

*Mineral to Intellectual Wealth*

# AWAKENED GOBI

**Responsible Mining Magazine**

- The Eight Principles of Responsible Mining
- Discover Mongolia 2008
- Strategic Deposits
- More than Just Copper and Gold
- Modern Mongolian Gers
- The Golden Pita

Special English Language Issue

Autumn, 2008




For more information about the Oyu Tolgoi Project visit [www.ot.mn](http://www.ot.mn)

**Free**

# Rehabilitation Starts *Before* Mining

Although the Oyu Tolgoi Project is only in its preconstruction phase, responsible environmental stewardship began in 2000 when the first exploration work started. Today ongoing exploration work, underground drifting and the construction of housing for the future mine construction workers is continuing. From day one, technical rehabilitations of disturbed land due to the project's operations are being conducted according to Mongolia's MNS 4917:2000, MNS 4919:2000, and MNS 4920:2000 standards. The implementation of technical rehabilitation work has been based on trials performed at the Oyu Tolgoi site in recent years involving Mongolian biology and botany experts.

**Some call the Gobi Desert barren, we think it's a diverse environment that must be preserved.**



**Responsible Mining  
Means  
Protecting the Environment**

**Produced by**  
Ivanhoe Mines Mongolia Inc

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Please send your comments and questions about the magazine to the editorial team.



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Thus, the mining industry of Mongolia has gone through three developmental stages during its 85 year history.

### FRONT COVER:

First employees of Oyu Tolgoi: advisor geologist D.Garamjav, first exploration camp manager, and geophysicist S. Sanjdorj at the Oyu Tolgoi core yard exploring core samples



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# The Eight Principles of Responsible Mining

**B**efore we begin to discuss the eight principles of Responsible Mining, let's consider what it actually means. Looking at examples from many countries that have developed their mining industry, More people in Mongolia have started to talk about Responsible Mining.

Mongolia established its mining industry 86 years ago. Although it may be too much to say that Mongolia's mining industry has acted irresponsibly until just recently, there have been great strides made in the last few years.

Greater respect for communities, environment and wealth creation have helped many to succeed in extracting Mongolia's treasures to

produce the products we use in our everyday lives in a responsible manner. Work responsibility has been declared by many as *the* key to success. One of the first honorees for the Distinct Hero award was bestowed upon a Mongolian miner. Few will disagree that Mongolia's mining industry, which has produced many merited miners and contributed to great social and economic development, has been responsible, disciplined, and organized since its establishment 86 years ago. So why then has Responsible Mining become such a hot topic?

We understand and demand that a mining project must be operated with the utmost discipline and accountability. However, the responsibility should not only be limited to the mining process, but should also be applied to the well-being of society.

- 
- Ensure multi-stakeholder participation
  - Be open and transparent
  - Adhere to all laws
  - Be responsible for the environment and human safety
  - Contribute to future development
  - Be efficient
  - Be humane
  - Utilize advanced technology

Consequently, Responsible Mining means operating in ways that respect local communities, are safe, healthy, environmentally friendly, are based on best international practices, adhere to all laws, and that generate stable income for Mongolia. In other words, transparency, civil participation and economic growth are all parts of Responsible Mining.

In recent years, we learned of many sad incidents occurring in micro-mines where people's health suffers due to unsafe working conditions. Moreover, because of a lack of skills or consideration for hazardous chemicals, profound impacts in a number of soums throughout Mongolia have damaged the environment. Some of the clearest examples of irresponsible mining are polluted rivers and diverted streams. Responsible Mining is not an undertaking that anybody can easily carry out. Specialized skills, technology, know-how and a long-term commitment to always improve are essential for implementing Responsible Mining practices.

In September 2006, non-governmental organizations, private foreign and domestic companies and government leaders agreed to resolve and mitigate issues related to mining through a multi-stakeholder cooperative process.

In November 2006, the first forum on developing Responsible Mining in Mongolia was held in the Ulaanbaatar Hotel with over 70 representatives from various stakeholder groups and organizations. The Asia Foundation, a US organization, later organized a mining study trip to California and Colorado where participants experienced first hand the leading practices and best management employed in mines of developed countries. They also learned of the negative consequences of uncontrolled and reckless mine processes from past generations.

A similar trip was organized by the Oyu Tolgoi Project and Ivanhoe Mines in October, 2007. Journalists from Mongolian National Television, TV-5, TV-9, TV-25 and Unuudur, Ardiin Erkh, Zuuny Medee and Udriin Sonin newspapers visited a Rio Tinto operation in Salt Lake City, Utah. It's evident that many non-governmental organizations and foreign invested companies are taking initiatives to develop more Responsible Mining projects in Mongolia by assisting in its promotion.

The continued development of responsible mining is in line with the core interests of Mongolia.

Multi-stakeholder representatives of over 60 various organizations from civil society, academia, private and government sectors gathered in February, 2007 to establish the eight core principles of Responsible Mining. The agreed upon principles are:

- Ensure multi-stakeholder participation**
- Be open and transparent**
- Adhere to all laws**
- Be responsible for the environment and human safety**
- Contribute to future development**
- Be efficient**
- Be humane**
- Utilize advanced technology**



# DISCOVER MONGOLIA 2008

## International Mining Conference and Investors Forum



Six years have passed since the world's miners started gathering in Mongolia for the DISCOVER MONGOLIA International mining investors forum organized by the National Mining Association of Mongolia.

The forum which was first initiated and organized by NGOs and private entities including the National Mining Association of Mongolia, the Mongolian geologists' association, Mine Info and Monrud Co. Ltd has spread throughout the world and became a major event that is clearly marked on the international geological and mining calendars.

VENI, VIDI, INVEST...

Eight centuries ago the Great Mongolian empire was well known throughout the world but this image has gradually disappeared. Nevertheless, Mongolia's huge natural resources have once again brought Mongolia to the brink of the 21st century natural resources empire. The DISCOVER MONGOLIA forum and its organizers have taken the heavy and honorable duty of declaring this to the world and attracting new investors, and it is our pleasure to mention that they have fully fulfilled their obligations.

In 2007, over 900 guests and representatives from 150 companies of 19 countries took part in the forum which started off with only 400 representatives a few years prior. It is evident that the scope and importance of DISCOVER MONGOLIA is reaching new audiences and attracting more investors. We would like to briefly mention the mining leaders of the world who have been participating in our forum every year, including: Rio Tinto, BHP Billiton, CVRD, Caterpillar and Liebherr.

The importance of DISCOVER MONGOLIA is to introduce new mineral exploration and extraction projects of Mongolia to investors and to open up new opportunities of investment, to develop mutually beneficial cooperation and to meet with new partners while advertising our companies to the local and

international markets.

DISCOVER MONGOLIA consists of four main parts, divided into the Conference, Government Hour meetings, Exhibition and Mining field trip.

The conference thoroughly discusses the legal regulations related to the minerals sector, its pressing issues, state policy on mining, financial environment and the introduction of the hottest deposits in Mongolia.

The Government Hour meeting gives you the opportunity to meet face-to-face with relevant Government officials of Mongolia and to seek answers about state policy of the minerals sector and other regulatory issues.

The Exhibition hall allows the participants to get acquainted with the activities of the companies operating in Mongolia, the introduction of deposits and proposed projects, mining equipment, software, communication devices and other relevant mining service products and providers.

The Mining field trip also provides participants with the opportunity to witness with their own eyes the successful implementation of mining projects in Mongolia.

The opportunities to prosper and develop will solely depend on us. The fate and reputation of Mongolia's future is intertwined with the minerals sector. Therefore, we highly value the role and importance of foreign investors who partner with local companies, invest in Mongolia and provide economic and social development opportunities.

The Discover Mongolia-2008 forum will take place in the Children's Palace of Mongolia on November 6-8. The premier sponsor of the event is Rio Tinto, one of the world mining leaders, with gold sponsors including 'the Oyu Tolgoi Project, Red Path, BHP Billiton, Erdene Mongol, Vale and Centerra Gold; regular sponsors include Areva, Adamas Mining, MAK and Khan Resources. Khaan Bank will participate as the financial partner of the conference.

