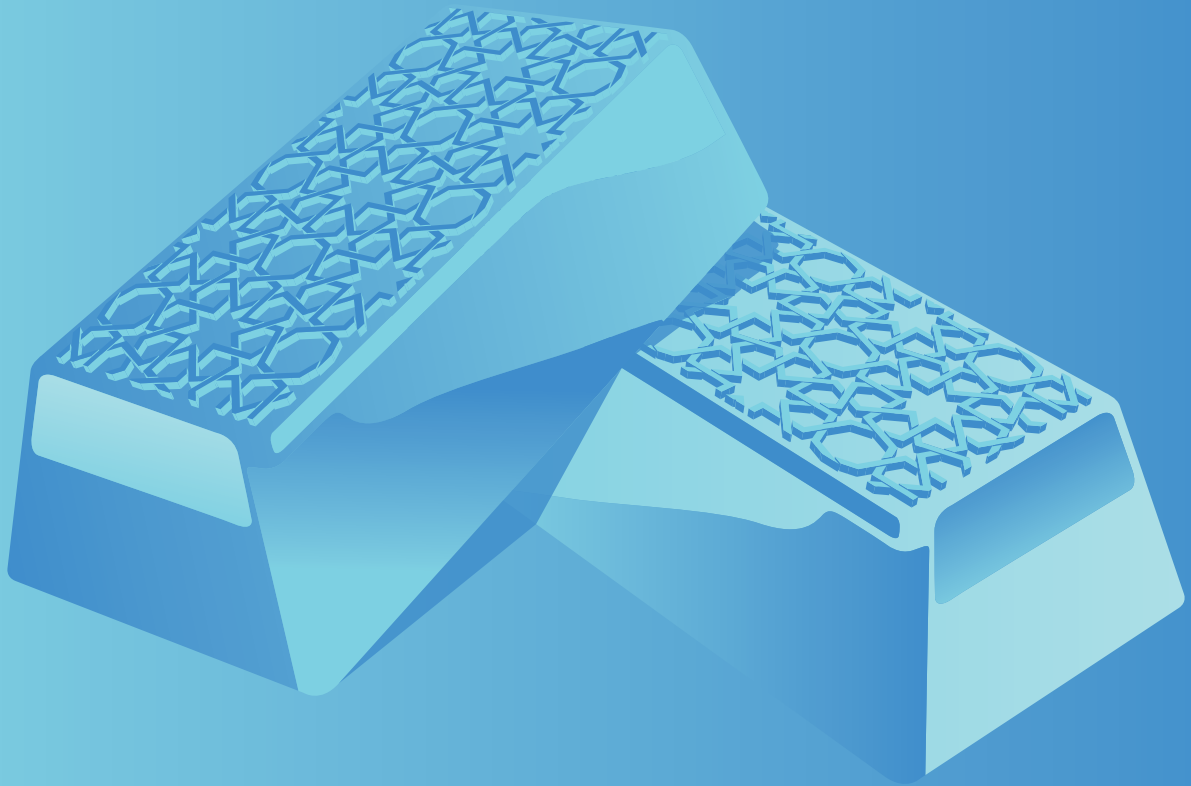


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TURKEY MINING 2014



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Dear Readers,

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This year has not been kind to miners the world over, but in Turkey, 2014 will be remembered as the year of tragedy. On May 13, an explosion at Soma mine killed 301 miners underground in the country's worst ever mining disaster. Since then, in another fatal disaster at Karaman, 18 miners are currently trapped at the time of writing and are presumed dead in a flooded and badly maintained coal mine. Turkey's mining safety record is the worst in Europe and behind that of China. If these brutal numbers are to be contained, Turkey must fundamentally reevaluate the way mining is practiced. The comparably poor statistics of fatal work-related accidents across other industries in Turkey, particularly in construction, echo the need for change.

The mining industry in Turkey is relatively young and inexperienced, accounting for just 1.2% of national GDP and only recently opening up to privatization and foreign investment. Turkish mining has, therefore, been playing catch up, with the ambition to grow to represent 5% of GDP by 2020 and help to fuel a rapidly growing economy. All great mining jurisdictions have experienced tragic and often shameful episodes in their histories that have blighted the industry's reputation. It has taken years of careful management, technological advances and comprehensive legislation for a healthy and safe industry to evolve and to regain the trust of the public. Today, no mining project is complete without carefully nurtured relations with employees and local inhabitants, exhaustive environmental planning and close control of all procedures related to health and safety. Modern mining jurisdictions offer fairly sound models of how the industry needs to be legislated and current technologies, IT, mechanization and management systems provides methods that greatly reduce the risks faced by the modern miner.

Turkey must immediately embrace these, even at a time when commodity prices are low and margins meager, if the industry is to play the part that is destined for it. As in all instances, progress depends foremost upon education, which offers no immediate fix, but it is imperative that everything possible is done to ensure that a well educated and safety conscious work force and a cadre of engineers and managers capable of ensuring the safe standards emerges. World-class technologies and consulting can also help and comprehensive and carefully monitored legislation by the government is a requisite.

Turkey's miners have a huge challenge ahead of them. The following Industry Explorations Turkey Mining 2014 was researched and written prior to these disasters, and therefore only a few of the interviewees make reference to them. Nevertheless, they reveal the determination to succeed in the Turkish mining environment and offer a glimpse of its potential that has been so brutally marred by the subsequent disasters. They also reveal that most of the companies operating in Turkey do so with the right attitude, and one that will prevail.

Mungo Smith
Senior Partner
Global Business Reports





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This research has been conducted by Alice Pascoletti, Amelia Salutz, Agostina Da Cunha, and Mungo Smith Edited by John V. Bowlus Graphic design by Gonzalo Da Cunha

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Final Thoughts

The future of the Turkish mining industry is being written now. Key company executives provide additional color about the trends and new ideas that will shape this growing and evolving industry.

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A New Day: An Introduction to Turkey and its Mining Industry

“Turkey is an underexplored country as far as modern mining techniques are concerned. We operate in a region where there is a good potential especially for metals mining and in the last years new legislation has provided a mining friendly environment for investors. The government is also implementing tax incentives for these investors. The basic challenge for the industry is developing an abundance of technical experts and our mining knowledge.”

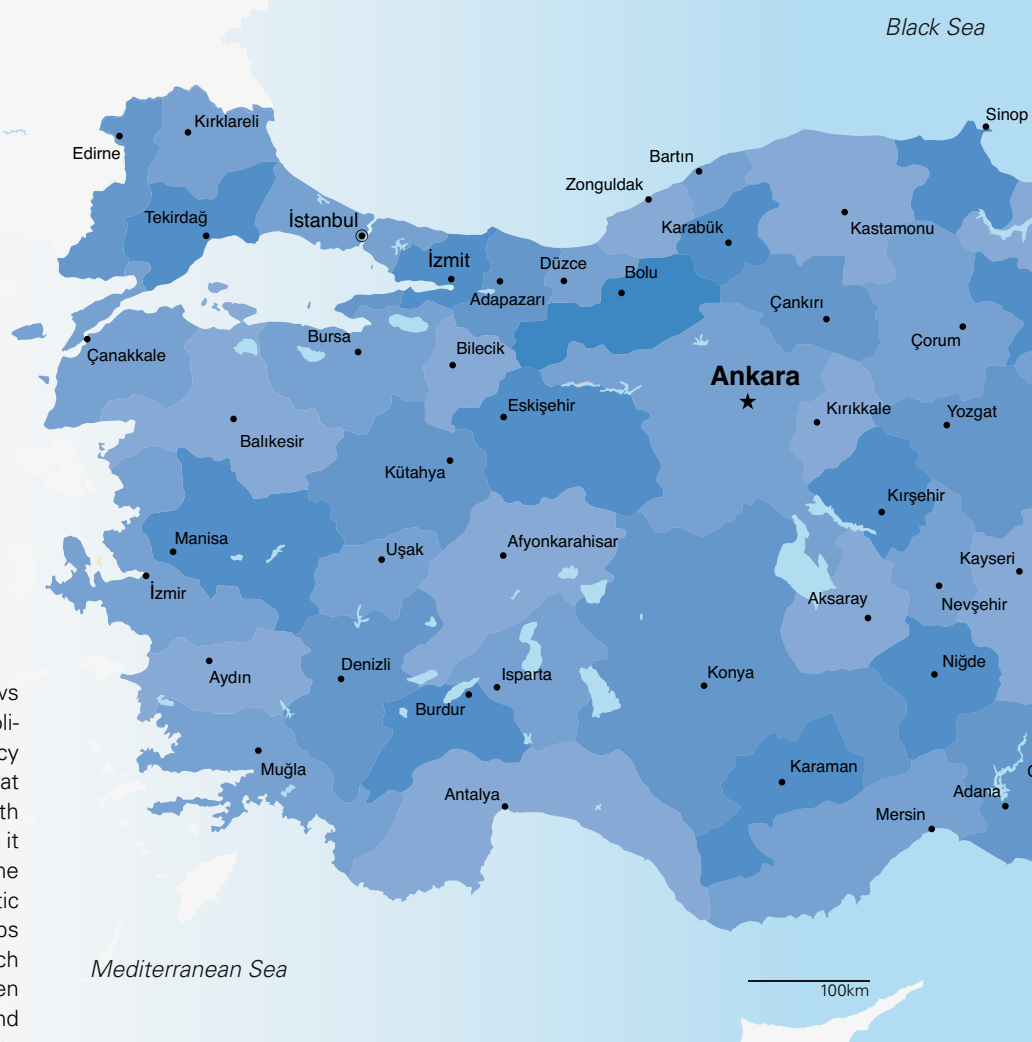
- Ismet Sivrioğlu, General Manager,
Koza Gold

Introducing Turkey

An Introduction to Mining in Turkey

Turkey never ceases to be in the news these days, either for its domestic politics or more often for the foreign policy crises in one of the eight countries that it borders. The West views Turkey with suspicion and hope, the former when it does not follow its policy wishes and the latter when it imagines the diplomatic and economic potential of partnerships with a country that borders energy-rich Russia and the Middle East. Given these dynamics, foreign countries and investors will continue to seek ways to partner with Turkey in many sectors, including mining.

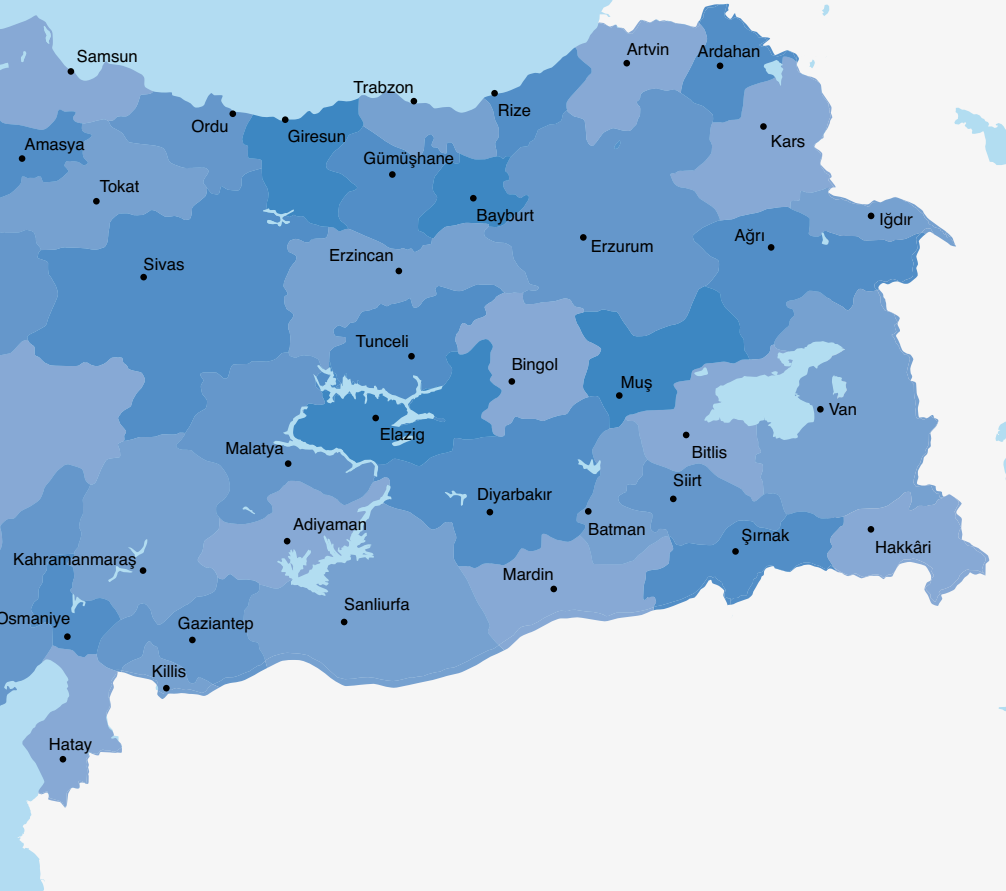
By many economic indicators, Turkey has made impressive strides since the Justice and Development Party (AKP) came to power in 2002. On the back of average annual real GDP growth of 5% from 2002 to 2012, Turkey is now the world's 16th largest economy, with ambitions to reach the top ten by 2023, the centennial of the Republic. While growth slowed during the global financial crisis, Turkey was not exposed to the same pressures as Europe and the United States and therefore vaulted out of 2009 into 9.2% and 8.8% growth in 2010 and 2011, respectively. Red flags – namely inflation, a sizable current account deficit, and a reliance on foreign investment – dampen economic forecasts and should be monitored. Turkey's reliance on energy is another challenge. The government announced in September that it would raise electricity prices by 9%.



Politically, the AKP has slowly consolidated power since 2002. The party's power derives from its popular support from the middle and lower classes, which have struggled in the past to reap the benefits of the state under secularist regimes installed through military coups. In no sector has the average Turk benefitted more than in health, as access to insurance and coverage has greatly expanded. At the heart of the AKP's popularity, however, is its charismatic leader, Recep Tayyip Erdoğan. AKP supporters identify with Erdoğan and believe that he champions their economic and social interests. Erdoğan served as Prime Minister from 2003 until 2014 and was elected President in August 2014. His former Foreign Ministry, Ahmet Davutoğlu, became Prime Minister. Although no longer in the constitutionally most powerful office, Erdoğan is still the party's leader.

The AKP's ascendance has been met by little resistance from the established

opposition parties, the secularist Republican People's Party (CHP) and Nationalist Movement Party (MHP). The CHP and MHP proposed a common candidate against Erdoğan in the August 2014 presidential elections and came close to forcing a second round runoff. Moreover, Erdoğan garnered a considerable portion of the Kurdish vote with promises of pushing through a long-awaited set of reforms supporting Kurdish aspirations for greater rights. However, the government's unwillingness to allow Turkish and Iraqi Kurds to aid Syrian Kurds under siege by the Islamic State has demonstrated that it will subjugate the peace process to ill-defined foreign policy goals. The mining industry is young and full of potential but faces an unknown future. The disaster in Soma in May that killed 301 miners and a second major accident in Karaman in October that has left 18 dead has cast a dark shadow over the industry and marks a blow against the AKP's growth agenda. •



TURKEY AT A GLANCE

Source: CIA World Factbook

- Population:** 81,619,392 (July 2014 est.)
- Chief of State:** Prime Minister Ahmet Davutoğlu (since August 2014)
- Growth Domestic Product:** \$821.8 billion (2013 est.)
- Growth Rate:** 3.8% (2013 est.)
- GDP per Capita:** \$15,300 (2013 est.)
- Economic Sector Breakdown:** agriculture: 8.9%, industry: 27.3%, services: 63.8% (2013 est.)
- Exports:** \$167.6 billion (2013 est.): apparel, foodstuffs, textiles, metal manufactures, transport equipment.
- Imports:** \$242.9 billion (2013 est.): machinery, chemicals, semi-finished goods, fuels, transport equipment.
- Major International Trade Partners:** Germany, Russia, Iran, Iraq, China, United Kingdom, United States, United Arab Emirates, Italy

TURKEY: GROWTH VS. INFLATION (2005 TO 2013)

Source: World Bank



\$58.35
billion

CURRENT ACCOUNT DEFICIT
2013 est.

Source: CIA World Factbook

\$194.2
billion

FOREIGN DIRECT INVESTMENT
IN TURKEY
31 December 2013 est.

Source: CIA World Factbook

Taner Yıldız

Chairman
**MINISTER OF ENERGY AND
 NATURAL RESOURCES,
 REPUBLIC OF TURKEY**



Turkey improved significantly in the 2012 to 2013 Fraser Institute rankings. How are these improvements reflected in the recent growth figures of the mining industry?

Turkey ranks 10th in the world in the diversity of its minerals; however, until 10 years ago the mining sector in our country could not reach its real potential. We, as government, have implemented the necessary legal arrangements for the mining sector to come to the place it deserves. Today, we know that 77 of the 90 types of minerals traded in the world are located in Turkey and approximately 60 of these minerals are produced here.

Please provide us with a brief overview of the main pieces of legislation governing sector licensing as they have evolved over time?

In 2004, with the enactment of Law No. 5177, the licensing process in Turkey was reformed to reduce bureaucracy in the sector. This increased the demand for mining license; however the absence of application criteria and the low cost of obtaining licenses have led to a high number being granted for speculative purposes and not exploration. As a result of this demand, the number of licenses rose to 45,900 in the early 2000s.

This created problems in the sector that were addressed with mining law No. 5995, which came into force in June 2010 and rearranged the length and requirements for the application and exploration periods. This reform removed the presence of speculative licenses and paved the way for more exploration activities. After introducing this new law, private sector firms have significantly promoted exploration activity.

Following the enactment of Law No. 5995, the number of licenses has dropped from 45,900 to 23,475 as of December 31, 2013. This is a direct

result of the elimination of investors who are not interested in actual exploration activity. While the number of license applications in 2010 dropped to 4,342 after the new law, they have since risen to 7,400 in 2013.

What is the importance of mining to the national economy and how do you envision its potential role as a growth driver going forward?

The mining sector's GDP in 2003 stood at about \$2.6 billion; in 2012 it amounted to about \$11.71 billion. By the end of 2013, it reached nearly \$12 billion. Based on this data, mining's share in GDP has increased nearly 4.6 times in the past 10 years. There has been similar growth in mining exports, which in 2003 amounted to \$841 million and increased six fold to reach \$5.1 billion by the end of 2013. We see these figures increasing going forward as the sector aims to reach its goal of \$15 billion in mineral exports by 2023, the 100th anniversary of the republic.

What steps is the government taking to advance exploration and improve the industry's understanding of its underground potential?

The amount of meters (m) drilled in Turkey reached 1.5 million m in 2013, a significant increase compared to 100,000 m in 2002. Coal reserves have increased from 8 billion mt to 14 billion mt thanks to the new coal reserves identified by General Directorate of Mineral Research and Exploration (MTA).

What is your outlook for Turkey's mining industry in the near term?

Turkey aims to advance its mining sector, which has good conditions today. In this context, we plan to raise the value of mining exports to \$20 billion from the current \$5.1 billion in the next decades. •

Ümit Akdur

Chairman
TURKISH GOLD MINERS ASSOCIATION



Turkey's gold sector entered into full-scale commercial production only 13 years ago and is now Europe's top gold producer. As the representative body of this growing sector, can you introduce us to the Turkish Gold Miners Association's mandate and your recent milestones?

The Turkish Gold Miners Association was founded in 2006 and currently has 24 members. Our mandate is to operate as a sector with the highest environmental and technical standards, while also creating value for all industry stakeholders. Over the last 28 years, our members have invested some \$2.5 billion in Turkey. Of that investment, \$800 million was for exploration and \$1.7 billion was in mining. In 2013, we produced 33.5 metric tons (mt), or 1,077,025 ounces (oz), of gold, which created some 6,000 jobs. The Kışladağ mine in Turkey is a world-class deposit and the largest gold mine in Europe. The high environmental and technical standards introduced by our members have contributed to the overall growth of the entire Turkish mining sector. As a part of the international mining industry, our association is also a member of Euromines, the European Mining Association.

Given the challenges associated with low gold prices that the market experienced in 2013, what is the outlook for the Turkish gold mining industry in the coming year?

Turkey started producing gold in 2001 and has been consistently increasing production targets. In 2013 Turkey produced 33.5 mt of gold from eight operating mines. We expect to increase gold production to 50 mt by 2016. However, there are a number of challenges, which may prevent the industry from achieving this. Lower gold prices and deferrals in permitting, especially forestry permits, have put a lot of pressure on mining companies. Many companies are holding off their investments until the permitting process is restored. Once these problems are resolved, we can expect higher production.

How would you assess investors' current interest for gold exploration in Turkey?

There is less appetite for exploration in

Turkey, as most of the juniors around the world are struggling to raise capital. In fact, most of the international companies operating in Turkey have cut their exploration budgets substantially.

Another trend is the emerging interest on behalf of Turkish construction companies in gold projects. These companies are interested in working on advanced projects but they have very limited experience and the funding they are ready to offer is not substantial at this stage. Unfortunately, low gold prices have slowed down this trend, but there is potential for future development.

How has the government contributed to the development of the mining sector in Turkey?

The current government came to power in 2002, and since then it has shown steady support to the mining industry. We are expecting the government to release forestry permits and exploration licenses soon. We are currently negotiating with the authorities to extend the exploration period from seven to ten years for Class IV mines, which is currently not enough time to properly identify a gold reserve.

The average cash cost of producing gold in Turkey is continuously increasing. What can be done to improve cost efficiency in Turkey's gold production?

The cost of energy in Turkey is very high, and unfortunately there is very little that can be done to reduce this expenditure. Companies have done everything to reduce their costs and optimize their production. Now, there is little left that they can cut. Due to the challenging situation of financial markets and the low price of gold, companies are cutting their exploration budgets, which is harmful to the Turkish mining industry as a whole.

Can you leave us with a final message about your outlook on Turkey's gold mining industry going forward in the medium term?

Turkey is still an underexplored country and has been unable to attract sufficient funds for exploration campaigns. We hope that the current situation with permitting will be resolved very soon, and more mining companies will come to Turkey. •



Rising Market, Challenging Global Context

Mining in Turkey

Author: Agostina Da Cunha

While the world’s traditional mining markets struggle through the trough of a mining cycle, Turkey has emerged as a rare story of growth, offering a compelling jurisdiction to international mining investors in pursuit of friendlier skies. To date, the country has not shown huge ore deposits of blockbuster potential; rather its key attractions are economic discoveries ranging across 72 mineral types, situated in an open playing field with attractive incentives and a growing supplier base to assist in low cost project execution.

Aiming to become a top 10 global economy by the 100th anniversary of the Turkish republic in 2023, Turkey has set its sights on reaching \$500 billion in exports, \$15 billion of which is earmarked to come from the mineral sector. With this ambitious goal in mind, the country is looking beyond the state-owned entities and domestic conglomerates that have largely fueled the industry thus far. Foreign investment will play a decisive role in meeting this goal, or falling short of the mark.

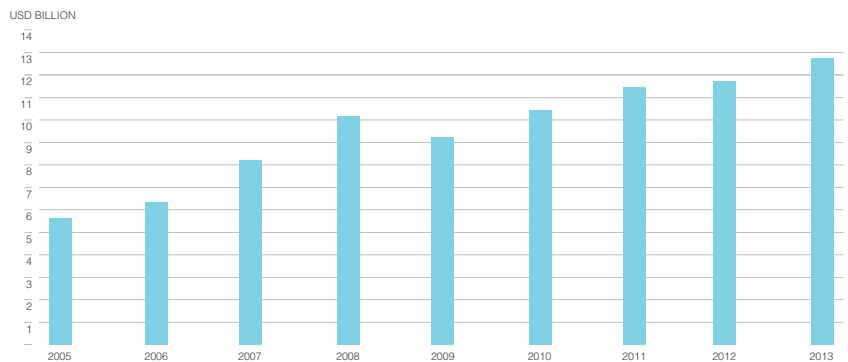
As the government continues its privatization process that began in the early

2000s, private companies have brought increased production rates and higher profits to a stagnating industry. Today the sector is over 85% privately-held, posting modestly healthy growth rates such as 4.6% in 2012, even as the global mining downturn began. “Today just 10-15% of Turkey’s mining operations belong to public bodies, such as Turkish Coal Enterprises (TKI), Turkish Hard Coal Enterprises (TTK) and ETI Maden. In the future, this ratio will be even smaller. We are ready to increase foreign mining companies’ share in our country. To encourage these foreign companies, the Ministry of Economy has established new incentive schemes for strategic investments,” said Nevzat Kavaklı, deputy undersecretary of the Ministry of Energy and Natural Resources.

Although the government is keen to support the sector with attractive incentives, as with any developing mining jurisdiction, a steep learning curve persists for policymakers bogged down by wider political and economic turbulence. Delays in forestry permits and a lack of clarity in regulatory implementation have slowed

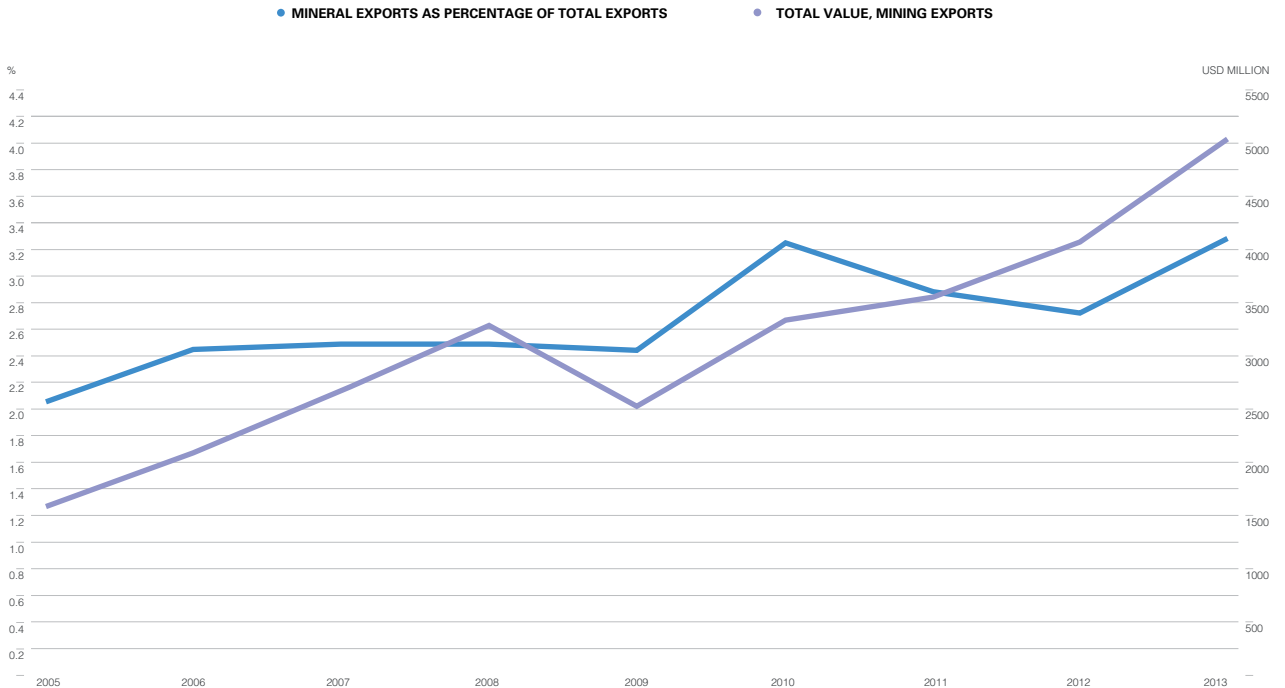
TOTAL MINING PRODUCTION IN TURKEY (IN USD BILLION)

Source: Mineral Research & Exploration General Directorate of Turkey (MTA) in Investment Support and Promotion Agency (ISPAT), “Turkey’s Mining Industry,” February 2014.



TURKISH MINERAL EXPORTS, 2005 TO 2013

Source: Ministry of Energy and Natural Resources, General Directorate of Mining Affairs



the sector's dynamic growth. Fraser Institute surveys placed Turkey 53rd in 2013, while 2014 results show improvement with a climb to 37 out of 112 jurisdictions. To continue on its upward trajectory, the sector is focused on luring in more foreign juniors and bringing the practices of its domestic players up to international standards.

Turkey's fast growing economy, boasting a GDP that has tripled since 2003, its young population with a median age of 29, and its central geographic positioning lend the mining sector strong fundamentals for growth. A period of wider economic uncertainty, which emerged in 2013 with the Gezi Park protests and an ongoing high-level government corruption probe, has been slightly abated by the highly anticipated local elections in March 2014, bringing indications for the August presidential elections and general elections in 2016. Investors have opted for a wait-and-see mode as the country tests the boundaries of its democratic process, yet stay at the ready for the green light to reactivate Turkey's booming mining story.

Turkey's mining code was most recently reformed in 2010, with the aim of clarifying the environmental permitting process

and discouraging prospecting by instituting financial requirements and implementing a three-step exploration process complete with check-ins from authorities. Regulations have not been significantly changed since then; however, questions of implementation and rule of law continue to challenge the sector. For a sector that has long been on the backburner of government policy, its emergent presence on the national stage has led to growing pains. Accounting for roughly 1.5% of GDP, the mining sector has a long way to go to gain a greater voice in the policy making process.

