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Ministry of Mineral Resources and Energy

ARTISANAL AND SMALL-SCALE MINING - A SUBSECTOR OF THE MINING INDUSTRY IN MONGOLIA

Sustainable Artisanal Mining Project
2015

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CONTENT

Section One: Artisanal and Small-scale Mining Around the World

Mineral resources are in high demand globally, and the number of mining and processing industries is increasing; however, mineral resources are being depleted. There is hence a need for the waste-free use of mineral resources. In this regard, artisanal and small-scale mining (ASM) has been making a significant contribution for 100 years, since its emergence in different countries around the world.

Although a country's mineral resources are regarded as the basis of its development policy to ensure economic growth and poverty alleviation and to provide the foundation for stability and sustainable development, sometimes even those countries with abundant mineral resources face, and are affected by, development deterioration, poverty, corruption, civil struggles and conflicts.

Given the economic contributions of ASM, many countries around the world support ASM development in a number of ways, including the adoption of relevant laws, the introduction of micro-finance operations, the issuing of certificates or certificates of origin for extracted minerals, and support for fair trade. Reflecting on the existing legal and regulatory frameworks of those countries with ASM operations, the majority have incorporated ASM-related issues into their mining laws, while other countries such as Ghana, the Philippines and Peru have separate ASM laws.

1.1. Some statistics on artisanal and small-scale mining operations

According to a survey conducted by the International Labour Organization, there are currently about 50 million people from 55 countries engaged in ASM, of whom 30 percent are female and 8 percent are children. Family members of artisanal and small-scale miners bring the total to more than 100-150 million people relying on ASM for their subsistence. The table below shows a regional breakdown of the number of people engaged in ASM.

Countries in the Asia-Pacific region	17 million people
Countries in Africa	10 million people
Countries in Latin America	5 million people
Developing countries	15 million people

At a global level, 10 percent of gold and silver production, 8 percent of copper production, 11 percent of zinc production, 100 percent of coloured stones, 90 percent of fluorspar and 30 percent of sand and gravel are extracted by artisanal and small-scale miners (see the table below):

Types of minerals	Percentages at a global level
Gold	10
Silver	10
Copper	8
Zinc	11
Fluorspar	90
Coloured stones	100
Sand and gravel	30

1.2. Effects and consequences in relation to artisanal and small-scale mining

Due to population growth around the world, food needs and food consumption have increased, and in order to meet these needs, dry and ecologically fragile land is being overexploited. Consequently, land degradation and desertification issues have increased, revenues from land have dropped, and poverty has increased.

Depending on the socio-economic development and governance practices of those countries with ASM, positive or negative phenomena have been seen. The development of ASM varies in each country, but positive impacts are seen on the socio-economic development of those countries. For example:

To generate employment opportunities	To support local development	To alleviate poverty

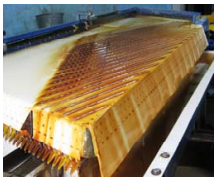
Promoting new service field businesses

Easing the burden borne by the government

Developing value-added production

New technologies

Improving self-confidence



Assisting each other

Solidarity

Cooperating in labour

Creating mutual confidence among communities

Democracy and justice

Empowerment in terms of rights protection

The problems and concerns commonly found in those countries with ASM are listed in the table below:

Environmental impacts

Unsuitable technologies

Bad governance

Diseases

Moral failings

Use of heavy metals

Lack of transparency

Child labour

Corruption, bribery, conflicts, struggles

Around ASM

Poor access to public services

Lack of recognition of rights

Occupational safety

Violence and harassment

Hygiene and sanitation conditions

Access to loans

HIV/AIDS

Poverty and vulnerability

1.3. Legal and regulatory frameworks supporting the ASM sector in international practice

Developing countries have made attempts and undertaken initiatives supporting the ASM sector and have created legal and regulatory environments to ensure their people's rights to live and work. Among these initiatives, the most significant is the policy on the promotion of sustainable livelihoods and local development by directing ASM towards poverty alleviation and employment generation in rural areas.

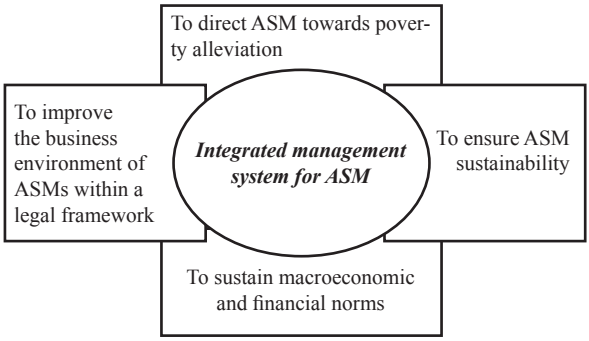
The policy reforms and development efforts by governmental and public institutions in those countries with ASM are classified into the following phases:

Phases	Key policy approaches towards ASM
The 1970s	Recognition and definition of ASM
The 1980s	Technical issues
Beginning of the 1990s	Combining technical, environmental, legal, social and economic aspects
Middle of the 1990s	Special consideration was given to the development of a separate law on ASM
End of the 1990s	Relationships between large-scale mining companies and artisanal and small-scale miners, gender and child-labour related issues
2000	Support for and promotion of sustainable livelihoods and local development

To create the legal and regulatory frameworks supporting the ASM sector in international practice, special consideration was given to the following aspects:

- The establishment of a unit responsible for mineral resource management
- Support for investment in the sector
- The issuing of licences to mining areas, accountability and supervision
- Legalising ordinary/regular ASM operations

The International Association for Artisanal and Small-Scale Miners lists four key "pillar" ASM policies:



1. To direct ASM towards poverty alleviation:

- To integrate and coordinate the efforts of governmental organisations, artisanal and small-scale miners and local organisations in order to sustainably benefit from ASM

2. To improve the business environment of ASMs within a legal framework:

- To create legal and regulatory environments
- To introduce a mechanism that promotes and rewards legal operations
- To provide services through which training, advice and experience-sharing are organised

3. To ensure ASM sustainability:

- To reduce risks through the observance of environmental and occupational health and safety regulations
- To apply good governance and compliance with laws and regulations in the mining sector

4. To sustain macroeconomic and financial norms:

- To establish a sustainable and dependable system to retain taxable incomes
- To support value-added production with mineral products
- To avoid a black market

Section Two: Current State of Artisanal and Small-Scale Mining Sector Development in Mongolia

2.1. Development of the mining industry in Mongolia

The mining industry in Mongolia is one of the country's major sectors, not only in terms of manufacturing but also in terms of national economic development. In the past 17 years, gold production has rapidly developed, increasing by close to 30 times. Contributing to the rapid development was the national "Gold" programme launched in the mid-1990s. Annual gold production reached 15.21 tonnes in 2008 due to foreign investment.

In 2002, the share of the mining sector in Mongolia's GDP was 10 percent; that figure tripled within five years, and in 2008 and reached 28.2 percent. The mining sector provided more than 42,000 people (or more than 4 percent of the total work force) with employment and generated more than three-quarters of all export revenue.

Understanding mineral deposits involves assessing natural and geological formations and their elemental concentrations and economic value when they are utilised at a technical-economic development level. A mineral resource is the total amount of a mineral existing throughout or in part of a deposit.

There have been more than 1200 deposits and 8000 occurrences of more than 80 types of mineral resources discovered in Mongolia.

(As of November 1, 2010)

License type	Quantities	Area
Exploration	3048	25.7 million ha
Mining	1149	520,900 ha

As shown in the table above, a total of 4197 licenses have been issued and licensed areas account for 16.7 percent of the country's total territory. Of the 4197 licenses issued, 2971 licenses were given to 1500 domestic companies and business entities (however, the government recently terminated 254 licenses and is planning to terminate another 1700 licenses in the near future), 859 licenses were given to 264 foreign-invested (100%) companies and entities, and 368 licenses were given to 152 joint ventures.

According to the national press, the following license-holders were registered as of September 2010:

Citizenship of registered license-holders	Numbers of licenses issued
England	443
The Russian Federation	248
China	232
Canada	76
South Korea	70
Japan	141
Bermuda	156
Bahamas	98
New Zealand	36
Barbados	30

The above data illustrates that Mongolia has been able to attract many foreign investors in the mining sector, given that it has a vast territory, abundant mineral resources and a relatively free and liberal legal environment.

In the past decade, investors in the mining sector have borne all expenses and risks incurred during prospecting, exploration and exploitation under their licenses, while at the same time introducing appropriate know-how, technologies and equipment, generating employment opportunities, purchasing food and other supplies from domestic markets, and supporting and contributing to the country's economic development.

If mineral resources are discovered, the value of the country and the region is recognised, and expenses incurred by license-holders are recovered through subsequent mineral exploitation. The government imposes fees on licensed mining areas for the duration of the licenses, irrespective of whether profits are made, and then rehabilitates mined land. When minerals are exploited, the potential environmental impacts are assessed and taxes are imposed from the income earned. If there are sufficient legal grounds to terminate licenses, licenses can be revoked. In the past two years, about 1680 licenses were legally confiscated from license-holders.

According to the Statistical Yearbook of Mongolia (2009), 84.6 percent of the country's exports for that year were raw or semi-refined commodities such as coal, copper, iron, zinc and fluorspar. Exports of these commodities is likely to increase in the future.

Main export commodities from the mining industry in Mongolia

	2006	2007	2008	2009
Coal (thousand, tn)	2380.0	3269.0	4169.3	7113.2
Crude oil (thousand, barr).	337.9	812.3	1058.9	1938.5
Refined and semi-refined products				
Copper concentrate (thousand, tn)	599.5	607.8	582.9	587.0
Molybdenum concentrate (thousand, tn)	3.3	3.2	4.1	6.7
Fluorspar concentrate (thousand, tn)	355.0	360.0	348.8	314.0
Refined copper, alloy (thousand, tn)	2.4	3.2	2.6	2.3
Semi-refined gold (tn)	15.4	11.6	22.1	10.9
Zinc concentrate (thousand, tn)	105.8	132.6	137.5	150.7

Numbers of companies and entities in extractive industries

	2006	2007	2008	2009
Companies and entities	529	628	695	722

Numbers of companies and entities in operation

	2006	2007	2008	2009
Companies and entities	305	312	347	323

Although the rapid development of the mining industry is expected to continue into the future, data on the ASM subsector's extraction and processing has been absent in official statistical reference material. If the government pursues an ASM policy that supports poverty alleviation and local development, data and information on ASM- related production should be officially documented in order to ensure responsibility within ASM communities.

2.2. The emergence of ASM in Mongolia

ASM in Mongolia emerged as a response to the negative consequences of structural reforms in the first years of the transition to a market economy following the collapse of the socialist system, including high levels of unemployment and inflation, and declines in incomes.

For example, a main coal mine in Nalaikh employing more than 5000 workers was closed in the initial years of the transition, and its miners, who had been employed at the mine for generations, became unemployed. Having lost their livelihoods, they began to illegally extract coal out of economic necessity. In this way, ASM emerged in Mongolia. At the same time, many state industries and services were also closed and thousands of people found themselves jobless, and herders in rural areas were hit by consecutive dzuds (heavy snowfalls) and droughts in the early 1990s which saw them lose their livestock herds, prompting their involvement in ASM.

According to a socio-economic survey conducted in Jargalant soum in Bayankhongor aimag, Bornuur soum in Tuv aimag, Uyanga soum in Uvurkhangai aimag and Biger soum in Govi-Altai aimag by the Swiss Agency for Development and Cooperation's (SDC) Sustainable Artisanal Mining (SAM) Project, the majority of those surveyed had been engaged in ASM for at least 6.2 years on average.

The survey found that:

- 10.2 percent of respondents had been engaged in ASM for 10-15 years; and
- 6.5 percent of respondents had been engaged in ASM for 15-18 years

These responses provide evidence that ASM in Mongolia emerged from 1992.

