and legal procedures, often learning about these details only when they were already at risk of losing the land they relied upon. While these tensions are concerning, the fact that community members felt confident to report them to DRC demonstrates high community acceptance and confidence.

The owners of the land (Hosts) aggressively started demarcating plots all over including the portions of the land we are housing in, the barrier for us now is the acquisition cost of the land since the condition given is either you acquire the land legally after meeting all the necessary cost or it will be allocated to someone who could afford. F_SSD_1

As returnees in this area, we have no voice, and now we are being asked to pay for plots, including the ones we are already living on—something most of us simply cannot afford. F_SSD_2

4.2.4. How do coordination and integrated action of NMAA/NMAC and state agencies lead to land/EOD spot task cleared to be used to improve livelihood through tasking and prioritisation?

Across the three countries, the role and engagement of NMAA/NMAC ("Public Sector Structure") in integrated efforts as well as their ability to effectively coordinate and prioritise ("Processes") varies widely. Influence and position within the national institutional architecture are far from static and different institutional arrangements exist across country contexts. Whilst the research in the three countries revealed some positive examples, findings are mainly based on self-reporting of the NMAA/NMAC as well as national and international NGOs and UNMAS; thus, they could be slightly biased. In Afghanistan, South Sudan and Iraq, gaps in funding have significantly limited capacity of NMAA/NMAC.

In **Afghanistan**, the establishment of the Mine Action Technical Cell, allowed DMAC to continue operating and mobilising its expertise built over the past decades, albeit a challenging national funding and institutional environment currently due to the Taliban as the de-facto government. Two examples across government entities, i.e. the DMAC/MATC cooperating with relevant ministries were reported: At one of the task sites outside of Kabul, in Surobi, DMAC facilitated clearance via DRC of a government owned land designated for the construction of solar panels. Half of the project has been completed, delivering energy to 10,000 families. The second half of the construction is ongoing. The project of the solar panels was implemented by a local NGO and employed beneficiaries from Kabul and surrounding villages via a Cash for Work scheme. Second, in a project together with UNDP, DRC is currently assessing and clearing schools and hospitals across the country for solar panels to be installed via UNDP and its partners.

In both examples, DMAC/MATC was instrumental in liaising with relevant ministries. In our interviews, they reported that: "DMAC is part of six entities under the secretariat and that they have MoUs with each ministry and regular meetings. Moreover, the national sustainable development strategy mentions Mine Action, with an ambition for each region to have their own plan.

Moreover, with funding from UNMAS, MATC has re-instated their post-demining impact assessments that involve annual planning and desk assessments to assess impact in 10-15% of HA that were cleared in the last year via questionnaires with the support of the regional offices. According to the local NGO, MCPA, these assessments were put in place via GICHD capacity building in 2005 with all international and national partners doing NTS and potentially post clearance assessments in line with IMSMA.

In Iraq, the Directorate of Mine Action (DMA), operating under the Ministry of Environment, annually updates the hazard form, including the pre-assessment tool, in collaboration with other ministries such as the Ministry of Planning and the Ministry of Defence. While the DMA and RMACs are well integrated into the institutional framework and utilise tools like the Impact Classification of Contamination Areas (evident in the Hazard Report template), findings from Key Informant Interviews (KIIs) suggest that the Iraq's Mine Action sector could benefit from stronger coordination with other state ministries and national authorities and more robust data management practices to allow for conducting post impact survey, assessment and monitoring of joint outcomes.

The KII conducted in the Basra Governorate reveal the dynamics of collaboration and capacity in the district of Shatt Al Arab. RMAC-S, as the primary source of information on explosive ordnance contamination, operates strictly within the scope of Mine Action. In contrast, the district of Shatt Al Arab has broader authority extending beyond Humanitarian Mine Action, which presents opportunities for collaboration. It has been reported that RMAC-S demonstrates flexibility in setting priorities by actively engaging with the municipality and district authorities, ensuring alignment with local needs and national priorities. However, while development plans for released areas, such as roads and utility infrastructure, are in place, their implementation is hindered by a lack of funding for Mine Action in the area.

