

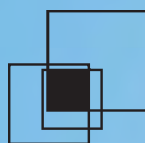


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# Informal Gold Mining in Mongolia

A Baseline Survey Report Covering Bornuur  
and Zaamar Soums, Tuv Aimag



Informal Economy, Poverty and Employment

**Mongolia Series** | Number 1



**Informal Economy, Poverty and Employment**

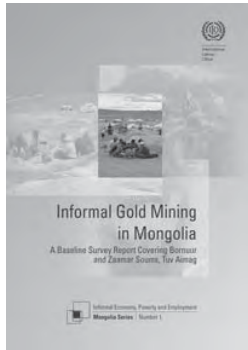
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# **INFORMAL GOLD MINING IN MONGOLIA:**

A Baseline Survey Report Covering Bornuur  
and Zaamar Souns, Tuv Aimag

T. Navch, Ts. Bolormaa, B. Enkhtsetseg,  
D. Khurelmaa, B. Munkhjargal

International Labour Office



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## Foreword

In recent years, an increasing number of Mongolians has turned to informal gold mining for their livelihood. This is because a number of environmental and economic factors have reduced rural income opportunities, decimated livestock herds and led to rising unemployment in both rural and urban areas. These people see few alternatives to gold mining, which offers the hope of earning higher income.

However, the working conditions in informal gold mining pose serious risks to the miners' health and safety. The unorganized nature of the operations, insufficient structural support, the lack of personal protective equipment and the extreme climate exacerbate these hazards. Injuries are frequent and severe, sometimes fatal. It is not only the men and women who mine for gold; children of these miners are also involved in the mining process. Most children in mining do not go to school, a situation that reduces their future opportunities for productive and decent work while putting their health and safety at risk.

The International Labour Organization (ILO) and the Mongolian Employers' Federation (MONEF) are working together in the Informal Gold Mining Project to address the most pressing problems – child labour and occupational safety and health – while moving toward creating a policy framework that allows informal gold miners to operate in a way that benefits all partners.

There is a need to address gaps in the existing regulatory framework in order to provide proper livelihood opportunities for informal gold miners.

The project is aimed at: (a) facilitating dialogue with and between informal gold miners, formal mining companies and authorities in the field and at the central level; (b) initiating contracts of cooperation between formal mining companies and small-scale mining businesses; (c) removing children from work and improving their educational opportunities; (d) providing older children with vocational training for the transition from labour-intensive hazardous work into decent and more productive work; and (e) enhancing the capacity of national bodies in rescue operations and improvement of occupational safety and health (OSH) in small-scale gold mining.

This baseline report, part of the Informal Gold Mining Project, is the outcome of research undertaken by the Population Teaching and Research Centre (PTRC) of the National University of Mongolia from July to August 2004 in Bornuur and Zaamar soums, Tuv aimag, Mongolia.

We view this report as an important contribution to the ongoing policy discussion on the future of this sub-sector. We hope its findings enhance the knowledge base and contribute to identifying actions that central and local authorities need to take on issues such as child labour and occupational safety and health.

We would like to acknowledge the contribution of – and express our sincere thanks to – the researchers of PTRC in Mongolia for their thorough work, and the informal gold miners, employers and managers of mining companies, officials of the local administrations in Bornuur and Zaamar soums for sharing their experiences and views with the researchers. We would also like to thank the staff of MONEF, and Mr Bijoy Raychaudhuri, Ms Malin Hansson, Ms Ginette Forgues, Ms Sandra Yu, Ms Shurenchimeg Zokhiolt and Ms Mongolmaa Norjinkham of the ILO for their contribution to the development of the research methodology, design of questionnaires, data analysis and finalisation of the report.



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## Some Terms

### About Mining

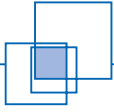
**Artisanal gold mining:** Gold mining activities, both formal or informal, that are small-scale and labour-intensive, usually un-mechanised apart from perhaps a water pump or a compressor. Artisanal gold miners do not typically hold exploration licences or mining licences.

**Placer gold:** Loose pieces of gold (dust, nuggets etc.) deposited by gravity along with other heavy minerals in alluvial sediments (gravel, sand, silt, clay) deposited by water in rivers/streams/lakes/seas or by wind in deserts. Placer gold is also found in loose hillside rubble ('*screes*').

**Placer gold mining:** Mining of gold-bearing sediment, such as gravel, sand, silt or clay, generally deposited by rivers and streams, or sometimes on hillsides as *screes*. The sediments are often geologically recently deposited, and therefore found beneath floodplains or terraces, but many are ancient 'paleoplacers' that may be tilted and uplifted as hills.

**Large-scale placer gold mining:** The valuable placer layer is usually close to the surface. Large-scale commercial mining uses draglines, bulldozers, scrapers, mechanical shovels and hydraulic excavators to strip off the non-profitable overlying material (overburden) to reveal the placer layer. The placer layer, commonly called the 'pay-gravel', is then excavated and then fed into a wash-plant where gold causes the heavy gold to settle out with the black sand. Often the placer is below the water table, therefore large and small dredges can be profitable. Often overburden is too thick to strip off, but nowadays few large underground placer mines exist in the world. In Mongolia, some placer mines are now 50 metre-deep open pits.

**Small-scale placer gold mining:** The valuable placer layer need not be close to the surface. As these are essentially un-mechanised operations, rather than stripping off the overburden, the overburden is left intact. Instead a shaft is dug manually to reach the placer layer (pay-gravel). Shafts are usually only a few metres deep (three to five metres), but many are now of considerable depth (20 to 30 metres or more). From the bottom of the shaft, a network of tunnels is dug underground to remove the pay-gravel that is then hauled up the shaft. As the material is generally loose, dipping is rapid and requires only picks, scrapers and shovels, occasionally with small hammers and wrecking bars. Tens to hundreds or even



thousands of shafts may be sunk and large areas honeycombed with subterranean tunnels. If the placer has been partially eroded, then it can be tunneled directly without needing any shafts. Many small-scale placer gold mines are re-mining gold-rich 'waste' (overburden and tailings) left behind by large-scale mining or by small-scale mining – in these situations, some of the remaining material can be at the surface.

**Hard-rock gold mining:** The gold is found within a rock ore, such as a quartz vein, and the gold bearing vein is often not as close to the surface as in placer mining. After open-cut surface mining of a vein, deep shafts are often needed to follow the vein downwards. As the mining is in hard-rock, digging is slow, and requires sledgehammers, chisels and wedges, sometimes with compressed air drills, and often, large amounts of explosives. Unlike placer ore, hard rock ore requires crushing and milling to produce a fine powder to release the gold and so allow the gold to be settled by gravity in water. Even so, mercury is commonly added in large quantities in order to extract gold from the milled washed ore.

### About Mongolia

**Aimag:** Province/state within Mongolia.

**Bag:** Village, a subdivision of a *soum*.

**Soum:** District in rural areas, the administrative unit below aimag.

**Horoo:** Lowest administrative unit in the capital city, Ulaanbaatar.

**Ger:** A traditional Mongolian tent commonly used by herders and informal gold miners at placer sites.

**Lan – gold measurement unit:** 1 lan = 37.301 gramme

**Tsen – gold measurement unit:** 1 tsen = 3.7301 gramme

### Currency (Code) and Exchange Rate

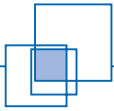
Tugrik (MNT) per USD = 1184MNT (as of August 2004).

## Executive Summary

The main findings of the survey are:

### About children

- The average age of the children engaged in gold mining is 15, most of them boys.
- Among all the interviewed children in gold mining, 75 percent attended school, 15 percent did not go to school and 10 percent had graduated from school. In Bornuur Soum, half the gold-mining children attended school, 30 percent did not attend school and 20 percent graduated from compulsory school. In Zaamar Soum, 83 percent attended school, 15 percent did not attend school and 10 percent had graduated from compulsory school.
- Of those households with children that can be considered migrant households, 83 percent were not registered in the soum. For one-third of these children, gold mining was the main reason for migration. Others migrated along with their parents, relatives and friends.
- One-third of the children mine gold throughout the year and half do so mainly during summer vacations. The remaining mine gold occasionally. One-third of all children covered by the survey respond that they had been mining gold without any day off in the course of seven days preceding the survey.
- The children working at the hard rock site in Bornuur are engaged in digging holes, and crushing and carrying stones. Alarming, 60 percent of these children were also involved in amalgamation with mercury and about 30 percent handle explosives. At the placer gold mining site in Zaamar, the children undertake tasks such as digging, washing the gold, carrying water and gravel and digging holes. In both soums, children work underground and sometimes in water, under extreme cold in the winter and in strong sunshine in the summer.
- The survey estimates that one in every eight children have been involved in accidents. The most common ones are caused by tunnel collapse and involve falling into holes.
- About 30 percent of the children say they face stress and pressure. The biggest pressures were from the fear of being beaten, verbal abuse and



not being allowed to mine by the police officers and security troops of mining companies.

- One-fifth of the children covered by the survey reported having a health problem since they took up gold mining. The most common health problems are aches in limbs and the backbone, kidney and urinary diseases and exhaustion.
- About half of the children assess their working situation as very poor due to the difficult and hazardous working conditions.
- An overwhelming percentage of the children are unaware of safety and health measures and standards that are required for mining activities.
- The children mine an average of 2.5 grammes of gold per week. Children at the hard-rock sites in Bornuur mine up to twice the amount of gold mined by those at the placer site in Zaamar per week. Children sell the mined gold for cash.
- One in every 10 children claim that the income they earn from mining gold is the main source of income of their families. More than half of all interviewed children state that their earnings contribute significantly to the family's livelihood.
- Majority of the children engaged in informal gold mining do not want to continue their work because of the tough work and the high risk of injuries and damages in mining activities.
- The children covered by the survey expressed the need for the retraining of children working at the gold mine sites, training on safety measures, health service units and a centre for proper entertainment and leisure activities and a kindergarten for young children.
- The children covered by the survey said that they would very much like to obtain basic education and vocational training.
- The nature and circumstances of the work by children in informal gold mining classifies child labour in informal gold mining as hazardous child labour – one of the worst forms of child labour. Urgent measures need to be taken to prevent and eliminate child labour in informal gold mining.

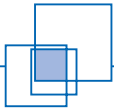
### **About adults**

- Mainly young men are involved in informal gold mining. Most of the respondents were married and had lower secondary and upper secondary education.
- Most of the miners of Bornuur and Zaamar are migrants from Bulgan, Orkhon-Uul, Darkhan-Uul, Ulaanbaatar, Khuvsgul, Selenge and Tuv aimags. They have been staying in the two soums relatively permanently, the average duration of their stay being 2.5 years. One-third of these respondents are willing to move to other destinations in search of higher gold profit in other mining sites.
- Most of the informal gold miners live in gers or tents, and have no access to electricity, sewage and garbage removal sites. In Zaamar soum, more



than half of all informal gold miners live in gers (54 percent). In Bornuur soum, 36.4 percent live in tents as most of the informal miners there live in a house or apartment in the center of the soum.

- According to the survey, the tasks and processes in informal gold mining require that a group of people work together. More than half of the respondents work together with their friends and 40 percent work together with their families and relatives. Less than 10 percent of the respondents work with new acquaintances. These group formations provide opportunities for establishing formal partnerships that can be registered and subsequently apply for land to operate on (which would be possible if the draft law is adopted).
- The miners at placer sites in Zaamar work in average of 6.5 days per week, while hard-rock miners in Bornuur work in average of 4.5 days per week.
- The working conditions in informal gold mining work are difficult, the safety standards inadequate, and tools and protective equipment are often insufficient. Consequently, there are many accidents and many miners report that their health has deteriorated since they started to mine. In addition, the informal gold miners' awareness of safety and health is low.
- The informal gold miners are exposed to many negative factors in their environment such as climate-related ones (too hot or cold, humid), surrounding conditions (dusty, dirty, noisy), hazards related to working underground, in water and with explosives and the use of toxic chemicals, bad behaviour or habits (alcoholism, smoking, drugs), poor food supply and hygiene, violence, harassment and pressure.
- Because they stand long hours in loose placer and water, miners at placer sites in Zaamar often suffer from pains in limbs and the backbone, kidney and urinary diseases as well as exhaustion. Miners working at the hard-rock sites also have nasal and throat problems, injuries in legs and arms, and face the risk of mercury poisoning.
- Since there are no toilets and washing facilities near the gold mining sites, sanitation and hygiene standards are not met. These pose health threats to people at the mining areas.
- More than one-third of the miners say they are exposed to pressure and violence. In a hard-rock site in Bornuur, miners have problems with local hooligans and drunk miners. Miners at the placer site in Zaamar say that they are pressured or even menaced by policemen (33 percent), security guards (13 percent), local hooligans (8 percent) and other informal gold miners. These people often beat them (24 percent), demand money (22.3 percent), force them to leave (21.3 percent), verbally abuse them (16.7 percent) and rob them (12.7 percent). More than half of the informal gold miners claim that they feel pressured by formal gold miners and their companies.



- The survey shows that informal gold mining is the key income source of the interviewed households. Many of them state that they are better off since they started mining.
- A majority of the informal gold miners prefer to work with others and they often collaborate with friends, family members, relatives and neighbours.
- Most of the informal gold miners want to join an organization that can protect their rights. They also state that informal gold mining should be regulated.

### Other findings

- The noticeable increase in informal gold mining poses a major challenge for many rural areas. The human and financial resources of the local administration are insufficient to handle these challenges – for example, most informal gold miners are not registered in the soum where they work. This partly explains why informal gold miners have limited access to social services such as health and emergency care, education and banks.
- The local administrations believe that organizing the informal gold miners by giving them legal status is the best solution to existing problems. Therefore, a law should be drafted and implemented. Such law should reflect how land should be allocated to informal gold miners, how they should be registered, how safety and health should be ensured and who will be responsible for the after-mining rehabilitative measures.
- The main conflict between the informal gold miners and formal mine companies is over the theft of gravel by the informal gold miners in the mining companies' concessions. At the same time, the companies recognise that although informal gold mining is illegal, it is a key livelihood source for many people. Therefore, the mining companies are in favour of regulating informal gold mining, rather than eliminating it.
- The management of the companies stressed that multilateral issues related to informal gold mining such as safety and health, technology, environment and tax issues should be addressed in the law.
- The procedure of selling and buying informally mined gold involves several stages. The mined gold is bought by local gold buyers who sell it to small gold dealers from urban areas. The small gold dealers in their turn sell the gold further to big gold dealers, who sell it to Korean and Chinese clients. The survey stresses the fact that the mined gold does not go to Mongol Bank, but is instead 'lost' overseas.
- During the survey, it was observed that gold miners are interested in selling gold to commercial banks. However, the law on the procedure of gold purchase needs to be revised so that the needs of informal gold miners are met. Considering the lack of opportunities for gold miners to travel to urban areas, legal mediators or mobile bank services could be introduced. Such interventions would also help to keep the gold within Mongolia.

## 1

## Introduction

### 1.1 Background

The informal gold mining sub-sector is very large for Mongolia, a country with a small population, and is expanding rapidly. Informal mining is associated with both alluvial (referred to as ‘placer’ here) and rock deposits, and takes place in many aimags<sup>1</sup>. A report by the Mongolian Business Development Agency and Eco-Minex International estimates that there are about 100,000 people involved in informal gold mining or 20 percent of the rural workforce. Therefore the positive impacts on employment generation, poverty alleviation and contribution to the rural and national economy are proportionately greater in Mongolia. There are also indications that informal gold mining is becoming more mechanised and established.

As Mongolia is rich in gold deposits, it is predicted that the income opportunities from gold mining will continue to attract people for many years to come. Since 1994, gold production has been increasing every year and totalled about 82 tonnes in the 1994-2002 period. Current annual gold production exceeds 13 tonnes (Eco-Minex International). Although it has some positive impacts, informal mining in Mongolia is generally unregulated and highly labour-intensive. It takes place in unsafe and hazardous working conditions. Areas with placer mining tend to be overcrowded and unhygienic, there are high levels of alcohol abuse and, often, there is no access to emergency and health services.

Mining involves a number of potentially dangerous processes. In hard-rock mining, the risks are associated with the use of explosives, tunnel collapse, and crushing and milling of the ore. Mercury is used in the amalgamation process to separate the gold from the ore and this poses multiple health risks arising from skin exposure to metallic mercury, inhalation of mercury vapour, and entry of mercury into the food chain and drinking water supply. In placer gold mining, the main risks are associated with burning of rubber tires, collapse of tunnels, and falling into open pits. Informal mining intensifies during winter when the land is frozen, the risk of collapse is less, and the pits are warmer compared to harsh weather conditions outside. In the summer, many informal miners in hard rock mining move to placer sites.

Informal gold miners use a limited range of protective gear, such as gloves and waterproof rubber boots and clothes. They rarely use protective measures when digging holes or tunnels and when handling explosives. Though they

<sup>1</sup> Hard-rock gold mining is still confined to Selenge and Tuv aimags, while for placer gold mining the concentration is strongest in Selenge, Ovorkhangai, Arkhangai, Tuv, Bayankhongov and Bulgan aimags.

understand the risks associated with mercury, their knowledge of safe handling methods is limited.

Another feature of informal gold mining is the open conflict that erupts at times between formal registered gold mining companies and informal gold miners. Very few informal gold miners have the legal right to mine gold. In most cases, they mine within concessions held by formal mining companies. This has angered formal gold mining companies holding legal concessions and they sometimes hire security staff to chase away the informal miners.

A substantial number of children work in informal gold mining. Child labour and school drop-out rates in communities where informal gold mining takes place are serious and intertwined concerns. The very hazardous nature of the work in this sub-sector means that it has to be classified as one of the worst forms of child labour.

## 1.2 Policy and legislation

Currently, policies and regulations on mining of minerals are not designed to regulate informal gold mining. Therefore there are very few practical possibilities for informal gold miners to mine legally. This has severe consequences for their well-being and for the environment. It furthermore creates conflicts between informal miners and formal mining companies.



The Mineral Law of Mongolia (1997) is the principal governing legislation for mineral prospecting, exploration and mining. Under this law, two types of licences – namely, exploration licence and mining licence – are needed to mine gold. In theory, informal miners can hold licences, but in reality there are several practical obstacles for individual miners to obtain them. Consequently, the informal gold mining sub-sector is not only informal, but also to a large extent illegal.

The existing law is clearly inadequate to handle the emerging gold mining sub-sector. Informal miners do not have a common voice or anyone to represent their interests and concerns in policymaking. A new bill has been submitted to the Mongolian Parliament for discussion. It is hoped that a new law will give informal gold miners an opportunity to become formal artisan miners if they have an exploration or mining licence and permit (temporary permission) from the local government.

### 1.3 Objectives of the survey

'The informal gold mining sub-sector in Mongolia: A comprehensive sector-based project to prevent and eliminate child labour and improve the situation of informal gold miners (IGM project)', funded by ILO and implemented by MONEF as the main partner, started in July 2004.

The aims of this joint project are (i) to increase employers' role in eliminating and preventing hazardous child labour in informal gold mining, (ii) to address ways of improving the situation of those working in the sub-sector, and (iii) to improve relations between formal gold mining companies and informal gold miners.

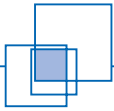
Two soums were selected for focused pilot interventions: Bornuur and Zaamar. Both soums are in Tuv aimag.

Bornuur soum, located 100 kilometres from Ulaanbaatar, has a population of 4,516 living in 1,088 households. (NSO, 2003) The soum is divided into four bags. Most locals engage in hard rock mining at a hill named Sujigt, 32 km from the soum centre. Deposits earlier used by a gold mining company are now being explored by local miners. There are still only a few formal companies, although the number of large companies has slightly increased. Locals have been mining for a longer period here compared to in other soums.

Zaamar was, until the mid-1990s, a soum consisting of agriculture workers and livestock farms. By 2001, agriculture and livestock no longer provided income for the people and most of them turned to informal gold mining.

The soum is rich in gold resources, and people mine mainly from placer. People come to Zaamar soum to mine gold from all over Mongolia. Located 350 km from Ulaanbaatar, the soum has a registered population of 5,429. About 3,000 people who work in informal mining here are not registered in the soum.

A baseline survey was conducted in the two pilot soums of Tuv aimag in July-August 2004 to collect data and information on informal gold mining. The objectives were:



- 1) To provide empirical data based on how to define the intervention strategy and priorities, as well as to plan and implement effective actions and influence the policy process towards an appropriate regulated and functioning sector.
- 2) To set a benchmark for changes that can be measured in the context of the project. To this end, the baseline survey data will facilitate monitoring and evaluation exercises during and at the end of the project cycle.
- 3) To capture activities and services in the soums related to informal gold mining operations and the labour market at large to explore the possibilities of employment diversification and skills training opportunities.
- 4) To focus on the engagement of children in informal gold mining and other forms of child labour that may exist, in order to see if children in mining areas are involved in more than one type of work considered to be among the worst forms of child labour.

# 2

## Design of the survey

### 2.1 Sampling

The baseline survey was conducted using a random-sampling method. Two project pilot areas, Bornuur and Zaamar soums, were selected as basic units of the survey.

**Table 2.1 Expected sample size of the survey**

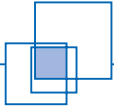
| No | Questionnaire form                    | Bornuur   | Zaamar     | Total      |
|----|---------------------------------------|-----------|------------|------------|
| 1. | Form 1: Adult questionnaire           | 50        | 300        | 350        |
| 2. | Form 2: Child questionnaire           | 10        | 30         | 40         |
| 3. | Form 3: Local authority questionnaire | 12        | 15         | 27         |
| 4. | Form 4: Employer questionnaire        | 5         | 15         | 20         |
| 5. | Form 5: Intermediary questionnaire    | 3         | 10         | 13         |
|    | <b>Total</b>                          | <b>80</b> | <b>370</b> | <b>450</b> |

### 2.2 Questionnaires

The questionnaires were developed jointly by the survey team, National Project Coordinators of ILO projects in Mongolia, advisors from the ILO Sub-regional Office in Bangkok and staff of MONEF.

The structure of the questionnaires:

1. Adult questionnaire
  - General characteristics
  - Living condition
  - Migration
  - Work arrangement
  - Working condition
  - Occupational safety and health
  - Income and productivity
  - Perception on children
  - Perception on future
  - Organization



2. Child questionnaire
  - General characteristics
  - Living condition
  - Migration
  - Occupational safety and health
  - Income and productivity
  - Perception
2. Local authority questionnaire
  - Issues on registration
  - Supply and access of social services
  - Capacity of local authorities and their roles
3. Employer questionnaire
  - General characteristics
  - Relations between informal gold mining companies and informal gold miners
4. Intermediary questionnaire
  - Location
  - Purchase and sale of gold
  - Profit

### **2.3 Pilot study**

In order to test and modify the design and structure of the first versions of the survey questionnaires, a pilot survey was conducted at Bornuur soum. The draft questionnaires were revised and finalised based on the result of the pilot survey and pre-testing of a data processing programme.

### **2.4 Training**

A one-day training course was held for supervisors and interviewers. The main purposes of the training course were to provide overall guidance to explain the sampling design, stages of the survey, concepts and definitions of the terms used in the questionnaire. During the training, a manual was distributed among interviewers.

### **2.5 Data collection and processing**

Survey team members and third- and fourth-year demography students of the PTRC were recruited as supervisors and interviewers. It should be noted that administrative officers of these two soums greatly supported the survey work.

The survey team and students checked and edited all the completed questionnaires. The Integrated System for Survey Analysis (ISSA) was used for data entry and the Statistical Package for Scientific Survey (SPSS) software computer packages was used for data processing. The survey report was written by team members.



## 2.6 Coverage of the survey

Data in the existing administrative lists were insufficient for identifying the total number of miners, and where they work and live. This is because a large number of the informal gold miners are not registered by the local authorities. In order to get the approximate number of informal gold miners we contacted the local governor, environmental inspectors and bag governors who work with informal gold miners more closely. In Bornuur soum, it is estimated that about 500 people take part in mining activities, mostly around Sujigt hill. In Zaamar soum, about 3,000 people are in informal gold mining.

The enumeration of workplaces such as Darkhan Alt, Khujaagiin Khonkhor ‘Chinese Hollow’, Toost and Khailaast was done and a random sampling was made. The samples represented about 10 percent of the informal gold miners. According to the Eco-Minex International, children constituted about 10 to 15 percent of informal miners.

The survey did not estimate the number of children working in informal gold mining in Bornuur and Zaamar soums because the sample size for doing such estimations was too low. However, it is the impression of the research team that the percentage of children working in mining in Bornuur and Zaamar soums are lower than the estimation of Eco-Minex International.

**Table 2.2 Coverage and results of the interviews**

| No | Questionnaire   | Bornuur          |          |           | Zaamar           |          |           |
|----|-----------------|------------------|----------|-----------|------------------|----------|-----------|
|    |                 | Estimated Number | Selected | Completed | Estimated Number | Selected | Completed |
| 1  | Adult           | 500              | 50       | 50        | 3000             | 300      | 300       |
| 2  | Child           | –                | 10       | 10        | –                | 30       | 30        |
| 3  | Local authority | 12               | 12       | 12        | 15               | 15       | 15        |
| 4  | Employer        | 10               | 5        | 1         | 20               | 15       | 10        |
| 5  | Intermediary    | 10               | 3        | 3         | 30               | 10       | 10        |

## 2.7 Some problems in the field

Although attempts were made to anticipate and prevent likely field problems, some problems still surfaced.

The field work was conducted by the end of July, which is just after Naadam (one of Mongolia’s main holidays). Many people were on the move at that time, so this reduced the number of interviews to some extent.

Some parents were reluctant to mention that their children were working in gold mining and did not want them to participate in the interview. In such cases, the interviewers explained the purpose of the survey to the parents and in most cases were allowed to interview the children.

# 3

## Issues relating to adults engaged in informal gold mining

According to an ILO report, the informal sector is mostly composed of self-sustaining production units and activities with low income, productivity and skills. These have low levels of technology and little organization. The informal sector’s link with other economic sectors is weak. (ILO, 2000a). Based on this definition, participation in the informal sector is a result of forced necessity rather than of choice. This holds true for people engaged in informal gold mining. This chapter describes in detail the livelihood and income of informal gold miners, factors that lead them to engage in such work, work organization, work conditions, labour tools, labour safety and health, hygiene and other aspects of their lives. The results are presented for both soums, taking into account the different types of mining sites: gold mining at hard-rock sites in Bornuur soum and placer-mining sites in Zaamar soum. Some of the findings are based on the type of mining.

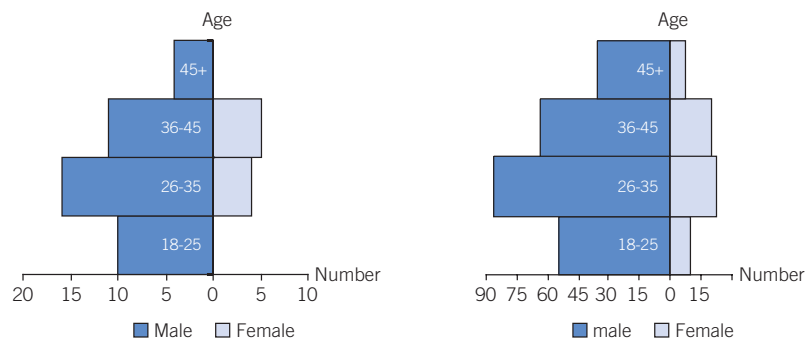
### 3.1 Overall profile of informal gold miners

Of the adult respondents of the survey, 14 percent or 50 mine gold at hard-rock sites in Bornuur soum in Tuv aimag and the remaining 86 percent or 300 do placer mining in Zaamar soum.

