Strengthening the Communicable Disease Control in Lao PDR:

Technical Support to Prepare a Strategic Approach for Addressing Health Needs and Mitigating Health Impacts of Migrant Workers and Host Communities during Construction of the Boten-Vientiane Railway in Lao PDR

International Organization for Migration

in collaboration with the Ministry of Health and

Ministry of Public Works and Transport

Lao PDR

December 2018

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Acknowledgement

List of Acronym

ADB	Asian Development Bank
BCC	Behaviour Change Communication
BRI	Belt and Road Initiative
CDC	Communicable Disease Control
CMPE	Center for Malaria, Parasitology, and Entomology
DHO	District Health Office
DOTS	Directly Observed Treatment, Short-course
EID	Emerging Infected Disease
FGD	Focus Group Discussion
FSW	Female Sex Workers
GMS	Greater Mekong Sub-region
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
ICT	Information, Communication and Technology
IEC	Information, Education and Communication materials
IOM	International Organization for Migration
IV	Intravenous
KII	Key Informant Interview
MBDS	Mekong Basin Disease Surveillance
MMP	Mobile and migrant populations
MOH	Ministry of Health
MOPWT	Ministry of Public Work and Transport
MSM	Men who have Sex with Men
NCCDC	National Committee for Communicable Disease Control
NEIDCO	National Emerging Infectious Disease Control Office
NWSS	National Weekly Surveillance System
PHC	Primary Health Care
PHO	Provincial Health Office

PSU	Provincial Surveillance Units
RDT	Rapid Diagnostic Tests
STI	Sexually Transmitted Infections
TB	Tuberculosis
TBA	Traditional Birth Attendant
UHC	Universal Health Care
VHV	Village Health Volunteers
WHO	World Health Organization

Chapter I: Introduction

1.1 Railway construction in Lao PDR

The China-Lao PDR railway project, also known as 'Boten-Vientiane Railway' is currently under construction and expected to be officially operational in December 2021. This mega infrastructure will cost US$5.8 billion in the Lao component, linking Vientiane Capital with the Chinese border along the 414.332 km rail line. Due to the mountainous terrain in Lao PDR, over 60% of the rail line will comprise either bridges (167, for 61.81km) or tunnels (75, for 198km). The electricity-powered passenger train is designed to run a maximum speed of 160 km/hour between Boten and Vang Vieng, and 200 km/hour between Vang Vieng and Vientiane, and 120 km/hour for the freight train.

In operation, the railway has the potential to become a key labour migration route as it will reduce the travel cost from Vientiane to Chinese border from $35 to $20, and travel time to under 3 hours. The rail line is estimated to carry 3.98 million passengers a year when it opens, increasing to 6.11 million a year in the short term and 8.62 million in the longer term. Domestic movement will be catered to by 32 stations (of which only 21 will be initially built).

According to the Lao Government Guidelines[1], contractors have been asked to employ Lao technicians and companies and use materials available locally in construction; construction must be of a high standard and completed as scheduled; safety must be guaranteed, must comply with Lao laws, respect local customs and culture and not to impact adversely on villagers; environmental protection is a top priority as well. Contracts were awarded in September 2016[2], as the result, six Chinese contractors have been carrying out construction in six segments from December 2016, ensuring the application and use of Chinese standards, equipment and technology. China Railway Group Ltd. is the parent company of the contractors for sections I, II, III and VI, which will facilitate engagement. According to the agreed regulation, Lao companies must be sub-contracted by these Chinese companies.

Table 1: Construction Contractors for Boten-Vientiane Railway

Railway Line	Contractors
1. Boten - Meuang Xay (88.65 Km):	China Railway No.5 Engineering Group
2. Meuang Xay - Nam Seu Bridge (68.8 Km):	China Railway International Group
3. Nam Seu Bridge - Phou Sanaen (65.6 Km):	China Railway Baju Group Company/China Railway No. 8 Engineering Group
4. Phou Sanaen - Ban Pa Village (61.49 Km):	Sinohydro Group
5. Ban Pa Village - Phonehong (79.5 Km):	Power Construction Corporation of China
6. Phonehong - Vientiane (65.7 Km):	China Railway Erju Co., Ltd

[1] Decree No. 0063/MOF, *Implementing Rules and Regulations on Decree of Government Procurement of Goods, Works, Maintenance and Services*, Peace Independence Democracy Unity Prosperity, Ministry of Finance, Lao PDR

[2] Railway Gazatte, *Lao PDR Railway construction contracts awarded*, 15 September 2016

As part of China's 'Belt and Road Initiative' (BRI), Boten-Vientiane railway is expected to significantly boost trade, investment, tourism and population movements, creating new jobs thus improve locals' livelihoods and reducing poverty. It promises to transform Lao PDR from a 'land-locked' to a 'land-linked' country and as a rail hub in Southeast Asia. This massive infrastructure has caused population relocation alongside railway construction sites, affecting local people's livelihoods in an unexpected way.

1.2 Population movement trend along railway construction

<u>Internal Lao migrant workers and Chinese immigrants</u>

The Chinese government and mass media often present and promote this railway project as a 'win-win cooperation deal'[3], with expectation that the railway will provide around 5,000 job opportunities for local people, lower the cost of production and bring wealth and investment to Lao PDR. As reported by Vientiane Times in July 2017[4], iJOBs – a labour recruitment company in Lao PDR, posted 7,112 local positions on its Facebook site for this railway project, with as many as 211 experts, 505 technicians, 56 staff and 6,340 skilled workers are needed. Without a clear answer for the current situation of those local vacancies, concerns are increasing amongst local Lao people in terms of mass Chinese immigrants.

The scale of this construction and the tight proposed 5-year timeframe will require significant amounts of labour. The Minister of Health identified a direct workforce of 20,000 people would be required. On the other hand, foreign media[5] reported a bigger number and different criteria of nationality on labour needs, mentioning the overall construction will require an estimated 30,000 Chinese workers.

Putting this into the context of Lao PDR, districts along the route generally have a total population of between 20- and 55,000 residents. In 2015, across the entire country there were 103,102 people working in the construction industry. The 2015 census identified that only 73,720 people were unemployed across the country, taking up 2.1% of the 3.5 million population in labour force[6]. In addition to construction personnel, there will be an associated significant movement of transport. Boten international checkpoint typically sees 400 vehicles in a day, however this has already more than doubled to about 1,000 vehicles a day due to the arrival of the first construction vehicles from China.

<u>Relocation of local residents</u>

Another common way that massive infrastructure construction can affect people's livelihoods is relocation, either planned or unexpected. It has been reported in Lao media that over 4,400 families and households have been relocated along the proposed railway line. Over 80% of the land needed for the project has been handed over to the Chinese developer, nearly 4,000 hectares of forests and farmland and over 3,300 buildings are affected, according to an official estimate[7]. Foreign media has reported several relocated cases in this country. In Phu Din Daeng village about eight kilometers outside of Vang Vieng town, a planned railway route, 200 villagers were told to move and make way for the giant construction site[8]. In Chaengsavang village, Na Xaythong district of Vientiane Capital, at least 20

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[3] Xinhua, *Belt and Road Initiative, China-Lao PDR railway inspire Lao singer's latest hit song*, 30 June 2017; *China-Lao PDR cooperation benefits both sides, contributes to community of shared future*, 3 February 2018

[4] Vientiane Times/Asia News Network, *More than 7,000 Lao workers needed for Lao PDR-China railway construction*, 25 July 2017

[5] NIKKEI Asian Review, *Land-locked Lao PDR on track for controversial China rail link*, 24 June 2017

[6] The 4th Population and Housing Census (PHC), 2015

[7] NIKKEI Asian Review, *China's Belt and Road rail project stirs discontent in Lao PDR*, 15 March 2018

[8] Chiangrai Times, China's Railway Project Running Roughshod Over Lao PDR, 18 August 2018

households will have to move for the railroad's proposed route. As of July 2018, 12 households in Muang Xay city, Oudomxay province have agreed to move but struggled to receive any compensation[9].

Under Lao Decree 84 issued in April 2016, Lao citizens losing land to development projects must be compensated for lost property and income, with project owners guaranteeing that living conditions for the displaced population to be at least the same standard as the project took place. In January 2018, the Government of Lao PDR revealed that a compensation law has been drafted for compulsory evictions related to infrastructure projects, which is expected to be tabled in April same year at the National Assembly.

In terms of Boten-Vientiane railway project, rail compensation will be paid through the National Treasury under the Ministry of Finance, with a total amount of 2,492 billion kip (US$291 million) assigned. Mr. Bounchanh Sinthavong, the Minister of Transportation and Public Works, promised in a meeting with Lao National Assembly early 2018, that the loss of all property, including land, buildings, fences, crops, and trees will be compensated and will start in June 2018. However, according to several foreign media reports, as of July 2018 no relocated or displaced households in Lao PDR has received any promised compensation yet[10]. Without the due process, compensation package or basic social support, the 4,400 relocated households could encounter increased vulnerability from all aspects, leaving them exposed to various development dilemma, including increased health risks.

1.3 Disease burden and health surveillance system in Lao PDR

Health risks - communicable diseases

For many decades, communicable diseases are the leading cause of illness and even death in Lao PDR, remaining the most significant cause of morbidity and mortality, as a result of the country's unsolved poor sanitation and clean water supply, poor health awareness and hygiene habits, inadequate access to quality healthcare and so on. In the recent Lao PDR-WHO Country Cooperation Strategy 2017-2020[11], increased cross-border exchanges is identified as a potential factor that putting further pressure on the national health system's capacity to prevent, monitor and control outbreaks. Just as many other infrastructures, the construction of Boten-Vientiane Railway has been rapidly accelerating the mobile population flows internally and across borders, bringing both economic gains and increased vulnerability to communicable diseases.

In Lao PDR, combatting tuberculosis (TB), malaria and HIV/AIDS continues to be a priority for public health improvement. For **malaria**, the country has successfully controlled the serious burden with majority of its population at-risk are protected, nevertheless, it is still affecting rural population and most remote areas. With even less health care access, equipment, and health workers in those regions, outbreaks occur annually after heavy rain in September and November. Mobile and migrant populations (MMPs) are at even higher risks of malaria in endemic areas of Lao PDR. Studies suggest that a number of factors have attributed to the malaria outbreaks in the past five years in this country, including unregulated deforestation, environmental degradation related to large scale development projects (the construction of hydropower dams, railways, mining etc.), and migration of workers from non-endemic areas (Briggs *et al.*, 2013 & The Global fund, 2015). However, it is believed that large population movements, both internally within Lao PDR and across borders, are the primary driving force of the resurgence of malaria,

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[9] Radio Free Asia, Lao Citizens Displaced by China-Linked Railroad Project Still Not Paid For Losses, 19 July 2018

[10] Radio Free Asia, Lao Citizens Displaced by China-Linked Railroad Project Still Not Paid For Losses, 19 July 2018; Bangkok Post, The great rail dilemma, 22 July 2018

[11] WHO. *Lao People's Democratic Republic–WHO Country Cooperation Strategy 2017–2021*. (2017)

with 86% reported cases are adult males in 2014. In particular, migrant workers from neighboring countries who are deployed for development projects, including railway contractions, are at high risks of acquiring malaria. Nevertheless, the malaria information system in Lao PDR failed to maintain a regular data collection of cases from this at-risk group of people (Kounnavong *et al.,* 2017). An assessment study conducted by WHO and the Center for Malaria, Parasitology, and Entomology (CMPE)[12] showed that migrant workers accounted for approximately 70% of those confirmed malaria cases in a malaria outbreak in Attapeu province (Southern Lao PDR) in 2011. A survey conducted by Health Poverty Action in 2015 indicated that among the interviewed 186 Mobile and Migrant Populations (MMPs) in parts of Southern Lao PDR, more than 60% tested positive for malaria. In the northern and central part of the country, outbreak investigation between 2011-2015 suggested that most malaria outbreaks were occurred due to relatively low immunity of resident mobile workers returning from southern provinces (The Global fund, 2015).

With regards to **HIV/AIDS**, Lao PDR is the only country in Southeast Asia to maintain a low prevalence, with 8,900 cases reported by 2017- a much lower number compare to its neighboring countries. However, with the construction of more transportation infrastructures in this region, Lao PDR is turning into a transit country with increasingly open borders and population movements. Health officials are preparing a potential outbreak of HIV/AIDS, especially targeting those provinces bordering Cambodia and Thailand – countries with the highest HIV rates in Asia; as well as those bordering China and Viet Nam – where HIV infection rates have been rising rapidly. There is also a growing concern in northern part of Lao PDR, that the growing flow of Chinese immigrants from Yunnan province, the border province with Lao PDR, increasing the potential risks of HIV/AIDS infection to local Lao people[13]. And this is where Boten-Vientiane railway project starts. Besides the mobile population influences, a greater cross-border flow of goods, including intravenous drugs, has also put more local people at risk.

Table 2: HIV/AIDS related figures in GMS in 2017[14]

Country	***Adults and children living with HIV***	***Adult and child deaths due to AIDS***	***People living with HIV who know their status***
Lao PDR	12,000	<500	8,900
Cambodia	67,000	1,300	59,000
China	N/A	N/A	760,000
Myanmar	220,000	6,700	N/A
Viet Nam	250,000	8,600	N/A
Thailand	440,000	15,000	430,000

The **TB** treatment coverage in Lao PDR increased from 30% in 2011 to 37% in 2015 and 40% with more than 5000 notified TB cases all forms in 2016. Hence 60% among the tuberculosis patients remain

[12] Deyer G. Brief report on malaria outbreak in the Southern part of Lao PDR. December 2012. Unpublished reports for CMPE and WHO

[13] Latsaphao & Khonesavanh. *ADB Gives Grants, Loans for Three Projects*. Vientiane Times. 5 December, 2012.

[14] UNAIDS, Country Factsheets, 2017

undetected and untreated (40% TB case detection in 2016) continuing suffering a high level of morbidity and death while early diagnosis and treatment is key in preventing the transmission of the disease in the community and particularly to the new generations. High proportion among persons newly tested with HIV positive develop tuberculosis and 7% among all TB patients are co-infected by HIV. Higher mortality is observed among TB-HIV patients due to late HIV and TB testing and treatment.[15]

Communicable disease surveillance in Lao PDR

With the technical assistance from WHO, Lao PDR has established a National Weekly Surveillance System (NWSS) and currently in operation with a number of international organizations, to strengthen the surveillance capacity in this country. This nationwide surveillance system monitors 19 diseases including TB, malaria, and HIV/AIDS. There are 17 provincial surveillance units (PSU) and 141 district health offices (DHOs) responsible for reporting to National Centre for Laboratory and Epidemiology (NCLE), which is the coordination office of this system[16]. NCLE operates as a center for communicable diseases surveillance; case and outbreak investigation, response and research; and as a public health laboratory and a national reference laboratory.

In weekly operation, the district hospitals and village health posts/dispensaries are required to report to the DHO, then the 141 districts will report any suspected cases or outbreaks of the listed 19 diseases or conditions to the Provincial Health Department. The Provincial Health Department will report to NCLE no later than Tuesday each week on the number of cases or outbreaks of any of the 19 listed diseases. NCLE will then report to the Ministry of Health (MoH) and remain in regular communication with WHO (see figure below).

The MOH of Lao PDR is clearly aware of the nexus between mobile populations and certain types of disease including communicable disease, as a response, MOH established special "health units" in 2006 to monitor disease at international border checkpoints[17]. Staff in health units are responsible to check cross-border vehicles and passengers, and report to NCLE, MOH and the National Emerging Infectious Disease Control Office (NEIDCO) through NWSS chain.

[15] National Tuberculosis Control Programme, National TB Strategic Plan 2017 – 2020, p4.
[16] Government of Lao PDR, National Avian Influenza Control and Pandemic Preparedness Plan, p10.
[17] Decision of the Minister of Health on the organization and function of a Health Unit at the International Border Check-point, No. 1263/MOH, dated 28 September 2006.

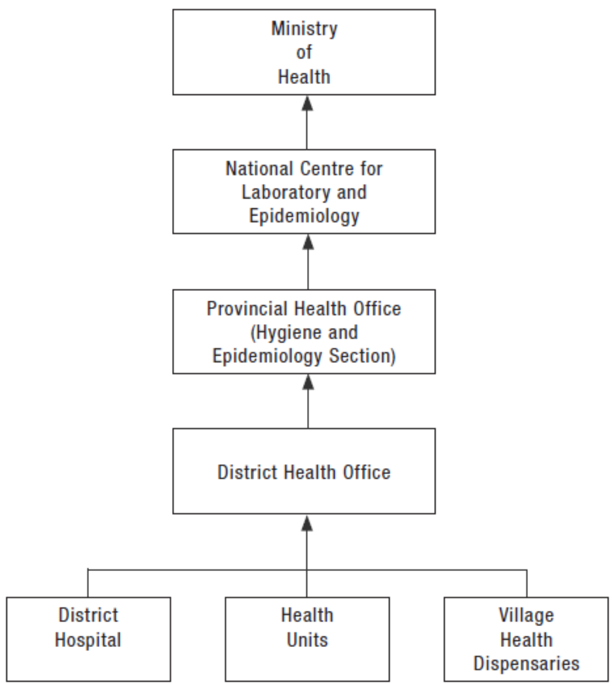

Figure1: Legal Preparedness for Responding to Disasters and Communicable Disease Emergencies in Lao PDR

(Source: IFRC/ADB., 2009)

In terms of the regional surveillance network, the Mekong Basin Disease Surveillance (MBDS) was established between Cambodia, China (Yunnan and Guangxi provinces), Lao PDR, Myanmar, Thailand and Viet Nam in 2001, aiming to improve cross-border communicable disease control coordination in Greater Mekong Subregion (GMS). The MBDS enables member countries to share surveillance data and best practices in disease recognition and reporting for joint outbreak response. In the context of Lao PDR, the MBDS core strategy is to enhance cross border communication and information exchange through setting up cross-border sites with neighboring countries. Over the years, joint activities have gradually built a platform for regular interactions among the country coordinators, local cross-border teams, and other stakeholders to foster a sense of community (Bounlay *et al*., 2013).