We would like to cordially invite you to participate in DISCOVER MONGOLIA-2008, the gateway to Mongolia's minerals and mining sector.

**With one heart and one aspiration we can all participate in the great development of Mongolia through utilizing our vast mineral resources!**



# Rio Tinto



## Brief information about previous DISCOVER MONGOLIA forums:

### DISCOVER MONGOLIA 2003

**Date:** September 24-25, 2003  
**Number of representative attended:** over 400 representatives from 20 countries  
**Supporting bodies:** MIT, MRPAM  
**Sponsors:** Premier sponsor Cameco Gold Inc, Gold sponsors Placer Dome Asia Pacific, Ivanhoe Mines Mongolia, Monnis Liebherr, Wagner Asia Equipment, regular sponsor Can Asia Drilling Services.  
**Financial partner:** Golomt Bank  
**Information and Technology partner:** Bodi computers Co.Ltd  
**Mining field trip:** Boroo Gold mine

### DISCOVER MONGOLIA 2004

**Date:** September 15-17, 2004  
**Number of representatives attended:** Over 500 representative from 150 companies of 20 countries  
**Supporting body:** MIT, MRPAM  
**Sponsors:** Premier sponsor Monnis Liebherr, Gold sponsors Placer Dome Asia Pacific, Erdene Gold, Tethys Mining, Boroo Gold, AngloGold Ashanti, regular sponsors Ivanhoe Mines Mongolia, Orica Mining.  
**Financial partner:** Golomt Bank  
**Information and Technology partner:** Magicnet Co.Ltd  
**Mining field trip:** Boroo Gold mine

### DISCOVER MONGOLIA 2005

**Date:** September 14-16, 2005  
**Number of representatives attended:** over 600 representatives from 200 companies and organizations of 20 countries  
**Supporting body:** MRPAM  
**Sponsors:** Premier sponsor BHP Billiton, Gold sponsors Placer Dome Asia Pacific, AngloGold Ashanti, Monnis Liebherr, Tethys Mining, Boroo Gold, regular sponsors IUC, Orica Mining, UGL Enterprises, QGX, RedPath, Western Prospector.  
**Media partner:** Bloomberg, The Northern Miner  
**Financial partner:** Golomt Bank  
**Information and Technology partner:** Magicnet Co.Ltd  
**Mining field trip:** Zinc concentrating plant of Tumurtei Ovoo of the Mongolian-Chinese joint venture "Tsairt Mineral" Co.Ltd

### DISCOVER MONGOLIA 2006

**Date:** September 12-14, 2006  
**Number of representatives attended:** over 660 representatives representing 170 foreign and local companies and organizations  
**Supporting body:** MRPAM  
**Sponsors:** Premier sponsor BHP Billiton, Gold sponsors Monnis Liebherr, Red Hill Energy, Xstrata, Tethys Mining, Erdene Gold, regular sponsors Ivanhoe Mines Mongolia, RedPath, Sandvik Mining.  
**Media partner:** Bloomberg, The Northern Miner  
**Financial partner:** Khaan Bank  
**Information and Technology partner:** Magicnet Co.Ltd  
**Mining field trip:** Mongolian-Russian joint venture Erdenet Industry

### DISCOVER MONGOLIA 2007

**Date:** November 12-14, 2007  
**Number of representative attended:** Over 900 representatives from 150 companies and organizations from 19 countries  
**Supporting bodies:** MIT, MRPAM  
**Sponsors:** Premier sponsor Rio Tinto, Gold sponsors BHP Billiton, Monnis Liebherr, Red Hill Energy, Erdene Gold, Ivanhoe Mines Mongolia, regular sponsors Geofund, Khan Resources, Western Prospector Mongolia, Redpath Mongolia, Centerra Gold.  
**Media partner:** Bloomberg, The Northern Miner  
**Financial partner:** Khaan Bank  
**Information and technology partner:** Mobicom Co.Ltd  
**Mining field trips:** Mongolian-Russian joint venture Erdenet Industry, and Oyu Tolgoi project, Ivanhoe Mines Mongolia



# Oyu Tolgoi and Cultural Heritage: More than Just Copper and Gold

**R**ecently everybody has been talking about Oyu Tolgoi, Tavan Tolgoi and Asgat, waiting for that blissful day when they will receive the Homeland Benefits and Treasure Shares. This is thanks to our subsoil wealth such as gold, silver, copper and coal discovered at these deposits. But archeologists are people who are more overjoyed with finding ancient graves, artifacts and petroglyphs rather than minerals.

In this issue, we have invited B. Gunchinsuren, Secretary and Scientist of the Archaeology Institute of the Mongolian Academy of Sciences and Ch. Amartuvshin, Laboratory Superintendent to talk about their archeological work carried out in Mongolia's South Gobi.

**B.Gunchinsuren:** - Ivanhoe Mines first proposed to cooperate with the Institute in 2001 and we have been working together ever since. The first year we worked in the Oyu Tolgoi area. This region is an area rich with archeological artifacts. It has been established that people mined copper in the area that the company is going to develop since the Bronze Age 5,000 years ago.

Our senior geologist D. Garamjav had shown us stone axes and sledge-hammers that he had found. There are times when geologists and archeologists complement each other's professions, thus he has written and published a research paper in association with the Director of our Institute.

**Ch.Amartuvshin:** - We did not discover the surface copper mineralization at Oyu Tolgoi. It has been established that nomads mined copper there during the Bronze Age. Archaeological facts fully confirm that they manually mined the copper and smelted it in nearby areas.

In the seven years that we have cooperated with Ivanhoe Mines we have achieved great results. We consider that we have reached the main goal of our research because we have established that ancient people mined copper at Oyu Tolgoi and found many artifacts that they used to mine, smelt and process the copper. Moreover, we have discovered bronze arrowheads that were used by ancient people. These are artifacts that belonged to people who lived in the Oyu Tolgoi area. Ivanhoe Mines has always respected and complied with Mongolia's Law on Culture and other legislation and cooperated with us in carrying out this important research.

This partnership not only saves and protects historical and cultural artifacts, but makes a significant contribution to scientific endeavors in Mongolia. The results and conclusions from our work do not stop at Oyu Tolgoi.

**B.Gunchinsuren:** - There are many tombs from ancient societies as well as drawings, art and

petroglyphs that commemorate their lifestyle. In addition, we have found many Bronze Age artifacts and therefore the Oyu Tolgoi area can be rightfully considered an area rich with historic importance. We did previously carry out archaeological studies in the Gobi area. However since we started our cooperation with Ivanhoe Mines the archaeological studies in Khanbogd and southern soums has become much more intense.

Although we are still conducting our research, even our work has slowed down due to delays in concluding the Investment Agreement. There are



B.Gunchinsuren

Secretary and Scientist of the Archaeology  
Institute of the Mongolian Academy of Sciences

many things that we discuss with Ivanhoe Mines. We are planning to publish our study and the company has promised to free the sites of historical heritage once operations begin. Freeing means letting us excavate the site and obtain new information. This will make a significant contribution to not only the archaeology of Mongolia but also Asian history.

**Ch.Amartuvshin:** - We stand against the notion that ancient people did not live in Gobi, that it is a remote, wild area and that even now not many people live here. We think that it was a relatively big mining center where people mined natural resources, ensured their proper use and transferred them to central areas or other processing parts. Even in terms of names, Oyu Tolgoi, Oyut Ulaan, Oyut, Zest, Zelt, Khurel Unegt and so on, they always contain words such as copper, turquoise and bronze. Ancient copper pits and many historical facts prior to modern civilization prove that Oyu Tolgoi was an important area for copper mining.

Ivanhoe Mines cooperates with us on every license they have.