Figures 3.1a and 3.1b present the age and sex structures of the respondents engaged in informal gold mining.

**Figure 3.1a. (Left)**  
Informal gold miners by age groups and sex, Bornuur

**Figure 3.1b. (Right)**  
Informal gold miners by age groups and sex, Zaamar



Most of the survey respondents (86.4 percent) are under 45, with the number of men (80.6 percent) exceeding women (19.4 percent) by as much as four times. The average age of miners is 33 at hard-rock gold mining sites, and 34 at placer mining sites.

There is no substantial difference in the marital status of informal gold miners in Bornuur and Zaamar soums. A majority of them (78 percent for Bornuur and 67.7 percent for Zaamar) are married, less than 10 percent are divorced and the rest of them were never married (Table 3.1).

**Table 3.1 Percentage distribution of the adult population covered by the survey, according to socio-economic and demographic characteristics by soum**

| Characteristics  | Soum         |              |
|--|--------------|--------------|
|  | Bornuur      | Zaamar       |
| <b>Marital status</b>  |              |              |
| Single   | 18.0         | 25.3         |
| Married/Living together                                      | 78.0         | 67.7         |
| Separated/divorced/widowed                                   | 4.0          | 7.0          |
| <b>Educational level</b>                                     |              |              |
| None/Primary (1-4 grade)                                     | 4.0          | 8.3          |
| Lower secondary (5-8 grade)                                  | 28.0         | 41.7         |
| Upper secondary (9-10 grade)                                 | 34.0         | 33.0         |
| Technical/Special vocational                                 | 30.0         | 12.3         |
| Higher   | 4.0          | 4.7          |
| <b>Profession</b>  |              |              |
| Unskilled  | 62.0         | 56.0         |
| Industry   | 0.0          | 4.3          |
| Agriculture  | 12.0         | 10.3         |
| Education  | 0.0          | 2.0          |
| Engineer/technician  | 16.0         | 19.0         |
| Construction   | 8.0          | 3.7          |
| Other  | 2.0          | 4.7          |
| <b>Number of people living in the household</b>              |              |              |
| 1-3  | 16.0         | 26.0         |
| 4-6  | 70.0         | 44.0         |
| 7+   | 14.0         | 30.0         |
| <b>Average number of people living in the household</b>      | <b>4.8</b>   | <b>5.6</b>   |
| <b>Average number of the family members in the household</b> | <b>3.6</b>   | <b>2.7</b>   |
| <b>Total</b>   | <b>100.0</b> | <b>100.0</b> |
| <b>Number</b>  | <b>50</b>    | <b>300</b>   |

By education level, most of the informal gold miners (62 percent at the hard-rock sites in Bornuur and 74.7 percent at the placer sites in Zaamar) graduated from lower secondary and upper secondary schools. Compared with Bornuur soum, the number of informal gold miners with no education is double in Zaamar soum (4 percent) while the number of those with vocational and higher education (17 percent) is less than twice. Yet the percentage of informal gold miners with

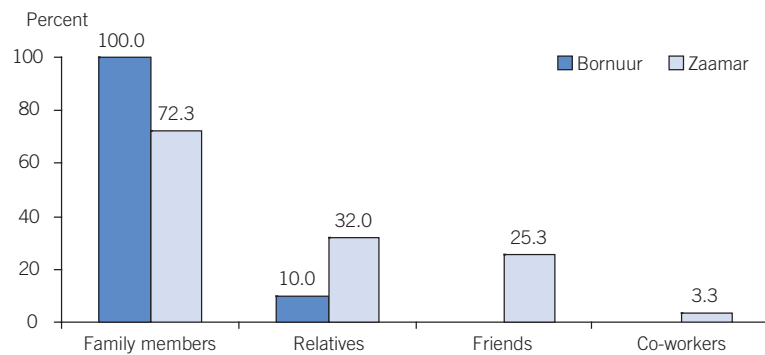
no education or with primary education is still low (4 percent for Bornuur and 8.3 percent for Zaamar). As a matter of fact, most of the informal gold miners have completed compulsory school – a fact that provides good opportunities for disseminating information, awareness campaigns and professional training.

In Bornuur, 62 percent of the miners are professionally unskilled, compared with 56 percent in Zaamar. Among the informal gold miners who have professional skills, most are trained in agriculture and engineering.

On average, those working in hard-rock informal mining in Bornuur live in a household of four to five people, three to four of who are family members. At the placer mining site in Zaamar, the number of persons living in the same household is higher (five to six), but the size of the miners' own family is smaller (2.7).

Figure 3.2 shows the relationships of the miners who are living together. In cumulative terms, gold miners living with their immediate family members, relatives, friends and work partners were found to be common in Zaamar.

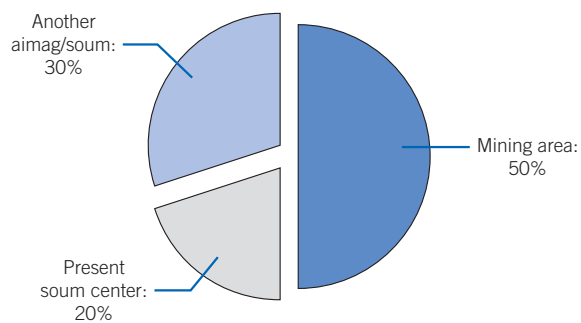
**Figure 3.2** Percentage distribution of the adults according to the relationship to the people living in the same household by soum



### 3.2 Living conditions of informal gold miners

Half of the informal gold miners live in the vicinity of mines or at mining sites while 20 percent live in the soum centre and 30 percent come from other aimags and soums (Figure 3.3).

**Figure 3.3** Percentage distribution of the adults according to the permanent place of living



Among the respondents in Bornuur, a higher percentage or 64 percent live in the soum centre. For Zaamar soum, the highest percentage or 55 percent live in the vicinity of the mining site. Four-fifths of the gold miners at hard-rock sites in Bornuur soum are locals while four-fifths of those at placer mining sites in Zaamar are in-migrants.



When it comes to housing, most respondents live in gers and tents. Informal gold miners in Zaamar soum generally live in a ger (54.9 percent). In Bornuur soum, 36.4 percent live in tents as the informal miners in Bornuur have permanent houses/apartments in the soum centre. See Table 3.2a. Almost all of their housing (93.7 percent) is privately owned or free of charge.



**Table 3.2a Percentage distribution of respondents living in the mining area according to the housing conditions by soum**

| Living conditions                               | Soum         |              |
|---|--------------|--------------|
|   | Bornuur      | Zaamar       |
| <b>Type of dwelling</b>                         |              |              |
| House   | 27.3         | 3.0          |
| Ger   | 18.2         | 54.9         |
| Tent  | 36.4         | 37.2         |
| Hovel/Hut/Car                                   | 18.2         | 4.9          |
| <b>Electricity</b>                              |              |              |
| Yes   | 27.3         | 6.7          |
| No  | 72.7         | 93.3         |
| <b>Having toilet and/or disposal place</b>      |              |              |
| Yes   | 45.5         | 12.8         |
| No  | 54.5         | 87.2         |
| <b>Distance to source of the drinking water</b> |              |              |
| Less than 500 metres                            | 45.4         | 25.0         |
| 500-1000 metres                                 | 27.3         | 18.9         |
| 1-5 km  | 27.3         | 47.5         |
| More than 5 km                                  | 0.0          | 8.6          |
| <b>Total</b>                                    | <b>100.0</b> | <b>100.0</b> |
| <b>Number</b>                                   | <b>11</b>    | <b>164</b>   |

Majority of the gold miners living in the vicinity of mines have no access to electricity (93.3 percent for Zaamar and 72.7 percent for Bornuur) and no designated toilet, sewage and garbage sites (54.5 percent for Bornuur and 87.2 percent for Zaamar). The nearest school and hospital are more than 10 km away (27.3 percent for Bornuur and 56.1 percent for Zaamar). More than half of the informal gold miners never go to the soum centres and only a third occasionally visit the centres. This might be due to the availability of basic services in the vicinity of the mine sites (Figure 3.4). Compared with informal gold miners in Zaamar, the miners at the hard-rock site in Bornuur have better living conditions as they are closer to sources of clean drinking water and the soum centre and have favourable ecological settings and surrounding environment. The details of living conditions and how they impact on the health and work of informal gold miners are shown in Section 3.6.

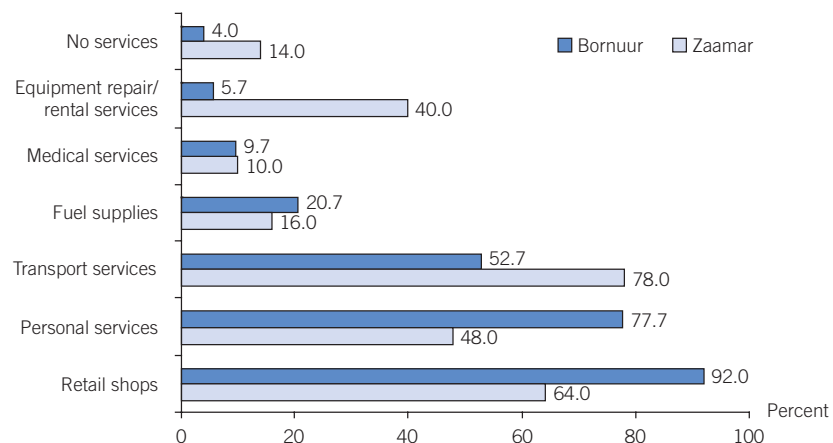
Table 3.2b shows the percentage of respondents living in the mining area according to the duration of work in gold mining by type of dwelling and soum.

**Table 3.2b Percentage distribution of the respondents living in the mining area according to the duration of work in gold mining by type of dwelling and soum**

| Type of dwelling   | Soum         |              |              |                       |              |              |              |                       |
|--------------------|--------------|--------------|--------------|-----------------------|--------------|--------------|--------------|-----------------------|
|                    | Bornuur      |              |              |                       | Zaamar       |              |              |                       |
|                    | House        | Ger          | Tent         | Hovel/<br>Hut/<br>Car | House        | Ger          | Tent         | Hovel/<br>Hut/<br>Car |
| Less than 6 months | 0.0          | 0.0          | 0.0          | 0.0                   | 0.0          | 30.0         | 32.8         | 25.0                  |
| 6 months - 1 year  | 0.0          | 50.0         | 25.0         | 0.0                   | 20.0         | 13.3         | 19.7         | 25.0                  |
| 2-3 years          | 33.3         | 0.0          | 0.0          | 0.0                   | 40.0         | 36.7         | 27.9         | 50.0                  |
| 4 and more years   | 66.7         | 50.0         | 75.0         | 100.0                 | 40.0         | 20.0         | 19.7         | 0.0                   |
| <b>Total</b>       | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b>          | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b>          |
| <b>Number</b>      | <b>3</b>     | <b>2</b>     | <b>4</b>     | <b>2</b>              | <b>5</b>     | <b>90</b>    | <b>61</b>    | <b>4</b>              |

The table shows that the type of dwelling varies notably by the duration of informal gold miners' work at their present locations. The longer the informal gold miners work at a place, the more comfortable their dwelling becomes. Those working at gold mining sites for a shorter period mainly live there on a temporary basis, which is evident from the type of dwelling they have. More than half of the respondents working at gold mines for less than one year live in tents/hovels/huts.

Respondents to the survey were asked about available services to find out about their housing and living conditions in more detail. The results are shown in Figure 3.4.

**Figure 3.4** Percentage distribution of the respondents according to the available services at working place by soum


As seen in Figure 3.4, personal services like ger shops, transportation, canteens and hairdressers are most available in the vicinity of all mining areas (48-92 percent). Furthermore, there is access to petrol stations and repair and maintenance as well as rental services of labour tools at the mining site.

### 3.3 Migration of informal gold miners

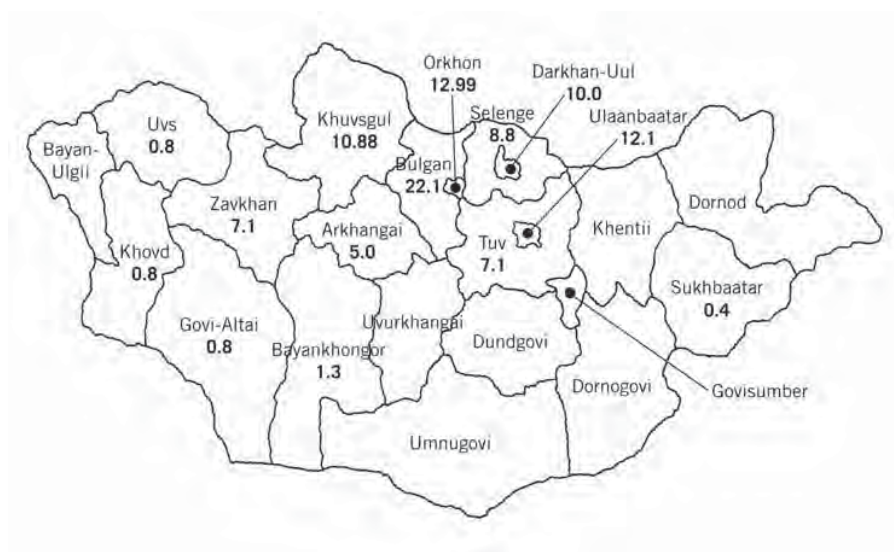
This section deals with migration patterns, the distance people have moved, length of stay, numbers of migrants and movements.

According to international experience, there are techniques and methods to define migration movement. For instance, people who have permanently moved from their place of birth to other places any time in their lives are classified as life-time migrants. Also, migration can be identified based on whether the person has moved during the preceding one to five years. This study classifies movements in the last five years as migration. Hence, those who have been living at the present place for less than five years are defined as migrants, and those living at the present place for more than five years are treated as non-migrants. Although the one-year period could be used to define migration, because informal gold miners frequently move from one place to another, a five-year period has been selected as a criterion.

#### 3.3.1 Migration status

Gold mining has been attracting people in recent years, so that they have been moving from rural and urban areas to places where gold mine sites are located. Of the total informal gold miners in Bornuur and Zaamar, 18 percent or 9 persons and 80 percent or 240 people respectively are in-migrants. The migrants in Bornuur moved from Ulaanbaatar (six people) and Selenge Aimag (two people) and Darkhan-Uul Aimag (one person). Most of the migrants in Zaamar came from Arkhangai, Bayankhongor, Bulgan, Govi-Altai, Zavkhan, Sukhbaatar, Selenge, Tuv, Uvs, Khovd, Khuvsgul, Darkhan-Uul, Orkhon aimags (78 percent) and Ulaanbaatar (12.1 percent). (see Figure 3.5) Migrants usually come from aimags that are relatively near the soums where gold is mined.

**Figure 3.5** Percentage distribution of in-migrants to Zaamar according to origin







Informal gold miners tend to move together with their families (Table 3.3). The miners who migrated with spouses and children account for 55.5 percent in Bornuur soum and 76.3 percent in Zaamar soum.

**Table 3.3 Percentage distribution of migrants, according to the migration characteristics and reasons by soum**

| Characteristics                                      | Soum     |            |
|--|----------|------------|
|  | Bornuur  | Zaamar     |
| <b>Migration characteristics</b>                     |          |            |
| Alone  | 44.4     | 28.7       |
| With family:   |          |            |
| Husband/wife/children                                | 55.5     | 76.3       |
| Parents  | 0.0      | 6.7        |
| Other relatives                                      | 0.0      | 23.3       |
| Friends  | 22.2     | 21.2       |
| <b>Reasons for migration</b>                         |          |            |
| Chased by mining company                             | 0.0      | 7.5        |
| Better opportunity for gold output                   | 77.8     | 62.0       |
| Followed family/relatives/friends/co-workers         | 11.1     | 2.5        |
| Improve living standard/earn money/looking for a job | 11.1     | 41.2       |
| Looking for customers/services                       | 0.0      | 0.4        |
| <b>Number</b>  | <b>9</b> | <b>240</b> |

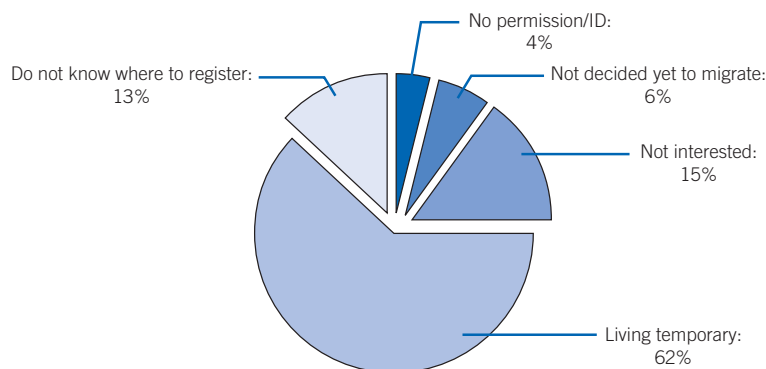
Note: Answers are multiple

The highest percentage of migrant gold miners (77.8 percent in Bornuur and 62 percent in Zaamar) reported having moved because of more opportunities for mining gold. At the same time, the in-migrants, driven by their search for opportunities to improve their livelihood and earning bigger incomes, account for a high percentage (41.2 percent) in Zaamar soum. It can be concluded that people, particularly those with low education and professional skills, are increasingly turning to informal gold mining due to the shortage of employment opportunities.

Of the total in-migrants engaged in informal gold mining, 88.9 percent in Bornuur soum and 92.1 percent in Zaamar soum are not registered with their destination areas. Most of the unregistered migrants (75 percent in Bornuur and 53 percent in Zaamar) have been mining gold for just up to one year at the destination site.

The highest percentage of the migrants (62 percent) was not registered because their moving was still temporary (Figure 3.6). This is followed by the migrants who are not interested in registration (15 percent) and those who do not know how to get registered (13 percent). The findings show that migrants are unaware of their entitlement to social services if they register on a temporary basis. Advocacy should be taken to raise their awareness of how to register and what benefits registration can have for them.

**Figure 3.6** Percentage distribution of the non-registered respondents according to reasons for not registering



Registration in the destination area entitles migrants to access social services and allows them to protect their rights. The Government of Mongolia issued Resolution 47 dated March 4, 1996 to systematise the registration of the population and their movements. According to the resolution, migration into destination areas for more than 180 days should be seen as lifetime migration and migration for less than 180 days as a temporary move. Lifetime and temporary migrants must compile the required documents and register with the administration (governor’s office) in destination areas. Migrants should compile the claims submitted to respective bag and horoo, supporting documents that certify the claims (certification/reference of employer), civic certificates and children’s birth certificates. Their lifetime and temporary migration should be recorded in the registration book of the origin territory. Likewise, migrants intending to stay more than 30 days should be registered with the destination areas within seven days.

### 3.3.2 Change in mine sites and future migration

Around 60.3 percent of respondents have been mining on the same site for more than two years. The respondents at the hard-rock site in Bornuur have been mining gold more than 3.8 years on average, which is 1.3 years longer compared to the respondents at placer mine sites in Zaamar (Table 3.4). With regard to the change of gold mine sites since January 2004, 86 percent of the miners in Bornuur soum remained at the same site. In Zaamar, 55.6 percent of the miners changed sites with 29.3 percent moving to new sites one to two times and 26.3 percent moving three or more times. Thus, miners in Bornuur have a relatively more stable stay at the sites than the Zaamar miners.

**Table 3.4 Percentage distribution of the respondents according to the duration working in gold mining and previous experience in gold mining by soum**

| Characteristics   | Soum         |              |
|---|--------------|--------------|
|   | Bornuur      | Zaamar       |
| <b>Duration working in gold mining</b>                      |              |              |
| Less than 6 months  | 10.0         | 29.7         |
| 6 months - 1 year   | 6.0          | 14.0         |
| 2-3 years   | 26.0         | 30.3         |
| 4 and more years  | 58.0         | 26.0         |
| <b>Average number of years working at present place</b>     | <b>3.8</b>   | <b>2.3</b>   |
| <b>Previous experience of working in gold mining</b>        |              |              |
| Yes   | 24.0         | 27.7         |
| No  | 76.0         | 72.3         |
| <b>Frequency of settlement changes since 1 January 2004</b> |              |              |
| No changes  | 86.0         | 43.7         |
| 1-2 times   | 12.0         | 29.3         |
| 3 and more times  | 2.0          | 26.3         |
| Do not remember/do not know                                 | 0.0          | 0.7          |
| <b>Total</b>  | <b>100.0</b> | <b>100.0</b> |
| <b>Number</b>   | <b>50</b>    | <b>300</b>   |

Of the miners in Bornuur and Zaamar soums, 14 percent and 35 percent respectively want to move to a different mine site. In response to a question on when they intend to move, they replied that they would do so relatively soon. For example, 42.8 percent and 62.9 percent of such miners in Bornuur and Zaamar respectively said they would do so within three months (Table 3.5). There are quite a few miners who do not know yet when to move to another site (14.3 percent for Bornuur and 31.4 percent for Zaamar). This is related to the fact that informal gold miners are constantly on the move, looking for high-yielding gold sites.

**Table 3.5 Percentage distribution of the respondents who intend to move according to the expected period by soum**

| Expected period of moving        | Soum         |              |
|----------------------------------|--------------|--------------|
|                                  | Bornuur      | Zaamar       |
| Within 3 months                  | 72.8         | 62.9         |
| After 4-6 months                 | 14.3         | 3.8          |
| After 7-9 months                 | 0.0          | 0.9          |
| After 10-12 months               | 14.3         | 0.9          |
| After period of more than 1 year | 14.3         | 0.0          |
| Not sure                         | 14.3         | 31.4         |
| <b>Total</b>                     | <b>100.0</b> | <b>100.0</b> |
| <b>Number</b>                    | <b>7</b>     | <b>105</b>   |

To conclude, informal gold miners in Bornuur are relatively less migratory compared to those in Zaamar. Therefore, there is a better environment in Bornuur for registration of informal gold miners and the organization of such activities as advocacy, social and health insurance coverage.

### 3.4 Work arrangements

Informal gold mining involves a lot of risks and uncertainty. All procedures of gold mining such as digging, blasting, carrying, processing, selling and storing have risks related to health, safety, sanitation, theft and threats.

The findings show that it is difficult to engage in mining on one's own, and therefore informal gold miners work in groups. More than half (60 percent) of the miners at placer mining sites in Zaamar cooperate with their friends, 40 percent with their family members and relatives and less than 10 percent with their acquaintances. The respondents mining gold on their own are very few and account for only 4 percent. At the hard-rock site in Bornuur, 66 percent work with their friends, 52 percent with relatives, 30 percent with families and 12 percent with acquaintances.

Every tenth person mines gold on his/her own. On average, six persons work together at the hard-rock site in Bornuur and four people mine gold together at the placer site in Zaamar. The respondents said collective work has many advantages, such as facilitating labour, providing protection from outsiders' threats and having some leisure or rest time together. Working in a team or a brigade leads to a unified arrangement and paves the way for the establishment of cooperatives of manual gold miners at the primary stage.



Similarly, miners join efforts to find gold mining sites or holes. Three-fourths of the miners at the placer site in Zaamar and over 90 percent of those at the hard-rock site in Bornuur search gold mine sites or holes together with their families. One-fourth of them at the Zaamar placer site get hold of such sites through local residents or other informal gold miners and few (3 to 6.7 percent) get access to gold mine sites or holes by word of mouth from people knowledgeable about such sites. At the hard-rock site in Bornuur, one-fifth of the miners is informed of the sites or holes by locals and other informal gold miners and 2 to 10 percent by people knowledgeable about such sites.

Although gold mining and processing are practised in collective efforts or labour, gold miners' engagement in different stages of mining varies, depending on tasks, types of gold sites and sex. For instance, gold miners at hard-rock sites in Bornuur have to participate in main stages such as digging holes, lifting and carrying gravel and water, washing gold, transporting or carrying stones, explosion, amalgamating gold with mercury. At placer sites in Zaamar, the three main activities are digging holes, carrying water and gravel and washing gold (Table 3.6).

**Table 3.6 Percentage distribution of informal gold miners according to the type of work, sex and soum**

| Type of work              | Soum      |          |            |           |
|---------------------------|-----------|----------|------------|-----------|
|                           | Bornuur   |          | Zaamar     |           |
|                           | Male      | Female   | Male       | Female    |
| <b>Mining</b>             |           |          |            |           |
| Digging a hole            | 92.7      | 66.7     | 96.3       | 61.0      |
| Fetching water/soil       | 68.3      | 44.4     | 91.3       | 76.3      |
| Drilling                  | 65.8      | –        | 0.4        | –         |
| Transporting ore          | 63.4      | 44.4     | 3.3        | 1.7       |
| Explosion work            | 70.7      | –        | 0.8        | –         |
| <b>Processing</b>         |           |          |            |           |
| Crushing                  | 73.2      | 44.4     | 5.4        | 1.7       |
| Milling                   | 31.7      | 44.4     | 2.1        | –         |
| Digging and panning gold  | 56.1      | 55.5     | 90.5       | 94.9      |
| Amalgamating with mercury | 46.3      | 66.7     | 1.2        | –         |
| <b>Number</b>             | <b>41</b> | <b>9</b> | <b>241</b> | <b>59</b> |

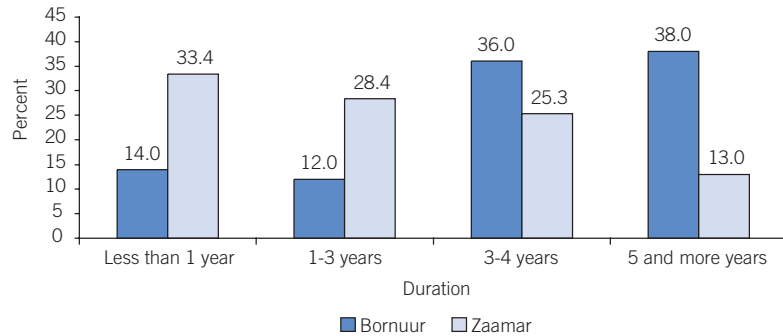
Note: Answers are multiple.

While men are more engaged in mining, women predominantly participate in gold processing. Compared to women, men at the hard-rock sites in Bornuur are more involved in mining activities. In Bornuur, the female involvement in amalgamating gold with mercury is 66.7 percent, compared with the male participation of 46.3 percent. This means that efforts to raise awareness on the safe use of mercury must also focus on women.



Figure 3.7 shows the timing or duration of gold mining activities.

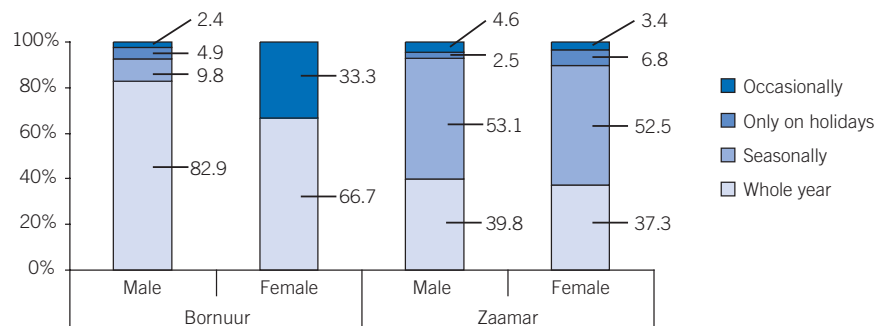
**Figure 3.7** Percentage distribution of the respondents by the duration working in gold mining by soum



At the hard-rock sites in Bornuur, three quarters of the miners have been working three or more years. At the placer sites in Zaamar, the duration is less than three years for most of the miners. The miners at the hard-rock sites have been working for an average of 3.7 years and those at the placer sites for 2.2 years.