Challenges of the current surveillance system

The MOH has provided some health centers with phone cards regularly to support their daily communication within the office and with key partners and stakeholders. The Government of Lao PDR has also issued a series of policies to strengthen the national surveillance capacity, reinforce the importance of coordination between key agencies and enhance the public awareness. In this regard, the regular communication in this chain, between NCLE, MOH, NEIDCO and WHO is considered as a relatively effective system in this country.

Nevertheless, concerns and challenges in daily operations are identified awaiting for further improvement. Internally, the equipment support is insufficient from the government and ministry, many health centers and DHOs do not have proper means for communication, such as telephone, fax, and

computers[18]. In some areas in Lao PDR, data entry still relies on a paper-based reporting system, which has become the main cause of the large percentage of inconsistent data information due to the difficulty for validation and variation, unlike the electronic data entry practice (Lawpoolsri *et al.,* 2018). Furthermore, communication and coordination chains within the established surveillance system are not defined within any legal instruments, but more likely are subject to close relations to remain functionalized (IFRC/ADB, 2009). In other words, the entire system may possibly be fragile to personnel or office rotation thus affecting the effectiveness of implementation in general.

The current surveillance system may also fail to address the data information on MMPs, due to number of existing barriers including language barriers, irregular status of work or residence, limited access to health facilities, inadequate capacity of health staff in data management, reporting, and use of information, communication and technology (ICT) tools (Cox *et al*., 2014). In addition, lack of close coordination with other relevant non-health sectors for information sharing on migrant (workers) trends and potential cross-cutting issues, lack of local capacity in analyzing, programming and implementation, as well as relatively poor and inconsistent funding resources to respond communicable disease control strategy are challenging the established surveillance system in Lao PDR (Gopinath, 2013).

In terms of external challenges, concerns are raised from the massive population movements across borders due to increasing regional trade and transportation networks, which have led to a higher risk of disease dissemination across countries. In such scenario, an established disease surveillance system within an individual country may not be sufficient for early detection of disease outbreaks from its neighboring countries (Lawpoolsri *et al.,* 2018). Thus, it is crucial to develop a broader regional mechanism among neighboring countries for sharing disease outbreak data as well as human resources and expertise, for cross-border outbreaks control especially communicable disease control.

1.4 Health facilities and national capacity in Lao PDR

<u>The structure of healthcare system in Lao PDR</u>

The overall structure of Lao public health system can be broken down into three administrative levels: Ministry of Health at central level, provincial health offices (PHO) at provincial level, and provincial health offices (DHO) at district level; at village level, health services mainly reply on local health centers and village drug kits. Central level manages all MOH activities as well as coordinate multi-sector programmes; provincial level plans, implements, supervises and monitors Primary Health Care (PHC) programs in each province; district level oversees the delivery of health services and village health programs (CFE-DMHA, 2014).

In communicable disease control, the National Committee for Communicable Disease Control (NCCDC) is the responsible agency, managing communicable disease prevention, emergency response, as well as internal and international coordination. NCCDC is chaired by the Prime Minister and was established by the Prime Minister Decree No. 337 in 2005, during the first avian influenza outbreak in Lao PDR (IFRC/ADB, 2009).

<u>Health facilities in Lao PDR – hospitals</u>

Healthcare in this country is predominately provided by public healthcare infrastructures, with a large number of private pharmacies and clinics (WHO and MOH, 2012). Hospitals, healthcare centers and clinics

[18] National Avian Influenza Control and Pandemic Preparedness Plan, Government of Lao PDR, p10.

fall under the responsibility of MOH at central level, also are directly supervised by each level administrative entity. The structure of health entities and health management chain is illustrated as below:

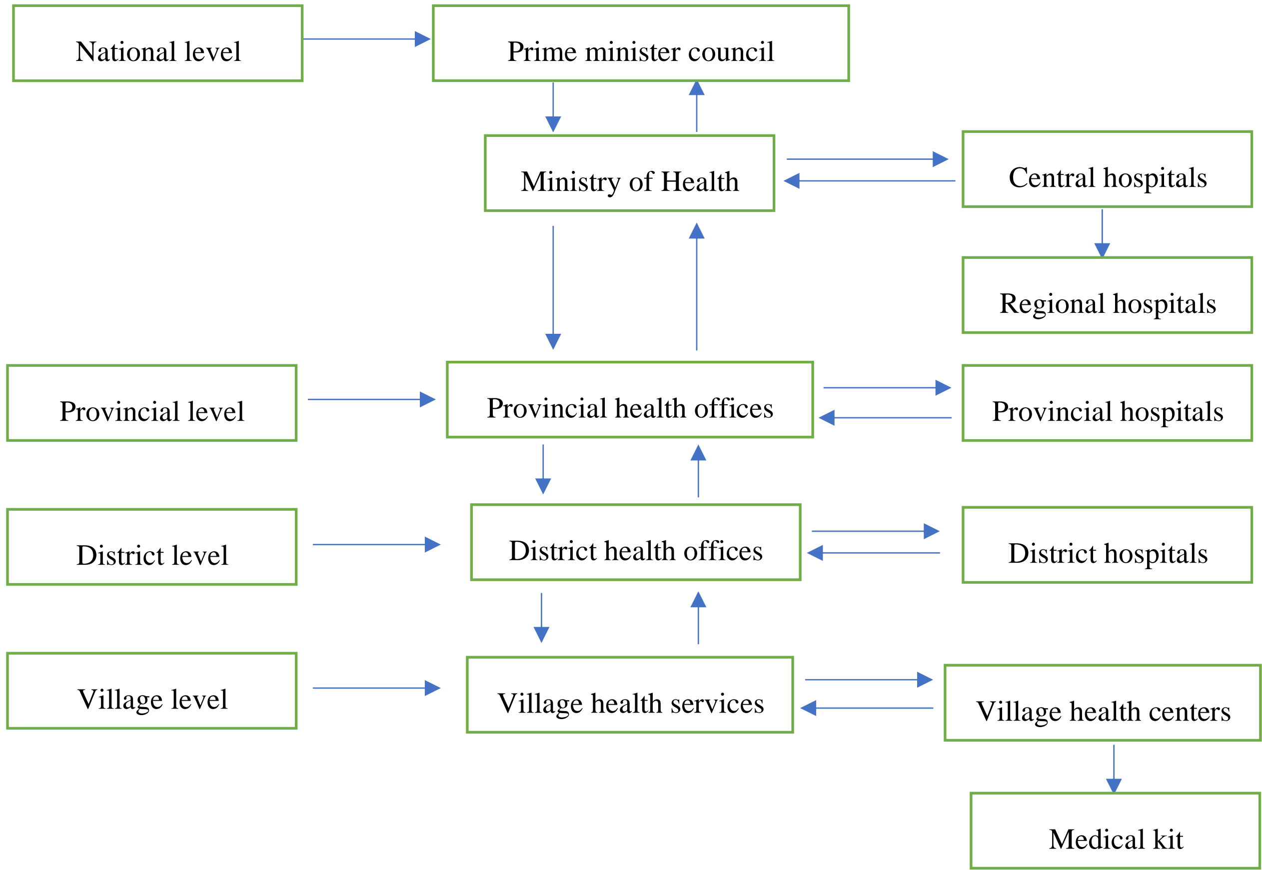

Figure 2: Structure of health entities and health management chain in Lao PDR[19]

The medical facilities are uneven across the country, especially in remote areas outside of Vientiane Capital where they are minimal and insufficient. In case of an emergency or in need of a medical specialist, patients are often advised to travel across the border to Thailand and seek further treatment there. For example, people in Vientiane Capital will have to cross the Thai-Lao Friendship Bridge to the hospital in Nong Khai or further to bigger ones in Udon Thani in Northeast Thailand, but the ambulance services in Lao PDR are ill-equipped and may not always be available to respond to emergencies[20].

Hospitals located in Vientiane Capital are Mahosot Hospital, Sethathirath Hospital, Mother and Child Hospitals, Lao-Asean Hospital, and Mittapap (Friendship) Hospital, and one provincial hospital in each other provinces in Lao PDR[21]. Four Provincial Hospitals (Luang Prabang, Oudomxay, Savannakhet,

[19] National Institute of Public Health. Available from: http://www.nioph.gov.la/nweb/
[20] Medical Services in Lao PDR, Australian Embassy in Lao People's Democratic Republic, access from: https://Lao PDR.embassy.gov.au/vtan/AEV001003.html
[21] List of Medical Facilities/ Practitioners in Lao PDR, British Embassy Vientiane in Vientiane, February 2018, access from:

Champasak) are registered as Regional Hospitals and functioning as core hospitals in each region. District level hospitals are allocated in most districts across the country, however, the quality of medical services are not often satisfactory partly due to limited medical personnel and equipment (JICA, 2012).

The MOH has made some progress to develop health guidelines to expand the access to healthcare in the country, especially for women, children, and ethnic populations in remote rural areas. Nevertheless, basic healthcare services are not all available in many areas outside of the city, some villages have no healthcare centers but only drug health kits, and primary healthcare in each province vary depending on the technical capacity of health workers and population size (CFE-DMHA, 2014). One health center usually covers 6 to 8 villages, providing basic treatment, disease prevention, and health promotion within its limited coverage. The quality of medical services is even poorer than district level healthcare facilities, with most health centers have no doctor but only a few middle or basic level nurses (JICA, 2012).

In addition to MOH controlled medical facilities, there are also military hospitals that fall under the Ministry of Defence and police hospitals under the Ministry of Public Security. Military hospitals are allocated in all provinces, with at least one in each province. Police hospitals are only located in relatively large provinces (JICA, 2012). Military hospitals also accept civilians, as findings from WHO indicating 30 percent of all health services to the civilian population, especially at the provincial level are delivered by military hospitals (WHO, 2011).

Health access and health workforce in Lao PDR

Mountains make up 70% of Lao PDR, this geographic feature has placed a burden to physical healthcare access in this nation. As mentioned above, there are district hospitals in almost every district, however they are usually physically hard to reach (WHO and MOH, 2012). This is also a common situation in most of the rural, hard-to-reach areas in this country, where need healthcare services the most.

As the government-run public healthcare system is significantly underutilized, particularly in rural areas, health expenditure by individuals has to be covered by out-of-pocket payment, placing many households at risk of catastrophic health expenditure (Burniston *et al.,* 2015). The two key factors - distance to healthcare facility and ability to pay medical services, are major barriers preventing individuals from seeking medical support, indirectly resulting in self-medication. Ethnicity, culture and religion always play a special role in health-seeking behaviours in the country, as it is well-believed by large populations that health is associated with spiritual balance. Traditional medicine receives strong support from both citizens and the Government of Lao PDR (Sydara *et al.,* 2005), which further aggravates the already low level of public healthcare utilization.

Shortage of health workers in Lao PDR has also led to the inadequate capacity of the national healthcare system. In 2012, the country only had 14,189 health workers for a total of 6.7 million population (WHO, 2013). Patients have not benefitted from the quality of medical services and treatments either. The 2013 WHO report indicated that between 2005 and 2012, the average number of skilled health workers per 1,000 population was 0.2 physicians and 0.8 nursing and midwife personnel, which was far behind the WHO standards and recommendations (2.28 skilled health workers per 1,000 population). At village level, there are a large amount of village health volunteers (VHVs), staff of community health committees, and traditional birth attendants (TBAs) working as provide medical services providers.

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/697998/Vientiane__Lao PDR_List_of_Medical_Facilities_Feb_2018.pdf

Qian *et al.*'s study (2016) interviewed some key informants from the Health Personnel Department of the MOH who reported that the severe shortage of health workers has become the biggest problem from their view, especially in rural and remote areas. Also, most qualified and competitive health personnel work and prefer to work at central and provincial level, which is the evidence for the unevenly distributed health workforce across the country. Salary and incentives of health workers vary depend on their "rank", which are not always attractive especially for those in non-official positions and contract-based personnel. Due to the inadequate national budget, recruitment of health staff is always highly competitive with limited available positions. Other challenges to improve both quantity and quality of health workforce in Lao PDR include weak management and administrative support to health staff, and lack of well-developed continuing education programs for medical professional development.

Universal Health Coverage in Lao PDR

In 2016, the MOH launched the Health Sector Reform 2013-2025 strategy and framework, continuing to build on the foundation of primary healthcare and strive to achieve the Universal Health Care (UHC) by 2025. The plan has five priority areas: health financing, health governance, human resources for health, health service delivery, and health information systems (MOH, JICA and WHO, 2016). In July 2017, the Government of Lao PDR approved additional funding for a national health fund to expand UHC - the so-called "30,000 kip for all diseases treatment" scheme, which is similar to Thailand's "30 baht" UHC plan. Under this comprehensive scheme, the augmented fund will cover all medical service cost, including surgery, up to five million kip (US$600), and for the exceeding part of this amount, the National Health Insurance fund will cover 75% while the patient and his/her family contribute the rest (Masaki *et al.,* 2017). The UHC plan is part of the Government's Health Sector Reform Strategy 2013-2025, which targets 80% national healthcare coverage by 2020. However, according to an ADB report (2017), only 33% of the Lao population was covered by any health insurance program as of 2016. Most of the covered population are public sector workers or the wealthy elite who can afford private insurance. Vulnerable groups, including MMPs are still paying debilitating sums for healthcare.

The above-mentioned challenges faced by Lao PDR, namely low government expenditure on healthcare, shortage of healthcare workforce, limited access to medical service particularly in rural areas, lack of high-skilled health professionals, uneven distribution of health workers throughout the country, and relatively low coverage of the current social protection scheme, have created a visible burden for the development of the entire country as well as individuals. Additionally, the majority of funding for healthcare-related activities are from development partners and other donors, this may highly influence the sustainability of future national programming. As an example, there are discussions on the nexus between mobile populations and communicable disease inside Lao PDR, and a scheme is being initiated in south of Lao PDR to expand VHVs and village health workers management strategy with a specific focus on people on the move, including plantation workers, seasonal agricultural laborers, forest workers and so on (the Global Fund, 2015). However, this type of interventions often relies on external and international funding, instead of the Government of Lao PDR taking the ownership.

1.5 Space of vulnerabilities

IOM will apply the 'space of vulnerabilities' as a frame for analysis of the health vulnerabilities in the space of high mobility in the context of 'Boten – Vientiane' railway construction situations. A regional review undertaken by IOM (IOM, 2010) concludes that the most effective intervention to reduce HIV vulnerability of migrant workers and mobile populations is to develop 'space of vulnerability programming', rather than focusing on particular at risk groups. This entails attention given to service delivery and capacity of the

health systems and health workers; advocacy and policy making (national and regional levels); research and evidence building and dissemination; within a geographical space or a series of inter-linked geographical spaces. Vulnerable space programming around HIV and AIDS explicitly recognises the sexual interaction between mobile populations and host communities and the potential for stress to be placed on weak public health care systems in those host communities.

'IOM's approach to migration health considers the different health and HIV vulnerabilities associated with the migration process rather than considering the migrant as the health vulnerability. By identifying spaces of vulnerability, which are often places where migrant workers live, work or pass through as areas of high-risk HIV vulnerability'

Vulnerable space programming in this context aims to develop holistic plans to reduce risk taking behaviour and boost access to and use of adequate health services by mobile populations and host communities alike. Therefore, good programming using this concept would not limit action to a single geographical location but rather anchor programming in 'hot spot' (starting point) with activities radiating out to encompass all the geographical spheres of interaction.

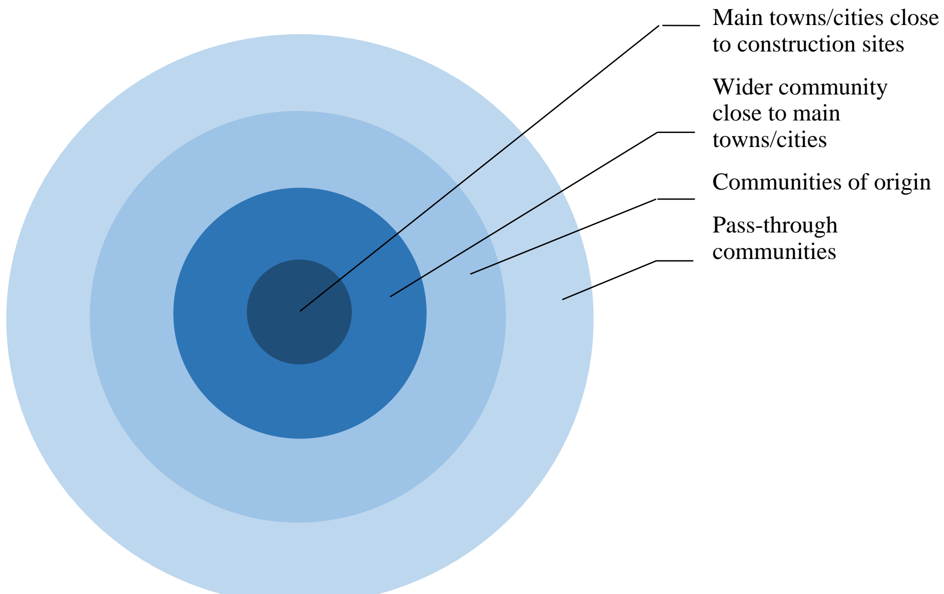

Figure 3: Space of vulnerability and spheres of interaction

Colour code	Description
	Hot spot – A source of high concentration of interaction between mobile and resident populations. It is characterized by largely opportunistic, casual and transactional sexual relations.
	Wider community close to the hot spot – A source of the majority of people interacting with the 'hot-spot' working population. It is characterized by both opportunistic sexual relations (hot spot) and stable partnerships (areas of residence).

Colour code	Description
	Communities of origin – A source of the mobile populations. It is characterized by mobile populations returning periodically to stable partnerships (but not exclusive sexual relationships).
	Pass-through communities – A source of communities where the mobile populations stay for short period of time (often on a regular basis). They are characterized by opportunistic or stable non-exclusive sexual relationships.