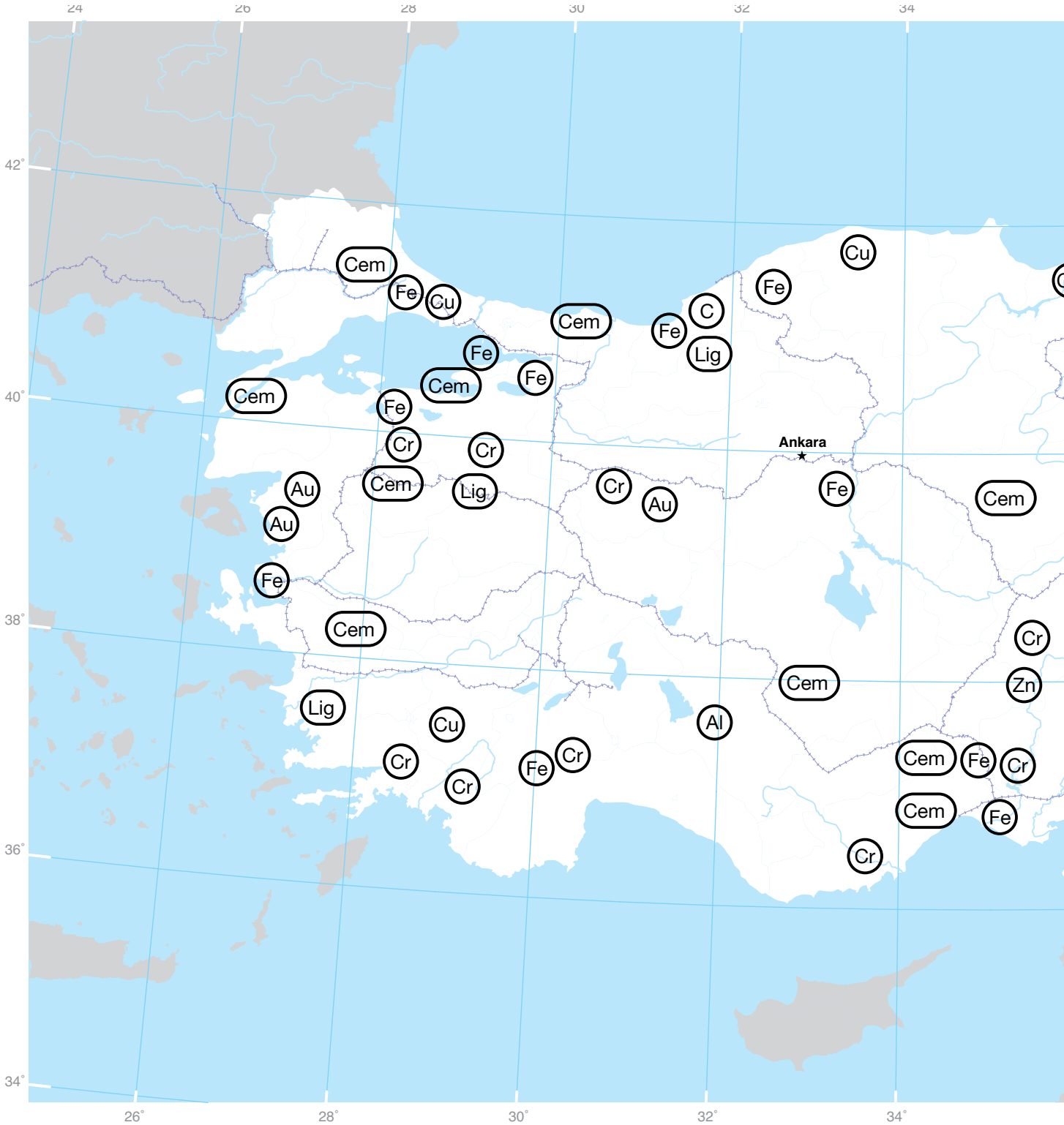
Güven Önal, chairman of the Turkish Mining Development Foundation, argues that official statistics do not tell the whole story of mining's importance to the national economy and are decreasing the sector's influence over policy. "The contribution of mining to GDP should be 1.5% in 2013; however the calculation of these figures does not give the whole picture of the industry. Mining exportation includes only raw material and does not take into account integrated mining activities, such as glassworks, ceramic works, cement, boron chemicals, copper, aluminum and power from the coal," he said. "If we consider raw material pro-

duction in Turkey and the contribution of integrated mining, this will lead to the real figure for its share of GDP. Out of production in 2011, the integrated value was \$25 billion out of a GDP of \$750 billion, making the mining share 3.3%. The lower estimation of mining's contribution has an impact with NGOs and public relations."

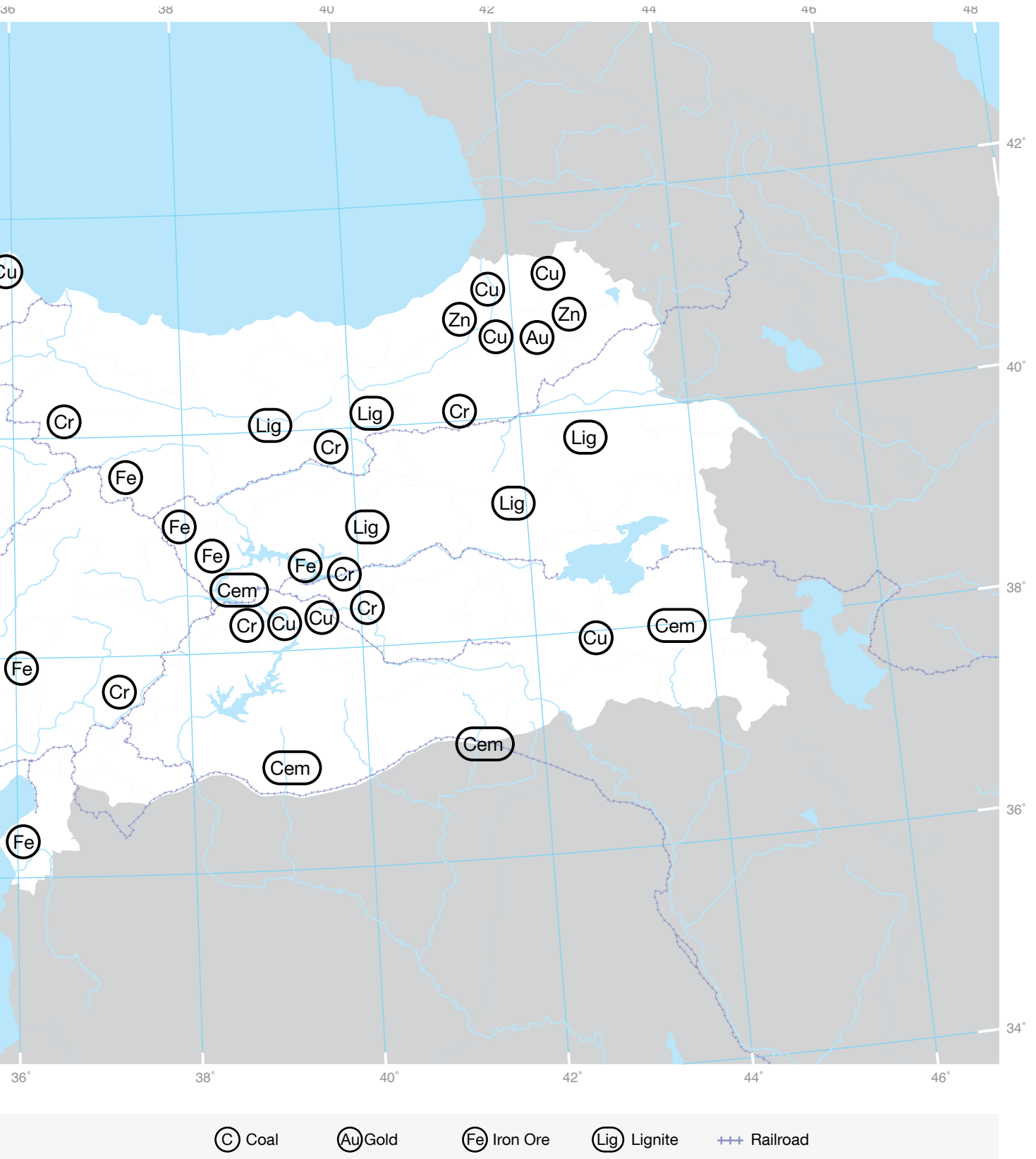
Attracted by the region's potential, more global service providers are setting up in Turkey to serve Eurasian mining, and more local companies are reaching international markets. Building on Turkey's existing industrial strength, particularly in construction, Turkey's mining supplier base has a degree of sophistication unique to most developing mining markets. "The Turkish construction industry not only is very mature but also ranked second to China in the international market. Therefore, the construction industry is not only capable within the borders of Turkey but also an industry that has been very successful outside of the country. The major risk of capital execution in Turkey is somewhat marginalized and accordingly is one of the main advantages of Turkey in mine development," said Han İlhan, president and CEO of Aldridge Minerals. •

Mapping Turkey's Mining Sector

Source: United States Geological Society (USGS)



- (Al) Aluminum
- (Cem) Cement
- (Cr) Chromite
- (Cu) Copper
- (Zn) Zinc



Development of Corporate Responsibility in the Turkish Mining Sector

Ercan Balci,
External Relations Manager,
Çayeli Bakır

The development of corporate responsibility in Turkey in the modern sense is closely related to Turkey's integration into the global economic system and increasing foreign investment in the country. The Turkish Republic emerged in the 1920s as the inheritor of the Ottoman Empire and the state held a monopoly over Turkish companies in almost every sector. These companies were unfamiliar with the concept of corporate responsibility. Some entrepreneurs, mostly family companies, founded mosques, schools and various social foundations, especially in their hometowns, or made donations that can be considered as "charity works," but these social responsibility initiatives were not made as part of a specific plan or strategy or in reference to specific corporate responsibility policies.

In addition, the state-owned companies, State Economic Enterprises (SEEs), did not adopt an approach to address the expectations of the community. The SEEs were intended to serve the public benefit in nature, so did not show particular effort to develop good relations with local communities or mitigate the environmental impact of their operations. Thus, it is unsurprising that when the communities and the SEEs came into a dispute, the communities were often confronted by security forces rather than community relations officials.

However, the transformation of Turkey's economic policies and the effect of globalization on the economy rendered the corporate responsibility approach a hot issue in the private sector's agenda. Neo-liberal economic policies came to Turkey in 1980s, as result of policies of Turgut Özal, the president of Turkey, who marked Turkey's economic

history by opening the way for private entrepreneurship. These policies were followed by the privatization of many state-owned companies, including the mining sector. This process started in the late 1990s and early 2000s and mostly attracted national companies from the construction sector. Yet, many international companies, particularly from Canada, also showed interest in investing. Some companies adopted international standards that suited their corporate culture to guide them in their corporate responsibility practices. Among these standards were the good practices manuals issued by the International Finance Corporation (IFC), International Council of Mining and Minerals (ICMM), Mining Association of Canada (MAC). Adopting such standards was considered as one of the essential criteria for receiving loans from international finance Institutions such as the World Bank.

However, adopting a corporate responsibility approach was not sufficient for the international companies to obtain the Social License to Operate (SLO), which they was essential. In the early years of privatization and globalization, Turkish society often resisted foreign investment. While these concerns were mitigated in time, the opposition against foreign investment persisted in certain sections of the society. A good example of the challenges that foreign investors encountered in Turkey when obtaining social license could be Ovacik gold mine in Bergama. Despite continuous efforts, neither Eurogold, the former operator of the gold mine, nor Newmont Mining, which later took over the business, could overcome the persisting protests of the anti-mining activists. The protestors accused these

companies of "using cyanide in exploration" and their protests captured the headlines in the national press for many years, rendering the already weak social license of the company almost completely invalid. Eventually, although they built trust among their immediate communities, Newmont Mining was forced to leave Turkey, as they could not overcome the organized resistance from anti-globalization and anti-mining organizations, which were ideologically against foreign investment. This experience was very instructive for the Turkish mining sector.

Another example was Cerattepe gold and copper mine, which was supposed to be developed by Artvin Bakır Maden İşletmeleri, a Canadian enterprise. The organized struggle of the stakeholders, who objected to the development of Artvin Bakır, found an echo in the community and strengthened the resistance against the mining sector. The local community expressed serious concern about the possible detrimental effects of mining on the environment and raised strong opposition against the project. The intense efforts of an NGO to stop the mining operations resulted in an effective resistance by the local community, which in turn influenced the public authorities and politicians, and the company lost its ability to maintain its social license. The legal actions filed against the company caused Artvin Bakır to lose its official operating license.

However, these negative experiences should not give the wrong impression that the Turkish mining sector is challenging for foreign investors. Currently, there are many international as well as Turkish companies that undertake safe and successful operations in Turkey and apply careful corporate responsibility standards. In order to maintain a robust social license, many companies have placed strong emphasis on developing effective communication with local communities, addressing public concerns, minimizing the environmental impact, informing the public authorities about the details of their projects and overcoming objections, if any, and implementing social development programs in their public relations management systems. These developments promise hope for more responsible mining in Turkey. •

Tolga Taşdelen

Director of Tax Services
PwC TURKEY



Could you introduce us to PwC's operations in Turkey and the company's involvement in the mining sector?

PwC has been operating in Turkey since 1981. We have five offices, two in Istanbul, one in Bursa, one in Izmir and one in Ankara. There are more than 1,300 people working for PwC in Turkey. Within the mining space, we work with around 50 companies across the whole value chain providing assurance, tax and advisory services.

The past two years have been challenging for the mining industry globally, how has this affected PwC's mining clients' playbooks?

Our clients have not felt serious implications until the end of 2013, when the local crisis evolved in Turkey. There were serious currency fluctuations that had detrimental effects on all industries. We do not have the figures for 2013 yet. However, this had an adverse effect on the companies considering new investment in the country or expanding their current business.

What tax incentives can mining companies in Turkey take advantage of?

Companies operating in mine extraction and/or processing have a number of incentives, including VAT and customs exemption, reduced corporate tax rate, social security premium support, interest support, land allocation subsidy, insurance premium support and income tax withholding allowance. Additionally, wages of those employed in mines in the form of an underground operation, in ore production and in all related work, pertaining exclusively to the time they are employed underground are exempt from income tax and stamp tax.

How have investment trends evolved since the reforms of 2010 and what issues still need to be addressed to further improve the investment climate?

Since the global economy has been in recession we have not seen a great flow of investment into Turkey, but we are expecting to see more activity starting from 2015 after ministerial, presidential and general elections are over.

First of all, stability in economic and political environment is required to improve the investment climate. In addition to attract more foreign investors a more liberal and fair tax environment and additional incentives would be a plus for Turkey.

Mining service providers are interested in setting up offices in Turkey to service neighboring countries, what are the tax advantages that can be offered to those companies?

We have a very advantageous system for construction companies. Turkish construction companies can receive tax exemptions on revenues derived from overseas projects. A similar regime could be introduced for the service providers in the mining industry, which would incentivize foreign companies to set up operations in Turkey and let them provide services in Turkey and neighboring countries.

Local mining companies are challenged to find project financing to develop their mining assets. What local financial mechanisms are available to these companies?

Local companies do not have many options; they can either be financed by shareholders via capital and/or loans or by local bank loans. It is not that easy for local firms to reach resources in the international financial markets. However having foreign

investors in the picture allows companies to access resources at international markets sometimes even with more beneficial rates and conditions.

What are the main risks that foreign investors should consider when looking at mining in Turkey?

The main risk is the political and economic uncertainty in the country, especially on the foreign exchange side. Apart from that, Turkey has endured a number of crises, but in the long-run Turkey has a very good potential and we are expecting more investment coming into Turkey. However, investors should also keep in mind that with a gross domestic product of \$775 billion, Turkey is 18th biggest economy. The inward foreign direct investment was \$12.6 billion in 2012.

According to the Strategic Plan prepared by Ministry of Energy and Natural Resources for the period from 2010 to 2014, the effectiveness of the control and supervisions for compliance with the sustainable mining and sustainable environment principles in the mining operations will be continued increasingly. The lack of companies in the mining sector with the ability to compete on the international scale is a threat, and Turkey aims to increase the contribution of natural resources into the national economy, increase the production of industrial raw materials, metals and non-metal mineral reserves and provide for their utilization on a national scale.

What mergers and acquisitions (M&A) outlook do you have for 2014?

It is a very quiet period at the moment because investors are waiting for the stabilization in the political and economic conditions, which are expected to happen following the elections. We do not expect much to happen in 2014, but we are hopeful that the results of the elections might accelerate M&A in 2015 and onwards.

What plans does PwC have to further strengthen its presence in the mining industry?

We have a strong network of mining industry experts all around the world. PwC Turkey has a special Energy, Utilities and Mining team in advisory, audit and tax services with around 100 professionals who are ready to add value to companies interested in investing in Turkey. •





Finding its Voice: Turkish Mining Regulations and Financing

“Turkey has a reputation for foreign direct investment. It has an excellent location and is surrounded by companies and natural resources. My recommendation to foreign investors is to structure their business in portions of industries so that they will be able to get the benefits of the currency risk. Consumption is high in Turkey, so there is a large market...Investors need to be creative and consider the mass of the market.”

- Şafak Herdem, Managing Partner,
Herdem Attorneys at Law

A Light at the End of the Tunnel

Permitting in Turkey

As evidence of the crucial need for a greater political voice on behalf of Turkey's miners, a significant bottleneck emerged for the industry in 2012, when a circular was issued by the prime ministry dictating that approvals for the use of governmental lands were to be routed through its office. As a result, the mining sector saw a nearly two-year period of stagnation, as forestry permit delays stalled exploration and threatened the industry's project pipeline. Uncertainty of the application of the circular abounded and spurred collective action on the part of industry stakeholders. "The circular issued in 2012 is vague and can be interpreted in many different ways. Recently, there has been a case, in which the circular was overruled. An applicant filed a lawsuit after the Ministry rejected the license application based on the circular. The court ruled that the legal right granted by a law cannot be limited by a circular," said Şebnem Önder, partner at Akol Law Firm.

While explorers and producers hoping to expand their operations have been forced into a waiting period, they have had the chance to hone their projects and prepare for swift executions of their drill programs once given the go-ahead. After a tense period, positive signs have brought investor confidence back to the market when, in advance of local elections held at the end of March, over 50,000 permits were sent back to the Ministry of Energy and Natural Resources for evaluation. As permits begin to receive ministerial approval, explorers and their service partners are hungry to get exploration re-started.

The permitting delays have propelled discussion on further mining reform, prompting the industry to reach out to policymakers to better address the specific needs of their sector. "Turkey has high potential in

PERMITS ISSUED BY MINERAL GROUP (2013)

Source: Ministry of Energy and Natural Resources, General Directorate of Mining Affairs

MINERAL GROUP	OPERATING PERMITS	EXPLORATION PERMITS	TOTAL
Group I-B	35	0	35
Group II-A	339	0	339
Group II-B	440	313	753
Group III	4	2	6
Group IV	318	286	604
Group V	1	23	24
Group VI	2	4	6
Total	1139	628	1767

mining, but it needs a new legislative base in order to accommodate such a transition. The government is actively working on introducing tax incentives for foreign investment. The recent depreciation of the Turkish lira and internal political disturbances have slowed down this process, but we are confident the situation will improve towards the end of 2014," said Baran Baycan, partner at Baycan Law Firm.

Allegations of corruption among high-level government officials have rocked Turkey since December 2013 and the Turkish lira's value spiraled downward until the Central Bank raised interest rates in January 2014 in an emergency move that stymied its depreciation. "In order to attract and retain foreign investors, we must provide investment incentives and tax advantages to local and international mining companies operating in Turkey. Turkish mining legislation has been updated regularly since 2005 to include such advantages, but there is still a long way to go," said Baycan.

A first step will be improving the framework for exploration. Current license periods make it difficult for explorers to carry out adequate research and the industry is advocating for an extension of exploration periods. "We are currently negotiating with the authorities to extend the exploration period from seven to 10 years for Class IV mines. The current period does not provide enough time to properly iden-

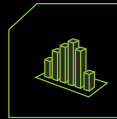
tify a gold reserve," said Ümit Akdur, chairman of the Turkish Gold Miners Association.

For producers, a more advantageous scheme of incentives exists. "Companies operating in mine extraction and/or processing have a number of incentives, including VAT and customs exemption, reduced corporate tax rate, social security premium support, interest support, land allocation subsidy, insurance premium support and income tax withholding allowance," said Tolga Taşdelen, director of tax services at PwC Turkey. "Additionally, wages of those employed in mines in the form of an underground operation, in ore production and in all related work, pertaining exclusively to the time they are employed underground, are exempt from income tax and stamp tax."

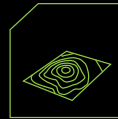
As Turkey adheres to European Union accession guidelines, policy has been directed at better regulating its industries and improving their best practices. "The mindset in the industry has developed since the government started changing the laws and putting pressure on exploration and mining companies to meet international standards and report resources and reserves in a proper way," said Muhanned Arar, managing director of consulting firm Almina Minerals and Metallic Group general manager at Yildizlar SSS Holding, Turkey's only silver producer. •

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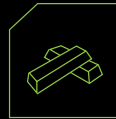
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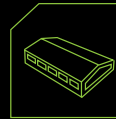
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The firm also has deep, tactical knowledge of mine construction agreements, exploration and development agreements, mine permitting and closure plans, mining litigation, resource taxation, environmental compliance and anti mining issues. Baycan Law Office has a highly qualified and diverse staff whose mining expertise is supported by other practice areas, including international dispute resolution, debt products and project financing, tax, employment law, litigation, securities and general corporate law.

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Mustafa Sönmez

Chairman
**TURKISH MINERS
ASSOCIATION**



Can you introduce us to the Turkish Miners Association, in terms of its structure and mandate as an organization supporting the mining sector in Turkey?

The Turkish Miners Association, or Türkiye Madenciler Derneği (TMD), was founded in 1948 by a conglomerate of chrome and lignite producers, including ETIBank, the largest, state-owned mining company, and other natural and legal persons. Today, our association comprises about 80% of the producers in the Turkish mining sector. We have members from two large, state-owned companies, including Turkish Coal (TKI) and the biggest boron company in the world, Eti Bor. In total, TMD has 65 different companies and 38 individuals as members.

How is TMD working to globalize the Turkish mining sector and connect industry players with the international mining community?

TMD has a duty to establish connections abroad and bring together the mining community and the world finance community. In this context, from 2001 to 2013, TMD was a member of

Euromines, the European Association of Mining Industries, Metal Ores and Industrial Minerals. Humanitarian and environmental regulations are developing in the global industry, and TMD feels an important duty to take these regulations and introduce them into the mining sector in Turkey.

Both in Turkey and abroad, TMD organizes ongoing meetings with the financial sector. In April 2014, approximately 300 people from all over the world joined the third Eurasia/MENA Mining Meeting that we organized. Global experts, Turkish miners and miners from around the world met face-to-face and participated in workshops about technology and environment and health standards. In September 2013, TMD organized a mining-and-financing summit in London attended by top-level directors. TMD is now helping three Turkish companies to become a part of the London Metal Stock Exchange, while six or seven Turkish companies found sources of investment in London. We will hold the second summit for investment, mining and finance in November 2014 in Brisbane, Australia from November 13 to 14.

Looking at commodity demand trends, where do you see the most potential for Turkey's diverse mineral resources?

One of the TMD's duties is to observe the markets in other countries and inform our members. Today, demand is coming from Russia, North Africa, Turkey and Brazil. Geographically speaking, we are between the Alps and the Himalayan Mountains, and this makes Turkey important because of the variety of mineral resources we have. We have lignite and boron mine fields, as well as chrome, copper, nickel, magnesium, natural stones, industrial raw materials and rare earth elements, which are of great importance worldwide. This makes Turkey the most stable mining producer in the region.

As the sector sees more investment and higher production volumes, what role can it play within the global mining market?

Historically Anatolia has been a path between the East and West, which

makes Turkey an important market. We have the ability to transport things by air, sea and land. In 2023, Turkey is expected to export \$15 billion from the mining sector. Until now, we have only exported approximately \$5 billion. Increasing our exports to three times this amount is possible. Unfortunately, because of political problems in Turkey right now, there is hesitation. There are problems with licenses and rights, but demand has always existed, and so the mining sector will keep growing.

The government is making regulations for today's circumstances so investments will improve and capital will be directly invested. In recent years, significant incentives have been provided for the Turkish mining sector. It does not matter if you are in the second or fifth region, you can get discounts for investments wherever you are. These are very important subsidies to develop the mining sector. These discounts and subsidies have been given, but the benefits have not been realized yet.

What is your outlook for the growth of Turkey's mining sector in the medium-term?

We are very hopeful for the future. By 2023, Turkey has the potential to expand its mining sector and be a leader in the region. Turkey is close to the large markets of the Middle East, Russia and Europe and much closer to China and India than countries such as Brazil. We have a significant advantage in transportation because of our geographical location. The biggest challenge is that relations between the mining sector and the government are not free. The government has some objections about the sector, and we keep in close contact with it to address these objections. In this regard, it is our hope that a modern and lasting solution will be reached.

Turkey has well established-human capital and aspires to advance technologically. TMD is trying to develop and expand the connections between it and the financial world. Many steps toward this goal have already been taken and positive effects realized. In light of these developments, we can say with confidence that the Turkish mining industry is an investable area. •

The Soma Mining Disaster: A Disaster that Shook the Very Core of Turkish Society

Zeynep Dereli,
Managing Director,
APCO Worldwide Turkey

The Soma mining tragedy marks a significant and heartbreaking moment in Turkey's history that not only touched the very core of Turkish society, but also shined the spotlight on an array of problems that have so long marred the mining industry in Turkey. This industry is an integral and important part of the Turkish economy, with a recent 2013 valuation standing at \$5.7 billion, yet the little known fact that Turkey has the record for the world's worst safety record for this sector suddenly started making headlines in light of what had happened in Soma. The figures that contributed to this record were collated prior to the events of May 2014 and were a truly damning and compelling set of statistics.

With a global audience watching as the catastrophe unfolded, accusations and blame were haplessly thrown around, often with little regard for the families of the victims. It was clear that this tragedy would spurn many repercussions and also rightfully promulgate a reevaluation of the management and oversight of the mining industry in Turkey. Key lessons could be learned, albeit these lessons do little to absolve the families who lost their loved ones in this potentially avoidable cataclysm. Hindsight is a wonderful thing. But complacency and avoidable errors have all been far too evident in the post-evaluation of how and why this disaster happened. Turkey cannot let these workers die in vain, and there is now an incredible responsibility on the current administration, those who manage the industry, and those responsible for the operations of the numerous mines, to reassess, reevaluate and re-strategize how this sector can continue to flourish in a safe and responsible manner.

So much of this re-evaluation needs to

involve an urgent plan to improve the health and safety of the thousands of people who work in these mines on a daily basis. Moreover, legislation should be rewritten and newly drafted demanding the absolute highest levels of protection and standards to ensure that what happened in Soma never happens again. There are a number of other jurisdictions that Turkey can look to for help, guidance and assistance with learning what and how to do things better.

With advancements in the technologies and tools being utilized in this industry, it is fundamental that policies and procedures ensure that Turkey is as advanced in this accord as should be expected. Moreover, a better understanding of the principle of negligence and blame needs to become more entrenched throughout the upper echelons of those responsible for running and managing this industry. The mere threat of an apportionment of blame can have a profound effect on those who might eventually become personally implicated and indicted due to such blame. No longer can a culture of impunity be accepted. Those who perished in the Soma tragedy are only the tip of the iceberg in a long history of deaths and disasters that Turkey can no longer overlook.

And thankfully there does appear to have been a mandate to effectuate change. The government has started to take the necessary steps laying the foundation for legislative proposals and updates along with an initiative from the Grand National Assembly to implement a mining reform package.

Said legislative proposals include changes to worker's shifts and a redefinition of the retirement age. Importantly, rescue chambers along with robot systems will become compulsory for every

single mine and if a certain mine does not fulfill the necessary health and safety requirements in compliance with European Standards, then that mine will be closed immediately. Such closures should stand to provide some certainty that another Soma tragedy cannot be allowed to unfold again so easily.

The EU and the international community are already well versed in the legal framework, practices and procedures that could provide valuable guidance for Turkish policymakers. It is clear that the issue of ratifying the International Labor Organization's Convention on Mining Safety should be brought to the fore once more. Ratification might attribute at least some justice for the 301 people who lost their lives in this disaster.

Moreover, despite the events that occurred on May 13th 2014 in Soma, foreign investments into the mining sector in Turkey continues to grow. Further changes in regulations and health and safety mandates can only help bolster this growth, while better serving those who stand to benefit most from such safety improvements.

A true legacy for all those that perished in Soma, and as at least perhaps some solace for their families, should be pro-active, urgent, and unfettered improvements to the Turkish mining industry. While it will do nothing to bring these fallen souls back, it should ensure that their colleagues and comrades will never come to meet the same nemesis. No further families should have to suffer such an avoidable fate. The citizens of Turkey mourned their losses. This national mourning highlights just how deep to the core this disaster struck within Turkish society. The only rightful legacy is the absolute determination that such a tragedy never be permitted, nor excused, to happen again. •

Alan Clegg

Chairman
AFRASIA



How has Afrasia grown in the past two years?

We have grown considerably over the last two years, especially in attracting foreign investment to Turkey. It is difficult for a consulting business to grow organically without bringing clients from overseas because the Turkish industry is predominantly family-owned and wary of consultant intervention. In the last two years, we have real penetration in the market of the value proposition of consultancy work, i.e. that it is an investment with a real return and not a cost.

Afrasia has grown its client base in Turkey considerably. We were successful in securing strategic, long-term relationships with overseas investors that wanted to build a bridge to develop projects in Turkey, the Central Asian region and the Middle East. We have an arm's length contractual relationship with a commodities hedge fund in the UK called Ebullio Capital, which wants to expand its business and be involved in metal project development, production and exploration. Ebullio is investing heavily in Turkey.

After acquiring Red Crescent's base metals assets in Turkey, how will Ebullio be developing them going forward?

Ebullio will be closing the deal with Red Crescent soon. Afterwards, Red Crescent will delist from the Canadian stock exchange (TSX) and Ebullio will take the company private. Under Ebullio Mining & Resources A.S. in Turkey, Ebullio plans to develop the mining assets of Red Crescent, which includes the flagship Sivas project, Hakkari zinc assets and zinc assets in the Adana province.

Would you say that the mining industry in Turkey has been largely insulated from the global crisis?

