



TECHNICAL BRIEF

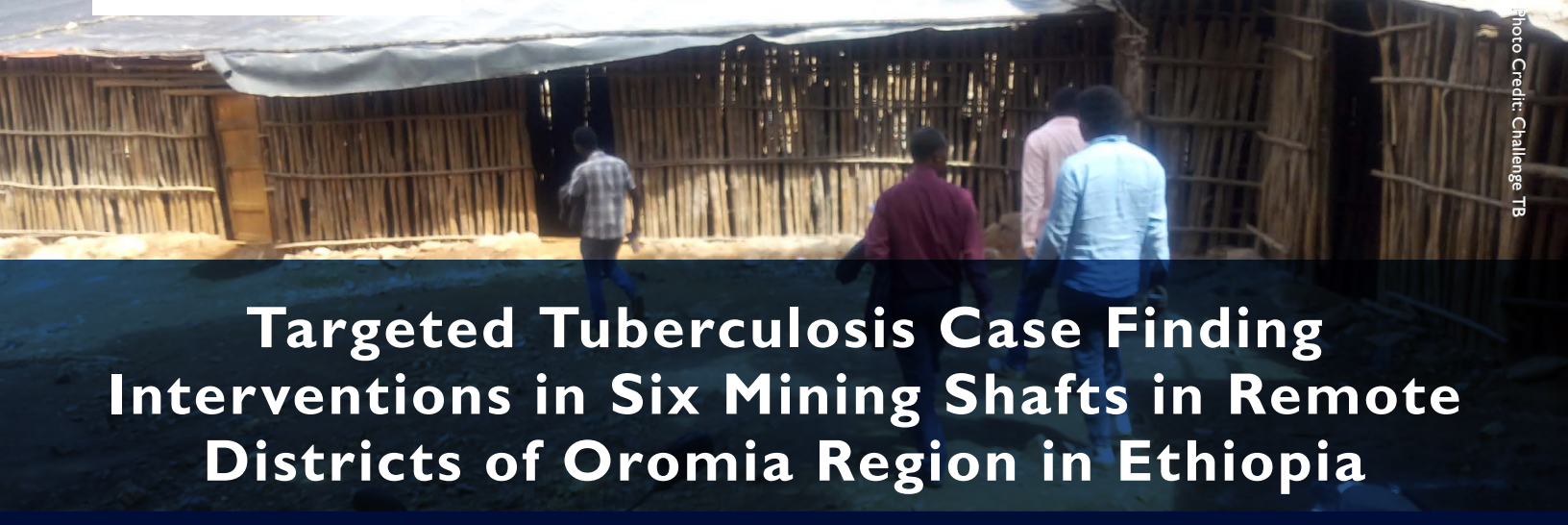


Photo Credit: Challenge TB

# Targeted Tuberculosis Case Finding Interventions in Six Mining Shafts in Remote Districts of Oromia Region in Ethiopia

## PROJECT CONTEXT

Ethiopia is the second-most populous country in sub-Saharan Africa, with 99.4 million inhabitants. Despite many years of efforts to prevent and control tuberculosis (TB), the World Health Organization's (WHO), 2016 Global TB Report lists Ethiopia as one of the 30 high-burden TB, TB/HIV, and multi-drug resistant TB (MDR-TB) countries, with an estimated incidence of 200,790 in 2014 (207 per 100,000 population). The WHO report also estimated 194,000 TB cases (200 per 100,000) and 32,010 deaths (33 per 100,000 population) from TB in Ethiopia in 2014. The rate of MDR-TB was estimated to be 1.6% of new TB cases and 11.8% of previously treated TB cases.

Infectious diseases including TB are among the top 10 causes of morbidity and mortality in Ethiopia. While the general epidemiologic features show declining trends in the incidence, prevalence, and TB-associated mortality rates, there are geographic hot spots and specific key population groups that are at particularly high risk of the disease. During the fifth year of the Help Ethiopia Address Low TB Performance (HEAL TB) project, USAID's most notable TB activity in the country, implemented by Management Sciences for Health (MSH), the Guji and Borena zones within the Oromia region were targeted for the highest case notification rates (Figure 1). Part of the high infection rate was because of two high-risk groups—

internal migrant workers in informal mining shafts and the mobile pastoralist population in the area.

After the phase out of successful and comprehensive support by HEAL TB in April 2016, MSH's TB program support continued under USAID's Challenge TB project, which focuses on addressing key population groups. The interventions initiated in the informal mining areas continued to be priorities both for partners and the National TB Program (NTP).

Figure 1. Map of Ethiopia showing Guji and Borena Zones



## PROBLEM STATEMENT

The mining community has long been associated with a high prevalence of various lung diseases. Tuberculosis (TB) rates, in particular, are very high, partly as a result of the high prevalence of silicosis resulting from prolonged exposure to silica dust in mine shafts, especially in gold mines. High rates of HIV transmission and confined, humid,

poorly ventilated working and living conditions further increase the risk of TB among mine workers.