In regard to the mega-project of the 'Boten-Vientiane Railway' construction, increasing population movement along the railway construction and border areas between Lao PDR and Yunnan province of China and Thailand and health system in Lao PDR, the International Organization for Migration (IOM) in partnership with the Ministry of Health (MoH) and Ministry of Public Work and Transport (MoPWT) has conducted the situational assessment on the health risks and impacts alongside railway construction for both migrant workers and host communities. With this initial seed fund from IOM, IOM Lao PDR Country Office will provide technical support to the MOH to analyse the current health-related situations and assess the potential health impacts alongside railway construction with a focus on communicable disease, develop a set of recommendations for relevant ministries and key stakeholders, and prepare donor investment package to expand donor interest in this topic for future programming.

1.6 Objectives

The Objectives of this assessment are to:

1) **Conduct a situational assessment on health impacts and communicable disease impacts in particular**, outlining possible health risks and impacts to internal and cross-border labour migrants, as well as host communities during the construction phase of Boten-Vientiane railway.
2) **Develop a set of recommendations** for establishing strategic approaches to mitigate communicable disease and other health risks, to strengthen disease control plans for Lao government, medical service providers and potential private sectors.

Chapter II: Research Methodologies

2.1 Method overview

The Situational assessment to address health needs and mitigating health impacts of migrant workers and host communities during construction of the Vientiane-Boten Railway in Lao PDR applied qualitative methodologies for data collection and analysis. The assessment is conducted by IOM Regional Migration Health Unit and IOM Lao PDR, in partnership and close collaboration with the Department of Communicable Disease Control, MOH and Department of Railway, MOPWT of Lao PDR. Desk review was conducted in October and November 2018, data collection in the fields was collected in November in selected sites in Luang Prabang and Luang Namtha. Validation workshop was done in December 2018 among government stakeholders among the MOH and MOPWT partners in Vientiane.

2.2 Location

The assessment targeted two railway construction sites; one is in Natoey area in Laung Namtha which is near the border between Lao PDR and China, and another site is in Xieng Ngeun District which is on the main route from Luang Prabang District to Vientiane Capital and Thailand.

2.3 Target groups

There are five groups of participants in Luang Namtha and Luang Prabang involved in different qualitative methods for data collection in this assessment as described below.

1. Provincial and district officials from Health, Public Work and Transport, and Labour and Social Welfare
2. Managers and technician staff from the construction companies in Lao-China Railway Construction Company No. 5 Limited in Natoey, Luang Namtha, and AB Construction Company in Xieng Ngeun District, Luang Prabang
3. District Health Officers and health workers
4. Lao and Chinese construction workers of the railway construction companies
5. Railway construction affected communities in Natoey village of Luang Namtha, and Namming village of Luang Prabang

2.4 Assessment tools

Interview guideline was developed for interviewing with the health officers at District Health Office and Health Center and the managers of the construction companies. Focus Group Discussion guidelines was used for discussing with the construction workers and communities in the railway construction areas. Research questions were comprised of 4 topics.

1. Migration and mobility
2. Health situation and potential health risks, i.e. HIV/STI, malaria, TB, pandemic influenza, accidents
3. Health services, health seeking behaviours and barriers to access to health services
4. Health promotion and health communication in the community

The assessment tools were developed in English and translated into Lao and Chinese for the discussion with target groups. The Lao versions was shared with the Department of Communicable Disease for feedbacks on terminologies, sensitivities and understandability in the Lao contexts.

2.5 Data collection methods

Document review - Collation of all available (i) workforce, (ii) health, and (iii) migration data to enable an initial impact scoping and data gap analysis to be undertaken prior to convening of data collection in the fields. Data on workforce and population mobility, health facilities and capacity were compiled. Data on the current disease burden and exposure along route, and the health surveillance systems currently in place were included in the review.

Qualitative data collection and field observations – Qualitative methodologies were applied for collecting data from related stakeholders including MoH, Ministry of Labour and Social Welfare, Ministry of Public Work and Transport in national, provincial and district levels, construction companies, migrants and host communities. Selected worksite and host communities were inspected by the assessment team during data collection in November 2018. Qualitative methodologies applied for this assessment are described below, detailed of topics is presented in figure 4.

a) Consultative workshops – one consultative workshop was conducted in Luang Namtha on 8 November 2018 and another one on 9 November in Luang Prabang among provincial and district officers from Health, Public Work and Transport, and Labour and Social Welfare offices. The workshops were chaired by provincial health offices and facilitated by the assessment team from IOM.

b) Interviews – the interviews were made between 6 and 10 November 2018 among the managers and technicians from the construction companies in Lao-China Railway Construction Company No. 5 Limited in Natoey, Luang Namtha, and AB Construction Company in Xieng Ngeun District, Luang Prabang as well as, the District Health Officers at Xieng Ngeun District Health Office, Health workers at the Natoey Health Center of Luang Namtha and Namming Health Center of Luang Prabang. Twenty-three (23) key informants were interviewed at their offices or in their communities. IOM assessment team conducted the interviews with all key informants, the interviews were in Lao with the health officers and in Chinese with the managers and staff of the railway construction companies

c) Focus Group Discussion (FGD) – five FGDs were conducted by the assessment team on 7 and 10 November 2018. Two FGDs were conducted with the construction workers; one with Lao construction workers and one with Chinese construction worker in Xieng Ngeun District. Assessment team discussed with three groups from host communities including 1 group of male communities and 1 group of female communities in Natoey village, Luang Namtha, and 1 group of community in Namming village, Luang Prabang. 31 people from affected communities participated in the focus group discussions.

Each FGD and KII was led by a moderator/interviewer and documented by a note taker and audio recorder with informed consent of the participants.

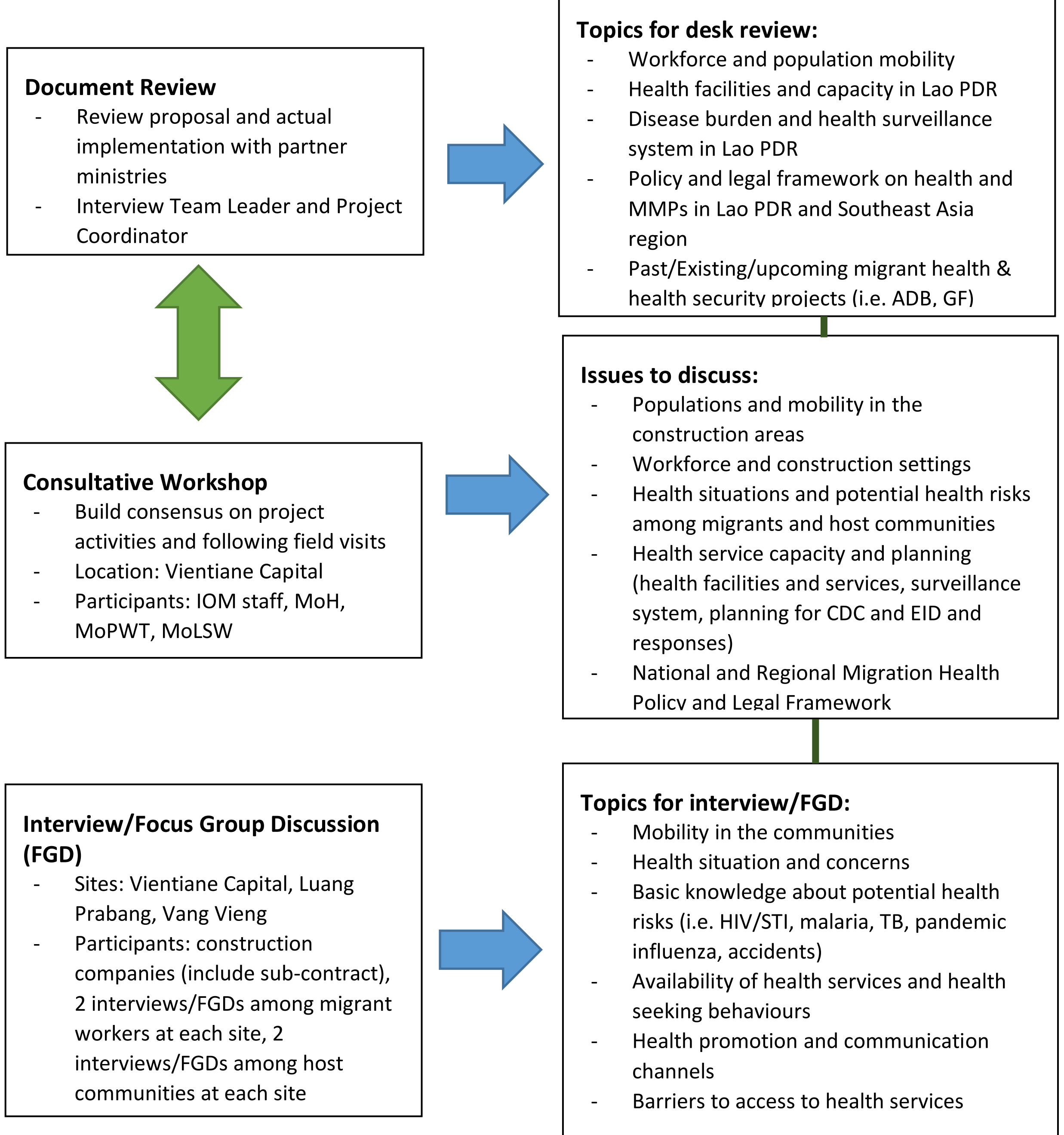

Figure 4: Details of data collection methods, target groups, and topics/issues to discuss in each method

2.6 Data analysis and report

Qualitative data were transcribed and translated verbatim from Lao and Chinese into English from voice recording files into written scripts by the consultant and assessment team. The assessment team checked

the translation to ensure corrected interpretation of discussions. The scripts were coded and analysed by theme using Atlas.ti version 4.2.

Study results are presented by topic, describing the relevant findings from each methodology under the same thematic heading. The potential health impacts and their likelihood were analysed and a set of recommendations will be provided based on the results.

After analysing data and write draft finding report, IOM shared the preliminary findings at the validation workshop among key stakeholders from Ministry of Health, Public Works and Transport and Labour and Social Welfare. The workshop was organized on 14 December 2018, 6 government stakeholders participated and provided feedbacks. Relevant comments were incorporated in the assessment report.

2.7 Ethical considerations

Informed consent was integrated into data collection procedures. Prospective participants were first invited to participate, then at the point of data collection were provided further project information and given the opportunity to opt out. Verbal consent was recorded on the consent form included with the questionnaire.

The interviews and FGDs were conducted in private areas away from onlookers. Refreshments were provided to participants at the interview/discussion. To ensure confidentiality, the names of participants were not mentioned in the report

Chapter III. Results

Results of the assessment were analysed from the interviews of key informants, focus group discussions among construction workers and host communities in the railway construction areas, consultative workshops with the provincial and district officials in Luang Namtha and Luang Prabang, and field observations by the assessment team. Results will be presented in 4 topics including;

1. Migration and mobility along the railway construction project
2. Health situation and potential health risks
3. Health seeking behaviour and health services
4. Health communication

3.1 Migration and mobility along the railway construction project

The Boten-Vientiane railway project starts from Boten, the border of Lao PDR to China which is the main border crossing point between Lao PDR and China. There has been high mobility in Boten area since in the past. The construction of the railway has increased the mobility and influenced migration pattern along the construction areas. There are more cross border migration and increasing internal mobility and migration.

3.1.1 Internal migration

Lao migrants in Luang Namtha are from other districts in Luang Namtha or other neighbouring provinces including Phongsaly, Bokeo, Oudomxay and Luang Prabang. In Luang Prabang, most of migrant workers are also from northern provinces and other provinces throughout the country. Those work in the Xieng-ngeun district met during data collection are from Paklai, Vangvieng, Vientiane, Savannakhet, Houaphanh and Xiengkhouang. Local communities in the railway construction areas are low land Lao (Laoloum) and Khamu, and they are the main ethnicity of migrants in the areas as well. There is Hmong ethnicity in some areas but not the big group. Many groups of Lao migrants have moved to the railway construction areas; some moves to look for opportunities in the communities while some moves to work in the railway construction project. Most of Lao migrants are male as they move to look for labour work. As a result, Lao migrants are relatively young, aged between 20 – 40 years old.

Internal migration pattern in the railway construction areas can be classified into 3 types.

1. **Long-term migration**

This group is likely to be the resettlement group and marriage migrant. Marriage migrants in Luang Namtha are both Lao and foreigner marry Lao women in the communities. Some Chinese men marry Lao and bring Lao women back to China but some Chinese men stay in Lao PDR and settle down in the communities. Another long-term migration group is for resettlement. Some of Hmong has moved from

Phongsaly to resettle in Luang Namtha due to agriculture restriction. Many of them work in the banana plantation and moved with the whole family. As a force-migration, this group of migrants is poor and has limited option in the new area.

> "They are mostly from Phongsaly province. They have no agricultural areas, so it is difficult for farming. They are also not allowed to do slash and burn cultivation, they have no paddy fields that's why they moved to here"
> *Female community in Natoey, LNT*

> "For banana plantation, they come as a family. Many of the workers are very poor. They have no food, no clothes and no houses."
> *Female community in Natoey, LNT*

2. Medium-term or periodical migration

The main migration pattern in the railway construction project is periodical migration and most of migrants move for work. They travel by themselves to the new areas, some may follow their friends who have moved earlier and found some opportunities in the destination. Lao Migrant workers in Luang Namtha and Luang Prabang work in the construction sector (house, road and railway construction) and factories, i.e. paper factory, tobacco factory, gravel processing factory in Natoey village of Luang Namtha. Male Lao migrants working in the railway construction projects are the drivers and labour workers doing unskilled works while female Lao migrants work as the maid and cooks. Some of these workers are from host-communities as well. According to the managers of the Chinese construction companies in both Luang Namtha and Luang Prabang, Lao migrants do not stay with the project for a long time, may be a few days up to six months as Lao workers do not have any commitment, and they do not concern about security when on duty. However, the drivers tend to stay with the company longer than other labour workers.

> "They migrate more frequently. Not like Chinese workers. When Chinese workers came here, they stay for a time period. But Lao workers are different. They only stay a period of time. After accomplishing one week's work, he got the payment, and he will either stay if he likes, or he will just finish and walk away. And we will recruit another groups of workers. Their turnover rate is high, don't necessarily have any constrains."
> *Camp Manager of the Construction Company, Natoey, LNT*

> "There are some stay for a few months. The drivers stay even longer term. We've hired many drivers, since the working condition is different, they tend to stay longer. We also rent some local cars, ask them to drive these Lao cars."
> *Camp Manager of the Construction Company, Natoey, LNT*

> "They are mainly here to dig tunnels as well as other low-skilled and odd jobs. Some have been here for 2 months, and other up to half a year."
> *Camp Manager of the Construction Company, Xieng Ngern, LPB*

"Workers in the railway construction project, the project rarely accepted Lao workers. If Lao workers are hired, they just be the one who look after the warehouses or security guard"
District Health Office, Xieng-ngern, LPB

Short stay with the company is confirmed by Lao workers in the focus group discussion as well. Lao workers explained that it was because the works were dangerous, and they did not have adequate protection. They did not get paid in time, the payment has been postponed almost every time. In addition, Lao workers could not get the health insurance from the companies.

"Not sure, we will leave whenever we have argument with Chinese, we may not stay long because the Chinese always get angry. If we receive good salaries and we have good boss we can stay for long. It was difficult for workers to get salary before but it was not same boss, the new boss now."
Male Lao migrant workers, Xieng Ngern, LPB

Moderator: How long do the workers come for staying for short period?
Participant: A few days, they fear that they cannot work so they just leave
Moderator: What do they fear?
Participant: They fear about risk and danger.
Male Lao migrant workers, Xieng Ngern, LPB

Sex workers

Another significant group of internal migrants, either periodical, short-term or mobile migrant are service women or sex workers. They work in the new settled beer shops near the railway construction areas or in the communities. Some of them are mobile or on-call sex workers. They are about 17-30 years old or may be younger. None of them are from the host-communities, mostly from other districts in northern provinces, i.e. Nambak district of Luang Prabang, Mai district of Phongsaly, Oudomxay province. They may stay in a shop or in the area for a month, a few months or even longer depend on the situations and number of customers. They are likely to move from one area to another area and move further to be a new face in new areas. Health Center staff in Natoey shared that many of sex workers come to work in the construction areas in dry season as it was convenient for travelling and could find more clients. Moreover, it is not the harvesting season, so they do not have agriculture work. This group usually follows their friends, or some brokers may coordinate with them and facilitate their travelling. Some of them may be students who come to work during school break.

"Sex workers may stay around 2 to 3 months only and move to other places to be a new face in the other shops while the new comer come from other places to stay here."
Female community in Natoey, LNT

"They come as group in one vehicles. Many of them visited casino but some of them come to work in the shop there. There are many sex workers in this area."
Male community in Natoey, LNT

> "Many bars with sex workers here. Mostly they come in dry season because it is convenient for transportation, easy to find customer during this time and this time is not harvesting season so they come here. They have someone to coordinate with them before coming here. There are brokers in the bar to coordinate with the sex workers. They most come from Nambak district in Luang Prabang. Some are also from Phongsaly, Mai district, and also from Udomxay."
> *Health Center staff in Natoey, LNT*

> "They are ordinary girl with no jobs. If students, it is in summer."
> *Female community in Natoey, LNT*

The situations of sex workers are different from one area to another. It also depends on the local policy and authorities in the areas. There are numbers of beer shops along the main road from Natoey to Boten, settled in cluster. From Luang Namtha's HIV Section's survey in 2017, it found more than 300 of service women in beer shops in Natoey area, while these women are mobile between Natoey and other areas. So number of service women mobilizing in this area should be very high. In addition to Lao sex workers, it was mentioned in the group discussion that they were some Vietnamese and Chinese sex workers in Natoey-Boten areas as well. Chinese crossed the border from Boten, and Vietnamese crossed border from Dien Bien Fu or from the checkpoint at Xiengkhouang.