Mining sector researchers and economists define the emergence of ASM in Mongolia and its causes in terms of the following factors:

1. Transition process:

- The transition strategy
- The external environment and economic capacity
- Unemployment
- Poverty

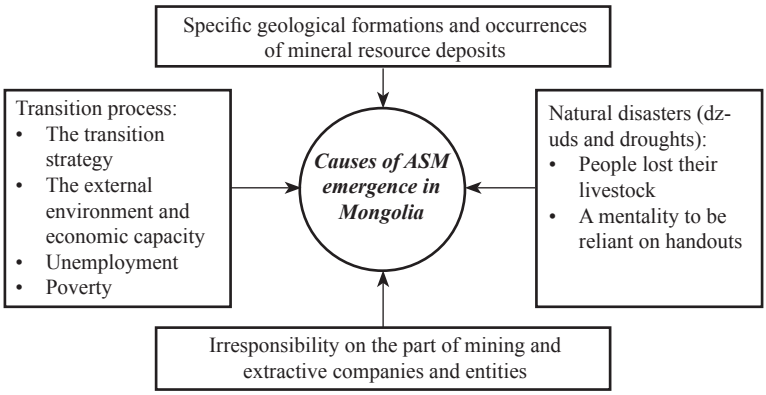
2. Natural disasters (dzuds and droughts):

- Rural people who lost their livestock
- Former industrial workers who lost their jobs

3. The specific geological formations and occurrences of mineral resource deposits

4. Irresponsibility on the part of mining and extractive companies and entities

According to the survey responses (with more than one or multiple responses) on the reasons people engaged in ASM, 76.6 percent of respondents said it was a means of subsistence as they had no other way to generate income; 69.3 percent due to a lack of workplaces; 35 percent because they had lost their livestock during dzuds; 24.9 percent to pay for their children's tuition fees; 19.1 percent to improve their living conditions; and 17.6 percent to repay loans and debts. The reasons cited confirm the factors defined by economists and researchers in the field. These findings also show the current rates and levels of local development, unemployment and poverty in Mongolia.



Artisanal and small-scale miners face a number of challenges, including:

- Illegal activity before the approval of a government temporary regulation in February 2008
- Economically inefficient, environmentally unfriendly, socially unsustainable and irresponsible mining operations resulting from the use of non-advanced technologies
- Natural resource-use related conflicts

2.3. Legal and regulatory environment of artisanal and small-scale mining operations

When ASM operations are conducted within a legal framework, contributions can be made to the provision of multiple work opportunities, a reduction in levels of unemployment and poverty, and sustainable rural development. In the past, the Mongolian government approved a number of important legal acts, including regulations related to ASM operations. These include:

1. Government Resolution No. 28 on the Regulation of Artisanal and Small-Scale Miners' Operations.
2. A sub-programme for the Development of Artisanal and Small-Scale Mining until 2015.
3. Government Resolution No. 72 on a Temporary Regulation for Artisanal and Small-Scale Miners' Operations.

Enacting these resolutions and regulations provided the basis for the transformation of ASM and the application of appropriate small-scale mining-re-

lated technical and technological solutions. Accordingly, positive changes have been seen in artisanal and small-scale gold miners' collaborative efforts, in securing income and employment, in occupational health and safety, and in other social relations.

As it was a number of years since the enactment of the Temporary Regulation on Artisanal and Small-Scale Miners' Operations, the Mineral Resources Authority and the SAM Project/SDC conducted a joint review on the status of implementation of the regulation.

Data was collected from 104 artisanal and small-scale miners and more than 60 soum governors. The results of the review demonstrated that it was impossible to regulate ASM operations with this regulation, and that another legal regulation was required. The small-scale mining sector needed a more advanced, practical, applicable and functional legal and regulatory environment.

With this need in mind, a working group was established by the Minerals and Energy Minister's Order No. 107, dated May 1, 2009, to devise solutions for some of the problematic areas in the implementation of the Temporary Regulation on Artisanal and Small-Scale Miners' Operations, and to develop a proposal aimed at creating a legal environment for ASM. Agreeing that ASM operations should be governed by a regulation, that the regulation needed to be approved by government, and that local governments had the right to acquire land under special needs for ASM, the working group developed a draft law on Amendments to the Minerals Law.

The draft law on Amendments to the Minerals Law was developed based on the following concepts:

- Local governments and self-governing organisations shall designate land for ASM and allow the ASM partnerships, those that have presented their applications for mineral resource mining, to use the land on a contractual basis after the public administration in charge of geological and mining issues has permitted such land use.
- Individuals who extract minerals via ASM shall be organised into unregistered partnerships on a cooperative contractual basis in accordance with Article 481 of the Civil Code.

In relation to the draft law, draft laws on Amendments to the Land Law and Amendments to the Law on the Taxation of Personal Income Derived from Private Business and Service and the draft Regulation for Relations with Respect to the Extraction of Minerals from Small-scale Mining were developed based on comments, recommendations and opinions from artisanal and small-scale miners and officers from governmental organisations provided during the review.

On July 1, 2010, Parliament approved the draft laws on Amendments to the Minerals Law and Amendments to the Land Law.

The approval of the draft laws provides the basis for reducing the negative socio-economic impacts of unorganised artisanal mining operations, including:

Social impacts:

- Artisanal and small-scale miners secure official residential registration and are covered by health and social insurance, allowing them to access such public services as health care and social welfare services.
- With the provision of a legal basis for ASM regulation, the illegal mineral trade is restricted and the number of crimes and violations is reduced.
- As occupational health and safety regulations are applied, artisanal and small-scale miners are able to work in healthy and safe environments.

Economic impacts:

- Individuals who extract minerals via small-scale mining are provided with dependable workplaces and incomes with which to improve their livelihoods.
- As employment opportunities are created and increased in rural areas, the level of unemployment falls, contributing to the achievement of the objective to create and increase employment in the government's Action Plan.
- Individuals who extract minerals via small-scale mining contribute to

rural development and local budget revenues.

The most successful project being implemented in the small-scale mining sector in Mongolia since 2007 is the SDC-funded SAM Project.

The purpose of the project is to assist artisanal and small-scale miners in becoming responsible members of society who are able to contribute to sustainable rural development through cooperation with stakeholders.

Given that purpose above, the project aims to:

- Develop and implement transparent and fair policy and a legal environment for small-scale mining
- Create an institutional structure for small-scale mining at all levels
- Empower small-scale miners to operate in efficient and responsible ways
- Assist small-scale miners and other resource users to be capable of resolving any potential ecological and social conflicts

Under Component 1 of the project, "Creating transparent and fair policy and a legal and regulatory environment for small-scale mining", the Parliament, government, governmental organisations, local governments, artisanal and small-scale miners and their NGOs have collaborated to advance the legal environment at all levels.

As a result of support and assistance from the project and efficient cooperation with stakeholders to improve the ASM legal environment and the development of policy documents, Amendments to the Minerals Law and Amendments to the Land Law were enacted and a draft regulation for the extraction of minerals from small-scale mining was submitted for approval.

Section Three: Demographics of Artisanal and Small-Scale Mining Communities

3.1. Number of artisanal and small-scale miners

At the end of 2009, the population of Mongolia was 2,735,800, an increase of 52,300 or 1.9 percent on the previous year. According to workforce statistics in 2009, the economically active population was 1137.9 thousand, including 1006.3 thousand (or 88.4 percent) employed and 131,600 (or 11.6 percent) unemployed. The employed, by economic sectors, included 34.7 percent in agriculture, forestry, wildlife hunting and fishing, 15.9 percent in the wholesale and retail trade, 7.4 percent in the educational sector, 6.8 percent in transportation and warehouse service, 6.2 percent in the processing production sector, and 3.4 percent in the mining and extractive sector.

Data on ASM, a subsector of the mining industry, collected by the Minerals Resources Authority, showed that 53,900 people were working in ASM as of 2008; that number dropped to 35,124 (by 42.3 percent) in 2009, but rose to 61,000 (by 36.5 percent) in 2010.

However, according to surveys conducted by international organisations, there were more 100,000 people engaged in ASM. Discrepancies in the figures can be attributed to artisanal miners being unwilling to provide accurate information, miners seasonally moving from place to place, and the lack of effort on the part of local administrations to have miners registered.

Survey data on artisanal and small-scale miners (2006-2010)

№	Aimags and local areas	Survey dates				
		2006.02.20	2007.05.15	2008.01.05	2009.08.01	2010
1	Arkhangai	4050	700	-	127	200
2	Bayankhongor	10,000	24,400	5200	7675	5680
3	Bayan-Ulgii	300	620	620	25	200
4	Bulgan	600	600	-	138	300
5	Govi-Altai	2340	5050	2340	2581	29,000
6	Darkhan Uul	750	1430	1180	160	1100
7	Dornogovi	2090	3353	1180	516	1730
8	Dundgovi	2200	550	820	160	180
9	Zavkhan	16	20	15	15	20
10	Uvurkhangai	30,500	15,700	15,000	19,200	12,000

11	Umnugovi	1340	3556	15,540	548	300
12	Sukhbaatar	85	82	52	-	-
13	Selenge	1550	1550	1730	1710	1560
14	Tuv	8800	900	3200	702	1800
15	Uvs	5430	4890	1290	-	560
16	Khovd	126	200	126	548	450
17	Khentii	840	1050	3840	120	2200
18	Khuvsgul		28	150	649	2380
19	Dornod			200	153	240
20	Nalaikh district	1800		1476	914	1100
	Total	***72,817***	***64,679***	***53,959***	***35,124***	***61,000***

Source: **MRA**

The statistics above show the number of artisanal and small-scale miners declined since 2006, although the figures would be considered unrealistic by many.

Main poverty rate indicators

		Exposure rates to poverty			Poverty depth		
		2006	2007-2008	2009	2006	2007-2008	2009
	National average	32.2	35.2	38.7	10.1	10.1	10.6
	Urban areas	27.9	26.9	30.6	8.6	7.7	7.8
	Rural areas	37.0	46.6	49.6	11.9	13.4	14.4

Source: **National Statistical Yearbook, 2009**

The statistics above show the exposure rate to poverty and the depth of poverty in rural areas were 37 percent and 11.9 percent respectively in 2006, increasing to 49.6 percent and 14.4 percent respectively in 2009. They also show there was no reduction in unemployment and poverty in rural areas, but rather an increase over the years. Thus, the data above on artisanal and small-scale miners can be considered somewhat unrealistic and doubtful.

Some facts and data

- In Govi-Altai aimag, artisanal and small-scale gold mining intensified from July to November 2009, and the number of artisanal miners reached more than 65,000
- As of January 2010, there were a total of 29,047 people engaged in ASM in 22 points covering 615 ha in 11 of the aimag's soums

Source: Development Policy Division, Governor's Office, Govi-Altai aimag

When ratios of formal and informal employment in the mining industry were compared, the percentage of people engaged in informal employment in the sector was 63.5 percent in 2006, 59.5 percent in 2007, 53.7 percent in 2008 and 50.2 percent in 2009. These percentages illustrate the scope of ASM in Mongolia.

Formal and informal employment in the mining sector in Mongolia

Years	Number of people formally employed in the mining industry	Number of artisanal and small-scale miners in the ASM sector
2006	41,900	72,817
2007	44,100	64,679
2008	46,500	53,959
2009	34,800	35,124
2010		61,000

3.2 Age and sex ratios of artisanal and small-scale miners

By the end of 2009, the sex ratio of the Mongolian population was 48.9 percent male and 51.1 percent female (or 100 females to 96 males).

It is impossible to precisely define the age and sex ratios of artisanal and small-scale miners in Mongolia. However, the following data has been collected as part of socio-economic baseline studies among artisanal and small-scale miners on request from the SAM Project.

Sex ratios among artisanal and small-scale miners

Study areas	Males among artisanal and small-scale miners (%)	Females among artisanal and small-scale miners (%)
Uyanga soum, Uvurkhangai aimag	67.4	32.6
Bornuur soum, Tuv aimag	68.0	32.0
Biger soum, Govi-Altai aimag	76.6	23.3
Jargalant soum, Bayankhongor aimag	65.5	34.5
Average ratio	69.4	30.6

The survey data above shows that 69.4 percent of those surveyed were males and 30.6 percent females (or one female to 2.3 males). Since ASM operates in relatively difficult working conditions, males would predominate in ASM communities.

In relation to the age ratio in ASM communities, the number of males aged over 36 and females from 26-35 years of age are relatively higher.

3.3. Citizenship and movements of artisanal and small-scale miners

One of the human rights guaranteed by the Constitution of Mongolia is the freedom to move. Each citizen has the rights to freedom of movement and travel within the country, the freedom to choose their place of permanent residence, and the freedom to participate in social life and have access to basic social services.

Issues related to population movement are regulated by the Constitution of Mongolia, the laws on Citizen Registry and Administrative and Territorial Units and their Management, and other relevant legislation.

ASM in rural areas is usually undertaken by local residents of the areas, as well as people from other soums and aimags.

Clause 5.22 of the Temporary Regulation on Artisanal and Small-Scale Miners' Operations states that the requirements for ASM partnership members include: 22.1: Must be a citizen of Mongolia; 22.2: Must be over 18 years old; and 22.3: Must be registered as a resident of the area where he/she extracts mineral(s).

The baseline survey elicited the following data with regard to the registration of people engaged in artisanal and small-scale mining, in accordance with the regulation requirements mentioned above.