They have us carry out the exploration first and if any historical and cultural artifacts are discovered, the company works together with us on every step of the process, starting with excavating trenches or surveying drill areas. Everything is conducted in compliance with the laws. This means that we are provided with an opportunity to explore new areas. Discovering new heritage sites becomes another jewel in archaeological and historical studies. It should be noted that Ivanhoe Mines is making significant scientific contributions to Mongolia. Many research papers are being published about issues raised from the Oyu Tolgoi area. The "Petroglyph of Javkhlant Rocks" produced by us has been published in both English and Italian as well.

Javkhlant Rock was discovered in the process of studying major sites for petroglyphs. A fairly comprehensive study of this rock was performed and it has attracted the attention of many researchers. In total over 320 petroglyphs were found in the area including some which have become world famous. As I have mentioned before, we are planning to compile all the materials developed during our cooperation with Ivanhoe Mines and publish a book. We have a number of books ready for publication and are waiting for the right time to release our extensive studies.



Ch. Amartuvshin

Head of the Archeology Institute Laboratory, Academy of Sciences

**B. Gunchinsuren:** - We have also found very interesting items during our exploration at Ivanhoe Mines license area at Chandman Har Uul in Delgerekh soum of Dornogobi aimag. Initially, we discovered about 300 graves among many other artifacts around the mountain. Generally, this area is rich with graves and settlements of the New Bronze Age. There is an iron deposit in the area as well which the societies used.

In accordance with our request we have commenced excavation on a number of the graves. As a result, we have discovered a completely new form of burial that was never documented before in the ancient burial traditions of Mongolia. People were buried face down and large stones were put on their heads, feet and waists, which is very unusual. Almost no other country in the world has a tradition like this. All the graves that we excavated were all done in this style. We recently published an article on this unusual burial style and it has raised many new issues in our areas of study.

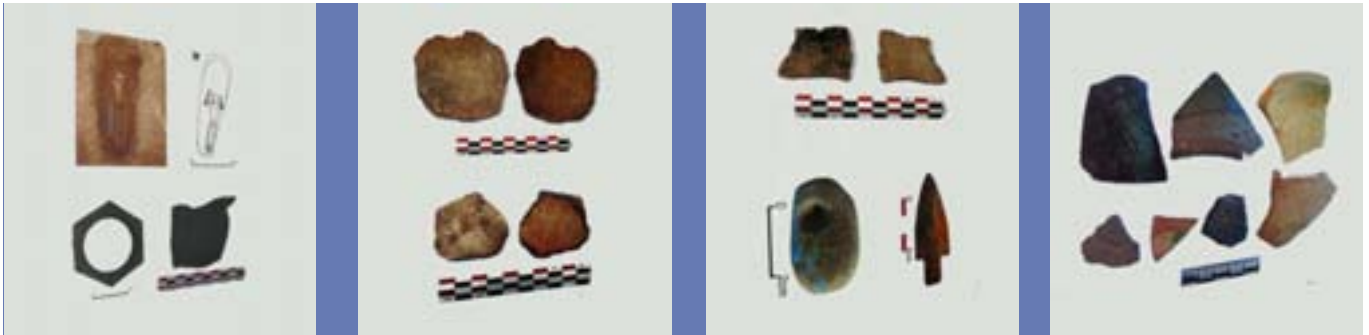
**Ch. Amartuvshin:** - These graves are very important in terms of their time as well. We attribute them to the period prior to the Bronze Age. We proposed that it has to do with an effort to avoid resurrection of the soul and instead is meant to send the soul to the depths of the earth. Although similar graves were found in Bayankhongor and Dundgobi aimags, it was only 1-2 graves and not hundreds together like we have discovered.

This is very interesting in terms of archaeology and ethno-science. Whether this is related to tribes, unusual traditions or a certain time period remains a secret. If we carry out another study at Chandmani Mountain we might discover other finds. We have also found facts of ancient copper processing as well. Today we would imagine a huge furnace for copper smelting, but that was not the case. Ancient nomads placed the mined copper ore on nearby granite rocks and aggressively burned the ore.

The minerals would then flow down the rock and settle in small pools. We've found the melted copper stuck to rock walls and stone tools as well. These items are preserved just as they were 3-4 thousand years ago. Thus, Mongolians' history of metallurgical and minerals processing started out in a very interesting manner. For example, where did we acquire copper, did people who mined it also live there, or did they mine it and distribute it to other regions?

We are planning to conduct a detailed study on this issue. We have sent the artifacts to Korea and are now waiting for results. We think the results will be very interesting because we can compare the results to bronze artifacts found from square graves excavated in the Gobi region and comparing their copper compositions will hopefully solve some of these issues. This is why we are keen on seeing the final results of our work performed in the Gobi.

I would like to note one thing here as well. Ivanhoe Mines sets the standard for other foreign invested companies in terms of complying with the laws of Mongolia and other companies agree. We receive proposals from many companies wishing to cooperate with Ivanhoe Mines. This proves that the company knows and complies with the Law of



## Ancient archeological artifacts, Bronze Age

From the Oyu Tolgoi license area

Mongolia on Cultural Heritage.

There is not a single license area in Mongolia that does not have historical and archaeological valuables but Ivanhoe Mines is the only company which always carries out archeological studies on every license. Since we are unable to work at every single site, we think we are losing many artifacts.

We are very grateful that one or two companies extend their hand and cooperate with us. Any findings discovered are more valuable to us archaeologists than any other treasure, even gold. Currently, the lawmakers are discussing to amend the Minerals Law. We hope they consider including a clause on the protection of archaeological artifacts and a requirement to carry out an assessment on historical and cultural heritage at every minerals and mining project site.

**B.Gunchinsuren:** - Many mining companies basically disregard the Law on Cultural Heritage. They look at the Minerals Law at the very least. However in reality archaeological exploration and studies must be carried out at every single site, but very few companies actually respect this notion and support archeological endeavors on their licenses. If another company worked at Oyu Tolgoi the archaeological studies may have only begun once many of the treasures had already been destroyed.

We're very fortunate that Ivanhoe Mines has respected our cultural heritage more than any mineral wealth and they are the best example of how to carry out these types of studies at mining projects.



## Ancient petroglyphs from Javkhant rock

Near the Oyu Tolgoi Project area



# THE GOLDEN PATA



A family trip to the Khanbogd region

# THE GOLDEN PITA

By Dan Golan



name I will now never forget. To the west there was a very strange camp with many Ger's in straight rows. This camp did not appear on any of my maps. My imagination went wild, "maybe this is a secret camp hidden away in the Gobi," I thought. The deserted villages and ruins had a few large structures, and it was obvious that there must be an interesting story related to them.

The colored rocks hinted that this circle may very well be a geological gem. The Mongolian tourist websites did not mention this area. All I could find was a blog of an American Buddhist monk who visited a remote

place named "Demchig hiid". On his blog he had a photo of that same Lotus shaped ruins that I located on the satellite image. We spent many hours searching and mapping the area from these satellite images.

## Why Mongolia?

"Mongolia," said my son Jonathan with a great smile at our kitchen table when we were contemplating where to go for our next family trip. My three sons had just completed their Israeli compulsory army service. This was an opportune time which couldn't be missed. In the past we have gone on challenging treks including climbing to the summit of Kala-Patar in Nepal overlooking Mount Everest.

We intended once again to embark on a challenging adventure. As I am involved in the computer software industry, it was my job to "Google" for information on what might be a suitable area to have a real adventure in Mongolia.

## Khanbogd Soum!

The place to search and investigate is "Google Earth" which has amazing satellite images of the whole world. I flew over Mongolia with "Google Earth" for hours, searching for what might be adventurous and challenging areas all from the comfort of computer chair. I found beautiful mountains, deep rivers, huge lakes, and an endless Gobi desert in southern Mongolia.

There was one strange spot in the Gobi that caught my eye. It looked like terrain similar to that on the moon. From the aerial images it seemed like an almost perfect circle of rock, 35km in diameter at the center of the great Gobi desert plains. A closer look revealed colorful rocks, several ruins; one of them in a Lotus shape, a few nomadic ger's, several springs and even a frozen ice canyon. On the outskirts of this huge circle I saw a small village, with only a 600km dirt road leading to Mongolia's capital Ulaanbaatar.