According to the survey results, informal gold mining is labour-intensive. People work long hours into the night, all year round, to mine and process gold. Of the respondents at the hard-rock site in Bornuur, 80 percent have worked throughout the year, whereas 50 percent and 40 percent of them at placer sites in Zaamar work on a seasonal basis and throughout the year, respectively. The proportion of respondents who take up gold mining during holidays is low at only 8 to 12 percent. In the summer there are more miners. Men tend to work all the year round while women are engaged on a temporary basis. Figure 3.8 shows the difference between Zaamar and Bornuur and men and women when it comes to period of work.

**Figure 3.8** Percentage distribution of the respondents according to the period that miners work mostly by sex and soum



There is gender diversity in the labour division in mining and processing. Men tend to be responsible for most of the physically more strenuous work. As women need time to care for their families and children, they are more engaged in temporary gold mining and processing.

The survey reveals that the miners at the placer sites in Zaamar work almost every day of the week (6.5 days/week) whilst workers at the hard-rock sites in Bornuur work 4.5 days per week on average. There is some gender discrepancy in the number of working days; at the placer sites in Zaamar men worked all seven days while women worked six days. At the hard-rock sites in Bornuur, men and women worked 4.5 and 4.4 days respectively. However, in terms of workload, women are overloaded as they fulfil multiple tasks such as gold mining, caring for the family, housework and cooking. Women are also involved in the extremely hazardous task of mercury amalgamation.

About 90 percent of miners at placer mining sites in Zaamar work without a day off, but this is the case with only 40 percent of miners at hard-rock sites in Bornuur. The difference in durations and numbers of working days is explained by the nature of work at hard-rock and placer sites. Although the miners at the hard-rock sites work fewer days than miners at the placer sites, their working conditions are relatively more complicated and tough, requiring more time for rest to get over fatigue and exhaustion.

As mentioned earlier, informal gold miners face many risks. As the survey findings show, their living standards are relatively poor and income generation unstable. Because of the seasonality of their employment, they sometimes do more than one job at the same time. Apart from mining, a third of the miners in Bornuur and a fifth of the miners in Zaamar have secondary jobs. Almost 90 percent of the miners at the hard-rock sites in Bornuur are self-employed and a small percentage is made of up herders. In Zaamar, 70 percent of the miners with secondary jobs are self-employed, 20 percent are herders, and 11 percent are public servants. Further, the survey explored whether the miners were engaged in service and production in the nearby areas of the mine sites in addition to gold mining. The results show that 10 percent of the miners in Bornuur and 8.7 percent of the miners in Zaamar have secondary employment such as retailing, private and transportation services.

### **3.5 Work equipment**

The Constitution and the Labour Law in Mongolia contain statements on occupational safety and health (OSH) and they are enforced by government agencies. However, in case of the informal economy, there is a lack of funding, opportunities and awareness of ensuring OSH. An ILO study on the informal sector reveals the necessity of integrated actions aimed at protecting the health of employees, social security and creation of employment places (Morris, 2001).

Most of the miners engaged in gold mining emphasised the extremely difficult work conditions and unsatisfactory safety and health measures. Work equipment is lacking and the few available ones do not meet the requirements. Most are engaged in gold mining without any security and safety. Tables 3.7 and 3.8 demonstrate the percentage of the respondents according to the equipment used in gold mining and processing.



The miners at the placer sites in Zaamar mainly use sacks, shovels, ropes and torches, and those at the hard-rock sites in Bornuur apply sacks, torches and shovels.

**Table 3.7 Percentage distribution of the respondents according to the equipment used in mining by soum**

| Equipment     | Soum      |            |
|---------------|-----------|------------|
|               | Bornuur   | Zaamar     |
| Shovels       | 86.0      | 96.3       |
| Small hammers | 80.0      | 62.0       |
| Sledgehammers | 92.0      | 61.3       |
| Ropes         | 72.0      | 92.3       |
| Sacks         | 96.0      | 96.0       |
| Candles       | 88.0      | 91.0       |
| Torches       | 92.0      | 91.3       |
| Other         | 22.0      | 49.3       |
| <b>Number</b> | <b>50</b> | <b>300</b> |

Note: Answers are multiple

For gold processing at the hard-rock sites, crushing mills and plastic bowls are the main equipment. In addition, informal miners use chemical substances such as mercury. Plastic bowls, sacks and shovels are predominantly used at the placer sites.



**Table 3.8 Percentage distribution of the respondents according to the equipment used in processing the gold by soum**

| Equipment              | Soum      |            |
|------------------------|-----------|------------|
|                        | Bornuur   | Zaamar     |
| Shovels                | 64.0      | 36.7       |
| Sledgehammers          | 54.0      | 15.3       |
| Sacks                  | 58.0      | 51.7       |
| Stone/metal anvil      | 62.0      | 7.3        |
| Mortar/milling machine | 72.0      | 0.3        |
| Mercury                | 80.0      | 2.0        |
| Plastic pans           | 76.0      | 97.7       |
| Other                  | 39.3      | 10.5       |
| <b>Number</b>          | <b>50</b> | <b>300</b> |

Note: Answers are multiple

Most of the equipment is owned by the gold miners, but some of the tools are rented and borrowed. In Zaamar, 96.3 percent of the miners replied that they had their own equipment, compared to 68 percent in Bornuur.



Hard-rock mining is more equipment-intensive and it is also more common to borrow and rent the equipment in Bornuur soum than in Zaamar soum. Of the miners at the hard-rock sites in Bornuur, 26 percent use rented equipment and of those at the placer sites in Zaamar, only 1.7 percent do so. The average rental fee is 23385MNT at the hard-rock sites in Bornuur and 9800MNT at the placer sites in Zaamar. Equipment rental fees range from 1000-28000MNT at placer sites in Zaamar, and from 5000 to 70000MNT at the hard-rock sites in Bornuur. The rental fees account for as much as 48.3 percent of the average income of gold miners at the Bornuur hard-rock sites and 35.3 percent at the placer sites in Zaamar.

The use of mills is most common among the miners at the hard-rock sites in Bornuur as hard-rock mining requires crushing of the ore; every third of the miners pays a fee for using the mill.

Besides hiring equipment, the miners also rent out their own equipment. Of the miners at the rock in Bornuur and placer sites in Zaamar, 10.9 percent and 3.1 percent respectively rent out their equipment and earn an average of 12000-34000MNT a week from this.

### 3.6 Occupational safety and health

A number of surveys and research work prove that occupational safety and health in informal gold mining is far from adequate and that the miners' awareness of OSH requirements is very low. Informal gold mining and processing are done under extremely hazardous and difficult conditions. This picture has been confirmed by the informal gold miners covered by this survey.

Most of the miners covered by the survey complained of extremely difficult working conditions, long working hours in the open air and unsatisfactory sanitation and hygiene. They are concerned about possible health deterioration and suffer from occupational diseases. Even though the working conditions are difficult at both sites, the situation is worse for the miners at the hard-rock sites in Bornuur. Almost 82 percent of the miners at the Bornuur hard-rock find their working conditions extremely difficult, compared to 58.7 percent of gold miners at placer sites in Zaamar. The remaining 37 percent said the working conditions were difficult and the remaining small percentage answered that they were reasonable.

The findings on working conditions are demonstrated by sex and soum in Figure 3.9. At hard-rock sites in Bornuur, 82.9 percent of the men and 77.8 percent of the women and at the placer sites in Zaamar, 56.4 percent and 67.8 percent in the same order find their working conditions very poor.

**Figure 3.9** Percentage distribution of the respondents according to the working condition by sex and soum

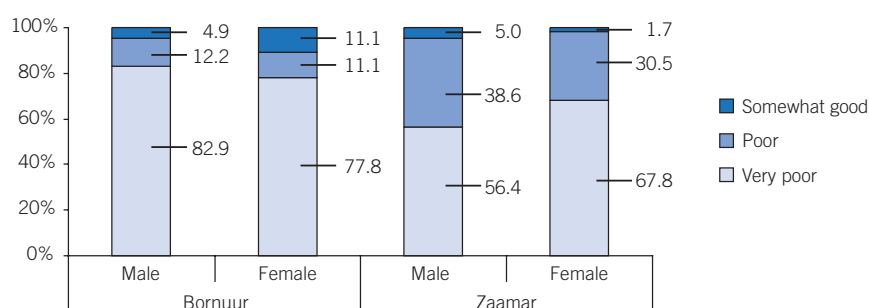


Table 3.9 shows the working conditions of informal gold miners. The miners at the placer sites in Zaamar are concerned with hazards, dust and open-air working conditions (too cold or hot), while those at the hard-rock sites in Bornuur are worried about hazardous, dust and humid conditions.



**Table 3.9 Percentage distribution of the respondents according to working conditions by soum**

| Working condition                        | Soum              |          |            |            |
|--|-------------------|----------|------------|------------|
|  | Bornuur           |          | Zaamar     |            |
|  | Working condition |          |            |            |
|  | Very poor         | Poor     | Very poor  | Poor       |
| Too dusty                                | 85.4              | 66.7     | 81.8       | 85.6       |
| Poor sanitation                          | 24.4              | 16.7     | 35.8       | 61.3       |
| Work mostly outside /too cold, too hot/  | 34.2              | –        | 53.8       | 75.7       |
| No ventilation                           | 51.2              | 33.3     | 50.0       | 48.7       |
| Too humid                                | 58.5              | 50.0     | 52.8       | 49.5       |
| Hazardous                                | 75.6              | 66.7     | 82.4       | 83.8       |
| Other /too noisy, too old equipment etc. | 43.9              | 16.7     | 31.2       | 62.2       |
| <b>Number</b>                            | <b>41</b>         | <b>6</b> | <b>176</b> | <b>111</b> |

Note: Answers are multiple

Due to these poor working conditions, half the gold miners in both soums suffer from health problems. Most common problems are kidney, urinary and respiratory diseases caused by the humid and dusty environment, and limb aches and diseases resulting from frequent lifting of heavy loads.

In addition, tough work often results in tiredness and exhaustion. Health problems differ depending on the type of gold mining sites. In placer mining, working in loose placer and water causes aches or disorders in limbs (29.7 percent), kidneys and urinary systems (23.7 percent) and respiratory organs

(10.9 percent). The most common diseases and problems at the hard-rock sites are related to the kidney and urinary systems (24 percent), aches in limbs (22 percent) and tiredness and exhaustion (20 percent). When the gold miners at hard-rock and placer mining sites are compared, the former are exposed to higher risks of nasal and throat disorders, injury and damage of limbs as well as mercury poisoning.

Table 3.10 shows that respondents who said their working conditions are very poor are more likely to report health problems and accidents at work. Hence, half of the respondents from Bornuur working in hard-rock mining and more than half of the respondents from Zaamar involved in placer mining said that they frequently face health problems because of poor working conditions. Moreover, a fifth of the respondents in Zaamar and a third of those working in Bornuur said they had accidents because of poor working conditions.

**Table 3.10 Percentage distribution of the respondents according to working conditions by soum and by risks**

| Risks                                   | Soum              |              |               |              |              |               |
|---|-------------------|--------------|---------------|--------------|--------------|---------------|
|   | Bornuur           |              |               | Zaamar       |              |               |
|   | Working condition |              |               |              |              |               |
|   | Very poor         | Poor         | Somewhat good | Very poor    | Poor         | Somewhat good |
| <b>Ever faced health problems</b>       |                   |              |               |              |              |               |
| Yes                                     | 43.9              | 16.7         | 33.3          | 55.1         | 23.4         | 7.7           |
| No                                      | 56.1              | 83.3         | 66.7          | 44.9         | 76.6         | 92.3          |
| <b>Ever faced any accidents at work</b> |                   |              |               |              |              |               |
| Yes                                     | 29.3              | –            | –             | 22.7         | 12.6         | 7.7           |
| No                                      | 70.7              | 100.0        | 100.0         | 77.3         | 87.4         | 92.3          |
| <b>Total</b>                            | <b>100.0</b>      | <b>100.0</b> | <b>100.0</b>  | <b>100.0</b> | <b>100.0</b> | <b>100.0</b>  |
| <b>Number</b>                           | <b>41</b>         | <b>6</b>     | <b>3</b>      | <b>176</b>   | <b>111</b>   | <b>13</b>     |



As stated above, informal gold miners often suffer from health problems caused by their working conditions. There is no medical service at all in the area and nearby. Most of the miners answered that they go to the hospital in the nearest soum centre when they get sick. A third of the miners in Zaamar treat themselves and many of the respondents also visit hospitals and doctors in the nearest places (18.3 percent) or approach their family members, friends and relatives for assistance (9.3 percent). On the contrary, the percentage of gold miners who visit hospitals or doctors is high in Bornuur. Of those at the hard-rock sites, 28 percent go to hospital and doctors and 14 percent treat themselves.

Extremely difficult working conditions and hot, cold, rainy, snowy and dusty climates pose risks to miners' health – and their lives. But the majority is not covered by medical insurance and those who do have insurance rarely take advantage of it. This is because many of them are on the move and are not registered with the destination area, and thus lack entitlement to medical insurance. These miners answered that when they get sick, they go to hospital and doctors in their places of origin or in previous places where they had been registered.



**(Left)** In cold conditions



**(Right)** In water

A healthy lifestyle is also determined by diet, nutritious intake and other factors. Access to clean drinking water and eating places are associated with health. Almost 60.7 percent of the miners at the placer sites in Zaamar and 74 percent at the hard-rock sites in Bornuur drink water from springs and the remainder use water from rivers. There are even miners who drink water from ponds (6.0 percent at the placer sites in Zaamar and 1.3 percent at the hard-rock sites in Bornuur).

When the miners were asked where they buy food while working, more than half of those in Zaamar answered that they go to the canteen at the mining sites and almost 40 percent responded that they eat at home or buy from individuals who sell meals. But 96 percent of the miners at the hard-rock sites bring food from home or go back home if it is near the mining sites.

With no toilet and designated sanitation places onsite, sanitation and hygiene requirements are inadequate. Yet, the miners buy the food off hand from individuals at work, adding to their health risks. There are no facilities where the

miners can bathe and wash their clothes. Canteens and individuals who sell food at the mine sites do not meet hygienic conditions at all.

In addition to work conditions and health and sanitation status, social life and habits play an important role in a healthy lifestyle.

Many informal gold miners believe, mistakenly, that alcohol eases stress and mercury poisoning. The miners covered by the survey more or less consume alcohol beverages regularly. Most answered that they drink “sometimes”, but during the survey it was observed that many gold miners more or less consume alcohol on a daily basis. High alcohol consumption stimulates the sales of alcoholic beverages. Almost all ger shops sell alcohol beverages that do not meet the standards and requirements and often have no licence. Most miners pointed out that the situation should be strictly controlled.

When the miners were asked whether anyone among their friends, relatives and co-miners consume drugs, 28.7 percent at the placer sites in Zaamar and two percent at the hard-rock sites in Bornuur answered positively.

Risks in working conditions and health are also caused by violence, stress and discrimination at work. The survey findings reveal not a few cases of stress and violence at work places. Of the miners, 42 percent were victims of violence and stress at the placer sites in Zaamar, compared with two percent at hard-rock sites in Bornuur. Badly-behaved and drunk people put the miners at the rock sites in Bornuur under stress. In Zaamar, violation and stress come from policemen (33.7 percent), security guards (13 percent), local hooligans (8.3 percent) and other informal gold miners (8.3 percent). It is common among the miners to have been beaten (24 percent), bullied for cash (22.3 percent), forced to leave (21.3 percent), verbally abused (16.7 percent) and robbed (12.7 percent). These violations and stresses often push them to work in fear, or work underground, which in turn further increases the risks of accidents.



Table 3.11 shows the violence and abuse that the miners at Zaamar’s placer sites are exposed to. It does not include the findings from Bornuur as such cases are very few. Miners at the placer sites in Zaamar said it is quite common for policemen and security guards to beat them, demand cash and force them to leave the sites. Some policemen and security guards often force the gold miners to do their own work (to clean the police officers’ room, for example).

**Table 3.11 Percentage distribution of the respondents in Zaamar according to violence and abuse informal gold miners face**

| Type of violence and abuse                       | People who violate and abuse |           |                 |                            |       |
|--|------------------------------|-----------|-----------------|----------------------------|-------|
|  | Local hooligans              | Policemen | Security guards | Other informal gold miners | Other |
| Verbal abuse                                     | 0.7                          | 6.0       | 4.3             | 4.0                        | 1.7   |
| Serious beating                                  | 1.3                          | 11.3      | 6.7             | 2.7                        | 2.0   |
| Pillage  | 3.3                          | 1.7       | 1.7             | 4.7                        | 0.3   |
| Demand cash                                      | 0.7                          | 11.3      | 5.7             | 2.7                        | 2.0   |
| Forced to work for them                          | 0.0                          | 6.0       | 3.3             | 1.0                        | 0.3   |
| Not allowed to work                              | 0.3                          | 10.7      | 7.3             | 1.0                        | 2.0   |
| Other (arrest, fine, breaking of equipment etc.) | 0.0                          | 4.7       | 2.3             | 0.0                        | 0.7   |

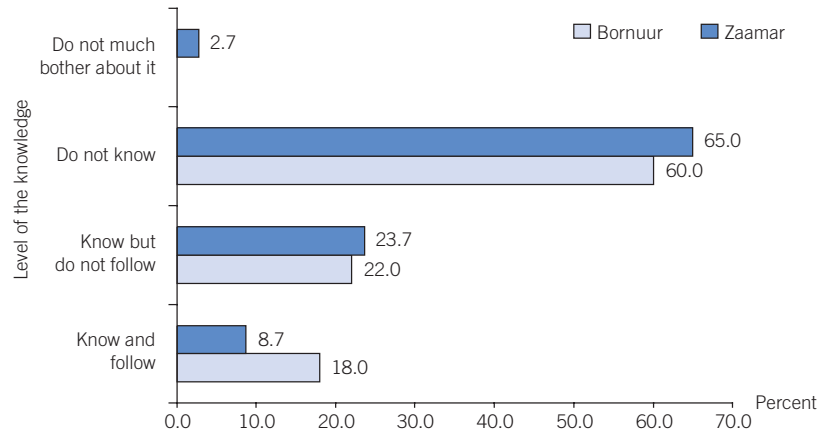
Note: Answers are multiple

There are also cases of informal gold miners verbally abusing, robbing and demanding cash from one another. All these situations clearly create instability at the mining sites. Although informal gold miners are engaged in practices considered illegal, their rights are violated by policemen and security guards as well as other informal miners. The informal gold miners in Zaamar (63.1 percent) mentioned many cases of conflicts between policemen, security guards and informal gold miners, and three-quarters of the informal gold miners reported conflicts among groups of informal gold miners.

The knowledge of safety and health is low among the miners. Figure 3.10 presents the knowledge of the miners at both sites concerning the safety and health standards/requirements. According to the figures, the miners at the hard-rock sites in Bornuur are slightly more aware of safety and health standards.



**Figure 3.10** Percentage distribution of the respondents according to the level of knowledge on safety and health standards/requirements by soum



Most informal gold miners said that there are no opportunities for them to attend any training in safety and standards and that it is high time authorities took due action. Only a few miners know about safe mining techniques. Those miners had gained this knowledge during their previous employment at mining companies, through involvement in training run by projects, by word of mouth from relatives and family members or by studying at universities and vocational schools.

Since the gold miners’ awareness of safety and health standards is low, the application of safety and health tools is also poor. Although there are cases of using such tools, these did not become a common practice as per the survey findings.

Table 3.12 demonstrates the use of personal safety equipment and tools by the respondents by soum. Although safety tools are a must, their application is not adequate among the miners. The use of cloth and rubber gloves, leather boots and cowl are relatively high. But the use of masks and earplugs is low. Generally, the application of all tools is not common among the miners and they often use these items to replace designated tools and clothing. For instance, the miners use cowls and caps to replace the designated earplugs, masks and clothing. Thus, training is necessary to raise the miners’ awareness of safety and health standards and provide the designated clothing and tools. Many miners expressed interest in attending training programmes.

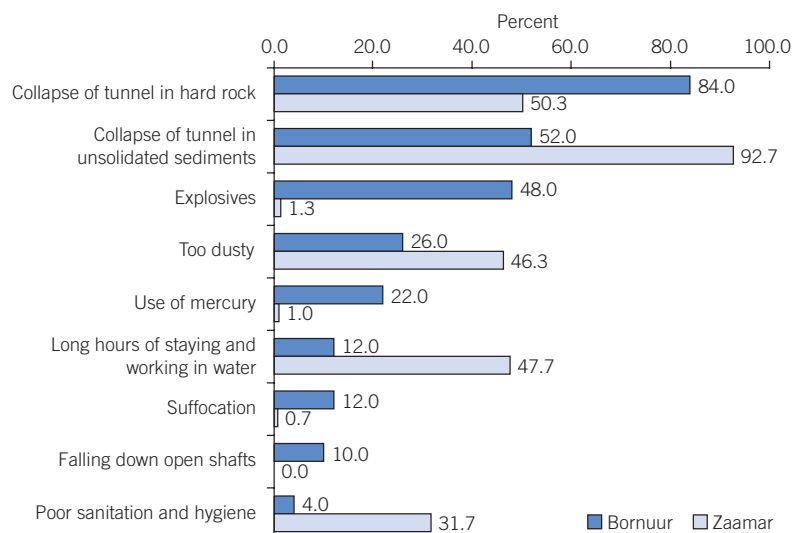
**Table 3.12 Percent of respondents according to use of safety tools by soum**

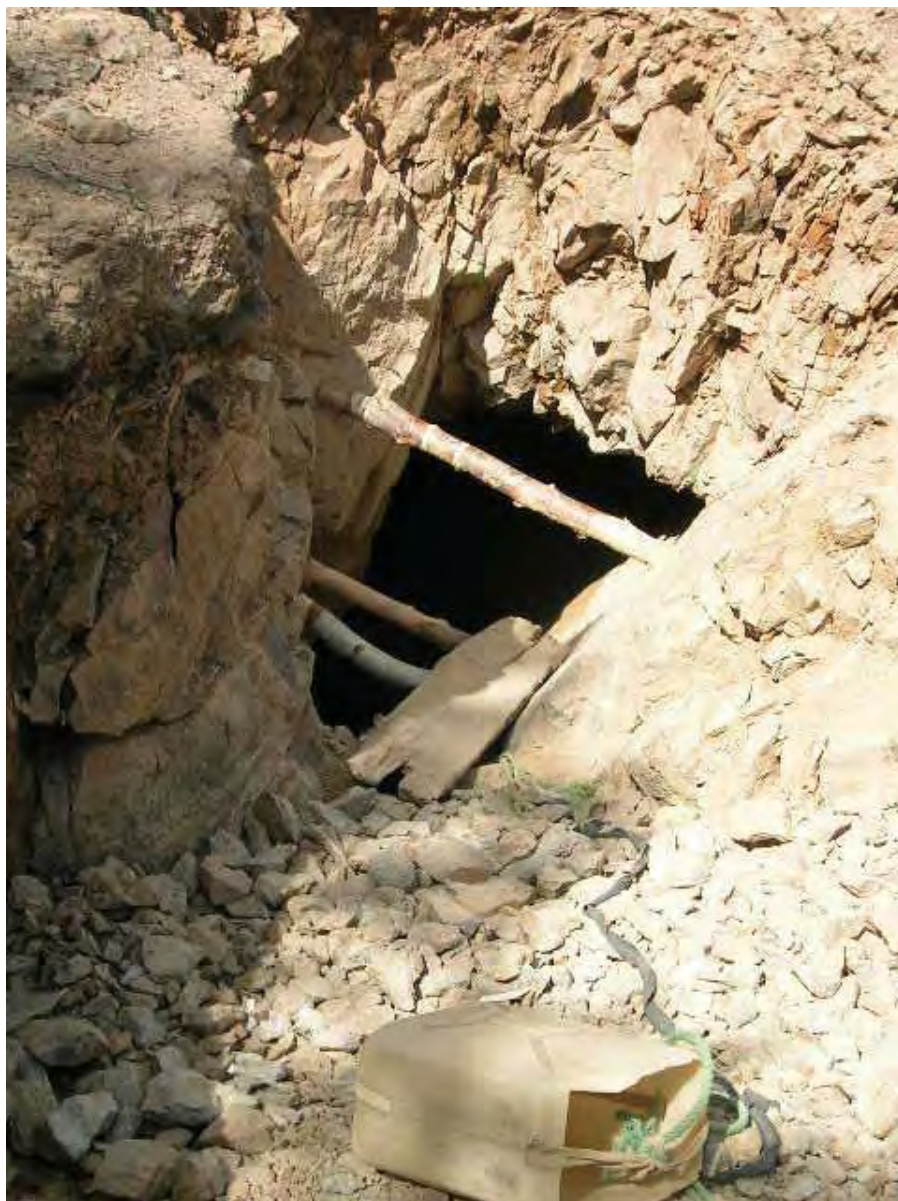
| Safety tools                  | Soum      |        |           |            |        |           |
|-------------------------------|-----------|--------|-----------|------------|--------|-----------|
|                               | Bornuur   |        |           | Zaamar     |        |           |
|                               | Always    | Seldom | Don't use | Always     | Seldom | Don't use |
| Waterproof boots              | 48.0      | 30.0   | 22.0      | 45.3       | 29.0   | 25.7      |
| Cloth industrial gloves       | 94.0      | 0.0    | 6.0       | 83.0       | 5.3    | 11.7      |
| Head covering                 | 14.0      | 20.0   | 66.0      | 3.3        | 1.7    | 95.0      |
| Rubber gloves                 | 20.0      | 22.0   | 58.0      | 74.7       | 16.3   | 9.0       |
| Leather boots                 | 66.0      | 2.0    | 32.0      | 57.7       | 10.3   | 32.0      |
| Face masks                    | 44.0      | 34.0   | 22.0      | 9.3        | 14.0   | 76.7      |
| Earplugs                      | 16.0      | 0.0    | 84.0      | 5.0        | 3.7    | 91.3      |
| Cowl                          | 42.0      | 16.0   | 42.0      | 82.3       | 4.7    | 13.0      |
| Others (belt, footholds etc.) | 2.0       | 0.0    | 98.0      | 1.0        | 0.0    | 99.0      |
| <b>Number</b>                 | <b>50</b> |        |           | <b>300</b> |        |           |

Poor application and scarcity of facilities for safety and health standards contributed to a rise in accidents and deterioration of health among the miners. Accordingly, informal gold miners encountered a number of concerns about their safety and health. For example, their health is often threatened as a consequence of tunnel collapse, falling into open pits and standing long hours in water.

Figure 3.11 shows the miners' major concerns about their safety and health by soum.

**Figure 3.11** Percentage distribution of the respondents according to the most worrying safety problems by soum





At the hard-rock sites in Bornuur, collapse, explosion and dust are major concerns while collapse, standing in water and dust are the most worrisome issues at the placer sites in Zaamar.

