Modern trends of development in mining industry in the Kyrgyz Republic

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Abstract. Modern trends are considered for developing mining industry in the Kyrgyz Republic under conditions of transition to the JORC system in evaluating mineral deposits.

1. Introduction
Mining industry is one of the most important sectors in development of the Kyrgyz Republic and makes a weighty contribution of 11% to GDP of the country. By estimates quoted in the National Strategy for Mining Industry, gold makes around 87% of total cost of mineral reserves, coal–10%, and the rest is mostly copper and silver [1]. According to official figures, on the national balance currently there are gold deposits (proved reserves 430 thou t) tin (208 thou t), tungsten (144 thou t), rare earth metals (51 thou t), aluminium (349 Mt), coal (over 1 Bt), antimony (157.5 thou t), mercury (40 thou t), molybdenum (2358 thou t) and some other minerals [2]. One of the largest deposits, Kumtor has produced 339.6 t of gold over a period of 1997 to 2016, and holds proven and inferred reserves of 241 t [3].

To date many companies invest in the mining sector of Kyrgyzstan. The top investor is Canada with the capital expenditures of 48% (Kumtor). Capital is also invested by China (14%), Great Britain (7%), Germany and Kazakhstan (5% each), Russia and Switzerland (4% each), and USA (3%) [5].

Figure 1. Nontax and tax payments per industry branches (excluding state and social insurance): 1—oil and gas; 2—financial services; 3—professional occupation; 4—construction; 5—communication; 6—trade; 7—nonferrous metals; 8—other industries. Payments are given in million Kyrgyzstan som.
In 2016 gold mining was carried out at the deposits Makmal, Terekkan, Solton-Sary, Bozymchak and Taldybulak Levoberezhny. Concentrate produced at Ishtamberdi, Dzhamgyr and Karakazyk deposits is shipped for processing outside Kyrgyzstan [5].

The highest budget receipts in the form of nontax and tax payments were from the nonferrous metal industry although its share in GDP was merely 5.05% in 2016 (Figure 1) [6].

2. Development Strategy for Mining Industry of the Kyrgyz Republic

The National Sustainable Development Strategy for Kyrgyzstan is the critical document to shape the growth strategy of the country, as well as the lines and priorities of economic, political, and social advancement. The Strategy includes mining industry in the list of five strategic sectors of economy, and development of the mining industry is totally entrusted to the private sector due to the public finance deficiency. The Strategy highlights that favorable investment climate requires clear, simple and transparent legislation to be elaborated by the government.

In 2014 the consortium of local experts prepared a draft mid- and long-term Development Strategy for Mining Industry of the Kyrgyz Republic for 2015–2035 with comprehensively planned implementation. This document is overlooked by reformers of the mining sector at the present time. Regarding legislative and subordinate acts, mineral resources management is regulated by a series of regulatory legal documents, including the crucial Law on Subsoil (2012) and its provisions, Law on Environment (1999), Law on Ecological Expertise (1999), Tax Code (2008) and Land Code (1999). The government accounts management is subjected to regulation by common regulatory legal acts which fall within government finance administration, in particular, Budget Code of the Kyrgyz Republic (2016).

Numerous federal and local regulatory bodies participate in development and implementation of subsoil management policy. Accordingly, the functions and responsibilities of each body should be set distinctly, with duly arranged coordination between them for efficient communication and consistency of acts. In some case, regulatory bodies can be given new functions. For instance, local authorities are often underactive in development of normative acts, especially if the point is on income distribution, or reclamation and preservation of mining industry assets.

The mining industry, in order to increase its weight in economy of Kyrgyzstan, urgently requires transition to innovative international codes of evaluation of mineral reserves. The improvement of innovation-based competitive ability of the mining and processing industry of the country calls for transition from evaluation of mineral resources and reserves by CRIRSCO family of codes to JORC system. This problem was raised on the governmental level but unfortunately was not put into motion.

The CRIRSCO international family of codes includes international mineral reporting organizations from Australia (JORC), Canada (CIM), Chile (National Committee), Europe (PERC), Russia (NAEN), South Africa (SAMCODES), USA (SME), Mongolia (MPIGM) and Kazakhstan (KAZRC) [7]. It should be taken into account that these international codes regulate the contents and sequence of reporting without identification of the appraisal methods.

Comparing estimates of mineral reserves and resources by GKZ and JORC, the difference in the purposes of these systems should be understood. The GKZ was created in the social economy for governmental management of mineral reserves and resources; i.e., exploration, mine planning and design and mineral production were under responsibility of government. The JORC code aims offer information and reporting to investors. This code is subjected to regulation from stock exchange and financial institutions [8, 9]. Different exchanges choose different codes from CRIRSCO family. Put it otherwise, the aim of the GKZ reporting is registration of mineral reserves and resources on the governmental balance, while the JORC system provides exchanges and investors with public reports. The difference of the aims brings different formats and approaches.

The GKZ and JORC codes are based on such criteria as: goal, materiality, competence, transparency, independence, input data evaluation, exploration approaches, appraisal, report authors, approval.
Regarding **Materiality**, both systems provide complete information for validation of mineral resource and reserve estimation. **Competence** makes distinctions between areas of responsibility of participants. The GKZ estimation is the team-work result without personal responsibility, the JORC Code imposes responsibility on the competent reporting person.

From the viewpoint of **Transparency**, JORC Code goes ahead as the competent person, plainly and with no omission (and no disorientation) offers complete and significant information in whole. The GKZ system only provides information required for registering reserves and resources on governmental balance, while ill-transparent and complex expertise is often subjective, which results in investment errors. As for the criterion of **Independence**, the GKZ system experts are not independent as they serve interests of the government; in conflict of interests, the independent consultant of the JORC Code naturally wins. Regarding **Input Data Evaluation**, both system approaches are in many ways the same, with the collegial evaluation in GKZ and QA/QC analysis by a competent person in JORC.

**Exploration and Geological Appraisal** in JORC are based on geological features and industrial standards, are nor strictly formalized, while rest on regulations in GKZ although final decision is made by executors. JORC reporting is implemented by competent persons, and GKZ system engages subsoil users or consultants. The **Report Approval** procedures differ greatly. The JORC report is approved by a competent person, while the GKZ procedure is more formal and extended. The GKZ experts should be professionals in the area of evaluation / audit, with no less than 5 years-long experience of operation at the specific-type deposits. JORC’s competent persons bear full responsibility for the reporting, whereas GKZ experts take on the joint responsibility, which results in worse quality of reporting, in buck-passing and in shifting responsibility to government.

By pre-estimates, Kyrgyzstan should right now think on introduction of the CRIRSCO family codes, in particular, JORC Code toward innovation and efficiency in mineral mining. It is the time to begin training independent experts—competent persons and to pursue consistent investor policy. As a consequence, potential risks will be reduced for international investors and their interest in mineral mining in Kyrgyzstan will be raised.

### 3. Conclusions

In summary, the emphasis should be laid on:

— complete removal of doubling of public authorities in the mining sector by means of reformation and optimization;

— early transition to the new innovative system of estimating mineral reserves and resource, namely JORC Code, which will enhance investment inflow, reduce risks of international investors, improve estimation transparency and abate corruption.

In the future, the influence of the mining sector on the economic advance of Kyrgyzstan will grow, and the JORC Code will help an innovative breakthrough in this sector.

### References

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