The bulk of the sector is gold, and while prices have gone down significantly, it is produced at relatively low costs. For the most part, most of the gold companies operate in the low cost quartile, so they are not sailing as close to the wind and have been fairly robust while having the market of the second largest gold jewelry producer in the world on the doorstep. Due to the crisis, however, there were at least four gold projects in Turkey that could not get capital. The chrome sector is quite large with good grades and was hit by the crisis, but most miners controlled their cost base and operated below the required international standards of the large publicly listed producers. This is unfortunate because the Turkish industry needs full internationalization and professionalization so it can be better capitalized and modernized, which means adopting appropriate health, safety and environmental standards, modern equipment and technologies, etc.

Where is Afrasia looking to bring in more expertise and expand the scope of its work?

We are a full value chain consultancy, which means we can address any issue from exploration to full feasibility studies and engineering design in all fields. We also provide services on softer issues, like stakeholder engagement and social and environmental management. To handle this area well, because of the specific culture of Turkey, we found the best approach is to

set-up strategic partnerships with local companies.

Another big area of focus has been leveraging technology, and the Turkish market is very far behind in this respect. Alexander Mining, which is part of the Alexander Plc, produces patented mining technology for processing oxide and sulphide resources that reduces the costs of capital and operating costs significantly enabling greater free cash flow in operations and we plan to bring this technology to Turkey.

We are also leveraging exploration technologies, such as ground penetrating radar. We have a strategic partnership with Terravision, which produces this world-leading technology and Afrasia has agreements to operate in Turkey. We are also bringing in sonic drilling, which uses high frequency vibrations to cut through soft/wet and hard materials with high sample recovery.

What is your outlook for mining in Turkey in the next two or three years?

Turkey needs a master plan for mining. The key driver in Turkey is the balance of payments deficit. The economy has been growing at one of the fastest rates in the world for the last twelve years, which has caused a huge demand for raw material and metals like copper, zinc, lead and ferro-metals. There will be a negative balance payment of \$140 billion by 2023 if it does not develop its minerals more quickly. In the next few years, there will be the development of new base metal mines. We are evaluating a major metal refinery project that could produce at least 400,000 metric tons (mt) of LME grade copper and 250,000 mt of LME grade zinc and lead per year. Gold will grow at a lower rate because it is in environmentally sensitive areas, but it can still be produced as a byproduct of copper. There will be a move toward more beneficiation, processing and new legislation regulating exports of un-beneficiated materials, which will prompt family-owned companies to meet international standards and recapitalize their businesses. •

Baran Umut Baycan

Partner
BAYCAN LAW FIRM



Can you provide us with an introduction to Baycan Law Firm and its expertise in the mining sector?

Baycan Law Firm began its operations in 2000, with a focus on providing legal services to the mining industry. We have 25 lawyers working at offices in Istanbul and Ankara. We also have a strategic partnership with McMillan, a leading law firm in Canada, which helps us to work with mining companies listed on the Toronto Stock Exchange (TSX) and provides them with better legal advice. 80 percent of our foreign and Turkish clients are active exploration and production-stage mining companies, and we provide legal consultancy for both administrative and commercial activities. We also provide consultancy or investment arrangements for later stages through our wide network. We are trying to act like business partners to our clients to create additional value beyond our lawyer-client relationship. On the basis of our experience in the mining sector and many years of legal practice in Turkey, we approach our clients as business partners. We evaluate their business plan and targets together based on their attitudes and

mid- to long-term plans. We use all of our legal, financial, and networking skills to assist our clients in the most effective way.

As privatization has continued and foreign investment increases, how has the mining industry in Turkey transformed over the past few years?

There was no production of precious metals until 2005 in Turkey. The main focus of the industry was the coal, marble and iron ore sectors. In 2005, Koza began to produce gold, and its success attracted international and local companies into the precious metals space. Today, Turkey is Europe's largest gold producer and one of the largest producers of coal, with a high market share in marble as well. In other minerals, we expect production to increase in the near term.

How have you seen local playbooks affected by the current global challenges for the mining industry, namely the weakness of the capital markets and depressed commodity prices?

Most companies in Turkey are listed on the TSX or Australian Securities Exchange (ASX). Since the global financial crisis, investors have been reluctant to invest in emerging countries such as Turkey, which has created a source weakness for exploration companies to develop the activities. On the other hand, this had a positive outcome, as companies decided to use the cost effective approach and make their own analysis of their operational cost-effective approach. The positive results of this approach will be seen in the medium- and long-term.

With regards to resolving licensing challenges, what regulatory changes can we expect in the coming two years?

Turkey needs a new legislative base in order to meet its mining potential. The government is actively working to introduce tax incentives for foreign investment. The recent depreciation of the Turkish lira and internal political disturbance has slowed this process, but the situation will improve towards the end of 2014. The Turkish government has also supported regulations to attract foreign direct investment (FDI).

What are the key issues that the industry needs to address in order to improve the climate for foreign investment?

In order to attract and retain foreign investors, we must provide investment incentives and tax advantages to local and international mining companies operating in Turkey. Turkish mining legislation has been updated regularly since 2005 to include such advantages, but there is still a long way to go. Baycan Law Firm provides legal assistance in adapting the legislation and ensuring its correct application

What is your development strategy in the coming years to improve your expertise in the mining practice area?

Our sector experience focusing on mining and energy is a distinguishing factor for Baycan Law Office. The legal and financial solutions we have found for our clients so far have are the best advertisement of our skills and experience. We believe that the best development strategy is creating a solid and material value for clients. Our main strategy is same today and will be the same tomorrow: to assist our clients and, as most of our clients are foreign companies, to make them feel that they have a good trustable partner in Turkey who is always ready to assist.

In addition to our commercial activities, Baycan Law Firm is involved in improving current legislation to accommodate more foreign investment and will continue to provide support to the government in this field through providing information on mining companies and international stock exchanges. With the support of our solution partner McMillan LLP, we are looking to adapt the Istanbul Stock Exchange regulations with regards to mining industry.

Can you leave us with a final message about Turkey as a mining destination?

Foreign investors should always consider Turkey's geopolitical significance. Its historical and cultural ties with North Africa, Middle East and the Commonwealth of Independent States (CIS) allow international companies based here to gain easier access to new markets. Turkey welcomes foreign companies and offers great conditions for work. •

Zeynep Dereli

Managing Director

APCO WORLDWIDE TURKEY



Can you introduce us to APCO Worldwide and the work that you do here in Turkey?

APCO Worldwide is a strategic communications and advisory firm celebrating its 30th year. The company's headquarters are in Washington DC, and it has 35 offices around the world. The work we provide for our clients varies based on the needs of each individual market that we operate in. Out of all of our markets, Turkey is the most vibrant. We provide consultancy and advisory work in Turkey and help implement the work we advise on. We work in regulated markets such as mining and oil and gas and provide political due diligence. This is an important task, because when investors look to enter a market, they do financial due diligence but not always political due diligence, which can cause major issues for a project.

Are you primarily working with international investors looking to enter the Turkish market?

80% of our client base in Turkey is multinational companies, which are either already active in the market or looking to enter. Those that are already

active are facing business challenges and are looking to increase their outreach. Sometimes companies use Turkey as a hub for the rest of the region and hire our firm to handle government relations, on either a monthly or project-by-project basis.

We also service Turkish clients that are looking to invest internationally. Turkey does not have many global brands. In order to become a global brand market, Turkey needs to shift its vision and the way it does business.

How would you assess the current climate for mining investment in Turkey?

APCO has extensive mining capabilities and experience, working in jurisdictions like Mongolia, where we are currently assisting a mining contractor. In Turkey, at the moment, the investment climate has been significantly impacted by concerns about the rule of law and what the future holds for Turkey. APCO, on the other hand, if international companies are looking to come into Turkey, this is a more opportune time than ever.

Why is now a more opportune time than ever to invest in Turkey?

First of all, the Turkish Republic is in need of FDI because of the large deficit in the national budget. The financing of this deficit, given the volatility with the Turkish Lira, and the lower GDP growth, will have an effect on the country. Therefore, any international company looking to invest in Turkey is going to be regarded as a friend. Turkey can provide many things for investors: the value chain is being developed and significant reforms have taken place over the last ten years. Decision makers can be influenced by investors showing commitment to Turkey at this difficult time.

Given the current uncertainty caused by the upcoming elections, how are you counseling companies that are looking to make investments in Turkey?

There are several important factors for foreign investors who come to conduct business in other countries: an ease of doing business, a reduction of bureaucratic red tape and transparency in interactions with the foreign government. Another is cooperation between political parties. Mining sometimes requires

agreement between local and regional politicians from opposing parties, and if the rule of law does not prevail, one may be less inclined to help the other. Whatever we do, we should help ease business processes and become more transparent.

Based on your client flow, are you seeing more international companies interested in making Turkey a regional hub?

We are definitely seeing more international companies interested in making Turkey a regional hub for their businesses. Moreover, the changes in regulations regarding skilled labor are a draw for international companies, as are new tax requirements for management centers, which is a similar program to what Dubai offers. Turkey has a long-term vision of turning itself, especially Istanbul, into a finance center. This can only be achieved by making Istanbul a preferred destination for international companies and regional management, which requires access to education, lifestyle, transportation and overall quality of life. There is also a desire to make Istanbul a commodity hub, and Borsa Istanbul is looking to open up the market to commodity trading.

What is your outlook for M&A in 2014?

There is some concern, but troubled times also provide opportunities. It depends on the risk appetite of the companies that are looking to come into Turkey, and their capabilities of assessing the risk environment. If people feel like Turkey has significantly addressed its issues, such as rule of law and transparency, there may be a boom in M&A activity.

What is APCO's vision for the future growth of its activities in Turkey?

APCO is honored to be working in Turkey because we provide a set of services that are much needed and will pave the way for other consultancy firms to come to Turkey. The more the Turkish market grows, the more APCO will grow. Turkey will create more global brands, and for APCO we will have more Turkish clients going out into the world. We will slowly become a global player. •



Image: Shutterstock

Accessing Capital

Turkey's Appetite for Mining Financing

Turkish conglomerates are bringing much needed capital to the sector, but its path towards maturity will depend heavily on its ability to attract foreign investment. When Turkey first opened up its doors to foreign investment just over three decades ago, investments coming from abroad totaled only \$18 million. In 2013, that number has risen to \$138.3 billion.

Although the amount of mergers and acquisitions (M&A) in 2014 is forecast to drop to below half of its 2013 level, opportunities abound in the market for companies with a high-risk appetite. "The Turkish Republic is in need of

FDI because of the large deficit in the national budget. The financing of this deficit, given the volatility with the Turkish Lira, and lower GDP growth, will have an effect on the country. Therefore, any international company looking to invest in Turkey is going to be regarded as a friend," said Zeynep Dereli, managing director of APCO Worldwide Turkey, a global strategic communications and advisory firm.

Because local banks have not displayed an appetite to finance mining, companies must rely on private investors, although the industry remains hopeful local banking interests will change. "Banks and financial institutions should focus on how they can create financial tools for mining and determine what the industry means to them in terms of revenue," said Şafak Herdem, managing partner at Herdem Attorneys at Law.

One rare example of local mining financing comes from DenizYatırım, the investment arm of Turkey's fifth largest privately-owned bank, DenizBank. As of 2013, DenizYatırım entered into a strategic collaboration with Dedeman Holding as its house bank to help finance its

tourism and mining projects. "Within this framework we provided Dedeman Holding with M&A advisory services. We were given the task of optimizing the company's structure to help fuel its growth and ensure that the loan is paid back in an efficient manner," said Emrah Çelebi, M&A division head for corporate finance at DenizYatırım.

The high-risk nature of the industry has made it less attractive to local finance; however on a global scale Turkey's mining market has several risk mitigation advantages. In 2013, Ernst & Young identified the top three global risks for mining as resource nationalism, skill shortage and infrastructure access. On these fronts, Turkey is relatively well positioned; instead, risk comes at a policy level.

"Turkey is suffering from a delay in investment, often related to political issues. Infrastructure access in Turkey, compared to some of the developing countries, is among the best and there is no skill shortage thanks to the number of universities," said Hakan Kayganacı, managing director of the risk management practice at insurance broker and risk adviser Marsh. •

Muhanned Arar

Managing Director
ALMINA MINERALS
 General Manager, Metallic Group
YILDIZLAR SSS HOLDING



Can you provide us with an introduction to Almina Minerals and its key competencies?

Almina Minerals was established in late 2011 as a specialist consulting and engineering firm. As Geovia (formally Gemcom) is the sole exclusive distributor in Turkey, we enabled our customers to maximize profits by driving productivity and efficiency and providing collaboration tools for geology, mine planning and operational performance management. We have been working with Geovia for the three years, during which time we have met our targets. In 2014, we became the sole exclusive distributor in Turkey for LIM products. The business object of LIM lies in the development, fabrication and commercialization of electronic geological measuring instrumentation and associated software as well as services, training and equipment sales in geophysical borehole logging. Our main business areas are in foundation, geotechnics, hydrogeology, mines and quarries, and underground workings. Almina Minerals wants to offer more consulting and field services. We provide full service geological project management through to outsourced exploration teams for rapid deployment.

What are the main applications of LIM products and software?

LIM has a large portfolio of instruments. Our ambition is to be able to propose a complete measurement solution for borehole, comprising of both instrumentation for acquisition during drilling and logging in the resulting borehole, as well as for foundations and special structures. Our instruments incorporate innovative technology that begins at the sensor, continues through various application-specific acquisition systems, and expresses itself in powerful yet user-friendly software for data processing, interpretation, and presentation. Our two principal complementary activities are in the field of drilling support (drilling parameter data displays and recorders) foundations and special structures (grouting and jet grouting, pile boring, and "Lugeon" tests) and in situ geotechnical testing (deformation and penetrometer tests). We also provide software for processing and presenting the resulting data as geotechnical logs.

Yildizlar SSS Holding has a large portfolio of projects in Turkey. Can you provide us with an overview?

Yildizlar is the largest Turkish company in the mining sector and one of the largest in the construction, energy, oil and gas sectors. Yildizlar has been operating mines in producing gold, silver, copper, lead and zinc concentrates and a big portfolio of exploration licenses in all stages of exploration. The focus of the company is in base and precious metals, but we are also dealing with other commodities in industrial minerals. For 2014 we allocated a large budget to develop our exploration portfolio. In 2013 we drilled tens of thousands of meters. This year, we want to improve our advanced projects for resource estimation and feasibility study stage.

Turkey is vastly underexplored and needs technologically advanced exploration practices. What is Yildizlar's approach?

Unfortunately, many local companies are inexperienced with international standards in exploration and are unaware of the JORC or NI 43 101 codes requirements. Yildizlar switched to internationally recognized systems, which will make it easier to do joint ventures or find international investors. This shift also extends to our health, safety and environment practices. •



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- Maximize profits by driving productivity and efficiency.
- Provide collaboration tools for geology, mine planning and operational performance management.

Due to our extensive experience and contacts in the extractive minerals industry in Turkey, we also provide full service geological project management right through to outsourced exploration teams for rapid deployment. We are experienced in grass roots exploration right through to mine management and production.



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Quo Vadis Turkish Mining

Alp Malazgirt, Ph.D.
CEO, Metals and Mining,
Yildirim Group

If you ask an average Ali on the streets of Istanbul what he thinks of mining, a contemplative look crosses over his face, his eyes gaze away from yours to opine most likely about some disaster, accident, or explosion, not about the coal that he burns in his stove, the stainless steel silverware that he uses to eat his dinner, or the gold coin that he buys for his daughter's wedding. The memory of the Soma disaster is fresh on peoples' minds, so they might talk about the 15-year-old gas masks that the workers had access to, which last only 45 minutes, or how poorly the mining contractor handled the disaster. But for those of us in the mining profession, we are absolutely proud of the fact that we efficiently utilize the underground wealth that we are fortunate to have and help provide the material and technology that advances humanity and upon which the livelihoods of billions of people depend.

How do we reconcile this? How do we elevate the mining profession and the know-how, experience, and human capital that it embraces to the respectable levels that exist in Sweden or Canada? In other words, how do we extract the mineral wealth of Turkey in a commercially and environmentally sustainable manner without casualties?

First and foremost, if indeed the government is targeting 5% of the GDP to come from mining by 2023, mining in this country needs to have a clear, strategic plan with action items, from specific exploration targets to the overall inspection of all those licensed and operating mines to a thorough scrutiny of all mining safety minutia. After all, 2023 is just around the corner, and in 2014 we are still struggling at about 1% of GDP.

Along with this strategic plan, a quan-

tum improvement can be achieved by doubling or tripling spending on training: not only to train the workers but also to empower them regarding the decision to work or not to work. Let's remember from the Soma accident. The day after the accident, one of the miners interviewed on TV said that he had been actually bringing up to the surface "hot coal," i.e., burning coal. There were also disputes and contradictory statements, with one side saying that the mine was inspected eight times and the workers saying that the mine was not inspected thoroughly. Why is it that at the very hint of something not going right, we hope that the problem will disappear? We must train workers and, more importantly, empower them to be as decisive and powerful as the mine owner and contractor.

Mining is expensive and requires huge investments from patient investors. These days, no international investor will invest in a mining project without a credible, internationally accredited valuation report. Currently, many projects are being undertaken by international consulting companies, which have little to no experience in Turkish geology, the morphology of the rock and the region, its mineral assets, or the necessary infrastructure. In the case of chromite mining, many chromite miners have little trouble visualizing the ore body and the faults in the complex structure of the pods, but translating this into credible reports is next to impossible. Therefore it behooves the chambers of commerce and the professional guilds to rally their resources and assist those who can be trained to put their signatures on internationally accepted feasibility studies.

In the same breath, the quality of education in our universities needs to undergo

a transformation. If the transformation cannot be made with the staff and infrastructure of existing universities, a massive scholarship program for professions related to mining, geology, and related fields should be allowed to have the lion's share of the government-supported scholarship programs. Many existing geologists are close to retirement or have already retired, and there is a severe shortage of geologists and geophysicists to address the needs of both private companies and government institutions.

A few years ago I was invited to attend a wedding in Taiyuan, Xanshi, the coal capital of China. The mining boss was throwing a wedding party for his daughter and had reputedly spent \$11 million; now, he is struggling under a pile of debt. Iron ore prices are at their lowest in the last five years, and the plunging demand for steel in China has pushed prices as low as the cost of local cabbage. International finance and consulting companies are publishing report after report saying that investors have lost their confidence in the companies' ability to generate handsome returns. This is not the best of times for miners, not only in Turkey but also in other countries. During a very recent visit to our mines in Kayseri, looking out to the horizon at some 1500 meters, I could spot at least three small chromite mining operations that have ceased to operate. In light of the current dire economic conditions and the recent mining accidents, it is disconcerting to read in the press that the recent "torba yasasi," a last-minute law passed by the Turkish parliament, is being hailed as the panacea to our mining problems. This is akin to "rearranging the deck chairs on the Titanic." •

Alp Malazgirt

CEO, Metals and Mining
YILDIRIM GROUP



Yildirim Group has a long history in Turkey and plays an important role as the country's top chrome producer. Can you provide us with a brief overview of your mining portfolio and recent milestones in the development of these assets?

Yildirim Group celebrated its 50-year anniversary in 2013. It was established in Samsun as a construction material trading company and in the 1990s started trading coal from Russia primarily for consumption in Turkey. In 2003, Yildirim bought Eti Krom, which became company's first acquisition, and was followed by another acquisition of a state fertilizer company. With increasing commodity prices, Yildirim grew rapidly. In 2008, the company concluded its first international acquisition of a Swedish company Vargön Alloys, which opened up the American and European markets for ferrochrome. Following the acquisitions of Eti Krom and Vargön Alloys, Yildirim Group has become the second largest high-quality high carbon ferrochrome producer in the world and the largest exporter of chromite.

Yildirim has always strived to increase its international scope. In 2013, we

purchased the highest grade chromite ore body in Kazakhstan, the Voskhod chrome reserves and mining plant, and the Tikhvin Ferroalloy Plant in Russia from Mechel for a handsome price. It is a very good deposit that allows easy production at a relatively low price. After this acquisition, our reserves and production levels have increased dramatically.

In the near future, we are interested in becoming a technology-driven company in ferrochrome. Diversification through our local and international assets allows us to be flexible and to withstand global commodity price fluctuations.

How is Yildirim planning to incorporate its Kazakh purchase into the company's portfolio?

Yildirim will focus on increasing and improving production. An Australian company is currently operating the mine, and in the near future we plan to increase the production to 1.3 million metric tons (mt) and improve the efficiency of the beneficiation plant to 57%. This will give us another 100,000 mt of high-quality concentrate. Lastly, we will improve local content, by training staff and working closely with various universities.

While you are expanding your mining portfolio abroad, what is Yildirim's development strategy for its Turkish assets?

In Turkey, Yildirim has a number of licensed areas for exploration and production. We are currently in the process of putting together a team to go ahead with developing these licenses. External consultants have been invited to work with our engineers and geologists to continuously work on our tenements.

Unfortunately, even though Yildirim is ready to make further investments in beneficiation facilities, recent permitting issues do not allow us to do so. This is a persistent problem in the country, and we do see many companies shutting down their operations and selling off their assets.

Can you tell us about some of Yildirim's initiatives to improve local content within Turkey and develop further the country's mining expertise?

As a part of our corporate social responsibility policy, Yildirim has been support-

ing Istanbul Technical University and is creating a training program at Eti Krom for students. We have also been working closely with universities to improve beneficiation processes.

To improve local content, we recruit student for training programs. In the metals and mines division we are putting together a training program for inexperienced mining geologists. We will use our sites as training facilities, in order for the trainees to understand different aspects of the mining processes.

As a diversified company also with infrastructure development expertise, what is your assessment of the current state of Turkey's infrastructure and its impact on mining investments?

Over the past 10 to 15 years, infrastructure in Turkey has improved a lot, especially when compared to other developing countries, such as Colombia or Kazakhstan. We see huge improvements in railroad and highways and more efficient port facilities. These are positive signs for Turkey, and we hope it will help the mining industry in the country to attract more investments.

Looking to the future, what is Yildirim's development strategy for its metals and mining business in the medium term?

Yildirim has a solid project pipeline and we have human resources and adequate finance to go ahead with them. Yildirim is prepared to invest in the development of Turkey's mining industry through supporting the development of people and exploration, as well as continuously growing our own mining expertise. Yildirim aims to become the world leader in chromite production.

In order for Yildirim to succeed and for the overall mood to change in Turkey's mining industry, we hope that the government will reduce the amount of bureaucracy and allow mining companies to go ahead with their investments. •

Refining the Process for the Greater Good

Environmental Impact Assessment in Turkey

As industry players have established environmental track records and expanded their corporate social responsibility activities, the sector's most pressing challenges from an environmental perspective have shifted to its regulatory framework.

Turkish environmental impact assessment (EIA) requirements have not yet been streamlined to international standards, creating the need for companies seeking bankable feasibility to conduct separate studies for domestic permitting and global financing.

Among their divergences, the Turkish EIA does not take into account the social aspect of projects. "On paper there are some differences between the two, like public participation and stakeholder engagement. For projects where international lending is needed, we make a gap analysis between Turkish and international lending needs and look at what extra work needs to be added into our roadmap for the execution of the project," said Balta of Encon. "There needs to be about 15 to 18 months for the preparation of a baseline study, completing the EIA report and receiving a permit. In total the process should take a minimum of two and a half to three years to receive your license for operation."

Turkish regulation has introduced a cumulative impact assessment (CIA) requirement that will improve industry responsibility, yet is also complicating the EIA study process. Projects without CIAs have seen their EIAs go into litigation, as in the case of Alamos Gold, prompting the industry's consultants to adjust their study plans. "Even though CIAs have been widely used for international projects, this is a new subject for the Turkish EIA process and it shows that local EIA standards are moving closer to international ones, said Meryem Tekol, managing director of Golder Asso-

ciates Turkey. "Cumulative impacts are defined as incremental effects caused by past, existing and reasonably predictable activities in the future besides the project. A sound baseline database and knowing the impacts of existing and future projects is crucial for CIA studies," said Tekol.

The mention of a CIA requirement came out in October 2013 in the one of the appendices of the EIA regulation. In the absence of explicit guidelines, companies are challenged to access the necessary information to conduct these studies. "You have to consider what other developments are happening in the project area currently or that you can foresee and then assess the cumulative impacts. As a private company, you cannot go and start asking these questions to other companies. The government should have a database or sectoral/regional CIAs where companies can find this information but this has not developed yet," said Bora Arpacioğlu, general manager and principal environmental engineer at SRK Consulting Turkey. "Considering the current uncertainty regarding the regulators' requirements for CIAs, we will continue using international standards and our project experience until a guideline is published by the regulators," said Serhat Demirel, senior geological engineer and office manager at Golder Associates Turkey. Further preempting gaps on the international level, SRK Consulting in Turkey has started to adjust the preparation of EIA studies to also meet international standards in all aspects where Turkish regulations are not sufficient, such as with regards to archaeological finds and biodiversity. "We are working with clients to convince them to go beyond the minimum requirements and follow international industry best practices," said Arpacioğlu of SRK. •

Image: Golder Associates Turkey

Bora Arpacioğlu

General Manager,
Principal Environmental Engineer
SRK CONSULTING TURKEY



SRK has been bringing its full-service consulting expertise to the Turkish mining market since 2001. In which disciplines is SRK focused on expanding?

SRK Turkey is expanding its spectrum of services in several key areas. One of our development areas is in mine water management, especially in open-pit and underground dewatering and de-pressurization studies, which are very critical for mine safety and operating cost optimization. Water supply is one of the important issues, especially looking at central, eastern, and southeastern parts of Turkey, where water is scarce and there is competition with agriculture, industry and residential areas for water supply. It becomes a feasibility issue more than an environmental one.

Another discipline where we are focusing is the social aspect of projects. Social impact studies are lacking in the Turkish EIA practice, which creates problems for international companies who would like to obtain funding from banks and exchanges. The Turkish EIA alone will not hold up under the international scrutiny. Furthermore, obtaining social license-to-operate has become

important, and hence the need for comprehensive stakeholder engagement programs. SRK has started providing social impact assessment (SIA) and stakeholder engagement services because the social license to operate is becoming more important.

A third development has been in the preparation of our environmental impact assessment (EIA) studies to meet international standards in all aspects, with regards to archaeological finds and biodiversity, where Turkish regulations are insufficient. We are convincing clients to go beyond the minimum requirements and follow international industry best practices.

We have also started land acquisition planning, which is not fully accounted for in the Turkish regulations. Turkey allows for expropriation, where mutual agreements with private landowners and related social impacts are not very clear. Most mines still exercise the expropriation method, in which the land is acquired through government force. By international standards, this issue must be handled very carefully and companies must do a lot of stakeholder engagement to assess social impacts and develop mitigation procedures. SRK is the first in Turkey to be working on land acquisition planning projects.

As Turkey's mining sector continues to mature, how is the availability of skilled workers developing?

One of the main challenges is finding trained and qualified staff because most of the issues we are dealing with are new to Turkey. Since 2012, SRK has trained new staff with on-the-job training and training courses outside in specialist topics.

There is also a scarcity of qualified persons (QPs) and competent persons (CPs) in Turkey. Currently they are only a handful in Turkey, two of which are coming from SRK. The driving force in Turkey to create QPs and CPs is weaker than before. The concept applies only to international companies that are listed. Because these requirements are external, international companies are bringing their QPs/CPs from overseas. There is talk about Turkey developing or adapting its own resource/reserve classification system such as the NI 43-

101 or JORC standards, which would require a Turkish geologist or mining engineer to sign off on things and create more motivation in the Turkish market for registration.

Regarding the EIA process in Turkey, the recent issue of cumulative impact assessments (CIAs) has led to litigation for some mining players. How is SRK incorporating CIAs in the planning process?

CIAs came out in October 2013. Turkish regulation does not have a separate section on the issue; it is mentioned in passing in one of the appendices of the EIA regulation and no circulars or guidelines have yet been issued identifying the minimum requirements. This requires a consideration of the other developments occurring in the project area and an assessment of the cumulative impacts. The government should have a database or sectoral/regional CIAs where companies can find this information. SRK is following international guidelines, such as those from Canada, Australia and IFC, and is treating the CIA as a study in its own right with careful thinking and planning. We do these studies internationally, and now it is a question of applying it to the local market. There are specialist studies underneath the CIA, such as for air, ground water and surface water qualities, and each has its own technical approach.

How stable and efficient are mine waste management regulations in Turkey?

Turkey is in the EU accession process, so we are aligning all our regulations with the EU directives from the economy all the way to agriculture and environment. There are several new directives that have not yet been enforced, one of which is mining waste management. There are still gaps on both the Turkish and EU levels, and this issue will evolve in the next two to three years.

The other issue is that the EU also has an environmental liability directive that has not yet been implemented in Turkey. The directive dictates that once you close your mine or any facility, you are responsible for it for the next 30

years. If any environmental problems appear the company is financially and legally liable to fix it. In mining this is more important than any other industry because of Acid Rock Drainage and Metal Leaching (ARD/ML). If ARD/ML starts it may continue for hundreds of years and is very expensive and difficult to stop. There are several unofficial requirements in the EIA but regulations do not yet bind mining companies to come up with a strong mine closure plans and closure cost estimates and bonds that they can invest in during operation.

What goals and objectives do you have for SRK to expand in Turkey in the next two to three years?

SRK would like to be a one-stop shop for the mining industry. As demand develops in the market and the workforce becomes more qualified, SRK will be able to bring more geotechnical, exploration geology and mine planning services in-house in Turkey. We want to become a regional office so that we can transfer the experience gained in Turkey to other countries.

What is your outlook for the growth of Turkish mining industry?

Turkey's advantages are its infrastructure and people. Turkey's deposits may be smaller than elsewhere, but the capital costs required to develop them are so much smaller that it makes projects viable for junior and mid-tier mining companies. Juniors are especially interested because the upfront costs are not high and overall capital expenditures lower compared to international counterparts. We are about 40% to 50% cheaper compared to feasibility studies with international unit costs.

There are stumbling blocks, however. If you look at the permitting system, once you get your operations license you have three years to complete your permitting otherwise you lose your license. You have to get your EIA first, then your property permits and business permits so that your license can be extended. The last two permits are very small in scope but are becoming an impasse for mining companies. Some licenses have been lost because of this. This situation has to be improved before we will see positive changes in this market. •



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Meryem Tekol & Serhat Demirel



MT

MT: Managing Director
SD: Office Manager
**GOLDER
ASSOCIATES
TURKEY**

Could you update us on recent developments within Golder Associates in Turkey?