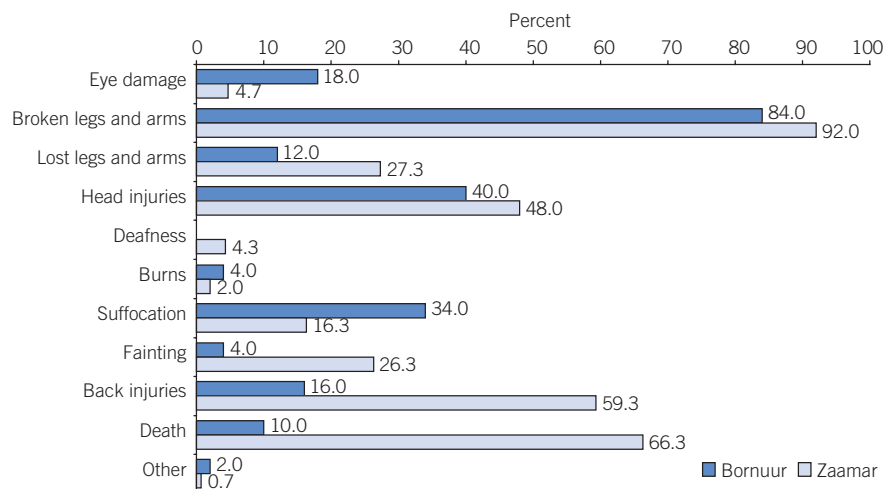
During the interviews, all miners said that they are under constant stress from the risk of tunnel collapse. Furthermore, they said that long hours of standing in water harmed their health. Accidents have been related to collapse of tunnels and working in airless holes and tunnels. By soum, one-fourth of the miners at the hard-rock sites in Bornuur and one-fifth of those at the placer sites in Zaamar have had accidents. Of the total miners covered by the survey at the placer sites in Zaamar, 81.8 percent were involved in accidents as a consequence of collapse of tunnels, and 29.1 percent as a consequence of falling into open pits. These

numbers at the hard-rock sites are 66.7 percent and 50 percent respectively. In addition, 41.7 percent of the miners in Bornuur have been involved in accidents resulting from explosions and poisonous gases. While there are many cases of miners falling into pits at the hard-rock sites in Bornuur, incidents of collapsing tunnels and shafts are also common.

When the miners were asked to whom and where they report and turn to when accidents occur, they replied that in most cases they do not report or turn to anybody.

Furthermore, the miners were asked about what injuries they faced. Almost 50 percent at the placer sites in Zaamar had broken legs and arms, 41.8 percent injured their backbone and 29.1 percent injured their head and/or had concussions. At the hard-rock sites in Bornuur, 41.7 percent had broken legs and arms and 16.7 percent reported falling unconscious in the collapse. Of the miners who fell in accidents, 16.7 percent at the hard-rock sites and 5.7 percent at the placer sites were not injured.

**Figure 3.12** Percent distribution of the respondents according to the most common injuries among the informal gold miners by soum



Of the miners at the hard-rock sites in Bornuur, 72 percent participate in explosives work and many of them (83.3 percent) obtain the explosives from Ulaanbaatar and other aimags and cities. They use ammonite and bullet powder.

About 78 percent of the miners at the hard-rock sites in Bornuur work with mercury in gold processing. One-third of the mercury is bought from gold dealers and shops in soum centres (25.6 percent), Ulaanbaatar and other cities (20.5 percent), and outside traders (12.8 percent). Some miners at the placer sites in Zaamar who use mercury (3 percent of the miners at the placer sites) buy this from gold buyers and shops in soum centres.



Most of the miners at the hard-rock sites in Bornuur (66.7 percent) keep mercury at home. Very few keep it outside the home or in a barn, a cellar and underground.

Users of mercury use various protective measures. For instance, 33.3 percent wear gloves and 29.2 percent wear masks. But the respondents barely keep their children away from mercury. Some drink milk and cover their clothes with outer lining made from cellophane material, and others try not to mix mercury with kitchen utensils. Of the users of mercury, 41.7 percent do not take any protective measures when handling it.

When asked if they knew the harmful impacts and damage from mercury, 94 percent of the miner-respondents at the hard-rock sites in Bornuur responded positively. The percentage was lower for informal gold miners working in placer gold mining in Zaamar (81 percent). This is most probably related to the fact that mercury is seldom used in placer gold mining. However, the miners' responses to how they protect themselves from mercury show that their understanding of safe mercury use is alarmingly low and points to an area that requires immediate action.

Of the miners at the hard-rock sites in Bornuur, 22 percent faced mercury-related health problems. These problems were reported as spots on the skin or allergies, dizziness, aches in limbs and hair loss.

### 3.7 Income

Table 3.13 shows the main income sources of artisanal gold miners and the size of income from gold mining. In both soums, 98 percent of respondents answered that gold mining is their main source of income.

**Table 3.13 Percentage distribution of the respondents by income and soum**

| Income indicators                                      | Soum             |                  |
|--|------------------|------------------|
|  | Bornuur          | Zaamar           |
| <b>Main source of income</b>                           |                  |                  |
| Gold Mining  | 98.0             | 98.0             |
| Work/services at soum centre                           | 2.0              | 2.0              |
| <b>Income from gold mining (MNT*)</b>                  |                  |                  |
| Less than 50,000                                       | 2.0              | 17.4             |
| 50,000-100,000   | 16.0             | 33.0             |
| 100,000-150,000  | 22.0             | 26.3             |
| 150,000-200,000  | 12.0             | 11.0             |
| More than 200,000                                      | 48.0             | 12.3             |
| <b>Average monthly income from gold mining (MNT)</b>   | <b>193,600.0</b> | <b>111,070.0</b> |
| <b>Average amount of mined gold in a week (gramme)</b> | <b>9.2</b>       | <b>3.2</b>       |
| <b>Total</b>   | <b>100.0</b>     | <b>100.0</b>     |
| <b>Number</b>  | <b>50</b>        | <b>300</b>       |

\*1 USD= 1188MNT (according to Mongol bank rate as of August 5, 2004)

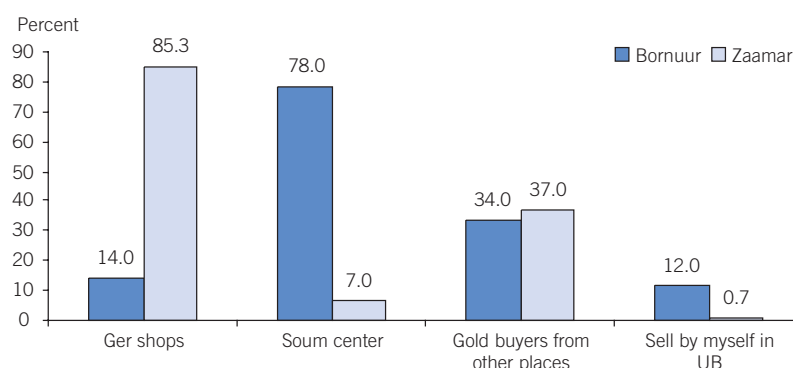
Income size significantly varies between miners at the hard-rock sites in Bornuur and placer mining sites in Zaamar. The hard-rock miners earned an average of 193600MNT during the previous month, which is 82530MNT more than that of miners at placer mining. This mainly has to do with gold reserves and yields at the mine sites. For example, the respondents at the hard-rock mine 9.2 grammes of gold on average a week during the previous month, while this is three times less than for placer miners. The income of the miners during the survey is relatively higher than the average 95000MNT salary of a Mongolian in the second quarter of 2004 as estimated by the NSO. However, this is partly related to the most favourable or high-income timing of the survey. Therefore, it should not be assumed that the miners' incomes are always high.

Their income is also affected by the duration of gold mining. For instance, 79.4 percent of the hard-rock miners who worked more than four years in Bornuur soum and 51 percent of the placer miners in Zaamar soum earned over 100,000MNT on average a month. This figure is lower for those who worked less than one year (75 percent in Bornuur and 50 percent in Zaamar). It should be considered though that for most informal gold miners, about one-third of their income is used for renting equipment.

Few miners reported that they involve their children in their work. All said that they earned over 100,000MNT from gold mining in the last month, while the percentage of miners who have no children or who do not involve their children in gold mining earn about 19 percent less. Whether the children are involved or not in the work does not seem to have a marginal effect on the income of miners in Zaamar soum. Of the miners working with their children, 45 percent earned over 100,000MNT in the last month while this holds true for 50 percent of those who did not involve their children.

Informal gold miners usually sell their gold for cash. Some miners (4 percent in both Bornuur and Zaamar) sell their gold not only for cash but also for other necessities. Informal gold miners usually sell their gold for cash to ger shops, shops at the soum centre and external gold dealers. A small percentage of the respondents go to Ulaanbaatar to sell their gold (Figure 3.13). The percentage of the respondents who sell their gold to ger shops is high at placer mining sites (85 percent), while soum centres are the key destinations for selling gold among the miners at hard-rock sites (78 percent).

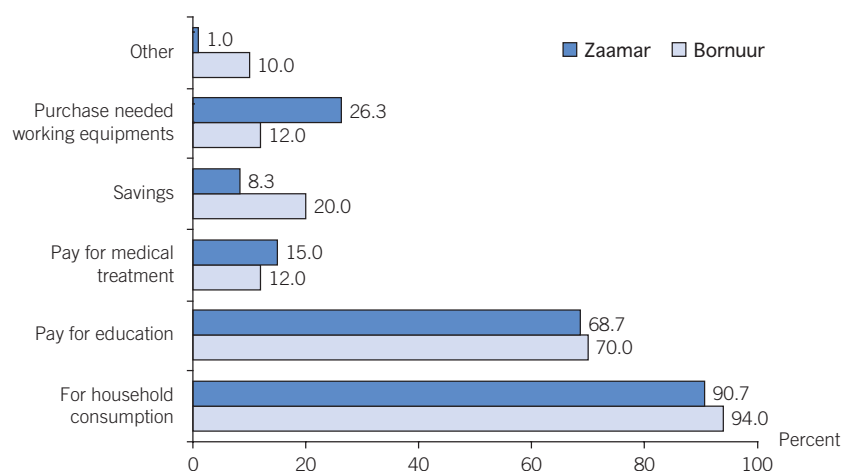
**Figure 3.13** Percentage distribution of the respondents according to the place where they sell gold by soum



Around 4.6 percent respondents have been paying some fee and/or tax on their income from gold mining. However, this is not the case with miners in Bornuur soum. About 3.4 percent paid some fee/tax to policemen and security guards, while 1.2 percent gave payment to local offices and tax inspectors.

The expenditure patterns of the respondents are shown in Figure 3.14. In cumulative numbers, almost all miners (the highest percentage or 94 percent and 90.7 percent respectively) spend their income on household daily needs and more than two-thirds use the income to cover the cost of studies. Twenty-six percent of the miners at the placer mining sites and 12 percent of those at the hard-rock sites spend some of their income on the purchase of tools for mining. The percentage of miners who manage to save part of the income is quite low (8 percent in placer mining and 20 percent in hard-rock mining). However, this can be underestimated, as the respondents usually do not want to give information about their savings.

**Figure 3.14** Percentage distribution of the respondents according to use of the income by soum



According to the survey, living standards of the miners have not decreased since they started gold mining (Table 3.14). Of the miners at the hard-rock sites, 76 percent said they have better living standards. This is twice the number of placer miners who expressed the same views. Obviously, this is associated with their income. In Zaamar, the highest percentage (61.3 percent) goes to those miners who said they have the same living standards as before. Almost none of the miners (1.7 percent) said they have lower living standards.

**Table 3.14** Percentage distribution of the respondents according to the changes in the household livelihood by soum

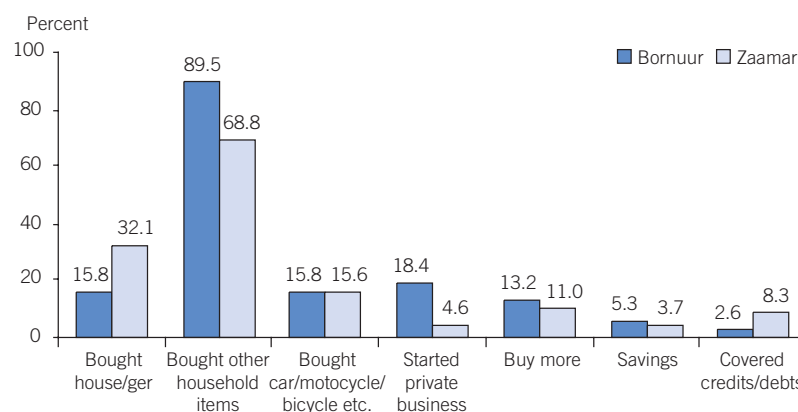
| Changes in the household livelihood due to gold mining | Soum         |              |
|--|--------------|--------------|
|  | Bornuur      | Zaamar       |
| Better   | 76.0         | 36.3         |
| Same   | 22.0         | 61.3         |
| Worse  | 2.0          | 1.7          |
| Do not know  | 0.0          | 0.7          |
| <b>Total</b>   | <b>100.0</b> | <b>100.0</b> |
| <b>Number</b>  | <b>50</b>    | <b>300</b>   |

The miners who said they have better livelihoods were further asked to what degree these improved and the findings are presented in Figure 3.15. Most of them (90 percent in Bornuur and 69 percent in Zaamar) answered that they bought new items for home or purchased vehicles/cars. Interestingly, 18 percent of the miners in Bornuur replied that they are moving toward being able to engage in private business. These findings are, however, not enough to conclude that their livelihoods have improved. For more accurate findings, an in-depth survey should be conducted to analyse and estimate the previous and current consumption patterns of households.

To find out informal gold miners' business potential and the sustainability of livelihood sources if they chose to stop mining gold, they were asked whether they have savings and access to microcredit. Of the gold miners in Zaamar and Bornuur,



**Figure 3.15** Percentage distribution of the respondents who said their livelihood improved after starting gold mining according to the type of improvement by soum



74 percent and 88 percent respectively have failed to make some savings (Table 3.15). A few miners have some savings and keep them at home (18.6 percent in Zaamar and 6 percent in Bornuur). Very few miners have savings accounts with banks and non-banking financial institutions (6.0 percent in Bornuur and 4.7 percent in Zaamar).

**Table 3.15** Percentage distribution of the respondents according to access to savings and microcredit facilities by soum

| Characteristics                              | Soum         |              |
|--|--------------|--------------|
|  | Bornuur      | Zaamar       |
| <b>Have savings</b>                          | <b>12.0</b>  | <b>26.0</b>  |
| <b>Have savings in:</b>                      |              |              |
| Commercial banks                             | 6.0          | 4.0          |
| Non-banking financial organizations          | 0.0          | 0.7          |
| At home                                      | 6.0          | 18.6         |
| Ger shops                                    | 0.0          | 2.7          |
| <b>No savings</b>                            | <b>88.0</b>  | <b>74.0</b>  |
| <b>Have access</b>                           | <b>66.0</b>  | <b>24.3</b>  |
| <b>Have access to microcredit/loan from:</b> |              |              |
| Commercial banks                             | 40.0         | 15.3         |
| Non-banking financial organizations          | 8.0          | 0.7          |
| Relatives/friends                            | 16.0         | 8.3          |
| Other (World Vision)                         | 2.0          | 0.0          |
| <b>No access</b>                             | <b>34.0</b>  | <b>75.7</b>  |
| <b>Total</b>                                 | <b>100.0</b> | <b>100.0</b> |
| <b>Number</b>                                | <b>50</b>    | <b>300</b>   |

The percentage of miners without access to microcredit is 2.2 times higher in Zaamar soum than in Bornuur soum. When this result was correlated with migration status, most of the miners (100 percent in Bornuur and 91.2 percent in Zaamar) who gave such responses were unregistered migrants. With regard to miners who have access to microcredit, commercial banks (40 percent in

Bornuur and 15.3 percent in Zaamar) and relatives and friends (16 percent and 8.3 percent in the same order) are the potential sources of loans.

### 3.8 Perceptions about the future

Among the gold miners in Bornuur and Zaamar, 72 percent and 65 percent respectively expressed the willingness to continue mining (Table 3.16). But the percentage of miners who answered “do not know” is higher (10 percent) in Zaamar than in Bornuur soum.

**Table 3.16. Percentage distribution of the respondents according to the desire for continuation of gold mining by soum**

| Desire for continuation | Soum         |              |
|-------------------------|--------------|--------------|
|                         | Bornuur      | Zaamar       |
| Will continue           | 72.0         | 65.0         |
| Will not continue       | 24.0         | 25.0         |
| Do not know             | 4.0          | 10.0         |
| <b>Total</b>            | <b>100.0</b> | <b>100.0</b> |
| <b>Number</b>           | <b>50</b>    | <b>300</b>   |

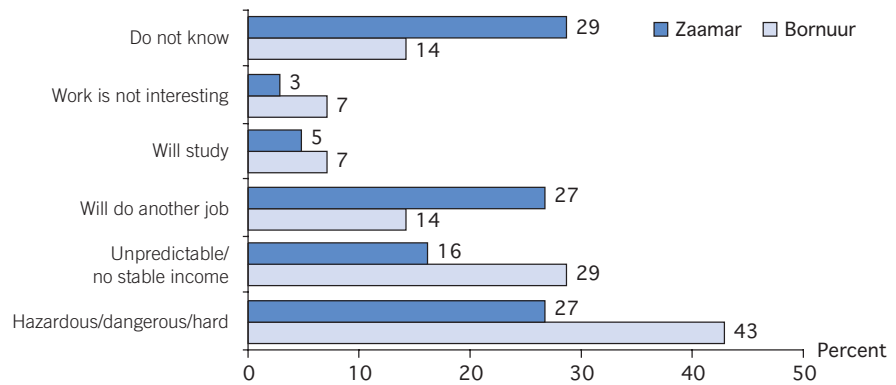
Of the respondents willing to continue gold mining, the majority wanted to pursue this for an indefinite period (Table 3.17). The percentage of such miners is 61.1 percent in Bornuur and 35.4 percent in Zaamar. There are miners who will continue gold mining until the reserve expires or other job opportunities come up (2.8 percent in Bornuur and 19 percent in Zaamar). This finding supports the fact that the miners lack a stable income source and that their sole livelihood source is gold mining. A third of the miners (27.8 percent in Bornuur and 37.9 percent in Zaamar) responded that they plan to mine gold for at least another three years.

**Table 3.17 Percentage distribution of the respondents who would like to continue to work in gold mining, according to intended duration by soum**

| Intended duration   | Soum         |              |
|---------------------|--------------|--------------|
|                     | Bornuur      | Zaamar       |
| Less than 6 months  | 2.8          | 9.2          |
| 6 months - 3 years  | 25.0         | 28.7         |
| 4 and more years    | 8.3          | 7.7          |
| Other               | 2.8          | 19.0         |
| Difficult to answer | 61.1         | 35.4         |
| <b>Total</b>        | <b>100.0</b> | <b>100.0</b> |
| <b>Number</b>       | <b>36</b>    | <b>195</b>   |

When the respondents who are not willing to continue gold mining were asked the reasons for this, 27 percent in placer mining and 43 percent in hard-rock mining referred to difficult and hazardous working conditions or lack of prosperity (Figure 3.16). In addition, some respondents intend to quit gold mining because they have another job opportunity.

**Figure 3.16** Percent of the respondents that do not want to continue working in gold mining according to reason by soum



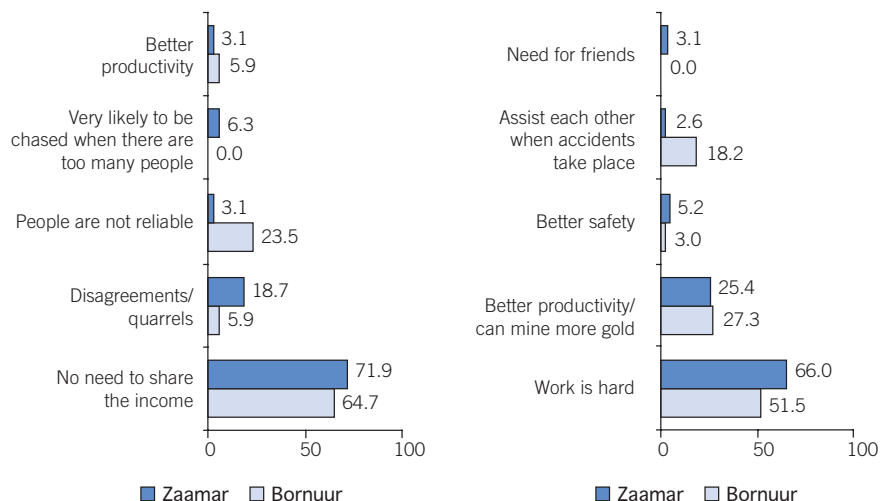
### 3.9 Views about organisation of work, relation to formal mining companies, representation and regulation of informal gold mining

Most informal gold miners prefer working with other miners (66 percent in Bornuur and 89.3 percent in Zaamar) while 34 percent and 10.7 percent in the same order would like to work on their own.

The miners who gave preference to working individually stated as key reasons the fact that they do not need to share incomes with others (65 percent in Bornuur and 72 percent in Zaamar) and that they would like to avoid conflicts that arise from working with others (6 percent and 19 percent respectively) (Figure 3.17a). When the miners' perceptions of advantages of cooperation were clarified, they referred to difficult work (52 percent and 66 percent in respective order) and higher productivity as a result of collaborative efforts (27 percent and 25 percent respectively), as seen in Figure 3.17b.

**Figure 3.17a (Left)** Percentage distribution of the respondents who prefer to work individually according to reason by soum

**Figure 3.17b (Right)** Percentage distribution of the respondents who prefer to work cooperatively according to reason by soum



It is common for informal gold miners to work with friends (92 percent in Bornuur and 84 percent in Zaamar), family members/relatives (74 percent and 70 percent respectively) and with people from the same areas of origin (10 percent and 46.7 percent respectively).

Informal gold miners in Bornuur said they do not have any problems with formal gold mining companies. However, it should be noted that there is only one gold mining company operating in Bornuur. Moreover, it is located far from Sujigt, where informal gold miners usually work. In Zaamar, 84 percent of informal gold miners think that they do not bother the owners of formal mine sites (Table 3.18). But 45.3 percent of informal miners in Zaamar think that formal mining companies cause stress by forcing them to leave the site (26 percent), beating and arresting them (27 percent) and fining and taxing (11.3 percent) them.

**Table 3.18 Percentage distribution of the respondents in Zaamar soum by problems between informal gold miners and mining companies**

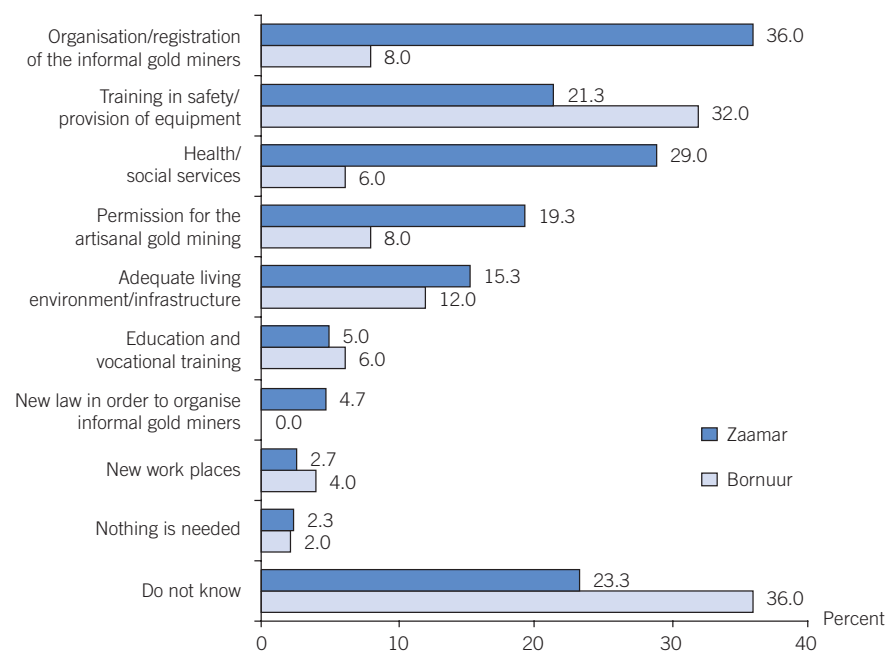
| Characteristics   | Percentage |
|---|------------|
| <b>Problems that informal gold miners cause the gold mining companies</b>     |            |
| Cause problems for mining   | 6.7        |
| Steal gold/soil/firewood  | 5.0        |
| Cause accidents   | 2.0        |
| Quarrels, fights  | 15.7       |
| No problems   | 74.0       |
| Do not know   | 1.0        |
| <b>Violence and abuse informal gold miners face from the mining companies</b> |            |
| Do not allow to work  | 26.0       |
| Get tax and penalty fee   | 11.3       |
| Arrests   | 27.0       |
| Force to work for them  | 3.7        |
| Take away informal gold miners from gold sites                                | 3.0        |
| Break equipments and tools  | 2.7        |
| No violence and abuse   | 45.3       |
| Do not know   | 1.0        |
| <b>Number</b>   | <b>300</b> |

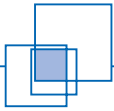
Most informal gold miners (86 percent in Bornuur and 86.7 percent in Zaamar) would like to join an organisation that could protect their rights (Table 3.19). A majority of such miners wish that such an organisation would be represented by a state organisation (46 percent in Bornuur and 62 percent in Zaamar) and some miners (34 percent and 20.7 percent in respective order) want to have non-governmental organisations such as associations, partnerships and cooperatives to represent their interests.

**Table 3.19 Percentage distribution of the respondents according to the desire to join an organisation which could protect rights of informal miners by soum**

| Desire to join the organisation that could protect rights of informal miners | Soum         |              |
|--|--------------|--------------|
|  | Bornuur      | Zaamar       |
| <b>Wish to join:</b>   |              |              |
| Government organization  | 46.0         | 62.0         |
| NGO  | 34.0         | 20.7         |
| Any organization   | 6.0          | 3.7          |
| Other  | 0.0          | 0.3          |
| Do not know  | 4.0          | 0.6          |
| Do not want  | 10.0         | 12.7         |
| <b>Total</b>   | <b>100.0</b> | <b>100.0</b> |
| <b>Number</b>  | <b>50</b>    | <b>300</b>   |

Most respondents think that there should be a special law on informal gold mining (30 percent in Bornuur and 56.3 percent in Zaamar) and that informal gold mining needs to be regulated (64 percent in Bornuur and 39.3 percent in Zaamar). In other words, they want the government to respond to the issues raised in informal gold mining. Informal gold miners said that attention should be paid to issues such as organisation and registration of informal miners to protect against crimes and violations (36 percent and 8 percent respectively), access to health and social as well as bank services (29 percent and 6 percent respectively) and training in safety measures and provision of tools (21.3 percent and 32 percent respectively as seen in Figure 3.18). The figures also show that allocating

**Figure 3.18** Percent of the respondents according to the desired activities in order to improve the situation of the informal gold miners by soum




licences for gold mining under particular conditions (19.3 percent and 8 percent respectively), solving concerns about living environment and infrastructure (15.3 percent and 12 percent respectively) and improving education and vocational training (5 percent and 6 percent in respective order) were mentioned as other important measures.

### Key points

- It is mainly young men who are engaged in informal gold mining and most of them are migrants. Informal gold miners work in the same area for 2.5 years on average. One-third of them are willing to quit and move to other destinations.
- According to informal gold miners, there is almost no case in which living standards or livelihoods have deteriorated since they started in this sub-sector. Income from gold mining is their main source of livelihood. They see very few income opportunities except for gold mining, and only some informal gold miners have been able to save parts of their income (12 percent in Bornuur and 26 percent in Zaamar).
- Women's involvement in amalgamating gold with mercury is higher than men's. This means that efforts to raise awareness on the safe use of mercury must also focus on women.
- Informal gold miners frequently face accidents and many suffer from health problems because of the extremely difficult working conditions, inadequate labour safety, and lack of equipment and tools. Low awareness of labour safety and health standards increases the risks. Miners also encounter many adverse factors relating to the climate (too hot or too cold, humid), the environment (dusty, dirty, noisy), safety (hazards caused by misuse of equipment and tools, low awareness, use of toxic chemicals) and habits (drinking and smoking), food, violence and stress.
- More than half of the informal gold miners think that formal mining companies pose problems for them and put pressure on them.
- Most gold miners are willing to join or support the start-up of an organisation that could protect their rights, and they would like to be represented by a state organisation. They further believe that informal gold mining should be regulated through a special law and national programme/project.