I only later found out its name was Khanbogd, a

## Why Golden Pita?

From reading Mongolian news on the Internet I found out that a company named Ivanhoe is exploring the area having



discovered large quantities of gold and copper. In keeping with their discoveries, we named this circle the "Golden Pita." A pita is a traditional Mediterranean round bread resembling the shape of this round circle of rock in the Gobi.

After a month of detailed Google Earth mapping, we had pin pointed all the springs, wells, ger's, hills, valleys, and geographical points of interest. We planned a 100km trek across the



Golden Pita touching all the interesting sites we could locate on the satellite image.

### Ivanhoe Mines

Mongolian tour operators I communicated with did not offer tours in this area and most of them were unfamiliar with this part of the Gobi desert. Luckily Ivanhoe Mines was willing to share information and offer generous assistance. When I inquired about the Lotus shaped structure I found out that Ivanhoe had invested in reconstructing this fascinating monastery.

This monastery along with 900 other holy Buddhist sites was destroyed during the Mongolian communist era in the 1930's. When I asked about wells in the Golden Pita, I found out that Ivanhoe had drilled wells for local herders as well. The nearest local medical facility in case of emergency was also equipped by Ivanhoe in Khanbogd. I asked Ivanhoe if they could arrange a meeting with students from Khanbogd region and we were invited by Ivanhoe to our first breakfast in UB with 3 bright students who are part of Ivanhoe's South Gobi Scholars program.

There is obviously controversy over mining some mining companies' activities in these remote areas. The recent elections in Mongolia brought up issues of sharing the future wealth between the investors and the Mongolian people. There is no doubt that the mining activities will have a tremendous impact on the region.

The vast resources of copper and gold in this region will make it one of the largest copper gold mines in the world. At the same time it is impossible not to notice the diversity of issues and regional needs Ivanhoe is addressing. On the way to

Khanbogd we stopped at a desert town named Dalanzadgad. We discussed the challenges of our trek with local people. Among them was an impressive young lady who is an experienced Alpinist, named Erdenetogtokh. We later found out she was also sponsored by Ivanhoe to be the first Mongolian woman to be part of a team climbing Mount Everest from the Chinese side.

In Dalanzadgad we bought our food supplies, including the last bottled water we would see until the end of our trek. From there it was another 220km of dirt roads in a Russian van towards the Golden Pita. Our driver, to his dismay, dropped us off in the middle of nowhere. Our Google Earth maps, however, indicated that this was exactly where we wanted to be: our starting point.

### Desert Water

We loaded our heavy backpacks equipped with food for 7 days, tents, stoves, and just enough water to get us to the next water source we had located on our satellite map. This was risky. All our information on water supplies was based on our analysis of Google Earth satellite images. We could not be sure if these water sources were in fact viable or if our analysis was completely wrong.

The first water source was expected to be a desert spring. The satellite image was taken in the winter, and the frozen stream in the middle of the desert hinted that this might be a spring. We found a fresh water spring with lush grass



around it along with many blue Irises in full bloom. Finding this spring gave us the confidence we needed that our analysis of the terrain and water sources was correct. The other water sources on the way were identified on the satellite image was based on livestock trails leading to one central spot in the middle of nowhere; we assumed that this must be a well.

Other water sources were identified based on what seemed to us as a place where herds gather. Most water sources were potable and were located as expected. Only once did we come upon a completely dry well. This was almost a disaster

for us, because we almost ran out of water and the next source was too far away. We carried on tired and thirsty towards the nearest ger we identified hoping they did not move and knew where we could find water. Luckily we found a very nice family and they offered us tea and filled our empty water bottles from their family well nearby.

### World Energy Center

Near the center of the Golden Pita we located on the satellite image a large lotus shape structure with ruins around it. We learned that the place was recently reconstructed, but had no idea to what extent. It was getting late as we were going around the mountain and with a beautiful red sunset in the background we saw in between the wind carved hills the gold plated top of a monastery.

The monastery named Demchig is considered by Buddhists to be the world energy center. I am not a Buddhist, but seeing this monastery in the center of the Golden Pita does generate strong positive energies. We entered the monastery and a monk named greeted us. He took some relics out of his bag and used them to bless each one of us.

He had knowledge of world religions. Just by listening to us speaking Hebrew he knew we are Jewish. He asked his assistant to form a triangle with his fingers, and put his triangle on top creating the Star of David: our national symbol.



### Fresh Gobi food

Our food supplies were running low towards the end of our trek. In one of the herder's ger's we visited we noticed a strange dark red purple plant that they collected for food. Later that day we came across camel herders and asked them about the plants.

One of the herders rushed off on his motorcycle and came back with a couple of the red plants we asked about. He showed us how to peel them and said we could eat them raw. As we were getting ready to pitch our tents we noticed a few



of the plants around. The basic dinner we planned to cook had been upgraded with these fresh plants we found in the Golden Pita.

The plant is named Cynomorium. This plant does not have any leaves and in fact it doesn't produce any chlorophyll at all. It is a parasite, deriving its nutrition from the roots of other plants. The thick, fleshy stems emerge from the soil for a short period and can reach 15-30cm in length. We were lucky to come at the right time to see these interesting and rare plants. Cynomorium has been known for thousands of years by ancient people who used it for food, medicine, and even for dyeing. We found this out ourselves when we finished peeling them and noticed our hands and clothes were all stained purple red.

Given the plant's color and phallic shape, it is clear



why it has been traditionally used to treat blood diseases and sexual problems. Modern scientific studies of this strange parasitic plant are in their early stages but seem to be worth pursuing. The study of traditional plant and herbal remedies is a burgeoning field with great social and commercial promise, and further research may indeed show there is much more to this plant than a desert treat.

### Desert Nadam

The highest point in the Golden Pita is Kahnbogd Mountain. From the top of the mountain you can see you are in the middle of a very large rocky circle. As we were getting close to the mountain we noticed people on horses and a gathering of many people with colorful flags all around.

A group of young girls approached us and invited us to join. They were happy to practice their English and told us all about this Nadam festival of Khanbogd Soum that we happened upon. The gathering took place at the foothill of Khanbogd Mountain which is a holy mountain and an ancient gathering place of Nomadic tribes.

When the festival was over a long line of jeeps and vans took off leaving a dust cloud behind them and an empty desert. The silence of the desert was the only sound we could hear in the end.

### Archeological Treasures

Unlike excavated and reconstructed archeological sites, the Golden Pita has several sites where the archeological treasures are scattered. In the 1930's many Buddhist monasteries and villages were destroyed. Within the Golden Pita we located three villages with fascinating artifacts. We hope the Mongolian government will preserve these treasures before careless treasure hunters clean up the area.

### Geological Gems

The Golden Pita was apparently formed by a melting eruption from deep within the earth's crust bringing up to the surface rare elements. As the boiling eruption cooled off the Golden Pita was formed. The wind has curved beautiful rock forms, some of them looking like monsters or animals frozen in time.

The rare elements that came up during the eruption created a large collection of colorful rocks like the white quartz mountain Tsaagan Tolgoi, the turquoise copper rocks like Oyu Tolgoi and red, purple, blue, green, yellow and black basaltic rocks. In some places we found round egg shaped rocks that when cracked open revealed colorful crystal formations.

### Zaya's Philosophy

In Ulaanbaatar we stayed at the famous Zaya hostel. The place is well managed by an energetic successful business woman named Zaya. We spent time learning from Zaya and from her very nice assistant Unuruu (Unurkhand Purevdemberel) about the Mongolian way of life, and Mongolian philosophy.