Golder Associates (Golder) had been working in the mining industry in Turkey for more than twenty years, before it opened an office in Turkey in 2006. Our early focus was environmental impact assessments (EIAs), but now we have expanded our technical services to provide services for the whole mine life cycle. In the past, we focused on increasing the capabilities of the local team in resource-reserve estimation, environmental and social impact assessment (ESIAs), hydrology, hydrogeology, acid rock drainage (ARD), geotechnical engineering and heap

leach facility (HLF) and tailings storage facility (TSF) design studies. Golder experts from our international offices are also bringing global expertise to Turkey. Today, our more than 20 employees are predominately environmental and geological engineers. Turkey is our regional hub to work on projects in North Africa, the Middle East, Central Asia and the Balkans.

There has been an issue with EIAs in incorporating cumulative impact assessments (CIAs) into the regulatory framework. How are you trying to incorporate them?

CIAs have been widely used for international projects, but not in Turkey, which shows that local EIA standards are moving towards international ones. Cumulative impacts are defined as incremental effects caused by past, existing and reasonably predictable activities in the future besides the project. A sound baseline database and knowing the impacts of existing and future projects is crucial for CIA studies.

There is no specific regulation for mine waste management. How is Golder helping companies overcome this legislative hurdle?

Golder performs tailings and heap leach design and waste management studies and uses best international practices to comply with Turkish regulations. Regulators are working on new regulations, and Golder will be involved with the review process. Last year, Golder tried to raise awareness of mining waste issues and arranged an ARD workshop in Ankara. Over 150 participants from 38 different organizations including mining companies, universities, regulators and consultants were in attendance.

Can you highlight a case study where Golder has brought innovative engineering solutions?

Golder has developed a site water balance model for an operating mine site in Turkey by using the simulation software program GoldSim. The model allowed mine personnel to adjust pre-defined model input parameters, run model scenarios, and access model results. The model was developed as a planning and design tool to size ponds and other water management infrastructure at the mine, to assess raw water makeup requirements, and to demonstrate that the mine could operate with no release of untreated contact water even under extreme climate conditions, such as heavy rain or a dry summer. Golder also conducted a long-term geochemical characterization of paste backfill at an underground mine development project in Turkey. The results were interpreted to provide an assessment of the likely environmental stability of the paste backfill as well as potential environmental issues and water management methodologies. Finally, we are working on the geochemical characterization and ARD potential of a coalmine development project, which is a new subject for the coal industry in Turkey. •



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Turkey's Crowning Resource: Gold Mining



“The future of the Turkish gold industry depends on exploration and financing. Funding exploration in Turkey is very different because it is difficult to explain to investors the associated risks, and they are often not ready to accept such risks. Gold production has been growing steadily over the past few years, regardless of the global slowdown, and reached 33.5 metric tons (mt) in 2013. If the development of the industry continues, we should be able to achieve 50 mt in the next few years.”

- Erhan Şener, General Manager,
Ariana Resources/Galata Madencilik

Digging for Gold

Exploring Turkey's gold reserves

Author: Mungo Smith

As gold producers struggled globally through price drops in 2013, Turkish gold producers reached peak production with an output of 33 metric tons. Turkey entered into full-scale commercial production only 13 years ago and today is Europe's top gold producer, with eight mines and several near-term developers waiting in the wings.

Representing the sector since 2006, the Turkish Gold Miners Association and its 24 members have supported the country with significant investment. "Over the last 28 years, our members have invested some \$2.5 billion in Turkey. Of that investment, \$800 million was for exploration and \$1.7 billion was in mining. In 2013, we produced 33.5 mt of gold, which created some 6,000 jobs," said Ümit Akdur, chairman of the Turkish Gold Miners' Association. "We expect to increase gold production to 50 metric tons (mt) by 2016. However, there are a number of challenges that may prevent the industry from achieving this. Lower gold prices and deferrals in permitting, especially forestry permits, have put a lot of pressure on mining companies," said Akdur.

Nonetheless, forecasts for gold production in 2014 are set at 35 mt. This higher output is thanks to Turkey's leading gold producers' continued expansion efforts. In 2013, Turkey's first domestic gold producer, Koza Gold, commenced construction of its Himmetdede mine and heap leach facility in the Kayseri Province. Entering into production within 2014, the operation will be the fourth process plant of Koza Gold and the third constructed in the last five years.

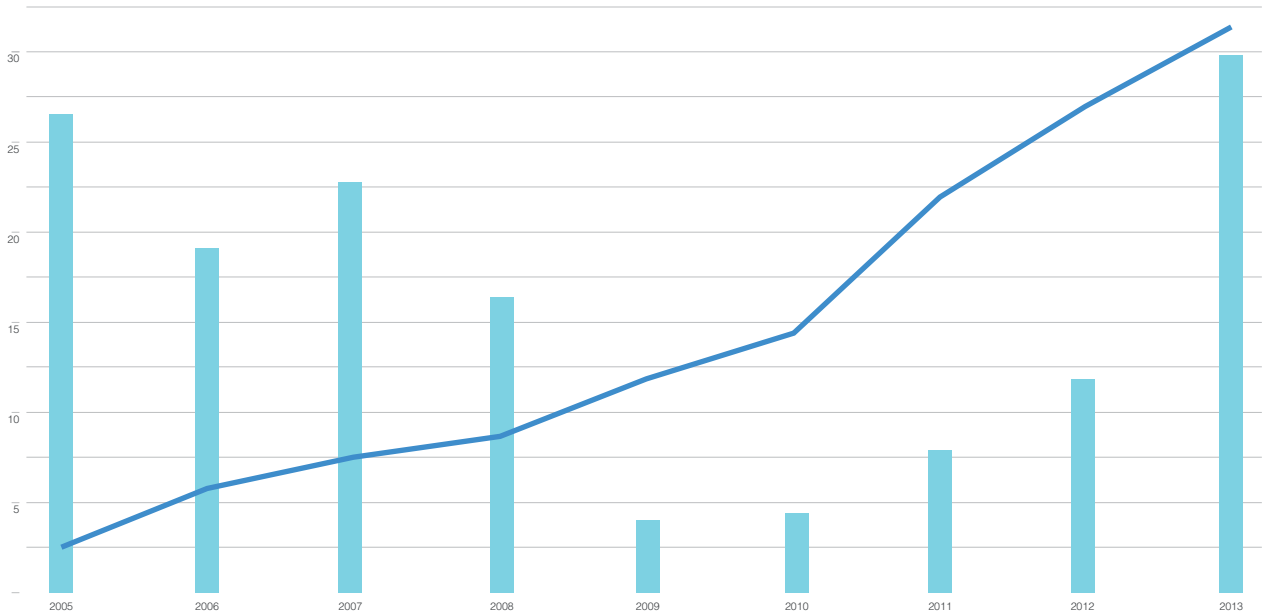
At Australian Securities Exchange (ASX)-listed Alacer Gold's 80%-owned Çöpler mine, the miner achieved a record year

● TURKISH GOLD PRODUCTION

Source: Turkish Gold Miners Association

MILLION METRIC TONS

35



of gold production in 2013, with 216,850 attributable ounces (oz) produced, which was a 44% increase over levels in 2012. The company has forecast production in 2014 to be greater than 160,000 attributable oz, as the miner transitions from mining oxide ore to sulphide ore.

For its part, Tüprag, the Turkish subsidiary of Canada-based mid-tier Eldorado Gold, is currently producing 300,000 ounces per year (oz/y) of gold at its Kışladağ and Efemçukuru operations. Pending permitting approval, Tüprag will significantly increase its capacity with a plan to increase its processing up to 35 million metric tons per year (mt/y) of ore. "The proposed expansion in Kışladağ will contribute greatly to the gold sector's goal of reaching 50 mt/y by 2016," said Mehmet Yılmaz, director at Tüprag.

Digging for gold

Given gold's impressive growth story in Turkey, international juniors have clamored to enter the market, while Turkey's conglomerates and construction companies eye gold potential. Chesser Resources, an ASX-listed junior, is concentrated on its flagship Kestanelik project, an epithermal low sulphidation gold

● TURKISH GOLD IMPORTS

project in western Turkey. With over 70,000 m drilled on the project to date, Chesser is now planning for the completion of its prefeasibility study and a resource update by mid-2014.

Chesser stayed active in drilling in spite of the prime ministerial circular thanks to an aggressive application strategy before the decree went into effect. "In 2010 and 2011, we got massive amounts of drill site permits. This was to ensure we did not face any legal challenges if anything was to happen with the forestry law. Financially, forestry permits cost a lot. Sometimes you have to pay for permits you would never use, but this is the nature of the business and the cost that you have to pay. Chesser resolved to pay it and today we have existing permits," said Cem Yüceer, general manager of Batı Anadolu Madencilik, the Turkish subsidiary of Chesser Resources.

Chesser is part of a select group of international-standard explorers tapping into Turkey's sweet spot for mid-sized projects ideal for juniors with midcap ambitions. "In Turkey, small entrepreneurial national or international companies are the catalysts of the exploration industry since they make quick-low cost discoveries which then are developed

by larger investors," said Sabri Karahan, general manager of DAMA Engineering, a boutique, engineering firm with expertise in exploration and development.

While the geological environment remains favorable, explorers will have to battle typical challenges that come with developing mining destinations. "Exploration companies are dealing with the challenges of raised property acquisition costs during the early phase of exploration, red-tape and unrealistic time frames for getting into operation mode; these work as discriminatory barriers for them. Following the elections in March and in August 2014, it is expected that the government will revert to industry friendly attitudes and encourage exploration and mine development," said Karahan.

In spite of these challenges, near-term development projects are advancing in the country, such as Toronto-based Aldridge Minerals' polymetallic Yenipazar project has, in addition to its gold reserves, copper, silver, lead and zinc potential. After receiving environmental impact assessment (EIA) approval in late February 2014, Aldridge is aiming to complete post-feasibility studies. "We are completing an additional engineering study to review all equipment and

mine design costs to reduce capex. According to the feasibility study, we had a \$382 million capex, and after the additional study there will be a substantial amount of reduction on capex with no impact on the opex and throughput estimated in the definitive feasibility," said Serdar Akca, vice president and country manager for Aldridge Minerals.

Opting for a joint venture model, UK-based Ariana Resources, through its Turkish subsidiary Galata Madencilik, has partnered with the Turkish construction firm Proccea Construction to develop its Kiziltepe goldsilver project. The joint venture, under the name of Zenit Madencilik, brings together Proccea's experience in building gold mines, and Ariana's exploration expertise in the Balikesir region.

"We are advancing steadily and moving towards gold production of approximately 21,000 oz/y in the next five years," said Erhan Şener, general manager of Ariana Resources in Turkey. "After evaluation of the EIA report, we will begin applying for the necessary permits to set up a plant. Ideally, we are looking to receive these permits in three months, and finish the construction process in 10 months."

Among international players looking to round out their portfolios in the region are Vancouver-based Pilot Gold, which is advancing its TV Tower gold project in the Biga district, and Toronto-based Centerra Gold, which has operating mines in the Kyrgyz Republic and Mongolia. Centerra is advancing its Oksut gold project in Turkey, releasing a PEA in February 2014. "In 2013, we continued drilling on the Oksut property, and upgraded the initial resource estimate and converted most of the inferred resources to indicated resources category. We now have 1.1 million oz indicated resources on the property at 1.2 g/mt. The preliminary economic assessment indicates a potential for two small open pit heap leach operations with an 11-year mine life. We are now proceeding to a full feasibility study on the property and we will continue to do drilling this year," said John Pearson, vice president of investor relations for Centerra Gold.

With a plan to spend \$10 million in 2014 at Oksut, including \$6.4 million for technical studies, environmental and social



Image: IAR

impact assessments and another \$3.5 million on further exploration, Centerra is aiming to commence production in late 2016. Tolga Balta, managing partner, Encon Environmental Consultancy Co.

"The PEA indicates that the property can produce about 125,000 oz/y between its fourth and sixth years," said Pearson. Another near-term developer, Alamos Gold, is advancing its Kirazli and Ađi Dađı deposits in Çanakkale after entering into the market in 2010. "We have the EIA report already approved, but an injunction decision by the administrative court is stopping the execution of the EIA report. Now we are at the stage where we are waiting and looking to update the EIA report with a cumulative impact assessment. We have answered the invitation for foreign investment in Turkey and we are ready to spend \$450 million," said Hasan Ünsaç, counter manager for Alamos Gold. •

Further Down the Value Chain

Refining and Marketing Gold in Turkey

Adding to Turkey's promising gold potential, downstream added-value improvements are opening up the country's future as a gold trading hub. The refinery business in Turkey only began to develop over the past 15 years when the Istanbul Gold Refinery (IGR) was established. IGR has enlarged rapidly and has received accreditation by the London Bullion Market Association, along with two other Turkish refineries, Atasay Kuyumculuk and Nadir Metal Refinery.

Among Turkey's advantages as a gold refining hub are favorable labor costs compared to the European markets. "Turkey's location is also very strategic when it comes to refining and global trade. Dubai has gained its central position because of their very open market, but this could change in favor of Turkey. Turkey plays a very important role because a lot of trade is going through the country and we have good relations with surrounding countries," said Ayşen Esen, general manager of IGR.

Given the high level of price fluctuations in global market, high domestic demand for gold and a growing appetite for gold imports, Turkey has good potential. Once markets stabilize, this is set to take off at a larger scale. "Because of market fluctuations and the changes in gold price, imports were very high in 2013 compared to the previous year—nearly two to three times more than past years' values. Exports were very low compared to the values of previous years in Turkey," said Aysen. "While the price differences have not been big, the fluctuations are. That is why the market is waiting— buying and selling continues on a small scale, but big purchases and sales are not happening." •

John Pearson

Vice President of Investor Relations
CENTERRA GOLD

In February 2014, Centerra Gold released a preliminary economic assessment (PEA) on its Oksut project in Turkey. How will the PEA results affect the company's development strategy going forward?

In 2013, we continued drilling at the Oksut property, upgraded the initial resource estimate, and converted most of the inferred resources to the indicated resources category. We now have 1.1 million ounces of indicated resources on the property at 1.2 grams per ton. The preliminary economic assessment indicates a potential for two small open pit heap leach operations with an 11-year mine life. We are now proceeding to a full feasibility study on the property and will continue to conduct drilling this year. Our plan is to spend \$10 million in 2014 at Oksut, including \$6.4 million for technical studies and an environmental and social impact assessment (ESIA) and another \$3.5 million on further exploration. We hope to commence production in late 2016. The PEA indicates that it can produce about 125,000 ounces annually from its fourth to sixth year.

What advantages does the Oksut project have in terms of capital expenditure?

Oksut has an internal rate of return of 19% and after tax net present value of about \$118 million at an 8% discount rate using a \$1,300 gold price. The PEA estimated our total construction capital and pre-production costs to be \$166 million. It is a very attractive project. We are going ahead with an ESIA and will continue to take the necessary steps to complete the feasibility study.

Centerra Gold earmarked \$3.5 million to spend on further exploration in 2014. What are your targets?

We are going to be drilling off between the Keltepe and the Güneytepe areas and other targets that we have on the property and are extending our drilling program further. We are hopeful that the resources that we have in the PEA could possibly increase in size.

What advantages do you see in using Turkish service providers and how would you evaluate their quality and safety standards?


Turkey has a well-developed mining industry and good construction and engineering companies. We will hire a contract miner for Oksut, which will significantly reduce our overall costs. Local contractors do a good job at reasonable prices. We will use local companies and resources to construct, build and mine the deposit. We use the highest international health and safety standards and have not experienced any issues.

Can you update us on your latest exploration joint ventures in Turkey?

We have a joint venture with Stratex and are conducting soil and geological sampling and mapping to define targets on various properties that are in early stage exploration. We are continuing groundwork to test them with further drilling.

What is Centerra Gold's medium-term outlook in Turkey?

We are excited about our Oksut project. It has delivered from the exploration standpoint, and we will see it develop quickly. We will maintain our focus on Turkey, as it offers a very attractive environment. •



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Mehmet Yılmaz

Director
TÜPRAG



Tüprag operates Turkey's largest gold mine. Can you give us an update on your current production figures?

In 2006, Tüprag began active gold production in Turkey with our Kışladağ project, to which we added the Efemçukuru operation in 2011. Currently we produce 300,000 ounces (oz) of gold per year. When we first started in Kışladağ our production was 10 million metric tons (mt) of ore processed per year. With our expansion, we increased this capacity to 12.5 million mt per year. In Efemçukuru we started with 250,000 mt of ore per year and expanded to 600,000 mt per year. For our Kışladağ operations, we are awaiting approval from the ministry to increase our capacity to 35 million mt of ore.

As social acceptability for mining becomes a more decisive issue, what is Tüprag's approach to maintaining social and environmental best practices?

We have 1,900 employees. Our goal has always been to support the people living around our mining sites, the environment of the area, and then our mining operations. As an international investor in Turkey, we had to demon-

strate that we want to develop international standards on the environmental and technical side, but at the same time show we are not different from the local people and that we understand the dynamics and traditions.

After our start-up, our activities have been monitored by two different governmental officers because our work is in two different provinces. In terms of water and air quality, noise and vibration and other environmental factors, we have always been far below the threshold, which is important to us. We are proud of opening mines and operating within international standards while keeping friendly relations with the local people. These goals put a lot of value on our operations, because social license is very important in terms of making a successful, peaceful and technically sound operation.

Of the 1500 employees you have, how many are coming from the jurisdictions around the mines?

On average, over 75% of our workforce comes from the surrounding areas. In Kışladağ, that number is closer to 80% because the project is older and we have spent more time on training, in order to generate more human resources locally. In Efemçukuru the number is around 60%, because it is a metropolitan city and workers are coming from everywhere. Our preference is always to hire locally, which helps the project. If you have employees from surrounding provinces, the local people feel it is their project.

Since 2006 in Kışladağ and 2011 in Efemçukuru, we have met our production targets. This shows our team in Turkey is extremely trained and able to conduct business in a successful way. We have a general rule of contributing to the education, environment, public health and infrastructure of the local areas. So far, we have spent \$12 million on these projects, which include con-

structing sewage systems, supplying potable water, providing maintenance on public buildings and roads, planting 75,000 trees and creating Tüprag Forest, providing renovations in schools and contributing to prenatal and after birth care with a mobile health clinic. One of the most important projects is the support Tüprag provides for students, especially for girls, to continue their high school education. We also supported many girls in receiving a college education, and three of the girls who participated in this project now work for Tüprag. Most recently, we are contributing a university building in Uşak province.

Our projects and the way we operate our company – with an interest in developing local communities – is seen as the standard, and not just in Turkey.

What has been a key differentiator in your development approach that has allowed Tüprag to be a good example to other companies?

We can attribute a lot of this success to public relations and government relations activities. Our success also comes from the technical side, because we have brought a lot of innovation to the mining industry in Turkey. We were the first heap leach gold producer in Turkey. This process allows one to exploit low grade gold mineralization, which brings a big opportunity to companies. Kışladağ is one of the largest gold mines in the world and the biggest in Europe. On the public relations side, you hardly see any opposition to our work, because we treat the villages around our mine sites like our castles. We work to increase the level of understanding of our work and communication with the local population. These activities differentiate our work in Turkey.

In the new lower price environment for gold, what sort of cost efficiency programs are you executing?

We have already introduced our cost reduction mitigation in the 2014 budget. In 2013, the price of gold was \$1,700 or \$1,800/oz, and the year ended with gold being only \$1,300/oz. This forced us to be more conservative in the year 2014. Our target was to keep the team as a whole but find some cost reduction items on the consumables side. At the same time, we want to increase production. We hope the gold prices will improve, but we need to be able to learn how to live with low metal prices so we can continue our business.

What role will Tüprag play in reaching the Turkish gold sector's wider goal of reaching 50 million mt of production by 2016?

The proposed expansion in Kışladağ will contribute greatly to the goal of 50 million mt by 2016. Turkey produced 33.5 mt in 2013 and we are expecting a production of 35 mt in 2014. Tüprag will be contributing the lion's share of the 50-million mt goal, assuming that we receive the approval to increase our capacity to 35 million mt per year in Kışladağ. The country will benefit from the mining sector if we can pave the road for more investments and opening new mines. This is only possible by removing obstacles and granting permits. Turkey has a lot of gold in its borders. We have to exploit this industry more so we can contribute more to the economy.

What role will Eldorado's Turkey operations be playing in the company's wider strategy going forward?

Turkey is one of the most important assets to Eldorado. Our two gold producing mines garner a lot of attention, and Eldorado wants to develop the business in Turkey. We have new investments in Greece so we can expand our reach. Our management and board are very committed to this part of the world and we will continue to play an important role in the growth of Eldorado. Additionally, we will contribute to our operations in China, Greece, Brazil and hopefully, many other countries. Eldorado has 6,000 to 7,000 employees, which makes you feel like a member of a family. When you feel this connection, you can continue to grow. •



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eldorado gold

Aysen Esen

General Manager
ISTANBUL GOLD REFINERY



Since we last spoke to Istanbul Gold Refinery (IGR), your gold processing capacity has increased from 1.5 metric tons per day (mt/d) to 2.5 mt/d. Can you provide us with an update on the recent milestones for the company in the past two years?

The refinery business in Turkey is relatively new and has only developed in the past 15 years. IGR was the first one established in Turkey, with the participation of the government and sub-state institutions. Later, it was mostly privatized, and has grown very rapidly in the new, open market. As a banking instrument, gold is a new unit in Turkey. Traditionally, it has been a popular instrument for personal finance. In the past two years, we have helped banks and government institutions to learn more about the uses of gold in the financial sector. We have also taught methods to collect gold from under-the-pillow reserves and bring it into the economy.

IGR's capacity is growing and is producing, refining, selling and opening new offices around the world. Since 2011 and 2012, IGR has grown by 110%. We went from a staff of 250 employees in 2011 to 450 last year. Fortune Magazine awarded us a prize last year, as one of the biggest companies in Turkey. We went from the 250 level in 2011 to a ranking of 61 in 2012 out of all industries in Turkey. Total turnover for these companies is about \$1 billion.

Can you tell us more about your specific expansion plans for 2014 to bring in more value added services?

In 2013, we were more involved in our GoldGram business because it was a new market in Turkey. The main objective of our campaign is to create awareness of the product. We sell in the local market and we export for gold grams and silver grams. In Turkey on the consumer side, people often buy

gold in quarters from the government. GoldGram, which is accredited by LBMA and the Turkish Standard Institute, is accepted at banks worldwide. There is also a much smaller workmanship fee for GoldGram products, so they are becoming more popular.

How have price fluctuations in gold affected your global trading arm?

Price fluctuation has been very high. We saw the first impact of it in April when it dropped rapidly and there was very high demand on gold. Strikes in Turkey also affected the market, and the wholesale price increased. The margin on quarters went from 10 TL to 20 TL or 25 TL, which made people more interested in GoldGram, which they could trust and had a margin of 4 TL to 5 TL.

While the price differences have not been large, the fluctuations are too much. The market is waiting. Buying and selling continues on a small scale, but big purchase and sales are not happening.

How is this affecting local gold supply?

The market affects the local producers too. When the price is declines, the jewelry market is good. In refining, in order to produce the bullions to sell to jewelers, you have to buy scrap metal or you have to buy from the mines. When the prices go down, it is hard to collect gold from the market as scrap because they do not want to sell. For IGR, what is most important is keeping the balance between our businesses as the markets go up and down.

Given these new market dynamics of this lower price environment, where are you developing your networks for sourcing?

Because of market fluctuation and the changes in gold price, imports were very high in 2013 compared to the pre-

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Because of market fluctuation and the changes in gold price, imports were very high in 2013 compared to the previous year, nearly two to three times more than past years' values. Exports were very low compared to the values of previous years in Turkey. IGR's exports performance was better than the overall country. We have our offices in the United States, Germany, Spain and Dubai and we are still working very well with these countries.

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vious year, nearly two to three times more than past years' values. Exports were very low compared to the values of previous years in Turkey. IGR's exports performance was better than the overall country. We have our offices in the United States, Germany, Spain and Dubai and we are still working very well with these countries. The markets have stayed relatively the same, but quantities and commodities have changed. We also do business in silver.

On a global level, what are the advantages to being a gold refinery based in Turkey?

There are only two refineries in Turkey that are accredited by LBMA. The labor costs are favorable compared to European markets. At IGR we have good know-how and high quality, which is necessary to enter the market. Turkey's location is also strategic for refining and global trade. Dubai has gained its central position because of their open market, but this could change in favor of Turkey. Turkey has good relations with surrounding countries and will be the next center for the gold market.

What are your medium-term goals for IGR?

We see a progressing market, where each and every year we will grow. We are producing a good quality product and are selling it all over the world. The market will go up and down, but we are well balanced and therefore in a good position. •



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Towards a Gold Standard

Health, Safety & Environment Practices in Turkish Gold Mining

Environmental concerns over cyanide usage led to turbulent beginnings for the gold sector, yet gold miners have emerged as leaders in elevating the wider mining industry's health safety environment (HSE) practices. Encon Environmental Consultancy, a local firm working primarily on gold, silver and nickel projects, took its experts outside of Turkey to develop the necessary expertise in precious metal processing. "We know these enrichment processes very well. Before beginning consulting in this field, we spent two months in the United States with our team visiting 50 mines from Denver to Reno to understand the magnitude of what we are dealing with," said Tolga Balta, managing partner of Encon.

Tüprag, which introduced heap leach gold processing to Turkey in order to exploit low grade gold mineralization, has prioritized its environmental work to ensure that their operations have no harmful impacts. "After our start-up, our activities have been monitored by two different governmental officers because our work is in two different provinces. In terms of water and air quality, noise and vibration and other environmental factors, we have always been far below the threshold, which is important to us," said Mehmet Yılmaz, director at Tüprag. "We are proud of opening mines and operating within international standards while keeping friendly relations with the local people. These goals put a lot of value on our operations, because social license is very important in terms of making a successful, peaceful and technically sound operation."

As the public becomes savvier with regards to gold mining, obtaining the so-

cial license to operate is an increasingly crucial step for project development. Careful attention on the part of not just miners but their service providers has made a marked difference in the feasibility of projects.

In this respect, Pozitif Drilling was founded in 2007 as a drilling services provider with a focus on HSE and community relations. "Training is a big issue in Turkey. We understand how local communities react to mining companies and drilling activities and we make sure to extend training to people in the surrounding areas," said Ecevit İskender, company manager of Pozitif Drilling. "Before we go to the site, we collect data, make investigations into the area's socio-economic level and discover if there is any sensitivity in the region to mining. When we arrive on the site, one of the first things we do is to train people about health and safety issues and the environment. We give them good information to mitigate the adverse impacts of the jobs we are doing there. We also put emphasis on giving jobs to the local people," said İskender.

Often in environmentally sensitive areas and traditionally agricultural zones, gold miners have put a premium on incorporating local communities into their activities. "Koza Gold has executed an accurately planned community relations program at all of our operations. We recruit over 80% of our personnel from the local community and we prefer to work with local suppliers as much as possible, depending on their capacity," said İsmet Sivrioğlu, general manager of the company.

Tüprag echoes this sentiment with its local outreach work, bringing in an average of 75% of its workforce from the areas surrounding its operations. "In Kışladağ, the local content number is closer to 80% because the project is older and we have spent more time on training, in order to generate more human resources locally. In Efemçukuru, the number is around 60%, because it is a metropolitan city and workers are coming from everywhere. Our preference is always to hire locally, which helps the project. If you have employees from nearby, the local people feel it is their project," said Yılmaz of Tüprag. •

Tolga Balta

Managing Partner
**ENCON ENVIRONMENTAL
 CONSULTANCY CO.**



Can you provide us with an introduction to Encon Environmental Consultancy and the expertise that you are bringing to the Turkish mining sector?

I first worked in the Ministry of Environment in the General Directorate of Environmental Impact Assessment and Planning and then served as an advisor to four Ministers. After leaving the Ministry, I established Encon. This year, we are celebrating our 20th anniversary. Encon focuses on all stages of investment, from planning, feasibility, due diligence and scoping to environment impact assessments (EIAs), permitting and site closure. In 2006, we established an environmental laboratory to provide measurements and analysis for our projects and the wider industry. Mainly, we work on natural resource projects such as power plants and mines, in addition to large infrastructural activities. For the \$22-billion, third airport in Istanbul, Encon is preparing an environmental and social impact assessment (ESIA) and resettlement action plan for the project's international lenders.

What is the role of mining in your overall activities?

Encon is dealing with more than 10 metal

mines. We started our work with an environmental baseline study for Tüprağ's Kışladağ mine 16 to 17 years ago. We have done the environmental planning for every stage of Kışladağ and Tüprağ's second mine, Efemçukuru. Since we have been dealing with the planning phase for the last eight to 10 years, we have had a large pool of work in mining. We mainly focus on gold, silver and nickel. Before we began consulting in this field, we spent two months in the United States with our team visiting 50 mines.

Can you give us an overview of the standard process and timeline for permitting a project in Turkey?

15 to 18 months are needed to prepare a baseline study, complete the EIA report and receive a permit. Companies acquiring public or governmental lands require an extra three to five months. Companies then have to receive a health boundary zone permit to decrease the risk of infection of the people living nearby, which takes several months. After this, they must receive an opening permit. The process takes a minimum of two and a half to three years.

Cumulative impact assessments (CIAs) have emerged as a stumbling block.

How is Encon helping companies deal with them?

CIAs in Turkey have become an issue in 2013, when one of the courts decided that the CIA has to be covered within the EIA report. The court case came first, implementation second, and then legislation, which is not a logical framework for execution. Encon will be the first company that will submit a report to the ministry for the CIAs for Kışladağ and Efemçukru, but the ministry does not have guidelines to reviewing it. We can only follow international standards and best practices.

Do you have a final message?