## 4

## Children working in informal gold mining

One of the main objectives of the survey on informal gold mining is the collection of data for an overall profile of children engaged in informal gold mining, their migration, living and working conditions, safety and health problems at work, health status and income. This profile is expected to support efforts to prevent and eliminate the worst forms of child labour.

The survey provides an opportunity to describe and compare the working conditions of children in gold mining in the two pilot soums, and changes and trends since 2002 when PTRC carried out a study entitled, 'A Situation Analysis on Children in Informal Gold Mining within the framework of the ILO-IPEC National Programme to Prevent and Eliminate Child Labour in Mongolia'.

### 4.1 Overall profile of children engaged in informal manual gold mining

The survey covered 40 children at mine sites Darkhan Alt, Toost or Point 26, Hytadiin Honhor and nearby small gold sites in Zaamar soum. In Bornuur soum, the survey covered children working in the Sujigt site. Of the total surveyed children, 75 percent work at the placer sites in Zaamar and 25 percent at the hard-rock site in Bornuur.

**Table 4.1 Children covered by the survey by soum and names of gold mining sites**

| Name of the soum | Name of the gold mining site | Number of children | Percentage |
|------------------|------------------------------|--------------------|------------|
| Zaamar           | Darkhan alt                  | 7                  | 17.5       |
|                  | Toost                        | 7                  | 17.5       |
|                  | Khyatad khonkhor             | 5                  | 12.5       |
|                  | Uguumur village              | 11                 | 27.5       |
| Bornuur          | Sujigt                       | 10                 | 25         |
| <b>Number</b>    |                              | <b>40</b>          | <b>100</b> |

The interviewed children were from different households in order to avoid duplication of results, since it was assumed that children from the same household would have similar working and living conditions. As the sample size in each of the soums was low, reliable estimates of the number of children involved in

informal gold mining in Bornuur and Zaamar could not be made. However, the research found that the number of working children in Bornuur and Zaamar was lower than earlier research indicated. This could be explained by the timing of the research. The number of informal gold miners is generally high before Naadam. But after Naadam, when the survey was undertaken, many informal gold miners who worked hard before Naadam took a break from work to go back to their places of origin but did not return.



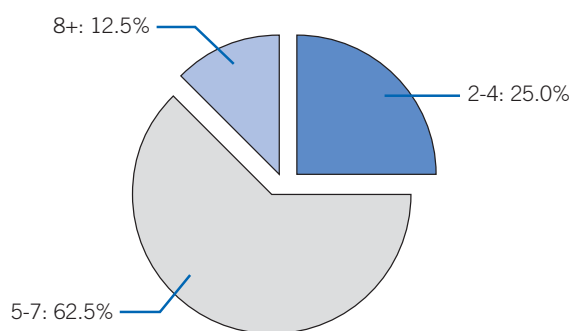
Of the surveyed children who were engaged in informal mining, 15 percent are aged under 12, 37.5 percent are 13 to 15 and 47.5 percent are aged 16 to 17. The average age is 15. When correlated with the type of mining, the average age of the children was one year older at the hard-rock site in Bornuur than at the placer sites in Zaamar.

Boys comprise 70 percent and girls make up 30 percent of all children engaged in informal gold mining. Since gold mining is hard labour, more boys tend to participate in it.

Figure 4.1 shows the percentage of the children by the number of people they live together.



**Figure 4.1** Percentage distribution of the children according to the number of people they live with



Of the children, 62.5 percent live with 7 or more people. During the survey, they were asked how many of the persons living with them were family members. The question was aimed at clarifying under whose care and control the children were. The responses show that 12.5 percent of the children live with persons other than their family members. A small percentage – 2.5 percent – live with people with whom they have no relations and 7.5 percent live with their friends. The average family size is 3.42, which is 0.93 lower than the national average.

The survey also captured the education level of gold mining children as it is an important factor in understanding their work in informal gold mining and how to remove them from hazardous work. Among the gold mining children, 75 percent attended school, 15 percent did not attend school and 10 percent graduated from school. With a look at the soums, the survey found that half of the gold mining children attended school, 30 percent did not attend, and 20 percent graduated in Bornuur soum. In Zaamar soum, 83.3 percent attended school, 15 percent did not attend school, and 10 percent were graduates.

By age group, 14.3 percent of 13 to 14 year-old children, 16.7 percent of 15 to 16 year-old children and 22.2 percent of 17 year-old ones did not attend school. The findings show that the percentage of children who did not attend school clearly increases with age.

**Table 4.2** Percentage distribution and number of children by school attendance and age

|                      | Age group  |             |             |          | Total     |
|----------------------|------------|-------------|-------------|----------|-----------|
|                      | 9-12 years | 13-14 years | 15-16 years | 17 years |           |
| Attend school        | 100 (6)    | 85.7 (6)    | 61.1 (11)   | 77.8 (7) | 75 (30)   |
| Do not attend school |            | 14.3 (1)    | 16.7 (3)    | 22.2 (2) | 15 (6)    |
| Graduated            |            |             | 22.2 (4)    |          | 10 (4)    |
| <b>Number</b>        | <b>6</b>   | <b>7</b>    | <b>18</b>   | <b>9</b> | <b>40</b> |

Of the children in school, 6.7 percent are in primary grade, 63.3 percent in incomplete secondary grade and 9 percent in complete secondary grade. Four out of five gold mining children in Bornuur are in the incomplete secondary grade and one in the senior or complete secondary grade. In Zaamar, 8 percent are in the primary grade, 60 percent in the incomplete secondary grade and 32 percent in the senior or complete secondary grade.



For the school drop-outs, 66.6 percent left school when they were in the fourth grade and the remaining did so in the sixth or higher grades. By soums and ages, one out of three school drop-outs is 13 years old and two are 17 years old. All dropout children in Zaamar are 15 to 16 years old. The main reasons for dropping out of school were family-related problems (half the percentage) and having no interest in studies (one third).

In Bornuur, the main reasons for dropping out of school were: having no interest in studies (one third or two children), financial problems, and family-related problems (one child respectively). In Zaamar, children replied that they dropped out of school due to family-related problems (two children), long distance to school (one child), and bad relationship with teachers (one child).

Although the sample is different, these answers resemble the findings of the previous survey. As with the grades at which children dropped out of school, majority left schooling at the fifth grade, according to the previous survey on gold mining children. The study shows that children drop out from school one year earlier than reported in the previous study. This suggests that children are now dropping out at younger age. All the drop-outs were boys.

## 4.2 Migration

In recent years, migration from rural to urban areas has been increasing in Mongolia. At the same time, another flow of migration has emerged from rural areas to other rural areas, with gold mine sites as the target destinations. To address the absence of official statistics on this phenomenon, the survey collected some information.

Of the children engaged in informal mining, 60 percent have been living in the mining area for less than five years. This indicator varies by soums. For instance, migrant children constitute 73.3 percent of the gold mining children in Zaamar while this percentage stands at only 20 in Bornuur. Most gold mining children in Zaamar are migrants. Children mainly migrated from Bulgan (25 percent), Orkhon (16.7 percent), Arkhangai (12.5 percent) and Zavkhan (12.5 percent) aimags and Ulaanbaatar (16.7 percent).

Of the households with migrant children, 83.3 percent are not registered in the destination areas. When these children were asked with whom they migrated, 2.5 percent responded that they did so by themselves (one child answered to have migrated on his/her own). In cumulative number, 45 percent stated that they moved with their parents, 7.5 percent with their brothers, sisters and relatives, and 5 percent with their friends. For one-third of these children, gold mining was the main reason for migration while for 5 percent, 15 percent and 5 percent respectively, accompanying their parents, relatives and friends were the main reasons. When the children who moved in the last years were asked if they had earlier been engaged in gold mining, 20.8 percent responded positively, and all referred to placer gold mining.

Currently, 81.8 percent of the migrant children in Zaamar soum attend school, 13.6 percent do not go to classes and 4.5 percent have graduated. Two children in Bornuur soum are migrants, one of them a school graduate and another still in school.

## 4.3 Work arrangement and working conditions

In response to the question about the location of their households, 42.5 percent said they live near mine sites, 37.5 percent at the soum centre and 20.2 percent in a different aimag and town. Because the survey was conducted during school vacation, some children might have been coming from other aimags and urban areas to mine gold.

Of the children covered by the survey, 11.8 percent live in a house, 64.7 percent in a ger and 23.5 percent in a tent. Only 23.5 percent of these households have access to electricity, and only 17.6 percent have designated sites for toilet waste and garbage. A majority of the households (76.5 percent) live in privately owned housing. In Zaamar soum, 81.8 percent of migrant gold mining children live in gers and 18.2 percent in tents.

Findings show that the average distance to school is 19.4 km, with 17.7 percent living up to 5 km away, 53 percent being 15 to 20 km away and 29.3 percent living 30 km or further away. With regard to hospitals and water sources,

the average distance is 18.5 km and 2.1 km respectively, and on average the children live 0.7 km off the gold mining sites. The statistics show that access to education, health services and water is very poor for these children.

The average age at which the children started gold mining is 13.5, with 8 being the youngest.

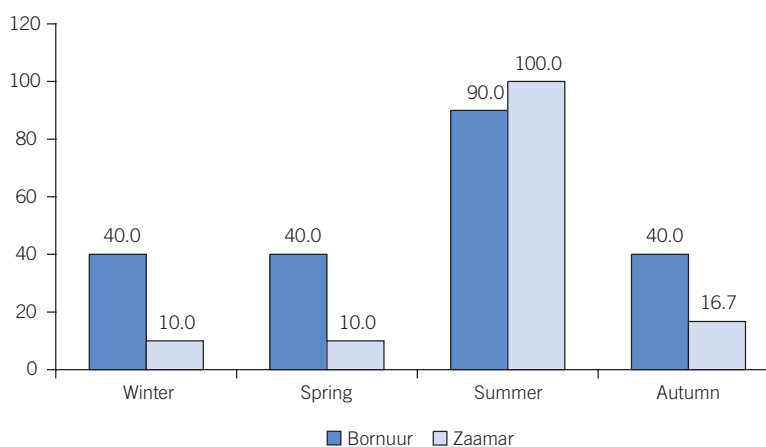
Asked whether they always mine gold, 30 percent of the children said they do so all year round, 55 percent said they mine gold during summer vacations and the remaining answered “sometimes”. Most of the children work in a group of two to four. Seventy percent work with their parents and relatives, 27.5 percent with friends and acquaintances and only 2.5 percent mine gold on their own.

Most children (70 percent) made their own decision to go into gold mining. In Zaamar soum, 72.7 percent of the migrant children work with their parents. Half were partially responsible for deciding to do so, and the other half followed their parents’ decision.

In response to a question about the number of days they worked in the week before the survey, 35 percent answered that they worked seven days in a row, and 17.5 percent said that they worked six days. These accounted for the highest percentages. Asked further if they had any day off, 42.05 percent of the children said no. Of the interviewed children, 40 percent work up to eight hours a day, and the remaining worked for more than eight hours. Boys work on average 11.4 hours and girls 8.7 hours. This in addition to the hazardous working conditions, clearly indicates the spread of worst forms of child labour at the gold mining sites.

Figure 4.2 shows the seasons in which the children are most engaged in gold mining. As shown in the figures, children work all year round at the hard-rock site in Bornuur and placer mining sites in Zaamar. However, summer is the peak season at the placer mining sites, while other seasons are the busiest periods at the hard-rock site. This is mainly because in winter, it is warmer to work underground at the hard- rock site than at placer sites. Hard-rock mining is also somewhat safer in winter, when the ground is frozen.

**Figure 4.2** Percentage distribution of the children working in gold mining according to season by soum



Children mostly dig holes, crush stones and transport ore at the hard-rock mining site in Bornuur. In the placer mining sites in Zaamar, they mainly fetch soil and water, dig and wash gold.

**Table 4.3 Percent of children according to type of work by soum**

| Type of work                | Soum      |           |
|-----------------------------|-----------|-----------|
|                             | Bornuur   | Zaamar    |
| Digging holes               | 80        | 63.3      |
| Fetching water/soil         | 50        | 73.3      |
| Crushing                    | 80        | 3.3       |
| Digging and panning gold    | 60        | 80.0      |
| Digging and panning mercury | 20        | 0.0       |
| Transporting ore            | 80        | 0.0       |
| Amalgamating with mercury   | 50        | 3.3       |
| Explosion work              | 30        | 0.0       |
| Other                       | 10        | 6.7       |
| <b>Number</b>               | <b>10</b> | <b>30</b> |

Note: Answers are multiple

Although the survey covered only a small number of children mining gold in Bornuur, half of them were found to be working with mercury. Similarly, many of the children in Bornuur were found working with hazardous and dangerous explosives.

Besides, 10 percent of the children responded “yes” to the question on whether they earn additional income apart from gold mining. Every second child sells retail goods and the remaining earn additional income by selling meals and goods near the mining area.

**Table 4.4 Percent of children according to the equipment used**

| Equipment             | Soum      |           |
|-----------------------|-----------|-----------|
|                       | Bornuur   | Zaamar    |
| Shovels               | 80        | 86.7      |
| Hammers/sledgehammers | 80        | 46.7      |
| Ropes                 | 80        | 66.7      |
| Sacks                 | 100       | 90.0      |
| Candle                | 70        | 73.3      |
| Torches               | 90        | 66.7      |
| Plastic pans          | 80        | 86.7      |
| <b>Number</b>         | <b>10</b> | <b>30</b> |

Note: Answers are multiple

Of the equipment listed in Table 4.4, 77.5 percent are owned by children themselves (or by their families), 12.5 percent are rented from others and the remaining borrowed from others.

Asked if they face stress and pressure, 30 percent answered yes. The situation was the same for adult miners. Stress was caused by: violence (20 percent), verbal abuse (15 percent) and refusal of permission to work (15 percent).

Since it became clear that children encountered pressure and stress, the researchers further asked who imposes such stress on them. As seen in Table 4.3, the policemen are the source of the most pressure on children -- they beat children (50 percent) and do not allow them to work (41.7 percent).

Children were also asked whether there are conflicts between gold miners and security guards and policemen. Of these, 32.5 percent replied that these happened “occasionally”, 22.5 percent responded “always”, 20 percent said “never”, 17.5 percent responded “sometimes” and 7.5 percent responded “don’t know”. From these answers, it is clear that most children report conflicts between the informal gold miners and policemen and security guards.

#### 4.4 Occupational safety and health

According to 17.5 percent of the children, their health has deteriorated since they started gold mining. In Bornuur, 20 percent of the children gave positive answers to this question, compared to 16.7 percent in Zaamar.

A total of 42.6 percent of the children got aches in their limbs and backbones, 28.6 percent suffered from kidney and urinary diseases and 28.6 percent from fatigue. This can be explained by the working environment and conditions to which the children are exposed to.

When the children were asked to whom and where they go in case of sickness and disorders, 57.5 percent responded that they refer to their parents, and 50 percent go to hospital and doctors. At the same time, it is of quite some concern to find out that 7.5 percent of the children do not consult anyone or go to any place when they get sick.



One of the determinants for a healthy life is access to clean water. The children mostly consume water from springs. About 32 percent of the children buy meals from canteens and 12.5 percent from individuals who sell food. A majority of the children (62.5 percent) eat take-away meals cooked at their home. It is interesting to note that the children in Bornuur have take-away food cooked at their home and that quite a few cases (2.5 percent) use stagnant water despite the obvious lack of hygiene.

Of the gold mining children, 47.5 percent assessed their working situation as very poor and 40 percent assessed it as poor. The former classified their work as very poor and poor because it is hazardous (60 percent in Bornuur and 70 percent in Zaamar), too dusty (60 percent in Bornuur and 66.7 percent in Zaamar) and too humid (40 percent in Bornuur, 30 percent in Zaamar). The working conditions by soums are shown in Table 4.5.

**Table 4.5 Percentage distribution of the children working in informal gold mining by working conditions and soum**

| Characteristics | Soum      |           |
|-----------------|-----------|-----------|
|                 | Bornuur   | Zaamar    |
| Too dusty       | 60.0      | 66.7      |
| Poor hygiene    | 10.0      | 30.0      |
| Work outside    | 20.0      | 56.7      |
| No ventilation  | 30.0      | 20.0      |
| Too humid       | 40.0      | 30.0      |
| Hazardous       | 60.0      | 70.0      |
| High workload   | 10.0      | 3.3       |
| Other           | 20.0      | 10.0      |
| <b>Number</b>   | <b>10</b> | <b>30</b> |

Note: Answers are multiple

As mentioned in Table 4.3, 50 percent of the children in Bornuur work with mercury. Alarmingly, these children did not consider what they were doing hazardous or harmful. This reveals that children's awareness of the risks and consequences of contact with mercury is very poor.

The next group of questions was about children's awareness of occupational safety and health standards. Of the children, 87.5 percent said to have no knowledge or awareness of safety and health standards at the sites. A total of 10 percent do not follow safety and health standards although they are aware of them. The percentage of the children who are aware of and follow the standards stands at only 2.5.

Findings show that the children mainly use cloth and rubber gloves, but do not use many of the other tools such as masks, helmets and earplugs. Clearly, the children do not pay enough attention to their safety and health at work.

**Table 4.6 Percentage distribution of the children working in informal gold mining by use of personal protective equipment and soum**

| Personal protective equipment | Soum      |        |           |           |        |           |
|-------------------------------|-----------|--------|-----------|-----------|--------|-----------|
|                               | Bornuur   |        |           | Zaamar    |        |           |
|                               | Always    | Seldom | Don't use | Always    | Seldom | Don't use |
| Waterproof boots              | 30.0      | 10.0   | 60.0      | 33.3      | 26.7   | 40.0      |
| Cloth industrial gloves       | 70.0      | 20.0   | 10.0      | 76.7      | 10.0   | 13.3      |
| Head covering                 | 10.0      | -      | 90.0      | 13.3      | 3.3    | 83.3      |
| Rubber gloves                 | 10.0      | 10.0   | 80.0      | 70.0      | 13.3   | 16.7      |
| Leather boots                 | 30.0      | -      | 70.0      | 16.7      | 6.7    | 76.7      |
| Strong belt                   | 30.0      | 10.0   | 60.0      | 26.7      | 10.0   | 63.3      |
| Face masks                    | 30.0      | 10.0   | 60.0      | 10.0      | 13.3   | 76.7      |
| Earplugs                      | -         | -      | 100.0     | 10.0      | 3.3    | 86.7      |
| Cowl                          | 10.0      | 20.0   | 70.0      | 63.3      | 13.3   | 23.3      |
| <b>Number</b>                 | <b>10</b> |        |           | <b>30</b> |        |           |



Despite the poor utilisation of safety tools, the interviewed children are very concerned about possible risks to their health from collapse of walls and tunnels (77.5 percent); falling rocks and stones (50 percent); and working long hours in water (30 percent). In particular, children working at the hard-rock sites in Bornuur are concerned about falling rocks and stones (80 percent), while those working in placer mining sites in Zaamar are more worried about collapse of tunnels and walls (83.3 percent).



One in every eight children working in informal gold mining has experienced accidents at work, according to this survey. Of the interviewed children, four children were victims of collapsed tunnel, one child fell into an open pit, and another child had a tool-related accident. Only two of those children went to hospital for treatment. Four more children broke their legs and arms, and one child suffered backbone injuries.

As perceived by the children, the most common are injuries in legs and arms (85 percent), backbone injuries (37.5 percent), head injuries (35 percent) and losing legs and hands (30 percent).

The previous survey conducted by PTRC witnessed mercury use in gold mining. The current survey reveals that 20 percent of the interviewed children handle mercury and that 60 percent of those children working in hard-rock mining in Bornuur use the harmful substance.

Almost all of the children answered that mercury is used in amalgamating gold. They buy mercury at either mercury mining sites or at the shops in soum centres. Few reported buying mercury from gold dealers. According to the survey, the children mostly keep mercury at home.

Asked how they protect themselves from mercury, half of the children answered that they do not take any protective measure, while the other half responded that they wear gloves, keep mercury in a tightly sealed container and wear masks.

Of the children, 65 percent said they are aware of the harmful effects of mercury. Among the children interviewed, five percent (two children) believe that working with mercury cause their joint pains and hair loss.

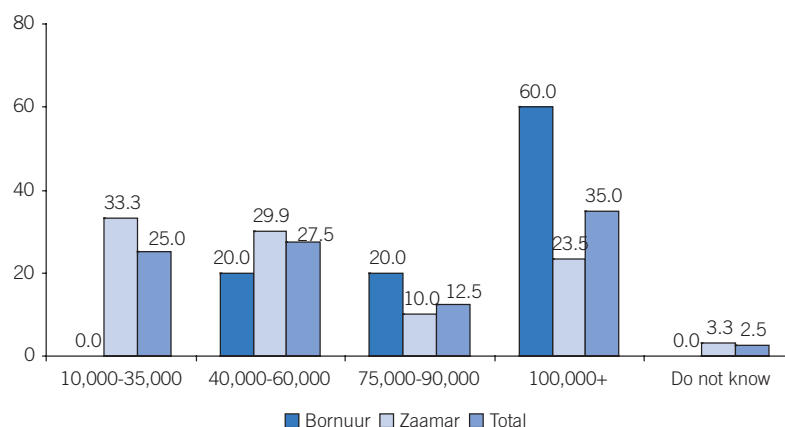
#### **4.5 Income**

It is not only adults' but children's engagement in the risky and difficult work of informal gold mining that is a direct consequence of increasing poverty. Nevertheless, government policy aimed at regulating the informal gold mining sector and reducing the risks at work is still missing.

As the children reported, they mine an average of 2.46 grammes of gold a week. When the indicator is looked at by types of mining and location, every week the children at the hard-rock sites in Bornuur mine as much as 1.9 times more than those at the placer sites in Zaamar. All of the children sell mined gold for cash.

As seen in Figure 4.3, which shows the monthly average income earned by the children, most of them or 60 percent at the hard-rock sites, on average, earn an income of 100000MNT a month. Meanwhile, the monthly average income for most of the children working at the placer sites stands at 10000-60000MNT (63.2 percent). The average wage earned by the children is estimated at 78948MNT.

**Figure 4.3** Percentage distribution of the children working in gold mining according to average monthly wage by soum



Of the gold mined by children, 65 percent is sold by them, 40 percent by their parents, 17.5 percent by co-workers and 7.5 percent by their friends.

Expenditure patterns show that household consumption (75 percent), and purchasing items and goods for their own needs (75 percent) absorb much of the children’s income. It should be mentioned that in general, 35 percent of the children spend their income on education and studies, while 42 percent stated that they save the money. None of the children reported having wasted their income. (Children’s income expenditure is shown by location in Table 4.7).

**Table 4.7 Children’s income expenditure by soum**

| Expenditure                      | Soum      |           |
|----------------------------------|-----------|-----------|
|                                  | Bornuur   | Zaamar    |
| For household consumption        | 100.0     | 66.7      |
| Purchase needed goods for myself | 90.0      | 70.0      |
| Pay for education                | 60.0      | 26.7      |
| Pay for medical treatment        | 10.0      | 3.3       |
| Savings                          | 10.0      | 46.7      |
| <b>Number</b>                    | <b>10</b> | <b>30</b> |

Note: Answers are multiple

The expenditure pattern of the children’s income varies depending on whether they attend school or not.

**Table 4.8 Children's income expenditure by schooling**

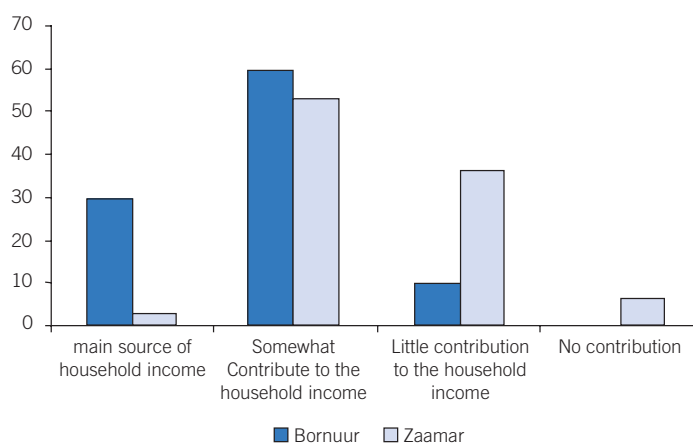
| Expenditure                      | Schooling |               |
|----------------------------------|-----------|---------------|
|                                  | At school | Not at school |
| For household consumption        | 66.7      | 83.3          |
| Purchase needed goods for myself | 70.0      | 100.0         |
| Pay for education                | 43.3      | -             |
| Pay for health/treatment         | 6.7       | -             |
| Savings                          | 43.3      | 50.0          |
| Spend all on luxuries            | -         | -             |
| <b>Number</b>                    | <b>30</b> | <b>6</b>      |

Note: Answers are multiple

Most of the gold mining children who attend school spend their income on purchasing items for their own needs, household consumption, schooling, savings and health services. Those who do not attend school spend their income only on their own needs and household consumption.

Asked what contribution their income makes to their family livelihood, every tenth child replied that it provides the main source of family income, and more than half of the children answered that income from gold mining constitutes a substantial part of the family income. The percentage of the children who do not contribute to family livelihood and instead spend their income on themselves is only 2.5 percent of the total surveyed children. In both soums, the group of children who contribute to family income is the dominant group (Figure 4.4). None of the children said they spend the money they make on luxuries for themselves. It can be concluded that most of the children risk their health and lives to support others, mainly their families.

**Figure 4.4** Children's financial contribution to household income by soum



#### 4.6 Aspirations and perceptions

This section deals with the leisure time of the children, their interest in work, future aspirations and perceptions. Most of the children in Zaamar (90 percent in cumulative number) spend their free time at home or with their friends, and 27.5 percent play games, 15 percent play computer games, 15 percent go to karaoke, cinema, and five percent go to disco. It should be underlined that 10 percent of the children have no leisure time at all. When asked what they would do if they had leisure time, they said they go to karaoke, disco and the cinema.

Of the children interviewed, 60 to 70 percent responded that they do not want to continue working in informal gold mining. Table 4.9 shows the reasons why they disliked their job.

**Table 4.9 Percentage distribution of children by their future aspiration, reasons and soum**

| Reasons  | Soum        |             |
|--|-------------|-------------|
|  | Bornuur     | Zaamar      |
| <b>Do not like to work further in informal gold mining</b> | <b>70.0</b> | <b>60.0</b> |
| Health is impaired by heavy work and injuries              | 0.0         | 22.2        |
| Miners are exposed to maximum risk of death and injuries   | 28.6        | 38.9        |
| Mining work is too heavy and unhealthy                     | 71.4        | 72.2        |
| Child miners do not have the joys of childhood             | 14.3        | 5.6         |
| Desire to attend school                                    | 0.0         | 5.6         |
| Low income   | 0.0         | 5.6         |
| <b>Like to work further in informal gold mining</b>        | <b>10</b>   | <b>30</b>   |

Note: Answers are multiple

As per the table, the majority of the children expressed the desire to stop mining gold because of the high likelihood of injuries. Yet, there is a substantial percentage who would like to continue working in informal gold mining. Of these children, 46.7 percent are driven to do so to work for their families, 40 percent to be able to meet their needs and 13.3 percent only wish to do so during vacations.

