Chapter 11
Apprise: Sentinel Surveillance of Labor Exploitation and Its' Potential Impact on Migration Policy

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11.1 Introduction

Migration within and between countries in the Global South is an increasingly significant factor in the social and economic advancement of developing countries. While this strategy has benefited millions of internal and international migrants, it has also given rise to exploitative working conditions, as booming markets and rapid urbanization have resulted in a constant demand for cheap labor (Benach et al. 2011). These workers are often forced to fill dangerous, dirty, or degrading jobs, which exist due to weak labor governance in the destination country (Zimmerman and Kiss 2017). The exploitation that they face can range from payment under minimum wage and discrimination to more severe kinds of exploitation such as hazardous work, long hours, physical confinement, and violence.

In this work we draw on Skrivankova's (2010) continuum of exploitation (Fig. 11.1) that defines 'decent work' and 'forced labor' as two ends of a continuum, with any situation between the two end points representing different unacceptable forms of work (UFW). UFWs are defined as "compromising conditions that deny fundamental principles and rights at work, put at risk the lives, health, freedom, human dignity and security of workers or keep households in conditions of poverty" (ILO 2015, p. 1). Using this continuum, we can see human trafficking as a process, consisting of a series of exploitative acts that move a worker towards a situation of forced labor.

Weitzer describes this broad range of work situations similarly to Skrivankova (2010), as "range[ing] from highly coercive and exploitative to cooperative, consensual, and mutually beneficial relationships between migrants and their facilitators, with more complex grey areas in between the two poles" (2014, p. 20).

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Fig. 11.1 Continuum of exploitation. Adapted from Skrivankova (2010)

This conceptual ambiguity makes accounting for victims of human trafficking more challenging. For instance, there is a wide disparity in existing estimates of the extent of forced labor and human trafficking. These differ depending on the definition of human trafficking as well as the method for estimating the affected hidden population. Weitzer notes that "it is impossible to satisfactorily count (or even estimate) the number of persons involved or the magnitude of profits within an illicit, clandestine, underground economy at the macro level" (2014, p. 13). Other researchers have raised concerns with the accuracy of estimates because of "methodological weaknesses, gaps in data, and numerical discrepancies" (US Government Accountability Office 2006), as well as a lack of transparency and sources for figures used (Kelly 2005).

In this chapter we argue that while it is important to recognize the global prevalence of human trafficking, more focus should be placed on uncovering patterns of exploitation, in order to support the development of evidence-based policy. If we borrow from medical terminology, a classic approach to epidemiology is used to identify and count every case of a disease. For infections such as HIV, this was difficult because of the related rights issues, prejudices, and the resultant hidden nature of the disease. Practitioners took an approach to track trends over time, instead of trying to determine prevalence, referred to as sentinel surveillance. Using this terminology, this chapter introduces Apprise, a system we have developed and are currently piloting in Thailand to support a sentinel surveillance approach to understanding human trafficking. The system aims to support the broad range of stakeholders whose role it is to assess working conditions and to help potential victims access help or remediation channels (including police, labor inspectors, auditors, non-governmental organizations; who we broadly refer to as frontline responders (FLRs)), but also to support policy makers to assess the stability and changing patterns of exploitation.

Next, we discuss a study being undertaken on the role that technology can play to support FLRs in their initial screening for victims of forced labor and human trafficking. We describe the use of participatory methods to understand the needs of a broad cross-section of stakeholders. In doing so, we highlight a potential role for mobile phones to support communication between FLRs and workers during the initial screening phase of victim identification. While the system we developed, Apprise, is installed on the FLRs' phone, it is ultimately a tool in the potential victims' hands. By listening to and answering a series of yes/no questions, the app provides workers with the ability to privately report exploitative work practices and signal a need for help to the FLR. A vulnerability rating is calculated and displayed to the worker and the FLR, so both parties can understand the severity of the situation that the worker is in and if they would like help to exit that situation. Screening responses are stored on the FLR's phone and then uploaded to their

account to support post-hoc analysis. This process captures the time, date, location, responses, and language that the interview took place in.

The third contribution of this article is to discuss the implications of the post-hoc analysis of screening response data. This is particularly important when considering the small number of cases that are currently identified, where little is known on the specific practices of exploitation. This lack of understanding of key practices becomes particularly problematic when we consider the impact of the development of evidence-based policies, as these new policies are developed based on information from these under-representative samples, which could, in turn, lead to fewer victims being identified. This points to the need for a more nuanced understanding of sector specific patterns of exploitation, to ensure that workers who are currently trapped in these situations of extreme exploitation can be identified and subsequently helped. Currently, anti-trafficking policy discussions are often structured around the four P's: prevention, protection, prosecution, and the more recently added 'partnership' (United Nations 2010). We suggest that to be effective, solutions must be multi-sectoral and multi-lateral in order to take into account the fundamentally migratory nature of trafficking (Zimmerman et al. 2011).