> Chinese cross Boten border checkpoint to here. Vietnamese are from Vietnamese border. For sex workers, Vietnamese is more than Chinese sex workers. Vietnamese come from Dienbienfu or from Xiengkhouang border checkpoint."
> *Male community in Natoey, LNT*

In Luang Prabang, some bars/karaoke in the city are popular among migrant workers, namely Chinese migrants. Some of the customers are working with the railway and construction projects in Luang Prabang. In Xieng-ngern district where the assessment was done, local authorities are strict and that limit numbers of beer shops and sex workers although there are still a few shops. Some sex workers stay in a rented house in the communities like in Namming village. Some sex workers are on-call or mobile in the areas. The officials do not know the number but know there are numbers of sex workers.

> "It depends, it changes a lot. It depends on their boss, it might be one month or three months. If she provides good services to their customers she can stay for longer. Client just calls them when needed as the police clear them all in beer shops. It is very difficult to clear the mobile girls because we cannot locate them, they just go out when someone call them only. They are also Lao, Vietnamese and some Chinese."
> *District Health Office officers, Xieng-ngern, LPB*

> "There were a lot (of beer shop with sex workers) before but they were cleared by the police so only a few shops left. The girls mostly come from rural areas in other provinces. They are mostly poor people that cannot look for jobs. They may stay for around 2 to 3 months and go to other places."
> *Lao male construction workers, Xieng-ngern, LPB*

3. Short-term migration or mobile migrants

Lao labour workers can be considered as short-term migrant in the railway construction areas as many of them work with the project in a short period, a few days to a few months.

> "The turnover of workers here happens regularly. Some of them comes while many of them leave. The workers some time go back home after they received salaries. We also observed that they stay for around 2 to 3 months and then left."
> *Lao communities, Xieng-ngern, LPB*

As the railway and road construction areas that connect to international borders, there are high number of mobile populations, especially the truck drivers who transport goods and products from one to other places or another side of the borders between Thailand, Lao PDR and China. The drivers or mobile people in the railway construction areas are likely Vietnamese, Thai and also Lao migrants. Sex workers are also potential mobile population in the areas as described above.

> "Chinese stay here long with no limits, Vietnamese may spend only A while. For Thai, they are just driver for transporting goods to here and go back only, they stay around 7 days."
> *Male, Lao communities, Natoey, LNT*

3.1.2 Cross border migration

Boten is the border checkpoint between Lao PDR and China. Cross border migrant is normal phenomena there, but the pattern may be changed during the construction of the Boten-Vientiane railway, and shall be much significant after the railway starts operation. Main types of cross border migration related to the construction and development at Boten are inbound and outbound migration.

1) Inbound migration

Most of inbound migrants in the railway construction areas are Chinese migrants. Many of them come to work in the railway construction project. Some may come to Lao PDR for working in the factories, trading or do business, and some end-up marry Lao woman and settle in Lao PDR. Most of Chinese migrants are about 20 to more than 50 years old. Most of them come to work in Lao PDR alone, some come with family where both can find a job to work together, either in the construction project, factories or business. They are likely to travel with the group of friends or other workers.

> "Mostly Chinese, some are traders who came here and married with Laotian. I myself also married with Chinese. I married him around 10 years ago and the railway was just constructed two years ago."
> *Female, Lao communities, Natoey, LNT*

> "Most of us travel here together without families. We have been working with the construction company even within China."
> *Male, Chinese migrant worker, Xieng-ngern, LPB*

Most of those come to work with the railway construction project get a contract with the labour dispatching companies in China before traveling to Lao PDR. That means the construction companies do not have to deal or recruit most of Chinese workers directly. When they pay the wage to workers, some companies just pay through the labour dispatching companies. This is different from the technical or skilled workers as these workers are recruited directly by the construction companies. There are hundreds of migrant workers in each camp site.

> "The majority is Chinese and Vietnamese. They just come here to monitor their construction work, Laotians are mainly drivers and authorities"
> *Male, Lao communities, Natoey, LNT*

> "Chinese workers usually stay over 6 months. We usually give them certain amount of work. For example, to build a bridge; after they accomplish the bridge if there is no more work, they might go back."
> *Camp Manager of the Construction Company, Natoey, LNT*

> "We refer to the Chinese legal regulation on construction, and the workers all came from labour dispatching companies. So the labour dispatching companies manage the workers. Except for managerial positions signing contract direct with the construction company, other construction workers they sign their contract with labour dispatching company, and we only interact with these labour dispatching companies. We will pay the amount of salary based on completed work by month to the labour dispatching companies, and they will pay the workers' salary."
> *Camp Manager of the Construction Company, Natoey, LNT*

Chinese migrants are from different regions in China and from various ethnicities, for instance, Chinese workers working with the construction company in Xieng-ngern are from Yunnan, Henan, Hebei, Sichuan, and Guizhou. Some of them have worked with the construction companies since in China and follow the companies to work in Lao PDR. According to the companies and migrant workers, the companies arrange the visa for the workers. Some may get a visa on arrival or get tourist visa, the companies will apply for work visa for them after that. However, some migrant workers may be undocumented migrants as they may come with border pass or using a passport and stay beyond allowed period. Some Chinese migrants may be recruited directly in Lao PDR to do labour works. They may not have work visa and it may not be required for getting some kinds of work.

> "We have people from Yunnan, Henan, Hebei, Sichuan Provinces and even Guizhou. They are all involved in railway construction projects and tend to recruit people from their networks in these provinces."
> *Camp Manager of the Construction Company, Xieng-ngern, LNT*

> "They come with the labour dispatching companies, get the visa when cross border. For some cases we send the invitation letter in advance. The companies bring the letter along with passports to cross border. We interact with MoFA and Chinese consulates here on relevant documents."
> *Camp Manager of the Construction Company, Natoey, LPB*

> "Some are brought over by the employer, but most travel on our own.

The employer takes care of the visa issues."
Male, Chinese migrant workers, Xieng-ngern, LPB

"There are brokers here to guarantee for them. Some of them may just stay after their visas expired. Many of them uses tourist visas to work here."
Male, Lao migrant workers, Xieng-ngern, LPB

There are not many female Chinese migrants working in the railway construction project. Almost all female migrants come with families or husbands. They are involved in housekeeping and kitchen works. The construction company in Natoey mentioned about hiring the whole family to work for the construction. A few female migrants are mentioned renting a house for selling goods in the community near the construction camp.

"Some people came as couple, as mother and son, as father and daughter, or family of three, they will be asked to complete one task together. For example, the family will be asked to build a digging drill."
Camp Manager of the Construction Company, Natoey, LNT

"All the labourers are males. The female workers are only involved in housekeeping and kitchen work. There are not many female workers here. We have a total of 130 people here, approximately 10 females."
Camp Manager of the Construction Company, Xieng-ngern, LPB

In addition to Chinese migrants, there are inbound migrants from other countries working in the railway construction areas as well. Many of them work for the construction project. There are Vietnamese migrant workers in Luang Namtha and Luang Prabang, and Bangladeshi migrants in Xieng-ngern of Luang Prabang. Vietnamese migrants may apply for the job with the Chinese construction company directly or work with Vietnamese company as the sub-contractor of Chinese railway construction company. It is the same as the Bangladeshi migrants which have about 50 Bangladeshi workers. They work as a sub-contractor of the railway construction company in Xieng-ngern. Other groups of migrants may not stay in the areas for long time as Chinese workers. They may stay for some months until they finish their job. Some may leave earlier if they want to change the job. These migrants are likely to travel alone or with their friends. Some Vietnamese female migrants open the beauty shop and gift shop in the communities.

"Workers, steel joining the Chinese hired Vietnamese here. They come here for around 2 – 3 months and may left. Mostly the Vietnamese do not stay long because there are risky to chemical and blasting stone or soil for railway construction."
Male Lao construction workers, Xieng-ngern, LPB

"Vietnamese and Bangladeshi, they do have sub-contract with the railway project. There is only one group of Bangladeshis, both engineers and workers, around 50."
District Health Office, Xieng-ngern, LPB

There is some interaction between migrants and communities as some of workers stay in the communities, i.e. the manager and technical workers as they have a car. Some workers come to communities for entertain, eating and drinking as well.

"Workers are staying in camps but some of the engineers or foremen staying in the rented houses in the villages because they have vehicles."
District Health Office, Xieng-ngern, LPB

"They come to the city or villages here after they finished their work. They come for drinking in bars or beer shops. They come out very often, you can see them in the evening."
District Health Office, Xieng-ngern, LPB

As mentioned by several groups in the interviews and FGD, Chinese migrants cannot speak Lao but they may have interpreters with them when they have to contact the communities while some Vietnamese migrants can speak Lao. They said they could communicate with communities although not speak the language as they can use body language.

"We used to speak Lao with Chinese but they do not understand. But some Vietnamese knows Lao language, but we don't understand their language."
Lao communities, Xieng-ngern, LPB

"Moderator: How do you understand each other?
Participant: Through body language, some Vietnamese know Chinese language and they also have interpreters."
Male Lao construction workers, Xieng-ngern, LPB

There are also some Thai migrants who may be more like mobile populations as they do not stop anywhere for a long time. Most of them are truck drivers, transporting goods and products from Thailand to Chinese borders and back to Thailand. Most of Thai mobile populations can be seen in Boten than in other areas. However, it has been mentioned in the group discussion that Thai man also married Lao woman and stay in Lao PDR.

"Thai come here to be driver, and someone married with Lao people."

Female, Lao community, Natoey, LNT

It has been reported in number of FGDs both in Luang Namtha and in Luang Prabang that Chinese and Vietnamese migrants also sell sex in the construction areas. There are more Vietnamese sex workers than Chinese sex workers. These group of migrants do no stay in on area for long time. They may stay for 2-3 months and move to other areas.

"For sex workers, Vietnamese is more than Chinese sex workers. Vietnamese come from Dienbienfu or from Xiengkhouang border checkpoint."
Male, Lao communities, Natoey, LNT

"Someone stays long but some not, just one week and go back home."

Male, Lao communities, Natoey, LNT

After finished current work, Chinese migrants may return to their country, but some may look for a new job in Lao PDR. Vietnamese migrants may look for a job in other areas. Migrants may also go to Luang Prabang and Vientiane for looking for other opportunities.

"They go back to China and sometimes go to Vientiane or Luangprabang."
Female, Lao communities, Natoey, LNT

2) Outbound migration

Outbound migrants in this assessment are Lao people who cross border to other countries. Most of Lao people cross the border to China are young women. They may go to China side for work in the massage and spa parlor, restaurant or marry Chinese men. There were reported about young women going to work in China in Luang Namtha and marry Chinese men. In Xieng-ngern, Luang Prabang, it was mentioned that many of young Lao girls marry Chinese men and move to China. Families know and accept that their daughters move to stay in China with new families.

"For the young Lao girls go to China, if no one accompany them they do not go because they fear of being sold. Many Laotians go to China. One lady married a Chinese and live there after her husband deceased."
Female, Lao communities, Natoey, LNT

"Moderator: Are there any workers from the construction project dating girls in this village?
Participant: Yes
Moderator: Any girls here married Chinese?
Participant: Yes, but they brought to China already. The workers from project married Lao girl here. She is around 18 or 19."
Health Center Staff, Namming Health Center, Xieng-ngern, LPB

"Some Chinese workers are registered but with no documents, the Chinese who married with Lao lady and bring to their countries with no documents, there are around 50 girls here in Xieng Ngern district who married Chinese. It was since the beginning of the project. They married to become their wives and pay dowries to the girl's parents but don't know exactly what happen after they bring to China because they do not proceed legal documents. The girls just go to China with her husband by using passport only. These girls are around 16 or 17 years old."
District Health Office, Xieng-ngern, LPB

3.2 Health situation and potential health risks

3.2.1 Health Concerns

General health concerns varied amongst participants in Luang Namtha and Luang Prabang. Health professionals, local communities and migrants also had different perspectives on the most pressing health concerns. In general, FGD participants have reported that there have been **environmental changes that has affected their health**. This included concerns about the quality of air and water, as well as unspecified "chemicals" that participants feel may affect their quality of life.

"Yes, the company do not (clean) the road, we have to clean the dust about 4 times per day. Everyone is impacted. Children and old people."
Female, Local community, Natoey, LNT

"When they construct the tunnels, they may use chemicals and drain to the river that may affect the environment."
Male, Local community, Natoey, LNT

"They may throw cement with no quality into Namming river."
Female, Health center staff, Namming, LPB

"We fear about the chemicals used for blasting in the tunnels."
Male, Lao construction worker, Xieng Ngeun, LPB

Health professionals, on the other hand are concerned about the **rising rates of HIV, sexually transmitted infections (STI) and other communicable diseases** since the commencement of the railway project. Health center staff have responded that local communities and migrants – both internal and cross-border migrants are equally affected by STIs. Young people have been highlighted as a risk group due to high rates of alcohol use and failure to practice safe sex.

"(For STIs) Lao migrants and also foreign migrants. Since the railway construction, many patients from other provinces and countries come to seek services here, they are both Lao and Chinese."
Female, Health center staff, Natoey, LNT

"The major concern is HIV and STIs because the provincial statistics showed that many Chinese are infected with HIV/AIDS here but the provincial authority do not report to us which camps the HIV patients are from."
Female, District Health Office, Xieng Ngeun, LPB

"Infectious diseases from having sex like STIs or HIV/AIDS"
Female, Health center staff, Namming, LPB

"(Risk group for disease infection) Youngsters. They are mainly workers, they drink alcohol and don't know how to prevent themselves from getting diseases. They do not protect themselves when having sex."
Female, Health center staff, Natoey, LNT

3.2.2 Accidents and Occupational Injuries

Participants in the assessment areas have reported an **increase in injuries** after the commencement of the railway constructions. This includes **occupational injuries, motor vehicle accidents and also some accounted cases of assaults**. In construction sites in both the assessment areas, participants have stated that any medical expenses as a result of occupation-related injury will be compensated by the companies. Some companies have in-site health centers, other may send their workers to hospitals in the nearest town or across the border to China for treatment. Construction companies and workers give the

impression that they are concerned about safety and aware of precautionary measures. None of the sites interviewed reported any major accidents.

> "More road accidents happened since the railway construction (started) due to the increase of vehicles. They (the vehicles) are Lao, Chinese and Thai."
> *Female, Local community, Natoey, LNT*

> "It is mandatory for us to wear safety helmets at all times. And also high-visibility jackets. We also wear protective wear that protects us from the rubble."
> *Male, Chinese construction worker, Xieng Ngeun, LPB*

> "Even if they don't (check for protective gears), it is important to protect ourselves. If I don't have the safety helmet, I will not go inside the tunnel."
> *Male, Chinese construction worker, Xieng Ngeun, LPB*

Participants have reported that most occupational injuries occur amongst migrant workers, this is because a large majority of construction workers are Chinese migrants, and some proportion of internal Lao migrants, Vietnamese and Bangladeshi migrants. As for motor vehicle accidents, all types of vehicles are involved, not just construction vehicles. This is due to the increase of vehicles in general, regardless of whether they are local or from China or Thailand.

> "(Injury among Chinese workers) Yes, of course, some hurt their fingers or toes. These are unavoidable. But so far, I can say no such cases happened among Lao workers, partly because they usually work on simple and unskilled jobs with relatively lower risks such as cleaning work."
> *Male, Camp Manager, Natoey, LNT*

> "Yes, it happens sometimes, especially when they blast and destroy stones for road construction, they might get injured, so they come here for treatment."
> *Female, Local community, Xieng Ngeun, LPB*

Young people are more at risk of accidents and occupational injuries. This is because the demographic of workers in construction sites are mostly young and male. However, a participant has also added that there are incidents of young people involved in fights in nightclubs and beer shops. Additionally, alcohol consumption is also a factor in motor vehicles accidents.

> "The (road) accidents happen from drinking alcohol. Chinese patients were mostly from work injuries but Lao and Vietnamese were from drinking alcohol."
> *Female, District Health Office, Xieng Ngeun, LPB*

> "(Referring to attacks) Youngsters from clubs or beer shops. They are mostly local residents."
> *Female, Health center staff, Natoey, LNT*

"The Chinese attack each other and get injuries,"
Male, Lao construction worker, Xieng Ngeun, LPB

3.2.3 HIV and STIs

1) HIV/STIs Situation and Risk Groups

Health professionals in the assessment areas have reported that HIV and other sexually-transmitted diseases are on the increase and have become a source of concern. They have stated **a rise in HIV cases** in their health centers since the start of the railway projects and noted that both local communities and migrant communities are at risk because of low health knowledge and risk perception. Young people in their 20s have been quoted to be especially at risk because they tend to frequent beer shops which are also sexual services establishments.

"It is risky here. There are HIV (positive) people spreading the disease."
Female, Health center staff, Natoey, LNT

"(Referring to HIV cases) Yes, it increased. Before there were 13 (cases) but now 17. About 5 or 6 new cases and one case already died."
Female, District Health Office, Xieng Ngeun, LPB

"There are more HIV and STIs cases now compared to the past."
Female, District Health Office, Xieng Ngeun, LPB

"(Referring to risk group) Young population at around 20 years old, both local residents and migrants."
Female, Health center staff, Natoey, LNT

Female sex workers (FSW) in these establishments are also vulnerable due to their young age (between 17 to 20 years old) and mobility nature. Many of the FSWs are from rural provinces and districts and are likely to be of low income and socioeconomic status, some of them may still be students. They are reported to stay at a single establishment for 2 or 3 months and then move on to other establishments.

"Yes, both of them (male and female). Some sex workers are students and provide sex to Chinese (migrants)."
Male, Health center staff, Natoey, LNT

"Migrants here may not know how to protect themselves. As for sex workers, they are just mobile girls that are not staying in a shop so it is difficult to locate to provide health information to them."
Female, District Health Office, Xieng Ngeun, LPB

"There are only 4-5 sex workers in one place. But many customers, around 10-20 go to the shop looking for sex with these girls. We don't have information from other areas, this is just what we observed in this area."
Male, District Health Office, Xieng Ngeun, LPB

Other risk groups also include men who have sex with men (MSM) and intravenous (IV) drug users. The drug *ya baa* which is a mix of methamphetamine and caffeine is commonly used in Lao PDR. Participants have reported that it is frequently used among young males, including through the IV route.