With the ongoing transition from the cluster system to development coordination modalities, Iraq's Mine Action sector stands at a critical juncture where improved coordination with development stakeholders is essential. While the cluster system phases out, the Mine Action sector currently relies on ad hoc coordination among Mine Action

operators, which primarily addresses technical issues. However, the lack of a structured and strategic approach to broader collaboration within the sector and with development actors risks creating gaps in communication, operational synergy, and programmatic integration. Addressing these gaps is crucial to support a more holistic and sustainable approach to tackling explosive ordnance contamination within the broader framework of national development priorities.

In Iraq, priorities are defined at the Governorate level which means that they can vary across the country. However, these are verified against the Impact Classification of Contaminated areas, in line with the Hazard report drafted and updated by the DMA on a yearly basis. Despite the established mechanisms and tools, interviews indicate a desire for increased transparency on how task orders are allocated as this would improve setting and reviewing priorities.

In **South Sudan**, the cooperation and coordination across ministries and the NMAA capacity to conduct baseline and endline assessment has reportedly decreased over time. The NMAA highlighted challenges such as delays in the payment of government officials' salaries, with some reports indicating a lapse of over nine months. Also, they noted difficulties in ensuring participation from other ministries in coordination meetings, as well as insufficient funding to effectively engage with regional and local authorities for prioritising land clearance activities. The overall funding gap is equally affecting their capacity to identify the most vulnerable groups.

Mine Action activities are currently coordinated jointly by the NMAA and UNMAS. For instance, UNMAS actively invest in capacity-building initiatives, such as deploying IM officers and organising on-the-job training sessions related to IMSMA. They also facilitate QA visits and include NMAA staff in key processes and events, such as accreditation and handovers. However, logistical challenges sometimes arise and can hinder cooperation, especially when the NMAA face resource constraints that limit their ability to consistently engage.

Interestingly, in all three country contexts, both international and national actors reported that even within the international coordination *fora* put in place across sectors – whether for the purpose of humanitarian coordination or transition to development/early recovery – awareness and knowledge from other sectors of Mine Action and its necessity as a lifesaving and nexus enabling activity as well as its way of working are limited. In all settings, UNMAS and implementing partners have used their convening powers to do presentations to various partners and entities – albeit with mixed results, including other sectors sometimes dismissing or being unwilling to include Mine Action due to additional financial burden or complicated technical standards and risks. One potentially positive example was reported from Afghanistan, where a regional funding mechanism was set up involving several UN-agencies, including UNMAS – after dedicated lobbying efforts in 2023 and 2024.

A DRC EORE facilitator delivers a session to young boys, Afghanistan, 2023.

5. Conclusions and recommendations

Where and why, there are gaps in evidence for causal linkage of HMA to livelihood outcomes and how best to fill them?

While progress toward integrating livelihood and socio-economic impact assessments into Mine Action exists, significant gaps remain. According to most of the NGOs involved, the sector still prioritises output-based metrics, with limited coordination and data sharing across organisations. Efforts by some NGOs to incorporate broader assessments indicate a shift in approach, but systematic and large-scale outcome measurement and assessment is still in its early stages.

Similarly, many donors don't think the HMA community collects enough information and analyses them. Nonetheless, some good practices were mentioned and are clearly already in use. Findings indicate that efforts are needed to transform anecdotal good practices into well-established MEAL processes through which data on outcome is collected in an appropriate and systematic way.

Future data collection efforts should prioritise longitudinal studies, standardised pre- and post-clearance assessments, satellite imagery and/or remote sensing and qualitative data from affected communities to understand their perceptions, needs and preferences. Environmental and economic impact assessments and conflict analyses[28] should be also integrated to provide a comprehensive picture of Mine Action's long-term benefits, while avoiding doing harm. Such assessment should be conducted beyond the usual 6-months period to effectively establish a baseline and really capture changes in land use and behaviours. Ideally, at least 12 months after the completion of clearance.

Findings also indicate that the main obstacle to the measurement and assessment of socio-economic needs and results seems to be related to the lack of coordination and strategic follow-up, dedicated financial resources, time availability as well as adequate expertise and know how. Overall, it seems that a shared agreement of the MEAL modalities could offer an incentive to align practices within the sector.