11.2 Sentinel Surveillance, Labor Exploitation, and Migration

Human trafficking and, more broadly, labor exploitation have been shown to be a public health concern with global prevalence (Zimmerman and Kiss 2017). Findings from studies around the world have shown that survivors of this exploitation experience "violence and hazardous, exhausting work, and few emerge without longer-term, sometimes disabling, physical and psychological damage" (Zimmerman and Kiss 2017, p. 8). While labor exploitation affects workers around the world, studies have shown that workers from developing countries are disproportionately affected by exploitative work situations, both in South-North (Lewis et al. 2015) as well as South-South corridors (Hamada 2017).

Zimmerman and Kiss argue that the approach for dealing with cases of labor exploitation and trafficking should be the same as for epidemic diseases such as HIV: to treat them as preventable (2017). We extend this argument and contend that the approach for monitoring labor exploitation and trafficking can also borrow from approaches used for other epidemics. We now turn to a discussion of sentinel surveillance in labor exploitation, and then present links between labor exploitation and migration policy.

11.2.1 Sentinel Surveillance and Labor Exploitation

According to the Dictionary of Epidemiology, sentinel surveillance is the "monitoring of rate of occurrence of specific conditions to assess the stability or change in health levels of a population. It is also the study of disease rates in a specific cohort such as in a geographic area or population subgroup to estimate trends in a larger population" (Last 1995). Using the World Health Organization's (WHO) definition (n.d.-b) and recommendations for surveillance standards (1999), we note that sentinel surveillance:

(a) Involves a limited number of carefully selected reporting sites where there is a high chance of prevalence;
(b) Is a centrally coordinated system, collecting a minimum set of data, with anonymous testing in sentinel sites for diseases or events;
(c) Is used to identify trends, and monitor for outbreaks in a community; and
(d) Involves a core function of 'action', which consists of three components: control/response, policy, and feedback.

Within India for example, an HIV Sentinel Surveillance program has been used since 1998 to provide "essential information to understand the trends and dynamics of HIV epidemic among different risk groups in the country. It aids in refinement of strategies and prioritization of focus for prevention, care, and treatment interventions under the National AIDS Control Programme" (National Aids Control Organisation 2017). This program uses an anonymous surveillance approach to encourage victims to come forward and to self-identify; an approach that proved successful in supporting populations at risk of infection in India.

In the context of Southeast Asia, the HIV Sentinel Surveillance program has been recently used in Cambodia (NCHADS 2006) and Myanmar (National AIDS Programme 2009). A study in Thailand found great value in this approach for reporting the prevalence of HIV in high-risk groups selected from different sentinel sites throughout the country, as an opportunity to provide health officials with information and data about the spread of the disease (Frerichs et al. 1995).

When we apply this same list of recommendations regarding sentinel surveillance to labor exploitation we can identify direct parallels and recommendations for its use. As described earlier, academics and practitioners have highlighted a data-gap in the existing 'passive system' of identification of labor exploitation cases. A sentinel surveillance system could benefit from a centrally coordinated system, that collects, analyses, and acts upon a minimum set of anonymous data from the different sentinel sites. Care must be taken in selecting these sites, as key trends and patterns in the whole population may be missed if the sites are chosen poorly. This information could be used to identify trends and monitor for outbreaks within vulnerable communities. And finally, by using a sentinel surveillance approach to labor exploitation, a core function that should be included is control/response policy, and feedback.

11.2.2 Labor Exploitation and Migration Policy

Southeast Asia's high rates of population mobility in the world are deeply connected to labor migration (Kantayaporn and Siwanart 2013). Within the Association of Southeast Asian Nations (ASEAN),[1] the phenomenon of South-South migration was largely amplified with the implementation of the ASEAN Economic Community in 2015 and its provisions for the free movement of labor. The differences in socio-economic conditions between Member States, such as income, living standards, and access to healthcare, made countries like Singapore, Malaysia, and Thailand attractive destinations for migrant workers. For instance, the minimum daily wage is three times higher in Thailand than in Myanmar. However, although there is a high demand for labor in these countries, the demand is largely for low-skilled workers, where jobs are mostly "3D jobs"—dirty, dangerous and demeaning—in the fishing and construction industries (Suphanchaimat et al. 2017; Kantayaporn and Siwanart 2013; Graeme 2005).

Within the South-South corridor, practitioners and academics have frequently referred to differences in protection-related labor market regulations, which is a constant challenge for workers in the region (Avato et al. 2010). Hamada expands on this by finding: "... Their conditions are often challenging, and frequently unsafe, and migrant workers have little access to social services such as healthcare and other public services including education for their family members. The current weakness in migration governance, labor laws, and social protection mechanism for migrants moving within south-south migration corridors contributes to these challenges" (2017, p. 3).

Thailand for example, has seen a large influx of migrant workers from its neighbouring countries as well as internal migrants from its own rural areas to the urban and semi-urban areas to meet a demand for cheap labor (Feingold 2010). Fishing, for example, is considered one of the most dangerous occupations in the region as it involves long working hours, physically demanding tasks, lack of availability and use of protective equipment, untrained and inexperienced crew members, and high injury rates and risk of accidents (Suphanchaimat et al. 2017). Some refer to this occupation as "sea slavery" because of the extreme exploitation of migrant workers in the fishing industry (Suphanchaimat et al. 2017).