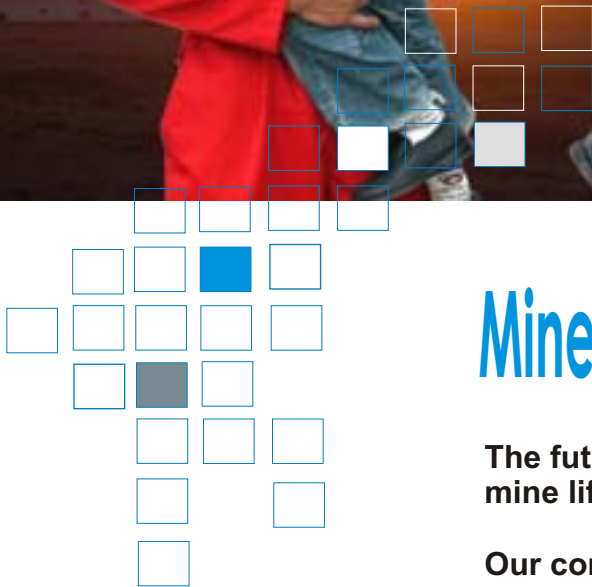
## Golan Dan

The author can be contacted at  
[golandan@gmail.com](mailto:golandan@gmail.com)

### *A family trip to the Khanbogd region*

I would like to finish this article with Zaya's Mongolian philosophy in a nutshell -  
 "Mongolian society is in a transitional period; from Buddhism we take the mutual respect for one another, from the nomads we take their respect of nature, and from the western culture we take the notion that people make changes, not time."

# OYU TOLGOI



## Mineral to Intellectual Wealth

The future Oyu Tolgoi mine will have an initial mine life of at least 45 years.

Our contribution is vital for making Oyu Tolgoi the world's best mine.



On January 25, 2008 a remarkable event took place in the history of Mongolia's mining sector

# 1,385 meters UNDERGROUND

Contracting company of Oyu Tolgoi Project "Red Path" has completed Shaft #1 and is now performing the horizontal drifts.

Exploration of Shaft #1 of the Oyu Tolgoi Project located in South Gobi province reached the depth of 1,385 meters, the deepest excavation in the history of Mongolia. Today, horizontal drifting work is being carried out at a depth of 1,300 meters, 137.5 meters below sea level, heading northeast towards the deep underground Hugo Dummett deposit. The two parallel drifts will be 600m and 1030m in length and are 5m wide and 5m tall.

For the drilling and excavation work we are using equipment from the world's leading mining equipment company including Axera 7-240 two-boom jumbo drill rig for drilling and fixing, Toro-6,7 loader with 3m<sup>3</sup> and 5m<sup>3</sup> bucket size capacity for transporting the blasted rock and EJC 530 truck (30 ton load capacity). Our new generation of miners is successfully operating this new and advanced equipment under the supervision of foreign experts.

# Strategic Deposits

**Assigning the newly established Documents Institute with exploring and discovering natural resources soon after the 1921 Civil Revolution was not only an expression of Mongolia establishing control over its minerals resources, but it also became the dawn of the steady development of discovering and developing natural resources to benefit the nation.**

**T**he third stage of Mongolia's mining sector began in 1994 when final product processing was developed. Suddenly there were plants that processed minerals and produced final products such as the Darkhan Metallurgical Plant, Erdmin of Erdenet and Shim Technology. Thus, the mining industry of Mongolia had reached its current stage after 85 years of fruitful mining history.

Mineral deposits are now classified into three types of deposits including regular mineral deposits, commonly occurring mineral deposits and strategic deposits. Let us briefly state the reason why this time we will specifically look at strategic deposits.

Provision 4.1.11 of the Minerals Law of Mongolia states, "Mineral deposit of strategic importance," means a deposit [with size] that may have a potential impact on national security, economic and social development of the country at the national and regional levels or one that is producing or has a potential of producing more than five (5) percent of total Gross Domestic Product in a given year." All minerals that occur on the surface or subsoil of Mongolia in their natural state are state property. The state, as the owner regulates how to classify and develop its mineral

deposits. In regulating such development, it makes decisions taking the future prospects of the country's social and economic development, migration, infrastructure, human resources and the international economic situation.

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**Oyu Tolgoi already is a major contributor to the resource industry and social sectors of Mongolia's national economy. Although production has yet to commence, more than 4,000 direct jobs for Mongolian nationals have been created since 2000, and more than 900 Mongolian companies have benefited and assisted the project through their ongoing supply of goods or services.**

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The listing of strategic deposits was approved in Parliamentary Resolution 27 of 2007. The parliament had resolved to classify 15 deposits as strategic including Tavan Tolgoi, Nariin Sukhait, Baganuur, Shivee-Ovoo, Mardai, Dornod, Gurvanbulag, Tumurtei, Oyu Tolgoi, Tsagaan Suvarga, Erdenet, Burenkhaan, Boroo, Tumurtiin Ovoo and Asgat.

As geological exploration and research expand, it is inevitable that the number of strategic deposits will

increase. Regionally, there is one strategic deposit in the western region, two in the Khangai region, eight in the central region, and four strategic deposits in the east, which means that Mongolia has strategic deposits in every major area.

Developmentally, strategic deposits are classified as follows: currently mined deposits and deposits that are not currently mined or are being prepared for development. Currently mined strategic deposits include Tavan Tolgoi, Nariin Sukhait, Baganuur and Shivee-Ovoo coal deposits, Tumurtiin Ovoo zinc, Boroo gold and Erdenet copper-molybdenum, whereas strategic deposits that are not yet developed or are being prepared for development are Tumurtei iron ore, Oyu Tolgoi copper-gold, Tsagaan Suvarga copper-molybdenum, Mardai, Dornod and Gurvanbulag uranium, Burenkhaan phosphorite and Asgat silver deposits.

Even geographically there is a possibility to develop strategic deposits in integration with the regional development policy of Mongolia. For example, the Asgat silver deposit on the western border of Mongolia will create international development opportunities. The exploitation of this deposit will not only significantly affect the development and migration of Bayan-Ulgii aimag, but will also make a contribution to Mongolia's economy while building relations with Russia.

**Mongolia's mining industry is producing 70.3 percent of the industrial products, 33 percent of GDP and 78.4 percent of export products (MRPAM, 2008).**

The Mardai uranium deposit in remote eastern Mongolia will have similar impacts as well. Although the local infrastructure was previously developed to some extent it was heavily damaged when the mine was decommissioned. Uranium is an important mineral of strategic significance that can facilitate the development of nuclear energy.

There are 43 countries registered in the world that have uranium resources and Mongolia is ranked 13<sup>th</sup> in terms of its resources. In the current modern times of rapid development related to nuclear energy, equipment and technology, it is clear if we start mining our uranium resources, it will give a significant boost to the economic development of the country. Even taking into consideration the future goal of building a nuclear plant we should study and find all possible ways to start mining this important mineral.

By location Umnugovi aimag is the richest in terms of strategic deposits, hosting a total of three. The Oyu Tolgoi deposit located in Khanbogd Soum has world-class copper-gold resources and it has been established that it contains over 35 million tons of copper and over 1000 tons of gold. However the resources are likely to increase further, considering the ongoing geological exploration and research being undertaken at Oyu Tolgoi. Therefore, our national interests are demanding urgent resolution of the Investment Agreement to be concluded for Oyu Tolgoi so it can significantly contribute to the overall social and economic development of Mongolia. Also in Umnugovi is the Tavan Tolgoi coking coal deposit. Exploration of this deposit started in the 1950s and it was established that the coal is of superb quality. Many economists suggest that if Mongolia develops a few processing plants at these deposits the potential positive impacts will ripple throughout Mongolia.

Strategic iron ore deposits located in Darkhan and Selenge have also become focal points for

discussions on strategic deposits. The development of these deposits will enable Mongolia to not only start producing our own iron products say professionals. Starting with the production of items made with iron, we, Mongolians, might one day be producing our machinery. It seems that we should foresee the time when demand for iron will soar and start seeking opportunities and ways to mine, concentrate and process iron ore.

Overall the majority of the 15 deposits identified as strategic are coking and thermal coal deposits. Mongolia is not only fully meeting its local coal demand but has been exporting to East Asian countries for years. While the world demand for coal is increasing and its prices remain high, we should immediately start mining and processing raw coal and seek out opportunities, methods and new technology to produce various products from coal. Some projects have even been initiated to produce petroleum products from coal and supply local demand, potentially driving down petrol prices. In these ways the mining industry will reach new heights by developing the nation's strategic deposits by bringing new technology, employing thousands and allowing Mongolian businesses to supply and support these great new ventures.