The Research Team acknowledges that ideal outcomes are context-dependent, as highlighted by the various preferences shared by Mine Action stakeholders and donors during interviews and surveys. However, some trends stand out:

- Return to cleared areas, increased agricultural development and productivity, and an enhanced feeling of safety are commonly cited desired outcomes.
- Key informant interviews suggest that national Mine Action authorities increasingly focus on the economic benefits of Mine Action, particularly in agriculture.

These elements seem to point to potential for collaboration with government ministries and cluster lead agencies to enhance joint planning and assessments, align outcomes, and maximise impact. These outcome areas could be starting points to collaborate, identify joint indicators, and agree on MEAL modalities to improve outcome measurement and assessment both prior, during and post HMA interventions.

How and why changes in livelihood occur because of Land Release and EOD spot tasks?

Findings extracted from the literature review and triangulated with FGDs, HHs and satellite imagery analysis confirm that land clearance and EOD spot tasks benefitted communities and individuals. Overall, the percentage of respondents who report increased feeling of safety following land release is consistently high across all three countries: 98.92% in Afghanistan, 100% in Iraq, and 98.55% in South Sudan. These results point to positive achievement of outcomes following land release. However, variances in responses across and within countries suggest that physical clearance alone does not always translate into a complete sense of security.

Similarly, positive contributions of clearance are observed when analysing results collected through the survey and focus group discussions with men and women. It appears that women's and men's feeling of safety following clearance is relatively similar,

28 To launch the process of operationalising Conflict Sensitivity across the organization and building on years of experience gained through Humanitarian Disarmament and Peacebuilding Programming, DRC developed and rolled out a Global Conflict Sensitivity Toolkit in 2023 and 2024. Its use will continue to inform programmes worldwide.

and no differences between genders are observed, reflecting comparable perceptions of safety between gender groups when farming, walking, or allowing children to play. Also, when asked if "authorities consulted the communities" prior and during clearance, surveyed men and women have expressed similar level of agreements in each location.

However, confidence varies across different activities and locations, with some communities expressing lingering concerns such as the contamination of plots of land closed to the areas that has been released, lack of governmental or other actors development plans, lack of additional financial resources, and climate change, among others. This is particularly revealing and indicate the **importance of assessing components of the vulnerability contexts when assessing if and how the release of lands affected the feeling of safety and social dynamics at the community level**. Signs of informal cooperation emerge as well: in many locations, community members are working together to make use of the land, even when formal meetings are rare. These **findings indicate that land release may support both feeling of safety and community cohesion, creating a potential foundation for building human and social capital, resources that are essential as these communities look to rebuild and strengthen their livelihoods.**

When looking at economic changes, findings seem to confirm that individuals and communities benefited from economic gains following land release and could grow agricultural products. Variation in satisfaction on improved livelihoods is again explained by a wide range of factors such as the available financial capital of individuals and communities to buy tools and seeds to cultivate the land, the training received to use the lands, the opportunity to start an economic activity (instead of seeing the land used for housing, for instance), the vicinity to markets or the presence of an economy of subsistence. While in areas where economic gains are not apparent, communities expressed satisfaction with improved livelihoods following clearance, it is important to note that factors (financial, physical or other natural assets, policies, HLP rights, displacement status) that could contribute to the achievement of improved livelihoods are not fully under the control of Mine Action operators and should be taken into account when assessing the level of satisfaction of community members. Prioritisation processes of national authorities often fail to consider potential economic benefits for communities which could again contribute to less satisfaction with economic and livelihood gains for specific locations.

Collecting Sex, Age, Disability Disaggregated data, as well as information about the displacement/residence status, and conducting dedicated group discussions with women and refugees allow for a better understanding of the perceptions of different groups. However, we acknowledge that we may not have captured all the evidence relevant to diversity issues – while land access may be achieved, the actual benefits might not be equitably distributed between marginalised groups and others, as clearly illustrated by the South Sudan example. This highlights the importance of asking the right questions to effectively capture the perspectives of those who are often the most marginalised. On gender dynamics, further exploration may be needed to understand the implications of joint land use by families. To gain a comprehensive understanding, we recommend conducting separate focus group discussions with women, refugees or people on the move, elders, and persons with disabilities - coupled with the accurate collection of demographic data. This approach will help ensure that diverse voices and experiences are appropriately represented in measuring the achievement of Mine Action outcomes.