While it is critical to identify and address structural vulnerabilities such as the legal status of workers, most governments' initial response to trafficking is controlling migration instead of promoting safe migration through the protection of the rights of migrants (UNODC 2017), which leads to ill-conceived migration and anti-trafficking policies. Yeo-Oxenham and Schneider recommend the adoption of a victim-centric approach in current policies for more effective anti-trafficking measures, which can only be possible through partnerships and multi-sector

[1] ASEAN, the Association of South East Asian Nations is a regional intergovernmental organization comprising: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam.

collaborative strategies (2014). The authors also encourage governments and policymakers to disrupt the status quo rather than using piecemeal solutions that "often act as short-term band aids rather than long-term solutions" (2014, pp. 102–3).

There are several challenges for the creation of efficient migration policies—one is the lack of adequate legislation at the national level and legal framework consistent with national instruments and standards (NCHADS 2006). Another challenge is to address the multiple geographic and legal boundaries within which trafficking happens. Multilateral and cross-sector efforts need to be in place to develop more efficient anti-trafficking strategies (World Health Organization n.d.).

Perhaps the biggest challenge to efficient policies is the lack of comprehensive data (UNODC 2017). According to the United Nations Office on Drugs and Crime (UNODC), "[t]o be effective, policy development needs to be based upon sound data. Policy announcements must be followed by implementation and enforcement. This requires human and financial resources that collect and analyse data for the purposes of policy development and then turn policy goals into practical measures" (UNODC 2017). Therefore, data constraints can be a difficult barrier to overcome when the problem is untraceable and failed by passive surveillance.

11.3 Apprise

The previous section introduced a sentinel surveillance approach to understanding the current and changing patterns of labor exploitation; and highlighted the problem of data gaps for developing evidence-based policy. In this section, we introduce Apprise, a system we developed as a tool to support:

1. FLRs in their initial screening of workers for indications of labor exploitation.
2. Policymakers with sentinel surveillance of the current and changing patterns of exploitation.

The section will describe the design and development of Apprise and show how this sentinel surveillance approach can address insufficient data regimes. In describing Apprise, we begin with a high-level overview of the technology itself, followed by an account of the process of developing the lists of indicators. This is then followed by some early learnings from our initial pilot of Apprise in Thailand.

11.3.1 Research and Technology Design

We began this research to investigate the role that technology could play to support migrant workers' agency, when in situations of labor exploitation. Our research is rooted in a value sensitive design (VSD) approach to system design, which is defined as "a theoretically grounded approach to the design of technology that accounts for

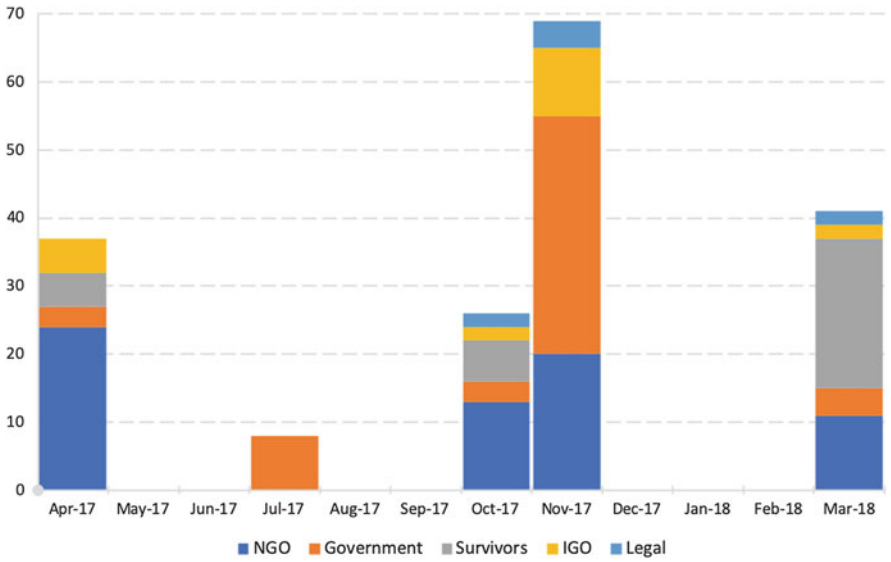

Fig. 11.2 Participation in consultations by stakeholder (Authors Own)

human values in a principled and systematic manner throughout the design process" (Friedman et al. 2017, p. 2). VSD is based on the understanding that all systems contain the biases and perspectives of the designers, so it integrates "...ethical reflection in the state of design of architectures, requirements, specifications, standards, protocols, incentive structures and institutional arrangements" (Van den Hoven 2007, p. 70).

Our iterative process of co-designing, developing, and evaluating Apprise has continued over a 2-year period, from April 2017. The various consultations and evaluations that took place in the first year of the consultation are summarized in Fig. 11.2, which plots the number of participants in each consultation (with a broad categorization of their affiliations) by date.

From April 2017 to March 2018 we held a series of stakeholder consultations with a broad cross-section of direct (those who are intended to directly make use of a technology) and indirect (those who will be impacted by a technology) stakeholders, including: survivors of exploitation; local and regional NGOs; government officials (Ministry of Justice, Ministry of Social Development and Human Security, Ministry of Labor, Royal Thai Navy, Command Centre for Combatting Illegal Fishing); and intergovernmental organizations (IGOs) with mandates in migration and/or trafficking. The consultations took the form of focus groups and interviews, to understand the problems that stakeholders faced in identifying victims of labor exploitation as well as the way that they believed that technology could support them in solving these problems.