Today, Mongolia's mining industry is producing 70 percent of the country's gross industrial products and 80 percent of total exports. Once the strategic deposits that are not yet in development are pushed into economic turnover, the above numbers will only increase. Not only will they increase, but infrastructure branches will be created in remote areas, social and cultural facilities will be developed such as energy, roads and transportation.

These developments will lead to urbanization and the migration to Ulaanbaatar may slow down. New jobs will raise employment and fight poverty nationwide. If high-quality jobs are created and pay well as well

as favorable living conditions being created in the countryside the urban migration may gradually slow down. The reason Kazakhs and Uriankhais came from their snowy Altai to Nalaikh, Berkh and Shariin Gol was because of better paying jobs and comfortable living conditions. Now in the 21st century the next major industrial projects can change the current social and economic dynamics of Mongolia.

Erdenet alone is bearing a heavy load making up the majority of the state budget revenues. But if 5-6 strategic deposits are pushed into operation the economic capacity of Mongolia will increase and people's lives will improve. It has been already established that Oyu Tolgoi has three to four times more copper resources than Erdenet and has already created over 4,000 jobs for Mongolians in the last 5 years. Looking to the future experts' projections suggest 10,000 more jobs will be created in the first 5 years of Oyu Tolgoi's operations.

Deposits with an abundance of mineral resources that are capable of making a significant contribution to the country's economy are now classified as strategic deposits. Therefore discussions about strategic deposits not only involve the deposit, but also wide-ranging issues related to national development and progress. In other words, strategic deposits currently and will continue to play an important role in shaping Mongolia's future.

Mongolia has many strategic deposits: zinc and uranium in the steppes of Dornod, Asgat silver in the snowy Altai mountains, iron and phosphorite in the northern and northwestern regions and coal, copper and gold in Mongolia's Great Gobi. Now, the only goal is to start the development of these deposits, allowing them to fulfill their destiny's of wealth creation and national development.

**1,385 meters  
UNDERGROUND**

We consider ourselves very fortunate to be the first Mongolians to reach the depth of 1,385 meters underground Mongolia's Great Gobi.

Mongolian miners at Oyu Tolgoi take great pride in their historical development of Mongolia's minerals and mining sector.

**Oyu Tolgoi underground workers:**

B. Enkhmagnai  
L. Khashchuluun  
B. Ganmunkh  
Ts. Sukhchuluun  
D. Ankhbayar

# OYU TOLGOI IS OUR FUTURE

The Oyu Tolgoi Project located in the territory of Khanbogd soum of South Gobi province has been and will be a continuing economic and social force for Mongolia, Mongolians and the residents of Gobi region. Canadian invested Ivanhoe Mines discovered the world scale Oyu Tolgoi project in 2001, and is working to implement the project for at least 40 years.





# MODERN MONGOLIAN GER

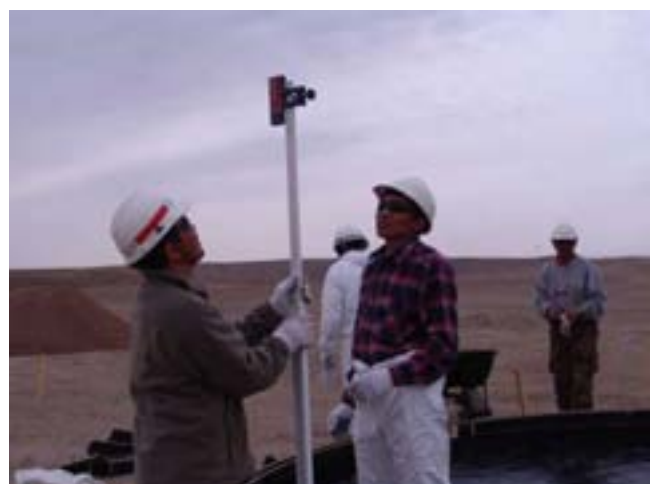
By Ts. Baatarsuren

“This is Oyu Tolgoi,” says a young man sitting next to me. As I looked down from the plane window it looked as if white pearls had been scattered across the Gobi’s plains. The gers built in the Oyu Tolgoi camp look just like that through the plane window. During summer over 300 gers are lined up accommodating the project workers and guests. On the north side of the camp a group of gers stands out with not a chimney in sight. These so called Master Gers are heated from the floor without burning any wood or coal.

Ten years ago, I made a television program about a company called 108 Stupas which first introduced the floor-based heating system to Mongolia. However back then the system was only made for housing. But Z.Sanjdorj, a lama and astrologer of the Mongolian Ikh Khuree Monastery, was an ardent supporter and initiated the floor heating system in Mongolian gers. A few years ago, he invented a new model that heats up gers, the traditional houses of Mongolian people, without burning wood and obtained his patent from the Intellectual Property office. Moreover, he successfully participated and received a certificate from an exhibition on “Technology to reduce air pollution in densely populated areas,” organized under the patronage of the President of Mongolia.

Currently in Ulaanbaatar smoke is pouring from the chimneys of over 100,000 families living in ger districts, the 4 main power stations located in the capital city, 150 heating stations and from over 120,000 cars adding smoke and fumes to Mongolia’s air pollution..

Sanjdorj first initiated the floor heating system in gers to prevent pollution caused by families with stoves living near the Gandan monastery. The initiative garnered





Oyu Tolgoi Construction Camp, Summer 2008

extensive support and after testing by the Intellectual property office he received his patent for this new clean technology.

“Gers of the central area can be heated from the floor using electricity and areas with no electricity can be heated using gas. Even the rural areas can be heated with renewable energy. You can keep your household warm and cozy by using our heating model while protecting the environment,” says Lama Sanjdorj while introducing the system to inquiring minds.

It is difficult to quantify how many people's health is suffering from Ulaanbaatar's air pollution. We have talked about reducing air pollution for many years and spent millions of tugruks but it still remains the same. However new systems like floor heating may help alleviate air pollution issues. So far one of the technology's largest customers is the Oyu Tolgoi Project in Mongolia's South Gobi desert.

There is no guarantee of reducing air pollution in rural areas if only coal and wood burning stoves remain in use. The Oyu Tolgoi project is paying more attention to the protection of the natural environment and the preservation of the Gobi's fresh air.

The potential for reducing air pollution and improving the public's health through floor-heated gers and households is already being realized in certain areas of Mongolia and the extensive tests at Oyu Tolgoi will provide a valuable baseline for future planning and experiments in areas such as Ulaanbaatar.

We hope that all citizens will pay particular attention to their actions related to reducing air pollution and supporting new public health initiatives targeted at restoring Mongolia's Great Blue Sky.

Oyu Tolgoi Project workers laying the foundations for new, floor-heated gers at Oyu Tolgoi.



# Oyu Tolgoi and Career Opportunities

Ivanhoe Mines conducts geological exploration projects in many countries throughout the world. One special individual we would like to introduce is T. Otgonbayar who is currently working on Ivanhoe's Cloncurry project in Australia after previously working at Oyu Tolgoi in Mongolia.



**We have invited T. Otgonbayar who is living and working in Australia to participate in our guest interview column.**

- **Hello! We are contacting you from the editorial office of Awakened Gobi magazine.**

Hello, how are you?

- **We are doing well. How is the weather there?**

It's very nice and cool here. Mornings are usually chilly and windy, though it's almost summer here.

- **How long have you been away from Mongolia?**

I started working here in September 2007 but I recently visited Mongolia over this past summer for vacation with my family.

- **Where and which school did you graduate from?**

1996- Secondary school of Altanbulag soum, Tuv aimag  
2000- Bachelors degree from Mongolian National

University

2005- Master's degree from Mongolian University of Science and Technology.

- **When did you start working on the Oyu Tolgoi project?**

Since 2001, pretty much the very beginning!