The area of consultancy work in mining is widening as time passes. We started with the preparation of EIAs, and now there are 10 different topics, including feasibility studies, scoping, due diligence, rehabilitation, environmental management plans, CIAs and monitoring plans. 30% of total turnover is now in monitoring activities. Encon foresees at least 10 years of work from the mining sector. •



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Tapping Potential to Meet Demand: Base Metals in Turkey

“Today, demand is coming from Russia, North Africa, Turkey and Brazil. Geographically speaking, we are between the Alps and the Himalayan Mountains, and this makes Turkey important because of the variety of mineral resources we have. We have lignite and boron mine fields, as well as chrome, copper, nickel, magnesium, natural stones, industrial raw materials and rare earth elements, which are of great importance worldwide. This makes Turkey the most stable mining producer in the region.”

- Mustafa Sönmez, Chairman,
Turkish Miners Association

Quenching Base Metal Thirst

Exploration and Production of Base Metals in Turkey

In contrast to gold, which has been a private sector endeavor, base metal production in Turkey has a legacy from the decades of state-owned operation. As privatization continues, with a General Director of Mining Affairs (MIGEM) tender held most recently in April 2014, private companies are moving into the base metals space to fill the gap of a growing base metals deficit. “The key driver in Turkey is the balance of payments deficit. The economy has been growing at one of the fastest rates in the world for the last 10 years, which has caused a huge demand for raw material and metals like lead, copper and chrome. We are looking at a negative balance of payments of \$140 billion by 2023 if we do not do not develop our resources and produce metals at a faster rate,” said Alan Clegg, chairman of Afrasia Consulting.

“There is a lot of mineral potential within the country, but all is exported as raw material. Today, in Turkey we are using about 1.2 million metric tons per year (mt/y) of aluminum, but our domestic production is 120,000 mt/y. It is the same situation with copper. Turkey has many copper deposits and a copper use of about 470,000 mt/y, while production is only 50,000 mt/y. We are also importing about 340,000 mt/y of lead-zinc every year,” said Önal of the Turkish Mining Development Foundation.

Copper has a longer history than most metals in Turkey thanks to ETİ Bakır, a former government producer complete with a smelter that is now owned and operated by Cengiz Holding, one of the largest mining investors in the country. With an annual copper concentrate production of 250,000 mt/y, ETİ Bakır plans to increase copper production through in-



Another front causing some concern is that Turkey's mining processing capacity is very low. There are a limited number of metal, ferrochrome and ferromanganese smelters and refineries across the country. As a result, metals and alloys imports are contributing to Turkey's growing current account deficit[1].

- Turgut Abacıoğlu, CEO, Afrasia

[1] Afrasia White Paper, Investment in Metal Smelter Refinery Business in Turkey, December 27, 2013.



Image: Pasinex Resources

ternational-standard exploration projects surrounding their operations, in addition to a plan to double smelter capacity by 2016.

Bringing Canadian expertise to the industry in copper production, the Çayeli Bakır mine in northeastern Turkey became part of First Quantum Minerals when the growing metals producer acquired Inmet Mining Corp.'s assets in 2013. The last three years have set production records at Çayeli Bakır with a major continuous production improvement yielding an increase of 8% last year. Production is slated to increase further yet for 2014, with 28,000 mt/y of copper and 35,000 mt/y of zinc.

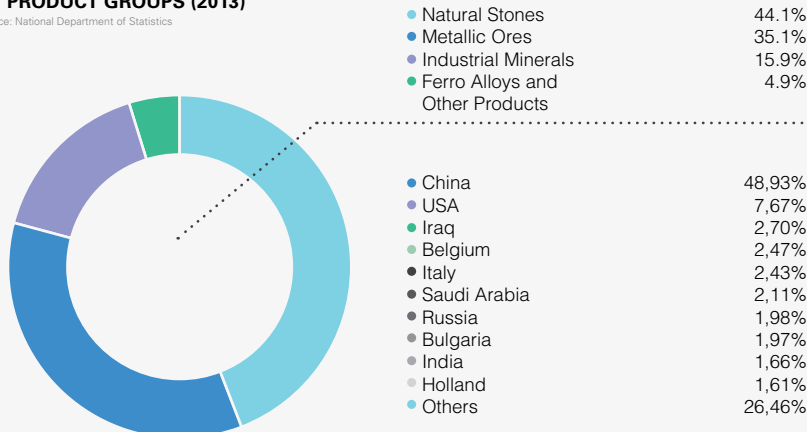
With a current mine life until 2019, Çayeli Bakır is focusing on extending its operations. "Our current program tackles extending the resource and reserve on three fronts. One is exploration of new areas; we have recently carried out a major soil-sampling program on our mining concessions. The second part is the extension of the existing ore body; and we have identified opportunities to drill areas where we previously had limited data. Thirdly, we are working on the existing ore body and identifying lower grade areas that are economic and we can bring into the reserve," said Iain Anderson, managing director of Çayeli Bakır.

Capacity expansion and new investments on the part of Turkish holding companies is also helping to boost production. Leading mining conglomerate Ciner Group, which, among its mining assets, has copper operations, has achieved a run of mine output increase to 1.6 million mt/y in the last two years at its copper mine.

Eczacıbaşı Esan, the mining subsidiary of Turkish holding company Eczacıbaşı, has parlayed its three decades-long leadership in industrial mineral supply to enter into the base metals space. "In 2009, with the opening of Balya Balıkesir zinc and lead plant, metallic minerals production became a substantial part of Esan's

TURKISH MINING EXPORTS BY PRODUCT GROUPS (2013)

Source: National Department of Statistics



TURKISH MINING EXPORTS BY COUNTRY (2013)

Source: Istanbul Mineral Exporters' Association (İMİB)

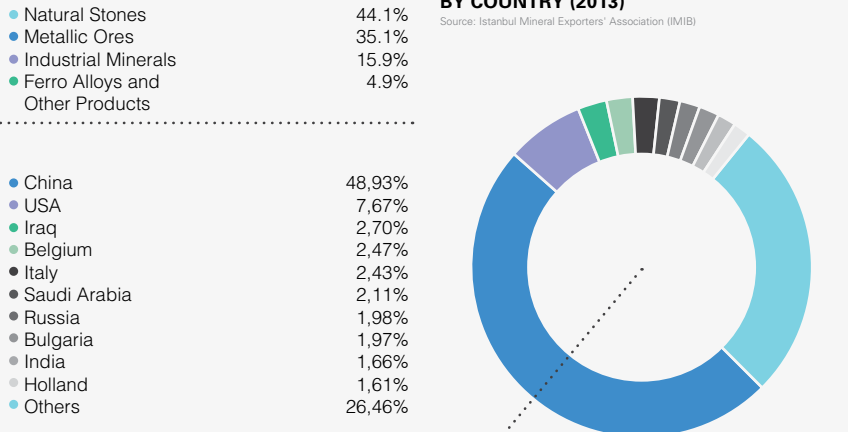


Image: Pasinex Resources



Going the Distance

Turkey's Role in the Global Market for Base Metals

.....
 Turkish base metals producers are looking at home and abroad to meet global demand for base metals. Close to many growing markets, Turkish producers have a transportation cost advantage reaching key markets such as Russia, China and North Africa.

European demand is also improving base metal fundamentals in Turkey, which has less restraining policies than its European counterparts in need of critical raw materials. Chrome, in particular, has a quality and cost advantage in Turkey. "The demand for Turkish chrome is high, as it is one of the main produc-

ers besides South Africa. The quality of Turkish chrome is also much higher than other countries in the region, like Albania," said Soner Koldaş, CEO of chrome miner Turchrome. "We are waiting for the price of ferrochrome to improve and we are optimistic about the future of the market due to Turkey's stability".

While Turkish producers are proving themselves competitive in the global market, export rates are waning in relative value due to the increasing attractiveness of their own backyard. "We have exported our products in the past, but for now we are mostly focused on the Turkish market. We see a local shortage of copper cathode supply and we have seen some international companies limiting their supply to Turkey. It makes sense for us to stay in the market, where there are no freight issues and the premiums are good," said Zeynep Cengiz, director of sales at Cengiz Holding.

Recognizing the need for geographic diversification, however, base metal producers such as Turkish conglomerate Yıldırım Holding are looking for investments abroad. Yıldırım, one of the

operations. As of January 2014, the plant has reached 30,000 m total gallery length and 700 m depth which makes it the deepest lead and zinc mine in Turkey. The Balya lead and zinc plant has a yearly capacity of 1.1 million mt/y of underground production and 120,000 mt/y of concentrated production," said Serpil Demirel, assistant general manager of Eczacıbaşı Esan.

Özdoğu Construction and Trade Co, on the other hand, began its involvement with the mining sector through contracting and has since moved into two main operations: a ferrochromium operation and copper project. Located in Antalya under the name ETI Electrometallurgy Inc, Özdoğu mines chrome ore and operates the first low carbon ferrochromium plant in Turkey. "The operation was acquired from the government in 2000 during the privatization process. We increased its capacity and made renovations with new technology and last year we exported 22,000 metric tons (mt) of low carbon ferrochromium and calcium carbide. Our company has partnered 50/50 with Aksu Mining in this endeavor. ETI Electrometal-

country's top chrome producers, moved into mining in 2003 with the acquisition of Eti Krom from the government. After making its first international acquisition in 2008 with the addition of Swedish company Vargön Alloy, Yıldırım became the second largest high-quality carbon ferrochrome producer in the world and the largest exporter of chromite in Turkey.

Undeterred by declining chrome prices, Yıldırım further expanded internationally with the 2013 purchase from Russian company Mechel of the highest-grade chromite ore body in Kazakhstan, the Voskhod chrome reserves and mining plant and the Tikhvin Ferroalloy Plant in Russia. "It is a very good deposit that allows easy production at a relatively low price. After this acquisition, our reserves and production levels have increased dramatically," said Alp Malazgirt, CEO of Metals and Mining at Yıldırım. "In the near future, we are interested in becoming a technology driven company in ferrochrome. Diversification through our local and international assets allows us to be flexible and to withstand global commodity price fluctuations." •

lurgy has 12 chrome mines with an annual production capacity of 100,000 mt/y,” said Murat Kavak, vice president of the board of directors at Özdoğu.

Özdoğu’s second mining operation, North Aegean Copper Enterprises, produces copper and molybdenum. “After purchasing the operations in 2007, we opened our plant last year. We have approximately 55,000-mt/y copper concentrate and 2,500-mt/y molybdenum concentrate production at grades of 25% to 30% copper and 55% to 57% molybdenum. Last year, we were the number one exporter of copper and molybdenum in the Aegean Exporters’ Association,” said Kavak.

While deterred by drilling permit delays, base metals exploration has continued with a focus on new technologies. Pasinex Resources, a public mining company listed on the Canadian Securities Exchange and focused on base metals in Turkey, is advancing two flagship projects, the 100%-owned Golcuk copper project in Sivas province, and the Horzum zinc project in Adana, which is being developed in a joint venture with Turkish mining company Akmetal. “At the moment, Pasinex’s aim is to expand its prospective surface area mapping using the ground penetrating radar. Applying this modern exploration technology allows us to look at potential rock structures that contain zinc. With regards to our zinc project, the two main properties Pinargozu and Akkaya are where we are focusing most of our attention. We have already carried out a number of geochem studies and geological mappings in the area and we are seeing excellent potential. This has brought us closer to the drilling stage. In the meantime, through ground penetrating radar (GPR) we are looking at zinc compositions that are concentrated in limestone hosted caves,” said Steve Williams, CEO of Pasinex.

After a long waiting period, explorers are ready for an upswing of activity now that drill permit applications have been released as of March 2014. “The Prime Minister’s office decree affected the whole industry, and left many mining companies frustrated. On our end, we chose to work on geochem, geophysics and geological mapping to help us understand our projects and become better prepared for the drilling stage,” said Williams of Pasinex. •



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Iain Anderson

Managing Director
ÇAYELI BAKIR



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Çayeli Bakır became part of First Quantum Minerals when the growing metals producer acquired Inmet's assets in 2013. How does the Çayeli Bakır mine fit within First Quantum Minerals' global growth strategy?

First Quantum Minerals's CEO, Phillip Pascal, has complemented the current operations of Çayeli Bakır mine and stressed the fact that it fits perfectly with overall company's growth strategy. First Quantum has identified potential for the discovery of porphyry style copper and gold deposits in Turkey. Those deposits are much bigger than Çayeli Bakır-type VMS deposits. Thus, Turkey is certainly on the radar. Because First Quantum now has a base in Turkey in the form of Çayeli Bakır, it has a chance to work on potentially profitable projects.

Considering First Quantum's aim to increase copper production to 1.3 million mt/y, what role will Çayeli Bakır play in achieving this?

In terms of actual metal production, our role will be quite small, but we will be feeding our systems, processes and people to First Quantum as a corporation to achieve this result on other sites.

2013 was a record year for production at Çayeli Bakır mine. Can you give us an update on production estimates?

2011, 2012 and 2013 were record years in production. The targets for 2014 are higher again; we aim to produce approximately 28,000 mt of copper and 35,000 mt of zinc.

In February 2013, Çayeli Bakır made an announcement about upgrading its proven and probable resources by 20.2%. How has this impacted mine life and your exploration program?

The current mine life is until 2019. We are working out resources and reserves and expect to see some growth, certainly replacing what we have produced in the last 12 months. Çayeli Bakır is an old mine, and its reserves are being depleted. The average grade will decline when we restate the reserve, because we are bringing in lower grade. However, we are trying to increase the mining and milling rates to compensate for the loss of grade. Our current program tackles extending the resources and reserves on three fronts. The first is to explore new areas, and we have recently carried out a major soil-sampling program on our concessions. The second is to extend the existing ore body, and we have identified opportunities to drill areas where we previously had limited data. The third is to work on the existing ore body and identify lower grade areas that are economic and can be brought into the reserve.

Given the sustained success of Cayeli Bakır, how successful has the Rize area been in attracting exploration capital?

The geology in Rize is favorable for discovering more deposits similar to Çayeli Bakır. Since the takeover, our exploration resources have been increased both in terms of people and financing. First Quantum also has an arrangement with Columbus Copper in terms of exploration and development. Other exploration companies often struggle to justify investments in the region, however.

What would the private sector like to see from the government in terms of reforms?

In terms of attracting investment, there are a few weaknesses. First, mining concessions in Turkey are small and should

be consolidated and given to companies that have the experience and financial resources to develop them. Second, the prime ministerial decree on accessing government owned lands is an issue for a number of companies, but we remain hopeful that this will be resolved.

What has been Çayeli Bakır's approach to developing and finding qualified personnel in Turkey?

Our approach is to develop talent from within. 90% of our employees come from the region of Rize, many of whom had no previous exposure to mining. We train them to be electricians, mechanics, and miners. In the tertiary qualified positions, we have many Turkish employees and offer development programs to push high-performing employees and generate a pipeline of talent. Five years ago, we had five expatriates in executive positions; now there is only one. We also work with some of the best universities in Turkey, including Middle East Technical University, Hacettepe University and the Black Sea Technical University. They are conducting research for us, and we provide employment opportunities for graduates. A career in mining is becoming a viable option for young professionals.

Çayeli Bakır has been recognized by the Mining Association of Canada for its outstanding CSR policies. What has been the key to success in this area?

Çayeli Bakır recognizes the importance of engaging stakeholders and understanding their needs and concerns, especially when a mine site is located in close proximity with residential areas. One of the strengths in our CSR policy is the Community Advisory Panel. The Panel is managing our CSR budget and now makes the decision regarding the best ways of spending it and investing into community projects. For example, Çayeli Bakır has supported high-end glass manufacturing workshop for women in the city of Çayeli to help families generate additional sources of income. •

Zeynep Cengiz & Emre Kayışoğlu

ZC: Director of Sales
 EK: International Sales Manager
**ETİ ALÜMİNYUM,
 CENGİZ HOLDİNG**

Could you provide us with an overview of Cengiz Holding's recent milestones in the aluminum sector?

EK: Cengiz Holding has been continuously investing in its aluminum plant, where we are working on expanding our production capacity and adding value to the products. We have the only aluminum smelter in Turkey, which is an integrated and self-sufficient plant. We invested in a cast house, which can produce products of international quality, and have been exporting to Europe, the United States and Brazil.

There are two sites at the plant, chemical and metal. On the chemical side we have doubled the capacity to process 420,000 metric tons (mt) of aluminum bauxite, which gives 240,000 mt of alumina. 120,000 mt of this is needed for our own consumption and the rest is sold commercially.

We are looking to keep emission levels as low as possible. We will invest around \$250 million to update the plant and commission our production units by 2015. There will be a capacity increase of 30% from 60,000 mt to 80,000 mt. It is an ongoing investment and we are looking to build one of the most efficient plants in the world. We are looking to invest in a rolling mill. We already have a hydroelectric mill, which is the only one of its kind in Turkey, and we are considering renovating or investing in a new one.

Cengiz Holding also owns and operates the only copper refinery in Turkey, for which you also have several mine sites in the country. Can you update us on the recent developments that you have seen in your copper operations?

ZC: Cengiz Holding, through ETİ Bakır, has two copper mines and a smelter. Since 2008 we have invested both on the mining and smelting side. We are producing 250,000 mt of copper concentrate per year, while the total production in Turkey amounts to 600,000 mt per year. We have the only refinery in Turkey, and are the only producer of copper cathodes at our Samsun smelter. We produce copper cathodes of Grade A, quality copper.

We focus on the domestic market, since we only produce 45,000 mt of copper cathode, and local consumption is over 400,000 mt. Currently we are doing a

feasibility study to expand our smelting capacity, and in 2016 we plan to double the smelter capacity.

What is your exploration strategy to find new copper sources for the expanded smelter capacity?

ZC: We are looking for projects in the area where we already have operations. We are also ready to consider projects outside of the country. Because of the issues related to permitting and licenses in Turkey, the process of bringing new mines into production is slow, but we are looking to bring in production shortly and add more tonnage to our production side.

As one of the leading Turkish conglomerates involved in the mining sector, what potential does Cengiz Holding see for investment in other metal projects?

ZC: As a side product of copper production, we produce sulfuric acid and we have invested in a fertilizer factory which is being built next to our smelter. This plant will turn sulfuric acid into ammonia sulfide, a raw material for fertilizers.

EK: We also have a number of new mining concessions, one of them being a phosphate mine in the east of Turkey in Mazıdağı. The eastern region of Turkey has always lacked investment, but we are confident that it is a good place to be and will open up new opportunities for the company.

With a growing demand for copper cathodes globally, is Cengiz Holding looking to start exporting its products?

ZC: We have exported our products in the past, but for now we are mostly focused on the Turkish market. We see a local shortage of copper cathode supply and we have seen some international companies limiting their supply to Turkey. It makes sense for us to stay in the market, where there are no freight issues and the premiums are good.

What is your final message about Cengiz Holding and your plans for your mining business' near-term developments?

ZC: We are always looking for new projects and are open to new opportunities. We believe in Turkey and see opportunities that the country will have in the coming years. •



Çayeli Bakır
İşletmeleri A.Ş.

LOOKING AHEAD WITH CONFIDENCE

This year, we celebrate 29th years of Çayeli Bakır İşletmeleri and its outstanding performance, as well as the significant contributions CBI has made to the community of Çayeli and the Madenli region during that period.

Recently acquired by First Quantum Minerals Ltd., CBI is currently looking for new reserves and establishing corporate partnerships, since the life of Çayeli mine will be over by 2019.

Çayeli Bakır İşletmeleri Dış İlişkiler Ofisi

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Steve Williams



CEO
PASINEX RESOURCES

Can you please introduce us to Pasinex Resources and provide an overview of the company's projects?

Pasinex Resources is a public mining company listed on the Canadian Stock Exchange and was formed in late 2012 through the reverse type takeover of Triple Dragon Resources. The company focuses on base metals in Turkey. Its two flagship projects are the 100%-owned Golcuk copper project in Sivas province and the Horzum zinc project in Adana, which is being developed as a joint venture with the Turkish mining company Akmetal.

Pasinex released a number of results from its ground penetrating radar tests at its lead-zinc properties. Could you please tell us more about your exploration objectives at this stage?

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Pasinex's aim is to expand its prospective surface area mapping by using ground-penetrating radar (GDR). Applying this modern exploration technology allows us to look at potential rock structures that contain zinc. We are directing most of our attention to two properties, Pinargozu and Akkaya, in order to find zinc. We have carried out a number of geochemical studies and geological mappings in the area and are seeing excellent potential, which has brought us closer to the drilling stage. In the meantime, we are looking at zinc compositions that are concentrated in limestone-hosted caves with the help of GDR.

At the Golcuk copper project, there has been some drilling. Additionally, we have also conducted a number of geochemical studies and geological mapping activities. We discovered that the whole property contains copper mineralization and have identified a number of targets for drilling this year.

How has the permitting process been for Pasinex?

The decree that was proposed by the Prime Minister's office and approved roughly 15 months ago has frozen many forestry permits and a number of processes. Drill permits were the most difficult to get approved. We were able to get some drilling done at Colcuk before the decree was passed and have been waiting to get more drilling permits approved. We chose to work on geochemical, geophysics and geological mapping to help us understand our projects and become better prepared for the drilling stage. Fortunately, as of early March 2014, the Prime Minister's office released a lot of these drilling permit applications.

Are there specific technical approaches that international mining companies should be aware of when tackling Turkey's complex geology?

The geology is very complex but also presents enormous opportunities. Geological complexity resulted from tectonic movements, which created cracks and overlaps and complicate exploration. Turkey remains a largely underexplored and has massive geological potential.

Would you recommend applying a joint venture structure with a local partner, such as with your Horzum zinc project, to other international companies?

It is important to have a trusted partner in any jurisdiction, but particularly in Turkey. Working with Akmetal has proved to be a great success and allowed us to have access to its knowledge of the geology, local customs and contacts.

How would you assess Turkey's future potential in base metals?

Over the past 15 years, there has been a serious focus on gold exploration in Turkey, but the potential for base metals is huge. We expect a number of copper and zinc mines to open in the next 10 years. At the moment one of the factors that constrains companies from entering Turkey is the absence of "elephants," but there is enormous potential for such projects. Once the exploration policy is improved, more companies will come to Turkey to develop deposits. •

Murat Kavak

Vice President, Board of Directors
**ÖZDOĞU CONSTRUCTION
 AND TRADE CO.**



Özdoğu is celebrating its 40th year in operation. Can you give us a brief overview of your history of operations?

We are a family company that began as a construction company in 1951. In 1974, we became a mining and construction company, undertaking contract works in both industries. Since our founding, we have completed stripping, production of coal and other ores, as well as construction, highway and plant works. To date we have completed over 250,000,000 m³ of stripping and produced 23,500,000 metric tons (mt) of coal.

Since your initial involvement in mining through contracting, you have moved into your own mining operations. Can you give us a brief overview of your mining assets?

Özdoğu has two main operations: the first is a ferrochromium operation with chromium ore mining and a ferrochromium plant. Located in Antalya under the name ETI Electrometallurgy Inc., it is the first low carbon ferrochromium plant in Turkey. The operation was acquired from the government in 2000 during the privatization process. We increased its capacity and made renovations with new technology. Last year, we exported 22,000 mt low carbon ferrochromium and calcium carbide. Our company has partnered 50/50 with Aksu Mining in this endeavor. ETI Electrometallurgy has 12 chrome mines with an annual production capacity of 100,000 mt.

Our second mining operation, North Aegean Copper Enterprises, produces copper and molybdenum. After purchasing the operations in 2007, we opened our plant last year. We have approxi-

mately 55,000 mt copper concentrate and 2,500 mt molybdenum concentrate production in a year. Our grades of copper are 25% to 30%, and 55% to 57% for molybdenum. Last year, we were the number one exporter of copper and molybdenum in the Aegean Exporters' Association.

What recent projects is Özdoğu carrying out in your construction business?

On the construction side, we are involved in the Akkuyu nuclear power plant carrying out the quarrying operations of approximately 10 million mt. It is a \$25 billion project that will provide 5,000 MW as the first nuclear power plant in Turkey. We have finished 5.5 million mt of quarrying in Phase I and we will start up the second phase in April 2014. Next year the tenders will open for the power plant's port and other construction projects, which we will bid for.

Through your various projects in Turkey's mining industry, how is Özdoğu bringing more benefits to the mine sites' surrounding communities?

We have 600 people working, 35 of whom are engineers. On our copper molybdenum project, we have 150 currently employed, 110 of them who were hired from the local villages and counties. One of our priorities for the project was generating employment in the area. Özdoğu has implemented several social projects in the village of Tepeoba, constructing renovation work at the local elementary school and providing renovations on a 16 km pipeline of drinking water as well as providing a 1000 mt steel water tank for the village's water supply. We also contrib-

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Özdoğu has two main operations: the first is a ferrochromium operation with chromium ore mining and a ferrochromium plant. Located in Antalya under the name ETI Electrometallurgy Inc., it is the first low carbon ferrochromium plant in Turkey. The operation was acquired from the government in 2000 during the privatization process.

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uted to building of intensive care unit emergency elevator for Edremit Public Hospital. We are very careful about environmental aspects at our operations and through the project we are working to address the shortage of copper and molybdenum produced in Turkey.

What is your outlook for Özdoğu's expansion of your mining business in the medium-term?

We are targeting increasing our exports by 10% to 15% in 2014. We are a local and family company, so we can make decisions quickly. About 85% of our business is in mining. After the elections we will have new projects in industrial minerals for feldspar, producing about 3.5 million mt per year. We are awaiting the environmental reports and plan to start up operations in June. In the next ten years, our target is to have 100% of our business in the mining sector. •



Image: SGS

Meeting Challenges

Mineral Processing in Turkey

Turkey's wealth of polymetallic deposits requires careful attention to processing strategies, which can make or break a project. As the low hanging fruit of Turkey's geology is mined out, developers are prioritizing processing research and working more closely with industry partners who provide them with in-country expertise to solve processing challenges. "In Turkey, easy mining methods are no longer valid. Extracting ore is getting more complicated and companies have to complete more drilling and do more scientific work. For this reason, a lot of samples should be taken and mineral processing methods, flow sheets and pilot tests should be carried out to give an initial idea about costs and grades. With the example of copper, minerals like sulfur contaminate the ore and it must be pulverized on a very small scale, which increases the cost," said Emin Ulu, company manager at Argetest, a private mineral processing laboratory founded in Turkey in 2012.

As the capacity for mineral analysis expands in Turkey, project developers have more in-country partners from which to choose. International player Acme Analytical Laboratories established operations in Ankara in 2006 to cover the Eurasian region. Originally housing only a sample preparation laboratory, from which samples were sent to Vancouver for analysis, the company has increased its local capacity due to growing demand in the industry for analysis to be done on the spot. "In Turkey we have the largest fire assay capacity, which is a crucial method to obtain gold and silver valuations. We are working on base metal packages in-country and we will begin providing ICP-OES results to our clients in Q2 of 2014," said Nezih Doğu, country manager for Acme Analytical Laboratories. "In the past two years, Turkey's laboratory industry has moved from prep labs to analysis itself. Previously, only local Turkish laboratories carried out analytical work, but the quality was much lower than what it is today. With the advancement of foreign investment and know-how, the quality of lab work has improved significantly," said Doğu.

The next hurdle for Turkish laboratories is to acquire 17025 accreditation, in order to better service clients looking to access global stock exchanges. "Acme Analytical Laboratories Turkey branch is working on accreditation. Hopefully we will be receiving 17025 accreditation

on fire assay and base metal packages within the year," said Doğu. SGS, which opened up a geochemistry laboratory in Ankara in 2012 to meet the high demand for laboratory services, is also hoping to receive 17025 accreditation within the year to serve not just Turkey but also surrounding countries. "Turkey is well positioned to serve the region, including both the Middle East and Eastern Europe. Now the lab in Turkey receives samples from Former Yugoslavia, Georgia and Armenia. SGS Turkey has also done exploration work with clients from as far as Senegal," said Evgueni Terentiev, laboratory manager for SGS Minerals & Metallurgical Services in Turkey.

Dealing with Turkey's complex geology, laboratories are prepared to offer complex analysis packages to customers. "In most cases, gold is complimentary to base metals or in equal part. Mostly, our clients ask for complex packages that work with PGM, gold and base metals," said Terentiev. "Previously, companies were extracting their ore, crushing it and selling it. Now we have lower ores and need more beneficiation, so we need more experiments, more reactivities and more test laboratories," echoed Abdullah Buhur, company manager at Argetest. With 17025 accreditation on the horizon for Turkey's mineral laboratories, the country is poised to play a more crucial role within the region's mining market. •

Nezih Doğu



Country Manager
**ACME ANALYTICAL
LABORATORIES
TURKEY**

Can you provide us with an introduction to Acme Analytical Laboratories' operations in Turkey?

Acme Analytical Laboratories was established in Vancouver in 1972 and quickly developed its presence in the Americas, eventually becoming a global business with 26 offices in 11 countries. In 2006, the company established an office in Ankara to cover the Eurasian region. Originally, there was only a sample preparation laboratory in Ankara, from which the samples were sent to Vancouver for analysis, but the demand for analysis to be performed in country led us to extend the laboratory. In Turkey we have the largest fire assay capacity, which is a crucial method for being able to analyze gold. Due to numerous requests we are in the final stages of validating our base metal analytical packages

so these will become available in country so that the inductively coupled plasma optical emission spectrometry (ICP-OES) results will be another offering to our clients from Q2 of 2014. We have a strong team of international experts along with our local employees in Turkey and we are continuously working on expanding the service offerings for our clients.

In terms of demand coming from the Turkish market, what is the most significant sector of the mining industry for Acme Analytical Laboratories?

The mining industry in Turkey demands analytical services for gold, silver and base metals. We have a wide range of analytical packages, some of which are performed in country and others are sent to our affiliate labs. Through these affiliate labs, we can extend our range of laboratory services to handle other commodities such as coal, graphite, platinum group metals (PGMs), nickel, chromium, manganese, iron ore and environmental analyses.

How is Acme Analytical Laboratories' offering different from other labs in Turkey?