Citizenship of artisanal and small-scale miners

Description	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum
Percentage of registered local residents-artisanal miners among those surveyed	7.8	93.0	89.2	18.0
Percentage of unregistered outside artisanal miners who came from other aimags and soums among those surveyed	92.2	7.0	10.8	82.0

In Bornuur soum, Tuv aimag, and Jargalant soum, Bayankhongor aimag, 89.2-93 percent of the people engaged in ASM were local soum residents. It is relevant to the efforts, initiatives and responsibilities of local governments and soum artisanal and small-scale miners to comply with governmental resolutions, decisions and regulations. Soum artisanal and small-scale miners are beneficiaries of the SAM Project. Since launching interventions in the soums, the project has been assisting artisanal and small-scale miners in improving their knowledge of and understanding about legal and regulatory frameworks, providing guidance in joining unregistered partnerships and becoming responsible members of society, developing mutual understanding, and making contracts with local governments and license-holders.

In Biger soum, Govi-Altai aimag, and Uyanga soum, Uvurkhangai aimag, however, 82.0-92.2 percent of artisanal and small-scale miners were people who had come from other soums and aimags or were not officially registered in the soums.

Citizenship registration is required for people to access basic social assistance and welfare services. Those artisanal and small-scale miners who are not registered and who do not have citizenship documents are not able or face difficulties accessing basic health and social assistance services within the soums in which they work.

3.4. Educational level of artisanal and small-scale miners

The educational level of artisanal and small-scale miners varies. Most are unemployed and are from vulnerable societal groups, making it difficult to accurately quantify those levels. In addition, no comprehensive studies in this area have yet been conducted. The socio-economic baseline survey conducted among ASM communities in the soums elicited the following data.

Educational levels of artisanal and small-scale miners (%)

Education level	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum	Average percentage
Uneducated	7.2	2.0	8.7	5.8	5.9
Primary or elementary education	11.4	8.0	21.6	20.2	15.3
Incomplete secondary school education	25.7	37.0	41.2	44.3	37.05
Complete secondary school education	40.4	28.0	23.,8	24.4	29.2
Special education (two years' college) and higher or university education	15.3	25.0	4.7	5.3	12.6
	100	100	100	100	

According to the 2008 Statistical Yearbook of Mongolia, the average literacy rate among the population is 97.6 percent.

Among the artisanal and small-scale miners surveyed in the soums, the literacy rate was 94.1 percent and the illiteracy rate 5.9 percent. Compared with the national average, the literacy rate was lower by 3.4 percent among ASM communities.

The table above shows that 37.05 percent of the surveyed artisanal miners had incomplete secondary school education, 29.2 percent had completed secondary school education, 15.3 percent had primary school or elementary education, 12.6 percent had special or two-year college education and higher or university education, and 5.9 percent were uneducated.

Among those surveyed, the highest percentage was people who had completed secondary school education. This shows that there are a lot of young people who cannot enrol in colleges or universities upon completion of their secondary schools studies, among them artisanal miners. However, ASM enables young people to earn money within relatively short periods of time.

Given that 37.05 percent of those surveyed had incomplete secondary school education, it can be concluded that they are able to comprehend and comply with the legal and regulatory frameworks for ASM and their social responsibilities.

3.5. Marital status of surveyed artisanal and small-scale miners

In 2009, 34,100 people were registered as married and 2,400 families were divorced. Family divorces per 1000 individuals gradually increased starting from 2006, reaching 0.9 in 2009, an increase of 0.2 points on the previous year. The number of female-headed households was 81,200 2009, a 12.4 percent increase on the figure for 2006, a 12.6 percent increase on 2007, and a 5.8 percent increase on 2008.

According to past informal surveys, people are informally engaged in ASM along with family members, other relatives and friends. The socio-economic baseline survey elicited the following data on the marital status of artisanal miners.

Marital status of the surveyed artisanal miners (%)

Marital status	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum	Average percents
Not married	15.3	12	13.5	21.0	15.5
Married	77.0	78	68.5	55.5	69.7
Divorced, separated, widowed	7.7	10	18.0	23.5	14.8
	100	100	100	100	

According to the table above, 69.7 percent of the surveyed artisanal miners were married, 15.5 percent were not married, 14.8 percent were either broken up, divorced or living separately. The latter category was more common among miners in Uyanga soum, Uvurkhangai aimag, where illegal gold mining has taken place for years. Twenty-one percent of the miners were not married and 23.5 percent were divorced, separated or widowed.

The results of the socio-economic baseline survey show that 30.6 percent of the miners were female and the majority were between the ages of 25-35. This highlights that reproduction, child health and education are pressing issues that need to be addressed under the Regulation on Artisanal and Small-Scale Mining Operations.

3.6. Family members of artisanal miners

In 2009, there was a total of 716,500 households in Mongolia, of which 61.5 percent resided in urban areas and 38.5 percent in rural areas. The average number of family members was 3.8. Many people in rural areas have been engaged in artisanal mining as a result of unemployment and poverty.

The socio-economic baseline survey elicited the following data on the size of families among artisanal and small-scale miners.

Family members (%)

Number of family members	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum	Average percentage
1-3 members	29.1	28.0	13.0	28.0	24.5
4 members	35.7	52.0	49.5	34.5	42.9
5-8 members	35.2	20.0	37.5	37.5	32.6
Average number of family members	4.35	4.5	4.6	5	4.6

As shown in the table above, 42.9 percent of the surveyed artisanal miners' households had four family members, 32.6 percent had five to eight members and 24.5 percent had one to three.

Fifty-two percent of the surveyed miners' households in Bornuur soum had four members, while 37.5 of those in Uyanga soum had five to eight members, illustrating that most miners' family members were involved in artisanal mining.

Thirty-five percent of the surveyed miners in Uyanga soum lived in Ultii valley with all their family members; on average, each family had five members. Their residence enabled them to engage in ASM along with their family members. Others, for example from six to 12 people, joined their relatives, friends and partners and lived in gers as a "family". This type of living arrangement often leads to family break-ups, being away from family members for long periods of time and not committing to official marriages. In addition, these people often live in the worst and most difficult conditions in terms of hygiene and sanitation.

The average number of family members among the surveyed-artisanal miners was 4.6 members, which is higher than the national average by 0.8 percent.

In 2010, a total of 61,000 people were engaged in ASM. If the average number of family members among artisanal miners' households is 4.6, that means 208,600 people are directly dependent on ASM for their subsistence and livelihoods.

3.7. Child labour

Mongolia is a signatory to the International Labour Organization's Convention No. 182 on the Worst Forms of Child Labour, which requires member states to take immediate and effective measures to prohibit and eliminate the worst forms of child labour; however, hundreds of children are still engaged in ASM operations due to poor living conditions, poverty and parental unemployment.

We selected one soum in which artisanal miners are more concentrated for the purpose of illegal gold mining in order to review the state of child labour.

Child labour in Uyanga soum, Uvurkhangai aimag

№		Descriptions	Numbers	Boys	Girls
1	Total child labour		109	80	29
2	School status	Going to school	53	42	11
		School dropouts	56	38	18
3	Child labour by sector	In the mining industry	67	51	16
		In agriculture	39	26	13
		Work for families	3	3	

The table above shows that 61.4 percent of children working in the soum work in the mining industry, 35.7 percent in agriculture and 2.7 percent for households. Of those working children, 73.4 percent are boys and 26.6 percent are girls. Of the children working in the mining industry, 76.1 percent are boys and 23.9 percent are girls.

Children are working in the mining industry for a number of reasons, including the poor living conditions of their families, parental disabilities or the inability to earn, and difficult family environments. Other factors, such as family separations and alcoholism, also contribute. However, the worst forms of child labour are also prevalent in other sectors aside from the mining industry.

3.8. Employment opportunities among artisanal miners

Thousands of people have been engaged in ASM in Mongolia - operations that take place amid highly risky working conditions - for their subsistence and livelihoods, refusing to receive assistance from the government and irrespective of the harsh weather conditions.

As part of the socio-economic baseline survey, the following employment

opportunities were determined among miners in the following ASM locations.

Employment opportunities among artisanal miners (the artisanal miner is "HAMO" in Mongolian) (%)

Type of work	Biger soum HAMO	Bornuur soum HAMO	Jargalant soum HAMO	Uyanga soum HAMO	Average percentage
Only engaged in gold mining	32.0	68.0	53.0	78.0	57.8
Engaged in other businesses at the same time	68.0	32.0	47.0	22.0	42.3

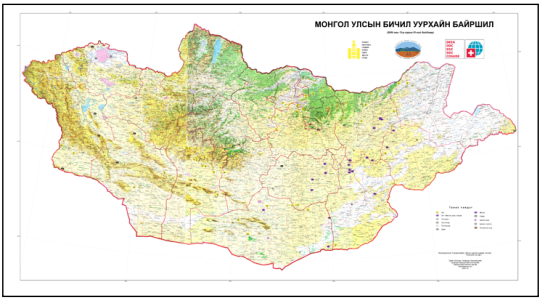
Results from the review show that 57.8 percent of the surveyed miners are only engaged in gold mining, while 42.3 percent are engaged in other businesses in addition to gold mining; however, if the extraction of other types of minerals were included, the figures would differ. Forty-three percent of the miners surveyed had been engaged in ASM for five to 10 years, with the average being 6.2 years.

Among those surveyed, miners engaged in other businesses to earn additional income are predominantly paid little and work seasonally, and are workers at public institutions and farmers and herders who have lost livestock due to dzuds and droughts. These findings were supported by interviews and group discussions.

3.9. Artisanal and small-scale mining and gender issues

In the early years following Mongolia's transition, economic development for, and the socio-economic independence of, women was limited. When state enterprises and industries were closed or personnel made redundant, it was common for women to be dismissed first. For those females engaged in ASM, equality and gender issues are difficult; their rights are overlooked and they are discriminated against when income from the sale of mineral products is distributed. They are paid less, placed under pressure in the workplace, and often the gold they have extracted is stolen or wrongfully seized. Such violations are common at ASM sites where miners are unorganised. However, with the organisation of miners into unregistered partnerships there has been a reduction in these problems and a higher level of gender equality.

Section Four: Types of minerals extracted by artisanal and small-scale miners and their markets



As of 2010, the minerals extracted by artisanal and small-scale miners were gold at 89.8 percent, tungsten 3.6 percent, fluorspar 3.8 percent, coal 1.8, sand and gravel 0.5 percent, gypsum 0.3 percent, and others such as natural salt, white pearl and mica 0.2 percent.

Types of minerals extracted by artisanal and small-scale miners and the number of miners

	Types of minerals	As of 02.20.2006	As of 05.15.2007	As of 01.05.2008	2009	2010
1	Gold	65,645	59,292	48,905	29,790	54,760
2	Tungsten	310	630	632	2061	2200
3	Coal	2163	1850	1719	914	1100
4	Mica	88	0	8	8	80
5	Fluorspar	3945	3602	2270	1856	2300
6	Sand and gravel	250	250	150	300	300
7	Gypsum	300	193	160	160	160
8	Natural salt	96	342	95	15	80
9	White pearl	20	20	20	20	20
	Total	***72,817***	***64,679***	***53,959***	***35,124***	***61,000***

According to the types of minerals extracted by artisanal and small-scale miners, in 2010 as shown in the table above, gold was extracted by 89.8 percent of miners, fluorspar by 3.8 percent, tungsten by 3.6 percent, coal by 1.8 percent, sand and gravel by 0.5 percent, gypsum by 0.3 percent, natural salt by 0.1 percent, mica by 0.1 percent, and white pearl by 0.03 percent. According to a report by the Mineral Resources Authority, in 2009 gold was extracted by 84.8 percent, tungsten by 5.9 percent, fluorspar by 5.3 percent, coal by 2.6 percent, sand and gravel by 0.8 percent, and natural salt, gypsum, white pearl and mica by 0.6 percent.

The number of artisanal and small-scale miners has dropped since 2007 as shown in the table above. With the savings accumulated from mining, some artisanal miners have engaged in other forms of business, such as livestock husbandry, shops, cooperatives, farming and cultivation, and small and medium-sized enterprises.

Although the data presented above was obtained from the Mineral Resources Authority, it may be incomplete as a result of the non-registration of some artisanal miners with local registry offices, the supply of unrealistic data and information, and the lack of availability of some aimags' data and information. In addition, no comprehensive studies or accurate data is available on where, how many types of minerals are being extracted, by how many people, and with what type of technology. These issues are related to, and dependent upon, the specific characteristics of their operations, including the mineral resources being accessed, mining conditions and movement flows.

4.1. Gold Mining

The Government of Mongolia enacted the "Gold" programme in 1992 in order to retain foreign and domestic investments in gold mining. The Minerals Law was adopted in 1994 and the "Gold-2" programme was launched in 2000. These policies and legislation provided the basis for the rapid development of the mining industry. Consequently, gold production in Mongolia has expanded at a rapid rate in the past 17 years, increasing by a factor of almost 30. Parliament approved changes to the Minerals Law and the Law on Windfall Profit Tax on gold and copper in 2006, which had a negative impact on the mining industry, particularly in terms of gold production. As a result, gold production, which amounted to 24.1 tonnes in 2005, fell by 38.5 percent, or to 15.1 tonnes, in 2008.