"(Referring to MSM) Yes, there are here. (Referring to male sex workers) No, they may be in the town. (Referring to use of drugs) Yes, ya baa. Only for young male group. People may smoke ya baa, the Chinese may inject it."
Female, District Health Office, Xieng Ngeun, LPB

"(Beer shops with sex workers in Xieng Ngeun) Yes, there are around 2-3 shops. There were a lot before but they were cleared by the police so only a few shops left. (The girls) mostly come from rural areas in other provinces. They are mostly poor people that cannot look for jobs. (They stay) around 2-3 months and go to other places. They are 17-20 years old and mostly Khmu (ethnicity)."
Male, Lao construction worker, Xieng Ngeun, LPB

2) HIV/STIs Knowledge on Infection and Protection

HIV and STI knowledge amongst local communities, Lao migrants and Chinese migrants **are low**. Some are unaware of HIV and STI transmission and also how to protect themselves. Most participants are only aware of the sexual route of transmission and the only means of protection mentioned by all participants in the interviews is condoms.

"(On what is HIV) We used to hear about it and don't know exactly. It might be infected through having sex."
Male, Local community, Natoey, LNT

"We heard about it but don't know exactly who gets infected. In observed one teacher in Ban Long village that got HIV infection. He was with dark skin in the beginning and most of his hair fell off later and his face became darker and darker. He has pain in the joints so he was diagnosed with HIV."
Male, Local community, Xieng Ngeun, LPB

"(What are STIs?) HIV/AIDS, gonorrhoea, genital warts, diabetes. There are a few diabetes patients here."
Male, Local community, Xieng Ngeun, LPB

"My friend used to have gonorrhoea. (Is your friend in this camp?) No, just in the village. It was youngster. It is gonorrhoea and genital warts."
Male, Lao construction workers, Xieng Ngeun, LPB

There are many **misconceptions about HIV and STIs**, such as relating HIV to food or sharing utensils. Non-commercial sexual partners are also not likely to use protection when engaging in sexual acts, however several participants have stated that use of condoms is a must when engaging in sexual acts with sex workers.

"We heard that there is a girl here with HIV but don't know

why she can still eat fermented food."
Female, Local community, Natoey, LNT

"(On prevention) After all these sexual behaviour is just a psychological behaviour of human beings, you can't fully control."
Male, Chinese camp manager, Natoey, LNT

"(On prevention) We have to take care of our personal hygiene. And not go out to do naughty things. Or visit those sex shops"
Male, Chinese construction worker, Xieng Ngeun, LPB

"(On prevention) Don't know exactly, but if our husbands do not have sex with others we may not be at risk."
Female, Local community, Xieng Ngeun, LPB

3) HIV/STIs Treatment and Barriers to Treatment

Although most participants are aware that condoms are one of the methods of protection against HIV and other STIs, they have reported that condoms are not always readily available. Some participants were not aware if condoms were available for sale or where to buy them, while other were aware that they could purchase condoms from pharmacies or health centers. It is debatable whether or not this is on the onus of health workers or users themselves. A health center staff has stated that condoms are available for free in the center, but villagers hardly ever requests for them.

"For sex workers, provincial and district health offices with health centers have provided health education on using condoms and distributed some condoms. We went to the beer shops, call them to come together."
Female, Health center staff, Natoey

"As per my experience joining the ADB road construction project, was that 1-3% of the budget should be allocated to HIV/AIDS related activities in the camps. The leader of the camp is the one who provides consultation and coordination with us. But we didn't do these kind of campaigns for the dam project and the railway project here."
Female, District health office, Xieng Ngeun

"(On condoms) We may get it from health staff at health center. The health center provides condoms for us for family planning purposes. If you just want to go and have sex with any girls then you come here to request for condoms, the health center staff will not give the condoms."
Male, Local community, Xieng Ngeun

Both construction sites that were visited in the assessment areas reported that they have HIV/STIs awareness posters in the workers' living quarters. Authorities at the construction sites also strongly discourage their workers to visit sexual services establishment, however they do not restrict workers from heading out of the camps nor control their whereabouts after working hours.

"No, we do not (distribute condoms). We also do not encourage visiting such establishments."
Male, Chinese camp manager, Xieng Ngeun, LPB

"Yes, for some worker-dense camps, we will provide condoms. If anyone needs he will go get it. After all this is really their private lives."
Male, Chinese camp manager, Natoey, LNT

"Previously, I have spoken to workers about this. On the doors of the dormitories, we have stuck awareness posters to educate about HIV."
Male, Chinese camp doctor, Natoey, LNT

HIV treatment in district hospitals and village health centers are also not available, HIV positive patients have to travel to provincial hospitals to conduct CD4 tests and receive treatment. A district health office staff reported that patients have died because they could not access HIV treatment medications.

"Yes, they died because cannot access HIV drugs."
Female, District health office, Xieng Ngeun, LPB

3.2.4 Tuberculosis

1) Tuberculosis Situation and Risk Groups

Health professionals in the assessment areas have reported that there are **many cases of TB in their catchment areas**, however they have stated that all the patients are from local villages, and none are from migrant groups. Health center staff and district health offices staff have stated that the elderly is more at risk and most of them do not seek treatment until it has progressed to chronic tuberculosis. Participants in construction camps, including camp doctor, managers and workers have stated that they have never encountered a case of TB in their worksites.

"Many cases in Natoey. Mostly elderly people. (Referring to 2018) 11 cases. No, we haven't found from migrant group."
Female, Heath center staff, Natoey

"There are many, almost 20 cases per year. We haven't found any cases from the construction workers, only the local residents."
Female, District health office, Xieng Ngeun

"Old people, more than 50 years old."
Female, Health center staff, Namming

"There haven't been any cases so far."
Male, Chinese camp doctor, Natoey

2) Tuberculosis Knowledge on Infection and Protection

Most participants were aware that that coughing is the main symptom of TB and that the infection is air-borne. Some participants were also aware that living in close spaces increases the rate of infection, and that TB patients should be isolated from the rest of the family or co-workers.

"It is from lungs. Coughing for more than one week, sweat at night."
Male, Local community, Natoey, LNT

"I'm not sure if it's called the same name, but it is a type of cough."
Male, Chinese construction worker, Xieng Ngeun

"No, we do not have any specific prevention methods for TB. TB infection is air-borne, if that is the case, it is not possible to prevent. However, if I do identify a suspected case of TB, I will definitely tell the camp manager to isolate the patient so that he does not infect other workers."
Male, Chinese camp doctor, Natoey

However, there were still **many misconceptions about TB**, including from health professionals. Some of these misconceptions include that TB was transmittable by food, sharing eating utensils, through unsanitary drinking water and poor weather conditions. Many participants also thought that smoking was a cause of TB and that only smokers are prone to infection.

"(Why elderly people?) Because they smoke."
Female, Health center staff, Namming, LPB

"(Are they infected with TB because of smoking?) Yes."
Male, Health center staff, Namming, LPB

"It is from drinking alcohol and smoking. Drinking unclean water."
Male, Local community, Xieng Ngeun, *LPB*

"Coughing, we can be infected through coughing. It is also from smoking, food and weather."
Male, Lao construction worker, Xieng Ngeun, LPB

"Those who like drinking alcohol and smoking. When people smoke it will affect the lungs and it causes TB, the lungs become black."
Male, Local community, Xieng Ngeun, LPB

"(Asked about risk group) Those who work in blasting tunnels."
Male, Lao construction worker, Xieng Ngeun, LPB

"Can be infected if we live together, eat together, sharing toilet with each other. The TB patients should be separated from their families otherwise it will spread to their family members"
Female, Local community, Natoey, LNT

"(On TB prevention) We don't use the spoons or plates jointly with TB patients because it is easily infected."
Female, Local community, Xieng Ngeun, LPB

"From air. From sharing meal together."
Male, Lao construction worker, Xieng Ngeun, LPB

"In our worksite, each worker has their own cutleries and utensils for eating, which they are responsible for cleaning. They do not share any utensils."
Male, Chinese camp manager, Xieng Ngeun, LPB

"There is no way to prevent it (TB)."
Male, Chinese construction worker, Xieng Ngeun, LPB

3) Tuberculosis Treatment and Barriers to Treatment

A suspected TB patient would first have to go for diagnosis at a district or provincial hospital, where they would have to undergo a sputum test. Travel expenses are to be borne by the patients themselves. Once they have tested positive, they would receive medications from their local health center, free of charge.

"They get diagnosed in Xieng Ngeun district hospital. They receive TB drugs here. We collect sputum and send to district hospital for testing, once the TB positive case is found, the hospital send TB drugs here and we provide to the patients and we provide instructions to the patients."
Female, Health center staff, Namming, LPB

"TB symptom is coughing with sputum and patients have to get TB drugs from health centers and take the drugs regularly. The drug is free of charge."
Female, Local community, Natoey, LNT

Directly Observed Treatment, Short-course (DOTS) is carried out at the local health centers where patients would have to take their medications in the presence of a health staff to ensure that they comply with the instructions. A staff member of a local health center stated that patient would have to be observed for about a week, before they are given instructions to take their medications at home. However, the health center would only prescribe drugs for 3-4 days, and the TB patient would have to return for another round of prescription.

"(On TB-DOTS) Yes, but the health center is the one managing DOTS because they are near the community."
Female, District Health Office, Xieng Ngeun, LPB

"(Do patients go to district hospital by themselves?) Yes, we just guide them on how to get there. After they've been diagnosed positive they come back here to take the medicine that district hospital will send here. They have to take medication at the health center here in front of us and then we

recommend them to further take medicine at home. We prescribe for only 3-4 days and then they have to come back again to receive more drugs. We cannot prescribe more because we fear that they may throw it away."
Female, Health center staff, Namming, LPB

At the construction sites, TB is not perceived as a health concern and there has been no preventive measures, treatment protocol nor TB awareness campaigns.

"No. There are no specific health promotion campaigns about TB."
Male, Chinese camp doctor, Natoey, LNT

3.2.5 Malaria

1) Malaria Situation and Risk Groups

Malaria is not seen as a concern in the assessment areas. From accounts of most participants, they are familiar with the disease but there has not been a case for some years. Health professionals from health centers and district hospitals have stated that they have not seen a case of malaria for at least 2 years or more, thought they have had more cases in the past. A village health center staff mentioned that the last malaria case that she encountered was 2 years ago, where the patient was a forest-goer who stayed overnight in forest and foraging for food products. Health centers are equipped with rapid diagnostic tests to carry out diagnosis if the need arises.

"We haven't found any cases here now. Since many years ago, patients may go to provincial hospital when they have malaria so we didn't find malaria here."
Female, Health center staff, Natoey, LNT

"No, we haven't found since 5 years ago."
Male, Health center staff, Natoey, LNT

"No, only dengue. There was malaria before but not now. (On dengue) Yes, there is 9 cases this year."
Male, District health office, Natoey, LNT

"(On past malaria patient) from the jungle, he went and stayed overnight in the jungle. (On risk groups) Those who go to the jungle for searching food."
Female, Health center staff, Namming, LPB

Construction camps participants have also clarified that they have never encountered a case of malaria as far as railway work has commenced in 2017.

"(On positive cases of malaria) As far as I've been here, no."
Male, Chinese camp doctor, Natoey, LNT

"There has been no cases of malaria since we started operating."
Male, Chinese camp manager, Xieng Ngeun, LPB

"I know that malaria is a mosquito-transmitted disease. We have not had any cases of malaria in our worksite so far. Our living quarters have mosquito nets on the windows. We also provide employees with mosquito repellent and mosquito coils."
Male, Chinese camp manager, Xieng Ngeun, LPB

2) Malaria Knowledge on Infection

Most participants are aware of malaria, modes of transmission and how to protect themselves, although there are some inconsistencies and misconceptions. Most participants are aware that malaria infection is transmitted through mosquitoes, however some also think that malaria is transmitted through contaminated water.

"We know it is from mosquito."
Male, Local community, Natoey, LNT

"I know about malaria, and we have conducted some related education inside construction sites, including how to prevent. And we conduct sterilization and anti-mosquito measures on regular basis, every week in the surrounding areas of the camp."
Male, Chinese camp manager, Natoey, LNT

"I know malaria is common in Africa. There are some symptoms of flu. We had a former co-worker who had malaria in Africa. One of the symptoms is shivering."
Male, Chinese construction worker, Xieng Ngeun, LPB

"Just heard from TV, I don't know exactly what malaria is. It might be dengue fever."
Male, Local community, Xieng Ngeun, LPB

"From mosquito in the jungle, from drinking contaminated water in the stream."
Male, Lao construction worker, Xieng Ngeun, LPB

"It is from mosquito, if we didn't clean our surroundings the mosquitoes will lay eggs."
Male, Local community, Natoey, LNT

"If we don't sleep under bed nets we can get *Khai Nhung* (mosquito fever). If we have (water-logged) cans around the building we can also get *Khai Nhung*. If the mosquito bites someone with *Khai Nhung* and then bite other later, the other person can get *Khai Nhung*."
Female, Local community, Xieng Ngeun, LPB

"It is also from drinking water from the streams without boiling."
Male, Local community, Xieng Ngeun, LPB

"From mosquitoes in the jungle, from unclean water, rubbish and environment."
Male, Lao construction worker, Xieng Ngeun, LPB

3) Malaria Knowledge on Protection

Most participants have an idea of malaria, although they may refer to malaria as the local name *Khai Pa* (forest fever) or *Khai Nhung* (mosquito fever). Since they are aware of the mode of transmission, most participants are aware of the methods to prevent, although it is unclear whether they actually perceive themselves as a high risk group. Participants know at least one method of prevention – including sleeping under bed nets, using mosquito repellent, mosquito coils, wearing long-sleeved clothing, and keeping surroundings clean and not water-logged in order to reduce mosquito-breeding grounds.

"We have to sleep under bed nets, drink clean and boiled water, don't let mosquitoes lay eggs in the water that we use for cooking food or drinking."
Female, Local community, Xieng Ngeun, LPB

"Sleep in bed nets, take care of health and wear warm clothes during winter."
Male, Lao construction worker, Xieng Ngeun, LPB

"No, we do not provide. But some workers they purchase it themselves."
Male, Chinese camp doctor, Natoey, LNT

"The company does distribute some (mosquito prevention), and employees will also buy their own. Mosquito nets here are not expensive so some employees will buy their own."
Male, Chinese camp manager, Xieng Ngeun, LPB

"We have some of our own. A lot of workers will bring mosquito repellent. Most workers are experienced and aware that we will face mosquito problems and prepare beforehand."
Male, Chinese construction worker, Xieng Ngeun, LPB

Some participants in construction sites have stated that although the construction company has provided them with bed nets, but they have not personally felt the need to use them. However they have observed some of their co-workers sleeping under them.

"We regularly distribute mosquito repellent and mosquito coils."
Male, Chinese camp manager, Natoey, LNT

"(On bed nets) Some people who attract more mosquitoes they might use it. I use mosquito coils."
Male, Chinese construction worker, Xieng Ngeun, LPB

3.3 Health seeking behaviour and health services

3.3.1 Health Seeking Behaviour

In the assessment areas, there are a number of options for health services that participants are aware of. However, none of the workers interviewed has utilized health centers or hospitals, preferring to self-medicate with medicines purchased from local pharmacies. Nonetheless, most participants are aware of the health services available to them and have peers who have experienced seeking health services.

> "Clinics are in our area here (referring to Natoey) and in Luang Namtha province. People also use traditional medicines."
> *Male, Local community, Natoey, LNT*

> "(Referring to Lao workers) Xieng Ngeun hospital or buy medicines from pharmacies outside. We also ask relatives or friends to buy for us from outside."
> *Male, Lao construction worker, Xieng Ngeun, LPB*

In general, Lao patients would seek medical services in the nearest health centers, and if the health centers are unable to treat the patient, they would then be referred to a provincial hospital. An example would be Natoey health center, a patient would first come to the center, and if the health professionals suspect a case of TB, the patient would be referred to Luang Namtha provincial hospital. In Luang Namtha, if the provincial hospital is unable to treat the case, patients would be sent to hospitals in China.

> "For serious case, if provincial hospital cannot treat, they have to go to China. Just to explain. If anyone is ill, she/he goes to health center and if health center cannot treat her/him, he has to go to provincial hospital and if provincial hospital do not accept, he/she has to go to China."
> *Female, Local community, Natoey, LNT*

> "(Referring to Chinese or Vietnamese migrants) Same, they come to health center first, then to provincial hospital and other places. Mostly, China."
> *Male, Local community, Natoey, LNT*

> "We provide emergency assistance for them first here and if we cannot treat them, we have to send to provincial hospital."
> *Male, Health center staff, Natoey, LNT*

> "(Referring to local patients) They come here a lot, around 80-100 cases per day."
> *Female, District health office staff, Xieng Ngeun, LPB*

> "Villagers, and Chinese and Vietnamese. They come with health issues like fever or work injuries."
> *Female, Health center staff, Namming, LPB*

A construction site in Luang Namtha that was selected for this assessment had an in-house camp clinic with a Chinese health staff. This camp clinic was the first point of reference for it's the construction site's employees. However, this clinic has only basic medical facilities and according to the camp doctor, lacking in personnel. For cases that they are unable to treat, they would be referred to hospitals in China, the nearest being about 100km away. The construction site interviewed in Luang Namtha reported that its employees preferred being referred to Chinese hospitals across the border despite the distance, because local hospitals were not up to their expectations and difficulty communicating was also a huge factor.

"(Referring to Chinese workers) They go to China. If they know that there are health centers in Natoey they will come to these health centers, but if they don't know they will go directly to China."
Female, Local community, Natoey, LNT

"(Referring to provincial hospital) We sent before, but the treatments were not able to meet standards. So for those cases we can handle we will manage internally, if they need further treatment, we send back to China. Luang Namtha is closer, but the health facilities can't usually meet our requirements. In addition, no one speaks Chinese in these hospitals, then it becomes really inconvenient if we need to have interpreters for each case. It might take an additional half an hour to reach China, but we prefer to do so."
Male, Chinese camp manager, Natoey, LNT

"The Chinese hospital in Lao PDR. We have cars that can take us there. It is hard to communicate in Lao health centers due to language barriers."
Male, Chinese construction worker, Xieng Ngeun, LPB

In Luang Prabang province, there are two privately-funded Chinese hospitals in operation – the Hospital Luang-Prabang China and the International Lao PDR-China Hospital. Chinese construction workers in this province are usually sent to either of these hospitals due to prior agreement with the hospitals. For occupational-related injuries or accidents, the employer would absorb the medical expenses. Chinese workers have also expressed satisfaction with the health services, citing language as a main factor. As for Lao migrants, many of the construction workers would visit local health centers for medical care.

