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Explaining how unexploded ordnance clearance enhances livelihoods in the Lao PDR

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ABSTRACT

Background: Following violent conflict, the continued presence of landmines and unexploded ordnance pose a barrier to rebuilding livelihoods. Mine action removes these explosive remnants of conflict to enable communities to safely return contaminated land to productive use. There is limited understanding, however, of how, why, in what context and in what respects mine action contributes to livelihoods. Yet, such information is required for effective resource allocation, checking underlying program assumptions, understanding benefits and potential harms.

Methods: The evaluation was undertaken in the Lao People's Democratic Republic. It used an interpretive case study design and applied the principles of realist evaluation. Program staff and local government authorities were interviewed ($N = 37$) and program beneficiaries. In total, 38 individual interviews with program beneficiaries were conducted and eighteen focus group interviews (9 with males, 9 with females), each with 6–9 participants.

Results: The evaluation identified two main mechanisms through which the program 'worked': (1) communication pre- and post-clearance and (2) the delivery of the product (cleared land).

Conclusion: The realist approach helped to refine the program theory, highlighted the role of self- and task-efficacy and community communication, assisted in identifying contextual factors that influence outcomes and suggested a revision of expected outcomes.

1. Introduction

Following violent conflict, the continued presence of landmines and unexploded ordnance (UXO), for example bombs and cluster munitions, as well as other explosive remnants of war, pose a threat to future development (Andersson, Dasousa, & Paredes, 1995; Bolton, 2010; Rutherford, 2011). Since the late 1980s, mine action has been the international community's response to this hazard. The term 'mine action' differentiates humanitarian demining activities from those with a military purpose. It aims to create a post-conflict environment where people can live safely, free from the constraints of landmines and UXO (United Nations Mine Action Service, 2003). First framed as an emergency program to allow the safe return of displaced people, mine action has shifted over time to a focus on development and promoting livelihoods (Horwood, 2003a, 2003b; Maslen, 2004). There is, however, scant information about how and in what ways mine action contributes to enhanced livelihoods and poverty reduction (Geneva International Centre for Humanitarian Demining, 2011; Maslen, 2004; Skåra, Millard, Harpviken, & Kjellman, 2003).

A lack of evidence in how mine action is linked to livelihood strengthening makes effective and efficient resource allocation problematic. As such, increasingly governments are demanding an evidence-base for mine action and have highlighted the need for a credible program theory (O'Reilly, Friedman, Dinsmore, Storr, & MacPherson, 2012). This is important in terms of effective resource allocation, checking the underlying assumptions of the program, and understanding the benefits, as well as potential harms, for program recipients (GICHD, 2014; O'Reilly et al., 2012). This evaluation was undertaken in the Lao People's Democratic Republic (PDR), which is, per capita, the most heavily bombed country in the world and is heavily contaminated with UXO. The evaluation component reported in this paper was part of a larger mixed methods study undertaken in Lao PDR and the Kurdish Autonomous Region (Durham & White, 2015) that examined the impact of mine action on livelihoods, and developed and validated

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a self-report livelihood asset scale (Durham, Fielding, Hoy, & White, 2014; Durham, Tan, & White, 2011). The present paper describes how we explored how, why and in what circumstances rural livelihoods are reworked and changed by removal of UXO in the Lao PDR, in order develop an evidence-based program theory.

2. Evaluation design

The evaluation design was an interpretive case study design, using the principles of realist evaluation (Pawson & Tilley, 1997). The larger study also developed and validated a livelihood asset scale and has been reported elsewhere (Durham et al., 2014, 2011). The scale was developed in a number of phases with several changes made to items in the process, meaning that the results of the scale cannot be compared across sites. For this reason, in the component presented in this paper, the analysis was based on the qualitative component of the evaluation. The specific evaluation questions were:

1. How and why are there changes in rural livelihoods as a result of UXO clearance?
2. What are the mechanisms through which UXO clearance influences outcomes?
3. What are the contexts/conditions which determine whether the different mechanisms influence outcomes?

Realist evaluation is a member of the family of theory-based evaluation. The difference between realist evaluation and other forms of theory-based evaluation are the particular assumptions that realist philosophy makes about the nature of reality and causation (Pawson, 2013; Pawson & Tilley, 1997). The design was selected because we wanted to understand how, why and in what respects UXO clearance works to improve livelihoods. Another reason for selecting a realist approach was to be able to provide pragmatic guidance to program managers on how to optimize the benefits of UXO clearance.

