



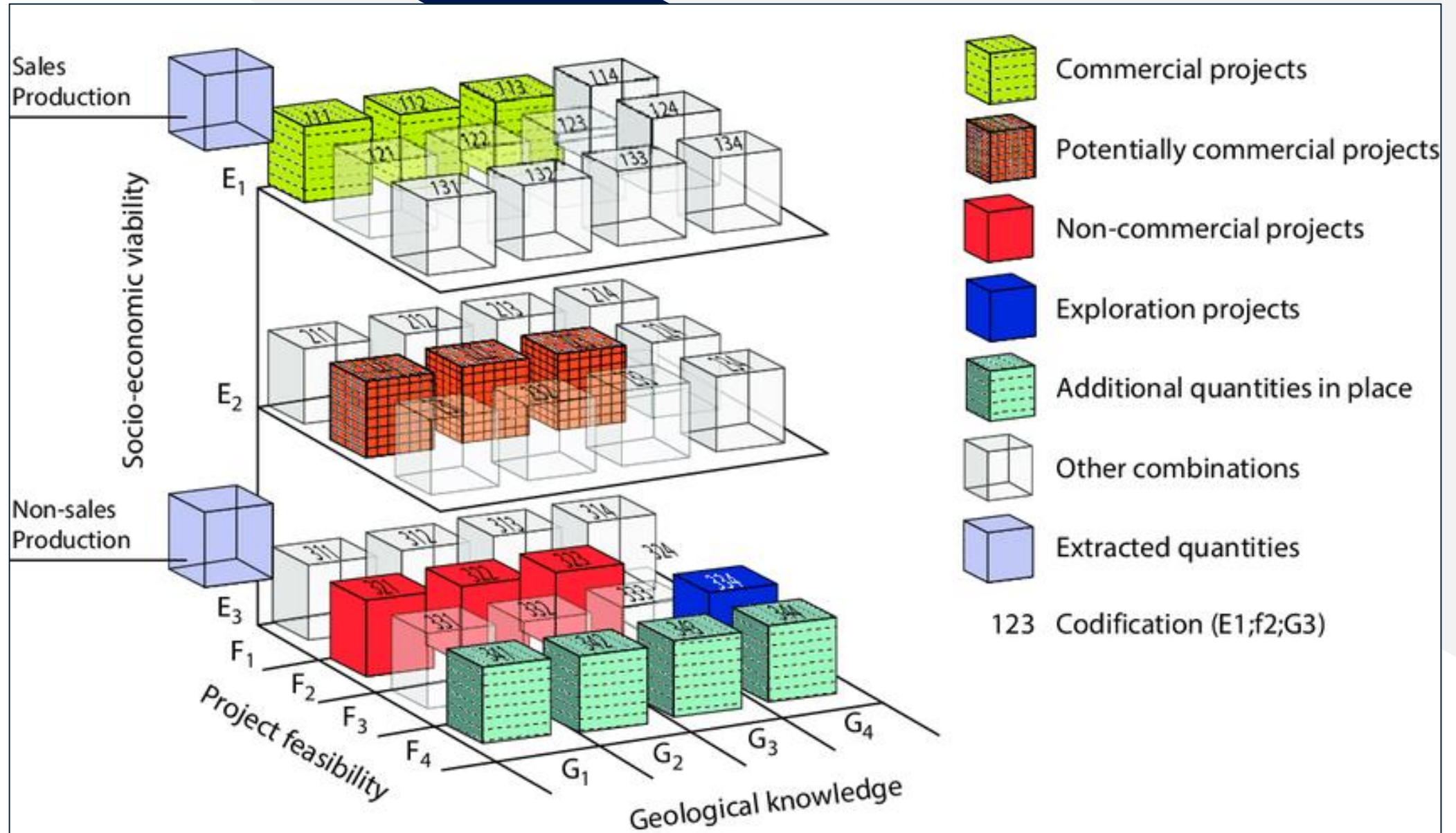
Case study on application of UNFC to energy and mineral resources in Kyrgyzstan

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Introduction

- “Classification of deposits reserves and prognostic resources of solid minerals of the Kyrgyz Republic”.
- “Classification of deposits reserves, oil and combustible gases perspective and prognostic resources”.