"In Luang Prabang, the Chinese hospital is bigger and has better services, so if there are any minor injuries we would send them there. As for Lao hospitals, maybe some workers would purchase medicines there."
Male, Chinese camp manager, Xieng Ngeun, LPB

"Chinese go to the Chinese hospital in Luang Prabang."
Male, Lao construction worker, Xieng Ngeun, LPB

3.3.2 Health Services Availability

Health services available in the assessment areas included village health volunteers, village health centers, pharmacies, district hospitals, provincial hospitals and hospitals abroad in China. Village health volunteers are available in every village and provide primary health care such as reporting on birth and death

statistics and disease response. Each village health center covers a few villages and are able to provide very basic medical care such as emergency first aid, primary care and midwifery services. These village health centers are a challenge to access as they may be remote, and the roads are narrow and the facilities' hygiene less than satisfactory. District hospitals on the other hand, are able to perform more comprehensive treatments compared to health centers, such as minor surgeries, HIV testing and are equipped with basic diagnostic tools such as ultrasound machines.

"There is no radiography and imaging services for trauma cases. Accident cases should come here for first aid and then sent to provincial hospital. It costs a lot, around 2-3 million Kips (for transportation)."
Female, Local community, Natoey, LNT

"They provide blood pressure test and prescribe medicines, antenatal care and delivery. But if it is very urgent, some people still deliver at home because they cannot come to the health center."
Male, Local community, Natoey, LNT

"Many services, including delivery, treatment of fever or diarrhea. All the people here always come here when they are sick. If this health center cannot treat then they are referred to provincial hospitals. (On transportation costs) 300,000 Kips to Xieng Ngeun district hospital and 500,000 Kips to Luang Prabang provincial hospital."
Female, Local community, Xieng Ngeun, LPB

Lao citizens are covered by the National Health Insurance Scheme whereby they pay 5,000 Kips (USD 0.60) at local health centers, 10,000 Kips at district hospitals and 15,000 Kips at provincial hospitals. Foreign migrants, such as Chinese and Vietnamese migrants, are not covered by the Lao PDR National Health Insurance Scheme and are required to pay the full costs of medical expenses. The Lao PDR National Health Insurance Scheme has its limitations. Only locals who reside in the catchment areas of the health centers who are able to present their family books can access the health centers for 5,000 Kips. Lao migrants from other provinces are also required to pay the full cost, just like foreigners. Chinese migrants have mandatory health insurance from China, however this can only be used in health facilities within China. However, many participants, especially those working close to the border, prefer to cross the border to China to seek health services there.

"General services like outpatient department, vaccination, maternal and child health, family planning and antenatal care. With National Health Insurance, we just need family book. Patients pay 5,000 Kips per time."
Female, Health center staff, Natoey, LNT

A Chinese construction company has its own camp clinic within the worksite, this is due to the inability to contract a local hospital that is able to cope with additional influx of thousands of migrant workers. This company has approximately 1,500-1,600 workers and one Chinese doctor who lives within the worksite and is on-call 24 hours a day. A different Chinese construction company contracted a Chinese hospital in the nearest province to tend to its workers' health needs. There are two Chinese hospitals located in

Luang Prabang province, they are both privately-funded and operate 24 hours a day. They provide both inpatient and outpatient services, as well as several medical specialties including traditional Chinese medicine.

"At first we sent our workers to Lao local hospitals, but turned out the facilities here can't really meet our needs. So we hired a Chinese doctor to set up a small clinic inside the camp."
Male, Chinese camp manager, Natoey, LNT

"Yes some tried to (visit local health centers). But because these local clinics don't meet workers' needs, they prefer to see the camp doctor. Some construction sites are closer to the local town, but workers are not satisfied with the health services in the local clinics, they prefer to walk even further to see the camp doctor. (On types of services offered in camp clinic) Only small ones like wound suturing, bandaging wounds, stop bleeding. After these immediate actions, we will send the cases back to bigger hospitals in China."
Male, Chinese camp manager, Natoey, LNT

"These hospitals are very big and have comprehensive services. It is 24 hours, and they have emergency services."
Male, Chinese camp manager, Xieng Ngeun, LPB

3.3.3 Quality of Health Services Available

In general, participants were mostly satisfied with the quality of health services that they have available, however, upon further probing, most of them have not personally utilized any of the health services.

"We are here 24 hours."
Female, District health office, Xieng Ngeun, LPB

"The health services available here are really good. Our site is located close to Xieng Ngeun town and also Luang Prabang, and transportation is good. So it is easy to access and fulfills our needs."
Male, Chinese camp manager, Xieng Ngeun, LPB

"We receive good services from the health officials here."
Female, Local community, Xieng Ngeun, LPB

Some of the general laments were about the availability of the health workers, although technically health facilities are supposed to be available 24 hours, but some participants have voiced dissatisfaction about not being attended to. Some participants have also talked about the lack of equipment and the suggested that general facilities needed upgrading.

"I'm satisfied but there should be health workers at facility every time."
Female, Local community, Natoey, LNT

“Many patients go to the health center so there is not enough seats for patients who are waiting for services.”
Male, Local community, Natoey, LNT

“I think it is satisfactory. If you compare with the health facilities in China, then maybe it is not as comprehensive.”
Male, Chinese construction worker, Xieng Ngeun, LPB

“(Referring to Chinese hospital) The quality of pills is not good enough but the inject drugs are very good, the services are better than Lao hospitals. (Price) is more expensive than Lao hospitals.”
Male, Lao construction worker, Xieng Ngeun, LPB

“Sometimes when they go to the (local) health center, there is no one working there.”
Male, Chinese construction worker, Xieng Ngeun, LPB

Migrant participants have also noted that communication is key, and that they are not picky on the quality of the health services as long as they are able to communicate with the health professional.

“It doesn’t matter if they are experienced or not (referring to doctors), but communication is an issue.”
Male, Chinese construction worker, Xieng Ngeun, LPB

3.3.4 Health Services for Migrants and Barriers

Migrants face several barriers when accessing health services. Apart from Chinese and Vietnamese migrants not being able to communicate in Lao, some ethnic minority groups also face similar problems when accessing Lao health services. Language is the main barrier in accessing health services, apart from that migrants also face financial barriers in accessing health services.

“Language problems. They don’t know the local language so they only come for emergency cases.”
Male, Local community, Natoey, LNT

“Language problems for the Chinese. (What about Lao?) Money problems. (What about ethnic people?) Yes, culture problem. Lao Sung and Lao Theung.”
Female, Health center staff, Natoey, LNT

“(Chinese camp doctor) cannot speak Lao but we have three interpreters in this camp.”
Male, Chinese camp manager, Natoey, LNT

“The pharmacist also speaks Chinese. So if the workers have minor cough or cold, they would just purchase medicines in the pharmacy.”
Male, Chinese camp manager, Xieng Ngeun, LPB

"We already know we cannot understand them there (Lao health center), so we prefer to go to Chinese hospital."
Male, Chinese construction worker, Xieng Ngeun, LPB

"Yes, the Chinese hospital is 24 hours. But the Lao health center closes very early and doesn't open at night."
Male, Chinese construction worker, Xieng Ngeun, LPB

The Lao National Health Insurance Scheme allows its citizens to utilize health services from 5,000 Kips. However, this scheme is only applicable to those who own "family books" for the specific catchment area of the health facility. Cross-border migrants and internal migrants from other provinces are required to pay the full unsubsidized amount for their medical expenses, many of whom are unable to pay.

"(Migrants) They have to pay the full cost. (Both Lao and Chinese migrants) have to pay because they have no family book here and no identity documents. (Referring to family books from other provinces) No, it should be family books from the catchment area only."
Female, Health center staff, Natoey, LNT

"(Internal and cross-border migrants) They have to pay full cost as well, we cover only our local residents."
Female, District health office staff, Xieng Ngeun, LPB

As for Chinese migrant workers, they are required to have Chinese National Health Insurance Schemes, although the insurance have an interconnected network within China, the expenses are not applied in Lao PDR. This leaves Chinese migrants with the options of either traveling cross the border back to China to utilize medical services there, or to access medical services in Lao PDR but pay out of their own pockets. With that being said, all occupational injuries and work-related accidents are covered by the employers.

"As far as I know, there are no specific services targeted at migrants."
Male, Chinese camp doctor, Natoey, LNT

3.4 Health communication

3.4.1 Health Communication and Promotion

At the village level, health centers organize outreach programmes up to four times a year on disease prevention programmes such as malaria. These health promotion programmes are targeted at villagers in the catchment areas only. Health centers usually engaged village health volunteers, who play an assistive role in community mobilization. This is especially important in mass campaigns such as vaccination drives. However, there remains a huge gap in health promotion outreach programmes to migrants. Neither the Lao nor Chinese governments have stated efforts targeted specifically towards these migrants.

"Health center goes to each village within their catchment areas so they do not access migrants from other provinces or countries."
Male, Local community, Natoey, LNT

"They just go for disseminating some work especially (distributing) medicines, disease prevention and hygiene practices. (What do they bring?) Posters, brochures and pictures."
Male, Local community, Natoey, LNT

"We went to the beer shop, call for them (FSWs) to come together. (How often?) Around twice a year."
Female, Health center staff, Natoey, LNT

"(VHVs) assist in campaign and mobilizing people especially during the vaccination campaign, family planning etc."
Male, Health center staff, Natoey, LNT

"Malaria and free maternal and child health services, national insurance campaign. Everyone should have family books or ID cards in order to get health services here under the Health Insurance Scheme but if no family books or IDs there should be a certificate from the village chief certifying that this patient is under this village authority. (Posters?) Yes. (Community radio?) Yes."
Female, District Health Office staff, Xieng Ngeun, LPB

All form of health communication that they receive are from the employers. Inconsistent accounts have been gathered in this assessment about the type and frequency of health communication received by construction workers. Camp managers from both the assessment areas have responded that they have frequent health promotion campaigns on occupational health and safety as well as disease prevention especially malaria. However, construction workers themselves have vague, or no recollection of such efforts. Chinese construction workers have a clearer recollection of health promotion efforts by their employers compared to Lao workers. This could be due to the fact that these Information, Education and Communication (IEC) materials are in Chinese, creating an information void amongst Lao workers. Construction workers are also more aware of occupational health and safety promotion rather than health promotion efforts related to general health or disease prevention.

"There has been some health education activities especially on malaria. But so far there has not been any health promotion or information about TB."
Male, Chinese camp manager, Xieng Ngeun, LPB

"Yes, in the past there are some brochures available on HIV prevention."
Male, Chinese camp manager, Xieng Ngeun, LPB

"(On health promotion) These messages are posted on the dormitory doors. At every assembly every Saturday, we discuss health and safety."
Male, Chinese camp manager, Xieng Ngeun, LPB

"I know about malaria, and we have conducted some related education inside construction sites, including how to prevent."
Male, Chinese camp manager, Natoey, LNT

"We created some display boards to put in all construction sites, worker camps. We also conducted orientation for workers on health education, prevention, to remind them to behave in a proper manner, to also restrict their in and out after working hours. We do a headcount after work to see if anyone goes to some places (for sexual services). We have some related measures for disease control."
Male, Chinese camp manager, Natoey, LNT

"The employer does organize some talks to discuss with us about some health issues. (How often?) Maybe once or twice a month."
Male, Chinese construction worker, Xieng Ngeun, LPB

"I'm the only one working here, so it is impossible for me to do it (health promotion). What if I'm not in the clinic, and something happens here? These campaigns may not be effective, because even if I try to educate, some of them might not be listening. And it is hard to assemble everyone tougher, some might be outside the worksite."
Male, Chinese camp doctor, Natoey, LNT

"(On receiving health information from Lao health authorities) No. (On receiving health information from Chinese health authorities) No."
Male, Lao construction worker, Xieng Ngeun, LPB

"(On health promotion and disease prevention posters) No. It is in Chinese regarding safety only."
Male, Lao construction worker, Xieng Ngeun, LPB

3.4.2 Health Communication for Migrants

There is a huge gap in health communication efforts for migrants. Neither the Lao nor Chinese government have ownership over the health education of migrants. Furthermore, employers often lack the resources or the will to do so. Hence migrants often fall through the cracks in national health promotion efforts at both sides of the border. Construction workers interviewed in this assessment have a low perception of risk and has not expressed the need for health education. Due to this general positive perception of health, employers have also similarly not expressed a need for health education additional to the existing occupational health and safety messages.

"No, we haven't gone to their area. We just provide services to them at the facility here and some patients may tell other people to come here to use the health facilities. They may receive health education from other channels."
Female, Health center staff, Natoey, LNT

"(Challenges in providing migrant health communication) Because provincial and district health offices have no plan for health center to go to migrant

areas to provide health information, so we just go to the villages."
Female, Health center staff, Natoey, LNT

"Yes, we want to have this. It would be effective but difficult. Because the working time of Chinese workers is too strict."
Female, Health center staff, Natoey, LNT

"We don't exactly know for migrants because we cannot access those living in the camp and we never receive request from them. Language is also a problem."
Female, District Health Office staff, Xieng Ngeun, LPB

"There are interpreters available. There are some workers that understand Chinese and they can translate for their fellow workers."
Male, Chinese camp manager, Xieng Ngeun, LPB

3.4.3 Improving Health Communication

Overwhelmingly, participants – both local communities and migrants, excluding health professionals were indifferent about health promotion and disease prevention. When asked about health education, they voiced concerns about health infrastructures and health services instead. Many would like to see upgrade in existing health care facilities because they cannot afford to travel to district or provincial hospitals for more advanced health services. Workers in the worksites would also like to see upgrade in health facilities or health services being available within the confines of the workspace. Health professionals, however thought that migrant groups can benefit from village health volunteers' health promotion efforts. They also believed that audio visual IEC materials would be more effective and engaging compared to print materials.

"There should be health workers here, if the province (health workers) come here to do any campaign, everyone has to gather here. Village chief has to announce through loudspeakers so that villagers know and come to use services."
Female, Local community, Natoey, LNT

"Yes, but we still don't have TV at cluster village level."
Female, Local community, Natoey, LNT

"People want to see clear pictures with symptoms of diseases so that they understand more."
Male, Local community, Natoey, LNT

"We want to see video clips. Want to see many diseases and how to prevent those diseases."
Female, Local community, Xieng Ngeun, LPB

"We should show clips through LCD for them, so they see the actual pictures and they know."
Female, Health center staff, Natoey, LNT

"For sex workers, they are mobile girls that are not staying in one shop so it's difficult to locate them to provide health information for them. I want to have some funds to train the sex workers on how to protect themselves."
Female, District Health Office staff, Xieng Ngeun, LPB

"(On targeting migrants) We have to go to their working areas and provide health education for them during their break time."
Male, Local community, Natoey, LNT

Chapter IV. Conclusion, Discussion and Recommendations

4.1 Key findings and gap analysis

Topic	Key findings and gap analysis
1. Migration and mobility along the railway construction project	Internal migrants: - There are many of Lao migrant workers work in the railway construction project (although it is about 10 per cent of construction workers) doing some manual or unskilled works. They look for a job by themselves or through their network. These workers may not commit to work and do not stay at a place for long time due to many reasons related to personal and work conditions and benefits. The situation may be improved if there are the labour dispatching companies in Lao PDR who can recruit and manage the labour for the construction company as they do with Chinese workers. - Sex workers are the most vulnerable group along the railway and road construction areas as these people are young (most are less than 20 years old), have low awareness and knowledge on HIV and STI. They may not be able to protect themselves from HIV/STIs and potentially spread the disease to other clients and their sexual networks. Mobile sex workers are hard to reach populations that should be prioritized in HIV prevention campaign and interventions. Cross border migrants: - Most of inbound migrants in the railway construction areas are Chinese migrants. Some works in the factories, trading or do business, and some end-up marry Lao woman and settle in Lao PDR. They are likely to travel with the group of friends or other workers. There are hundreds of migrant workers in each camp site. Although some have a contract with the companies, some migrant workers may be undocumented migrants as they may come with border pass or using a passport and stay beyond allowed period. Almost all female Chinese migrants come with families or husbands. They are involved in housekeeping and kitchen works. - Outbound migrants are Lao people who cross border to other countries. Most of Lao people cross the border to China are young women. They may go to China side for work in the massage and spa parlor, restaurant or marry Chinese men.
2. Health situation and potential health risks	- Health professionals have observed an increase in HIV and STIs rate since the start of the railway project, both in Lao and cross-border

Topic	Key findings and gap analysis
	migrants. Stating that young people are especially at risk due to lack of awareness on condom use and also drug/alcohol abuse. - Local communities also have concerns about the changes in environment and how this could potentially affect their health. They have observed changes in quality of water, air and general cleanliness since the start of the railway project. The roads along these local communities are often dusty due to construction vehicles transporting gravel, sand, clay etc. driving by.
3. Accidents and Occupational Injuries	- Although, there is huge emphasis on safety and accident prevention by construction companies, accidents and occupational injuries are inevitable. However, companies are liable and do pay for medical expenses in the event of work-related incidents. - An increase of vehicles in general have caused roads to become congested and accident-prone.
4. HIV/STIs	- Health workers have reported that HIV and STIs have increased since the start of the railway project, affecting both local communities and migrants. - FSWs were also vulnerable due to their young age and mobility. They are not native to the community, and move on other provinces after 2-3 months. - HIV and STIs knowledge are low, and there are many misconceptions about the diseases. - Condom availability is also limited. They are available in local health centers but people are not aware of this. HIV treatment in district hospitals and village health centers are not available and HIV positive patients have to travel to provincial hospitals.
5. Tuberculosis	- Health workers have reported that there are many cases of TB in their catchment areas, however they are from local communities, and none of the TB patients have been from migrant groups. - There are some misconceptions about TB, including from health workers who think that smoking is one of the causes. - DOTS treatment are available in local health centers.
6. Malaria	- Malaria is not seen as a concern in the assessment areas, as there has not been a case for more than two years. - RDTs are available in health centers

Topic	Key findings and gap analysis
	- Respondents are aware of at least one mode of protection against malaria, although there are still some misconceptions about the disease.
7. Health seeking behaviour	- Cross-border migrants interviewed have not utilized health centers and local hospitals, preferring to self-medicate with medicines purchased from local pharmacies. - Lao patients would seek services in nearest health centers. - Chinese migrants prefer to seek health services in Chinese hospitals or cross the border back to China. They state that language and communication are the biggest factors when seeking health services.
8. Health services	- Health services in the assessment areas include village health volunteers, village health centers, pharmacies, clinic in construction sites, district hospitals, provincial hospitals and hospitals abroad in China. - Village health centers are able to provide very basic medical care such as emergency first aid, primary care and midwifery services. - District hospitals are able to offer more comprehensive services such as minor surgeries, HIV testing and basic diagnosis e.g. Ultrasound. - Local residents are covered by the National Health Insurance Scheme, however internal migrants and cross-border migrants are excluded and are required to pay the full cost of services.
9. Health communication	- At the village level, health center organize outreach programmes up to four times a year on disease prevention. - There is a clear gap in health promotion programmes in migrants as there are no initiatives by Lao nor Chinese government. - Employers try to organize health promotion programmes but more focussed on occupational health and safety.