- **Can you tell us your thoughts about Oyu Tolgoi?**

It is considered one of the largest projects not only in Mongolia but throughout the world. A project with such a large scale exploration program is rarely implemented in the world. During the most active period of drilling we had 23 drill rigs on site; most sites only have 2-3. Now that I'm working on a different project I can see that Oyu Tolgoi is an enormous project in every regard. It is very exciting to see how far the project has come since I started working there in 2001.

■ **How did you go to Australia? In what field are you working?**

Ivanhoe Mines conducts geological exploration projects in many countries throughout the world. One of them is the Cloncurry project in Australia. Within the framework of the project, exploration is being carried out on copper-gold deposits contained in iron oxide. Currently, I'm working in the field of mineral modeling on this project.

■ **Compared to Australia, where does Mongolia's mining sector development level stand?**

In the last few years geological exploration has been increasing in Mongolia compared to mining and has attracted a significant amount of exploration investment. But I think this situation is starting to slow down due to the delay in completing investment agreements for some deposits, namely the Oyu Tolgoi project. I think the mining sector is facing a similar situation.

The minerals sector is one of the largest here and is boosting the development of Australia. It is a country that respects the laws and regulations set out by the State and fulfills its obligations. It is clear that the laws of Australia have been obeyed for many years. The people of Australia support the development of ecologically friendly mining and everybody talks about income derived from the mining sector being real investment to the development of the country.

However, in Mongolia some people perceive mining as a bad thing that involves mercury and chemicals. But the situation is different here. If we develop it appropriately and responsibly, I am confident that mining will bring a development gateway to our country.

■ **Are there any new ideas that can be introduced to the mining sector of Mongolia from Australia?**

Indeed, the State policy and regulations on mineral resources are different here, they put much more

emphasis on private investment. In the case of Mongolia I think it is understandable that the implementation of all mining projects are vested to the State because of past experiences.

The key principle of Western countries, namely Australia, is that it concludes an agreement that strictly reflects the interests of the private entities and investors, people living in the region and other aspects such the environment.

There is a perception that we will make a significant amount of profit if the State takes control of the major deposits discovered in Mongolia. But I think it is better to make profit from projects that attract a large of number of foreign and domestic investors based on taxes. For example, copper prices are dropping and can drop at anytime, especially during the current times where science and technology are developing quite quickly and financial markets are uncertain.

We need to pay more attention not only to uranium, gold, tungsten steel, coal, phosphor, zinc and lead but similarly to other minerals. For example, the minerals needed for building materials are widespread and it could be one of the most profitable businesses for Mongolia.

Of course there are many things that can be directly copied. And there are things that can be introduced to Mongolia in conformity with the specifics of Mongolia.

■ **Can you introduce your family?**

My wife is also a geologist. We graduated from the same university. We have a son and a daughter.

■ **What is the advantage of two family members with the same profession working in the same place?**

There are many advantages. Our profession is the same so we learn and take advice from one another.





■ **How long will you continue to work there?**

I don't know how long I will stay here yet. Looking at the state of the project it seems like it is going to last for a few more years. I will work until my contract is over, but I am very interested in working at Oyu Tolgoi again once the project starts.

Oyu Tolgoi is the biggest project I have worked on and I was fully involved in the geological exploration. Also I am a specialist in the field of deposit evaluations and I want to see the deposit that we discovered with my own eyes and improve my knowledge through seeing it developed.

■ **Can Mongolia develop based on its minerals sector?**

I think it is right for Mongolia to develop largely based on its mining sector. But there are many issues that need to be resolved. If we increase the number of mineral deposits being pushed into economic turnover we will gain the benefits to their full extent. The state needs to make a realistic and beneficial decision urgently. Issues are often resolved too slowly in our country.

■ **What is the pride and specialty of your profession?**

Geology requires a broad knowledge of nature. Everyone likes travelling as well and we are constantly seeing and exploring new places. This is the perk of our profession. It is incredible to cross Mongolia once a year and be paid for it! There are no things in the world that are not made by using mineral resources as well and I am proud to be studying the origin and structure of all these minerals and turning them into the products we need.

■ **What would you like to say to the younger generation of Mongolia?**

Most importantly they need to work hard to see the results of what they are doing. You cannot just sit there and believe that someone is going to make your life better. Mongolia will only develop if we work hard and improve our lives. Everything will depend on the efforts and achievements of the people. Evidently, a stable long-term State policy is crucial as well.

**Thank you for the interview and we wish you all the best in the future.**



**RESPONSIBLE MINING  
FOR OYU TOLGOI MEANS  
EMPOWERING MONGOLIAN PEOPLE**



Oyu Tolgoi has committed that Mongolian nationals will constitute no less than 90 percent of the workforce once the mine is in operation.

## Community-Based Pilot Training Program



The Oyu Tolgoi Project started a new rural professional training program on June 9, 2008 aiming to support social and professional development in countryside areas. The 11-week professional training program was conducted in Khanbogd soum of Southgobi with residents from Khanbogd, Manlai and Bayan-Ovoo soums.

The Oyu Tolgoi project together with the Secretariat offices of the soum governments and the Social Policy Management Department has selected 20 people, from over 100 applicants, as trainees for the professional certificate training in English language, first aid and welding.

Teachers from SOS Medica, the American-Mongolian joint Santis education center and Hasu Megawatt conducted the training with practical and theoretical lessons.

During the theoretical lessons trainees took part in challenging discussions about mining, working in multicultural environments, the golden rules of team work, group decision making and self motivation.

The practical training aspects covered introductory classes on mining, on-site safety, forming teams, interaction and communications, English language, long-term planning, conflict resolution, settling disputes, first aid and how to fill job application forms.

Upon completion in August 2008 all participants graduated and received their certificates.

## Community Relations Update Summer-Fall, 2008



## South Gobi Scholars Program

Starting in 2005 the Oyu Tolgoi Project has been successfully implementing the South Gobi Scholars scholarship program for an initial duration of 5 years to provide opportunities for students from the South Gobi who have good academic records and a desire to study but lack the resources to gain a higher education.

Since 2006 the program management has been transferred to the Administration team led by the Chief of the Social Policy Coordination Department in the South Gobi Governor's office.

Over the past 3 years the Project has been able to sponsor 87 students from the South Gobi and provide support in their endeavors to receive a high-quality education:

- 37 students in the 2005-2006 academic year
- 15 students in the 2006-2007 academic year
- 14 students in the 2007-2008 academic year
- 21 students in the 2008-2009 current academic year

The 87 students who have and are currently participating in the program are awarded full tuition fees and accommodation costs, fully covered by the Oyu Tolgoi project.

Most all graduates have returned to work in their native South Gobi.

The program is set to continue through the 2009-2010 academic year and possibly further into the future. Students interested in applying should contact the Umnugovi aimag's Social Policy Coordination Department in Dalanzadgad.

The Oyu Tolgoi Doctor's Housing Program is a sub-program implemented under the Scholarship Program for doctors. The program is implemented by a management team led by the Governor's office of South Gobi province.

Within the framework of the program houses with shared examination rooms and apartments for 2 doctors have been built and commissioned in Khanbogd, Bayan-Ovoo, Noyon, Bulgan and Manlai soums of South Gobi province in 2007. Each house with examination room costs US\$25,000.



As a result of the program, doctors of 11 out of 14 soums of South Gobi province are housed. This will contribute in creating comfortable environments for the future doctors who will reside and work in these soums and provide medical and emergency services to the local residents in a timely manner, many of whom would instead have to travel hours for medical care.



As a result of the program, doctors of 11 out of 14 soums of South Gobi province are housed. This will contribute in creating comfortable environments for the future doctors who will reside and work in these soums and provide medical and emergency services to the local residents in a timely manner, many of whom would instead have to travel hours for medical care.

### Gers Donated to Children with Cerebral Palsy

The representative office of the Oyu Tolgoi Project in Dalanzadgad has rendered 3 gers with 8 walls to a summer clinic which treats children with cerebral palsy. The clinic is run by an NGO called "Let's Share Our Joys Together." The NGO carries out rehabilitation treatment for handicapped children with cerebral palsy which requires constant exercise and massage. Also they conduct training among parents on how to take care of children with severe forms of disabilities.