While a complete description of this consultation series is out of the scope of this paper, the interested reader can consult our previous work (Thinyane and Bhat 2019)

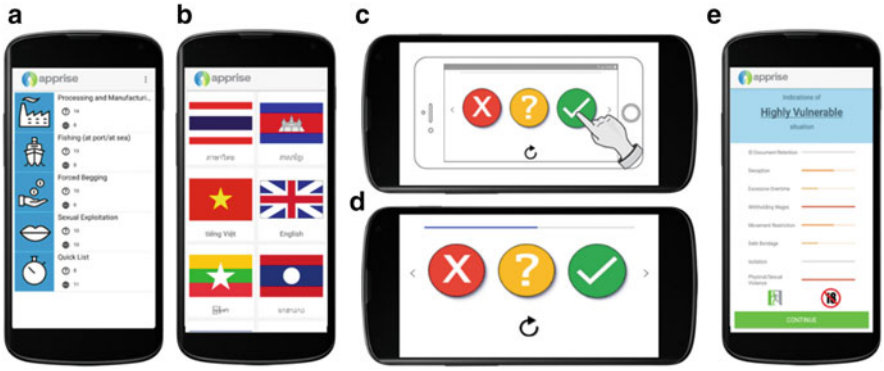

Fig. 11.3 Apprise mobile app screen flow (**a**) question lists (**b**) language selection (**c**) introductory video (**d**) questions and (**e**) vulnerability calculation

for a full synopsis. In summary, the consultation identified four key problems in victim identification: *communication* between FLRs and migrant workers due to language barriers; *training* in understanding what trafficking 'looked like'; *privacy* concerns that hindered workers from being able to respond truthfully in the initial screening phase of victim identification; and *trust* between the different stakeholders. Expanding on this issue of trust, stakeholders highlighted that even in situations where there was a translator available, there was a lack of trust in the accuracy of the translations provided.

By the end of the first five consultations, we had identified the potential for a mobile application to be used to support communication between FLRs and migrant workers. This application could overcome training issues by providing a list of simple yes/no questions for the migrant worker to answer. These questions were aligned with the current practices of exploitation in the area. They were also translated into multiple languages, so that migrant workers would be able to listen to the questions in their preferred language and answer them using a simple interface (see Fig. 11.3d below). As the practices of exploitation are sector specific, multiple lists of questions were made available, for different work sectors. In our consultations, we also found that many workers do not have access to mobile technology themselves, as exploiters often confiscate their devices so they cannot call for help. The mobile app is therefore installed on the FLRs phone, and when combined with a set of headphones, offer some privacy to workers in the uncontrolled environments that are typical for initial screening interviews to take place in.

To understand the typical usage of Apprise, please refer to Fig. 11.3. Once the FLR has logged in to the system, a screen displays the sector-specific lists of questions available (Fig. 11.3a). The FLR would select the list that is most appropriate, and hand the phone, as well as a set of headphones, to the migrant worker. The migrant worker would then be asked to select their language from the list of flags (Fig. 11.3b). When a flag is selected, the name of the language is played and a continue button appears. The app then plays an introductory video, which describes

who the interviewer is and the purpose of the interview; illustrates how to use the app; and asks for consent to continue (Fig. 11.3c). If the worker agrees to continue with the interview, the app cycles through each of the questions in the list (Fig. 11.3d), providing them with response opportunities of 'yes', 'no', and 'I don't know'. The last question in each list asks the worker if they would like help to leave their work situation now. In the background, each question is associated with a specific indicator of exploitation and severity of exploitation (based on ILO's Indicators of Forced Labor (ILO 2012b)). These two pieces of information are used, along with the workers' responses, to calculate a vulnerability rating for the worker, based on ILO's Hard to See, Harder to Count Methodology (ILO 2012a) for estimating forced labor. Once the final question has been answered, a recording informs the worker of the vulnerability of the situation they are in and provides them with an opportunity to confirm if they want to stay in their work situation. This second confirmation is added after the vulnerability calculation to ensure that workers are in a position to make an informed decision. At this point, the worker is prompted to hand the phone back to the FLR. The FLR is then provided with a summary of the responses (Fig. 11.3e), indicating the overall vulnerability rating and a breakdown of the rating per indicator of exploitation. It also highlights two other key pieces of information: if the worker would like help to exit the situation and if they are under the age of 18. The age of the worker is important for FLRs to understand as it has a direct impact on their duty of care, as well as the types of work that workers are allowed to undertake.[2]

Session information, including the language, time, date, and location of interview and any further notes, are stored on the FLRs device with workers responses until they next log in and have network coverage. When they next login and have access, this data is uploaded to the desktop version of Apprise, into the FLRs account.

For security and privacy reasons, initial screening responses are only shared within the organization that a FLR belongs to. For example, a labor inspector at a government inspection centre would share their screening responses with their immediate supervisor, but not with other inspection centers. An NGO outreach team would share their screening responses with their team head, but not with other NGOs. For accountability and transparency, we also share the interview response with the head of each organization, allowing then to analyse interview responses by time, sector, and geographic location. This supports a more nuanced understanding of the changing practices of exploitation over these different dimensions.