Acme Analytical Laboratories has positioned itself well in the market. Historically, we have been known as the ICP specialists and we maintain this position. Our slogan is Care, Commitment and Performance. We care about our clients and their samples, are highly committed to provide the best service for them, and perform the best we can to meet their requirements.

The competition for lab services is intense with more international companies entering Turkish market. Competition, no doubt, helps bring up the quality in the industry. In the past two years, Turkey's laboratory industry has moved from simple prep labs to the provision of analyses. We initiated offering analyses in Turkey. With the rise of foreign investment and introduction of know-how, the quality of lab work has improved significantly. Today, labs in Turkey are looking to acquire 17025 accreditation in order to be of better service to clients with access to global stock exchanges. Acme Analytical Laboratories' Turkey branch is working on this accreditation.

How has your service offering increased with the acquisition by Bureau Veritas?

Bureau Veritas acquired Acme Analytical Laboratories in 2012 to increase its share in mining and specifically in exploration as well as its global presence and to introduce new serving offerings for mineral analysis to Acme Analytical Laboratories. Thanks to the acquisition, Acme Analytical Laboratories could expand its client base in the exploration sector. Through our affiliate companies, we can offer a wide range of inspection and testing services.

Do you have a final message for our readers?

We have been growing steadily in Turkey and are confident that we will continue to grow, offering clients more packages that will ensure better turnaround and help carry out exploration programs. •

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As a new entrant into the Turkish mining market in 2012, can you tell us about Argetest and the mineral processing expertise that you are bringing?

Until recently, the mining sector was directed by the government, which carried out research activities through its institutes, including the Mineral Research and Exploration Institute or ETI Bank, as well as some universities. Now with the opening of the industry to the private sector, Argetest was established as the first private mineral-processing laboratory. With our experience in mineral processing and chemical engineering, we are bringing services to the industry for sample preparation, analysis and mineral processing research.

The company was founded in 2012 and in the last year you completed 35 projects. What are your expectations for projects this year?

Last year, we finished projects in copper, iron and gold, with companies from Africa, Serbia, Bulgaria and Albania. This year we have started eight projects—two of which are in copper, and four of which are in iron. We plan to finish 50 to 60 projects this year. Argetest spe-

cializes its services for each commodity. One example is copper, which is different in Turkey so we are using flotation. Last year we completed a project with Asya Maden and now they will start constructing the flotation plant for copper concentrates.

What are the main challenges that Turkish companies face when it comes to mineral processing?

In Turkey easy mining methods are no longer valid. Ore is getting more complicated, and companies have to complete more drilling and more scientific work. For this reason, a lot of samples should be taken and mineral processing methods, flow sheets and pilot tests should be carried out to give an initial idea about costs and grades. For example, in copper, minerals like sulfur contaminate the ore, so it must be pulverized on a very small scale, which increases the cost. Argetest looks at the structural relationship of the minerals and how to remove contaminants. Some reagents are used and finally a flow sheet is given to the miners to show what costs they will come across during commercial production.

Can you give us an overview of the range of different testing packages that Argetest offers to the industry?

We have many different packages and methods for each of the commodities and many different types of analysis. For example, fire assay for platinum groups and gold; special packages for drilling exploration and sales; AAS and ICP-OES analysis for wet methods analysis.

For example, we do chrome analysis with a different method from other Turkish laboratories. When chrome is exported or imported to a different country, we take a sample from that country and perform our own analysis so that we can compare reports and make sure they are at international standards.

Turkish geology is very complicated, so you have to use different packages. Our mission is to provide our customers with the most convenient method of analysis according to the type of mineral. We can analyze and perform analyses on 62 elements, and we have 48 packages right now. This year we will start offering 10 new packages.

How would you describe the current climate for mineral processing activities in Turkey?

Previously, companies were extracting their ore, crushing it and selling it. Now we have lower ores and need more beneficiation, so we need more experiments, more reagents, and more test laboratories. Mineral processing is improving. We are working with both exploration and production companies to optimize their processes.

Where are you focusing your R&D activities?

We are focusing our flow sheets on economic results. We are working on experiment methods and focusing on how methods can be changed based on mineral type. According to these studies, liberated particle size, methods which will be using, machine selection, optimum grade – performance distribution, determination – optimization of process reagents, reagents consumption per ton (In Flotation and Hydrometallurgy Studies); settling tests based on thickener design, detailed reports with respect to experiments aiming to determination of equipment characteristics are conducted.

What is your outlook for the growth of Turkey's mining sector, and how would you like to see the company develop in the next two to three years?

For the metallic mining sector, the industry has slowed but we hope it will improve in spite of these challenges by using more scientific research and more developed equipment. At the same time, the government should take measures to assist research and ease the legal challenges for permits. The metal sector needs a lot of investment and expertise. 50 concentration plants were constructed in 10 years with shaking tables, flotation cells and magnetic separation. If metal demand and prices rise, the Turkish market will improve.

We hope that this year Argetest will work together with the industry on projects and analyses. Our aim is to work on many international mineral-processing projects in Africa, the Balkans, the Middle East and Central Asia. •





Feeding Turkey's Appetite for Energy: Coal Mining

“Foreign companies will be more interested in base metals and gold. In addition to LME metals, we see emerging opportunities in coal, especially on the back of a potential power shortage in Turkey.”

- Emrah Çelebi, M&A Division Head,
Corporate Finance,
DenizYatırım

Warming on Coal

Government Incentives and Coal Reserves in Turkey

In a more favorable position than Turkey's metal miners, who are dealing with declining prices and permitting delays, Turkish coal producers have been boosted by Turkey's growing need for power and an advantageous government incentive scheme aimed at increasing the country's power generation capacity.

Energy demand in Turkey doubled over the last 20 years and is expected to double yet again within only the next decade to feed a growing economy and a young population. With the vast majority of Turkey's hard coal supply coming from abroad, the government has identified indigenous coal reserves as a crucial step towards energy independence. As part of Vision 2023, coal-fired power is set to meet up to 10% of the country's energy needs.

Coal consumption in Turkey has doubled since 1990 and continues to grow faster than local production. In 2011, 104 million metric tons per year (mt/y) of coal was consumed domestically, while local production came in at 76 million mt/y. Over the last decade, coal production in Turkey increased by nearly 10 million mt/y but has leveled off in recent years and only reached 65.4 million mt/y in 2012. Making up the difference, imports are coming primarily from Russia and Colombia.

Given these dynamics, it was forecast that coal imports would grow by 25% in 2012-2013; however, in reality imports fell by 12% in that period coming in at 20.9 million mt/y as the Turkish Lira has depreciated and domestic coal has become increasingly attractive.

In spite of quality and extraction challenges, the 10 million mt/y boost in coal production in the past decade is

attributable to the ongoing privatization of the sector. The sector remains largely in the hands of state-owned enterprises, accounting for 90% of operations; however, 35% of this state production is carried out by private subcontractors. As operations transition to the private sector, improvements in exploration and production will continue.

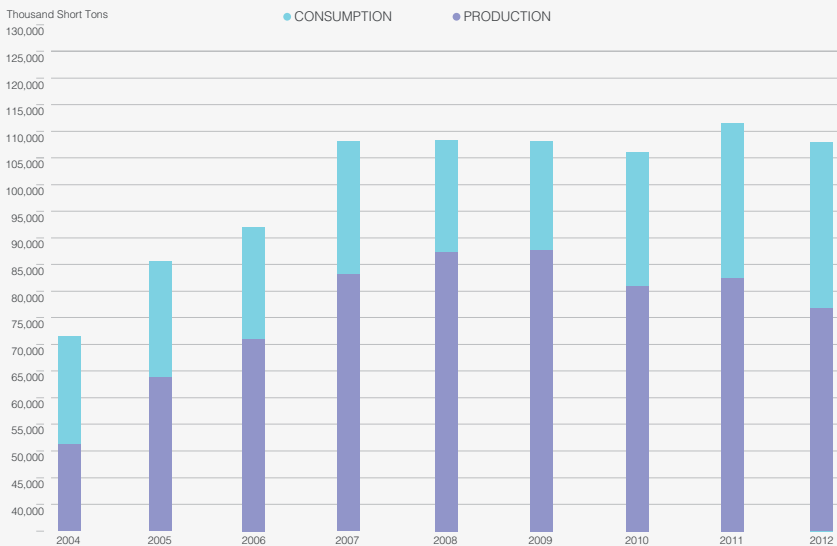
Since 2005, coal exploration in Turkey has reached 200,000 meters drilled over 30,000 square kilometers (km). Recent drilling programs in the Black Sea district of Merzifon at the Yeni Çeltik mine, which has been producing for over 25 years, have brought in roughly 25 million mt of new high quality coal reserves. In line with government incentives, after ramp up a coal-fired power plant of 300 megawatts (MW) will be erected on the site.

For its part, Ciner Group, which has also invested in both coal mining and power generation, operates a state-owned 620-MW plant in Çayırhan by concession agreement which they fuel with coal mined underground. Ciner is also commissioning a three-unit power plant in Silopi, 7 km away from the Iraqi border, which by end of 2014 should produce over 400 MW. Ciner is mining 1.2 million mt/y of asphaltite for the Silopi complex, which provides 4,000 kilocalories per kilogram (kcal/kg) when burned.

While the sector is boosted by both government support and growing demand, it has been held back by challenging geology and low heat content. Turkish coal reserves are primarily lignite, only 6% of which has a calorific value over 3,000 kcal/kg. Compared to its 11.7 billion mt of lignite resources,

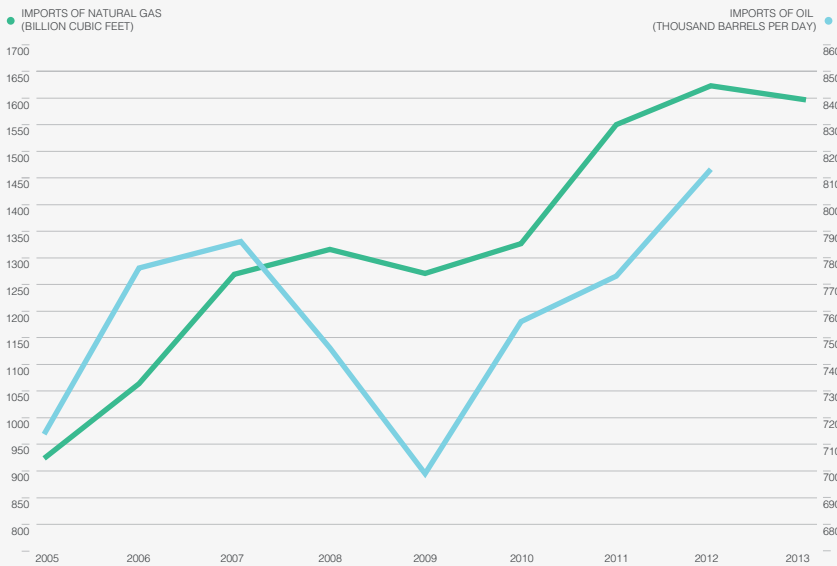
COAL CONSUMPTION AND PRODUCTION IN TURKEY (2004 TO 2012)

Source: U.S. Energy Information Administration



OIL AND NATURAL GAS IMPORTS IN TURKEY (2005 TO 2013)

Source: U.S. Energy Information Administration



the country has roughly 1.3 billion mt of hard coal, concentrated in the Zonguldak area on the Black Sea coast and ranging in heat content from 6,200 kcal/kg to 7,200 kcal/kg.

To confront the challenge of low caloric value coal reserves, many companies are putting investments into R&D such as Düzgün Mining Co., which produces 1.5 million mt/y of brown coal in Konya Province. "We are running a project with the Scientific Technology Research Council of Turkey (Tübitak) to build a plant to dehydrate coal, which

makes it better quality," said Şenol Seyhan, general manager of Düzgün Mining Co. "There are other coal drying facilities in Turkey, but they are using different technologies. In most coal mines, the coal drying machines are rotors, which is very old technology. Our plant will improve upon this system using a rolling mill made from ceramic. This new technology will increase caloric count from 2,000 kcal/kg to 3,000 kcal/kg," said Seyhan.

As coal projects go ahead, the service sector is honing its coal expertise to

find new projects in a tough climate. "Coal is a large focus for DMT/IMC given its strategic importance to the country. Turkey will need 15,000 MW of electricity in the coming years, and the country needs more coal mine development to build coal power plants," said Yücel Picakci, Turkey country manager of DMT/IMC. DMT, an engineering and consulting firm based in Essen, Germany, is bringing its exploration and production planning to the mining sector in Turkey through its IMC consulting subsidiary. "Germany is number one in the world for coal mining in terms of technique and mine planning. For our geological surveys, we bring in our experts from Germany who are internationally accredited," said Picakci. To help the sector along, the government has introduced a scheme of incentives to encourage coal production and subsequent coal-fired power plant developments. A revision in spring 2013 to the scheme included the addition of coal with high calorific value. Within the scheme of incentives that can be applied to coal-fired power plants based on indigenous coal, a power plant of 1,000 MW or more that enters into commercial operation by the end of 2014 will have a purchase guarantee from Turkey's Electricity Generation Co (EUAS). Further incentives include the coverage of expropriation costs and the building of transmission lines. Exemptions from license fees also apply to electricity market legislation.

Coal incentives are attractive, though there remains room for improvement, particularly with regard to license areas that are limiting development opportunities for the private sector. "The challenge for the industry is that most of the coal fields are in the hands of TKI. The private sector has coalfields, but its licenses are divided into small packages each having 5 to 10 million mt of reserves. This does not make any sense from a power generation point of view. It is very difficult to bring the licenses together and establish 90 million mt of coal reserves that can produce 3 million mt/y and fire a 300-MW power plant," said Sami Demirbilek, president of the Energy Group at Ciner Group. •

Güven Önal

President
**TURKISH MINING
 DEVELOPMENT FOUNDATION**



As part of your mandate at the Turkish Mining Development Foundation, you are currently preparing a mining master plan to outline the needs of the industry going forward. Can you tell us about the objectives of the plan and your methodology?

At the Turkish Mining Development Foundation, we are working on preparing the Turkish Mining Master Plan to analyze the industry and lay out a plan for the next 20 years. We are working with the Ministry of Energy and Natural Resources to produce the report. For the Mining Master Plan, we are first collecting data on reserves and production in Turkey for the 20 most important mines. Our second step is to use this data to make economic studies of which mines should be developed and what types of materials should be produced. We will be assessing the needs of the industry for various metals to determine where there are opportunities for investments and on what scale.

Mining in Turkey has grown remarkably in the past decade, yet still represents a small portion of the national GDP. What expectations do you have for

the growth of mining's contribution to Turkey's GDP?

The contribution of mining to GDP should be 1.2% in 2013. The levels of minerals exports should be the same as in 2012, which means that while the national gross benefit is increasing, the share of mining is going down. The calculation of these figures does not give the whole picture of the industry, however.

Mining exportation includes only raw material and does not take into account integrated mining activities, such as glassworks, ceramic works, cement, boron chemicals, copper, aluminum and power from the coal. The mining of these materials are integrated and either used domestically or exported. If we consider raw material production in Turkey and the contribution of integrated mining, this will lead to the real figure for its share of GDP. Out of production in 2011, the integrated value was \$25 billion out of a GDP of \$750 billion, making the mining share 3.3%. The lower estimation of mining's contribution has an impact with NGOs and public relations.

Turkey remains a net importer of raw materials, leading the government to call for the development of more mineral upgrading capacity. What is the current environment for mineral processing?

There is a lot of mineral potential within the country, but all is exported as raw material. Today in Turkey we are using about 1,200,000 metric tons per year (mt/y) of aluminum, but our domestic production is 120,000 mt/y. It is the same situation with copper. Turkey has many copper deposits and a copper use of about 470,000 mt/y, while production is only 50,000 mt/y. We are also importing about 340,000 mt/y of lead-zinc every year.

As the sector has gradually been privatized over the last decade, how has the role of state-owned enterprises evolved?

The industry has benefited very much from privatization. Most of the ETI mines were sold to the private sector, with the exception of its boron operations, and as a result production has

doubled for copper, chromite, aluminum and antimony. As a foundation, we are working for the development of the mining sector in Turkey; therefore we are calculating the needs of the sector. We do not think just the private sector can meet these needs; the state sector is also playing an important role. In the example of coal, the private sector is producing about \$500 million value, but the state sector is producing more than \$3 billion.

The global mining industry is coming out of a challenging year. Within Turkey, the industry has also been challenged by changing government policies. What is your outlook for the sector's performance in the medium term?

We are supportive of foreign capital, however in the past year there has been less foreign interest because of government policies. As a strategy, the government since 1940 has not given priority to mining. The industry needs to gain political power and continue with exploration.

Turkey has large mineral deposits, adding up to 72 economical minerals, but most of them are out of production because of a lack of investment and exploration. All of the country has had geological prospection, but with regards to drilling and reserve establishment, only 45% of Turkey has been explored by drilling. In the last 10 years, mining has changed and development tremendously. In the next 10 to 20 years, we will have very large developments in the mining industry. •

Sami Demirbilek

President Energy Group
CINER GROUP



We were deeply touched by the untimely death of Sami Demirbilek last May. We had the honor of interviewing him while conducting our research in Turkey and will remember him fondly. His valuable insight has been included, as "to live in the hearts we leave behind is not to die." (Thomas Campbell)

Ciner Group operates a wide range of assets in Turkey's mining industry. Can you provide us with an update on recent developments across your operations?

Ciner Group is involved in coal, soda ash and copper production. Due to our coal production, we are also in the business of electricity generation. We have two power plants. Our plant in Çayırhan is 620 MW, which belongs to the state but is operated by Ciner due to the concession agreement and uses coal mined by Ciner. We have a three-unit power plant at Silopi, 7 kilometers from the Iraqi border. Each unit is 135 megawatts. One unit has been in operation for four years, the second will be operational in July

2014, and the third will be operational end of 2014. The fuel is asphaltite and Ciner is also carrying out open pit mining activities to produce the asphaltite for the power plant. We are producing nearly 1.2 million metric tons (mt) per year. The asphaltite provides 4,000 kcal/kg when burned.

For copper, two years ago we were at the brink of increasing the run of mine output up to 1.6 million mt, which we have achieved. Now, we have left the underground operations and it is entirely open pit. We have achieved nearly 15 billion meters cubed (m³) of overburden removal.

Ciner Group has soda ash production with a processing plant in Bey pazari that has a capacity of 1 million mt per year. We are also developing the Kazan soda ash trona reserves for production. For two and a half years, we have been working to get the ownership of the land and the necessary permissions, as well as the environmental impact assessment. The project will include a processing plant and a co-generation power plant. The co-generation plant will be natural gas fired producing 800 MW because of the steam requirement of the process plant, which will have a capacity of 3 million mt per annum. We have just obtained forestry permissions to start drilling to be able to carry out solution mining.

Another project in Konya is about to be in EPC contracting phase. Soon we will finalize and start development of the mine, which is going to be a big open pit mine. The mine will have 4 million mt of coal production with nearly 60 million m³ overburden removal per annum. Attached will be a 500-MW power plant with two units.

Where will Ciner Group be concentrating its exploration activities in the next two years?

We are putting efforts into exploration and getting new license rights and taking over some licenses from companies that do not have the financial and technical capacity. We are interested in developing our own projects. In Turkey, we do not have too many large reserves. Our boron and soda ash reserves can be classified as reserves of worldwide significance, but demand for these com-

modities is limited. Boron consumption is around 1.5 million mt per year to 2 million globally, so there is no need to increase production there. For soda ash, global consumption is 45 million mt per annum, therefore the 4 million mt produced by Ciner Group is 10% of the world's production.

What role can Turkey play in the global mining market?

While our deposits are not large, Turkey has reserves that can make an impact on mid-sized or small-sized companies. While we do not have globally recognizable copper reserves of 300 to 600 million mt, a 30 to 40 million mt copper reserve makes for a sensible company profile.

The coal sector is subject to a scheme of government incentives. How sufficient are these benefits in stimulating private sector interest in coal investments?

The challenge for the industry is that most of the coalfields are in the hand of TKI. The private sector has coalfields, but its licenses are divided into small packages each having 5 to 10 million mt of reserves. This does not make any sense from a power generation point of view. It is difficult to bring the licenses together and establish 90 million mt of coal reserves that can produce 3 million mt produced each year and fire a 300 MW power plant. While we have that sort of difficulty, the incentives for coal-fired power plants to promote investments in national coal reserves are helpful and good for the country.

As community outreach and health and safety initiatives become increasingly decisive issues for the sector, how is Ciner Group developing its approach to these issues?

We have revised all implementations and applications within the framework of the new legislation introduced earlier this year and established a higher coordination council within our infrastructure as Ciner Group. Now each operational unit is reporting what they have on site and in their plants. This council is revising their reports within the requirements of the law and advising the operations to take necessary steps within a set timeline. •

Investment Incentives Available to Coal-Fired Power Plants in Turkey

Ayşe Eda Biçer,
Attorney,
Çakmak Avukatlık

Turkish legislation provides for various investment incentives that are applicable to coal-fired power plants. These incentives can be found in (i) the mining legislation, (ii) the electricity market legislation and (iii) the general investment incentive regime.

I. Incentives under the Mining Legislation

Reduction in State Royalties: Mining license holders must pay a state royalty for the extracted mines over the pit-head sale price pursuant to the rates set forth in the relevant legislation, even if such mine is not sold to third parties but used as raw material for generation of electricity. The pit-head sale price taken as basis for calculation of the state royalty is the current price of the relevant mine in an unprocessed condition under the same market conditions. The Mining Law No. 3213 provides for 50% state royalty reduction for mines extracted by underground mining; license holders of underground coal mines can benefit from this incentive.

II. Incentives Applicable to Coal Fired Power Plants Based on Indigenous Coal Sources

A. Electricity Market Legislation

Priority of Indigenous Coal Sources: Electricity generation pre-license applications based on indigenous coal sources are prioritized by the Energy Market Regulatory Authority compared to pre-license applications based on imported coal, other fossil fuels and renewables.

Reduction of License Issuance Fees: Electricity generation pre-license appli-

cants, who will use indigenous domestic coal sources, shall only pay 10% of the pre-license and license issuance fees.

Exemption from Payment of Annual License Fees: Annual license fees shall not be paid by license holders using indigenous coal sources. Such exemption is valid and applicable for the first 8 (eight) years following the start of commercial operation. Annual license fee applicable in 2014 is Kr 0,003 per generated kilowatt-hour.

B. Nuclear Energy Law No. 5710

This law provides the following incentives if and to the extent that (i) the total installed capacity of the power plant, which will be constructed as a result of a tender awarded by Turkish Electricity Generation Joint Stock Company ("EÜAŞ"), is 1,000 megawatts or more, and (ii) the plant achieves commercial operation by the end of 2014 at the latest. Extension of this deadline is still under debate at the Government level.

Purchase Guarantee: Turkish Electricity Trading Joint Stock Company, a state owned company, will undertake to purchase electricity to be generated for a period of 15 years.

Expropriations: All of the expropriation proceedings and associated costs in relation to the mining areas and water sources necessary for the realization of the project shall be undertaken by EÜAŞ.

Transmission Lines: Construction of transmission lines and payment of associated costs shall be undertaken by Turkish Electricity Transmission Joint Stock Company (national grid operator).
Emission Figures: The Ministry of Environment and Urban Planning is entitled to determine the emission figures to ensure that the power plant project will be realized.

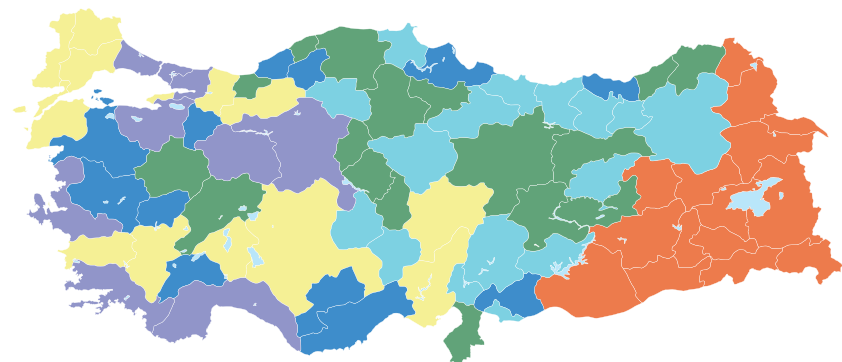
III. Incentives under the General Investment Incentive Regime

The general investment incentive legislation, i.e. the Council of Ministers Decree No. 2012/3305 Concerning State Aids in Investments (the "Incentive Decree") of 2012, also provides a number of important incentives for investments.

General Incentive Scheme: Regardless of region or type of investment, the value added tax (VAT) and customs duty exemptions are available for investments over a certain threshold, Turkish Lira (TL) 1,000,000 for Regions 1 and 2, and TL 500,000 for other regions. Please refer to the below map for the Regions under the Incentive Decree.

REGIONS

● 1 ● 2 ● 3 ● 4 ● 5 ● 6



Regional Incentive Scheme:

The Incentive Decree divides Turkish provinces into six regions based upon the priority of incentives and ranks them in terms of socio-economic development. The following map shows the provinces in each group:

The Incentive Decree also provides for a category of investments called "prioritized sectors". These include mining, automotive, aerospace and aviation, rail and sea transport, pharmaceuticals, education, tourism and defense sector investments. With an amendment made in 2013, coal based thermal power plants have also been added to the list of prioritized sectors. Investments in these sectors can benefit from the terms and rates of the more favorable support measures in Region 5 even if they fall within the scope of other Regions.

Large-Scale Investment Incentive Scheme:

This scheme is applicable for investments, which fulfill higher investment thresholds depending on the investment sector.

Strategic Investment Incentive Scheme:

A strategic investment is defined as an investment which fulfills all of the following conditions: (i) it must have a minimum investment of TL 50,000,000; (ii) it must relate to the production of a good whose import is higher than its domestic production; (iii) it must create at least 40% added value (not required for petro-chemistry investments); and (iv) the import amount of the product must be over \$50,000,000 in the previous year (not required for products that do not have any domestic production). Energy investments (except for natural gas based power plants) to be carried out solely to meet the energy needs of these investments can also benefit from the same incentives. •

REGIONAL INVESTMENT INCENTIVE SCHEME

INCENTIVE			REGION					
			I	II	III	IV	V	VI
VAT Exemption			√	√	√	√	√	√
Customs Duty Exemption			√	√	√	√	√	√
Corporate Tax Reduction (%)*	Tax Reduction Ratio		30	40	50	60	70	90
	Rate of Contribution **	Non OIZ	10	15	20	25	30	35
		OIZ	15	20	25	30	35	40
Employer's Social Security Contribution Support **		Non OIZ	-	-	3Y	5Y	6Y	7Y
		OIZ	-	-	5Y	7Y	8Y	9Y
		OIZ	-	-	5Y	7Y	8Y	9Y
Land Allocation			√	√	√	√	√	√
Interest Support			N/A	N/A	√	√	√	√
Income Tax Withholding Support			N/A	N/A	N/A	N/A	N/A	10Y
Employee's Social Security Contribution Support			N/A	N/A	N/A	N/A	N/A	10Y

* Corporate tax reduction refers to the application of a reduced corporate tax ratio until the total reduction reaches the tax contribution amount, which is calculated by the multiplication of the rate of contribution with the investment amount.

** Investments in Organized Industrial Zones (OIZs) receive more advantageous rates and terms for these supports.

LARGE SCALE INVESTMENT INCENTIVE SCHEME

INCENTIVE			REGION					
			I	II	III	IV	V	VI
VAT Exemption			√	√	√	√	√	√
Customs Duty Exemption			√	√	√	√	√	√
Corporate Tax Reduction (%)	Tax Reduction Ratio		30	40	50	60	70	90
	Rate of Contribution	Non OIZ	20	25	30	35	40	45
		OIZ	25	30	35	40	45	50
Employer's Social Security Contribution Support		Non OIZ	-	-	3Y	5Y	6Y	7Y
		OIZ	-	-	5Y	7Y	8Y	9Y
		OIZ	-	-	5Y	7Y	8Y	9Y
Land Allocation			√	√	√	√	√	√
Interest Support			N/A	N/A	N/A	N/A	N/A	N/A
Income Tax Withholding Support			N/A	N/A	N/A	N/A	N/A	10Y
Employee's Social Security Contribution Support			N/A	N/A	N/A	N/A	N/A	10Y

STRATEGIC INVESTMENT INCENTIVE SCHEME

INCENTIVE	ALL REGIONS
VAT Exemption	√
Customs Duty Exemption	√
Corporate Tax - Rate of Contribution	50%
Employer's Social Security Contribution Support (Period of Time)	7 years (10 years in Region 6)
Land Allocation	√
VAT Refund	for building and construction expenses over 500 million TL
Interest Support	up to 50 million TL on the condition that it shall not exceed 5% of the total investment
Income Tax Withholding Support	only for Region 6 - for 10 years
Employee's Social Security Contribution Support	only for Region 6 - for 10 years



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Senol Seyhan

General Manager
DÜZGÜN MADEN



Can you give us an introduction to Düzgün and a brief history of your coal mining operations?

Düzgün Mining Company was established in 2006. The company is growing in the areas of earth moving and large open-pit excavations. We took on the role of being a subcontractor for private sector enterprises, like Turkish Coal Enterprises, Atay and General Holdings. Now we are operating our own assets in Konya Province to produce 1.5 million metric tons (mt) per year of brown coal. We are competitive, well organized and strong enough to do business with other giants in the sector. Our products are usually sold to the Turkish sugar industry and other companies such as soda and salt companies. If there is demand for subcontracting, we provide these services from time-to-time.

Can you update us on your production capacity and research and development activities?

We have not invested in increasing production directly, because this is an open-pit operation. In the past year we have focused on investing in ma-

chinery parts to have 2013 models of all equipment. We are also running a project with the Scientific Technology Research Council of Turkey (Tübitak) to build a plant to dehydrate coal, which makes it better quality. Another project we are developing is with BTS Group in Europe, dealing with biogas. We want to strip gas from coal to make electricity, and with the left over coal, we will make fertilizer. This project is currently under development: we have samples of our product being tested in a laboratory in Italy. Once the tests are finished, we will decide whether or not to invest more into the project. We are also researching and developing a way to decrease the amount of sulfur omitted into the ozone during the coal burning process.