Gold mining at the national level in Mongolia

Type of mineral	2006	2007	2008	2009
Gold (kg)	22,561.3	17,472.5	15,183.8	9803.3

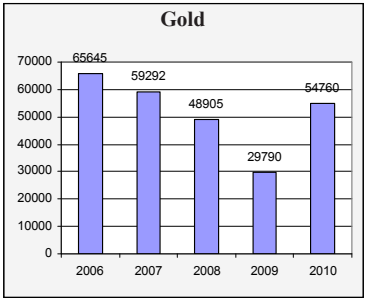
The above figures on gold production illustrate the decline; however, according to reports from independent researchers in the field, the actual level of production of gold mining companies and economic entities did not decline. According to those researchers, companies and economic entities sold gold on the black market, dramatically limiting the amount of gold to be traded to Mongol Bank and as exports in those years.

Exports of unprocessed and semi-processed gold

	2006	2007	2008	2009
Unprocessed or semi-processed gold (tonnes)	15.4	11.6	22.1	10.9

The majority of miners in the ASM sector are engaged in gold extraction at hard rock and placer gold deposits. This is linked to the high, and continuously increasing, price of gold on the world market in recent years and the high liquidity rate of gold.

Number of artisanal and small-scale miners



Locations:

ASM gold mining in Mongolia occurs in 14 aimags: Arkhangai, Bayankhongor, Bulgan, Uvurkhangai, Umnugovi, Dornod, Govi-Altai, Tuv, Selenge, Khentii, Uvs, Khovd, Darkhan-Uul and Khuvsgul.

According to the data on the types of minerals being extracted by artisanal and small-scale miners as reported by the Minerals Resource Authority, gold was extracted by 65,645 artisanal miners in 2006, 59,292 in 2007, 48,905 in 2008, 29,790 in 2009 and 54,780 in 2010. These figures demonstrate that the number of artisanal miners declined year to year; however, in reality, the number did not fall, but rather increased.

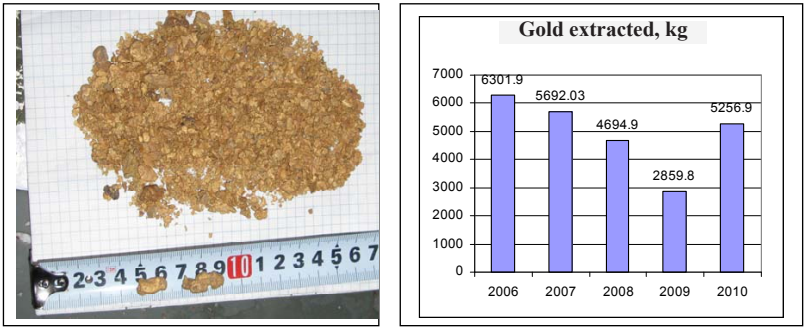
International organisations and independent researchers found that, on average, artisanal miners extracted 0.5 g of gold per day. The SAM Project's socio-economic baseline survey conducted among artisanal miners elicited the following data.

Average amount of gold extracted by artisanal miners per day in the survey sites

№	Description	Uyanga soum	Biger soum	Bornuur soum	Jargalant soum	Average amount
1	Earning days (per month)	23	21	15	21	20
2	Avarage amount of gold extracted (g)	0.3	0.2	0.6	0.5	0.4

All the artisanal miners surveyed, with the exception of those from Bornuur soum (where only hard rock gold mining takes place), are engaged in gold mining at placer mines.

The data gathered in the baseline survey is lower by 0.1 g from that gathered by international organisations and independent researchers; however, the data from the latter was compiled in 2005-2006.



If the average amount of gold extracted by artisanal miners per day is 0.4 g and the average number of earning days per month is 20, as found in the socio-economic baseline survey, the total amount of gold extracted by artisanal miners was 6301.9 kg in 2006, 5692.03 kg in 2007, 4694.9 kg in 2008 and 2859.8 kg in 2009. The average amount of gold extracted throughout these four years was 4887.2 kg.

The amount of gold extracted by artisanal and small-scale miners in 2009 was equal to 29.2 percent of the total amount of gold extracted nationally. This means that artisanal and small-scale miners extract 22.6 percent of Mongolia's unprocessed gold.

4.2. Gold market

Gold is traded by artisanal miners without regulation. The miners directly sell their extracted gold to local and outside traders (gold exchangers) on the ground. Those traders then supply the gold to an illegal gold market. Illegal traders or exchangers use untested or uncertified weighing scales, often leaving artisanal miners dissatisfied with the sale price. However, because the sale of gold in such a manner is illegal, artisanal miners, sellers, traders and purchasers do not make public complaints.

Amount of gold traded by individuals to Mongol Bank

	Type of mineral	2005	2006	2007	2008	2009
1	Gold (kg)	1715	515	236	564	

If the statistics on the gold traded to Mongol Bank (above) are taken to be the main source of data, then artisanal miners supplied 8.2 percent of their extracted gold in 2006, 4.1 percent in 2007 and 12.01 percent in 2008 to the formal market, while the rest was traded on the illegal market.

Requirements for the sale of gold on the formal market include that all gold must be officially assay-tested. The testing laboratory under the Assay Inspection Department is based in Ulaanbaatar. It is the only certified organisation in Mongolia with a "monopoly" authority to undertake chemical analyses and determine the assay levels of precious metals and their alloys, semi-processed products, and items made of precious metals. However, ASM predominantly takes place in remote areas far from cities and other settled areas, which presents difficulties for rural miners in travelling long distances to have their gold assayed as it incurs additional costs such as the cost of transportation and service fees. Although the local branches of commercial banks can purchase gold, generally they are not interested in buying gold because they are not authorised to export it.

As a result of this, the gold extracted by artisanal and small-scale miners has been traded to groups of people who smuggle gold on the illegal market.

A number of instances of gold smuggling across the state border have been reported in the national media. For example, attempts to smuggle 2.1 kg of pure gold in July 2007, 14.089 kg in October 2007 and 10.6 kg in August 2008 were detected in customs inspections at the Zamyn-Uud border point.

Because the sale price of gold has fluctuated, there was no way to estimate the actual earnings of artisanal and small-scale miners from the gold trade; the main reference price for the estimation of artisanal and small-scale min-

ers' incomes from the sale of gold at global market rates.

Minerals trade price on the world market or the London Metal Exchange

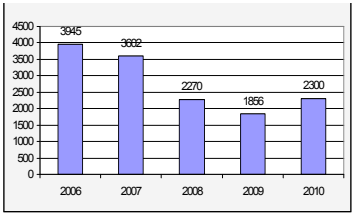
Gold	Average rate in December 2008	Average rate in June 2009
1 ounce (USD)	816	915

If estimations of the gold trade are based on the rates listed above, artisanal and small-scale miners earned USD $123.2 million from 4694.9 kg of gold in 2008 and USD $84.1 million from 2859.8 kg in 2009. That equates to an artisanal miner earning USD $2824.07 in 2009.

There are a number of negative consequences of the illegal gold trade at both the macro and micro levels, including the underestimation of labour inputs, no estimation of personal income tax, gold production taking place outside the national economic system, and the illegal use of mineral resources. Thus, appropriate measures to improve the legal and regulatory frameworks for ASM operations should be planned and implemented, including minerals trade-related issues at the policy level.

4.3. Fluorspar mining

Number of artisanal and small-scale miners engaged in fluorspar mining



Locations:

Dalanjargalan, Airag and Urgun soums in Dornogovi aimag, Tsagaandelger soum in Dundgovi aimag, and Bor-Undur and Berkh soums in Khentii aimag

Fluorspar mining by artisanal and small-scale miners is conducted in:

- Fluorspar deposits abandoned by former economic entities without any land rehabilitation
- Illegally, some parts of areas licensed to economic entities and companies

- Untouched and intact areas where fluorspar is potentially mined
- Areas licensed for fluorspar mining based on contracts with local governments

According to data from the Mineral Resources Authority, there were a total of 1856 artisanal and small-scale miners engaged in fluorspar mining in 2009 throughout the country.

Artisanal fluorspar miners use different types of tools and equipment, from basic tools such as shovels, crowbars, spuds and hammers to more technical equipment such as cranes and compressors. According to the government of Airag soum in Dornogovi aimag, where the highest number of fluorspar artisanal miners has been recorded, artisanal miners extract 0.5 tonnes of fluorspar per day. This was confirmed with local artisanal and small-scale miners during participatory assessment meetings among the community.

If fluorspar production is estimated based on the above figures on daily extraction rates, the following amounts of fluorspar were extracted:

- 236,700 tonnes in 2006
- 216,100 tonnes in 2007
- 136,200 tonnes in 2008
- 111,400 tonnes in 2009
- 138,000 tonnes in 2010

Amount of fluorspar production

	Type of mineral	2005	2006	2007	2008	2009
1	Fluorspar (thousand tonnes)	521.4	521.9	637.9	545.8	628.8

Source: Statistical Yearbook of Mongolia 2009

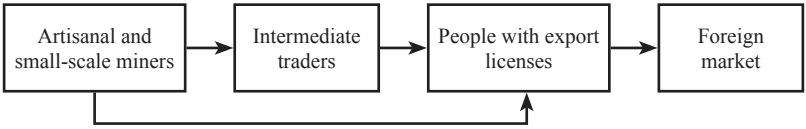
In 2009, artisanal and small-scale miners were responsible for 17.7 percent of national fluorspar production. Therefore, artisanal and small-scale miners are responsible for 15.04 percent of all fluorspar production in Mongolia.

Impacts of ASM operations	
Positive impacts	**Negative impacts**

• Artisanal and small-scale miners are self-employed, contributing to a reduction in unemployment in rural areas • They are the breadwinners of their families • They are able to increase sales income from local products and services • They are able to use mineral resources in complete and waste-free ways • They spend their income from mineral extraction on tuition fees for their children and are able to save money and purchase assets for improved livelihoods	• Artisanal and small-scale miners do not pay taxes • Pastureland is depleted and lost due to their operations • They are unorganised and unregistered • They do not respect or comply with laws and regulations • People from other aimags and soums come to the mining sites and add to incidents of crimes and other violations • They cause inconvenience at mines where production operates in accordance with applicable technologies • Humans, livestock and wildlife are injured falling into holes and boreholes that are neither refilled nor rehabilitated

4.4. Trade of fluorspar

Artisanal and small-scale miners have the following marketing/supply chain:



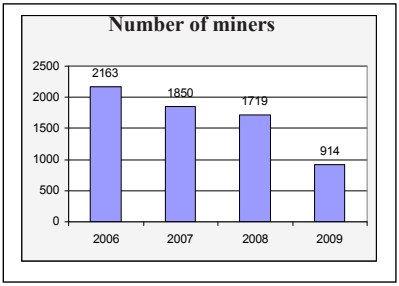
The final consumers and users of the fluorspar mined by artisanal and small-scale miners are producers on the foreign market. Because of the high cost of mining, small and medium-sized companies and economic entities purchase the fluorspar extracted by artisanal and small-scale miners and then supply it to markets and bigger enterprises and business entities. In addition, intermediate traders also buy fluorspar from the miners at cheaper prices, taking advantage of their lack of working capital, and make a profit by reselling the fluorspar to markets. Depending on its content, 1 tonne of fluorspar as purchased by licensed entities and intermediate traders costs MNT 35,000-145,000. Concerns related to fluorspar mining and trading include:

- Mining land and permits (rights)
- Illegal blasting
- Occupational health and safety among artisanal and small-scale miners
- The introduction of optimal marketing or supply chains

- Mutual understanding between large mining companies and entities and artisanal and small-scale miners
- Tax discounts and rewards for those economic entities and enterprises that cooperate with artisanal and small-scale miners

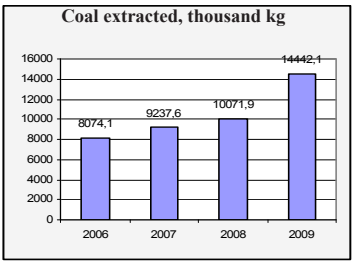
4.5. Coal mining

One of the main coal mines in the Nalaikh district of Ulaanbaatar , employing more than 5000 workers, was closed in the early years after transition, leaving thousands of miners unemployed. In order to earn a living, they began to extract coal illegally, and in this way artisanal and small-scale mining emerged in Mongolia.

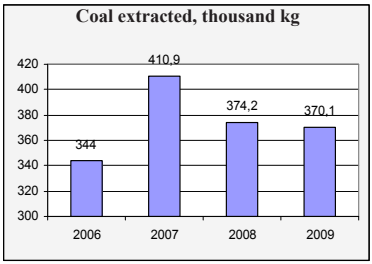


Artisanal coal mining operations are mainly concentrated in Nalaikh. According to official statistics, in 2009 there were 914 people working. They extract coal via a brigade, which is comprised of from five to 10 people. The brigades pay rent to the owners of the coal openings. It is common practice for those owners to employ artisanal miners, complete with paid salaries. Compared with artisanal gold miners, the coal miners are able to operate relatively professionally, and are organised and stable as their brigades are supervised by former experienced coal miners.

