



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

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State Enterprise “Kyrgyzgeology”



SUSTAINABLE ENERGY WEEK 2023
BUILDING RESILIENT ENERGY SYSTEMS

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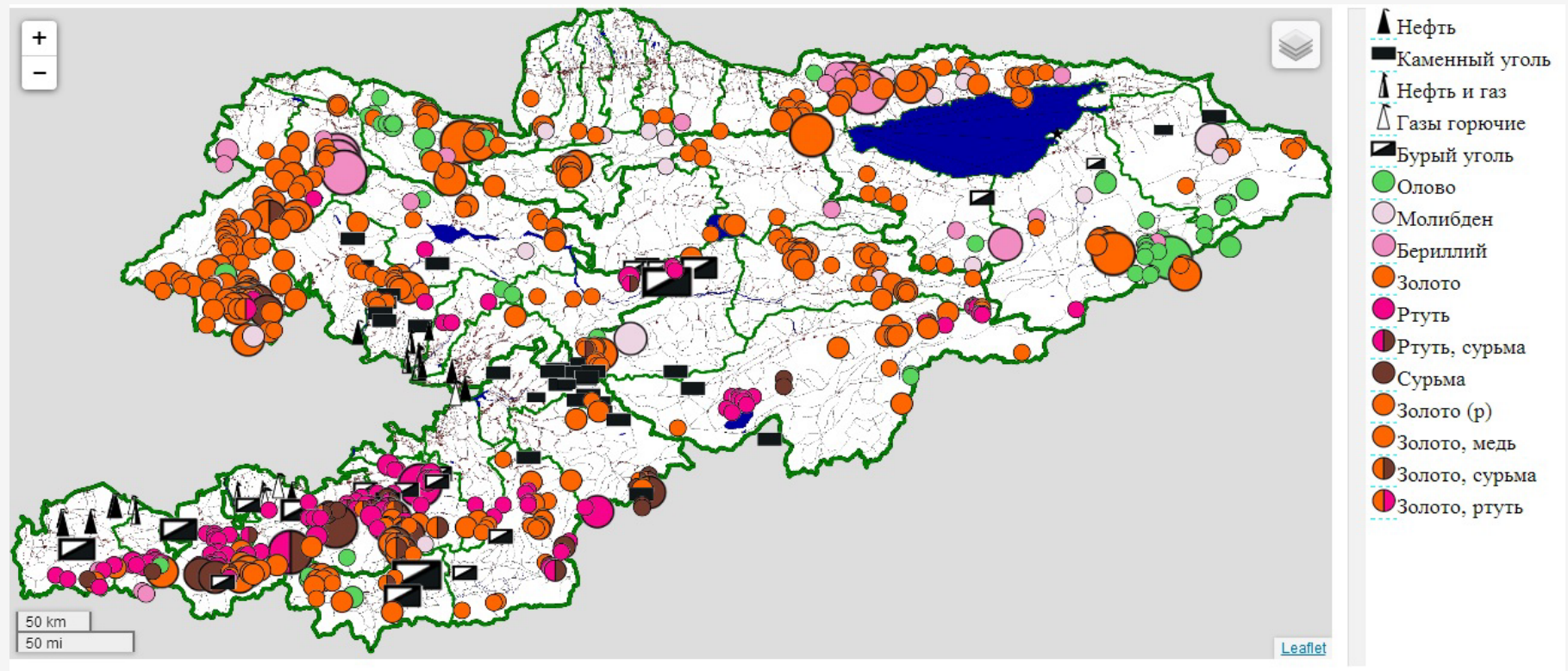
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CRM in the Kyrgyz Republic

Strength



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.