4.2 Discussion

Compounding Factors Surrounding Vulnerabilities of Migrants

It is obvious that migration and cross border mobility have impacted the changes in social and economic situations in the communities. The interaction between migrants and communities can be positive in term of economic development and social mobilization. But if communities and migrants are not well prepared, it can create the negative impacts, especially on transmission of communicable diseases. From the situation analysis in during the assessment, HIV/AIDS is seen as the most critical health risk of migrants and communities along the railway construction in Lao PDR. Migrants in the construction projects have high mobility as they move from one site to another site after a short period, depending on their job nature. Truck drivers may stay overnight in city area while other labour may stay in the site for months before moving to another site. Most of them are away from home and family, they may visit beer shop for drinking and entertaining themselves after works especially after they receive wage/salary. Many of them end up with having sex with the girls at beer shop where they also provide sex services. Sex workers in the areas are likely to work in the beer shop as the service women along the roads or construction areas.

Awareness and knowledge on HIV/AIDS of migrants and sex workers in the communities are low while they practice sexual risk behaviour. It is found from the assessment that condoms are not available at the beer shops and there is no active HIV project in both Luang Namtha and Luang Prabang as a result the sex workers have not been educated on HIV/AIDS and safer sex practices. Most of sex workers are young girls aged less than 20 years old from rural areas in other districts/provinces. Some of them are highly mobile from one place to other places to make them a 'new face' and gain better price in another place. As a young girl from remote areas, sex worker does not have adequate skills to protect themselves and lack of power to negotiate safer sex with the clients. Chinese migrants face number of difficulties in access to health services in Lao PDR including insurance coverage, language barriers, accessing to services that meet their needs, etc. The compounding factors as shown in figure five can make both internal migrants including sex worker, and cross border migrants more vulnerable to HIV and health risks.

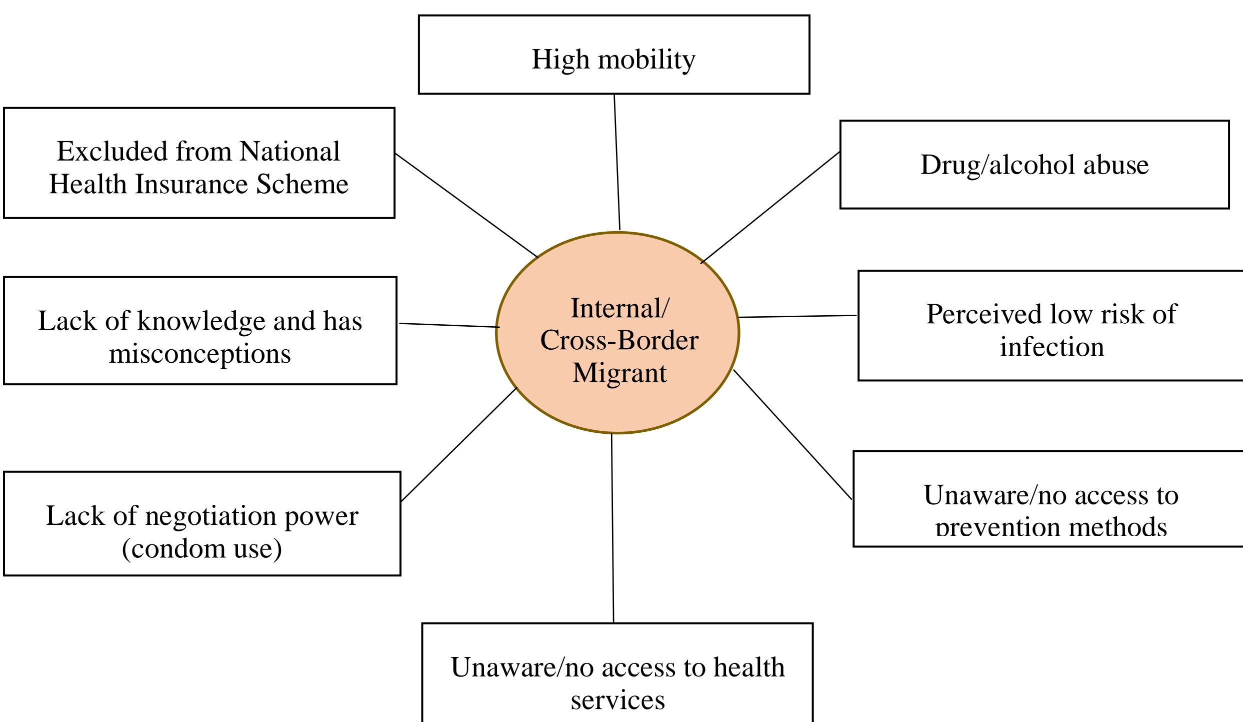

Figure 5: Compounding factors surrounding vulnerabilities of migrants

Sexual network of migrants and communities at the construction sites is not limited only within the hot spot communities but are expanded beyond the construction settings to their regular partners and other partners they may have. Possible sexual network of migrants and sex worker at the construction site is shown in figure 6.

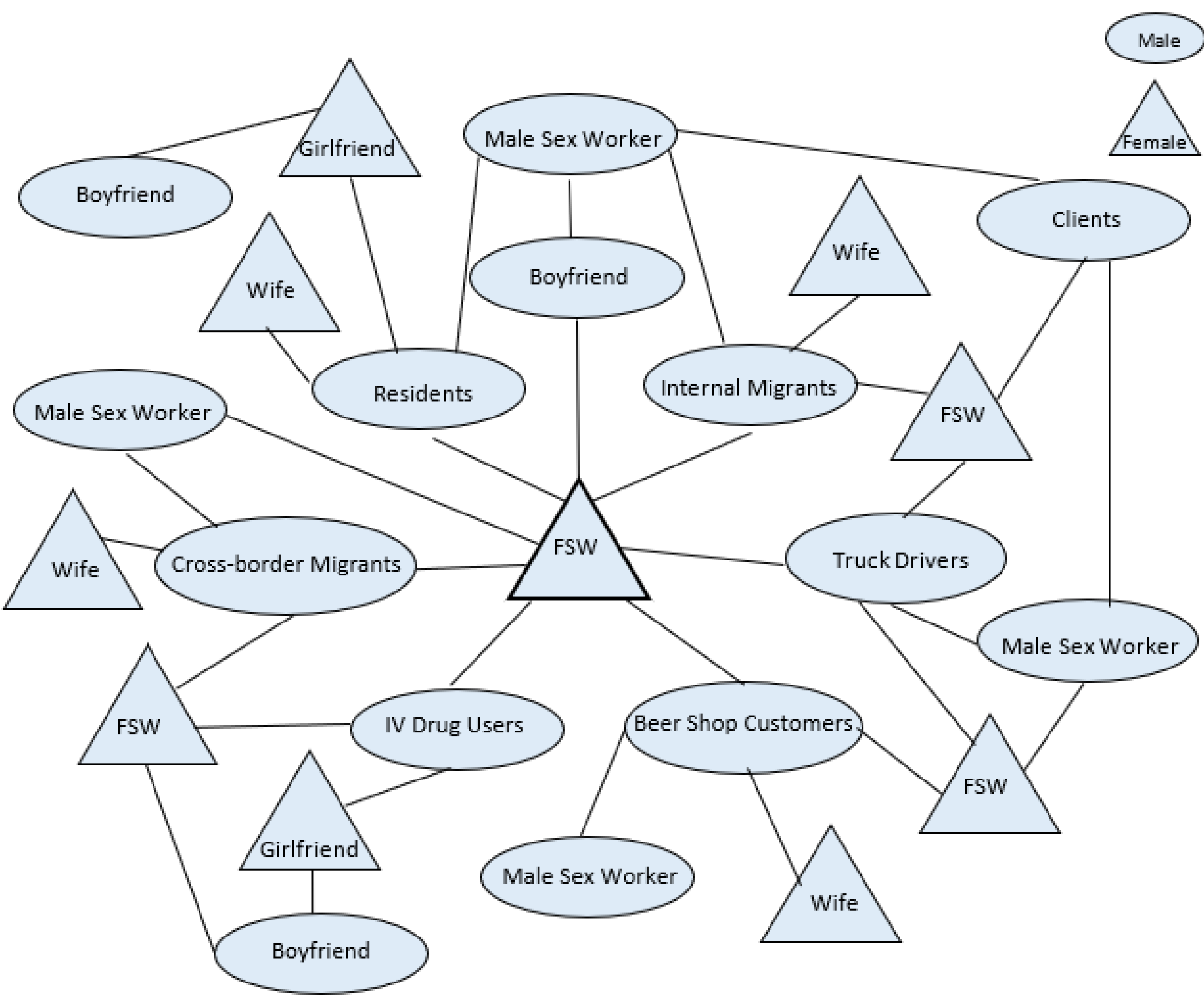

Figure 6: Possible sexual network of a sex worker in railway construction areas

Sexual risk behaviours and sphere of interaction create the space of vulnerabilities. In the space of high mobility in the context of 'Boten-Vientiane' railway construction situations, HIV vulnerabilities can expand widely from the hotspots in railway construction areas to surrounding communities, communities of origin and pass through communities through sex partners of the sex workers and migrants as presented in figure 7. The figure provides visual connection in term of both sexual network and space of vulnerabilities. When design health programme for the HIV/AIDS, sphere of interaction and space of vulnerabilities should be taken for planning and designing to ensure the effectiveness of the interventions to reduce HIV vulnerability of migrants and mobile populations rather than focusing on particular risk groups. Migration health approach should consider the different health and HIV vulnerabilities associated with the migration

process rather than considering the migrant as the health vulnerability. Vulnerable space programming in this context shall aim to develop holistic plans to reduce risk taking behaviour and boost access to and use of adequate health services by mobile populations and host communities alike.

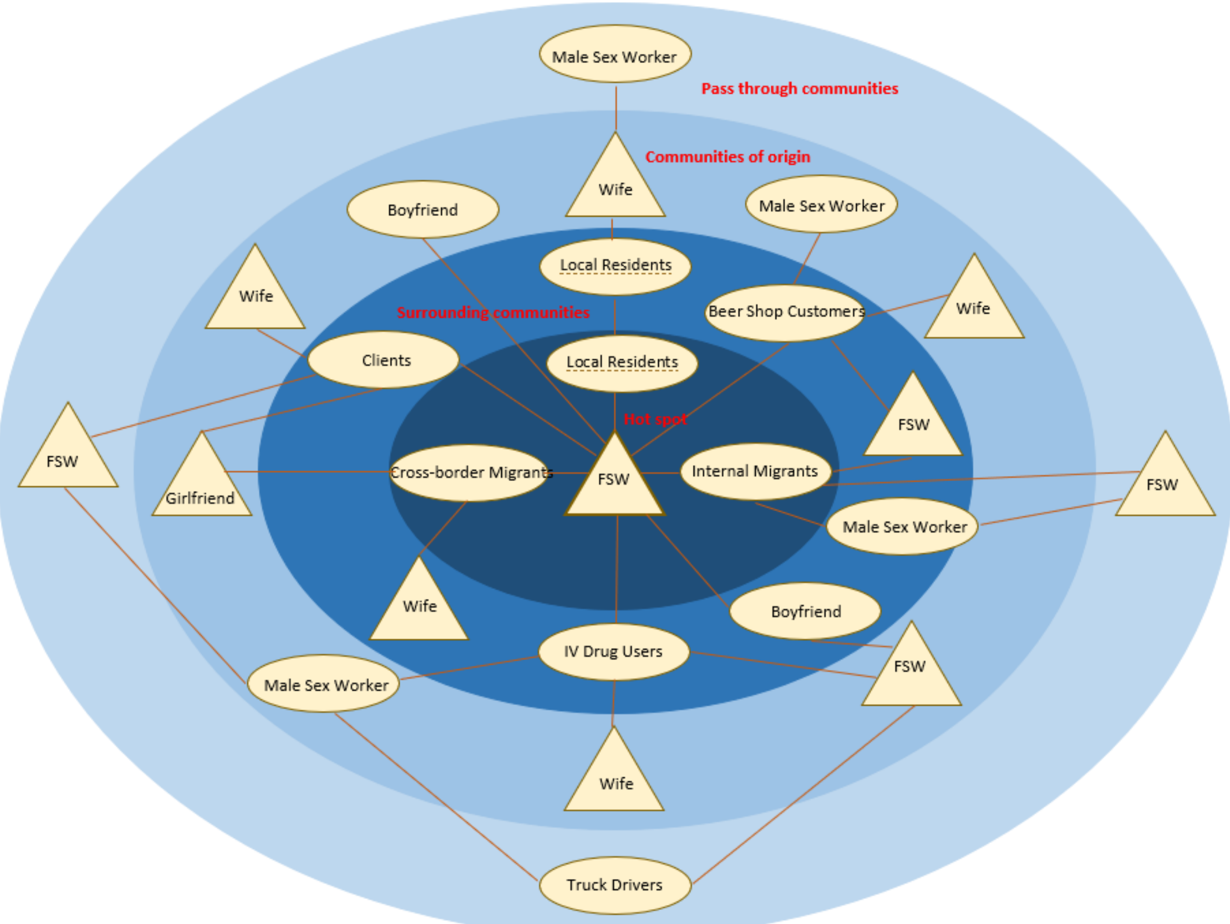

Figure 7: Possible sexual network of a sex worker in railway construction areas within spaces of vulnerability and spheres of interaction

It could be seen from figure 7 that sex workers, internal migrants, cross border migrants and local residents are only group in the hotspot. Sexual interaction of these people will affect their other sex partners which may not be in the hotspot but may be in surrounding communities, communities of origin or communities pass through.

4.3 Recommendations

Approaches and Intervention to Migration and Health According to Spaces of Vulnerability

Approach to Migration and Health \ Spaces of Vulnerability	Hot spots	Surrounding community	Communities of origin	Pass-through communities
1. Monitoring migrant health: Strengthening knowledge on the health of migrants via research and information dissemination to ensure evidence-based programming and policy development	Conduct an assessment and surveillance among sex workers and risk populations in main construction areas.	Quantitative and qualitative research on affected populations e.g. local communities	Monitor HIV prevalence, situation, and other health risks	Monitor HIV prevalence, situation, and other health risks
2. Policy and legal framework: Advocating for migrant inclusive health policies and programmes at a national, regional and global level, and assists in the development of policies to promote and protect the health of migrants	Advocate for migrant inclusion in activity, strategy health plan	Advocate for migrant inclusion in activity, strategy health plan	Promote pre-departure health assessment and health education	Advocate for migrant inclusion in activity, strategy health plan
3. Migrant-sensitive health system: Delivering, facilitating and promoting equitable access to migrant-friendly and comprehensive health care services	BCC interventions through outreach programmes by village health volunteers (VHV) and peer educators	BCC Interventions through outreach programmes by VHVs	IEC materials in migrant languages on HIV and other health risks on migration route and at destination	IEC materials in migrant languages on HIV and other health risks on migration route and at destination
4. Partnerships: Committing to developing and strengthening multi-sectoral partnerships and coordination among member states, stakeholders and migrants	Coordinate and collaborate with the construction companies and other non-health sectors in order to access to migrants	Coordinate and collaborate with the construction companies and other non-health sectors in order to access to migrants	Coordinate with health and non-health authorities i.e. Ministry of Labour for	Coordinate with health and non-health authorities i.e. Ministry of Labour for

	and communities as well as advocating for including health of migrants in the plan/interventions.	and communities as well as advocating for including health of migrants in the plan/interventions.	providing pre-departure safe migration information to migrants	providing safer sexual practice information for migrants and communities

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Appendices

Appendix 1: Focus Group Discussion and Key Informants Profile

Appendix 2: Summary notes from the consultation workshops in Luang Namtha and Luang Prabang