The targeted community lives in remote areas, has a pastoralist lifestyle with a traditional gold mining practice. This has resulted in sub-optimal TB case finding and treatment follow-up. This is compounded by a

high number of mobile migrant mining workers. However, there have not been special interventions in this area to enhance TB case finding and the burden of TB in these communities is rarely estimated. Therefore, MSH took the initiative to determine the burden of TB in this community in order to tailor interventions.

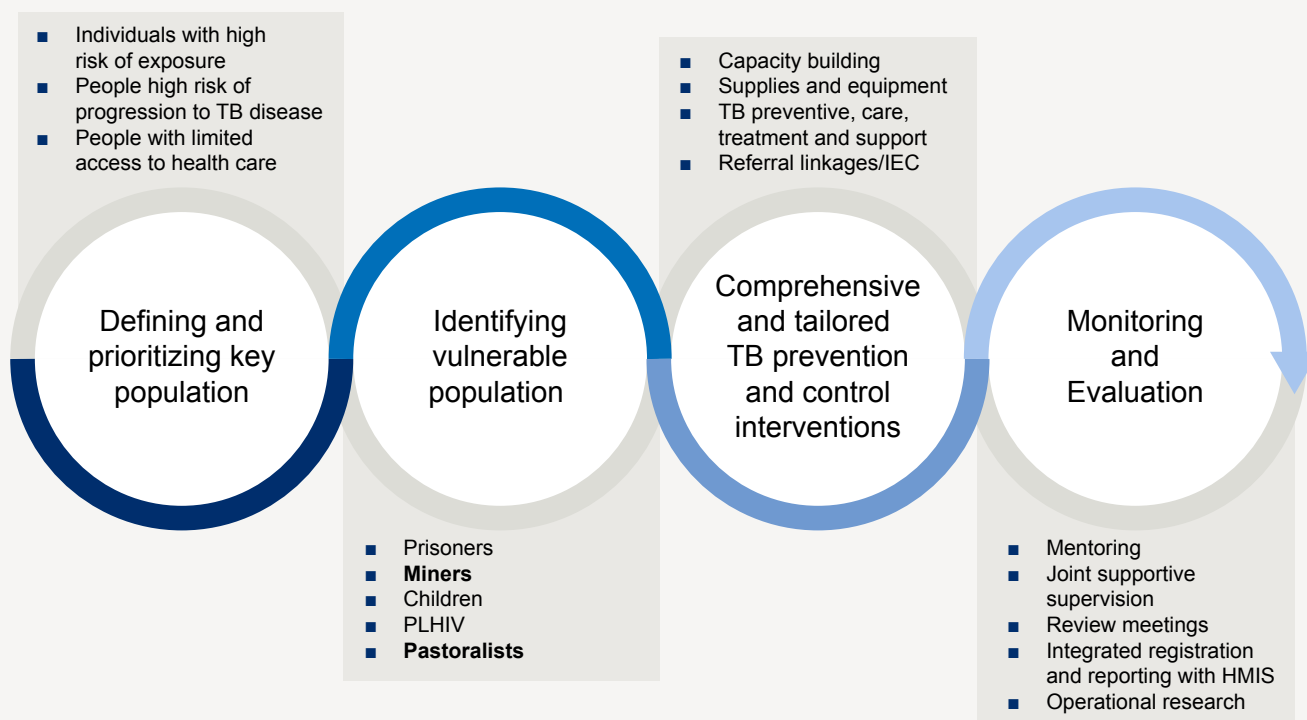
## PROJECT APPROACH

Both the HEAL TB and Challenge TB projects were designed to assist Ethiopia’s NTP to increase case detection and improve treatment success rates to reach global targets through a comprehensive package of TB control interventions. The proposed interventions were

aligned with the national TB control goals in the five-year health sector development plan-five (HSDP IV). Both projects aimed to provide quality DOTS treatment, strengthen referral linkages to the community, and assist the NTP and regions to improve, expand, and sustain TB services.

Through this assistance, the regions, zonal health departments, and woreda (district), primary health care units (PHCUs) improved TB and MDR-TB program management, provided tighter TB/HIV collaboration, and strengthened the health system (Figure 2).

Figure 2. Tuberculosis prevention and control framework among vulnerable population



Decentralizing TB care to the community level combined with strengthening the health care systems were the main strategies of the projects. The following were key areas of intervention by the projects:

- TB DOTS
- Pediatric TB
- Capacity strengthening of TB laboratory
- TB/HIV

- Supply management of TB drugs
- MDR-TB services expansion and improvement in quality
- Capacity building in TB program management and technical skills
- Innovations and operational researches

The focus of the Challenge TB project is rendering tailored interventions, and expanding and scaling up the experience following

HEAL TB, while focusing on key populations and other high risk and congregate settings related to TB and TB/HIV such as children, HIV infected people, mining areas, and prisons. One of those tailored interventions, which started during HEAL TB and scaled up during Challenge TB, is TB in the mining areas in the Oromia region of the Guji zone.