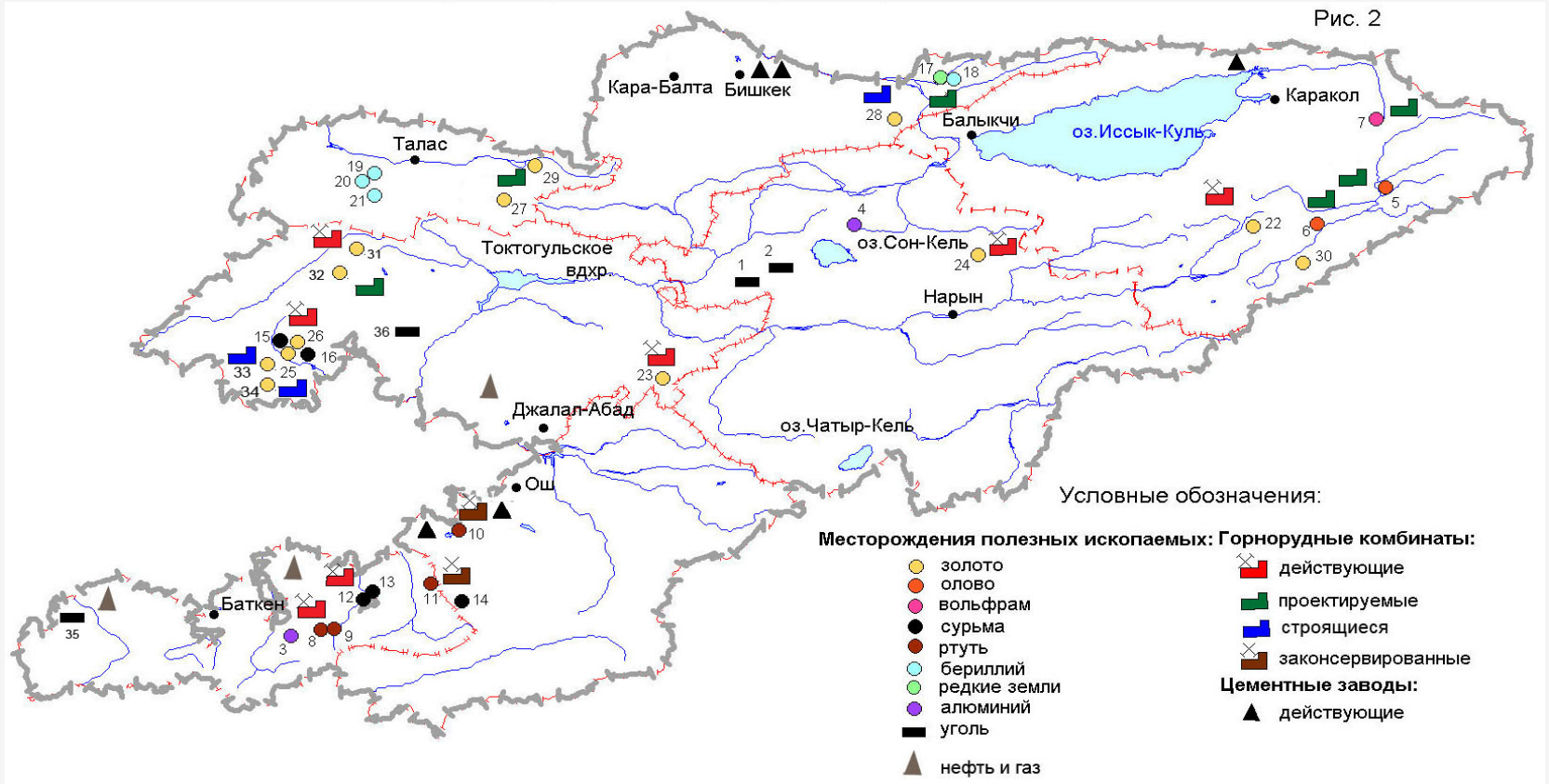


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Weakness



It was created 20 settlements near to main mining projects in the Kyrgyz Republic. The most of them are abandoned at the moment.



CRM in the Kyrgyz Republic

Opportunities



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 its operation in 1942.

There were 4 operation units.

The main products of the plant were 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 are estimated as anthropogenic resources.

The image shows a standard periodic table of elements. A red border highlights the lanthanide series (elements 57-71) and the actinide series (elements 89-103), which are the primary focus of the case study. The table includes element symbols, names, and atomic weights.

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Opportunities



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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

Наименование	Место нахождения	Принадлежность	Санитарно-защитная зона	Объем/площадь	Период эксплуатации	Консервация/рекультивация	Примечание
Хвостохранилище № 1 Ак – Тюзского рудника	Кеминский район, пос. Ак – тюз, у основания обогатительной фабрики	ОАО "КХМЗ" ГосАкт на земельный участок сер.Ч №331089	4,0 га	370 м3/ 4,0 га	с 1942 по 1955годы	законсервировано	
Хвостохранилище № 2 Ак – Тюзского рудника, туннель	Кеминский район, в сае Кулаган – Таш на расстоянии 1 км ниже пос. Ак – тюз	ОАО "КХМЗ" ГосАкт на земельный участок сер.Ч № 916467	12,6 га	370 м3/12,6 га	с 1951 по 2008годы	рабочее	
Отстойник	Кеминский район, в сае Кулаган – Таш на расстоянии 1 км ниже пос. Ак – тюз	ОАО "КХМЗ" ГосАкт на земельный участок сер.Ч № 340271	2,8 га	/2,8 га	с 1951 по 2008годы	рабочее	
Хвостохранилище № 3 Ак – Тюзского рудника	Кеминский район, в устье части ручья Кутессай на расстоянии 1 км ниже пос. Ак – тюз	ОАО "КХМЗ" ГосАкт на земельный участок сер.Ч №331090	3,0 га	1100 м3/ 3,0 га	с 1965 по 1978годы	законсервировано	
Боординское хвостохранилище	Кеминский район, в сае Беркут, 3,8 км южнее г. Орловка	ОАО "КХМЗ" ГосАкт на земельный участок сер.Ч №331088	28,0 га	3200 м3/ 28,0 га	с 1953 по 1992годы	рабочее	с 1992 года не эксплуатируется
Накопители	Кеминский район, 2,5 км юга восточнее г. Орловка	ОАО "КХМЗ" ГосАкт на земельный участок сер.Ч №1058267	25,1 га	/ 25,1 га	с 1953 по 1992годы	рабочее	с 1992 года не эксплуатируется
Автомобильная дорога и трубопровод	Кеминский район, 3,0 км южнее г. Орловка	ОАО "КХМЗ" ГосАкт на земельный участок сер.Ч №090691	5,6 га	/ 5,6 га	с 1953 по 1992годы	рабочий	