Asked if they intended to continue with gold mining, 42.5 percent of the children answered positively, 40 percent responded negatively and 17.5 percent replied “don’t know”. About their future aspirations and perceptions, 40 percent in Bornuur wanted to acquire basic education, 40 percent to learn new skills, and 20 percent would like to attend vocational training on mining. In Zaamar soum, 75 percent of the children wanted to get basic education, another 75 percent wanted vocational training, and 33.3 percent asked for professional or vocational training in a different field. Of the total, three children wanted to be engineers and technicians, two wanted to be doctors, two wanted to be economists, three aspired to become teachers, one wanted to become a singer and one wanted to become a lawyer. There are children who are interested in continuing their work in gold mining in order to meet the needs of their families, to make money for the

future, to pay for schooling costs, to help sick parents or because their parents are dead. The struggle for a living forces many children to continue working at informal gold mine sites.

To the question of whether they want to involve their brothers and sisters in their work, 20 percent of the children in Bornuur and Zaamar soums responded positively.

According to earlier research, the expansion of informal gold mining has fuelled a negative social phenomenon: prostitution. During this survey, 20 percent of the child respondents in Bornuur soum said that there is prostitution in the mining sites and 80 percent said otherwise. In Zaamar soum, 6.7 percent said that prostitution exists at the mining sites, 53.3 percent denied it, and 40 percent said they do not know. From this research, we cannot confirm whether girls and boys below the age of 18 are involved in prostitution.

The children covered in the survey expressed the need for educational activities at the mining sites (45 percent), training in labour safety measures (27.5 percent), and leisure places for children and kindergartens for young children.

#### 4.7 Parents' attitudes to child labour

Some questions were asked of adults to explore their attitudes toward child labour and in particular, child labour in informal gold mining.

More than half of the adult respondents (69.2 percent) live with their children under the age of 18 and most of them live (50.2 percent) with one or two children. Of the adults, 30.8 percent were found not to be living with their children aged below 18. In Zaamar, both the percentage of parents working with their children and the number of children they live with, is higher than for the adults in Bornuur.

Of the adults who mine together with their children, 17 percent are in Zaamar and 5 percent in Bornuur. Most of these parents (81.6 percent in Zaamar and 50 percent in Bornuur) work with one to two of their children. This shows that parents in Bornuur are less likely to engage their children in work. This could be because hard-rock mining is more risky and difficult. However, the researchers also observed that the parents in Bornuur often did not want to report that their children were involved in gold mining.

The main reasons why parents make their children work at the sites are shown in Table 4.10.

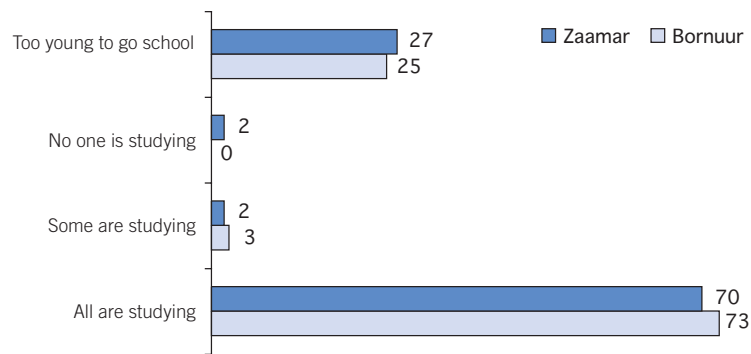
**Table 4.10 Percentage distribution of the adult respondents by reason for involving children in gold mining by soum**

| Reasons  | Soum    |        | Total |
|--|---------|--------|-------|
|  | Bornuur | Zaamar |       |
| Cannot leave children unattended               | 33.3    | 32.5   | 32.6  |
| Let children work only during vacation         | -       | 50.0   | 46.5  |
| Children can make earnings for their own needs | 66.7    | 17.5   | 20.9  |

Of the adults interviewed, 46.5 percent responded that their children work only during vacation, while 32.6 percent said they cannot leave their children unattended. A total of 20.9 percent claim that their children work to earn for their own needs. It is interesting to note that while most of the parents (66.7 percent) stated the latter – that children can make earnings for their own needs – only a few of the children said that this was how they used their earnings. This may also be related to the fact that it is mostly older children who are engaged in gold mining in Bornuur. Half of the parents in Zaamar said that they involve their children in gold mining only during their holidays.

Of the adults engaged in informal gold mining, 70.3 percent responded that all of their school-age children go to school. In total, 26.2 percent of all the children covered by the survey were of preschool age.

**Figure 4.5** Percentage distribution of the respondents according to the school coverage of the children under 18 years old by soum



While all the adults in Bornuur (100 percent) believe that their children should be taken away from gold mining, only 81.6 percent of the adults in Zaamar share the same opinion. In conclusion, the parents in Zaamar are more likely to involve their children in mining work. A cross-tabulation of work duration and annual income shows that parents with low income and longer hours of work (seven cases) are more likely to involve their children in informal gold mining work. Irrespective of their education level, parents in general want to provide basic education for their children. Similarly, they want their children to acquire professional training. In Zaamar, all higher educated adults wished that their children could attend professional vocational training.

### Key points

- The average age of children engaged in informal gold mining is 15, and most of the children working in the mines are boys.
- Of the children in gold mining, 15 percent do not attend school. More than half of the children dropped out of school in grade 4 due to poverty and lack of interest in studies. The long distance to school, an average of 19 km, makes the children less motivated to go to school.
- Poverty forces the children into informal gold mining. For instance, one in every 10 children stated that he or she is the key source of income for the household from gold mining, while more than half of the children claimed that their income significantly supports their families.
- In both placer and hard-rock mining, children work underground, sometimes standing in water, and often in an extreme climate. Furthermore, they handle explosives. A majority of the children consider the working conditions very poor, and 40 percent consider them poor.
- Due to inadequate safety and health measures, children are often involved in accidents. Only a few have anywhere to turn to if they get sick or injured.
- Half of the children in Bornuur work with mercury but they do not consider it harmful. This reveals that the children's awareness on the risks and consequences of contact with mercury is very poor.
- The children mainly use cloth and rubber gloves, but they do not use much of the other tools such as masks, helmets and earplugs to protect themselves. Children do not pay enough attention to safety and health.
- Of the children interviewed, 60 to 70 percent responded that they do not want to continue working in informal gold mining. However, a substantial group of those interviewed would like to keep on mining gold in order to help their families (46.7 percent), to be able to meet their needs (40 percent), or to do so only during vacation (13 percent).
- While all adults in Bornuur believe that their children should be taken away from gold mining, only 81.6 percent of the adults in Zaamar share the same opinion. In conclusion, parents in Zaamar are more likely to involve their children in gold mining. This implies that there is a need for awareness raising in Zaamar on child labour and its negative consequences.
- There is a shortage of safe places where children in gold mining can spend their leisure time.
- The children covered by the survey would very much like to obtain basic education and vocational training.

# 5

## Perceptions and views of the local authorities toward informal gold mining

This chapter presents the perceptions and views of the local authorities in two soums covered by the survey with regards to informal gold miners, particularly what opportunities exist for them to access education and health services and bank and small credit. At the same time, it aims to identify problems in registration and registration procedures for manual gold miners, the capacity of the local administration and its services to improve the working conditions of informal gold miners and their role in the future.

The following officials from the local authorities were interviewed:

1. Governor
2. Deputy governor
3. Director of administration department of local government
4. Social policy worker
5. Tax inspector
6. Environment inspector
7. Officer in charge of occupational safety
8. Bag governor
9. Policeman
10. Lower-level police staff
11. Doctor
12. Director of studies and teachers of school. (A total of 12 and 15 local authority representatives in Bornuur and Zaamar soums respectively were interviewed.)

Since there were 27 respondents, the findings of this study are presented in summarised version rather than in percentages.

As the survey proves, the last two years have seen a noticeable increase in informal gold mining, with 500 and 3,000 people engaged in it in Bornuur and Zaamar soums respectively throughout the year. The number of informal gold miners goes up during the summer. Informal gold miners in Zaamar are mainly migrants from other aimags and cities, whereas those engaged in gold mining in Bornuur are residents of the soum.



### **5.1 Registration of informal gold miners**

Informal gold miners in Zaamar soum do not work permanently at the same place and frequently move to sites with high yields of gold. According to the local administration staff interviewed, the informal gold miners usually have no certificates or ID documents, and this is a major difficulty in their registration. Coupled with this, the administration is short of staff and finances to deal with the informal gold miners. Migrants need to cancel their registration where they previously lived before they can register in another soum. The section on migration in Chapter 3 describes the details relating to the registration of informal gold miners.

### **5.2 Access and availability of social services for informal gold miners**

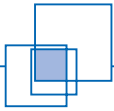
The previous chapter mentioned rising child labour in the informal economy. The main concern about child labour is school dropouts among child miners. Bornuur and Zaamar soums have one secondary school each while Hailaast bag in Zaamar soum has one secondary school. A total of 1,400 children go to the two schools in Zaamar and 800 children are enrolled in the Bornuur school.

The administration staff emphasised the importance of cooperation between the local administration, schools and parents to get children enrolled. They expressed the need for action to take children away from gold mining, to keep them in school, to provide non-formal education and teachers on a mobile basis and/or to set up a primary school near the gold mining sites. The local administration staff also mentioned the possibility of providing professional training for older children.

These two soums have one hospital each and Hailaast bag has a hospital with three doctors and five beds. The informal gold miners often turn to the local administration for health services when they get sick or injured. Since the gold miners often get into accidents, the local administration has to deliver the required assistance and soum hospitals are sometimes overloaded. The administration said there is a need for mobile doctors, health service units or at least a drugstore for informal gold miners.

Similarly, police officers are needed to counter the spread of alcoholism. In response, the governor's office, particularly the police department of Tuv aimag, has set up police centres in the bags with gold mine sites.

According to the local administration staff in Zaamar, the informal gold miners have money and do not need access to microcredit. They also say that such services would not be accessible to the informal gold miners since they are not registered.



### 5.3 The capacity and role of the local administration

The survey reveals that due to shortage of staff, budget and equipment, the local administration's capacity is insufficient to handle a large influx of people to the soums. To address this, restructuring and additional budgets are needed. Currently, the hospital and schools are overloaded. The hospital also lacks medical facilities.

On how to effectively solve the problems in the informal gold mining sector, the staff mentioned efforts to organise informal gold miners and said that if they could acquire licences, all miners would be motivated to get registered. Some efforts were made some years ago, in accordance with the regulation issued by the Ministry of Industry and Trade, to register informal gold miners. But the results were unsatisfactory due to poor management.

The owners and managers of formal mining companies said that it is the responsibility of the local administration to stop informal gold mining in their territories and employ security guards.

The local administration staff have different attitudes and positions toward the regulation of informal gold miners. For example, some of them said that the state and government cannot work properly to address the issue and that it is the right of every Mongolian – not only the formal gold mining companies - to benefit from the gold resources of the country. Others believe that the major concerns are the regulation of the manual gold miners without removing them from their sources of livelihood, providing access to social services and improving work safety. But there are also administration staff who express the need to curb informal gold mining because of problems associated with it.

When asked what role the local administration can play in regulating informal gold miners, the staff answered that this would be to carry out their professional duties. Environmental officers would be focusing on rehabilitative measures, agricultural officers on securing land possession rights, and policemen would be working on ensuring social order. Teachers said that they would be paying attention to the enrolment of the children of informal gold miners and doctors would be looking after the delivery of health services. Since staff would work along their lines, the suggestion was made to create a new permanent post at the governor's office to coordinate matters related to informal gold miners.

### Key points

- Informal gold mining poses a major challenge for the local authorities in many rural areas. The human and financial resources of these authorities are insufficient to handle these challenges; for example, most informal gold miners are not even registered in their respective areas. Consequently, informal gold miners have very limited access to health, education and bank services.
- The local administration believes that organising the informal gold miners within a legal framework would offer an effective solution. Therefore, a law should be drafted and implemented. Such a law should reflect how land used for informal gold mining should be allocated, how miners should be registered, how occupational safety should be put in place and how after-mining rehabilitative measures should be carried out.

# 6

## Mining companies and informal gold mining

This chapter describes the profile of the gold mining companies in Bornuur and Zaamar soums of Tuv aimag and their attitude toward informal miners.

### 6.1 The profile of the companies

The survey covers one company, Gun Bilegt, in Bornuur soum (as there was only one company during the survey) and 10 companies in Zaamar soum. The biggest company is Shijir Alt. One of them is registered with Orkhon aimag and the rest are registered with Ulaanbaatar city. Depending on the landscape, the companies are divided into Bornuur hard-rock miners and Zaamar placer-site miners.

The large-scale companies have been operating for 10 years on average (Shijir Alt, Ikh Alt Zamar and Sanchir Invest) and the medium-scale companies have been operating for 2-3 years. It is estimated that the gold reserve at the sites within the territory possessed by these companies will last one to 10 years more. It should be mentioned that company officials avoided talking about the amount of gold they have been mining.

All the companies covered by the survey mine gold on their own with most of the employees permanently based in the area. Most companies do not accept requests from the local administration to employ local residents. Only a few companies employ one to five people from the local areas to provide support services such as operation of bulldozers, water guns, sample testers, and driving and cleaning. Even though it is more economical to employ local residents, the companies are not interested in doing so, as they say the local people are not reliable and steal gold and miss work without reason.

## 6.2 Informal gold miners and formal companies

The mining companies consider informal gold mining illegal, as informal miners lack a licence and secretly mine gold in the territories possessed by the companies. However, they recognise that informal gold mining is the main source of income for many people.

Large companies are better protected from the entry of informal gold miners as they have contingents of security guards. However, medium-sized companies have had informal gold miners entering their territory to steal gravel and damage their equipment and facilities.

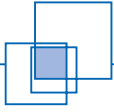
Owners of the companies in these two soums are based in Ulaanbaatar and their directors stay at the site to manage their operations. The survey tried to cover mine owners in Ulaanbaatar. According to them, informal gold mining needs to be regulated. However, the directors have a slightly different attitude. Although they see the necessity to have such regulations, they fear complications in regulating informal gold mining. The complications they can see, they say, are that informal gold miners come from very diverse regions and places, are not registered and many are involved in disruptive activities.

The representatives of mining companies generally emphasise that the regulation of informal gold mining will have positive effects on them and society. When further asked about the first step needed for this to happen, they replied that the first step was to have a law drafted. It should be mentioned that the companies were very critical of the draft law on the informal mining of minerals.

The companies proposed a number of issues to be considered in the law. Several companies said that there should be a way of determining land to be used for informal gold mining. This could be land abandoned by formal mining companies or those unsuitable for large-scale industrial mining.

The companies repeatedly mentioned that the allocation of land licences would not be adequate to solve the problem and that issues such as safety, health and technology deserve attention. Similarly, the management of the companies claim that tax and environment/ecology-related issues should be carefully assessed and integrated into policies, as gold is strategically important for Mongolia. Also, they said that the possibility of a rise in negative social phenomena such as crime, prostitution and alcoholism should be considered.

The companies found it difficult to answer the question about their roles and participation in informal gold mining regulations. Most companies believe that only the state and local administration could solve the issue, yet expressed their willingness to cooperate with the state and local administration. For instance, the companies suggested that abandoned land could be used by informal gold miners for a particular period (say one to two years), and that this land could be rehabilitated afterwards.



### Key points

- The main conflict between the informal gold miners and formal mining companies is caused by the theft of gravel by the miners in the territory of the companies. The companies recognise that although informal gold mining is illegal, it provides the key livelihood source for informal miners.
- Representatives of mining companies say that informal gold mining needs to be regulated through a well-designed law and that the territory where informal gold mining would be allowed must be determined. Other issues this law should address are health and safety, technology, land rehabilitation and tax.
- The companies believe that the theft of gravel would decrease with regulations in place. Although their representatives do not have a concrete proposal on how to participate in the regulation of informal gold mining, they expressed their willingness to cooperate with the state and local administration.

# 7

## Gold buyers or intermediaries

This chapter presents findings on how the informal miners sell the gold they mined and processed, what the steps and procedures are in the sale and purchase of gold, and what income and profit the gold buyers make.

Thirteen gold buyers or “intermediaries” were interviewed at the mine sites. It was not easy to identify the gold buyers during the data collection and most people were not willing to give information on their income and profit from buying and selling gold. This limited the comprehensiveness of the data.

### 7.1 Gold buyers

A majority of the gold buyers covered by the survey have been temporary immigrants in Tuv aimag coming from Ulaanbaatar city and Tuv, Arkhangai, Orkhon, Darkhan-uul, Huvsgul, Bulgan and Selenge aimags. Most have been engaged in retail trade and services at or near the sites where the miners live and work.

Gold buyers are in general between 25 and 45 years old, and most of them have completed at least secondary schooling. Those who were interviewed have been purchasing and selling gold for a maximum of nine years and a minimum of one month.



## 7.2 The procedure of purchasing gold

The purchase of gold involves a number of steps. According to respondents, they buy gold from informal miners and sell it to small gold dealers. Small dealers come from urban areas to buy gold from around the mining sites and sell it to the big dealers, who resell it to overseas clients.

The stages in the purchase of gold produced at the mining sites are as follows:



The respondents said the gold is not sold to Mongol Bank as there is no opportunity for informal gold miners to do so, since banks and financial services are not available in mining areas. Moreover, the informal miners do not have the time and money to travel far to sell gold.

The inadequate processing of gold is another obstacle to miners selling it to Mongol Bank. According to the law on Mongol Bank activities, which stipulates the purchase of purified gold from enterprises and individuals, gold miners need to purify the gold they mine. As the process requires financial resources, the informal miners are more interested in selling gold to buyers and small dealers. The commission for selling gold to Mongol Bank is also rather high (seven percent).

Why do informal miners sell gold to informal buyers instead? The respondents say that informal gold miners are their most reliable partners. Their relationship is often based on friendship, trust and safety, according to gold buyers. Most gold buyers have their own permanent partners.

## 7.3 Incomes and profits

Buyers buy varying amounts of gold from informal miners almost everyday. In each purchase, the informal miners sell 0.1-37.5 grammes of gold on average, but the amount sold by different informal miners varies significantly. The yields of gold vary by season and by the type of sites. However, for most gold buyers, January and June-August are the peak months.

Gold is usually sold for cash. In some cases, it is exchanged for goods. The informal gold miners say they are most interested in selling gold for cash.

The gold buyers covered by the survey did not want to report their profits from buying and selling gold. According to them, they buy the gold in exchange for goods they have and sell it further, with no high profit, to the next line of clients. The cost for 0.1 gramme of gold is 1000MNT and 1 tsen gold costs 44500-45000MNT. However, the price fluctuates with the daily value of gold. Gold traders say they make a profit of 500MNT from selling 1 tsen gold and 5000-10000MNT on average from one lan of gold.



**Key points**

- A chain of actors is involved in the purchase and sale of informally mined gold. Informally mined gold is bought by local buyers who sell it to small gold dealers from urban areas. The small dealers sell it to big dealers, who in turn sell it to Korean and Chinese clients.
- The mined gold does not go to Mongol Bank and ends up in the hands of overseas clients.
- Gold miners are interested in selling gold to banks. However, the law on the procedure of gold purchase needs to be revised so that the needs of informal gold miners can be met. As the informal gold miners have few opportunities to go to urban areas to sell their gold legally, legal mediators or mobile bank services could be introduced for the purchasing of gold. Such regulations would make gold purchase legal, keep the gold in Mongolia and create opportunities for tax collection as well.

# 8

## Recommendations

In light of the findings of the survey, the research team would like to give the following recommendations:

- Informal mining has expanded to cover larger areas of land and a large number of people in recent years. A number of factors, mainly unemployment and poverty, force people to go into gold mining for a living. Informal gold mining needs to be regulated and organised. To support reforms in the law and the implementation of such, more attention and better cooperation between the central state organisations, local administration, NGOs and gold miners is needed.
- Informal gold miners working with their fellow miners, friends and families in groups can provide a basis for constructive arrangement for legal “partnership”.
- There is a need for an organisation that can represent the interests and protect the rights of informal gold miners and help them address their problems.
- No action is being taken to ensure occupational safety and hygiene standards for informal manual gold miners who are working in extremely difficult conditions. National and international standards on occupational safety and health should apply to informal gold mining. A wide range of measures, including training to raise awareness of safe work, could be taken. Such activities should be organised with the active participation of state organisations, NGOs and the informal gold miners themselves.
- Urgent action is needed to improve the working conditions, provide personal protective equipment, improve the tools and introduce new technology, given the poor and substandard labour tools and techniques applied by informal gold miners.
- Advocacy and awareness-raising measures should be taken to prevent and avoid work-related diseases and accidents among informal gold miners and reduce the harmful impact on individuals and the environment. Efforts must be made to raise the miners’ awareness of harmful effects of mercury and its safe use for themselves, their families, society and the environment.

- Children's work in informal gold mining can be considered hazardous and one of the worst forms of child labour. Urgent measures should be taken to prevent children from being involved in informal gold mining. The children and their working conditions should be monitored by state and professional organisations.
- Law enforcement should be strengthened to enrol children under 16 in compulsory basic education. A significant percentage of the school drop-outs in rural areas can be found working in informal gold mining.
- Collaborative efforts are required among parents, local administration and schools to enrol gold-mining children. Activities to raise children's and parents' awareness of the negative consequences of child labour need to be undertaken to keep children away from gold mining. For children who have dropped out of school, non-formal education, mobile teaching systems and/or establishing primary schools near the mine sites are recommended.
- Action must be taken to increase the access of poor families with children working in informal gold mining to social, economic, health and educational services.
- In response to the poor living conditions of the informal gold miners and the poor sanitation and hygiene standards at or near the mine sites, measures should be taken to establish public toilets, garbage removal sites, water supply systems and other amenities. There should be cooperation between gold miners and the local administration to implement measures to improve living and sanitation conditions at the mining sites.
- Informal gold miners do not sell their gold to Mongol Bank but to local, national and international dealers. The whole chain of gold purchase is considered illegal. This is the result of limited opportunities for selling the gold to Mongol Bank, high fees, and the poor gold purification process in informal gold mining. The law on gold purchase should be revised to give legal shape to the purchase procedure.
- Opportunities should be sought to introduce bank services in areas near the sites where gold miners work and live, taking into account the complications in gold purchase and difficulties with handling cash earnings and savings.
- Joint cooperation should be ensured between the central state administration in charge of the environment and mining sectors and the local administration to rehabilitate land after mining operations to reduce the impact of informal gold mining on the environment.

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## Appendix: Questionnaires

- Baseline survey on “Informal Gold Mining in Bornuur and Zaamar Soums”  
The Child Questionnaire
- Baseline survey on “Informal Gold Mining in Bornuur and Zaamar Soums”  
The Adult Questionnaire
- Baseline survey on “Informal Gold Mining in Bornuur and Zaamar Soums”  
The Local Authority Questionnaire
- Baseline survey on “Informal Gold Mining in Bornuur and Zaamar Soums”  
The Employer Questionnaire
- Baseline survey on “Informal Gold Mining in Bornuur and Zaamar Soums”  
The Intermediary Questionnaire

| No.                       | Questions   | Codes   | Steps |
|---------------------------|---|---|-------|
| 111                       | What were the reasons for dropping out of school? (Circle all that apply) | Lack of money and/or resources..... A.<br>Domestic social problems..... B.<br>Lack of registration document..... C.<br>Over enrollment in class..... D.<br>Bad relationship with teacher..... E.<br>School is far away..... F.<br>Sick (physically or mentally)..... G.<br>Work in gold mining..... H.<br>Lack of interest..... I.<br>Don't know..... J.<br>Other (specify)..... X. |       |
| 112                       | Can you read or write a short simple statement?                           | Yes..... 1.<br>No..... 2.   |       |
| <b>PART II: MIGRATION</b> |   |   |       |
| 113                       | How long do you live in this soum?  | Less than 5 years..... 1.<br>5 and more years..... 2.   | → 119 |
| 114                       | What was the place of your last residence?                                | Aimag/city.....<br>Soum/district.....   |       |
| 115                       | Does your household register in this soum?                                | Yes..... 1.<br>No..... 2.<br>Don't know..... 3.   |       |
| 116                       | Whom did you come in this soum?   | Myself..... A.<br>Parents..... B.<br>Siblings..... C.<br>Other relatives..... D.<br>Friends..... E.<br>Other (specify)..... F.  |       |
| 117                       | What were the main reasons for moving this place? (Circle all that apply) | Work in gold mining..... A.<br>Accompany parents..... B.<br>Accompany friends/relatives..... C.<br>Other (specify)..... X.  |       |
| 118                       | Before you coming this place, did you mine gold in other places?          | Yes..... 1.<br>No..... 2.   |       |