Total coal mining in Mongolia



Coal extracted by artisanal and small-scale miners



The amount of coal extracted by artisanal and small-scale miners represented 4.3 percent of total coal production in Mongolia in 2006, 4.4 percent in 2007, 3.7 percent in 2008 and 2.6 percent in 2009.

Amount of coal extracted by artisanal and small-scale coal miners in Nalaikh District

Type of mineral	**2005**	**2006**	**2007**	**2008**	**2009**
Coal (thousand tonne)	512.1	344.0	410.9	374.2	370.1

Section Five: Incomes, Expenses and Livelihoods of Artisanal and Small-Scale Miners' Households

5.1. Incomes and earnings of artisanal and small-scale miners



According to the 2009 Statistical Yearbook of Mongolia, the average monthly household income was MNT 355,000 in 2009, an increase of 9.1 percent, including 13.9 percent of salaries, 10.1 percent of pensions and 14.7 percent of other types of income, compared with the previous year. The average salary for workers in 2009 was MNT 300,500, which was 2.4 times higher than in 2006, 1.7 times higher than 2007 and 9.6 percent higher than 2008.

In order to determine the average monthly income of artisanal and small-scale miners, data from the socio-economic baseline survey conducted among ASM communities in Jargalant soum, Bayankhongor aimag, Bornuur soum, Tuv aimag, Biger soum, Govi-Altai aimag and Uyanga soum, Uvurkhangai aimag was used. According to the survey data, the average monthly income of artisanal and small-scale miners who extract gold from hard rock and placer mines is as follows:

Monthly income of artisanal and small-scale miners

	Monthly income of artisanal and small-scale miners
Bornuur soum, Tuv aimag	360,000
Jargalant soum, Bayankhongor aimag	231,000
Uyanga soum, Uvurkhangai aimag	310,000
Biger soum, Govi-Altai aimag	246,500
Average monthly income	**286,875**

The average monthly income of artisanal and small-scale miners in Bornuur soum, Tuv aimag, is higher by MNT 50,000-113,500 than the other ASM sites surveyed. The miners in Bornuur soum have some advantages, such as they are close to the central market, they have the potential to trade gold at higher prices, and they are able to extract more gold per month. However, most of artisanal and small-scale miners are unwilling to speak openly about their actual incomes, a factor that needs to be taken into consideration.

The average monthly income of the surveyed ASM communities varies, as illustrated above. This is also related to the miners' locations, the mining and processing technologies used, the distance from markets, the types and contents of mineral deposits, and the rates at which they trade their extracted gold.

Although the average monthly income of artisanal and small-scale miners in the survey areas varies and is subject to fluctuations resulting from the factors mentioned above, the average monthly income is MNT 286,875 according to the survey data.

Average monthly salaries of employees of economic and public entities (thousand MNT)

Sectors	2006	2007	2008	2009
Mining	146.1	219.7	328.6	405.8
Public administration	141.3	194.0	327.3	332.0
Education	123.6	174.3	289.2	297.3
Health and social welfare	116.5	166.0	295.8	298.4

Comparing the average monthly income of artisanal and small-scale miners to those of employees of economic entities and public entities:

- By 41.5 percent in comparison with those working in the mining
- By 15.7 percent in comparison with those working in public administration
- By 3.6 percent in comparison with those working in the education sector
- By 4.01 percent in comparison with those working in the health and social welfare sector

Comparing the average monthly income of workers from public institutions, economic entities and organisations in rural areas to that of artisanal and small-scale miners:

- According to the survey, the average monthly salary of workers from public institutions, economic entities and organisations in Bornuur soum is MNT 237,000
- The average monthly income of artisanal and small-scale miners is 17.4 percent higher than workers from public institutions, economic entities and organisations in the soum

Artisanal mining allows people to earn higher incomes, there is less pressure from employers, no specific qualifications or knowledge are required, it can be conducted at a household level, and engagement is relatively free - all of which make gold mining an attractive prospect.

However, while the average monthly income appears to be reasonable, it is in fact small when divided among the average number of 4.6 family members determined in the baseline study.

5.2. Expenses of artisanal and small-scale miners

The survey findings show that artisanal and small-scale miners bear considerable expenses in relation to their mining operations, including buying and renting tools and equipment and food. The baseline survey determined the following average expenses in survey areas.

Operational expenses during artisanal and small-scale mining (MNT)

Description	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum	Average
Average monthly expenses	62,597	100,000	105,000	90,000	89,399

According to the baseline survey, an artisanal and small-scale miner's average monthly expenses are MNT 89,399. However, this figure varies seasonally, increasing in winter and decreasing in the warmer months.

Increases in expenses are directly related to mineral deposit resources, the mining techniques used, the natural and climatic conditions, and the productivity, skills and experience of the artisanal miners, hence it is difficult to precisely estimate average monthly expenses.

5.3. Livelihoods of artisanal and small-scale miners

According to the 2009 Statistical Yearbook of Mongolia, the average monthly income was MNT 402,500 per household, an increase of 10.7 percent on the previous year.

Data on the monthly income per family member is the main indicator used to measure household livelihood levels, with households defined as either poor or non-poor.

In the table below, the overall household livelihood level of artisanal and small-scale miners is represented by data from gold miners in Biger soum, Govi-Altai aimag.

Livelihood levels of artisanal and small-scale miners' households

	Indicators of household livelihood levels	**Percentage of artisanal miners**
1	*Number of members who are engaged in income-generating work per household*	
	1 person	61.3
	2 people	35.4
	3 people	3.3
	Average number of working members per household	1.42
2	*Total household income (MNT)*	
	Up to MNT 262,850	25.0
	MNT 262,850-MNT 358,499	25.0
	MNT 358,499-MNT 482,999	24.7
	More than MNT 483,000	24.3
3	*Average income per household (MNT)*	396,262
	Average income per family member (MNT)	103,256
	Monthly median income per family member (MNT)	86,733.3
4	*Livelihood level of households (%)*	
	Non-poor households	40.0
	Poor households	60.0
	Of which, very poor	23.0
	Percentage of the poor population among all households	68.0

Note:
Poor household: The monthly income per household member is less than MNT 96,100, the minimum livelihood level (poverty line) per person in western Mongolia in 2009.
Very poor household: The monthly income per household member is less than 60 percent of the poverty line.

Source: "Socio-economic Baseline Survey of Biger soum of Govi-Altai Aimag, 2010", Hugjliin Ezed NGO

The table above shows that 40 percent of the surveyed artisanal and small-scale mining households are non-poor and 60 percent are poor. Of the poor households, 23 percent are very poor or have monthly incomes per family member that are less than 60 percent of the poverty line. These figures demonstrate that poverty is one the main push factors propelling people into ASM.

Section Six. Health and Social Insurance and Personal Income Tax Payments by Artisanal and Small-scale Miners

6.1. Health status and health care services

The Constitution of Mongolia states that: "Citizens have the right to be provided with favourable conditions of work, the right to material and financial assistance in old age, disability, and in other circumstances as provided by law, and the right to the protection of health and medical care". In accordance with those rights, artisanal and small-scale miners have the right to attend to their health, have their health protected, and have access to health care services.

The Laws on Health, Citizens' Health Insurance, Medicine and Sanitation and other relevant legislation regulate these relations. When citizens have health insurance, they are able to access, free of charge, the health care services specified in laws and regulations.

The baseline survey details the health insurance coverage of artisanal and small-scale miners. Most of the artisanal and small-scale miners surveyed had experienced health problems and pain, such as thoracic problems, coughing, joint and kidney problems, enuresis, backaches and hoarseness since starting mining. They engage in hard labour, including hauling and lifting dirt and ore in airless, dusty, cold and wet environments for long hours, exposing them to health problems. The data shows that the aforementioned diseases and health problems are common among women aged over 35 and men aged over 45.

Health insurance coverage of artisanal and small-scale miners (%)

Description	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum
Health insurance coverage	54.3	65.0	84.2	8.0
Average	52.8			

The table above shows that 52.8 percent of the surveyed artisanal and small-scale miners had health insurance. However, simply registering and obtaining health insurance books is insufficient; they also need to pay their insurance premiums on time to ensure their right to access health care services free of charge is guaranteed.

Despite the figures above, many artisanal and small-scale miners are not able to access health care services when needed.

Artisanal and small-scale miners who are organised into unregistered partnerships in Jargalant and Bornuur soums have a relatively higher level of health insurance coverage, which is the result of awareness-raising activities by the NGOs established under the SAM Project and artisanal and small-scale miners in the soums.

Even when they are seriously ill or are suffering from non-infectious diseases, artisanal and small-scale miners still continue to work while taking basic medications in order to maintain their livelihoods. As a result, their illnesses often become chronic. In terms of accessing medical care, the following problems are faced:

- They reside in areas that are remote or far from health care services
- They are not registered as residents of the areas in which they live
- Lack of transportation
- They have no health insurance
- Lack of telecommunications and means of communication

According to the survey findings and interviews with artisanal and small-scale miners, the main reasons for not having health insurance are a lack of money, citizens' documents (identity cards) and understanding about health insurance, no spare time due to their workload, and no necessity for it. Most of the artisanal and small-scale miners who are not covered by health insurance are older people and people who are illiterate or from poor households, as well as other local people.

Of the miners surveyed in Uyanga soum, Uvurkhangai aimag, 169 had sexually transmitted diseases (STDs), including 80 with gonorrhea, 10 with syphilis, 76 people with trichomonas, and three people with yeast infections. Of these, 60 percent were diagnosed among 20-35-year-old pregnant women during medical check-ups, for which they were subsequently treated. According to the baseline survey data, 21.0 percent of all miners surveyed were not

married, and 23.5 percent were either divorced, separated or widowed.

These findings show that artisanal miners are not receiving regular medical check-ups, that the diagnosis of STDs is on a voluntary basis, and that STDs are common among ASM communities.

Compliance with Article 6 of the Law on Health - "Each citizen must have his/her health insurance" - is inadequate among ASM communities, and artisanal miners are not paying sufficient attention to their health and the health of their families, and are lacking in responsibility and understanding.

6.2. Social insurance and social welfare

In 2009, a total of 609,000 people nationally had social insurance, including 557,300 (91.5 percent) who were compulsorily insured and 51,700 (8.5 percent) who were voluntarily insured. In comparison with the previous year, there was an overall increase of 9600 people (1.6 percent), with those compulsorily insured increasing by 7300 (1.3 percent) and those voluntarily insured increasing by 2300 (4.7 percent).

The socio-economic baseline survey shows social insurance coverage among the ASM communities as listed in the table below.

Description	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum	Average
Social insurance coverage (%)	1.0	26.0	37.4	0	16.1

The table above shows that the level of voluntary social insurance coverage among ASM communities is 16.1 percent on average, which is insufficient.

Disaggregating the data by age and educational level, people aged over 40 who have completed secondary school and higher levels of education, are locally registered as citizens and enjoy high returns from artisanal mining have a high level of coverage, paying an average of MNT 16,000 per month in social insurance premiums. High numbers of the insured are also seen among artisanal and small-scale miners in Bornuur and Jargalant soums.

Artisanal miners are becoming organised into unregistered partnerships and are establishing and joining representative NGOs that exist to protect their interests and work to raise awareness of the need for social insurance, organising activities in conjunction with local government specialists and social insurance institutions. This is also the result of the trainings and other

capacity building activities targeting social responsibility organised by the SAM Project for ASM communities in the soums.

The baseline survey determined the following reasons for non-coverage by social insurance:

- Lack of money
- Lack of understanding about the importance of social insurance
- Lack of understanding about voluntary social insurance coverage
- A lack of time or too busy
- No awareness-raising activities on social insurance were conducted by social insurance organisations for the public, particularly for ASM communities
- No perceived need for social insurance

When the surveyed artisanal and small-scale miners were questioned about the importance of social insurance, 32.1 percent said "It is important when I am paid with a pension"; 21.7 percent said "It is important if I need to be paid with welfare"; 14.8 percent said "It is important when accident and injury-related insurance is paid"; and 31.4 percent said "I don't know about the importance of social insurance". Attempts to determine the level of social insurance coverage were made, although no specific answers were obtained aside from "Almost not". In response to the question "What type(s) of social welfare services are required?", 58.1 percent said "Social welfare services are not required"; 9 percent said "Pensions are required for old-aged people"; 6.4 percent said "Child money is required"; 6.9 percent said "Very poor people need welfare allowances"; and 2.5 percent said "Baby and young child-caring allowances are required".

The responses listed above show that overall ASM communities lack understanding about social insurance and are inadequately covered.