Lastly, on policies, processes, and public structures, it is clear that **improved coordination within the Mine Action sector and with development actors, combined with strategic follow up to identify common outcomes and MEAL tools, as well as dedicated financial and human resources and support from donors might allow for increased involvement from the NMAA/MAC in achieving Mine Action results beyond mere outputs.** For this to happen, a shift in mind set within the Mine Action sector is required to properly look at broader benefits stemming from clearance, while continuing supporting the completion commitments as per the APMBC and the CCM. Similarly, several of the recommendations relating to better planning for results and standardisation of indicators would be directly addressed if more HMA stakeholders - donors, affected countries and operators - were to implement the Sector-wide Theory of Change for Mine Action.

Building on the main findings[29] and conclusions, as well as the limitations and lessons learned from the research and the adjustments made throughout, we present here preliminary ideas on what an ideal tool box would look like to measure and assess outcome and how Mine Action contributes to livelihood, in addition to maximising the potential for communities to benefit from land after clearance.

29 https://www.itad.com/knowledge-product/mine-action-sector-wide-theory-of-change/

According to this research findings, the toolbox should:

- **Be used as part of the broader land release efforts and include clear prioritisation matrices** to ensure the focus is on working in areas with a priority for clearance, risk education and victim assistance, but have potential for integrated work with development, humanitarian and peacebuilding endeavours. Prioritisation based on outcome criteria is key to achieve these but requires larger scale engagement and advocacy.
- **Establish a minimum of qualitative outcome-level data to be collected via non-technical surveys:** Depending on whether land clearance happens in an emergency, protracted or development setting – and considering other contextual factors, develop three different sets of minimum questions to inform prioritisation and follow-up interventions. Developing these would facilitate conversations regarding required level of detail/time frames, knowledge management and flexibility among national authorities, donors and operators in a context-specific manner. Each country programme and clearance operator might envision different modalities to respond/ follow-up and adapt their clearance response either via partnership engagement or internally.
- **Include survey questionnaire, key informant interview templates, focus group discussion questionnaires and satellite imagery** guidelines to conduct a pre and post impact assessment before and after clearance and/or Explosive Ordnance Disposal (EOD). The combination of several research tools may allow for the triangulation of findings, and for the investigation of external factors that may concur to, or impede, the achievement of specific outcomes.
- **Disaggregate data** considering, *a minima*, gender, age, displacement/residence and disability statuses. Other diversity factors should be included depending on context.
- **Help identify social and power dynamics between host communities and people on the move**, and local and national authorities as well as within HMA actors to ensure it informs a conflict sensitive approach.
- **Stratify sampling to ensure representation of marginalised groups and random sampling within clusters.** KIIs and FGDs should be organised with those groups that are identified as the most marginalised in a given area to investigate if and how clearance affects the entire community in an inclusive way.
- **Knowing that agriculture is a common productive use of land that has been cleared, and productivity is often tied to seasonal variations, conduct pre- and post-impact assessment at the same time of the year,** to avoid the risk of skewing results due to seasonal variations.
- Conduct post-impact assessment **one to three years after clearance** with the same households and/or individuals for outcome measurement and assessment to be valid, taking into account that the ideal timeline might change depending on countries and regions.
- **Start with qualitative data collection (FGDs & KIIs) and use findings to design household survey questionnaire. In parallel, collect satellite and geocoded data for complementary pre- and post- intervention analysis**, triangulate findings and identify additional assets such as natural, and physical ones that might interact and concur to outcome achievement.
- **Allow for an analysis that should include thematic analysis of KIIs and FGDs, and descriptive analysis of survey data (frequencies and subgroup comparisons).**
- **Analyse** how broader duty-bearer policies and support initiatives surrounding return, livelihoods and social protection to meet basic needs.
- **Build on the acknowledgment that the pathway between outputs, outcome and impact is not linear, and the recognition that external factors may influence this relationship.** Livelihoods are the product of a wide range of assets, structures and processes that may interact in different ways as they change and evolve. The toolbox should 1: allow to identify such external factors and understand how they would interact with HMA related outcomes and 2: identify hypotheses for causal pathways from outputs to outcomes. This analysis would allow the determination of contributions of HMA outputs to broader related outcomes.