[2]As defined by ILO Minimum Age Convention (C-138) and ILO Worst Forms of Child Labor Convention (C-182).

11.3.2 Indicators of Exploitation

Created in the 1950s, the Delphi survey method is a forecasting process framework, which is used to generate consensus among experts on a particular matter (Turoff and Linstone 2002). A Delphi process typically consists of several rounds of questionnaires, which ask participants to rank responses against particular criteria, as well as suggest new/missing responses. These responses are aggregated and shared with the group after each round. While the Delphi method typically uses anonymous surveys, modified Delphi approaches have included in-person consensus meetings (Schneider et al. 2016). The Delphi method has been used in a wide range of fields, including selecting healthcare quality measures (Boulkedid et al. 2011), determining research priorities (Schneider et al. 2016), and forecasting the future of law enforcement (Tafoya 1986). It has also been used successfully by the ILO, who conducted a global study to develop a framework to identify the measures and policy guidance for stakeholders to enable workers in UFW to transition to decent working conditions (ILO 2015, p. 2). ILO formed panels of 220 experts from 32 Member States, used to indicate for a number of indicators whether they were highly significant, significant, or irrelevant. By averaging their ratings, they developed a strength for each indicator. Consensus was measured by the percentage of experts that gave a similar rating.

In developing Apprise, we used a modified Delphi technique to develop the sector specific lists of questions, consisting of five rounds of panels and 178 participants (see Fig. 11.2 for stakeholder participation across sessions). Panels consisted of direct and indirect stakeholders, with some experts serving across multiple sectors, whilst others provided sector specific feedback. Participants feedback was used to "identify, clarify, refine, and finally to gain consensus on the particular issue" (Turoff and Linstone 2002, p. 53). In each round, we organized separate panels with the participants' expertise as well as the social-hierarchical structures present in mind. For example, in round one we held multiple panels or focus groups with participants, where one focused primarily on survivors of exploitation and another on government officials.

When aggregating the responses, we borrowed concepts from the VSD approach underpinning this research, namely value flows and dams (Miller et al. 2007). Value flows prioritize input from participants that is approved by the majority, in a similar way to a traditional Delphi consensus ranking. Value dams, however, remove options for consideration when they are opposed by even a small number of participants. Human welfare, privacy, and autonomy of potential victims were used as the deciding factors to inform each of these decisions.

The results of the process were five expert-developed lists of indicators of labor exploitation for the following sectors: at port/at sea; processing and manufacturing; sexual exploitation; forced begging; and a 'quick list'. The quick list was developed to be used across any sector with a maximum of eight questions, to allow FLRs to screen workers in time sensitive situations. The next section presents findings from an 8-month pilot study of Apprise in four cities in Thailand.

11.4 Pilot Study Findings

From March 2018, we began observing the use of Apprise in the field in three sectors: at port/at sea; processing and manufacturing; and sexual exploitation.[3] This section presents findings from a series of observations and focus group discussions undertaken in the first half of March 2018. Each NGO self-selected to be involved in the pilot and, after consent was given, was subsequently trained on the use of Apprise in the initial screening phase of victim identification. This section reports on the findings of the observations of 22 initial screening sessions across the three sectors. The focus here is on the use of the technology in initial screenings, with a further discussion on the potential use of the data generated by Apprise in a subsequent section.

11.4.1 Increased Breadth of Screening

Participants noted that one of the primary benefits of using Apprise was that they could now interview more workers who they previously were not able to reach. We noticed that comments revolved around two different themes in this category: previously unheard voices and the time sensitive nature of interviews.

A point that was highlighted both in the previously described Delphi rounds as well as by FLRs that we observed using Apprise in their outreach activities, was the importance of amplifying previously unheard voices. Workers often speak different languages and FLRs could never have enough trusted translators or foreknowledge of who they would meet (and their language preference) to ensure they had adequate language skills to communicate with them. FLRs mentioned that previously they often had to exclude workers from interviews based on language skills and that Apprise therefore allowed them to screen a broader audience of workers. In particular, FLRs mentioned that Apprise allowed them to reach out to workers from minority tribes and from countries outside of the ASEAN region. FLRs who work to support exploited sex workers described how migration patterns change quickly within their sector, appearing to be seasonal, based on the preferences of tourists (with the flow of tourists being seasonal itself, based on the holiday periods in their home countries). As an example, in late 2017—early 2018 NGOs mentioned an influx of Kiswahili speaking workers from Eastern Africa and French speaking workers from Francophone African countries. In March 2018, they described meeting a new wave of Spanish speaking workers, predominately from Colombia and neighbouring countries. FLRs could not learn languages quickly enough to be able to have the deep conversations required to establish if someone needs help. They

[3] Prior to undertaking this study, research approval was obtained from the UNU-CS Human Subjects Research Process Board (#201703-01).

Fig. 11.4 Use of Apprise in the field (**a**) in interviewing factory workers (**b**) and at a port

described how Apprise allowed them to reach out to these new populations, supporting them to reach out to these unheard voices.