Baseline survey on "Informal Gold Mining in Bornuur and Zaamar Soums"  
The Child Questionnaire

| No.                                    | Questions   | Codes  | Steps          |
|--|---|--|----------------|
| <b>PART I: GENERAL CHARACTERISTICS</b> |   |  |                |
| 100                                    | Respondent number   |  |                |
| 101                                    | Current residence   | Soum.....<br>Name of settled place.....  |                |
| 102                                    | Age   |  |                |
| 103                                    | Sex   | Male..... 1.<br>Female..... 2.   |                |
| 105                                    | How many persons do you live with currently?                                | Total.....<br>of which: family members.....  | → 107          |
| <b>Check! If Question 105 = 1 then</b> |   |  |                |
| 106                                    | What are the relationships of these persons to you? (Circle all that apply) | Parents..... A.<br>Siblings..... B.<br>Other relatives..... C.<br>Friends..... D.<br>No relation..... E. |                |
| 107                                    | Are you attending in any school now?  | Yes..... 1.<br>No..... 2.<br>Graduated..... 3.   | → 109<br>→ 113 |
| 108                                    | Which grade do you attend in?   | Grade 1-4..... 1.<br>Grade 5-8..... 2.<br>Grade 9-10..... 3.<br>Other..... 4.                            | → 113          |
| 109                                    | Have you ever been in school?   | Yes..... 1.<br>No..... 2.  | → 112          |
| 110                                    | Which grade did you drop out of school?                                     | Don't know..... 98.  | → 412          |

| No. | Questions   | Codes   | Steps  |
|-----|---|---|--|
| 131 | Whom do you usually work with? (Circle all that apply)        | Myself.....<br>Parents/family members.....<br>Relatives.....<br>Friends.....<br>Acquaintances.....<br>Other (specify).....  | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>X.....                               |
| 132 | How did you decide to work in mining?                         | Myself.....<br>Parents.....<br>Co-workers.....<br>Friends.....<br>Relatives.....<br>Other (specify).....  | 1.....<br>2.....<br>3.....<br>4.....<br>5.....<br>6.....                               |
| 133 | How many days did you work in last week?                      |   | <input type="text"/> <input type="text"/>  |
| 134 | Have you got a day-off?                                       | Yes.....<br>No.....   | 1.....<br>2.....   |
| 135 | In which seasons, do you work mostly? (Circle all that apply) | Winter.....<br>Spring.....<br>Summer.....<br>Autumn.....  | A.....<br>B.....<br>C.....<br>D.....   |
| 136 | How many hours did you work in last week?                     |   | <input type="text"/> <input type="text"/>  |
| 137 | What type of mining do you work?                              | Hard rock.....<br>Placer mining.....<br>Both.....   | 1.....<br>2.....<br>3.....   |
| 138 | What do you usually do in mining? (Circle all that apply)     | Digging a hole/soil.....<br>Fetching water/soil.....<br>Crushing and milling.....<br>Digging and panning gold.....<br>Digging mercury.....<br>Transporting ore/stone.....<br>Amalgamating with mercury.....<br>Explosive.....<br>Other (specify)..... | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>G.....<br>H.....<br>X..... |
| 139 | Do you engage in other work than mining?                      | Yes.....<br>No.....   | 1.....<br>2..... → 141   |

| No.   | Questions   | Codes  | Steps  |
|---|---|--|--|
| <b>PART III: LIVING CONDITIONS</b>                        |   |  |  |
| 119   | Where does your household usually live?                   | Place of mining.....<br>In this sourm center.....<br>In other aimag/sourm center.....                            | 1.....<br>2.....<br>3..... } 126               |
| 120   | What type of dwelling do you live in?                     | House.....<br>Ger.....<br>Tent.....<br>Hovel/hut.....<br>Other (specify).....                                    | 1.....<br>2.....<br>3.....<br>4.....<br>5..... |
| 121   | Type of ownership?  | Private.....<br>Rented by myself.....<br>Rented by others.....<br>Others dwelling (if nothing pay for this)..... | 1.....<br>2.....<br>3.....<br>4.....           |
| 122   | Does your household have electricity?                     | Yes.....<br>No.....  | 1.....<br>2.....                               |
| 123   | Is there any sanitary facilities close to your household? | Yes.....<br>No.....  | 1.....<br>2.....                               |
| 124   | How far is your family from school?                       | DK 98 1 <input type="text"/> km 2 <input type="text"/> m   |  |
| 125   | How far is your family from hospital?                     | DK 98 1 <input type="text"/> km 2 <input type="text"/> m   |  |
| 126   | How far is your family from drinking water source?        | DK 98 1 <input type="text"/> km 2 <input type="text"/> m   |  |
| 127   | How far is your dwellings from the place of mining?       | DK 98 1 <input type="text"/> km 2 <input type="text"/> m   |  |
| <b>PART IV: WORKING ARRANGEMENT &amp; WORK CONDITIONS</b> |   |  |  |
| 128   | What age did you start to work in mining at?              |  | <input type="text"/> <input type="text"/>      |
| 129   | Do you work permanently?                                  | All-year-round.....<br>During the summer school vacations.....<br>Sometimes/Seldom.....<br>Other (specify).....  | 1.....<br>2.....<br>3.....<br>4.....           |
| 130   | How many persons do you work with?                        |  | <input type="text"/> <input type="text"/>      |

| No. | Questions   | Codes   | Steps  |
|-----|---|---|--|
| 146 | Have you ever faced health problems while you engaged in mining?          | Yes.....<br>No.....   | 1.....<br>2..... → 148   |
| 147 | If yes, what kind of health problem? (Circle all that apply)              | Respiratory diseases.....<br>Articular and muscular diseases.....<br>Dermatological diseases.....<br>Ear, nose and throat problems.....<br>Kidney and urinary tract diseases.....<br>Heart-vessel diseases.....<br>Fatigue.....<br>Other (specify)..... | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>G.....<br>X..... |
| 148 | Who/where do you go when you face health problem? (Circle all that apply) | Parents.....<br>Relatives/friends.....<br>Doctor/hospital.....<br>Pharmacy.....<br>Traditional healer.....<br>Self treatment.....<br>Other (specify).....   | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>X.....           |
| 149 | Where do you get safe drinking water while you in mining?                 | Protected well.....<br>Unprotected well.....<br>River/streams.....<br>Springs.....<br>Back water.....<br>Other (specify).....   | 1.....<br>2.....<br>3.....<br>4.....<br>5.....<br>6.....                     |
| 150 | Where do you go for a meal? (Circle all that apply)                       | Canteen in working area.....<br>People who are selling in working area.....<br>Brought from home.....<br>Other (specify).....   | A.....<br>B.....<br>C.....<br>X.....   |
| 151 | How, in your opinion, is your working condition?                          | Heavy and unhealthy condition.....<br>Somewhat heavy and unhealthy condition.....<br>Not heavy and unhealthy condition.....   | 1.....<br>2.....<br>3..... → 153   |

| No. | Questions  | Codes   | Steps  |
|-----|--|---|--|
| 140 | If yes, what kind of work? (Circle all that apply)                     | Sell retail goods in "Ger" shops.....<br>Sell food/goods in mining places.....<br>Play game.....<br>Other (specify).....  | A.....<br>B.....<br>C.....<br>D.....   |
| 141 | Do you use the following equipments in mining? (Circle all that apply) | Shovels.....<br>Small/sledgehammers.....<br>Ropes.....<br>Sacks.....<br>Candles.....<br>Torches.....<br>Metal rickling sieve.....<br>Mercury.....<br>Mercury containers.....<br>Green plastic gold pans.....<br>Buckets.....<br>Pestle.....<br>Other (specify)..... | Yes No<br>1 2<br>1 2<br>1 2<br>1 2<br>1 2<br>1 2<br>1 2<br>1 2<br>1 2<br>1 2<br>1 2<br>1 2 |
| 142 | How do you get these equipments?                                       | My own.....<br>Rented.....<br>Borrowed.....<br>Mixed.....   | 1.....<br>2.....<br>3.....<br>4.....   |
| 143 | Have you ever faced any violence and abuse at work?                    | Yes.....<br>No.....   | 1.....<br>2..... → 146   |
| 144 | If any, from whom? (Circle all that apply)                             | Bad behavioral people.....<br>Police officers.....<br>Security guards.....<br>Other mines.....<br>Governors.....<br>Others (specify).....   | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>X.....                                   |
| 145 | What kind of violence and abuse do you face? (Circle all that apply)   | Verbal abuse.....<br>Seriously beaten.....<br>Pillaged.....<br>Asked money.....<br>Forced to work for them.....<br>Do not allow to work.....<br>Others (specify).....   | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>X.....                         |



| No.   | Questions  | Codes   | Steps   |
|---|--|---|---|
| 152   | Why do you think, your working condition is heavy and unhealthy?<br>(Circle all that apply)              | Too dusty.....<br>Poor sanitary.....<br>Work mostly outside (too cold/too hot).....<br>No ventilation.....<br>Too humid.....<br>Long hours of work.....<br>Hazardous.....<br>Use mercury.....<br>Other (specify).....   | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>G.....<br>H.....<br>X.....  |
| <b>PART V: OCCUPATIONAL SAFETY AND HEALTH</b> |  |   |   |
| 153   | Do you know about safety and health standards/requirements?  | Yes, follow them.....<br>Yes, not follow them.....<br>Do not know.....<br>Do not much bother about it.....  | 1.....<br>2.....<br>3.....<br>4.....  |
| 154   | Do use the following personal protection equipments in mining and processing?<br>(Circle all that apply) | Rubber waterproof boots.....<br>Cloth industrial gloves.....<br>Head covering.....<br>Red rubber household gloves.....<br>Leather boots.....<br>Strong belt.....<br>Footholds in shaft walls.....<br>Knotted rope for simple hauling.....<br>Face mask.....<br>Earplugs.....<br>Cowl.....<br>Ventilation.....<br>Other (specify)..... | Always Seldom Never<br>1 2 3<br>1 2 3<br>1 2 3<br>1 2 3<br>1 2 3<br>1 2 3<br>1 2 3<br>1 2 3<br>1 2 3<br>1 2 3<br>1 2 3<br>1 2 3 |
| 155   | What is the most worrying problem for your safety at work?<br>(Circle all that apply)                    | Explosives.....<br>Collapse of tunnel in hard rock.....<br>Collapse of tunnel in unconsolidated sediments.....<br>Falling down open shafts.....<br>Use of mercury.....<br>Dusty.....<br>Working in water.....<br>Poor sanitary.....<br>Electric danger.....<br>Other (specify).....   | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>G.....<br>H.....<br>I.....<br>J.....<br>X.....                      |

| No. | Questions  | Codes  | Steps  |
|-----|--|--|--|
| 156 | Have you ever faced any accident at work?                                    | Yes.....<br>No.....  | 1.....<br>2.....<br>→ 160  |
| 157 | If any, what kind of accident?<br>(Circle all that apply)                    | Tunnel and shaft collapses.....<br>Roof falls.....<br>Fire.....<br>Dangerous gases.....<br>Pestle & mortar, or milling machine accidents.....<br>Electric shock.....<br>Other (specify).....                                     | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>X.....   |
| 158 | Once accident happen to whom do you report?<br>(Circle all that apply)       | Parents.....<br>Doctor/hospital.....<br>Traditional healer.....<br>Friends/relatives.....<br>Social/religious organizations.....<br>Nobody.....<br>Other (specify).....  | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>X.....   |
| 159 | What injuries did you get?<br>(Circle all that apply)                        | Eye damages.....<br>Broken legs and arms.....<br>Lost legs and arms.....<br>Became deaf.....<br>Burned.....<br>Faint.....<br>Suffocated.....<br>Back injury.....<br>Head injury.....<br>No injuries.....<br>Other (specify)..... | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>G.....<br>H.....<br>I.....<br>J.....<br>X..... |
| 160 | What are the most common injuries do people face?<br>(Circle all that apply) | Eye damages.....<br>Broken legs and arms.....<br>Lost legs and arms.....<br>Became deaf.....<br>Burned.....<br>Faint.....<br>Suffocated.....<br>Back injury.....<br>Head injury.....<br>Died.....<br>Other (specify).....        | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>G.....<br>H.....<br>I.....<br>J.....<br>X..... |

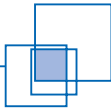
| No.                         | Questions  | Codes  | Steps                   |
|-----------------------------|--|--|-------------------------|
| <b>PART VI: INCOME</b>      |  |  |                         |
| 169                         | How many gram gold do you produce in a typical week?                 | Don't know.....98  | gr <input type="text"/> |
| 170                         | What is your form of selling gold? (Circle all that apply)           | Money.....A<br>Non-money products.....B  |                         |
| 171                         | How much is your average monthly income from producing/selling gold? | MNT <input type="text"/>   |                         |
| 172                         | How do you sell gold? (Circle all that apply)                        | Myself.....A<br>Parents.....B<br>Co-workers.....C<br>Relatives/friends.....D<br>Other (specify).....X  |                         |
| 173                         | How do you use spend your income? (Circle all that apply)            | For household consumption.....A<br>Purchase needed goods for myself.....B<br>Pay for education.....C<br>Pay for medical treatment.....D<br>Savings.....E<br>Spend all.....F<br>Other (specify).....X |                         |
| 174                         | What is your income contribution in your household income?           | Main source of household income.....1<br>Somewhat contribution in household income.....2<br>Little contribution in household income.....3<br>No contribution.....4                                   |                         |
| <b>PART VII: PERCEPTION</b> |  |  |                         |
| 175                         | How do you spend your free time? (Circle all that apply)             | No free time.....A<br>PC games.....B<br>Karaoke/cinema/disco.....C<br>At home.....D<br>With friends.....E<br>Library/internet.....F<br>Other (specify).....X   | 177                     |

| No. | Questions  | Codes   | Steps |
|-----|--|---|-------|
| 161 | Do you use mercury in mining and processing?                 | Yes.....1<br>No.....2   | → 165 |
| 162 | If yes, how do you use it? (Circle all that apply)           | Sell mercury.....A<br>Amalgamating with mercury.....B<br>Other (specify).....X  |       |
| 163 | How do you get mercury? (Circle all that apply)              | From thermometer.....A<br>Stolen from formal gold mines.....B<br>From mercury mining places.....C<br>From shops in soum center.....D<br>From gold buyers.....E<br>Other (specify).....X |       |
| 164 | Where do you keep mercury? (Circle all that apply)           | Home.....A<br>Under soil (place close to home).....B<br>Milling place.....C<br>Other (specify).....X  |       |
| 165 | Do you know about hazardous of using mercury?                | Yes.....1<br>No.....2   | → 167 |
| 166 | If yes, how do you protect yourself? (Circle all that apply) | Use gloves.....A<br>Use mask.....B<br>Do not amalgamate in dwelling.....C<br>Keep mercury in containers.....D<br>Use miller.....E<br>No protection.....F<br>Other (specify).....X       |       |
| 167 | Have you ever faced mercury related health problems?         | Yes.....1<br>No.....2   | → 169 |
| 168 | If yes, what kind of problems? (Circle all that apply)       | Arising wounds/skin rashes and burns.....A<br>Getting tired.....B<br>Effects on eyes.....C<br>Ripping of bones.....D<br>Lost hair.....E<br>Perspiring.....F<br>Other (specify).....X    |       |

| No. | Questions  | Codes  | Steps |
|-----|--|--|-------|
| 176 | If you have free time, how will you spend it? <i>(Circle all that apply)</i> | PC games.....A<br>Karaoke/cinema/disco.....B<br>At home.....C<br>With friends.....D<br>Training/course.....E<br>Library/internet.....F<br>Other. <i>(Specify)</i> .....X   |       |
| 177 | Did you witness any conflict between ninjas and police or security forces?   | Always.....1<br>Sometimes.....2<br>Seldom.....3<br>Never.....4<br>Don't know.....5   |       |
| 178 | Do you like to work in the mining?   | Like.....1<br>Not very like.....2<br>Dislike.....3   | → 180 |
| 179 | Why do you dislike to work in the mining? <i>(Circle all that apply)</i>     | My health is impaired by heavy work and injury.....A<br>Miners are exposed to maximum risk of death & injury.....B<br>Mining work is too heavy and unhealthy.....C<br>Child miners don't have the joys of childhood.....D<br>There is child abuse in the mining work.....E<br>I like to attend school.....F<br>My parents/family forced me to work.....G<br>Other. <i>(Specify)</i> .....X | → 181 |
| 180 | Why do you like to work here? <i>(Circle all that apply)</i>                 | I make money for the family.....A<br>Mining work is just as summer employment.....B<br>Mining work enables me to make ends meet.....C<br>I already dropped out of school.....D<br>Other. <i>(Specify)</i> .....X   |       |
| 181 | Do you intend to work in mining continuously?                                | Yes.....1<br>No.....2<br>Don't know.....3  | → 183 |
| 182 | If no, what is your future aspiration? <i>(Circle all that apply)</i>        | Possess compulsory/basic education.....A<br>Acquire professional skills.....B<br>Do another work.....C<br>Don't know.....D<br>Other. <i>(Specify)</i> .....X   | → 184 |

| No.  | Questions   | Codes  | Steps |
|------|---|--|-------|
| 182a | What skills do you wish to obtain?  |  | → 184 |
| 183  | If yes, why? <i>(Circle all that apply)</i>   | I should help my parents...my family hardly make ends meet.....A<br>My parents ill and died.....B<br>I should make money for my education.....C<br>I want to make money for my future.....D<br>Mining work is just as a form of engagement.....E<br>Other. <i>(Specify)</i> .....X |       |
| 184  | In your opinion, did girls ever engage in sexual services in mining?                                      | Yes.....1<br>No.....2<br>Don't know.....3  |       |
| 185  | In your opinion, what activities are needed for children in mining places? <i>(Circle all that apply)</i> | Day care center for children.....A<br>Informal training.....B<br>Training on safety working.....C<br>Places for health services.....D<br>Other. <i>(Specify)</i> .....X  |       |
| 186  | Do you want your siblings to get engaged in mining activity?  | Yes.....1<br>No.....2  |       |

**Thank you very much for your kind cooperation!**



Baseline survey on "Informal Gold Mining in Bormuur and Zaamar Soums"  
The Adult Questionnaire

| No.  | Questions   | Codes  | Steps  |
|--|---|--|--|
| <b>PART I: GENERAL CHARACTERISTICS</b>       |   |  |  |
| 200  | Respondent number   |  | <input type="text"/> <input type="text"/> <input type="text"/> |
| 201  | Current residence   | Soum<br>Name of settled place  | <input type="text"/>   |
| 202  | Age   |  | <input type="text"/>   |
| 203  | Sex   | Male<br>Female   | 1<br>2   |
| 204  | Marital status  | Single<br>Married<br>Living together<br>Separated/divorced/widowed   | 1<br>2<br>3<br>4   |
| 205  | How many children do you have?  |  | <input type="text"/>   |
| 206  | How many people are living with you currently?                            | Total<br>Number of family members  | <input type="text"/> <input type="text"/>                      |
| <b>Check! If Question 206 = 1 then</b> → 208 |   |  |  |
| 207  | What is the relationship of these persons to you? (Circle all that apply) | Family members<br>Relatives<br>Friends<br>Co-workers   | A<br>B<br>C<br>D   |
| 208  | What is your highest educational attainment?                              | Primary<br>Secondary<br>Completed secondary<br>Technical/Special professional<br>Uncompleted higher/higher | 1<br>2<br>3<br>4<br>5  |
| 209  | What's your profession?   |  | <input type="text"/>   |
| <b>PART II: MIGRATION EXPERIENCE</b>         |   |  |  |
| 210  | How long are you living in this soum?                                     | Less than 5 years<br>5 and more years  | 1<br>2   |

| No. | Questions   | Codes  | Steps                                     |
|-----|---|--|---|
| 211 | What was the place of your last residence?  | Aimag/city<br>Soum/district  | <input type="text"/> <input type="text"/> |
| 212 | How long did you live in your last residence?   | ..... months<br>..... years  | 1<br>2                                    |
| 213 | Have you registered in this soum?   | Yes<br>No  | 1<br>2                                    |
| 214 | If no, why?   | No permission/ID<br>High fee<br>Not yet decided to migrate (living temporary)<br>Problems with soum governor<br>Do not want/interest to register<br>Living temporary<br>Do not know where to register<br>Other (specify) | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>9      |
| 215 | Whom did you migrated to this soum? (Circle all that apply)                             | Myself alone<br>Husband/ wife<br>Children<br>Parents<br>Other relatives<br>Friends<br>Other (specify)  | A<br>B<br>C<br>D<br>E<br>F<br>X           |
| 216 | What were the reasons of moving to the present place? (Circle all that apply)           | Chasing by previous residence local authority<br>Chasing by mining company<br>Better opportunity of gold output<br>To join family/relatives/friends/co-workers<br>Looking for the customers/services<br>Other (specify)  | A<br>B<br>C<br>D<br>E<br>X                |
| 217 | If you came to mine gold, how long have you been working in mining in this soum?        | ..... months<br>..... years  | 1<br>2                                    |
| 218 | Have you been involved in gold mining in other aimag/soum before you come to this soum? | Yes<br>No  | 1<br>2                                    |
| 219 | How many times did you change your settlement since 1 January 2004?                     |  | <input type="text"/>                      |

| No.                              | Questions   | Codes  | Steps  |
|----------------------------------|---|--|--|
| 231                              | What kind of services/access in your working/living area? (Circle all that apply) | Retail shopping.....<br>Personal services.....<br>Transport services.....<br>Fuel supplies.....<br>Medical services.....<br>Repair/Equipment rental services.....<br>No services/access.....<br>Other (specify)..... | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>G.....<br>X..... |
| <b>PART IV: WORK ARRANGEMENT</b> |   |  |  |
| 232                              | How long have you been working in mining?   |  | ..... months <input type="text"/> <input type="text"/>                       |
| 233                              | Do you engage in other work than mining?  | Yes.....<br>No.....  | 1.....<br>2.....<br>→ 235  |
| 234                              | If yes, where do you work?  | Government organization.....<br>State owned organization.....<br>Private organization.....<br>Holders.....<br>Self employed.....<br>Student.....<br>Housework.....<br>Other (specify).....                           | 1.....<br>2.....<br>3.....<br>4.....<br>5.....<br>6.....<br>7.....<br>9..... |
| 235                              | Do you/your family provide any other services in this mine settlement area?       | Yes.....<br>No.....  | 1.....<br>2.....<br>→ 237  |
| 236                              | If yes, what kind of services? (Circle all that apply)                            | Retail shopping.....<br>Personal services.....<br>Transport services.....<br>Fuel supplies.....<br>Medical services.....<br>Repair/Equipment rental services.....<br>Other (specify).....                            | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>X.....           |
| 237                              | How many people do you work together with?  |  | <input type="text"/> <input type="text"/>                                    |

| No.                                | Questions   | Codes  | Steps  |
|------------------------------------|---|--|--|
| 220                                | Do you want to go somewhere else? Do you want to move somewhere else? | Yes.....<br>No.....  | 1.....<br>2.....<br>→ 222  |
| 221                                | When are you planning to move?  | ..... days.....<br>..... months.....   | 1 <input type="text"/> <input type="text"/><br>2 <input type="text"/> <input type="text"/> |
| <b>PART III: LIVING CONDITIONS</b> |   |  |  |
| 222                                | Where do you live mostly?   | Mining area.....<br>Soum center.....<br>Other aimag soum.....  | 1.....<br>2.....<br>3.....<br>} 229  |
| 223                                | What type of dwelling do you live in?                                 | House.....<br>Ger.....<br>Tent.....<br>Hoye/hut.....<br>Other (specify).....                                     | 1.....<br>2.....<br>3.....<br>4.....<br>9.....   |
| 224                                | Type of ownership?  | Private.....<br>Rented by myself.....<br>Rented by others.....<br>Others dwelling (if nothing pay for this)..... | 1.....<br>2.....<br>3.....<br>4.....   |
| 225                                | Does your household have electricity?                                 | Yes.....<br>No.....  | 1.....<br>2.....   |
| 225a                               | Do you have toilet and/or disposal place near your working place?     | Yes.....<br>No.....  | 1.....<br>2.....   |
| 226                                | How often do you go to soum centre?                                   | Often.....<br>Sometimes.....<br>Seldom.....<br>Never.....  | 1.....<br>2.....<br>3.....<br>4.....   |
| 227                                | How far is your family from school?                                   | DK 98 1 km <input type="text"/> <input type="text"/> 2 m <input type="text"/> <input type="text"/>               |  |
| 228                                | How far is your family from hospital?                                 | DK 98 1 km <input type="text"/> <input type="text"/> 2 m <input type="text"/> <input type="text"/>               |  |
| 229                                | How far is your family from drinking water source?                    | DK 98 1 km <input type="text"/> <input type="text"/> 2 m <input type="text"/> <input type="text"/>               |  |
| 230                                | How far is your dwellings from the place of mining?                   | DK 98 1 km <input type="text"/> <input type="text"/> 2 m <input type="text"/> <input type="text"/>               |  |

| No.   | Questions   | Codes  | Steps  |
|---|---|--|--|
| 246   | Do you use the following equipments in mining? (Circle all that apply)              | Shovels.....<br>Small hammers.....<br>Sledgehammers.....<br>Scrapers.....<br>Ropes.....<br>Sacks.....<br>Candles.....<br>Torches.....<br>Drill.....<br>Other (specify).....  | Yes No<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.                            |
| 247   | Do you use the following equipments in processing the gold? (Circle all that apply) | Shovels.....<br>Sledgehammers.....<br>Sacks.....<br>Metal riddling sieve.....<br>Stone or metal anvil.....<br>Pestle & mortar or milling machine.....<br>Mercury.....<br>Mercury containers.....<br>Green plastic gold pans.....<br>Generator.....<br>Compressor.....<br>Pestle.....<br>Other (specify)..... | Yes No<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2.<br>1. 2. |
| 248   | How do you get these equipments?  | My own.....<br>Rented.....<br>Borrowed.....<br>Some are mine and some are rented.....  | 1. → 250<br>2.<br>3. → 252<br>4.   |
| 249   | If rented, in average, how much do you pay in a week?*                              | MNT  |  |
| <b>Check! If Question 248 = 2 or 3 then</b> → 252 |   |  |  |
| 250   | Do you rent your equipments to someone else?  | Yes.....<br>No.....  | 1.<br>2. → 252   |
| 251   | If yes, in average, how much do you get in a week?                                  | MNT  |  |

| No.                               | Questions  | Codes  | Steps  |
|-----------------------------------|--|--|--|
| 238                               | Whom do you usually work with? (Circle all that apply)                   | Myself alone.....<br>Family members.....<br>Relatives.....<br>Friends.....<br>Acquaintances.....<br>Other (specify).....   | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>X.....   |
| 239                               | How do you find the place for mining operations? (Circle all that apply) | Myself and/or family members.....<br>Local people/ninjas.....<br>People who know the place for mining.....<br>Other (specify).....   | A.....<br>B.....<br>C.....<br>X.....   |
| <b>PART V: WORKING CONDITIONS</b> |  |  |  |
| 240                               | How many days did you work last week?                                    |  |  |
| 241                               | Have you got a day-off?  | Yes.....<br>No.....  | 1.<br>2.   |
| 242                               | Do you work mostly in this place?  | Whole year.....<br>Seasonally.....<br>Only on holidays/vocations.....<br>Occasionally.....<br>Other (specify).....   | 1.<br>2.<br>3.<br>4.<br>9.   |
| 243                               | How many hours did you work in a day last week?                          |  |  |
| 244                               | What type of mining do you do?   | Hard rock.....<br>Placer mining.....<br>Both.....  | 1.<br>2.<br>3.   |
| 245                               | What do you usually do in mining? (Circle all that apply)                | Digging a hole.....<br>Fetching water/soil.....<br>Crushing and milling.....<br>Operate an electric mill.....<br>Digging and panning gold.....<br>Dicing and panning mercury.....<br>Drilling.....<br>Transporting ore.....<br>Amalgamating with mercury.....<br>Explosion work.....<br>Other (specify)..... | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>G.....<br>H.....<br>I.....<br>J.....<br>X..... |

| No. | Questions   | Codes   | Steps  |
|-----|---|---|--|
| 252 | Do you witness any conflict between ninjas and police or security forces? | Always.....<br>Sometimes.....<br>Seldom.....<br>Never.....<br>Don't know.....   | 1.....<br>2.....<br>3.....<br>4.....<br>5.....                               |
| 253 | Do you witness any conflict between ninjas?                               | Always.....<br>Sometimes.....<br>Seldom.....<br>Never.....<br>Don't know.....   | 1.....<br>2.....<br>3.....<br>4.....<br>5.....                               |
| 254 | Have you ever faced any violence and abuse at work?                       | Yes.....<br>No.....   | 1.....<br>2.....<br>→ 257  |
| 255 | If any, from whom? (Circle all that apply)                                | Bad behaved people.....<br>Police officers.....<br>Security guards.....<br>Other ninjas.....<br>Governors.....<br>Other (specify).....  | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>X.....                     |
| 256 | What kind of violence and abuse do you face? (Circle all that apply)      | Verbal abuse.....<br>Seriously beaten.....<br>Pillaged.....<br>Asked money.....<br>Forced to work for them.....<br>Do not allow to work.....<br>Other (specify).....  | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>X.....           |
| 257 | Have you ever faced health problems while you engaged in mining?          | Yes.....<br>No.....   | 1.....<br>2.....<br>→ 259  |
| 258 | If yes, what kind of health problem? (Circle all that apply)              | Respiratory diseases.....<br>Articular and muscular diseases.....<br>Dermatological diseases.....<br>Ear, nose and throat problems.....<br>Kidney and urinary tract diseases.....<br>Heart vessel diseases.....<br>Fatigue.....<br>Other (specify)..... | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>G.....<br>X..... |

| No. | Questions  | Codes   | Steps  |
|-----|--|---|--|
| 259 | Who/where do you go when you face health problems? (Circle all that apply) | Pharmacy.....<br>A doctor/hospital.....<br>Care centers.....<br>Family/Relatives/friends.....<br>Traditional healer.....<br>Self treatment.....<br>No one/no where.....<br>Other (specify)..... | A.....<br>B.....<br>D.....<br>E.....<br>F.....<br>G.....<br>X..... |
| 260 | Do you have health insurance?  | Yes.....<br>No.....   | 1.....<br>2.....   |
| 261 | How often do you use alcoholic drinks?                                     | Everyday.....<br>Sometimes.....<br>Seldom.....<br>Never.....  | 1.....<br>2.....<br>3.....<br>4.....                               |
| 262 | Do you know anyone from your friends/relatives/co-workers who use drugs?   | Yes.....<br>No.....<br>DK.....  | 1.....<br>2.....<br>3.....   |
| 263 | What is the main source of drinking water?                                 | Protected well.....<br>Unprotected well.....<br>Spring.....<br>River.....<br>Back water.....<br>Other.....  | 1.....<br>2.....<br>3.....<br>4.....<br>5.....<br>6.....           |
| 264 | Where do you go for a meal?  | Canteen in working area.....<br>People who are selling in working area.....<br>Brought from home.....<br>Other (specify).....   | A.....<br>B.....<br>C.....<br>X.....                               |
| 265 | How, in your opinion, is your working condition?                           | Very poor.....<br>Poor.....<br>Somewhat good.....   | 1.....<br>2.....<br>3.....<br>→ 267                                |