In realist evaluation, it is assumed that interventions are real and can have real effects (positive and negative, intended and unintended). The social contexts in which programs are implemented also have real effects on how and why interventions work. The realist approach to evaluation recognizes that individuals are central to the understanding of social processes (Pawson & Tilley, 1997). From a realist perspective, the world is an open system within which underlying structures, powers and mechanisms constitute reality and generate events, and it is possible to identify certain constructs that underpin the social world (Pawson, 2013; Pawson & Tilley, 1997). The approach assumes that social programs are dynamic, implemented within complex, multi-layered environments, interacting with a rich network of relationships, causal associations and underlying mechanisms (Pawson, 2013; Pawson & Tilley, 1997).

The role of the evaluator is to synthesize evidence to reveal, in this case, how UXO clearance interacts with contexts, to trigger mechanisms that generate poverty and livelihood outcomes (Pawson, 2013; Pawson & Tilley, 1997). Through these interactions, semi-predictable reoccurring patterns of behavior or demi-regularities can be observed. The intent is to uncover the underlying theories that explain these patterns by critically examining the interaction between context (C), mechanism (M) and outcome (O) or C-M-O configurations (Brennan et al., 2014; Pawson, 2013; Shankardass, Renahy, Muntaner, & O'Campo, 2014; Wong, Greenhalgh, & Pawson, 2010).

Mechanisms are the reasoning of program recipients in how they use the program resources available to them (Astbury & Leeuw, 2010; Pawson, 2013; Pawson & Tilley, 1997). Mechanism refers to the "underlying entities, processes, or structures which operate in particular contexts to generate outcomes of interest" (Astbury & Leeuw, 2010, p. 368). Mechanisms are usually unobservable, sensitive to context and are responsible for generating outcomes (Astbury & Leeuw, 2010; Shankardass et al., 2014).

Outcomes consist of both the intended and unintended consequences of the program, and result from the activation of different mechanisms in various contexts (Pawson, 2013; Pawson & Tilley, 1997). Contexts refer to the conditions in which a program is introduced and that affect the activation of mechanisms (Pawson & Tilley, 1997; Wong et al., 2010). Contextually important factors can include interpersonal and social relationships, economic status, organizational culture, access to resources, and competing priorities and influences (Pawson, 2013; Pawson & Tilley, 1997). A key implication is that UXO clearance may work well in one context to reduce poverty and improve livelihoods, but poorly or not all in other contexts. Realist evaluation assumes that there are usually several C-M-O configurations that explain how and why participants respond to an intervention. Realist evaluation does not aim to prove or disprove particular theories, but leaves them open to further testing and iterative refinement against empirical data (Greenhalgh, Humphrey, Hughes, & MacFarlane, 2009). Typically in realist evaluations, programs are presented as a series of implementation 'chains', comprising intervention actions and participant reactions (Jagosh et al., 2014; Pawson, 2013; Pawson & Tilley, 1997; Weiss, 2000; Wong et al., 2010).

2.1. Context and setting

The Lao PDR, a lower-middle income in South East Asia, has the unenviable distinction of being, per capita, the most heavily bombed country in the world. Throughout the Second Indochina War (1964–1973), more than 580,000 bombing missions resulted in over 2 million tons of ordnance being dropped on the country (Handicap International, 1997; National Regulatory Authority, 2009b, 2010). Many of these were cluster bombs that contained multiple explosive sub-munitions, of which an estimated 80 million malfunctioned, remaining live and buried in the Lao landscape, leaving these former war zones heavily contaminated with UXO. The bombing was not restricted to military targets and villages were frequently bombed, with most of the continuing contamination in rural areas (Government of the Lao People's Democratic Republic, 2006, 2009; Handicap International, 1997). This evaluation research was undertaken in Boulapha, Ngommalat and Mahaxay districts, located along the eastern border of Khammouane province in the south of Lao PDR. During the war, Route 12, which shares a border with Vietnam and passes through each of the districts, acted as a supply line to the Ho Chi Minh Trail and as a result the area was severely bombed (Handicap International, 1997). Two other sites were Nong district in Savanakhet and Paksong district in Champassack. Both of these sites were also heavily bombed due to their proximity to the Ho Chi Minh Trail. The other site was Pek district in the northern province of Xieng Khouang. This was the scene of destructive bombing campaigns and intense ground battles, especially around the strategic site of the Plain of Jars and the district town was virtually destroyed by the campaign (Handicap International, 1997).

Improved main north-south and east-west roads and economic corridors are increasingly linking the sites of inquiry to markets and increasing trade and mobility. Despite increased market access, in Boulapha, Ngommalat, Mahaxay and Nong districts most of the participants were subsistence rice farmers supplemented by informal ways of making a living, such as hunting, fishing and gathering non-timber forest products, and with varying levels of integration into the informal labor market and the cash economy. Rice farming relied on rain-fed lowland (often known as paddy) and upland farming with limited use of modern inputs. In these