Appendix 1: Focus Group Discussion and Key Informants Profile

No	Group No	Township	Year of res.	Gen der	Ag e	Mar ital	Occupation	Home of Origin	District	Province
1	KII 1	Natoey	1	F		M	Head of Health Center		Natoey	Luang Namtha
2	KII 1	Natoey	2	F		M	Technical Staff		Natoey	Luang Namtha
3	KII 1	Natoey	3	F		M	Technical Staff		Natoey	Luang Namtha
4	KII 1	Natoey	4	M		M	Technical Staff		Natoey	Luang Namtha
5	FGD 1	Natoey	1	F	45	M	Housemaid	Luang Namtha	Natoey	Luang Namtha
6	FGD 1	Natoey	2	F	40	M	Housemaid	Phongsaly	Natoey	Luang Namtha
7	FGD 1	Natoey	3	F	29	M	Housemaid	Phongsaly	Natoey	Luang Namtha
8	FGD 1	Natoey	4	F	32	M	Housemaid	Oudomxai	Natoey	Luang Namtha
9	FGD 1	Natoey	5	F	31	M	Housemaid	Luang Namtha	Natoey	Luang Namtha
10	FGD 2	Natoey	1	M	45	M	Rice Farmer	Luang Namtha	Natoey	Luang Namtha
11	FGD 2	Natoey	2	M	41	M	Government Staff	Luang Namtha	Natoey	Luang Namtha
12	FGD 2	Natoey	3	M	55	M	Rice Farmer	Oudomxai	Natoey	Luang Namtha
13	FGD 2	Natoey	4	M	28	M	Rice Farmer	Phongsaly	Natoey	Luang Namtha
14	FGD 2	Natoey	5	M	61	M	Retired Staff	Luang Namtha	Natoey	Luang Namtha
15	KII 2	Natoey	1	M	30+	NA	First Secretary	China	Natoey	Luang Namtha
16	KII 3	Natoey	1	M	25-30	NA	Doctor	China	Natoey	Luang Namtha
17	CW 1	LNT	1	M		NA	PHD - TB			Luang Namtha

No	Group No	Township	Year of res.	Gender	Age	Marital	Occupation	Home of Origin	District	Province
18	CW 1	LNT	2	F		NA	PHD - HIV			Luang Namtha
19	CW 1	LNT	3	M		NA	MoPWT			Luang Namtha
20	CW 1	LNT	4	M		NA	PHD - CDC Head			Luang Namtha
21	CW 1	LNT	5	M		NA	PHD - CDC Deputy Head			Luang Namtha
22	CW 2	LPB	1	F		NA	MoLSW			Luang Prabang
23	CW 2	LPB	2	M		NA	PHD - CDC Head			Luang Prabang
24	CW 2	LPB	3	M		NA	PHD - Planning Section			Luang Prabang
25	CW 2	LPB	4	M		NA	MoPWT			Luang Prabang
26	CW 2	LPB	5	F		NA	PHD			Luang Prabang
27	KII 4	Xieng Ngeun	1	F		M	Head of DHO		Xieng Ngeun	Luang Prabang
28	KII 4	Xieng Ngeun	2	F		M	DHO - Head of Administrative Section		Xieng Ngeun	Luang Prabang
29	KII 4	Xieng Ngeun	3	M		S	DHO - Head of Health Promotion Section		Xieng Ngeun	Luang Prabang
30	FGD 3	Xieng Ngeun	1	M	54	M	Operator on Duty	Sichuan Province, China	Xieng Ngeun	Luang Prabang
31	FGD 3	Xieng Ngeun	2	M	55	M	Technical Worker	Yunnan Province, China	Xieng Ngeun	Luang Prabang
32	FGD 3	Xieng Ngeun	3	M	21	NA	Information Processor	Sichuan Province, China	Xieng Ngeun	Luang Prabang
33	FGD 3	Xieng Ngeun	4	M	50	M	Technical Worker	Yunnan Province, China	Xieng Ngeun	Luang Prabang

No	Group No	Township	Year of res.	Gen der	Ag e	Mar ital	Occupation	Home of Origin	District	Province
34	FGD 3	Xieng Ngeun	5	M	48	S	Technical Worker	Yunnan Province, China	Xieng Ngeun	Luang Prabang
35	FGD 3	Xieng Ngeun	6	M	32	M	Technical Worker	Yunnan Province, China	Xieng Ngeun	Luang Prabang
36	FGD 4	Xieng Ngeun	1	F	20	S	Interpreter	Luang Prabang	Xieng Ngeun	Luang Prabang
37	FGD 4	Xieng Ngeun	2	M	31	M	Driver	Vientiane Province	Xieng Ngeun	Luang Prabang
38	FGD 4	Xieng Ngeun	3	M	35	M	Labourer	Luang Prabang	Xieng Ngeun	Luang Prabang
39	FGD 4	Xieng Ngeun	4	M	31	M	Driver	Luang Prabang	Xieng Ngeun	Luang Prabang
40	FGD 4	Xieng Ngeun	5	M	25	M	Driver	Luang Prabang	Xieng Ngeun	Luang Prabang
41	FGD 4	Xieng Ngeun	6	M	22	S	Labourer	Luang Prabang Province	Xieng Ngeun	Luang Prabang
42	FGD 4	Xieng Ngeun	7	M	41	S	Driver	Xayaboury Province	Xieng Ngeun	Luang Prabang
43	KII 5	Xieng Ngeun	1	M	43	M	Technical Staff	Sichuan Province, China	Xieng Ngeun	Luang Prabang
44	KII 5	Xieng Ngeun	2	M	53	M	Programme Manager	Sichuan Province, China	Xieng Ngeun	Luang Prabang
45	FGD 5	Xieng Ngeun	1	M	60	M	Rice Farmer	Luang Prabang Province	Xieng Ngeun	Luang Prabang
46	FGD 5	Xieng Ngeun	2	M	64	M	Rice Farmer	Luang Prabang Province	Xieng Ngeun	Luang Prabang
47	FGD 5	Xieng Ngeun	3	M	35	M	Rice Farmer	Luang Prabang Province	Xieng Ngeun	Luang Prabang
48	FGD 5	Xieng Ngeun	4	M	48	M	Rice Farmer	Luang Prabang Province	Xieng Ngeun	Luang Prabang

No	Group No	Township	Year of res.	Gen der	Ag e	Mar ital	Occupation	Home of Origin	District	Province
49	FGD 5	Xieng Ngeun	5	F	53	M	Rice Farmer	Luang Prabang Province	Xieng Ngeun	Luang Prabang
50	FGD 5	Xieng Ngeun	6	F	49	M	Rice Farmer	Luang Prabang Province	Xieng Ngeun	Luang Prabang
51	FGD 5	Xieng Ngeun	7	F	58	M	Gardener	Luang Prabang Province	Xieng Ngeun	Luang Prabang
52	FGD 5	Xieng Ngeun	8	F	48	M	Gardener	Luang Prabang Province	Xieng Ngeun	Luang Prabang
53	KII 6	Nam Ming	1	F		M	Health Center Staff - Midwife		Xieng Ngeun	Luang Prabang
54	KII 6	Nam Ming	2	F		M	Health Center Staff - Nurse		Xieng Ngeun	Luang Prabang

Appendix 2: Summary notes from the consultation workshops in Luang Namtha and Luang Prabang

Note from the Consultative Workshop in Louangnamtha (LNT)

- **Date**

  8 November 2018

- **Location**

  Provincial Health Department's meeting room

- **Participants**

No.	Name	Offices
1	Dr.Xang Sorinpan	PHD - TB
2	Dr.Pinkeo Bounthamit	PHD - HIV
3	Mr.Chanthachone	Public Work and Transportation Department
4	Dr.Young Lorkham	PHD – CDC Head
5	Mr.Chanthone	Labour and Social Welfare Department
6	Ms.Sihome	PHD – CDC Deputy Head
7	Dr.Manikip	DCDC - MoH
8	Mr.Chanpaseut	Ministry of Public Work and Transportation
9	Dr.Montira Inkochasan	IOM RO
10	Dr.Somphao Bounnaphol	IOM Laos
11	Ms.Yunxian Jiang	IOM Laos

- **Result**

Topic	Discussion
Report from representative of Public Work and Transportation Department	• The construction project started in December 2016 • The total length from LNT to Vte is 409 km • There are 6 contracts for the 409 km – for LNT 16.9 km • The biggest construction site throughout 409 km is Nateui in LNT as this includes shipping location "267 hectares" • There were 138 household affected from the construction project in which 41 households is in LNT. The affected households were moved within its own village territory and are still able to access to education, health services and etc.

Topic	Discussion
	• Chinese and Lao migrant workers stay in the camp except the Lao workers from the communities nearby, they stay in their own houses. • There are many camps in LNT but none of them have a health service for the staff except the Nateui camp but only one doctor and no nurse. Each camp has security persons "soldier and police" • There are many sick cases – for sever cases the patients are referred to China. For Lao workers – if they signed the contract with the company and if they get sick the company is responsible for it and in case of severe case they are also referred to China even though they do not have passport but letter from the letter from the construction committee is needed.
Report from representative of Labour and Social Welfare Department	• Had not visited the construction companies/work sites in 2016 – 2017 due to no budget • 2018: the team visited the construction companies/work sites in every 3 months: - Company No2: there is only one camp, there are 204 Chinese workers and 14 Lao workers in which 13 are women of out 214 workers. - Company No5: there are 6 camps in which Nateui is the biggest one. There are 505 workers in which 441 are Chinese (70 women) and 64 are Lao (4 women). • Workers recruitment is from two channel: - Recruitment agency for Chinese - Direct contract to the company office located in Boten Special Economic Zone. Each worker is charged only 50% of the registration fee based on the government rate. • Majority of the Lao workers are from LNT and there are some from other province like Oudomxay. Lao workers work as drivers and welder. Lao workers are seen as un-skilled laborers – they are trained by Chinese first before starting the works but once they gained the skills they always move to other places, it is difficult to control the movement as they are not recruited from recruiting company. In case of sickness of the Lao workers or death, the employer is responsible same as the Chinese workers. • There are other workers for other projects beside the railway construction such as banana plantation, stone crushing, logistic, tobacco factor, paper factory, infrastructure Construction Company and sugar cane plantation. There are more than 400 Lao workers and more than 2,000 Chinese workers and when they get sick the employers are not responsible for it and they don't have a weekend or public holiday.
Report from representative of	• It is observed that female sex workers has been dramatic increased. In Natuei and Boten Economic Special Zone, it is estimated that there

Topic	Discussion
Provincial Health Department (PHD)	are around 400 female sex workers. Their clients are mainly Chinese and migrant workers. • The PHD does not have any budget or activity to work with them in 2018 since there is no budget as the ADB supported project was ended on 2017. • The female sex workers move all the time and they lack skills in negotiation with the clients to use the condom and on the other hand it is difficult to look for condom in this area. • Among the female sex workers, around 80-90% of them at least get one kind of STI. There are more than 100 new cases of HIV in the last two years. • There are many TB cases among local community, there is no information about migrant workers but suspected that it will be high. • The main diseases found in the province: diarrhea, dysentery, ARI, typhoid, dengue fever and STI which is very high. There is no budget for screening of the diseases and the migrants move freely. • Existing health cooperation: - Malaria through PSI - Cross border collaboration with China and we have agreed to meet twice a year that includes LNT, Bokeo, Oudomxai and LPB. • Challenges includes: - Number of technical staff has been decreasing - Lack of budget - The health target set is high and don't know whether we can achieve it or not, for example malaria eradication by 2030. • In case of severe patients, they are referred to China. In LNT we do not have MRI or CT Scanner, we have to go to China; for the expenditure is the responsibility of the patients. • The health service is 100% covered throughout the province but the important thing is we have to improve the quality of the services and find a budget to support the health staff. So far there is no plan to construct or expand health facility in Nateui.
MMPs and host community	• Mobile (less than 6 months) - Migrant workers - Female sex workers: Lao and Vietnamese - Students during the summer break - Government authorities: tax and police - Tourist: Chinese and Vietnamese • Migrant (from 6 months up to one year) - Skilled labour - Driver - Business person - Restaurant owner/staff - Government authorities - Engineers • Host community

Topic	Discussion
	- Rice farmers - Ethnicity: Kamu, Panna and Mong
Potential health risks and risky groups	• HIV/STI: migrant workers and government employees who are assigned to work in these areas • TB: host community, migrants living in the camp • Hepatitis B and C: similar to HIV/STI • Dengue fever and malaria: host community • SARS and Influenza: migrant workers and host community • Rubbish from restaurant and casino (thrown into the river): host community • Diarrhea, dysentery and typhoid due to food contamination: every groups • Accidents from the construction and traffic: workers, teenager and host community • Dust and work safety: migrant workers and host community • Chemical "insecticide": migrant workers and host community • Drug "Amphetamine and heroin": migrant workers and host community
Differences between before and during railway construction (increased)	• HIV/STI • TB • Hepatitis B and C • Rubbish • Diarrhea, dysentery and typhoid due to food contamination • Accidents from the construction and traffic • Dust and work safety • Drug "Amphetamine and heroin": migrant workers and host community
Action needed: I = Immediate M = Medium L = Long tern	• HIV/STI: I/L • TB: L • Hepatitis B and C: L • Dengue fever and malaria: I/L • SARS and Influenza: I • Rubbish from restaurant and casino (thrown into the river): I/M • Diarrhea, dysentery and typhoid due to food contamination: I • Accidents from the construction and traffic: M/L • Dust and work safety: I • Chemical "insecticide": M • Drug "Amphetamine and heroin": M
Who should be involved in the intervention action?	• No plan for intervention except malaria supported by CMPE • All sections of health sector • Lao Trade Union, Women Union, Youth Union, Mess Media, Labour and Social Welfare, police, immigration, Mining and Natural Resource, Environment • CDC Committee • Private sector/donor

Topic	Discussion
Challenges for intervention	• Coordination and collaboration from different sectors • Lack of budget • Lack of qualified staff

Note from the Consultative Workshop in Louangprabang (LPB)

- **Date**

9 November 2018

- **Location**

Provincial Health Department's meeting room

- **Participants**

No.	Name	Offices
1	Ms.Sengpha Sououthai	Labour and Social Welfare Department
2	Dr.Manikip	DCDC - MoH
3	Dr.Phichit	Head of CDC - PHD
4	Ad Keodala	Planning Section - PHD
5	Mr.Khemkham Phongsavath	Public Work and Transport Department
6	Dr.Vilasak	PHD
7	Mr.Chanpaseut Thipphavong	Ministry of Public Work and Transport
8	Ms.Montira Inkochasan	IOM RO
9	Dr.Somphao Bounnaphol	IOM Lao
10	Yunxian Jiang	IOM Lao
11	Aimee Lee	IOM RO

- **Result**

Topic	Discussion
Report from representative of Public Work and Transportation Department	• 409 km in total from Borten to Vientiane, pass through 3 districts and 29 villages with total length of 80 km • Have coordinated with all sectors concerned such as Land Management Office, Agriculture and Forestry, Labour and Social Welfare and Health • There are 23 construction sites. • Majority of the migrant workers stay in the camps.

Topic	Discussion
	• It is difficult to manage the migrant workers as they move all the time, Lao workers after receiving money they moved away so they are regarded as irregular workers. • Some foreign workers use tourist visa to work and once the visa is expired, they go back home. • In each camp there are soldiers/polices for security. • There is a concern about migrant's health: there are female sex workers and majority of them are in the city like in Hotel KGV and Sibsongphanna and restaurants.
Report from representative of Labour and Social Welfare Department	• Migrant workers are from Laos and other countries "China and Vietnam". • Have visited the companies, 2 – 3 times already since the start of the construction and have tried to apply Lao Labour Law. • Migrant workers signed employment contract with the companies, they receive their fee, the company follow labour law, they stay in the camps and the employers provide food and allow for health check twice a year. • There was no health issue in the past. • Have good collaboration from police, soldier and health sector. • Difficult to manage the migrant workers especially Chinese as they have to be approved by MoFA, when the province wants to check they just refer to the ministry level which is difficult to follow up. • Lao migrant workers are unskilled labourers, they receive daily contract (some of them are illiterate). 80% of them are from LPB province the rest are from other provinces in the north. Female migrant workers work as cleaner and cook; for male migrant workers work as driver, welder and cement mixer (Chinese company will train male workers to make sure they have skills to do the works). • Around 3,000 workers both Lao and foreigner
Report from representative of Provincial Health Department (PHD)	• Have not been involved in any activity since the start of the railway project. • Majority of the migrant workers go to Chinese hospital in the province, there are two private hospitals. • We are not involved in any health activities such as health check and the companies do not have a budget for us. • We have a concern about their health as from our random checking there are people got HIV infected but we can't follow them as they keep moving all the time. It is observed that there are more than 10 people got HIV infection this year. If we can do a screening, there will be much higher than this. • There is no document mentioned that the health authority can conduct health check with Chinese workers and they always said that they have been checked from their country. We worry

Topic	Discussion
	about sex service with the migrant workers which they usually come out from the camps after their works. • Besides the railway construction – there are dams and there are many sex workers especially Namou Dam No3. • 3 main sectors have to work altogether: Security, Labour and Social Welfare and Health. • Request IOM to support
MMPs and host community	• Mobile (less than 6 months) - Migrant workers within the province and outside the province. They are regarded as unskilled labourers. These people move after the harvest season. - Vietnamese - Government authorities - Female sex workers from Nambak and Pakseng districts and other provinces like from Phongsaly. They are very young from 14 – 35 years old and many are ethnic minorities such as Kamu and Hmong. Some of them are students, the clients contact them through mobile phone and also restaurant. • Migrant (from 6 months up to one year) - Migrant workers from other locations - Vietnamese but not so many - Chinese: their employment contract is long at least one year and their age is between 35-65 - Government authorities - Commercial: food and construction supply - More men than women - Unskilled labourers contact the employer directly – do not go through recruiting company • Host community - Labourers from Chomphet and Xieng Ngeun district: Kamu is unskilled and Hmong as drivers. - Louangprabang district: Lao Loum - Ethnicity: Kamu, Panna and Hmong
Potential health risks and risky groups	• HIV/STI • Malaria and dengue fever • TB • Pandemic influenza • Some accidents • Rubbish • Diarrhea
Differences between before and during railway construction (increased)	Do not have data on the changes
Action needed:	• HIV/STI: I/L • Malaria and dengue fever: I

Topic	Discussion
I = Immediate M = Medium L = Long tern	• TB: I/L • Pandemic influenza: I/L • Some accidents: M • Environment - rubbish and clean water: M • Diarrhea: M
Who should be involved in the intervention action?	• Public Work and Transportation • Security/Police • Natural Resource and Environment • Labour and Social Welfare • Health • Private sector • INGO • Donor • Company • Railway construction committee • Community
Challenges for intervention	• Coordination • Lack of budget • Lack of qualify staff (knowledge) • Communication – foreign and ethnic languages • Lack of equipment • Labour management between the province vs the central