The survey findings also show that local governments should organise awareness-raising activities focusing on social welfare services, particularly those focusing on the importance and advantages of voluntary social insurance for ASM communities.

6.3. Personal income tax payments

The consolidated budget of Mongolia consists of state, local, development fund and social insurance fund budgets. Budget revenues consist of recurrent,

asset and aid incomes. Recurrent incomes consist of taxable and non-taxable incomes; taxable incomes include income taxes, social insurance commissions, fees, asset taxes, domestic goods and service taxes, foreign trade tax incomes, and other taxes.

The baseline survey elicited the following data on personal income tax payments among the surveyed ASM communities.

Personal income tax paid by artisanal and small-scale miners (%)

Description	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum	Average
Percentage of artisanal miners who pay personal income tax	0	10.0	4.0	0	3.5

The table above shows that 10 percent of artisanal and small-scale miners in Bornuur soum and 4 percent in Jargalant soum pay personal income tax. However, none of the miners in Biger and Uyanga soums pay personal income tax. On average, 3.5 percent of the miners surveyed pay personal income tax.

In response to the question "Whether you pay income tax from gold sales", 96 percent of respondents said they "Do not pay income tax from gold sales". In response to the question "What is the reason for not paying personal income tax?", 55 percent said they "Do not have information in this regard"; 37 percent said they "Have no payment capability"; 8 percent said they "Do not know how to pay"; and 2 percent said they were "Busy".

According to the responses, 96.5 percent of miners do not pay personal income tax, meaning that artisanal and small-scale miners are not adequately fulfilling their social responsibilities. For local tax officers, no specific actions aimed at the expansion of the taxation base have yet been undertaken.

In the future, local governments should take appropriate action to increase the level of personal income tax paid by artisanal and small-scale miners in accordance with the Law on the Taxation of Personal Income Derived from Private Business and Service.

In addition, artisanal and small-scale mining NGOs should support, and collaborate in, the organisation of awareness-raising activities for artisanal and small-scale miners in relation to social responsibility.

Section Seven: Conditions and Occupational Safety of Artisanal and Small-Scale Miners' Workplaces and Crimes and Violations

7.1. Workplace conditions of artisanal and small-scale miners



The requirements and conditions of the mining industry are defined in technical specifications and in the national standards of Mongolia.

The survey findings show that artisanal miners are engaged in ASM as there is no other employment or means of income generation available to them, despite being aware that their workplaces are risky and do not meet the basic health and safety requirements, and that their working conditions are difficult. In the table below, the workplace conditions of the artisanal and small-scale miners at a hard rock gold deposit in Bornuur soum, Tuv aimag, represent an example of miners' perceptions.

Workplace factors

№	Factors	Number of those surveyed	Very poor/ inadequate		Fair		Moderate / better	
			Number	Percent	Number	Percent	Number	Percent
1	Dust	168	110	66.5	56	33.5	-	-
2	Noise	168	13	7.9	93	55.4	62	36.7
3	Vibrations	168	8	5	88	52.2	72	42.8
4	Air sufficiency	168	83	49.7	48	28.4	37	21.9
5	Toxic gases	168	10	6.1	37	22.3	121	71.9
6	Light sufficiency	168	12.8	76.3	22	12.9	18	10.8
7	Physical loads	168	109	65.1	53	31.7	5	3.2
8	Mental pressure	168	62	36.7	59	34.9	48	28.4
9	Consumption of alcohol	168	18	10.5	71	42.4	79	47.1
10	Continuity of work hours	168	120	71.6	48	28.4	-	-

The survey findings above show that 76.3 percent of the participants believe light sufficiency is inadequate; 71.6 percent believe their working hours are longer; 66.5 percent believe the level of dust is high; 65.1 percent believe their physical loads are high; and 49.7 percent believe air sufficiency is inadequate. The miners cited these factors as being the most serious. They considered noise, vibrations and mental pressure to be fair, and the hazardous effects of toxic gases and substances and the consumption of alcohol as having less of an impact.

In Bornuur and Jargalant soums, where there are SAM Project interventions, artisanal and small-scale miners have begun phase-by-phase planning and implementation aimed at the improvement of workplace conditions, focusing on miners being organised into unregistered partnerships. However, not all miners in the soums are organised and are not all are undertaking such workplace improvement measures.

Artisanal miners in other locations are not organised into unregistered partnerships in accordance with the legal and regulatory frameworks on artisanal and small-scale mining operations. As a result, they focus on extracting as much as possible in order to earn more money, in the process increasing the risks they face.

While the artisanal and small-scale miners who work at hard rock gold deposits operate in the conditions listed above, those who work at placer gold deposits also face hardships, working in highly dusty, airless humid and cold conditions.

Overall, artisanal and small-scale miners demonstrate poor initiative and have little understanding about how to improve working conditions.

In practice, it is unrealistic to expect artisanal and small-scale miners to comply with the requirements of the mining industry, and it is not financially viable for them to comply with the relevant standards and technical requirements. However, they must comply with, and take action to ensure, basic occupational health and safety requirements.

The baseline socio-economic survey details the current state of occupational health and safety compliance by artisanal and small-scale miners.

Artisanal miners who work at placer gold mines do not have the means to ensure safety beyond the basic PPEs, such as rubber boots, rubber gloves, dust masks and work gloves.

In relation to the main tools used by the artisanal and small-scale min-

ers surveyed, shovels were used by 88.7 percent, crowbars by 35.5 percent, spuds by 41.4 percent, pots by 52.2 percent, pans by 41.9 percent, bags by 17.2 percent, screens/sieves by 11.3 percent, scoop by 35.5 percent, water pumps by 1.5 percent, rubber sheets by 4.4 percent, hoses by 0.5 percent, water guns by 7.9 percent, dry washers by 3.9 percent, and dry washers by 1.5 percent. The most useful tools are shovels, crowbars, spuds, pans, bags and scoop.

In response to the question "What tools and equipment are helpful for your labour-saving?", 39.9 percent said "a shovel"; 20.7 percent said "a water gun"; and 16.3 percent said a scoop. The survey findings also show that the artisanal miners are willing to use excavators, bulldozers, water pumps and sluices, although they are not affordable; instead they rely on tools that are inexpensive and easy to transport.

Artisanal miners at hard rock deposits work in dusty conditions, so the most needed PPE is a dust mask. Because they work in an airless and closed environment, they are unable to regularly clean their dust masks as required or purchase them when needed. According to the respondents, they also regularly use such PPEs as safety goggles, rubber boots, safety harnesses, work boots, gloves, hard hats, head lights and ropes.

More mechanised equipment is used in hard rock gold deposits, including compressors and ventilators. Of particular concern is the issue of blasting, which poses both difficulties and risks. In response to the question "Who does the blasting when it is needed?", 79.0 percent said it was done by more experienced artisanal gold miners; the rest said it was done by a certified person or company. However, they were unable to name the service provider. This would indicate that there is a secret supply chain of blasting materials and explosives for artisanal and small-scale miners.

The miners did provide some details related to blasting, such as the high rate of service charges, although this is subject to investigation by police and specialised agencies as the use of explosives is illegal and their availability is limited, and the storage of explosives within their areas is dangereous.

7.2. Accidents and risks resulting from non-compliance with occupational safety regulations and rules

As mentioned above, artisanal and small-scale miners undertake hard physical labour in difficult conditions and engage in repetitive bodily positions and movements. They regularly face injury, accident and such risks as slipping, stumbling, being hit by falling objects, becoming stuck, and being cut when devices and equipment with moving parts are used.

The survey findings also show that miners suffer accidents due to a lack of understanding and knowledge about, and violations of, basic operational health and safety rules and regulations.

Accidents suffered by artisanal and small-scale miners (%)

Description	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum	Average
Accidents suffered by artisanal and small-scale miners	13.7	12.5	10.3	85.3	30.4

The data above shows that, on average, 30.4 percent of the surveyed miners were involved in accidents related to non-compliance with occupational health and safety rules. It is likely that this figure will rise in the future given that gold is a finite resource and artisanal and small-scale miners will by necessity have to work deeper underground.

As the data above show, there were fewer accidents in Bornuur and Jargalant soums. The higher figures in Biger and Uyanga soums are largely a result of the following:

- Extraction is carried out anywhere it is desired due to inadequate management and supervision

- Many miners are unaware of occupational health and safety rules, lack the necessary equipment and tools, and have no understanding about mineral resource extraction practices
- Miners often compete against each other to see who can extract the most minerals without complying with occupational health and safety rules

Some facts and data

Statistics on the health care services and aid provided by Uyanga soum's health care centre:

- Health care services and aid were provided to 97 people in 2007, 123 in 2008 and 257 in 2009 in relation to injuries and instances of poisoning
- The number of injuries in 2009 increased by a factor of 1.3 and 2 respectively in comparison with 2007 and 2008.

Awareness-raising activities and trainings on ASM occupational health and safety were organised by the SAM Project. However, not all partnership members have a sufficient level of understanding, not all are fully organised, and not all are able to properly apply and comply with what they learned in the trainings.

A summary of the accidents recorded in the mining industry in recent years is listed below.

Data from the Mining Rescue Service

№	Type of mineral	Description	2006	2007	2008	2009	Amount
1	Gold	Rescued	26	11	17	36	90
		Died	8	6	9	14	37
2	Fluorspar	Rescued	15	7	21	18	61
		Died	9	2	6	4	21
3	Coal	Rescued	23	42	34	15	114
		Died	9	19	13	2	43

The data above shows that the highest number of accidents occurred in coal mining, followed by fluorspar and gold mining. These figures include accidents within the ASM communities.

According to the Mining Rescue Service, accidents are often due to the

following areas of non-compliance and violations:

- Mine slope degrees are high or in a vertical position
- The cross-sectional areas of excavation fields are small or high
- Harnesses are weak
- There is no or a substandard ventilation system in mining areas
- There is no reserved tunnel or shaft
- The excavation area is too long
- The distances between excavating areas are small
- Safety distances are not maintained when double excavations are conducted
- Excavations areas are too close and compete with each other for more minerals when seams are reached

It is no so secret these violations and incidences of non-compliance are more common among artisanal and small-scale miners' operations.

7.3. Crimes, violations, and conflicts related to artisanal and small-scale mining

Conflicts and disputes related to natural resource use in rural areas occur among individuals and parties, and according to the survey findings incidents of crime and conflict are more common among artisanal and small-scale miners. Most crimes and violations are found in areas where ASM takes place, but not within the legal and regulatory frameworks.

Crimes and violations related to ASM

Description	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum	Average
Percentage of artisanal and small-scale miners who said "Crimes and violations happen in artisanal gold mining areas"	96.7	1.9	1.2	93.0	48.2

Percentage of artisanal and small-scale miners who said "Conflicts between artisanal miners and other parties are raised"	95.0	5.2	3.6	98.0	50.5

According to the table above, 48.2 percent of the surveyed miners said "Crimes and violations happen in artisanal gold mining areas" and 50.5 said "Conflicts between artisanal miners and other parties are raised". In relation to the findings, there are fewer ASM-related crimes, violations and conflicts in Bornuur and Jargalant soums and more in Biger and Uyanga soums.

From this data, it can be concluded that crimes, violations and conflicts among various social groups are taking place in areas where ASM is conducted in an unorganised manner and in areas not permitted for ASM within the legal and regulatory frameworks. The following data highlights the most common forms of crime.

Some facts and data

Crimes related to gold mining in Biger soum, Govi-Altai aimag:

- 61.4 percent: "Stealing"
- 45.5 percent: "Quarrels, disputes and fighting"
- 27.6 percent: "Robbery"
- 19.7 percent: "Prostitution"

Disputes between artisanal and small-scale miners and other parties usually result from issues related to environmental deterioration, land rehabilitation, land permissions for mineral extraction, pastureland, competition for higher yields/resources, a mine's organisation, labour divisions, and profit distribution. Given that ASM emerged as a result of poverty and unemployment in rural areas without the appropriate legal and regulatory frameworks, it is impossible to accuse local people, who have no other way to earn a living. However, artisanal and small-scale miners should conduct their operations in an organised manner within the legal and regulatory frameworks, as well as be aware of their environmental obligations and the interests of other social groups in the process of exercising their rights and protecting their interests.

Section Eight: Institutional Structure and Organisational Forms among Artisanal and Small-Scale Miners

8.1. Institutional structure and organisational forms

Ensuring that artisanal and small-scale miners are organised into unregistered partnerships within the existing ASM legal and regulatory frameworks is the primary way of ensuring the sustainability of their livelihoods and preserving their employment opportunities. Strengthening miners' collaborative efforts among communities is a key factor in developing their organisational capacity, co-management practices and sustainable use of natural resources.

In relation to organisational structure and forms among ASM communities, the baseline survey found that artisanal and small-scale miners within the survey sites operated in different ways, including individually, with relatives and friends, in groups, teams and brigades, and in unregistered partnerships.