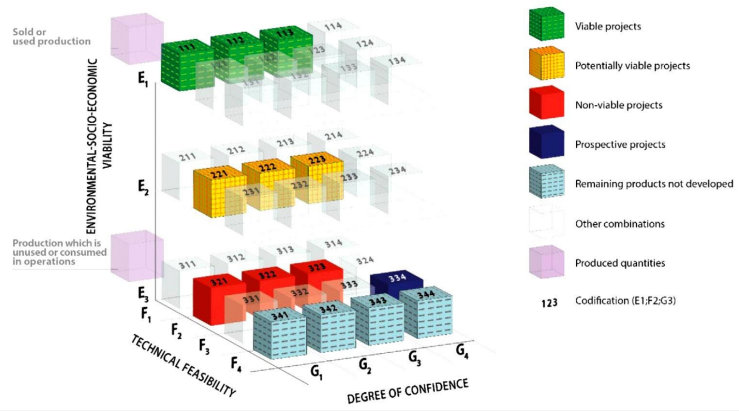
CRM in the Kyrgyz Republic

Threatens

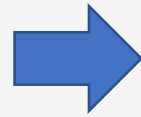


The main obstacle in the Kyrgyz Republic is inconsistency of managing mineral resources on the governmental level.

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.



Reserves category	Reserves characteristics
A	Category A includes explored mineral reserves with precisely defined boundaries of mineral bodies, their shapes and structures. Highlighted in the areas of detailing explored and developed deposits of the 1st group of geological complexity.
B	Category B includes previously explored mineral reserves with roughly defined contours of mineral bodies, without an accurate representation of the spatial position of natural types of mineral raw materials. Category B reserves are allocated in the areas of detailed exploration and development of deposits of the 1st and 2nd groups of geological complexity.
C ₁	Category C ₁ includes reserves of explored deposits of the complex geological structure, as well as poorly explored reserves of minerals in new areas, taking into account extrapolation. Category C ₁ reserves constitute the bulk of the reserves of explored and developed fields of the 1st, 2nd and 3rd groups of geological complexity, and can also be allocated in the areas of detailed fields of the 4th complexity group.
C ₂	Prospective reserves are classified as C ₂ . Reserves of category C ₂ are allocated during exploration of deposits of all groups of complexity, and in deposits of the 4th group of the complexity of geological structure, they constitute the bulk of the reserves involved in development.
P ₁	Inferred resources of category P ₁ take into account the possibility of expanding the boundaries of the distribution of minerals beyond the contours of C ₂ reserves or identifying new ore bodies of minerals at ore occurrences, explored and explored deposits.
P ₂	Inferred resources of the P ₂ category take into account the possibility of discovering new deposits of minerals in the basin, ore region, node, field, the presumptive presence of which is based on a positive assessment of the occurrences of minerals, as well as geophysical and geological and geochemical anomalies, the nature and potential prospects of which are established by single workings.
P ₃	Predicted resources of category P ₃ take into account only the potential for the discovery of deposits of one or another type of mineral on the basis of favourable geological and paleogeographic prerequisites identified in the estimated area during medium-small-scale geological-geophysical and geological survey works, interpretation of space images, as well as analysis of results geophysical and geochemical research.



Class	Subclass	UNFC			KR classification	
		E	F	G	Degree of Completion and Profitability of Development (E and F)	Reserves Category (G)
Viable Projects	On Production	1	1.1	1, 2, 3	Balance reserves ready for development	A, B, C ₁ , C ₂
	Approved for Development	1	1.2	1, 2, 3		A, B, C ₁ , C ₂
	Justified for Development	1	1.3	1, 2, 3		A, B, C ₁ , C ₂
Potentially Viable Projects	Development Pending	2	2.1	1, 2, 3	Promising for industrial development balance reserves	A, B, C ₁ , C ₂
	Development On Hold	2	2.2	1, 2, 3		A, B, C ₁ , C ₂
Non-Viable Projects	Development Unclarified	3.2	2.2	1, 2, 3	Estimated Reserves Requiring Additional Exploration	P ₁ , P ₂ , P ₃
	Development Not Viable	3.3	2.3	1, 2, 3		P ₁ , P ₂ , P ₃
Remaining products not developed from identified projects		3.3	4	1, 2, 3	Unprofitable for industrial development or unrecoverable	A, B, C ₁ , C ₂
Prospective Projects [No sub-classes defined]	Prospective Projects [No sub-classes defined]	3.2	3	4	Not defined for this class	P ₁ , P ₂ , P ₃
Remaining products not developed from prospective projects		3.3	4	4		P ₁ , P ₂ , P ₃

Thank you!

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