How to Foster Innovation and Cooperation for Critical Raw Materials Development and Utilization in Kyrgyzstan

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It was discovered more than 20’000 mine occurrences 150 kinds of various mineral resources from 1938 when Kyrgyz Geological Survey was established. There 2500 licenses for different type of activity in the mining were granted in the Kyrgyzstan.
It was created 20 settlements near to main mining projects in the Kyrgyz Republic. The most of them are abandoned at the moment.
As the case study “How to Foster Innovation and Cooperation for Critical Raw Materials Development and Utilization in Kyrgyzstan” it can be reviewed experience of State Enterprise “Kyrgyzgeology” rehabilitation and putting to circular abandoned Kyrgyz mining and processing plant (KMPP) in Kemin, Chui district, north part of the Kyrgyzstan.

KMPP starts it operation in 1942.

There was 4 operation units.

The main products of the plant was Yttrium and 15 lanthanoids which were presented in 120 different types of REE’s oxides with Mg, Al, Si, Pb, Fe and others.

There are 4 tailings which is estimated as anthropogenic resources.
CRM in the Kyrgyz Republic

Opportunities
The physical conditions of the tailings is estimated as possible for rehabilitation.

The total volume of the tailings is 3.7 million cubic meters on the 130,000 square meters.

The minimum estimations of mineral reserves is Pb – 23,000 tons, Zn – 40,000 tons, Ag – 46.5 tons, Au – 1.5 tons, Cd – 189 tons, In – 50 tons, Cu – 3580 tons, and others while the average size of noting particles is 0.17 mm with density of 1.65 g/cubic cm
The main obstacle in the Kyrgyz Republic is inconsistency of managing mineral resources on the governmental level. Adaptation of the UNFC in Kyrgyzstan requires optimal close interaction between the state and the subsoil user and the corresponding geopolitical, economic and technological platform.

### CRM in the Kyrgyz Republic

**Threatens**

The main obstacle in the Kyrgyz Republic is inconsistency of managing mineral resources on the governmental level. Adaptation of the UNFC in Kyrgyzstan requires optimal close interaction between the state and the subsoil user and the corresponding geopolitical, economic and technological platform.

### Table: UNFC and KR classification

<table>
<thead>
<tr>
<th>Class</th>
<th>Subclass</th>
<th>UNFC</th>
<th>KR classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viable Projects</td>
<td>Approved for Development</td>
<td>1</td>
<td>Balance reserves for development</td>
</tr>
<tr>
<td></td>
<td>Justified for Development</td>
<td>1</td>
<td>A, B, C1, C2</td>
</tr>
<tr>
<td>Potentially Viable Projects</td>
<td>Development Pending</td>
<td>2</td>
<td>Promising for industrial development balance reserves</td>
</tr>
<tr>
<td></td>
<td>Development On Hold</td>
<td>2</td>
<td>A, B, C1, C2</td>
</tr>
<tr>
<td>Non-Viable Projects</td>
<td>Development Unclarified</td>
<td>3.2</td>
<td>Estimated Reserves Requiring Additional Exploration</td>
</tr>
<tr>
<td></td>
<td>Development Not Viable</td>
<td>3.3</td>
<td>P1, P2, P3</td>
</tr>
<tr>
<td>Remaining products not developed from identified projects</td>
<td></td>
<td>3.3</td>
<td>Unprofitable for industrial development or unrecoverable</td>
</tr>
<tr>
<td>Prospective Projects [No subclasses defined]</td>
<td></td>
<td>3.2</td>
<td>Not defined for this class</td>
</tr>
</tbody>
</table>

### Notes:

- **Reserves categories**
  - Category A includes explored mineral reserves with previously defined boundaries of mineral bodies, their shapes and structures. Highlighted in the areas of detailed exploration and development of deposits of the 1st group of geological complexity.
  - Category B includes previously explored mineral reserves with only rough definition of mineral bodies, without an adequate representation of the spatial position of natural types of mineral raw materials. Category B reserves are identified in the areas of detailed exploration and development of deposits of the 1st and 2nd groups of geological complexity.
  - Category C includes reserves of explored deposits of the complex geological structure, as well as poorly explored reserves of minerals in other geological complexes. These are identified in the areas of detailed exploration and development of deposits of the 2nd and 3rd groups of geological complexity, and can also be included in the areas of detailed fields of the 4th complexity group.

- **Reserves characteristics**
  - Viable projects
  - Potentially Viable Projects
  - Remaining products not developed from identified projects
  - Prospective Projects

- **Degree ofCompleteness and Profitability of Development (E and F)**
  - E: Degree of completeness
  - F: Profitability
  - G: Degree of profitability

- **Reserves categories**
  - A, B, C1, C2
Thank you!

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UNECE
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