## PROJECT IMPLEMENTATION

Together with Borena and Guji zonal health department and the Oromia Regional Health Bureau (RHB), MSH, through the HEAL TB project (December 2015–June 2016) and now through Challenge TB (December 2016–present), identified six districts within the mining areas. Six woreda coordinators were trained and deployed to coordinate case finding and treatment observation. These are health care workers with TB program experience in the Borena and Guji zones in the mining areas. A GeneXpert machine was also provided to one health center for use as a primary diagnostic tool for miners. Motorbikes were bought for sample transportation for all mining woredas in the zones. The project also provided technical support on the mentoring, supportive supervision and capacity building of health care workers engaged in TB case evaluation and diagnosis in the health facilities in the mining districts.

The project identified 55 active volunteers and 81 women developmental armies to support the health education and social mobilization with the coordinators. During the nine months of the intervention, health education and sensitization on TB and TB/HIV was provided to 22,525 miners, 23 catchment area meetings were conducted, and an estimated 42,678 workers were engaged in informal gold mining activities. In addition, 23 PHCU catchment area meetings were conducted.

The recruited coordinators provided health education for the mining workers at the mining shafts and screened the workers for TB using the symptomatic TB screening recommended by WHO.

The presence of any one of the following signs or symptoms in an individual is diagnosed as a presumptive TB case:

- Two or more weeks of cough;
- Fever persisting for more than two weeks;
- Night sweating for at least two weeks; and
- Weight loss.

Among HIV infected individuals, the presence of the aforementioned symptoms of any duration is taken as a presumptive TB case.

The coordinators referred presumptive TB cases to a nearby health center for TB evaluation and AFB or GeneXpert. They also served as TB treatment supporters for those who started anti-TB medications. In addition, the coordinators carried out contact investigation for individuals who had come into close contact with the presumptive cases.

## RESULTS AND ACHIEVEMENTS

The coordinators registered all of the miners they approached and identified as presumptive TB cases and referred them to health facilities for evaluation. The presumptive TB cases were evaluated and identified; those confirmed with TB diagnosis were also traced and registered by the coordinators who provide a monthly report to the project and district offices.

Out of 42,678 mining workers in the six districts of Guji and Borena, a total of 11,842 (27.7%) miners were approached and screened for TB

symptoms. Of those, 1,288 (10.9%) were found to be presumptive TB cases within a nine-month period. Of those presumptive TB cases, GeneXpert or AFB tests evaluated 93% (1,199) of them for TB. Of those evaluated by GeneXpert or AFB tests, 208 TB cases (17.3%) were diagnosed with active TB cases. About 66% (137) of those active TB cases were bacteriologically confirmed and the rest were clinically diagnosed. Twelve of the 208 cases (5.8%) were found to be rifampicin resistance TB (Table 1). Overall, the TB prevalence

was 1,756 per 100,000 screened mining workers. All of the diagnosed TB patients were tested for HIV and six (2.9%) were HIV positive.

The identified presumptive TB and active TB cases as well as HIV positive miners could have been missed TB and HIV cases contributing for the ongoing transmission of both epidemics among the pastoralist community. Hence, the finding indicated that the tailored intervention is paramount to identify a significant number of TB cases within the mining population.

Table 1. TB cases identified by screening mining workers in Guji and Borena zones, (December 2015-February 2017)

CHARACTERISTICS	FREQUENCY	PERCENTAGE
Estimated number of mining workers in the area	42,678	
Number of workers screened for TB	11,842	27.7
Mining workers with presumptive TB	1288	10.9
Mining workers tested for TB	1199	93.1
<b>Total TB cases diagnosed</b>	<b>208</b>	<b>17.3</b>
- Number of bacteriologically confirmed TB cases diagnosed	137	65.9.0
- Number PTB smear negative diagnosed	40	19.2
- EPTB diagnosed	19	9.1
- Rifampicin-resistant TB	12	5.8

## CHALLENGES

Thousands of workers from all over the country travel to these traditional gold-mining areas. There was no proper shelter, so workers lived in very crowded, temporary shelters. Sex workers also travel to these areas because there is a high cash flow, which poses a challenge for TB control because the sex workers

move from one mining field to another. Seasonally, the miners go back to their birthplace and this mobility makes it difficult for TB treatment follow-up.

A circular migration between communities and mine locations can increase the risk of TB transmission,

treatment interruption, and treatment failure. The crowded living and working environments, possible high HIV transmission, and mobile population require a special strategy, and a tailored, high impact intervention.

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## WAY FORWARD

The prevalence of 1,756 TB cases per 100,000 screened miners is seven times the WHO threshold for a health emergency, and is also nearly nine times the incidence rate in the general population of Ethiopia. These could have been missed TB cases in the mining community, and continue to fuel the transmission of TB in the general population. The evidence from this

targeted implementation of active case finding strategies should be used to guide national program priorities to enhance case finding. A multi-sectoral approach is needed to address TB in such settings. The targeted intervention was critical in reaching and diagnosing the mining workers with TB cases and should be scaled up in other mining areas in Ethiopia.

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