# OYU TOLGOI STAFF 4 MILLION MAN HOURS WITHOUT A LOST-TIME-INCIDENT

20 April 2008



High standards of health and safety are only the beginning  
for the team at Oyu Tolgoi.

**We aim to operate with “ZERO” incidents.**





## Health and Safety Department

The Oyu Tolgoi Project's Health and Safety Department (HSES) employees believe that one incident is one to many and aim to succeed in incident free operations as well as a Zero accident rate during the project's operations. In April of 2008 our great employees achieved a major milestone, completing 4,000,000 man-hours of lost-time-incident free operations. At the project site, we are implementing standards according to the international work safety standards of Australia and New Zealand. Human health and work safety are the key objectives of international safety standards, and senior project management highly value and promote strict safety standards.

The HSES Department staff gives full, comprehensive first stage safety instructions to new employee, and provides advanced courses and training conforming with international standards suited to employees' specialty area of work. Advanced courses are conducted according to set international standards on topics such as: high temperature work guidelines, working in restricted environments, construction stage assembly, electricity, energy danger precautions, locking and tagging regulations, working at high altitudes and working with electrical tools and heavy equipment. In addition, courses focused on the prevention of possible incidents at site, the elimination of such hazards, rules and regulations to comply with in the event of repetitive incidents, investigating causes of an accident, and investigating near accident events and preventing such events by predetermining the conditions, are available for engineers, managers and department heads. The Health and Safety Department has 2 large meeting rooms fully equipped with the latest technology and exhibition materials for running employee and visitor training courses.

The Health and Safety Department employees also give training and courses on how to use risk-measuring equipment for loud sounds, air pollution and climatic monitoring devices. The Health and Safety Department includes internationally trained experts like Senior Advisor Enkhmaa and safety experts Battsolmon, Davaasuren and Dolgion.

# Environmental Rehabilitation Before Breaking Ground

Although the Oyu Tolgoi Project is only in its preconstruction phases, responsible environmental stewardship began in 2000 when the first exploration work started. Today ongoing exploration work, underground drifting and the construction of housing for the future mine construction workers is continuing.

From day one technical rehabilitations of disturbed land due to the project's operations are being conducted according to Mongolia's MNS 4917:2000, MNS 4919:2000, and MNS 4920:2000 standards. The implementation of technical rehabilitation work has been based on trials performed at the Oyu Tolgoi Project site in recent years involving Mongolian biological and botanical experts.

Project activities	Size of disturbed land		Size of technical rehabilitation		Note
	m2	m3	m2	m3	
Additional water exploration bore holes	21488	2884	21488	2884	48 bore holes and camp water facilities
Drilling and exploration carried out at the OT project	32400	12000	32400	12000	100 Diamond Core drill holes
Sand reserve exploration	966	3192.6	966	3192.6	Dugatiin sair, Tsagaan magnai sand reserves
Sand and gravel quarry	25000	25000	25000	-	Excavation work
Macadam exploration	42266	136170	-	-	Not performed in 2007 as specified in the Environmental Protection Plan
Shaft #2 foundation	30536	260587	-	-	Rehabilitation to be done after foundation laying is completed
Land disturbed while laying the foundations for buildings constructed at Oyu Tolgoi	1964294	0	-	-	Rehabilitation to be carried out during closure of Oyu Tolgoi or upon building demolition

## Environmental Monitoring

Oyu Tolgoi Project staff conducts ongoing water, dust, air quality, emissions, fauna, vegetation, soil, weather and waste management monitoring to ensure that any and all impacts are tracked, recorded and remediated in line with Oyu Tolgoi's Environmental Protection Plans.



## Botanical and Biological Rehabilitation Trials

Trials, experiments and work on forming the testing the options for planting native flora have been carried out through 2007 and 2008 in order to produce detailed plans on how to organize biological and botanical rehabilitation during operations and upon closure of Oyu Tolgoi.

Out of 300 Elmwood trees planted in the spring of 2007, 20 dried up and 93% or 280 have successfully started growing. The seedling trees were taken from Baraaduuz Tree Seedling Center of Baga bulag in Khankhongor soum of Southgobi aimag. In May, Elmwood seeds were picked from Undain sair within the Oyu Tolgoi license area and planted a number of trees using our own resources to maintain them. 156 Elmwoods with a one year life-span grew from the seeds planted in August. However, 90% of the seeds planted in tubes in June and July did not grow.

Our trials prove the importance of growing natural trees and plants of the region when conducting botanical rehabilitation on disturbed land of the semi-desert steppe in order to improve the fertility of the soil and to replant the disturbed areas.

Native trees of this area such as Elmwood and saxaul have shown superior growing capacity and our experiences will improve the quality of the botanical and biological rehabilitation and the disturbed lands can near being restored to their natural and native forms.



# Mongolian Olympic Champions Honored



N. Tuvshinbayar with Layton Croft.



N. Tuvshinbayar



P. Serdamba, B. Baatarjav, E. Badar-Uugan

In early October Ivanhoe Mines Mongolia Inc organized a ceremonial event in honor of the Champions who have won gold and silver medals from the Beijing Olympics and Paralympics.

Ivanhoe awarded the Judo Champion of (-100kg) category N. Tuvshinbayar, Gold medalist in bantamweight (-52kg) division, World champion E. Badar-Uugan, Silver medalist in light-flyweight (48kg) category P. Serdamba and gold medalist Men's Individual Archery of the 13<sup>th</sup> Paralympics B. Baatarjav, who have raised the Mongolian flag in the blue sky of the 2008 Olympics and Paralympics.

Layton Croft, Executive Vice President for Corporate Affairs and Social Responsibility made opening remarks at the event and congratulated the Olympic champions on behalf of the 700 employees working on the Oyu Tolgoi Project. The words of the Vice President who speaks perfect Mongolian expressed the true feeling of all the people working at Oyu Tolgoi.

The Project's Deputy Director T. Munkhbat presented each Olympic Champion with an exploration drill core sample taken from a depth of 1200 meters at Oyu Tolgoi as well as monetary awards equivalent to one ton and one half-ton of copper, respectively.

Silver medalist of the 29<sup>th</sup> Olympic Games and Labor Hero of Mongolia O. Gundegmaa was abroad competing and was therefore unable to pick up her gifts from the Oyu Tolgoi project. It is clear that another ceremony will be held once the silver medalist arrives.



T. Munkhbat



B. Baatarjav, E. Badar-Uugan



Ivanhoe Mines employees enjoying the opportunity to meet Mongolia's Olympic medalists.



## Oyu Tolgoi Informational Site Tours

Since 2004 Oyu Tolgoi has conducted 86 informational site tours for over 3,000 Mongolians from all over the country and who represent the media, government, civil society, private sector and general public.

In the third quarter of 2008 the Oyu Tolgoi Project hosted a number of informational site tours for stakeholders from all different backgrounds, including Mongolian and international media, representatives from the Mongolian and foreign governments, international donor organizations and civil society representatives.

The Oyu Tolgoi Project receives requests from individuals wishing to learn more about Oyu Tolgoi and visit the project site. Anyone interested should contact: [LukeD@ivancorn.net](mailto:LukeD@ivancorn.net)

## Recent Site Tours Include:

- Jacaranda Rio Tinto Documentary Film Crew, June-July 2008
- Mongolian National Broadcasting (MN Voice Box TV Show), August 2008
- German Government Business and Trade Delegation, August 2008
- Site Tour for Media (15 Mongolian, 3 International), August 2008
- Asian Development Bank Delegation, September 2008
- Khanbogd Youth Conference, September 2008
- World Bank Delegation, September 2008
- NHK Television, October 2008



# 2008



## OYU TOLGOI 10 BENEFITS TO MONGOLIA

### 10 BENEFITS

- Development of the industrial sector
- Income growth
- GDP growth
- New technology
- New jobs
- Improved human resources
- Expansion of power capacity
- Local infrastructure development
- Market expansion
- Improvement of livelihoods
- And many more...