Another point that the FLRs mentioned was the time sensitive nature of interviews, a problem experienced by each of the FLRs we interviewed. In the case of NGOs, they mentioned that they often only have a short window of time to interview workers, before their supervisor notices their absence or becomes curious about the interaction. In the case of government inspectors at inspection centers, they have a 25-min window of time to complete a host of checks on the work conditions aboard fishing vessels, including screening workers. The inspectors we spoke to suggested that Apprise could help them to interview multiple workers concurrently and use the feedback on the vulnerability calculation screen (Fig. 11.3e) to direct any further interview and investigation. Figure 11.4a shows an NGO volunteer using Apprise to interview two factory workers concurrently. The NGO volunteer sat between them to provide support if it was required and then used the vulnerability calculation screen as a basis for further conversations with the workers.

11.4.2 Trust and Privacy

Across all but one of the observations that we undertook, workers stated a preference for using Apprise for initial screening rather than traditional face-to-face interviews. One worker explained why she felt this, saying "*I don't have to look you in the eyes when answering these private questions if use the app*". Other workers explained that they felt shy to respond to questions when asked face to face. In one case, a sex worker described that he felt Apprise put him more in control of the interview

process, allowing him to repeat questions, take his time to respond, and skip forward and backward through questions without feeling pressure to respond immediately. The NGO worker that was interviewing him mentioned that although they had met with him frequently, he had always withdrawn himself from any interaction. By using Apprise they were able to obtain valuable feedback about his working conditions and if he wanted further help.

One critical factor that was raised in our initial consultation was a lack of privacy during screenings. Participants raised concerns across each sector that traditional screening sessions often happened in front of potential exploiters. In one observation, a local NGO volunteer approached a group of sex workers to ask them for help to test the Apprise app. While she was speaking to them, the author observed that a person, ostensibly their boss, who had been watching the interaction, approached the group and lingered around to attempt to understand what was happening. He asked other workers around if they knew what the conservation was about, then after a few minutes shrugged his shoulders and walked off. While we cannot know what happened after we left, this showed that workers were able to take part in screening sessions without their responses being overseen or overheard.

Within the fishing industry, stakeholders reported that in traditional screenings the manager or skipper was frequently called in to translate questions of FLRs to workers in cases where translators were not available. This obviously raised concerns about the credibility of the screening session itself as well as the results that it obtained. Government labor inspectors took part in a series of trials of Apprise (Fig. 11.4b), using it in their Port In/Port Out inspections as well as part of a series of inspections at sea. Across these sessions, workers and FLRs reported that they were excited about the potential of the app to increase the privacy and credibility of screenings.

11.4.3 Training to Identify Cases of Exploitation

In our discussions with participants, they were impressed with the way that Apprise summarized the responses and highlighted critical areas for further investigation. One participant described that "*the advantage of devices and technology is [the] accuracy [of the] result. When [results were] calculated, [they were] very good*!".

When discussing the benefits of Apprise, the head of one NGO mentioned that for his organization, the primary benefit was that it equipped their volunteers to go out into the community and meet workers without having the same labor law knowledge that he and his core team have. Of course, these volunteers would be able to perform initial screenings, but they would then have to suggest that workers who showed any particular vulnerabilities accompany them to the NGO shelter to meet with trained NGO staff for a further interview. They also suggested that by using Apprise, they would grow their understanding of current patterns of exploitation, helping them to understand what patterns to look for in the field.

11.5 Discussion

The previous section presented some initial findings from the pilot study of Apprise in Thailand. As mentioned earlier, responses are first stored on the FLRs phone after completing an interview, but then uploaded onto the server when the phone is next in network reception. In this section, we discuss implications of the micro-level data obtained from interviews. Before we delve into this, however, the section describes the types of information that is collected, to provide a more complete understanding of the implications it has.

An earlier section presented detail of how the question lists were developed but did not specify the questions and related details that they are comprised of. Each question is associated with a weight, an ILO forced labor category (ILO 2012b), and related law enforcement act.[4] Each question is also translated and recorded into a number of different languages. When a worker responds to a question, the response that was provided and the time that it occurred is also stored. Questions are stored on the server and can be used in multiple lists. For example, a question like "Do you have access to your identity documents?" would be useful across each of the different sectors where exploitation is common. It also means that translations can be shared across the different lists, and comparisons can be made between responses across the different lists (on these common questions). Within a particular sector, comparisons can also be made on responses by: time, language of interview, and location.

With this understanding of the level of data captured, we now turn to a discussion of the implications for sentinel surveillance of labor exploitation, followed more broadly by a discussion of the policy impact that could be made with this information.

11.5.1 Sentinel Surveillance

Over the 2 years that we have worked with FLRs to understand the process of identifying victims of labor exploitation, we noticed that exploiters adapt their practices over time, and in response to changing policies and practices of inspections. As an example, when authorities in Thailand realised that a key indication of exploitation was withholding wages, they made a law that mandated that workers must be paid electronically (rather than cash in hand) to ensure that a record of payments could be established. After a period of time, labor inspectors found that although exploiters could produce deposit slips for workers' accounts, a payment would be deposited into a worker's account (and a deposit slip produced of the transaction), but then withdrawn as the unscrupulous employer had retained all

[4]Each question must be aligned to a law enforcement act, as 'victimhood' in legal terms is an infringement of either criminal or labor law.

workers' ATM cards (supposedly for "safe keeping"). The same salary would be deposited into each worker's account, producing deposit slips for each salary payment, but workers were not paid. The process of legal cat and mouse has continued with new laws and evolving practices of exploitation continuing.