For your coal-drying project, are there other facilities in Turkey that perform this process?

There are other coal drying facilities, but they use different technologies. In most coal mines, the coal drying machines are rotors, which is very old technology. Our plant will improve upon this system by using a rolling mill made from ceramic. We hope to build this machine in April 2014. This new technology will increase calorie count by 50%, from 2,000 kilocalories per kilogram (kcal/kg) to 3,000 kcal/kg.

What plans do you have to improve Düzgün's operations in the near-term?

For 2014 to 2015, we want to expand our quarries and are searching for different areas to continue bore drilling. In particular, we are searching for quarries with a product that is 3,000 calories or under. Companies used to search for products with more than 4,000 or 5,000 calories, because there was a market for this product to be sold quickly. We are focusing on the lower calorie coal and have already found two quarries – one in the north and the other in the east.

In two to three years, we want to improve our production capacity and take a higher market share and improve our quality and lower our environmental impact. We need to spend more of our budget on environmental aspects and research and development. •

Yücel Picakci

Country Manager
DMT/IMC



Can you provide us with an introduction to DMT/IMC and an overview of the services that it brings to the Turkish mining sector?

DMT is an engineering and consulting firm based in Essen, Germany and is a member of the TÜV NORD Group. DMT has roughly 1,000 employees worldwide working in the natural resources sectors in countries such as Canada, England, South Africa, Russia, Indonesia and India. DMT works in Turkey through its IMC consulting subsidiary. We provide technical services for exploration and mine planning. We use the highest quality equipment from Germany and bring in our experts to advise on all mining operations. DMT/IMC plans and carries out exploration and production planning using seismic surveys and other geophysical and geological information to develop deposit models. We also work on scoping, pre-feasibility, feasibility and bankable feasibility studies for both open-pit and underground mining.

Turkey is known for its diversity of metals and minerals. Where has DMT/IMC specialized its work?

DMT/IMC works on both exploration and production projects in Turkey for many

commodities such as coal and metals such as copper, titanium and others. Coal is a strategically important mineral for Turkey, as the country will need 15,000 megawatts of electricity in the coming years.

DMT/IMC is currently working on 10 coal projects, of which four are underground and six are open-pit. Our underground mine planning will be as deep as 1,200 meters. In the Soma region, we are working with Polat Mining and their partners. For Fina Enerji, we are working on a huge coal underground project, which is at the feasibility stage, with shaft projects and seismic surveys ongoing. We also have two projects with Soma Group for underground coal mining. One is in Zonguldak and the other is at the Yeni Celtik mine in Merzifon. At Soma Group's Yeni Celtik mine, we have worked on geological control and are planning for the coal reserves.

What role does DMT/IMC play in the Turkish market as an international service provider?

Germany is world-renowned for its coal mining techniques and planning, and German expertise can help develop Turkey's industry. International accreditation is also

very important. Big companies cannot work with local consultants because they do not have international experience and accreditation. Companies need experts who can produce internationally accredited reports if they want to work with an international bank for a bankable feasibility study.

What would you identify as the greatest challenge facing the industry?

Turkey needs to develop its safety practices. It has no safety consulting companies and roughly 60% to 70% of the companies in Turkey are in exploration. Safety is particularly important for long-standing Turkish operators that were never required to upgrade their facilities.

What is your outlook for DMT/IMC in the next two years?

DMT/IMC is expanding its Turkish operations in 2014 and has a long-term development plan for 2020. Within the next two years, we will have agreements to work on 17 to 18 exploration projects. Roughly 20% of our work will be in planning for production, while roughly 10% will be for safety and reconstruction. •




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Developing a Strong Supplier Base: Drilling, Contracting, and Equipment in Turkey

“When you look at big mining countries like Canada, they are mining at a depth of a few thousand meters. In Turkey, we want to go in this direction, but very few companies are doing deep mining.

Most are still drilling on the surface. In order to reach its target amount by 2023, Turkey will need to start drilling for the deep wells.”

- Bülent Şahhüseyinoğlu, CEO,
Mapek

Meeting International Standards as Exploration Goes Deeper

Drilling in Turkey

Permitting delays and the global downturn have taken their toll on the drilling market, causing many rigs to sit idle in 2013. "Now, there are about 700 rigs available in Turkey. However, only 40% are being utilized. This is on par with the worldwide average of 3540%," said Bülent Şahhüseyinoğlu, CEO of Mapek, exclusive Turkish agent for Boart Longyear rigs.

With the industry expected to pick up in the latter half of 2014 and 2015, suppliers such as Mapek are preparing new product offers to meet the advancing technological requirements of exploration. "We have new technology and innovation, such as sonic drilling from Boart Longyear. When the market accelerates again for exploration drilling, there will be a demand for these more high-tech rigs," said Şahhüseyinoğlu.

Spektra Jeotek, a Turkey-based global drilling services and manufacturing company, began operating on its fourth continent, North America, with the acquisition of Forages Mercier in 2012. "All over the world we have 98 drill rigs. Not all of them are in operation in this difficult time but it creates a lot of opportunities to prepare for the coming cycle," said Levent Okay, president and CEO of Spektra. "We made a lot of investments, such as in our new manufacturing building of more than 22,000 square meters just to get ready for our aggressive growth plans in the next cycle. Within this year and next year, we are looking forward to acquiring new companies, especially in South America, which is our next target market," said Okay.

Working in Turkey, which offers a strong but small market, international players can bring much needed drilling expertise to an underexplored jurisdiction. "We have good experience working with Turkey's

complex geology which can easily translate to other countries and put us in front of our competitors. For example, we did not have experience in directional drilling in our region because this is not common in Turkey. Spektra has succeeded in acquiring this experience through our acquisition of Forage Mercier. We are drilling a lot of directional holes in Canada which we can now bring to our operations in other regions," said Okay.

To introduce more cost efficiencies into the drilling process, service providers in Turkey are moving into manufacturing. "In 2007, when we established Pozitif Drilling, we had our rigs manufactured by another company; however we found that we were not able to get the level of service that we wanted, so we established our sister company. This allows us to modify rigs to give better service to clients. We can now design and commission custom-built multipurpose rigs with different capabilities based on clients' specific requirements," said Ecevit İskender, company manager of Pozitif Drilling.

While the diamond drilling market is well covered in Turkey, opportunities remain in reverse circulation (RC) drilling. Global Magnet Group, an Australian-based company, established a presence in Turkey to provide RC drilling services and has plans to expand in the market to bring in unmanned aircraft geophysics and exploration project development. "We completed a 10,000-meter (m) drilling contract for an Australia-based company with projects in Turkey in 2013. Going forward, we just signed a first drilling contract with Alacer Gold and another with a locally-based Turkish company this year. We are hoping it will flow on from there and we will be drilling between 10,000-30,000 m this year," said Leo Pilapil, business



Image: Global Magnet Group

development manager for Global Magnet Group.

“Mining-wise, Turkey is relatively unexplored and does not have advanced or sophisticated exploration techniques. The deposits that are easy to discover have been already found; in areas where there is relatively flat ground with easy access, outcrops, old workings and where it is easily sampled. Where there are no outcrops, it can be difficult to know what methods to employ. Having spent the majority of our time in Australia where there are no outcrops and the rocks are much older, we have developed more appropriate techniques such as airborne geophysics and low-level geochemistry to look at areas without any outcrops,” said Pilapil.

Drillers have also relied on other markets to stay alive in the mining downturn, expanding to geothermal and oil and gas drilling and also targeting mining projects outside of Turkey. Thanks to diverse project experience, Turkish drillers are finding themselves in demand in the global market, such as in the case of Ortadoğu Drilling. “In Pakistan, Ortadoğu has been chosen as a partner in a joint venture with Fugro to work on a Pakistani government iron mine. As the slim hole exploration technique is becoming more known over the last years, there is also demand coming from European countries. Now, we are preparing ourselves for a project in Italy for a very well-known energy company about slim hole drilling for exploration of geothermal reservoirs,” said Ahmet Topdemir, general manager of Ortadoğu.

Ortadoğu, which manufactures its own rigs through its sister company Geo Machinery, is honing its machinery engineering department with the help of Tübitak to find cheaper and more innovation solutions. “We are working with Tübitak on three projects directly related with machine design and building. We are looking for different sources aside from gasoline because gasoline prices are very high and directly affect our costs in drilling. To present our customers with good prices we need to decrease our operating cost. We are designing an electricity motor machine which is a new project for subsurface work for the Çayeli Copper Mine of First Quantum Minerals,” said Topdemir. •



Ecevit Iskender

Company Manager
POZITIF DRILLING



Can you provide us with an introduction to Pozitif Drilling and the drilling expertise that you are bringing to the sector?

Pozitif Drilling provides exploration-drilling services to the mining industry, including diamond core drilling, reverse circulation percussion drilling and multipurpose drilling. We also provide services such as water well drilling and intelligence, surveillance, and reconnaissance (ISR) technology standard uranium drilling.

Pozitif Drilling was founded in 2007 after many years of experience in the sector working with Turkey's biggest drilling companies. We bring a different point of view to the market with our approach to drilling. Based on our experience in the industry, we saw solutions to problems especially in the areas of health, safety, and environment (HSE) and community relations that we wanted to apply to our own projects.

Can you give us an idea of the size of your operations in terms of fleet and personnel?

We have 27 rigs currently, 25 of which are diamond core and two of which are multi-purpose. We are not focused on the number of total rigs that we have, however. What is more important is giving good quality services to companies. Through our workshop, we are capable of raising the number of drill rigs any time. Our operators range from between 60-65. During the high season in 2013, we employed 300 people.

With regards to community relations, what is the role that a drilling company can play within a mining project and its pursuit of the social license to operate?

Training is a big issue in Turkey. We understand how local communities react to mining companies and drilling activities and make sure to extend training to people in the surrounding areas. Pozitif wants to give its point of view to all stakeholders, from the mine site workers, to the exploration managers, the new drillers, the local communities and all people involved in operations.

Before we go to the site, we collect data, investigate the area's socioeconomic level and discover if there is any sensitivity in the region to mining. When we arrive at the site, one of the first things we do is train people about health and safety issues and the environment. We give them good information to mitigate the adverse impacts of the work. We also emphasize giving jobs to local people, instead of bringing in people from outside of the region to the project.

We are training not just for business. We also want to give people education that they can use in their daily life. We are happy if we can raise the cultural level of the people living in the region.

How is Pozitif aiming to improve health, safety and environmental practices in the industry?

In terms of HSE, Pozitif pays attention to



the many little things that make up a safe operation. When we established Pozitif, HSE was not being emphasized enough in many operations in Turkey, so we set out to change this. Pozitif puts HSE issues first.

Through Pozitif's sister company MBEF, which manufactures rigs, how are you able to streamline your customer service capabilities?

In 2007 when we established Pozitif Drilling, we were first having the rigs manufactured by another company. However we found that we were not able to get the level of service that we wanted from manufacturing companies, so we established our sister company, which allows us to modify rigs to give better service to clients. We still use other rigs as we need them, but now we can also design and commission custom-built multipurpose rigs with different capabilities based on clients' specific requirements.

Do you have plans to expand outside of Turkey, as the company continues to grow?

We would like to expand our operations outside of Turkey. Our first target is Africa. This month we will have operations in Cyprus, which will be a sample project. We will see what we are capable of by working there and then we will look to expand further to other countries.

What is your outlook for Pozitif Drilling in the medium-term?

Our main target is to continue providing good quality services to mining companies. Pozitif will expand without limit with this strategy. One of our targets is to give people new jobs and better livelihoods. We will continue to expand our rig and personnel capacity and focus on our service quality. Within four years' time, we will expand our capacity to 75-100 rigs. Our goal is to become a global services company. We are working for global mining companies, which has proved that we are capable of giving service at international standards. International companies are satisfied with our services and we know the requirements of the international marketplace, which is why we see that we can expand our operations outside of Turkey. •



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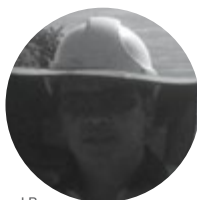
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LP: Business Development Manager

EÜ: Local General Manager

GLOBAL MAGNET GROUP



LP



EÜ

As a new entrant in Turkey's mining market, can you introduce us to Global Magnet Group and the expertise that you bring?

Global Magnet Group is an umbrella company for three affiliated companies: Global Magnet Sondaj, Global Magnet Madencilik and Airborne Global Magnet Jeofizik. The primary purpose of forming the group in Turkey was to provide complete service, from exploration to drilling and mining. Global Magnet Sondaj provides drilling services that comply with JORC standards. We have brought in a reverse circulation rig and, based on our experience developing reverse circulation (RC) drilling in Australia, can add value with our standards, procedures and production figures. Global Magnet Madencilik consults on projects, acquires them, or forms joint ventures with existing companies. Airborne Global Magnet Jeofizik brings new geophysics services that are currently lacking in Turkey, namely unmanned aircraft geophysics systems.

Global Magnet Group was established in Turkey in 2013. What is your strategy to break further into the market?

Our focus was to get in on the drilling side and then look at projects. In 2013, we completed a 10,000-meter (m) drilling contract for an Australia-based company with projects in Turkey. We also signed a first drilling contract with Alacer Gold Corporation and another with a local Turkish company. We hope to be drilling to depths of 10,000 meters (m) to 30,000 m this year.

How can Global Magnet Group differentiate itself in the Turkish market?

Our services provide an advantage to international companies that are looking for international financial backing and need to comply with required standards. Turkey is relatively unexplored and does not have advanced or sophisticated exploration techniques. In places where it is difficult, companies are unsure what methods to employ. In Australia, there are no outcrops and the rocks are much older, so we developed more appropriate techniques such as airborne geophysics and low-level geochemistry to look at areas without outcrops.

What are the advantages to using RC over diamond drilling (DD) for the Turkish market?

We use RC a lot in Australia in the first 200 m because that the economic potential of a deposit is maximized in the first 200 m, whereby you can mine it cheaply using an open cut method and are provided with information faster and cheaper than with DD. When drilling through oxidized material, RC and DD compare very well. Information can be lost using DD in an oxidized material because samples can wash away whereas they can be picked with RC drilling.

What is your outlook for growth in the next two to three years?

We would like to have two rigs by the end of 2015, whereby we can provide both RC and DD services. We are in the process of acquiring a mining project and forming a joint venture. Within the next three years, we hope to have two or three projects that we are trying to advance towards production. For geophysics, we hope to provide the new UAV service to Turkey. •

Levent Okay

President and CEO
SPEKTRA JEOTEK



Could you please update us about the main milestones for Spektra Jeotek in the last two years?

In the last two years, Spektra expanded its operations to its fourth continent, North America, through its acquisition of the Canadian drilling company Forage Mercier in 2012, and started operations in Canada in 2013. Although the market is weak in Canada as elsewhere, we are doing well. We have currently nine rigs and will have 12 soon.

We operate in many countries in Africa, as well as in several European countries such as Macedonia and Portugal. We will be starting in Albania. For our African operations, we plan to restructure and set up bases in at least three countries. We have also established a new company in Saudi Arabia for our Middle East operations. This is an encouraging market, particularly Iran, which has high potential if the political situation improves.

What is Spektra's strategy to continue to grow in the current mining downturn?

We have 98 drill rigs throughout the world. Not all of them are in operation, but it creates a lot of opportunities to

prepare for the coming cycle. We made a lot of investments, including a new manufacturing building of more than 22,000 square meters, where we are manufacturing drill rigs and a full range of drilling equipment and consumables. This will be an advantage for our future expansion. In 2014 and 2015, we are looking to acquire new companies, especially in South America. Our five-year plan is to be in the top ten in the world.

What has been the impact of the downturn for drilling in Turkey specifically?

The global downturn and the difficulty obtaining mining permits have impacted our mining operations. Many projects had accumulated and drill programs were waiting. Fortunately, most of the permits were recently released and projects will start soon. We will continue our aggressive growth in Turkey. It is not enough for us to meet our goal of bringing 100 rigs into operation worldwide.

Of your operations across four continents, which markets do you see offering the most potential in the up cycle?

Africa will be one of the most important markets for the next cycle. It remains unexplored and there will be many jobs there, despite facility and accessibility challenges. To enter South America, we are negotiating the acquisition of a Canadian company that has operations in Mexico. Mexico is our top priority, after which we will go to Chile, which is also a hot drilling market. We will expand from there to Peru, Brazil and Colombia. Asia and the Middle East will be after South America.

Through your manufacturing arm, Delta Makina, how are you bringing in more cost efficiency and innovation?

Our manufacturing capacity and quality, through Delta Makina, make us competitive. Today accessing drill rigs is easy because everyone is manufacturing and demand is low. In the coming years, however, in the high seasons there will be a minimum of eight months for delivery time. Our capacity is almost 40 rigs per month, not just for our own use, but also for other users. Manufacturing our equipment and consumables will give us a cost advantage in the coming two

to three years, when prices will be under pressure because of limited projects.

We are focusing on improving our rigs for changing speeds, faster drilling operation and more user-friendly systems that can reduce labor. We are also concentrated on consumables, such as different types of improved and well-defined drill bits for different formations, which will have a significant impact on cost.

Based on your experience, how are you bringing in methods and techniques that follow international standards to the Turkish exploration sector?

We have good experience working with Turkey's complex geology, which can easily translate to other countries and put us in front of our competitors. For example, we did not have experience in directional drilling because it is uncommon in Turkey. Deep-drilling capacity is becoming important because surface mining is almost finished around the world. Deep hole and directional drilling will cut a lot of costs for mining and exploration companies. Spektra has succeeded in acquiring this experience through its acquisition of Forage Mercier and is drilling directional holes in Canada, which we can now bring to our operations elsewhere.

Health, Safety, and Environment (HSE) initiatives are a key issue where drilling companies can play a role. What is your approach to HSE as a company with worldwide operations?

Within the last 15 years, especially the last six to seven, we have had very good organization for HSE. We have a separate Total Quality group that directly reports to the general manager. The group covers the quality of the equipment, the organization, our ERP system for reporting, and HSE. HSE is a top priority, and we now have 10 specialized persons working on it.

Do you have a final message about Spektra?

Spektra has almost 30 years of experience and will continue growing aggressively. We will be among the top ten players in five years and convey our global experiences to our customers all over the world. •

Ahmet Topdemir



General Manager
**ORTADOĞU
DRILLING**

Can you provide us with an update on Ortadoğu, one of Turkey's largest drilling companies?

Ortadoğu provides services in the exploration and mining sector by doing deep diamond drilling boreholes. We are the pioneer company of the drilling sector in Turkey and one of the largest in the country. We are also doing drilling projects for geothermal exploration. We have 35 drilling rigs in operation and the capacity to drill around 200,000 meters (m) per year. Our depth capacity is 2,500 m, but we want to increase the capacity of our diamond drilling equipment and crew to exceed 3,000 m for mining and energy. Two years ago, we concentrated our operations in one building in Ankara, where we have office space and a workshop.

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What impact has the exploration slowdown had on your business, and where is Ortadoğu looking for new business?

Permitting delays have put pressure on mining companies, but because Ortadoğu also works with energy companies, it is in a more advantageous situation. We are planning to drill oil and gas holes using slim hole techniques, which can drill as deep as 3,000 m for oil and gas with small diameters. In Pakistan, we have a joint venture with Fugro to work on a Pakistani government iron mine. European countries are also eager to use slim hole technology, and we are preparing a project in Italy for a renowned energy company to explore for geothermal reservoirs.

How are you working to develop innovations in your drilling techniques and equipment?

We manufacture our rigs and most of the drilling equipment ourselves and established a second company called Geo Machinery in 2010. We have machinery engineers and are working with Tübitak on three projects directly related with machine design and building. We are looking for different sources aside from gasoline, because gasoline prices are high and impact our drilling costs. We are designing an electricity motor machine, which is a new project for subsurface work for Çayeli Copper Mine (First Quantum Minerals). We are also working on electrically driven hydraulic machines, which is a new concept. Now, we are working on a project to produce a sonar-drilling rig.

How are you improving health, safety and environmental practices?

Our company is registered to OHSAS18001 and ISO14001 management systems. We have a strong background in safety and environmental operations. All the rotating parts of all of the machines that we produce are guarded and some critical functions, such as rod making and breaking, rod pulling of our machines, are hydraulically designed so that minimizing the need of manual handling, which provides much fewer safety risks. Our safety and environment engineers also periodically go to the field and train crews on basic safety and environmental procedures.

What technical challenges are you encountering as Turkish exploration drills deeper?

Turkish geology is very complex, with many fault zones. It is different from Canadian or Australian shields. In Canada they can drill more than 3,000 m with just NQ size but in Turkey we have to start to a deep hole with PQ size. As we reduce the hole, we place and cement casings, sometimes up to BQ size, which significantly increases drilling costs.

What is your outlook for Ortadoğu?

In the next two years, we will expand into oil and gas and geothermal exploration, and perhaps more into coal, where we already work with large companies, and metallic minerals. Ortadoğu will be ready to drill challenging projects. Our manufacturing drilling company is improving itself with Tübitak projects. We aim to increase our drilling rig number to 50. •

Seeking Cost-Control and Innovation in the Down-Cycle

Mining Equipment in Turkey

As more suppliers move in, and Turkish distributors acquire more global brands, cost and quality competition has grown fierce, making innovation and after-sales services key points of differentiation.

Martin Engineering Turkey, a US-based supplier of bulk material handling solutions, is relying on its innovative approach to safety to maintain its edge. "In Turkey we are implementing an innovation that is called 'Walking the Belt,' a full technical evaluation process of the customer's conveyor systems that we carry out through a routine inspection program for conveyor maintenance, providing regularly scheduled reviews of the components. While the systems run, you cannot fix them, but you can observe what is not working properly. Then, when there is a maintenance shut down, you know directly what to do," said Ilker Tan, general manager of Martin Engineering Turkey. "We will continue to perform this service at site by a tablet which is supported by a special software program. By using this technology, we will be performing the program more effectively, faster and safer," said Tan.

Further along on the innovation front, information technology and software solutions are playing a more crucial role in Turkey as miners learn to take better advantage of information systems. Almina Minerals was established in late 2011 as a specialist consulting and engineering firm exclusively distributing for Geovia, formally Gemcom, to provide geology, mine planning and operational performance management. As of 2014, Almina is the also exclusive distributor in Turkey for LIM, which specializes in software for geological measuring instrumentation.

"LIM's main mining business areas are in foundation, geo-technics, hydrogeology,



Image: Martin Engineering Turkey

mines and quarries, underground workings and related software. Our ambition is to be able to propose to our clients a complete measurement solution for boreholes, comprising both instrumentation for acquisition during drilling and logging in the resulting borehole, as well as for foundations and special structures," said Muhanned Arar, managing director of consulting firm Almina Minerals and Metallic Group general manager at Yildizlar SSS Holding, Turkey's only silver producer.

The persistent challenge for service providers when it comes to innovative technologies is in educating the market. For MineRP, a global software company and consultancy based out of South Africa, bringing its proprietary mine design and planning system Mine 2-4D for both underground and surface mining to Turkey, on the job training for clients is a necessary service offer for companies bringing new products to the market. "We have given the opportunity to our clients to send their mining engineers to Canada and South Africa to train on our international projects. These young engi-

neers were able to take geostatistics and mine planning courses at our regional offices. We are keen to support our clients not only in completion of their engineering projects, but also in professional education and coaching," said Sermet Ilhan, general manager of MineRP Eurasia.

As more innovation comes into the market, both from international mining experts and from locally-grown research and development (R&D), Turkey is propelled further along the path to the premier league of mining countries. Turkey's geological potential is undoubtedly promising, yet the country's future as a world-class mining jurisdiction will rely heavily on its government's abilities to improve its practices of regulatory implementation. With democratic elections underway and growing industry associations lobbying for miners' interests, the industry has a bright outlook for policy improvements. As the global mining markets pick up in the latter half of 2014 and the start of 2015, more free flowing capital will find its way to the Turkish market provided it retains its investor-friendly stance. •

Tamer Oztoygur



President
HMF MAKINA

HMF Makina has been distributing Hyundai heavy industries construction equipment since 1993. Can you provide us a brief history of the company?

HMF Makina's relationship with Hyundai goes back to 1992, but we were organized under a different umbrella. HMF Makina as it exists today was set up in 2003 to better serve our clients and Hyundai. We have been granted Hyundai's "Best Distributor in the World" award many times and last year celebrated the 20th anniversary of our Hyundai partnership, which makes HMF one of the oldest Hyundai dealers in the world.

HMF is investing in a new, 4,000 square meter service facility in İstanbul. We also plan to build facilities in Ankara, Antalya and Izmir. In the coming three or four years, we will have upgraded all of our service facilities.

HMF Makina works with a wide range of heavy industries. How important is the mining sector to the company?

Energy, mining and construction are important growth sectors in Turkey. The mining sector is demanding. Work times are long, and the machines need to keep up with the needs of the miners. For many years, we have been active in the industry, selling products and providing support, and it provides roughly 15% of our business. We serve the marble industry with a specially developed machine that we adapted to meet conditions in Turkey. Our customers' needs are often more demanding than the machine's capabilities, which is why we provide customization.

Which of the Hyundai lines are increasing in demand?

The value of the Hyundai brand name is growing, and Turkey is a good test mar-

ket. We have made several machines specifically for Turkey that have ended up going to other markets, such as the marble machine as well as a demolition excavator. We now have 80 t and 120 t excavators, which are used in gold mines. We recently started selling a higher capacity range of products, as the market is demanding bigger machines.

Have you observed a shift in mining clients' preferences toward buying over renting?

In Turkey, most companies prefer to purchase their machines outright. Some companies rent small machines, like backhoe loaders. While operational leasing is an option, it is not well known in Turkey.

How do you collaborate with Hyundai to introduce technologies to Turkey?

The industry is focused on reducing operation costs, which mainly come from fuel. For the last two years, HMF has been selling its dash Nine Series equipment, which has GPS and optimization modes to lower fuel consumption. Our new fuel efficiency models use fuel 20% more efficiently than older models.

Service is also more important. We sell service packages with every equipment sale and educate our customers on how to optimize the use of their equipment with the right fuel and care. Hyundai's new technology makes it easier for customers to follow the progress of their machines.

Where do you see the Turkish heavy equipment market in the next few years?

The market will grow at a rate of 4% per year at minimum. Every half percent of growth gives the market a couple thousand units. •

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Özgün Kutay

Sales Manager
REMÁS



Remas was founded in 1966 and has a long history of manufacturing mining equipment. Can you provide us with a brief introduction to the company?

Remas is active in three segments: gearboxes, machinery for the ceramics industry, and machinery for the mining industry, concentrated in grinding and ore beneficiation. We began to make processing equipment for ceramics and mining in the 1970s. Ball mills and the peripherals around them are our core products for mining. 70% of our turnover is machinery for ceramics and mining.

What role does mining play in Remas' wider activities?

In the last ten years, the mining industry in Turkey has grown, and there is interest in Turkey's deposits of chromium ore, as well as iron ore, copper, lead, zinc and nickel. As concentration plants are being established, Remas is providing the ball mills to grind the ore to liberate the mineral. For the last 10 to 15 years, mining became a big opportunity for us, and we have been producing more machinery and investing in producing larger capacity equipment. In 1998, we were producing 3-meter (m) diameter ball mills; today, we are producing 8-m diameter ball mills.

Where is Remas focusing its efforts for growth in the Turkish market?

Projects in Turkey are our main target, and every year the capacity for mines is growing. Previously, large ball mills were coming from foreign investment. Most grinding circuits in Turkish mines were 20 to 50 metric tons per hour (mt/h) in Turkish plants; today, they are 150 mt/h. As metal prices have risen, projects have become more feasible. The boom in 2008 meant that the demand for mining

machinery was much greater than the supply. The market has slowed down, but there are still opportunities.

Remas provides equipment for dry and wet processing plants. Can you provide an overview of the mines and metals that you are working with in Turkey?

95% of metal mining uses wet processing, which involves the wet milling of the ore followed by flotation cells or magnetic and gravity separators. Dry processing is more often used in the cement industry and for industrial minerals like feldspar, limestone and quartz. For wet processing, Remas works often with metal ore producers, as well as iron ore miners likes Bilfer, but also with larger conglomerates, including the Ciner Group's Park Mining, where we have two ball mills at their copper project. Our ball mills are used for Kurmel's and Aksu Group's chrome operations and for the dry processing of Matel's industrial minerals. We have three ball mills assisting Cengiz's operations.

Within the Turkish market, do you find it difficult to compete with international machinery providers?

Price is the main criteria in the Turkish market. Remas supplied ball mills for many well-known European companies from the 1980s to 2000s. We combine our experience and engineering capabilities with the European companies' specifications to produce top-quality equipment. Our plant machinery comes from Germany and Italy and certified raw materials from Turkey or Western Europe. We may lower our prices, but never our quality. Being only a ball mill supplier is our greatest challenge, because some companies prefer to use suppliers offering complete solutions. •



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Ergun Sokulluoğlu

Territory Manager
SANDVIK MINING TURKEY



Sandvik Mining Turkey has recently restructured to focus on its client segments. Can you give us an introduction to Sandvik and its milestones during the last two years?

Originally, the company was known as Sandvik Mining and Construction (SMC), which had been operating since 2007 in collaboration with the construction sector of Turkey. In the beginning of 2012, Sandvik built a new strategy and reorganized the company. The mining and construction departments split and became separate businesses areas, while still collaborating together, so that the company could better focus on customers with different profiles.

The split was a huge success, as there is great potential for both the mining and construction sectors in Turkey. Since the split, we have brought the first raise boring machine to the country, which was sold in the last two years to a contractor company doing lead and zinc mining in the Balıkesir area. In the crushing and screening business, we gained one of the biggest and most reputable projects from Koza Gold, for which we are now in the process of commissioning and starting up the plant. We also sold one of the biggest crushers to Tuprag, which operates an open-pit mine in Kisladağ. This project's expansion is on hold and will not be completed in 2014, but we have already delivered the crusher, which is the fourth largest in the world. We have taken quite a considerable market share, which proves the success of our new strategy.