| No. | Questions  | Codes   | Steps |
|-----|--|---|-------|
| 271 | What is the most worrying problem for your safety at work? (Circle all that apply) | Explosives..... A.<br>Collapse of tunnel in hard rock..... B.<br>Collapse of tunnel in unconsolidated sediments..... C.<br>Falling down open shafts..... D.<br>Long hours of staying and working in water..... E.<br>Poor sanitary and hygiene..... F.<br>Crushing/ milling..... G.<br>Use of mercury..... H.<br>Electric danger..... I.<br>Other (specify)..... X. |       |
| 272 | Have you ever faced any accident at work?  | Yes..... 1<br>No..... 2   | → 276 |
| 273 | If any, what kind of accident? (Circle all that apply)                             | Tunnel and shaft collapses..... A.<br>Roof falls..... B.<br>Falling to holes..... C.<br>Fire..... D.<br>Dangerous gases..... E.<br>Pestic & mortar or milling machine accidents..... F.<br>Electric shock..... G.<br>Other (specify)..... X.  |       |
| 274 | Once accident happen to whom do you report?  | Local Governor..... A.<br>Insurance company..... B.<br>Trade Union..... C.<br>Doctor/hospital..... D.<br>Social/Religious organisation..... E.<br>No one..... F.<br>Other (specify)..... X.   |       |
| 275 | What injuries did you get? (Circle all that apply)                                 | Eye damages..... A.<br>Broken legs and arms..... B.<br>Lost legs and arms..... C.<br>Broken head..... D.<br>Became deaf..... E.<br>Burned..... F.<br>Suffocated..... G.<br>Faint..... H.<br>Back injury..... I.<br>No injuries..... J.<br>Other (specify)..... X.   |       |

| No.  | Questions   | Codes  | Steps |
|--|---|--|-------|
| 266  | Why do you think, your working condition is poor or very poor? (Circle all that apply)                | Too dusty..... A.<br>Poor sanitary..... B.<br>Work mostly outside (too cold/too hot)..... C.<br>No ventilation..... D.<br>Too humid..... E.<br>Long hours of work..... F.<br>Hazardous..... G.<br>Other (specify)..... X.  |       |
| <b>PART VI: OCCUPATIONAL SAFETY AND HEALTH</b> |   |  |       |
| 267  | Do you know about safety and health standards/requirements?   | Yes, follow them..... 1<br>Yes, not follow them..... 2<br>Do not know..... 3<br>Do not much bother about it..... 4   |       |
| 268  | Have you ever receive any training on OSH?  | Yes..... 1<br>No..... 2  | → 270 |
| 269  | If yes, who provided? (Circle all that apply)   | Previously worked mining company..... A.<br>Labour Regulation Office..... B.<br>Project/programme implementing organisation..... C.<br>Relatives/Friends..... D.<br>Environmental NGOs..... E.<br>Local Government..... F.<br>Other (specify)..... X.  |       |
| 270  | Do use the following personal protection equipments in mining and processing? (Circle all that apply) | Always Seldom Never<br>Rubber waterproof boots..... 1 2 3<br>Cloth industrial gloves..... 1 2 3<br>Head covering..... 1 2 3<br>Red rubber household gloves..... 1 2 3<br>Leather boots..... 1 2 3<br>Strong belt..... 1 2 3<br>Footholds in shaft walls..... 1 2 3<br>Face mask..... 1 2 3<br>Earplugs..... 1 2 3<br>Cowl..... 1 2 3<br>Ventilation..... 1 2 3<br>Other (specify)..... 1 2 3 |       |



| No.                                      | Questions  | Codes  | Steps   |
|--|--|--|---|
| 283                                      | If yes, how do you protect yourself?<br>(Circle all that apply)      | Use gloves<br>Use face mask<br>Do not use kitchen sets for amalgamation<br>Do not amalgamate in a dwelling<br>Keep mercury in a container<br>Do not allow children for mercury<br>Keep mercury under soil assigned by soum<br>Keep mercury under soil near dwelling<br>Use miller<br>Do not protect<br>Other (specify) | A.<br>B.<br>C.<br>D.<br>E.<br>F.<br>G.<br>H.<br>I.<br>J.<br>X.  |
| 284                                      | Do you know about hazards of using mercury?                          | Yes<br>No  | 1.<br>2.<br>→ 287   |
| 285                                      | Have you ever faced mercury related health problems?                 | Yes<br>No  | 1.<br>2.<br>→ 287   |
| 286                                      | If yes, what kind of problems? (Circle all that apply)               | Effects on respiratory organs<br>Arisng wounds/skin rashes and burns<br>Ripping of bones/become an invalid<br>Effects on eyes<br>Giddiness<br>Falling hair<br>Joint penetration<br>Other (specify)   | A.<br>B.<br>C.<br>D.<br>E.<br>F.<br>G.<br>X.  |
| <b>PART VII: INCOME AND PRODUCTIVITY</b> |  |  |   |
| 287                                      | How many gram gold do you get in a typical week?                     | gramm  | <input type="text"/>  |
| 288                                      | What is your form of selling gold? (Circle all that apply)           | Money<br>Non-money products  | A.<br>B.  |
| 289                                      | How much is your average monthly income from producing/selling gold? | MNT  | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |
| 290                                      | How do you use your income? (Circle all that apply)                  | For household consumption<br>Purchase needed goods for myself<br>Pay for education<br>Pay for medical treatment<br>Savings<br>Other (specify)  | A.<br>B.<br>C.<br>D.<br>E.<br>X.  |

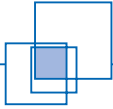
| No. | Questions   | Codes  | Steps  |
|-----|---|--|--|
| 276 | What are the most common injuries do people face? (Circle all that apply) | Eye damages<br>Broken legs and arms<br>Lost legs and arms<br>Broken head<br>Became deaf<br>Burned<br>Suffocated<br>Faint<br>Back injury<br>Dead<br>Other (specify) | A.<br>B.<br>C.<br>D.<br>E.<br>F.<br>G.<br>H.<br>I.<br>J.<br>X. |
| 277 | Do you use any explosive substances in mining?                            | Yes<br>No  | 1.<br>2.<br>→ 280  |
| 278 | What kind of explosive substances do you use? (Circle all that apply)     | Ammonite<br>Gunpowder/Shell<br>Other (specify)   | A.<br>B.<br>C.   |
| 279 | Where do you get them?  | From mines<br>From soum center<br>From other airmag/city/soum center   | A.<br>B.<br>C.   |
| 280 | Do you use mercury in processing the gold?                                | Yes<br>No  | 1.<br>2.<br>→ 283  |
| 281 | How do you get mercury? (Circle all that apply)                           | From thermometer<br>Stolen from formal gold mines<br>From mercury producing places<br>Gold buyers<br>Shops in soum center<br>Other (specify)                       | A.<br>B.<br>C.<br>D.<br>E.<br>X.                               |
| 282 | Where do you keep mercury? (Circle all that apply)                        | At home<br>Cellar/ambaar<br>Keep mercury under soil near home<br>In a milling place<br>Other (specify)   | A.<br>B.<br>C.<br>D.<br>X.                                     |

| No.   | Questions  | Codes   | Steps   |
|---|--|---|---|
| <b>PART VIII: PERCEPTION ABOUT CHILDREN</b> |  |   |   |
| 301   | How many children under age of 18 are living with you currently? | No. children.....   | <input type="text"/> <input type="text"/> → 315 |
| 302   | Is your child involved in the mining activities any way?         | Yes.....<br>No.....   | 1.....<br>2..... → 305                          |
| 303   | How many of your children are working or helping you in mining?  |   | <input type="text"/> <input type="text"/>       |
| 304   | What kind of work does he/she do? (Circle all that apply)        | Digging a hole..... A.<br>Fetching water/soil..... B.<br>Crushing..... C.<br>Sluicing and panning..... E.<br>Amalgamating with mercury..... G.<br>Transporting ore..... I.<br>Drilling..... J.<br>Milling..... K.<br>Explosion..... L.<br>Extracting mercury..... M.<br>Other (specify)..... X. |   |
| 305   | Do your children do any other kind of work?                      | Yes.....<br>No.....   | 1.....<br>2..... → 308                          |
| 306   | If yes, what kind of work? (Circle all that apply)               | Selling foods in get shops..... A.<br>Selling foods in working area..... B.<br>Work in the game shop.....<br>Other (specify)..... X.  |   |
| 307   | Why do you take your children to mining work?                    | Cannot leave them alone..... 1.<br>They want to stay with us..... 2.<br>They like to work..... 3.<br>They are working only on summer holidays..... 4.<br>Other (specify)..... 5.  |   |
| 308   | At present, can your children attend school?                     | Yes, all children..... 1.<br>Only some of children..... 2.<br>All children do not study..... 3.<br>Too young to go to school..... 4.  | → 310<br>→ 314                                  |

| No. | Questions   | Codes  | Steps |
|-----|---|--|-------|
| 291 | Do you pay any tax/fee from your income?                                      | Yes..... A.<br>No..... B.  | → 293 |
| 292 | If yes, to whom do you pay?   |  |       |
| 293 | To whom do you sell your gold? (Circle all that apply)                        | Get shops..... A.<br>Soum centre..... B.<br>Gold buyers from other places..... C.<br>Sell by myself in UB..... D.<br>Other (specify)..... X.                   |       |
| 294 | What is the main source of your income?                                       | Income from gold mining..... 1.<br>Income from services in nija settlement..... 2.<br>Income from soum centre work/services..... 3.<br>Other (specify)..... 9. |       |
| 295 | Has your family's livelihood improved after you started gold mining activity? | Better..... 1.<br>Same..... 2.<br>Worse..... 3.<br>Do not know..... 8.   | → 297 |
| 296 | If yes, in what respect? (Circle all that apply)                              | Bought house/ger..... A.<br>Bought other household items..... B.<br>Car/motorcycle/bike etc..... C.<br>Started private business..... D.<br>Other..... X.       |       |
| 297 | Do you have access to micro-credit/loan?                                      | Yes..... A.<br>No..... B.  | → 299 |
| 298 | If yes, where?  | Commercial bank..... 1.<br>Non-banking financial organisations..... 2.<br>Relatives/Friends..... 3.<br>Other (specify)..... 9.                                 |       |
| 299 | Do you have savings?  | Yes..... A.<br>No..... B.  | → 301 |
| 300 | If yes, where do you keep your savings?                                       | Commercial bank..... 1.<br>Non-banking financial organisations..... 2.<br>At home..... 3.<br>Other (specify)..... 9.   |       |

| No.                                    | Questions  | Codes   | Steps                |
|--|--|---|----------------------|
| 309                                    | If no, why? (Circle all that apply)  | Lack of money/resources..... A.<br>Domestic social problems..... B.<br>Lack of registration documents..... C.<br>School can't absorb..... D.<br>Far away to school..... E.<br>Bad quality education..... F.<br>Sick (physically or mentally)..... G.<br>Lack of interest in schooling..... H.<br>Graduated..... I.<br>Other (specify)..... X. | → 313                |
| <b>Check: If Question 302 = 2 then</b> |  |   |                      |
| 310                                    | Do you consider your children better leave the mining work?  | Yes..... 1.<br>No..... 2.   | → 312                |
| 311                                    | If yes, why?   | .....<br>.....<br>.....   | } 313                |
| 312                                    | If no, why?  | .....<br>.....  |                      |
| 313                                    | What is your future aspiration on your children? (Circle all that apply)                           | Want them to get basic education..... A.<br>Want them to get professional education..... B.<br>Want them to get other work than mining..... C.<br>Do not know..... D.<br>Other (specify)..... X.  |                      |
| 314                                    | What kind of activities should be done for the children working in mining? (Circle all that apply) | Create day care centers..... A.<br>Training for school drop-out children..... B.<br>Create health care units..... C.<br>Other (specify)..... X.   |                      |
| <b>PART IX: PERCEPTION OF FUTURE</b>   |  |   |                      |
| 315                                    | Would you like to continue to work in the mining?  | Yes..... 1.<br>No..... 2.<br>Do not know..... 3.  | → 317<br>→ 318       |
| 316                                    | How long do you intend to work in mining?  | Can't say..... 98.  | <input type="text"/> |
| 317                                    | If no, why?  | .....<br>.....  |                      |

| No.  | Questions   | Codes  | Steps |
|--|---|--|-------|
| <b>PART X: ORGANISATION AND REGULATION</b> |   |  |       |
| 318  | Do you prefer to work individually or collectively?                                     | Individually..... 1.<br>Collectively..... 2.   | → 320 |
| 319  | Why do you prefer to work individually?   | .....<br>.....   | } 321 |
| 320  | Why do you prefer to work collectively?   | .....<br>.....   |       |
| 321  | How the gold miners arrange/organise their work? (Circle all that apply)                | In groups of the same origin area..... A.<br>In groups of friends..... B.<br>In groups of same professionals..... C.<br>Family groups..... D.<br>No arrangement/organisation..... E.<br>Do not know..... F.<br>Other..... X. |       |
| 322  | Do you accept to belong any organisation which could protect rights of informal miners? | Yes..... 1.<br>No..... 2.  | → 324 |
| 323  | If yes, what organisation?  | Government organisation..... 1.<br>NGOs (association/union/cooperatives)..... 2.<br>Other (specify)..... 9.  |       |
| 324  | In your opinion, what kind of problems do ninjas cause for the gold mining companies?   | .....<br>.....<br>.....  |       |
| 325  | What kind of violence and abuse do informal gold miners face from the mining companies? | .....<br>.....<br>.....  |       |
| 326  | Would you like to work in formal mining company in the future?                          | Yes..... 1.<br>No..... 2.  |       |
| 327  | In your opinion, how to regulate informal gold mining?                                  | Regulation Law..... 1.<br>National programs/projects..... 2.<br>Other (specify)..... 9.  |       |



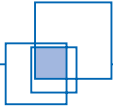
| No. | Questions   | Codes | Steps                      |
|-----|---|-------|----------------------------|
| 328 | In your opinion, what should be done in order to improve the situation of informal gold miners? |       | 1.....<br>2.....<br>3..... |

**Thank you very much for your kind cooperation!**

Baseline survey on "Informal Gold Mining in Bornuur and Zaamar Soums"  
The Local Authority Questionnaire

| No. | Questions  | Codes   | Steps   |
|-----|--|---|---|
| 400 | Respondent number  |   | <input type="text"/> <input type="text"/> <input type="text"/>  |
| 401 | Current residence  | Soum<br>Name of settled place   | <input type="text"/> <input type="text"/>   |
| 402 | In which organisation do you work?   | Soum/bag governor<br>Soum/bag school<br>Soum/bag hospital   | 1. <input type="text"/><br>2. <input type="text"/><br>3. <input type="text"/>   |
| 403 | In your opinion, how is the number of gold miners?   | Increased<br>Same<br>Decreased<br>Do you know   | 1. <input type="text"/><br>2. <input type="text"/><br>3. <input type="text"/><br>4. <input type="text"/>  |
| 404 | How many ninjas are working in your soum?  | Whole year<br>Summer time   | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>   |
| 405 | What's their resident status? (Circle all that apply)  | Non migrants<br>Temporary migrants<br>Migrants  | A. <input type="text"/><br>B. <input type="text"/><br>C. <input type="text"/>   |
| 406 | Did they register here?  | All of them registered<br>Some of them registered<br>All of them not registered   | 1. <input type="text"/><br>2. <input type="text"/><br>3. <input type="text"/>   |
| 407 | What's the main reason of non registration?  | No permission/D<br>High fee<br>Not yet decided to migrate (temporary migrants)<br>Problems with soum governor<br>Do not want/interest to register<br>Do not know where to register<br>Other (specify) | 1. <input type="text"/><br>2. <input type="text"/><br>3. <input type="text"/><br>4. <input type="text"/><br>5. <input type="text"/><br>6. <input type="text"/><br>7. <input type="text"/> |
| 408 | What difficulty do you face in order to register informal gold miners? (Circle all that apply) | No permission/D<br>Lack of capacity<br>Lack of finance/budget<br>Difficult to communicate with them/irrormality<br>They do change their mining area frequently<br>Other (specify)                     | A. <input type="text"/><br>B. <input type="text"/><br>C. <input type="text"/><br>D. <input type="text"/><br>E. <input type="text"/><br>X. <input type="text"/>                            |

| No. | Questions   | Codes  | Steps  |
|-----|---|--|--|
| 409 | Do the informal gold miners ask any assistance from local governor?   | Yes<br>No  | 1. <input type="text"/><br>2. <input type="text"/> → 412   |
| 410 | What kind of help do they ask? (Circle all that apply)  | Help to find work<br>Help to get admission to school<br>Provide health services<br>Give the land permission in mining<br>Provide police/security services<br>Other (specify)       | A. <input type="text"/><br>B. <input type="text"/><br>C. <input type="text"/><br>D. <input type="text"/><br>E. <input type="text"/><br>X. <input type="text"/> |
| 411 | What kind of help did they get? (Circle all that apply)   | Help to get admission to school<br>Provide health services<br>Give the land permission in mining<br>Provide training on OSH<br>Provide police/security services<br>Other (specify) | A. <input type="text"/><br>B. <input type="text"/><br>C. <input type="text"/><br>D. <input type="text"/><br>E. <input type="text"/><br>X. <input type="text"/> |
| 412 | In your opinion, what kind of activities should governor do in order to improve education attainment of informal gold miners' children? |  | <input type="text"/>   |
| 413 | What kind of activities should governor do in order to provide health service to informal gold miners?                                  |  | <input type="text"/>   |
| 414 | Do you think informal gold miners should be provided by bank service and micro-credit?  | Yes<br>No  | 1. <input type="text"/><br>2. <input type="text"/>   |
| 415 | In your opinion, how is the living standard of gold miners?   | They live good, without financial problems<br>They live more or less normally<br>Hardly make end meet<br>Don't have money for bread  | A. <input type="text"/><br>B. <input type="text"/><br>C. <input type="text"/><br>D. <input type="text"/>   |
| 416 | What kind of services could local governor provide/supply to informal gold miners?  |  | <input type="text"/>   |
| 417 | In your opinion, how is the local authorities' capacity?  | Yes<br>No  | 1. <input type="text"/><br>2. <input type="text"/> → 419   |



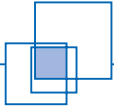
| No. | Questions  | Codes   | Steps |
|-----|--|---|-------|
| 418 | What kind of capacity is lack?   |   |       |
| 419 | In your opinion, what is the best way to improve the registration problems of informal                                       |   |       |
| 420 | In your opinion, what kind of assistance do formal companies ask from local governor in order to solve problems with ninjas? |   |       |
| 421 | What kind of regulation or assistance should be done in order to solve ninja's problem?                                      | Need to disband by law..... A.<br>Need to organise/legalise..... B.<br>Provide permission of land to mine..... C.<br>Develop law..... D.<br>Provide social service..... E.<br>Other..... X. |       |
| 422 | What role you can play in improving the situation of informal gold miners?   |   |       |

**Thank you very much for your kind cooperation!**

Baseline survey on "Informal Gold Mining in Borneu and Zaamar Soums"  
The Employer Questionnaire

| No.   | Questions   | Codes   | Steps                |
|---|---|---|----------------------|
| <b>PART I: RESPONDENT'S CHARACTERISTICS</b> |   |   |                      |
| 500   | Respondent number   |   | <input type="text"/> |
| 501   | Residence   | Soum.....<br>Name of settled place.....   | <input type="text"/> |
| 502   | Company's registered residence  | Aimag/city.....<br>Soum/district.....   | <input type="text"/> |
| 503   | Company's name  | .....   | <input type="text"/> |
| 504   | What is your position?  | Director.....1.<br>Executive/Vice Director.....2.<br>Chief/Vice chief of the mining site.....3.<br>Geologist/Engineer.....4.<br>Other (specify).....9 | <input type="text"/> |
| <b>PART II: COMPANY'S CHARACTERISTICS</b>   |   |   |                      |
| 505   | Company's type of investment?   | Domestic.....1.<br>Foreign.....2.<br>Joint venture.....3.   | <input type="text"/> |
| 506   | How do you work in mining?  | By ourselves.....1.<br>By contract.....2.<br>Both.....3.  | <input type="text"/> |
| 507   | When did the company start working in gold mining sector?               | Year.....   | <input type="text"/> |
| 508   | What type of mining do you work in?<br>(Circle all that apply)          | Hard rock.....A.<br>Placer mining.....B.  | <input type="text"/> |
| 509   | In average, how much gold do you mine in a month?                       | .....gramm  | <input type="text"/> |
| 510   | What is the estimated number of the years for the further exploitation? | .....years  | <input type="text"/> |

| No. | Questions  | Codes   | Steps                |
|-----|--|---|----------------------|
| 511 | How many employees are working at present?   | Company employee.....<br>Contracted employee.....<br>Total number.....  | <input type="text"/> |
| 512 | How many local people do you employ?   | Total number.....<br>No local people.....   | <input type="text"/> |
| 513 | How do you employ them?  | By contract.....A.<br>Hire without contract.....B.  | <input type="text"/> |
| 514 | What type of work do local people do in your company?  | .....   | <input type="text"/> |
| 515 | Would you please name reasons why your company does not employ local people?   | .....   | <input type="text"/> |
| 516 | Do informal gold miners create problems for your company?  | Yes.....1.<br>No.....2.   | <input type="text"/> |
| 517 | What should be done in order to overcome the problem of informal gold miners as well as to solve problems and difficulties your company faces? (Circle all that apply) | Regulation of the gold trade.....A.<br>Define specific areas allowed for the artisanal gold mining.....B.<br>Extend the duration of the recovery of used land by companies and free them from the charges.....C.<br>Develop the law on informal gold mining.....D.<br>Provide adequate conditions and environment for the labor safety as well as health and hygiene.....E.<br>Prohibit the informal gold mining.....F.<br>Other (specify).....X. | <input type="text"/> |
| 518 | If the regulations you mentioned above will be implemented, are you ready to adopt to work with informal gold miners?  | Yes.....1.<br>No.....2.   | <input type="text"/> |
| 519 | If no, why?  | .....   | <input type="text"/> |
| 520 | If above regulations will be implemented, what kind of collaborate work with informal gold miners is possible for your company? (Circle all that apply)                | Allow to work on used land of the company under certain conditions.....A.<br>Buy the gold from the informal gold miners.....B.<br>Rent certain techniques or machines.....C.<br>Others.....X.   | <input type="text"/> |



| No. | Questions  | Codes                            | Steps                      |
|-----|--|----------------------------------|----------------------------|
| 521 | Do you know about the draft legislation of artisanal mining?                       | Yes.....<br>No.....              | 1.....<br>2.....<br>-> end |
| 522 | What suggestions do you want to give for the improvement of the draft legislation? | .....<br>.....<br>.....<br>..... |                            |

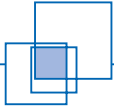
**Thank you very much for your kind cooperation!**



Baseline survey on "Informal Gold Mining in Bornuur and Zaamar Soums"  
The Intermediary Questionnaire

| No. | Questions  | Codes   | Steps  |
|-----|--|---|--|
| 600 | Respondent number                                  |   | <input type="text"/>   |
| 601 | Current residence                                  | Soum.....<br>Name of settled place.....   | <input type="text"/>   |
| 602 | Permanent residence                                | Aimaq/city.....<br>Soum/district.....   | <input type="text"/>   |
| 603 | Age  |   | <input type="text"/>   |
| 604 | Sex?   | Male.....<br>Female.....  | 1.....<br>2.....   |
| 605 | What is your highest educational attainment?       | Primary (grade 1-4) or less.....<br>Secondary (grade 5-8).....<br>Completed secondary (grade 9-10).....<br>Technical.....<br>Special professional.....<br>Uncompleted higher.....<br>Higher.....  | 1.....<br>2.....<br>3.....<br>4.....<br>5.....<br>6.....<br>7..... |
| 606 | Do you engage in other work than trading gold?     | Yes.....<br>No.....   | 1.....<br>2.....   |
| 607 | When did you start to work trading gold?           | .....Year.....  | <input type="text"/>   |
| 608 | Whom do you buy gold from? (Circle all that apply) | Buying gold from individual ninjas.....<br>Buying gold from "Ger" shops in the mining areas.....<br>From gold traders in the soum center.....<br>From goldsmiths.....<br>From employees of formal mining companies.....<br>Other (Specify)..... | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>X.....           |
| 609 | How often do you buy or sell gold?                 | Everyday.....<br>Every few days.....<br>Other (Specify).....  | 1.....<br>2.....<br>3.....   |

| No. | Questions  | Codes  | Steps   |
|-----|--|--|---|
| 610 | Who is the best gold seller for you? (Circle all that apply)                             | Individual ninjas.....<br>"Ger" shops in the mining areas.....<br>Gold traders in the soum center.....<br>Goldsmiths.....<br>Employees of formal mining companies.....<br>Other (Specify)..... | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>X.....  |
| 611 | Once buy gold, how many gramm gold do you get?   | .....gramm.....  | <input type="text"/>  |
| 612 | What is your form of purchasing and selling gold? (Circle all that apply)                | Cash.....<br>Goods and services.....<br>Other (Specify).....   | A.....<br>B.....<br>X.....  |
| 613 | When is the peak period for financing gold purchasing?                                   | January.....<br>February.....<br>March.....<br>April.....<br>May.....<br>June.....<br>July.....<br>August.....<br>September.....<br>October.....<br>November.....<br>December.....             | 1.....<br>2.....<br>3.....<br>4.....<br>5.....<br>6.....<br>7.....<br>8.....<br>9.....<br>10.....<br>11.....<br>12..... |
| 614 | How much profit do you gain from selling and purchasing gold, if it is possible to say?  | Per month (MNT).....   | <input type="text"/>  |
| 615 | What, in your opinion, is the preference of ninjas to sell gold? (Circle all that apply) | Trust.....<br>Friendly relations.....<br>Acquaintances.....<br>Relaxed atmosphere.....<br>Security concerns.....<br>Gold price.....<br>Other (Specify).....                                    | A.....<br>B.....<br>C.....<br>D.....<br>E.....<br>F.....<br>X.....  |



| No. | Questions   | Codes   | Steps |
|-----|---|---|-------|
| 616 | Whom, in your opinion, do your gold buyers sell his/her purchased gold? | (Specify)<br>.....<br>.....<br>.....<br>..... |       |

Thank you very much for your kind cooperation!



# Informal Gold Mining in Mongolia

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## A Baseline Survey Report Covering Bornuur and Zaamar Soms, Tuv Aimag

Gold mining provides a glimmer of hope for thousands of Mongolians, who are in desperate need of income due to unemployment, reduced livelihood opportunities in rural areas and diminished livestock herds. But informal gold mining also puts the health and safety of men, women and children at risk, because miners lack protective equipment, insurance and structural support. Accidents are far from rare. Children who mine instead of going to school are of particular concern – and this work has been identified as one of the worst forms of child labour.

This baseline survey looks into the plight of informal gold miners in Bornuur and Zaamar somus, with a view to identifying their needs and measures that the government, local authorities and the industry need to put in place.

The International Labour Organization (ILO) and the Mongolian Employers' Federation (MONEF) hope that this report will help shape future policies to benefit these miners, especially in areas that are most urgent: occupational safety and health as well as child labour.

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