We also noticed that workers are exploited differently based on their nationality.[5] In manufacturing for example, some Burmese women indicated that they were forced to take pregnancy tests, an indication of vulnerability that was not evident in any other people group.

In both these cases, FLRs were trying to keep up with changing practices of exploitation but were always one step behind. We realised the benefit of a system such as Apprise when we could analyse the results of interviews and identify a change in workers responses. When this analysis leads to a perceived change in behaviour of exploiters, Apprise allows users to add a new question to the lists, translate it into multiple languages and push the new changes to FLRs smart phones. The system therefore allows FLRs to be more responsive to changing patterns and develop a nuanced understanding of patterns of exploitation.

We now return to the list of recommendations for sentinel surveillance described in Sect. 2.1, drawing on our findings from this 2-year study.

(a) *Involves a limited number of carefully selected reporting sites where this is a high chance of prevalence*. One of the key questions that we ask ourselves in this research is "who are the people who come into contact with migrant workers in vulnerable situations?". Through our series of consultations with stakeholders in the anti-trafficking community in Thailand, we have identified a wide variety of organizations who have a high chance of coming into contact with this vulnerable population, who are currently using Apprise including: NGOs, government officials, and auditors within supply chains of multinational organizations. The WHO's criteria for selecting sites is that they are "trained to diagnose, treat and report cases" (n.d.), which in this case is handled by Apprise.

(b) *Centrally coordinated system, collecting a minimum set of data, with anonymous testing in sentinel sites for diseases or events*. As described earlier, Apprise is a centrally coordinated system that collects responses to a series of yes/no worded questions (plus language, date, time, and location of interview). Over a series of 12 months, Apprise was refined using a value sensitive design approach (Thinyane and Bhat 2019), to ensure the minimum amount of data was collected that still provided actionable results. Due to the sensitivity of the responses, all information collected using Apprise is anonymous, aiming to ensure little chance of retaliation against workers. This points to the importance of Apprise being designed to support FLRs to help workers to exit vulnerable situations straight after asking for help, as there is no way to correlate responses to interviews back to individual workers.

[5] We use the language selected for interview as a proxy for nationality of worker.

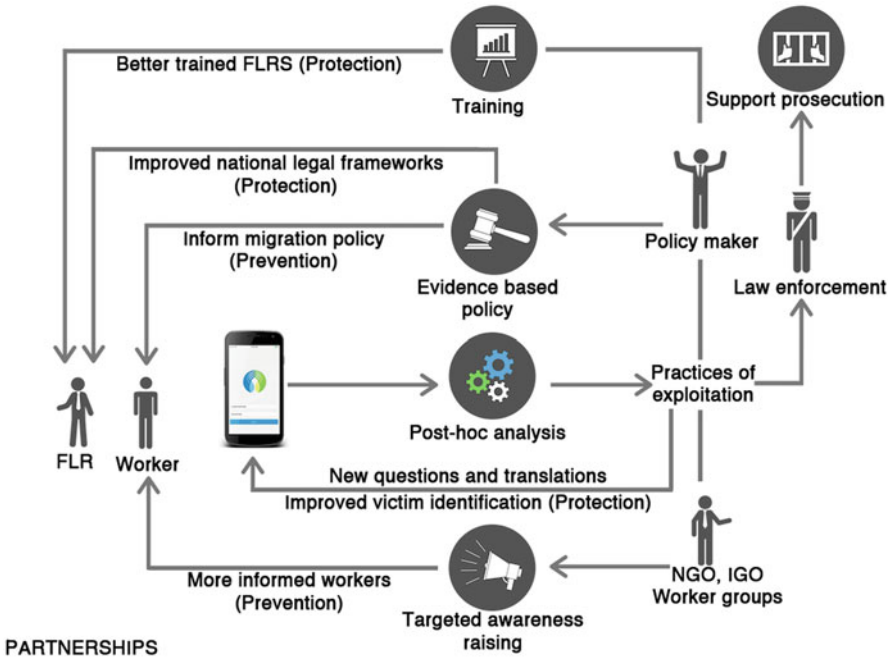

Fig. 11.5 Policy implications of Apprise

(c) *Used to identify trends, and monitor for outbreaks in a community*. As mentioned at the beginning of this section, our use of Apprise in the field over this 2-year engagement has led us to identify changing trends in exploitation. While the current analysis supported by Apprise is superficial, we are extending the system to include machine learning techniques to support deeper analysis of the interview responses, to provide a more nuanced understanding of changing patterns of exploitation.

(d) *Involves a core function of 'action', which consists of three components: control/response, policy, and feedback*. The final component is to result in some kind of action, which will be discussed further in the next section.