Institutional structure and forms among ASM communities

	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum
Existing organisational forms among ASM communities	• Groups • Individuallly	• Unregistered partnerships • NGOs	• Unregistered partnerships • NGOs	• Teams or brigades • Individually

The table above shows artisanal and small-scale miners in Bornuur and Jargalant soums work in unregistered partnerships and NGOs, while artisanal miners in Biger and Uyanga soums work individually or in informal groups, teams or brigades.

Working in informal groups, teams or brigades means that artisanal miners live together in gers (traditional dwellings) and prepare and eat meals together as a "family", excavate in the same areas, work according to defined divisions of labour and agreements, and equally share their earnings based on labour contributions and investments.

In accordance with Article 481.1of the Civil Code, artisanal and small-scale miners are being organised into unregistered partnerships, are making cooperation agreements, are engaged in gold mining via contracts on mining areas with soum governors, and are using basic hand tools and small equipment for extraction.

Artisanal and small-scale miners establish and join unregistered partnerships to cooperate and earn profits through collaborative efforts. This form of cooperation is a co-working form with membership, but with no person's legal rights/authority.

Members of a partnership must meet the following requirements:

- Must be a citizen of Mongolia
- Must be over 18 years of age
- Must be a permanent resident of the soum
- Must be granted a certificate as a taxpayer of personal income derived from a private business and service
- Must be covered by health and social insurance
- Must be a member of only one partnership

The regulation governing ASM operations states that a partnership shall have at least five members. According to the survey participants, optimal membership for a partnership was eight to 12 members for cooperating or co-working, compliance with occupational health and safety regulations, divisions of labour, sharing revenues and profits, establishing mutual funds, improving the use of equipment, internal monitoring, individual compliance with requirements, and the elimination of non-compliance.

In addition to the aforementioned organisational forms, NGOs founded by artisanal and small-scale miners play an important role in protecting their interests, providing a bridge between their members and local governments, transferring knowledge on legal and technological issues to their members, and organising socially beneficial activities.

8.2. Communications

The survey participants pay expressed their willingness to cooperate and to unite their potentialities and resources given that ASM is highly risky work and miners spend most of their days in difficult and poisonous/contaminated conditions. The survey findings also show that artisanal and small-scale miners are focused on earning greater profits within a short period of time before being forced to leave an area rather than communicating with each other to exchange experiences, protect their interests and deal with other relevant issues despite engaging in operations in informal groups, teams or brigades. While teams and brigades are generally temporary, artisanal and small-scale miners who are organised into unregistered partnerships are able to cooperate and communicate with each other with respect to such issues as protecting their interests, exchanging experiences with other partnerships, joining forces, and co-implementing some activities.

To date, unregistered partnerships and NGOs play an important role in changing the long-term societal mindset of discriminating against and marginalising artisanal and small-scale miners given that their operations are illegal.

The survey findings also show that artisanal and small-scale miners are willing to join an umbrella organisation that will help expand interrelationships, communications and mutual experience exchanges, and protect their interests at the national level.

Impressions of artisanal and small-scale miners on the NGOs (%)

	Bornuur soum	**Jargalant soum**	**Average**
Percentage of artisanal and small-scale miners in favour of NGOs' objectives and activities	85.0	92.0	88.5
Percentage of artisanal and small-scale miners in favour of the organisation standing for and protecting the interests of ASM communities at the national level	78.3	68.0	73.2

As shown in the table above, 88.5 percent of survey participants were in favour of the activities of the NGOs founded on the initiative of artisanal and small-scale miners, and 73.2 percent were in favour of organisations standing for and protecting the interests of ASM communities at the national level.

8.3. Cooperation and organizational structure of the NGOs

Based on the survey participants' responses, it is clear that unregistered partnerships and NGOs play a major role in developing and strengthening collaborative efforts among ASM communities. These organisations enable issues to be discussed and disputes to be resolved through consultation with the relevant parties, and provide a platform upon which to build efficient cooperation at the local level.

The benefits of cooperation through unregistered partnerships are as follows:

- Ensure the social security of their members
- Development of a collaborative and team-based approach
- The creation of more favourable workplace conditions
- Ensure female participation and fairly manage divisions of labour
- Equally bear workloads and stress by streamlining pressure and workloads per member
- Provide all members with equal opportunities in mining
- Reduce and eliminate the causes of competition and conflict in mining areas
- The creation of opportunities for consultation and resolution of conflicts and disputes
- Reduce stress and concerns at the household level among members
- Increase communication and confidence among local communities
- The creation of opportunities to ensure each miner is covered by health and social insurance, and convincing them to pay personal income tax in compliance with the relevant laws and regulations
- More efficient for local government efforts to observe, monitor and organise activities for artisanal and small-scale miners
- Provide each member with the opportunity to be fairly and equally paid

NGOs founded by artisanal and small-scale miners have the following structure:

- Governing body

- Board and Monitoring Council
- Chair of the Governing Board who acts as head of the NGO
- Executive Office

The following non-permanent sub-councils are under the Executive Office:

- A technical sub-council
- A social sub-council
- A sub-council supporting the organisation's growth
- A sub-council supporting people with low incomes

It is the nature and characteristic of the NGOs to exist in the form of community-based organisations rather than with NGO status, so as to ensure sustainability and protect community interests in a balanced manner.

The main management approach underpinning community-based organisations is a system in which decisions are made by majority vote while still respecting minority votes, and the application of diverse methods and approaches that reflect the votes of each member.

Currently, the SAM Project is collaborating with community-based organisations founded by artisanal and small-scale miners in the following areas under the project's Output 2, "The institutional structure and activities of ASM improved at all levels":

- The "Bichil Uurkhain Kholboo" NGO in Bornuur soum, Tuv aimag, cooperates with the project in terms of community mobilisation and the introduction of mercury-free processing technology at the local level.
- The "Baidragiin Hugjil" NGO in Jargalant soum, Bayankhongor aimag, cooperates with the project in terms of the implementation of SAM Project activities, including community mobilisation and facilitation, the introduction of environmentally friendly and efficient technologies, and improving the tools and equipment currently in use in ASM.
- The "Duush Mandal Khairkhan" NGO in Mandal soum, Selenge aimag, cooperates with the project in terms of community mobilisation and facilitation, and the introduction of mercury-free processing technology at the local level.
- The "Bayan Bumbugur" NGO in Bumbugur soum, Bayankhongor

aimag, cooperates with the project in terms of community mobilisation and facilitation, the introduction of environmentally friendly and efficient technologies, and improving the tools and equipment currently in use in ASM.

Section Nine: Contributions of ASM to Local Socio-economic Development

When ASM operates within the legal and regulatory frameworks for poverty alleviation in rural areas, it provides an opportunity to make significant contributions to sustainable rural development through support for small and medium-sized enterprise and service-based businesses, the creation of new employment opportunities, and increases to profits and revenue at the local level.

Since the emergence of the ASM sector in Mongolia, societal attitudes have been negative towards the sector, overlooking the contributions made by artisanal and small-scale miners to local development. Such negative attitudes are associated with the conflicts and disputes related to ASM operations, environmental degradation, overall behaviours and attitudes, and environmental damage.

In light of that, consideration must be given, and focus placed upon, the contributions ASM has made to local socio-economic development at the soum level where the baseline survey was conducted.

Contributions of ASM to the local socio-economic development	
Jargalant soum, Bayankhongor aimag	Bornuur soum, Tuv aimag
• It has been two years since 314 artisanal miners in the soum joined 37 unregistered partnerships and signed contracts with the soum Governor for their operations • A total of 1400 people – the family members of artisanal and small-scale miners - are directly dependent on ASM. As of 2009, the family members of more than 80 percent of the soum's total households were engaged in gold mining to contribute to their livelihoods • The average monthly income of an artisanal miner is MNT 286, 875; miners in the soum earned MNT 90.07 million a month and MNT 1.08 billion a year according to our estimation • Four percent of the artisanal miners in the soum paid MNT 4.3 million in personal income tax • 37.4 percent and 84.2 percent of artisanal and small-scale miners in the soum are covered by social and health insurance respectively • Artisanal and small-scale miners in the soum have undertaken technical rehabilitation on 2.7 ha of land	• A total of 196 artisanal and small-scale miners have joined 65 unregistered partnerships in the soum • The livelihoods of more than 900 people - the family members of artisanal and small-scale miners - are directly dependent on ASM • "HAMO" LLC, founded by artisanal and small-scale miners in the soum, held an ore-processing workshop - "Gold Ore Processing Workshop in the Central Region of the Country" - featuring mercury-free technology, and created 61 permanent work opportunities. Plant revenue increases from year to year • The ore-processing workshop contributed to the sustainable livelihoods of artisanal and small-scale miners from Bornuur soum and other neighbouring soums • 10 percent of the soum's artisanal and small-scale miners annually pay MNT 6.7 million in personal income tax. • 26 percent and 65 percent of artisanal and small-scale miners in the soum are covered by social and health insurance respectively

In 2009, "HAMO" LLC had more than 60 workers and paid more than MNT 16.5 million in personal income tax, health and social insurance premiums, and income tax. In 2010, the company contributed MNT 72.5 million to the local budget by way of value-added tax, personal income tax, and health

and social insurance premiums. In this way, ASM is making a significant contribution to local socio-economic development.

The population and number of households in Bornuur soum have declined annually in the past five years. However, when the "HAMO" LLC's ore-processing workshop was launched, the soum's population began to increase. This was because locals who had left to find jobs in urban areas and people from other areas moved back to the soum to run businesses and services, as well as to mine gold. Thus, the launch of the workshop has contributed to the decentralisation of Ulaanbaatar's population and has generated new employment opportunities in the rural area and provided locals with more employment opportunities and the opportunity to run their own businesses.

There are tangible results demonstrating that the people who benefited from, and had been able to save money from, ASM have started their own private businesses in livestock husbandry, production and trade (shops and cooperatives), farming, and other small and medium-sized enterprises in rural areas.

It is also clear that ASM is increasing the state treasury and foreign currency reserves when it operates within the legal and regulatory frameworks.

Section Ten: Artisanal and Small-Scale Mining and its Environmental Impacts

10.1. Environmental impacts

"The right to development must be fulfilled so as to equitably meet the developmental and environmental needs of present and future generations. In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it." ("Rio-De-Janero Environment and Development" declaration)

In Mongolia, there are frequent occurrences of such natural disasters as droughts, dzuds, snow and dust storms, floods, fires, and pest and rodent infestations, which cause considerable losses to humans, socio-economic development and the environment. In addition, irresponsible mining practices are one of the main causes of increasing desertification.

Although ASM is making important contributions to sustainable local development, the adverse effects of ASM on the natural and ecological balance, particularly in terms of irreversible environmental damage, are a bitter reality.

Items	Biger soum	Bornuur soum	Jargalant soum	Uyanga soum
Use of chemicals having negative impacts on the environment and human health	0	0	0	0
Negative impacts of ASM on the environment	High	Low	Low	High

Source: Socio-economic baseline survey

According to the baseline survey, the adverse environmental impacts of artisanal and small-scale gold mining in Biger and Uyanga soums were found to be higher.

The survey classified the main negative environmental impacts as follows: Land destroyed by artisanal and small-scale miners in order to extract more minerals, the disposal of household waste, pastureland degradation and mined areas abandoned without refilling and rehabilitation, holes and tunnels

posing a risk to humans, livestock and wildlife, the careless use of wood to make fires, and the destruction and extraction of soils and plants by their roots. In addition, incidences of crimes and violations were prevalent in these areas among artisanal miners and between artisanal miners and other parties. The causes of conflicts and disputes are often related to the issues such as profit-sharing or distribution, the use of equipment and tools, rental, divisions of labour, and illegal mineral extraction in licensed areas.

According to the survey, there were fewer negative environmental impacts and conflicts in Bornuur and Jargalant soums where operations are conducted in accordance with the legal and regulatory framework, which is the result of sound organisational structures, management and social responsibility.

In recent years, environmental concerns - including soil erosion, pasture-land and water depletion and pollution resulting from mining operations - and the interests of local people have been raised. In order to become responsible miners, ASM activities must be legal, socially relevant and important, economically efficient and environmentally friendly.

From some facts and data

Since the rapid development of Mongolia's mining industry, 14,565 ha of land has been destroyed nationally. According to a 2008 report, of this more than 1000 ha was the result of artisanal and small-scale mining operations. Until 2008, mining companies had conducted technical rehabilitation on 3386.6 ha of land; however, no rehabilitation was done on more than 10,000 ha by the Ministry of Nature, Environment and Tourism (MoNET).