Since splitting SMC, what sort of growth rates have you seen in the last two years for your business?

Since 2007, Sandvik Mining Turkey business has grown four to five times larger, which has a positive direct impact on our turnover.

Which metals and minerals would you highlight as significant to your growth strategy in Turkey?

With our new strategy, we have prioritized our actions. We have well-established customers, as well as new projects and customers who work across the board. In the beginning, we focused on base metal mining. There is a massive potential in coal, but we will not enter the market before we learn more and the proper mechanization is developed. It is not easy to introduce underground, mechanized coal mining to Turkey because the labor is cheap and the underground areas are not suitable for coal mining. Nothing is impossible if you have the potential, a good team, and strategy.

Is their potential to expand your safety and environmental products in the near future?

Safety and environmental standards are growing in importance. The understanding is changing: most companies prefer closed-cabin rigs for safety reasons, whereas ten years ago most people did not think about safety and were using canopy rigs. International companies are setting good examples for health and safety. We work with Canadians and Australians, who have exposed local companies to new health and safety regulations. Local companies are taking international standards more seriously. Sandvik's environmental, health, and safety policy has high standards. We have zero tolerance.

What is your approach for after-service sales in terms of managing your spare parts supply, supervising your technician teams, and keeping them close to site?

Customers should never perceive Sandvik as an equipment supplier. We are in the sales business, and our philosophy is to not sell something unsustainable. After our new strategy, we wanted to strengthen our after-sales ability; otherwise you lose the customer and other opportunities. Both our sales and after-sales teams are professional, experienced, and can meet required standards. For example, we received an old rig from a customer and completely rebuilt it to the same level as that of a new machine.

What is your outlook for the industry in the next two to three years?

Due to political reasons, the industry is currently in a “pending” stage. For the last ten years, there have been global downturns in mining, and Turkey feels the impact of these downturns later than other countries in Europe. We have always been able to overcome these crises and were not strongly impacted by the recent downturn.

Last month, we secured another first for Sandvik: selling the first cable bolter to Tuprag. Despite downturns, operations are ongoing. If you are able to provide solutions to your customers and keep them, you can continue to serve them while they keep investing. Once the election period finishes, politics will no longer slow down the Turkish mining industry, and there will be another boom in the next two to three years. If we keep working the way we are, Sandvik can double or triple its business in this time period. There is potential international investment interest and upcoming projects.

Can you give us a final message about Sandvik?

Sandvik is in very different business fields, but we want to be perceived as one Sandvik. With the right strategies and people on our team, we will be able to have a large market share of the mining industry in Turkey. •



**LET OUR 150 YEAR
HISTORY BENEFIT
YOUR FUTURE
BUSINESS.
THIS WAY!**

Sandvik has been around for over 150 years, working with our customers to constantly improve operating environments. Today, Sandvik Mining is the leading supplier of equipment for both surface and underground applications, ensuring that each of our customers is matched with the best solutions for the maximum in productivity, safety and peace of mind. Our long history ensures that our solutions are based on extensive field experience, giving you the very best conditions for good business – and that we are a team you can count on, for today and for the future.

Read more about the Sandvik Mining offer
It's This Way: mining.sandvik.com



Ilker Tan

General Manager
**MARTIN ENGINEERING
 TURKEY**



Can you provide us with an introduction to Martin Engineering and a brief history of your operations within Turkey?

Since 1944, Martin Engineering has been the worldwide leader in making bulk materials handling cleaner, safer, and more productive, beginning with breakthrough innovation in vibration technologies, to the advancement of material flow and control, safety and service ability. Martin has transformed the material handling industry. Our technologies are real-world tested, designed for the harshest most challenging conditions across a multitude of industries.

From the deepest mines in the world in South Africa to Alaska's coal loading on the frigid Bering Sea, Martin Engineering teams provide the most sophisticated solutions and services to meet any material handling challenges on the planet. Our sales and service teams all over the world possess hands-on field experience in every key processing industry, providing the insight and knowledge to address safety and productivity issues.

We address all aspects of material handling and control from belt cleaning and tracking, to flow aid devices and services, to dust containment at the transfer areas, and rail car unloading. Over the years our business units spread across South America, Europe, Asia and Africa. Today we are operating in 103 countries.

Since 2006, Martin has been solving the problems of bulk materials handling in Turkey through our specialized sales and service technicians. Our teams are mainly engineers or technicians, all who are highly-qualified. We have been recognized by prestigious names and we have become known for innovation within a short time in Turkey.

What is the role played by Martin Engineer's Turkish operations within the company's global operational strategy?

Since our subsidiary was established, we have been serving industrial OEMs and end-users in our country. We have grown from a small-scale company in Turkey to serve nearly 200 customers, with 20 direct or indirect employees. We plan for each year to grow in em-

ployees by 15-20%. If you are not everywhere in a globalized world, you cannot be where you want to be. In this perspective, Martin Turkey has a role as a bridge between the East and West.

We are connecting different countries, continents and cultures, as well as many other business demands. Since the beginning of our establishment, we have a sales history of constant growth due to increasing local market demands as well as demands from the other countries we are responsible for, which are Armenia, Azerbaijan, Turkmenistan, and Kazakhstan. Through using our existing employees in Europe, we are able to bring our sales and service to these countries where we are not yet represented locally.

We have been manufacturing some strategic parts in Turkey as well, for not just our local needs but to supply to other business units in our organization. This means we are not just an importing company, but we are also exporting, which has a positive contribution to our company as well as to our customers to provide cost efficient products.

What is the importance of the mining sector to your Turkish operations, and where are you seeing the most demand for your services within servicing your mining clients?

50% of our annual turnover comes from the mining industry in Turkey; we have strong success stories with the industry, especially gold mines. We provide quality that goes beyond the product we deliver and is in the people we hire, the investment in our equipment and the processes and services that we are continuously improving. Backed by our experience with project engineering and design, we provide specialized assistance for the specification, design and implementation of bulk materials handling systems.

Our profession is based on conveyor solutions. They are the critical units of these mines for transferring material. In these conveying systems there are a lot of problems which can affect daily activities. Martin, both globally and in Turkey, supports solutions and services for conveying. In chutes, for example, there can be build up issues, so we install air cannons that push materials into

the flow. Our teams provide monthly services to keep the products well maintained and in a good condition with good performance.

As a global company bringing expertise to the local market, what are your views on the availability of skilled professionals for the sector, and your initiatives to develop qualified staff?

We give great importance to our human resources. We believe that the main road to satisfying our customers passes through satisfying our employees. We have a very low workforce turnover. We believe in empowering our employees to be able to make decisions quicker faster and closer to our customers.

No matter where our staff works, all are trained about our products and our sectors, beyond their personal expertise. We have many training programs called "Foundations" available as interactive online seminars and in a written book translated into Turkish.

Can you tell us about some of Martin Engineering's recent innovations aimed

at improving health and safety standards in the industry?

Locally in Turkey we are implementing an innovation that is called "Walking the Belt." It is a full technical evaluation process of the customer's conveyor systems that we carry out through a routine inspection program for conveyor maintenance, providing regularly scheduled reviews of the components. While the systems run, you cannot fix them, but you can observe what is not working properly. Then when there is a maintenance shut down, you know directly what to do.

We will continue to perform this service at site by a tablet which is supported by a special software program. By using this technology, we will be performing the program more effectively, faster and safer. This is the latest innovation from our company and we are looking forward to start this application very soon.

What are your prospects for the growth of the company within two to three years' time in Turkey?

We believe that most of the market share related to our business is not still covered. There is a significant portion of the market here, from government-owned power plants to coal mines, ports and terminals that we can work with. The government has been working on the privatization process for many years and we hope that it will be finalized soon. Besides this, many new mining investments are on the way. In the next few years, we are expected to have doubled the size of gold mines we have today.

For the other 50% of our annual turnover, we work with the cement industry. Turkey is one of the biggest cement manufacturers of the world. The key of the cement industry is to reduce production costs of cement, which is possible by increasing alternative fuels like plastics, oil, and RDF instead of coke. However these alternative fuels increase the problems in some areas where we are specialized in providing solutions. This is why we have positive prospects for the cement industry in the next few years. •



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What happens when something doesn't go right? Does your bulk material handling solutions partner stick by you or leave you in the dust (literally)?

It's different with Martin. Each and every one of our products is covered by our **Absolutely No Excuses Guarantee**. This means we'll stick with you until we make it right or we'll give you your money back. It's that simple.

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Bilhan Elmacı

Mining Country Manager
BORUSAN MAKINA



Can you give introduce us to Borusan Makina and your recent milestones working in Turkey's mining sector?

Borusan Makina ve Güç Sistemleri (BMGS) is one of the distributor companies operating under Borusan Group and operates in Turkey as well as Azerbaijan, Georgia, Kazakhstan and Kirgizstan with Caterpillar, its partner since 1994. BMGS has 31 service points in four regions in Turkey. With 548 employees, BMGS serves every need of construction and mining customers. BMGS provides sales and after sales services, marketing, spare parts, service, new and used sales, leasing and rental services for general construction, infrastructure projects, industry and mining sectors. BMGS is also providing second hand sales services to North Africa and the Middle East.

BMGS has been a dealer of mining products since 2013. Thanks to the expanded range of product line and services, as a result of Caterpillar's acquisition of Bucyrus; Caterpillar became the most comprehensive and competent supplier of the mining industry. Borusan Makina will supply mining products of Bucyrus,

which are included in Cat Mining product range, to Turkey, Kazakhstan, Azerbaijan, Kyrgyzstan and Georgia markets. In addition to Caterpillar, BMGS also undertakes the distributorships on behalf of Metso, Mantsinen, Mecalac, Terex O&K, Atlas Copco, Exxon Mobil, Hoist, Genie, MaK, Olympian, BESys, Sam Electronics, NGC and ClydeUnion.

How is Borusan Makina tailoring its approach as a Caterpillar dealer to fit the needs of the Turkish market?

Although we expect a learning curve for new Bucyrus line, we intend to work closely with our customers to find better ways to serve them. We are investing in training, acquiring service tooling and taking all necessary actions to meet your needs. Caterpillar and BMGS will work together to ensure on-time delivery of products, superior product support, and commitment to customer satisfaction. Cat Financial, a wholly owned finance company of Caterpillar currently finances Caterpillar equipment in the mining industry and will finance former Bucyrus products as part of their ongoing focus in this segment. Let me also state that safety is our number one priority, and forms a part of our corporate values. BMGS provides safety training to all of its employees. We also provide the necessary safety equipment and tooling.

Mining in Turkey is quite different from mining in South America or South Africa. In general, we do not deal with giant mining systems. About 90% of Turkey is tectonic areas, so we have the challenge of fractured zones and earthquakes causing small size ore reserves. Except for a few mines, we normally use general line construction equipment to move the dirt. Currently only TUPRAG Kışladağı gold mine is using Caterpillar mining equipment as well as Demir Export at Kangal coal mine. The rest of the Turkish companies are using subcontractors with 80 meters (m) to 90-m excavators. Preference is to work with subcontractors for the start up in the three to five years. They want to be sure about the permits, their rights and the mine's potential once operation has begun. Underground coal mining growing fast with increasing need for the electric generation and 3 mechanised

longwall systems are already sold, one system to Naksan Holding for Adularya Project and 2 systems to Demir Export & Fernas Corp. for Eynesiz Underground projects. For the rest of the mines 50 to 100-ton excavators are together with Caterpillar equipment are good solutions.

What is Borusan's approach to customer services and aftersales assistance?

Before every project, Caterpillar does a production and cost analysis. BMGS is involved from the mine development stage, and we help the customer design their path, approach, size of the equipment and give other recommendations. We also work with the mining departments of the top five universities in Turkey.

BMGS wants to become a one-stop-shop, not only for mining but also earth moving.

What innovations are you introducing to the sector?

Based on our expertise as a Caterpillar dealer, we have the technology that follows the heartbeat of every piece of equipment. Our "mine star" provides company owners with their own accounts and shows the detailed analysis of their equipment and site conditions, and can be used to dispatch management. We currently offer this for open-pit equipment, but we want to provide this technology for underground equipment as well. The market is not accustomed to this type of equipment, so first we need to educate customers and work with the market.

What is your outlook for Turkey's mining sector?

The future is bright in Turkey. As Europe is shrinking its presence in underground coal mining, Turkey will be popular for more than 10 underground coalmine projects in the next five years. In five years, Turkey will be a center of efficient mining examples. Since mine scale is small to medium size, we will show the rest how to develop low cost mine operations through our tailor made solution development approach. •



Image: Çiftay

Bringing Local Expertise to Capital Execution

Contractors in Turkey

As the Turkish mining industry continues to grow, local engineering expertise is evolving to meet increasingly sophisticated needs. Promer Consultancy Engineering, which specializes in detail engineering, has developed its practice through working in industrial design for Turkey's gold producers, such as Koza, Eldorado and Alacer.

"Turkey's engineering industry does not have strong international experience in basic design ability, so for the past two years we have developed relationships with firms in the international market to support us with basic design. We now have a relationship with Jacobs Engineering, a company with extensive global experience across a range of markets. Jacobs is supplying processing engineering and we are supplying all detail engineering, as well as local market availabilities and local engineering supplies as we develop projects in Turkey," said Yüksel Tonguç, general manager of Promer Consultancy Engineering.

While international companies often opt to import their support services, the cost savings that come from using Turkish expertise are unparalleled. "International investors do not know enough about local market availabilities. Most think that Turkey does not have much industry and they prefer to make their investments using technical support from North America and Europe. With this, they are losing at the beginning because they are calculating in high price investment values. Generally construction and erection is only 40-45% of your investment, while another 50% is equipment. You should know the market very well to know which critical equipment should be imported and what can be procured from the local market," said Tonguç of Promer.

Bringing in international experts as partners is a model that has served well. Together with US-based Kappes Cassiday & Associates (KCA), Turkish engineering firm DAMA Engineering is doing technological studies at KCA laboratories as well as EPCM work for gold projects. "In that regard, we have completed one project in full in Turkey, which is an agitated tank leach operation of high grade gold/silver with a 200-metric tons per day capacity running for the last two years. We are about to complete another project near Konya, Turkey," said Sabri Karahan, general manager of DAMA Engineering.

When it comes to the actual operation of mines, Turkey's strong construction

and engineering experience again comes to the rescue to introduce cost savings through the use of subcontractors. Çiftay Construction, Commissioning and Trade has served the mining market for over 50 years, starting with aggregate mining and moving into coal, iron ore and gold in recent years. Çiftay contributes annually to the production of almost 52% of the iron ore produced in Turkey through contracting for Erdemir. Among its other operations, Çiftay has handled 35 million metric tons (mt) of earth works for Alacer's Çöpler mine to date, in addition to carrying out underground mining at Koza's Mastra mine and now VTG Holding's Çalda nickel mine producing 200,000 mt of nickel. "Foreign investors want to make minimum investments and so do not want to invest in equipment, which yields higher costs," said Gülant Candaş, general manager of Çiftay.

A contractor approach can cut costs in labor and fuel. "When considering the costs of fuel, which are high in Turkey, and the low cost of labor, it is an advantage to use a smaller equipment fleet. When you reduce the size of equipment the labor force increases automatically, which is why foreign investors want to work with contractors who can manage their increasing labor force. With smaller equipment, your initial investment costs are much lower. The other important benefit is that we are able to supply jobs for local people, which brings more benefits to the communities," said Candaş. •

Yüksel Tonguç



General Manager
**PROMER CONSULTANCY
ENGINEERING LTD. CO.**

Promer Consultancy Engineering was founded in 1996 and has worked with the main gold producers in Turkey. Can you introduce us to the company's main areas of engineering expertise?

Promer's first area of focus was the cement industry, and our first project was to provide detail engineering services for a European EPC company working in Vietnam. Over time, we developed experience with industrial design and then moved to energy and coal-fired power plants in particular. With our experience in coal preparation for coal-fired power plants and in chemical processes from cement plants,

we entered the mining industry in 2008, when it was just getting started, and did a study for the first Turkish investment project, Koza. We provided full engineering services, including basic design, detail engineering and construction management for their first investment in Turkey, Mastra. After Mastra, we worked with Eldorado/Tüprag for their Efemçukuru mine, completing all aspects of detail engineering along with consultancy services, supporting them with local market research, and reasonable senior engineer prices. Promer also worked on the Alacer project for detail engineering services. We final-

ized the latest investment in their existing plant for their copper-gold separation unit. Promer has also completed the second plant for Koza in Kaymaz, and their third heap leach project's front-end designs in Himmetdede.

What is the international scope of your business with the mining industry?

Promer is unique in that it has 125 employees and is independent. Our engineers have international experience and our databases and work processes are 100% compatible with the international industry's systems. In addition to Turkey, Promer is also working with clients in Turkmenistan and Kazakhstan, such as with the Bozshakol copper plant in Kazakhstan. The project is owned by a London-based company with an investment of 3,600 metric tons per hour.

The Turkish engineering industry does not have strong international experience in basic design ability. For the past two years, we have developed relationships with international firms to support us. For example, we have a relationship with Jacobs Engineering, which supplies processing and all detail engineering, as well as local market availabilities and engineering supplies.

As the industry continues to grow, how are international companies finding local engineering expertise?

International investors do not know enough about the local market. Most prefer to make investments using technical support from North America and Europe, but they immediately lose money because they are calculating in high price investment values. Generally, construction and erection is only 40% to 45% of an investment, while 50% is equipment. Market knowledge can help companies know what equipment must be imported and what can be procured locally.

How do you see Promer developing in the near-term?

Turkey is at a crossroads. Its engineers have masters' degrees and have graduated from internationally acclaimed universities. Costs and prices are cheaper than North American and European firms. It sells services as a lump sum. In the next two to five years, Promer expects to assume a larger role. •

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Sabri Karahan

General Manager
DAMA
ENGINEERING



Dama Engineering brings a wide range of exploration and mining engineering services to Turkey. Can you give us a brief introduction to the firm and its recent developments?

Dama Engineering (DAMA) was incorporated as an independent engineering company in 2005. We manage exploration projects for our clients, facilitate metallurgical test works, and conduct resource and reserves estimations, under the guidance of internationally accepted standards (JORC, 43-101). These projects are supervised by qualified persons and experts, who provide preliminary economic evaluations, scoping studies, pre-feasibility and feasibility studies, engineering, procurement, and construction management (EPCM) as well as turnkey services. DAMA is a boutique company on par with international competitors and provides expert service to the industry at continuously improving standards. Out of 23 staff employees, 14 are engineers and geologists with experience in Turkey and elsewhere. We have been working on projects in Azerbaijan, Kyrgyzstan, Kosovo, Georgia and North Africa.

You have conducted heap leaching technology studies with your U.S. partner Kappes Cassiday & Associates (KCA). Can you highlight recent projects that showcase this expertise?

DAMA is doing studies at KCA laboratories as well as EPCM work for gold projects. We have completed an agitated tank leach operation of high-grade gold/silver with 200 metric tons per day capacity. This project entails a unique technology to increase silver recovery by 80%. We are about to complete another gold heap leach project near Konya.

In terms of mine planning, what have been some of your activities?

DAMA has a great deal of experience in resource estimation, mine planning, scheduling, and pit optimization. Along with scoping studies, DAMA can handle small and medium-level feasibility studies. Plans are conducted for gold, copper-lead-zinc, coal and iron.

Is it difficult to compete in the consulting market as the industry attracts more international firms?

DAMA has demonstrated that it is as effective as international competitors. It is small but can execute lateral and vertical decision-making and can reduce overhead. Personnel turnover is also minimal, and core-experts are continuously improving their skills. Competition will result in "good practices" and weed out those who cannot comply with international standards.

How would you characterize the current investment climate?

Turkey is gradually improving on rule of law. There are three issues that relate to mining industry: 1) security of license ownership. License ownership has to be equaled to property ownership; 2) legal-outcome predictability; and 3) the enforcement of the law. Turkey has the constitutional law, the mining law, and the mining regulations. There is also a strong NGO base to defend the institutional ground.

What are Turkey's enduring advantages as a mining investment destination?

Turkey has strong geology, and we have only scratched the surface of its potential. Most of the exploration is concentrated in western Turkey, leaving the northern and southern mountain ranges and central and eastern parts of the country unexplored. Turkey has a qualified operator workforce, engineers, scientists, research laboratories, and a good equipment-manufacturing base. The cost of project realization can be 30% to 50% lower than in Europe or North America. •

DAMA
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Gülant Candaş

General Manager

ÇİFTAY CONSTRUCTION AND COMMISSIONING AND TRADE, INC.



Can you provide us with an introduction to Çiftay's history of operations in Turkey's mining industry?

Çiftay is a leading mining company in Turkey and has been performing mining operations for over 50 years. The main activities are operating mines, processing plants, contracting works, mine development and engineering studies. Çiftay has been producing aggregate since its establishment. Çiftay started to operate a coal processing plant in Soma, Manisa 10 years ago and 35 million metric tons (mt) of coal has been enriched to date. In addition to this, 70 million cubic meters stripping has been completed successfully to date.

In subsequent years, Çiftay has begun operating metallic mines. In 2008, an agreement was made with a mining contractor with Erdemir A.Ş. for both underground and open-pit iron mines in Divriği, Sivas. At roughly the same time Çiftay A.Ş. started to perform mining operations at Alacer's Çöpler gold mine in Iliç, Erzincan.

Çiftay contributes annually to the production of almost 52% of iron ore pro-

duced in Turkey at Erdemir A.Ş. We are performing all of the open-pit mining operations at Çöpler Gold Mine, which has Turkey's second largest amount of reserves, and have completed 35 million cubic meters of earthworks (both ore and waste) up to date. In the last two years, Çiftay has started to work at Koza A.Ş.'s Mastra Underground Gold Mine in Gümüşhane, as well as VTG Holding's Çaldağ Open Pit Nickel Mine in Turgutlu, Manisa.

How have you developed your expertise in both underground and open-pit mining?

Çiftay gained its underground expertise in development and mining operations by working with Erdemir A.Ş.'s Divriği Underground Iron Mine and the Koza A.Ş.'s Mastra underground gold mine. At Erdemir, production of over 7 million mt of iron ore has been completed to date.

Çiftay started its open-pit mining operations with quarry operations 50 years ago. Nowadays, besides continuing to work in the quarry operations, we are also supplying raw materials for four different Cement Factories. Moreover Çiftay has become more experienced at Erdemir A.Ş.'s open-pit iron ore mine. In addition to these mining and quarry operations, Alacer's Çöpler open-pit gold production also developed our expertise. In Ankara, Burdur and İzmir we have owned quarry and aggregate plants.

Can you give us further details on your fleet and personnel?

Taking care of the selection of equipment fleet and personnel plays a crucial role in Çiftay's operations. Çiftay has committed itself to select its employees from candidates who will respond to the Çiftay's values and requirements of the job and have the potential to carry Çiftay into the future. We have 1,250 personnel working with us and almost 100 of them are engineers.

Çiftay prefers to work with globally leading mining equipment companies, such as Atlas Copco and Caterpillar. Moreover, our technical office works effectively to select the most appropriate equipment fleet for the projects. We generally have Caterpillar and Atlas

Copco's equipment for open-pit operations and Atlas Copco's for underground operations.

As Turkey's mining sector becomes more mature, how do you predict the role of mining contractors will evolve?

Foreign investors want to work with mining contractors since they have already invested in exploration and other projects in Turkey. They want to make minimum investments and do not want to invest in equipment, which yields higher costs. Foreign investors will continue to employ contractor miners as the industry develops. Some of the global mining investors and exploration companies that are looking to enter the Turkish market, particularly by investing in a gold mine, are looking for a contractor, and we are having meetings with them.

What are Çiftay's competitive advantages in the market?

Çiftay's main advantage is its approach to occupational health and safety as well as environment friendly operations in all aspects of works. Çiftay also has a strong equipment fleet and experienced human resources. Finally, Çiftay uses experienced project management to keep operations running and avoid downtime and work stoppages due to technical problems. Çiftay has completed all of its mining contracts on time if not ahead of schedule. We do the project in order to work 24 hours a day 7 days a week all year round, according to the related legal regulations.

Given the current low commodity prices for mining, how can a contract-mining approach introduce cost savings?

Foreign investors want to work in Turkey with bigger machines and bigger trucks. When considering the costs of fuel, which are high in Turkey, and the low cost of labor, it is an advantage to use a smaller equipment fleet. When you reduce the size of equipment, the labor force increases automatically. Investors want to work with contractors that can manage the increasing labor force. Additionally, with smaller equipment, initial investment costs are much lower. Another advantage is that

we employ local people, which bring more benefits to the communities.

What about your health and safety approach has enabled Çiftay's health and safety record?

We consider health and safety the most important part of our business to reach our goal of becoming the largest company in Turkish mining industry. As of 24 February 2014, we reached 700 days of operation without any incident at Alacer's Çöpler gold mine. We maintain international standards of health and safety and perform our operations by the right of both Turkish rules and regulations and international standards. We have adopted scientific and technological improvements to our health and safety applications in order to decrease the occupational accident rate, which is increasing across industries.

What has Çiftay done to improve the environmental sustainability of its operations?

We see the environment as a heritage to be handed down to future generations. Çiftay employees comply with the applicable legislation and regulations and perform operations under an environmental management system based on sustainable development. Çiftay takes all necessary precautions to minimize harm to the environment and has adopted a sustainable environment for personnel and our corporate participation. Also, the technology of our equipment fleet is environment friendly.

Going forward, what are Çiftay's plans to expand in the medium-term?

Çiftay plans to be one of the largest companies in the Turkish mining industry and gain more expertise in the growing market. Our past performance as well as our adherence to local rules and regulations will assure that we succeed in future undertakings. We have meetings with global mining investors and exploration companies that are working to develop their projects in Turkey as a joint venture or through a contract. We have also started to explore our own licenses for developing our own mine. •



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Into the Future: Final Thoughts and Company Index

“Turkey has large mineral deposits, adding up to 72 economical minerals, but most of them are out of production because of a lack of investment and exploration. All of the country has had geological prospection, but with regards to drilling and reserve establishment, only 45% of Turkey has been explored by drilling. In the last 10 years, mining has changed and development tremendously. In the next 10 to 20 years, we will have very large developments in the mining industry.”

- Güven Önal, President,
Turkish Mining Development Foundation

Image: SGS



“The mergers and acquisitions (M&A) scene in Turkey has certainly been affected by the global downturn in the mining industry. Juniors started to sell their non-core assets, which drove M&A activity up. Also, Turkish companies are looking for international partners because of Turkish companies’ need and desire to have better access to global financing and customers and markets. We expect M&A activity will remain high in 2014.”

- Şebnem Onder, Partner,
Akol Law Firm

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“In a long-term perspective, Turkey is now under-explored and is moving in the right direction. There are over 70 minerals in Turkey and companies are starting to carry out proper exploration programs for future mines. Since 2008, greenfield projects have been entering into feasibility standards, and the industry needs to work more to generate world-scale engineering projects and enable the latest technology to the market. In five years’ time, Turkey is going to be leader on the mineral market both by adding value to the industry and increasing the production amounts.”

- Sermet İlhan, General Manager,
Mine RP Eurasia

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“In 2013, we entered the coal mining business on a larger scale, because the price of metals decreased and new projects are not developed in metal Turkish metal sector. We now have new agreements with different partners, including T Machinery from the Czech Republic, which provides complete long-wall mining systems including drum shearers, hydraulic shield supports, armored Face conveyors and electrical systems for underground coalmines. Another partner is DH Mining Systems from Germany, which supplies flame proof and ATEX certified drill rigs, loaders, roadheaders and utility vehicles for underground coalmines.”

- Togan Yürür, Mining Division Manager,
PENAmaden

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“We have low cost labor and infrastructure is ready in most places, especially in the western part of Turkey. We also have a very solid Turkish supplier base. Turkey is lucky because we have very strong construction firms with experience working in Turkey and overseas, especially African gold countries. For engineering firms, we have also found excellent local partners. We were doing some feasibility studies in the US and at a certain point we transferred these studies to Turkey.”

- Hasan Unsac, Country Manager,
Kuzey Biga/Alamos Gold



“Currently about 50% of our samples are generated by exploration projects outside of Turkey, but this can change. Once local companies start to receive their permits, we expect to receive more samples from the Turkish market. About 51,000 files were sent back to the Ministry of Energy and Natural Resources for approval recently and we expect that about 70% of companies that applied for the permits, if they are in-line with the regulations, will get them.”

- Emre Ekizoğlu, Business Manager,
SGS Minerals & Metallurgical Services Turkey

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“In 2009, with the opening of Balya Balıkesir zinc and lead plant, metallic minerals production became a substantial part of Esan’s operations. In January 2014, the plant mine reached 30,000-meters (m) total gallery length and 700-m depth, which made it the deepest lead and zinc mine in Turkey. Balya lead and zinc plant has a yearly capacity of 1.1 million metric tons (mt) of underground production and 120,000 mt of metallic concentrate production.”

- Serpil Demirel, Assistant General Manager,
Eczacıbaşı Esan

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“In order for Turkey to achieve its goal of becoming the 10th largest economy in the world, its annual growth will need to be 5% to 6%, which will depend on gaining access to metals and minerals. Additionally, maintaining and increasing foreign direct investment (FDI) will be essential for the Turkish economy. Accordingly, Turkey is in the “right place,” and offers positive differentiators for mining investment, particularly compared with other investment destinations in the world.”

- Han İlhan, President and CEO,
Aldridge Minerals Inc.

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“In 2009, we exported 25% of our products; however from 2010 to 2013, because our main products were sold to Europe, this number decreased. European distributors are looking at China for supplier markets. We are now working in Iran and Kazakhstan, which are both very big mining countries and do not have any local equipment manufacturers. Our capacity until now has also been sufficient for just the needs of our Turkish customers. The construction of our two new factories will allow us to work on bigger and more machines, which are manufactured with new technology.”

- Bülent Tüfekçioğlu,
Tüfekçioğlu Kauçuk ve Makina



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