11.5.2 Policy Implications of Apprise

We summarize the policy implications stemming from Apprise in Fig. 11.5. Starting from the centre of the image (and as described in the previous sections), Apprise can be used to support proactive screening of migrant workers, with results being stored, and analysed. Once trends and hotspots of labor exploitation have been identified, the critical next phase is to use the findings to formulate responses along the 4 Ps: prevention, protection, prosecution, and partnership.

Let us return to the example given in Sect. 11.5.1 of the Burmese factory workers who were forced to take pregnancy tests to situate our discussion of preventative outcomes. Firstly, an understanding of changing patterns of exploitation and current hotspots can be used for prevention activities such as targeting awareness raising campaigns to specific nationalities, regions, and sectors. This information could inform workers of their rights prior to being forced to undertake these invasive tests. While this approach could be useful, a worker may not feel that they have the power to insist that their rights are respected, especially when unequal power dynamics and socio-cultural hierarchies are considered.

Another approach could be to consider protective strategies, such as developing evidence-based laws or policies based on the exploitative trends that have been identified. On further investigation in the case of the Burmese factory workers, the FLRs found that the problem arose due to a lack of policies of what is required in a mandatory health check-up prior to employment. All factory workers were required to have a health check-up, and as the factory did not specify the list of check-ups required, health professionals in Myanmar had a comprehensive suite of tests that they ran (including a mandatory pregnancy test). As a result of using Apprise, the factories involved developed new policies that specified the suite of health checks that were required, rather than leaving it to the discretion of the recruitment agency. As this factory audit occurred within a global supply chain, the new policy was shared as best practice with thousands of other factories within the supply chain. To support fairer migration, findings such as these could be shared more broadly, in forums such as the ASEAN Forum on Migration Labor, or used to inform other bilateral agreements or co-operations on migration.

Practitioners (EJF 2014; Human Rights Watch 2018), governments (US State Dept 2010), and inter-governmental organizations (IOM 2018, p. 201) continue to highlight the importance of proactive and consistent screening of migrant workers in vulnerable situations for signs of exploitation. IOM notes that as victims rarely self-identify, it is critical for law enforcement (and we would add, other relevant anti-trafficking players) to proactively screen workers as part of core protective actions (2018). A key part of this identification is ensuring that FLRs are adequately trained to understand the current practices of exploitation. An obvious link can be made to Apprise, providing both a tool to proactively screen workers; and a tool to identify trends in exploitation. These trends could in turn be used as a basis to educate migrant workers, inform migration policy, and train FLRs.

Accurate patterns of exploitation can also support an informed law enforcement response, by enabling them to more effectively identify and protect victims; and prosecute offenders. Practitioners note that FLRs are often untrained in the current practices of exploiters, and that they "... often operate under false assumptions that only undocumented migrants can be victims of exploitation... [or] focus on the more overt or objective conditions of exploitation, such as forcible confinement or physical mistreatment" (Human Rights Watch 2018). Returning to the case of wage withholding discussed in Sect. 11.5.1, if Apprise were used to identify changing practices of (mis)payment faster than the current response time, this information

could be used to adapt training and proactive screening tools, to ensure more victims are identified.

As labor exploitation and human trafficking often work on global networks, partnership and information sharing are key components of any policy response. One key point to consider when talking about governments' response is who should 'own' the interview responses, and who should be provided access to this data. In Apprise, data is 'owned' by the organization that collects it, with different organizations able to specify their internal sharing policy (share responses with all FLRs, share with direct supervisor and organization administrator, or share with organization administrator only). The system implements various obfuscation techniques, including dropping the accuracy of location data, and being able to hide the identity of different FLRs who interviewed workers when providing access to these other team members. An area that we aim to explore further is how stakeholders would like to share their data, and further methods that could be used to ensure the anonymity and privacy of all stakeholders involved, whilst allowing data to be exchanged to facilitate regional or global patterns of exploitation to be identified.

11.6 Conclusion

The economic, social and political differences between ASEAN countries have caused migration flows to increase in this important South-South corridor. The differences in socio-economic conditions between Member States, such as income, living standards, and access to healthcare, make countries like Singapore, Malaysia, and Thailand attractive destinations for migrant workers. The demand for low-skilled workers has resulted in a large influx of migrant workers from neighbouring countries as well as internal migrants from their own rural areas to urban and semi-urban areas. This has resulted in a wide range of exploitative situations, from discrimination and payment under minimum wage, to human trafficking, and forced labor.

This chapter calls for labor exploitation and forced labor to be treated as a public health problem with global scope. It suggests that while understanding prevalence of labor exploitation is important, the focus should be placed on understanding the changing patterns of exploitation that are faced by workers, many of whom migrate in South-South corridors. It suggests that sentinel surveillance, an approach that is used to identify trends in diseases, could also be used to track changing patterns of exploitation, and identify hotspots.

The chapter described Apprise, a tool that we have developed and piloted in Thailand to support FLRs in their initial screening of workers to identify labor exploitation. It has also demonstrated how Apprise can be used by FLRs and policymakers to detect changing patterns of labor exploitation. The high quality, micro-level data generated by Apprise can not only mitigate existing data constraints in the anti-trafficking space, but also provide evidence as a foundation for effective

prevention, protection, prosecution, and partnership strategies; leading to improvements in migrant and development policy.

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