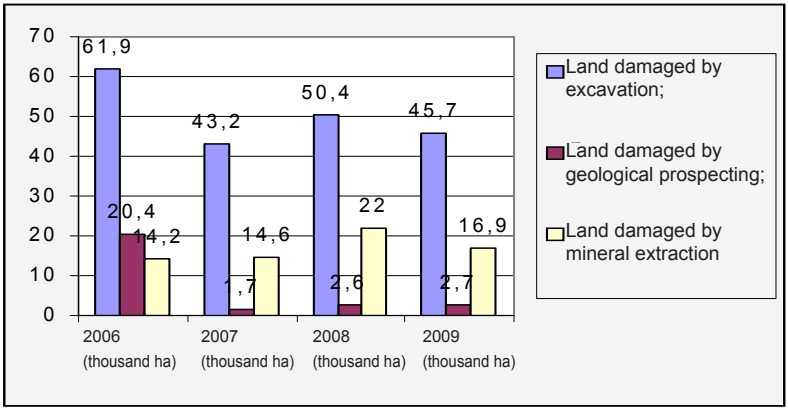
- In 2009 and 2010, the MoNET inventoried abandoned and non-rehabilitated land where fluorspar, precious and semi-precious stones were previously mined
- An inventory of abandoned and non-rehabilitated land where subsoil was impacted upon by the army and for other purposes will be conducted
- According to the forecast, a total of 29,012 ha of land in five soums in Dornogovi aimag, 176,98 ha in more than 20 areas in six soums in Dundgovi aimag, and 402,2 ha in 39 areas in Khentii aimag were abandoned without any rehabilitation
- A guideline for the payment of rehabilitation reimbursements was approved in a Nature, Environment and Tourism Minister's Order. As stated in the Law on Environment, governors are the claimants of land compensation
- According to the current guideline, assessment covers all ecosystem resources, including fauna, flora, water and subsoil resources

- Since the emergence of artisanal and small-scale gold mining, a number of positive and negative societal impacts have been seen. One of the negative impacts was the use of mercury at hard rock gold deposits
- At hard rock gold deposits, chemicals, particularly mercury, were largely used without compliance with storage and transportation regimes; mercury was used at people's homes in the extraction of gold
- In 2007, 147 mills were confiscated and destroyed nationally during inspections focusing on the enforcement of the Law on Toxic and Hazardous Chemicals and Substances by the State Specialised Inspection Agency, as recommended by the then Prime Minister
- To date, the use of mercury and cyanide in ASM operations has been drastically reduced throughout the country

In 2009, the Government of Mongolia spent MNT 7700.3 million on the protection and restoration of natural resources, an increase of MNT 307.9 million (4.2 percent) on the previous year. Of this:

- 3.4 percent was allocated to the Environmental Protection Fund
- 9.1 percent was allocated to consolidated environmental measures
- 24.6 percent was allocated for the conservation management of protected areas
- 29.8 percent was allocated for reforestation
- 33.1 percent was allocated for activities implemented by environmental offices and rangers

Damaged land



Source: 2009 Statistical Yearbook of Mongolia

In 2009, 65,300 ha of land was destroyed by mining operations nationally, including 45,700 ha damaged by excavation, 2700 ha damaged by geological prospecting, and 16,900 ha damaged by mineral extraction.

10.2. Artisanal and small-scale mining and rehabilitation

A question that is always raised is who is responsible for the environmental and land damage caused by illegal ASM and the subsequent rehabilitation? The General Agency for Specialised Inspection elaborated the following two options:

- If illegal mining was conducted in a licensed area and the area was abandoned without any rehabilitation, the license-holder is responsible for its rehabilitation
- If illegal mining was conducted in special local needs areas or on land designated for other needs, the local government is responsible for its rehabilitation

In areas where minerals have been exploited, technical restoration followed by biological restoration must be undertaken.

In practice, artisanal and small-scale miners commonly leave exploited areas without rehabilitating the land, neglecting their environmental and social responsibilities and in contravention of legislation.

Although the negative impacts mentioned previously have been seen in ASM operations throughout the country, there has recently been a change in behaviour, a new positive approach, with ASM communities rehabilitating land on their own initiative.

Since its inception, the SAM Project has been working towards the development of responsible ASM in Mongolia and is assisting artisanal and small-scale miners in becoming responsible members of society who contribute to sustainable rural development. The project's beneficiaries, or target groups, were artisanal and small-scale miners in Bumbugur and Jargalant soums, Bayankhongor aimag, Bornuur soum, Tuv aimag, and Mandal soum, Selenge aimag, and until 2010 project activities were concentrated in these soums.

Under the project component "Empowerment of artisanal and small-scale miners and other resource users to responsibly address natural, ecological and social issues and resolve the conflicts raised", the project has been collaborating with the "Baidragiin Hugjil" NGO in Jargalant soum and the "Bayan Bumbugur" NGO in Bumbugur soum in terms of community mobilisation

and facilitation, the introduction of environmentally friendly and efficient technology, and improvements to the tools and equipment used for mineral extraction and processing.

The NGOs mobilised local ASM communities in rehabilitating 10.1 ha of land in 2009-2010. The rehabilitation was undertaken using local labour, equipment and other resources available to members and other artisanal and

small-scale miners with guidance and support from the SAM Project's Technical Team Technological Consultant. After the rehabilitation work was completed, the hand was handed over to the local governments.

	Soums and aimags	Areas	Rehabilitated areas (ha)	
			2009	2010
1	Bumbugur soum, Bayankhongor aimag	Builsan	4.9	2.5
2	Jargalant soum, Bayankhongor aimag	Baruun and Zuun salaa	1.2	1.5
	Subtotal		**6.1**	**4.0**
	Total		**10.1**	

At the placer gold deposit, damaged land was successfully rehabilitated with SAM Project support. This has represented significant progress in the development of responsible ASM in Mongolia.

Section Eleven:
Development of ASM and its Future Tendencies

Globally, mineral resources are in high demand and the number of mining and processing industries is increasing; however, mineral resources are being depleted, prompting the need for the waste-free use of such resources as a matter of priority.

ASM in Mongolia emerged as a response to the negative consequences of the early years of transition, such as unemployment, high inflation and declines in incomes. Because there has been no substantial reduction in unemployment and poverty in rural areas, the number of people engaged in ASM has risen. Consequently, mineral resources have been used in wasteful and inefficient ways, increasing the negative impacts on the environment and society. Hence the proper regulation and coordination of artisanal and small-scale miners has been a priority area.

To coordinate ASM operations, the Temporary Regulation on Artisanal and Small-Scale Mining Operations was approved in Government Resolution No. 72 dated February 27, 2008. The enactment of the regulation was official recognition that ASM had become a subsector of small-scale mining. In addition, a sub-programme for ASM Development until 2015 was approved in Government Resolution No. 71.

With the enactment of the temporary regulation, the first regulatory environment was established and the attitudes of local governments towards those engaged in ASM operations changed and attention was paid to artisanal and small-scale miners. It was the first success.

The "Bichil Uurkhaichdiin Kholboo" (Association for Artisanal Miners) NGO was established in 2007, and artisanal and small-scale miners in Bornuur soum, Tuv aimag, began to take action to protect their interests. As a result of their efforts, a mercury-free ore processing workshop for hard rock gold deposits was supported by the government. This gave impetus to the development of the ASM subsector in Mongolia.

Pursuant to the launching of the ore-processing workshop, the first steps to establish unregistered partnerships with membership from artisanal and small-scale miners were taken under the temporary regulation. To date, there are more than 410 unregistered partnerships and more than 10 NGOs with voluntary membership operating throughout the country. Artisanal and small-

scale miners who are members of unregistered partnerships began to be officially registered and were able to access health and social insurance, as well as social welfare and other services. Official recognition gave them an opportunity to ensure their social security, as legally prescribed. Negotiating and signing contracts with the soum Governor allowed the miners to run their operations in accordance with legislation, take responsibility for natural resource management at the local level, and embark upon environmental restoration and protection.

The progress that has been made is closely integrated with the phase-by-phase activities of the SAM Project. As a result, growth has been seen in the ASM subsector and the unregistered partnerships and NGOs standing up for their interests are maturing.

Analysis of conditions in the ASM sector

Internal environment	
Strengths	**Weaknesses**
• Experienced human resources engaged in ASM for many years • The desire and willingness to be responsible members of society, joining unregistered ASM partnerships • The percentage of artisanal and small-scale miners covered by health and social insurance and paying personal income tax under unregistered partnerships is increasing annually • Artisanal miners who have savings from ASM start new small businesses and generate employment opportunities in rural areas • With the founding of the Bichil Uurkhaichdiin Kholboo" NGO in 2007, artisanal and small-scale miners in Bornuur soum, Tuv aimag, began to take action to protect their interests	• The backward mentality of artisanal and small-scale miners • Poor development of communications and a lack of efficient cooperation • Conflicts and disputes related to the environmental deterioration that impact upon the legitimate interests of social groups • Local governments and artisanal and small-scale miners are inadequately equipped to enforce the legal and regulatory frameworks • Artisanal and small-scale miners have poor understanding, knowledge and information on the legal and regulatory frameworks for ASM • Mutual understanding and cooperation between local governments, license-holders and artisanal miners is poorly developed

• Mercury-free ore-processing workshops opened in Bayan-Ovoo soum, Bayankhongor aimag, and Bornuur soum, Tuv aimag, under the framework of Government Resolution No. 28 and their experiences and contributions to local development	• Artisanal and small-scale miners' labour productivity is low and there is a reliance on outdated technology • Knowledge and understanding about, and the capacity to adhere to, occupational health and safety rules are inadequate • There is no federation representing ASM communities at the national level • The illegal gold trade
External environment	
Opportunities	**Threats**
• The Laws on Amendments to the Minerals Law and the Land Law were approved by Parliament • The Regulation on Operations of Mineral Resource Extraction by Artisanal and Small-Scale Mining (Government of Mongolia) • Sub-programme for the Development of Artisanal and Small-Scale Mining until 2015 • Programme for Small and Medium Enterprise Support • Small and Medium Enterprise Support Fund • SDC/SAM Project being implemented in the ASM sector	• Potential changes in government policy on artisanal and small-scale mining • The illegal sale of mineral resources which would lead to mineral resource depletion • Strong unwillingness and opposition from social groups regarding the social irresponsibility of artisanal and small-scale miners • Drastic price decline of minerals and commodities on the world market

To ensure the sustainable development of the ASM sub-sector, it is important to develop and implement appropriate policies and actions to remedy the weaknesses listed above by focusing on the identified strengths, and to prevent those threats listed in the same manner. Successfully doing so will determine the future development of the ASM sector.

In relation to remedying the weaknesses listed within the sector's internal environment:

- Promote and disseminate knowledge and information on the legal and regulatory frameworks for ASM among ASM communities
- NGOs with artisanal and small-scale miners as members need to establish an umbrella organisation (federation) to represent ASM communities at the national level, to protect their interests, and to lobby governmental and public institutions on sectoral development
- Local governments, unregistered partnerships and NGOs need to systematically (phase-by-phase) organise and implement actions aimed at developing a sense of social responsibility among ASM communities
- Local taxation and social insurance officers should organise promotional and awareness-raising activities for artisanal and small-scale minres in order to expand the taxation base
- Unregistered partnerships and their NGOs in Bumbugur and Jargalant soums, Bayankhongor aimag, and Bornuur soum, Tuv aimag, need to share and disseminate their best practices and lessons learnt
- Some state functions and responsibilities should be delegated to NGOs in the ASM sector when the sub-programme for ASM Development is implemented
- Local governments should negotiate contracts with ASM communities after artisanal miners have had technical and capacity building trainings on mineral extraction and occupational health and safety-related issues in order to improve their understanding, knowledge and abilities
- People to be employed in the ASM sector should be trained at technical and vocational educational training centres
- Governmental organisations and those NGOs protecting the interests of artisanal and small-scale miners should jointly develop ASM and processing standards and technical specifications, and have them approved by authorities and complied with
- Local governments should develop and implement policy on the mobilisation and use of resources and capitalise on the potential of ASM for the development of local sub-sectors that bring long-term economic growth in order to have artisanal and small-scale miners gradually moved to other sectors and ensure optimal conditions for them to operate businesses

In relation to remedying the threats listed within the sector's external in-

ternal environment:

- Improve the production technologies used by unregistered partnerships and shift into jewellery and souvenir-producing technologies
- Develop responsible ASM by promoting a mindset that prioritises land rehabilitation among ASM communities
- Create and implement a system in which license-holders who sign tripartite agreements are rewarded with tax and other discounts and incentives
- Create a supply chain for the commodities extracted and produced by artisanal and small-scale miners
- Support the legal trade of the minerals extracted by artisanal and small-scale miners through the introduction of certificates of origin
- Provide government financial support for the opening of branches of the Precious Metal Assay Inspection Laboratory under the Assay Inspection Department in rural areas
- Establish a unit in charge of ASM-related issues under governors' offices in the aimags where artisanal and small-scale miners are concentrated in large numbers, and implement policy to build the capacities of those units
- Provide opportunities for artisanal and small-scale miners to be able to equally and adequately access social services

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