While this research points to the above elements as essential parts of an ideal toolbox, further testing is needed to ensure that such tools would ensure harmonisation and comparability of results from across countries, while also ensuring adaptability to each context. Also, it is important to mention that the achievement of outcomes and impact will be possible only through close coordination of the HMA community with development, humanitarian and peacebuilding actors.

Recommendations

For HMA operators

Move beyond square metres cleared/released and number of items destroyed and shift the focus on outcome measurement and assessment. HMA programmes should include standardised outcome indicators across their programmes, irrespective of donor reporting requirements. This will allow for consistent, internal outcome level measurement that can be reviewed to encourage learning around the effectiveness of land release.

Coordinate with non-HMA actors and include guidance / tools on service mapping and referral pathways, to facilitate mapping and engagement of actors that can conduct follow-on interventions to maximise clearance outcomes, e.g. livelihoods, Cash-for-Work, and water, sanitation, and health (WASH), etc. to better identify joint development, humanitarian and peacebuilding outcomes, enhance joint planning and measurement.

Ensure local communities and national partners are meaningfully consulted along land release and EOD spot tasks and can influence such activities based on their priorities, capacities and needs.

Engage in joint learning exercises, share learning, improve practices. For instance, document and share examples of / guidance on activities and approaches that can be used to facilitate community collaboration and planning regarding post clearance land use, including approaches that ensure identification and inclusion of marginalised groups.

Develop and use a tool commonly recognised for outcome measurement and assessment.

For policy makers, national Mine Action authorities and centres

NMAA/NMACs play a critical role in overseeing quality and assessing the impact of Mine Action activities for national development. If effectively funded via national budgets and donors' support, this should facilitate consistent planning prioritisation even as countries approach residual contamination levels.

NMAAs and NMACs should make some clear commitment to:

Ensure institutional anchorage, coordination with states ministries and local/regional authorities.

Allocate adequate funding and human resources to conduct post-demining impact assessments to assess impact in a statistically relevant number of HA that were cleared, as it has been done for several years in Afghanistan.

Use tools like the Impact Classification of Contamination Areas in the Hazard Report template (used in Iraq) to inform tasking and prioritisation.

Ensure strong data management systems and practices.

Ensure coordination with all relevant actors in contexts transitioning from the cluster system to development coordination modalities.

Engage and collaborate around strategic priorities within the HMA sectors and other ones to foster integrated responses.

Where financial resources are an inhibitor to any of the above, clearly document these gaps and communicate them to HMA donors and operators through a structured document or communication product.

For donors

Donor priorities and additional advocacy of donors towards affected states, in addition to adapting reporting templates for member states of the CCM and APMBC could further incentivise clear prioritisation and enhanced outcome measurement and assessment. In this regard, donors should:

Acknowledge that the relationship between Mine Action outputs and outcomes is not linear.

Acknowledge that, while Mine Action outputs can only contribute to the achievement of outcomes, cross-sectoral cooperation within the Mine Action community and with development, humanitarian and peacebuilding stakeholders can help identifying achievable and measurable outcomes that are relevant to each context. This could include information sharing, working groups and learning fora, among others.

Allocate adequate funding and human resources to conduct post-demining impact assessments to assess outcome achievement.

Offer guidance towards long-term approaches as this constitute a key driving factor to switching to outcome-measurement and assessment.

Request implementing partners to strengthen and streamline outcome measurement and assessment and foster learning opportunities among HMA operators building on the existing good practices and promoting the use of the Dutch/UK global ToC for HMA, SBD guidelines, the GICHD guidelines on HLP, and the Mine Action and Sustainable Development E-learning Course. Maximising Impact with Global Agendas recently issued by the GICHD, among others.

Support NMAAs and MACs in overseeing quality and ultimately assessing the impact of Mine Action activities for national development through the allocation of financial and technical resources.

As States Parties of the APMBC and CCM, advocate for reporting mechanisms that capture outcome achievements, in addition to sqm cleared, reduced, and cancelled.

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