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Object of study I

Complex deposit of gold, silver
and copper (deposit №1)

Comparison of classes and subclasses of UNFC with the Classification of deposit reserves and prognostic resources of solid minerals of the Kyrgyz Republic

Class	Subclass	UNFC			Classification of the Kyrgyz Republic	
		<i>E</i>	<i>F</i>	<i>G</i>	<i>State of readiness and profitability of development (E u F)</i>	<i>Reserves category (G)</i>
Commercial projects	In mining	1	1.1	1, 2, 3	Ready for mining on-balance reserves	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 Commercial Projects	Development pending	2	2.1	1, 2, 3	Perspective for industrial development on-balance reserves	A, B, C ₁ , C ₂
	Development on hold	2	2.2	1, 2, 3		A, B, C ₁ , C ₂
Non commercial 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
Additional quantities		3.3	4	1, 2, 3	Unprofitable for industrial development or non-recoverable	A, B, C ₁ , C ₂
Exploration Projects	Subclasses not defined	3.2	3	4	For this class is not defined	P ₁ , P ₂ , P ₃
Additional quantities		3.3	4	4		P ₁ , P ₂ , P ₃

Socio-economic and socio-environmental aspects of the deposit №1

- Profitability – 17,2%
- Payback period – 1,8 years
- Term of reserves provision – 5,8 years
- About 835 million soms will come into the budget of the Kyrgyz Republic.
- Negative impact on the environment is not expected

Project status, it's feasibility and confidence in estimates

- Presently, on ore body No. 1 of deposit No. 1 detailed studies have been completed, and development project has been drawn up that demonstrates the expediency of mining. The development of the ore body is planned to be carried out by underground method using a system with sub-level caving of ore.
- The reserves calculated according to the results of the works of 2017-19 are related to reserves with low reliability of knowledge. But it should be noted that for deposits of the 3rd group of geological complexity, the low reliability of the reserves studied is sufficient for further development.



Classification of the deposit №1 using UNFC

Deposit No. 1 is classified as: : **E1.1 F1.3 G3**

That is, mining of the deposit No. 1 and the marketing of minerals are profitable under current market conditions and realistic predictions of future market conditions. Mineral reserves are classified as reserves with a low reliability rating. At the moment, detailed studies have been completed in deposit No. 1 which were targeted to demonstrate the expediency of mining by implementing a specific development project or mining operations.





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Object of study II

A multi-pool deposit with a wide stratigraphic range of oil and gas productivity. (Deposit №2)

Comparison of UNFC classes and subclasses with the Classification of deposits reserves, perspective and prognostic resources of oil and combustible gases (USSR, 1983)

Class	Subclass	UNFC			USSR Classification, 1983	
		<i>E</i>	<i>F</i>	<i>G</i>	<i>Degree of readiness и рентабельность освоения (E и F)</i>	<i>Reserves Category (G)</i>
Commercial projects	In mining	1	1.1	1, 2, 3	Ready for mining on-balance reserves	A, B
	Approved for development	1	1.2	1, 2, 3		A, B
	Justified for development	1	1.3	1, 2, 3		A, B
Potentially Commercial Projects	Development pending	2	2.1	1, 2, 3	Perspective for industrial development on-balance reserves	C ₁ , C ₂
	Development on hold	2	2.2	1, 2, 3		C ₁ , C ₂
Non commercial projects	Development unclarified	3.2	2.2	1, 2, 3	Estimated reserves requiring additional exploration	C ₁ , C ₂
	Development not viable	3.3	2.3	1, 2, 3		C ₁ , C ₂
Additional quantities		3.3	4	1, 2, 3	Unprofitable for industrial development or non-recoverable	A, B, C ₁ , C ₂
Exploration Projects	Ready for discovery perspective object	3.2	3	4	For this class is not defined	C ₃
	Probable prospecting object	3.2	3	4		D ₁
	Possible prospecting object	3.2	3	4		D ₂
Additional quantities		3.3	4	4		C ₃ , D ₁ , D ₂

Socio-economic and socio-environmental aspects of the deposit №2

- The economic efficiency of the deposit construction and development has not been studied in more details and it will be studied during the preparation of the development project, but it is necessary to note that mining works at deposit No. 2 has already been done from 1961 to 2010.
- A road system is well developed.
- The environmental impact will be considered during the project preparation.

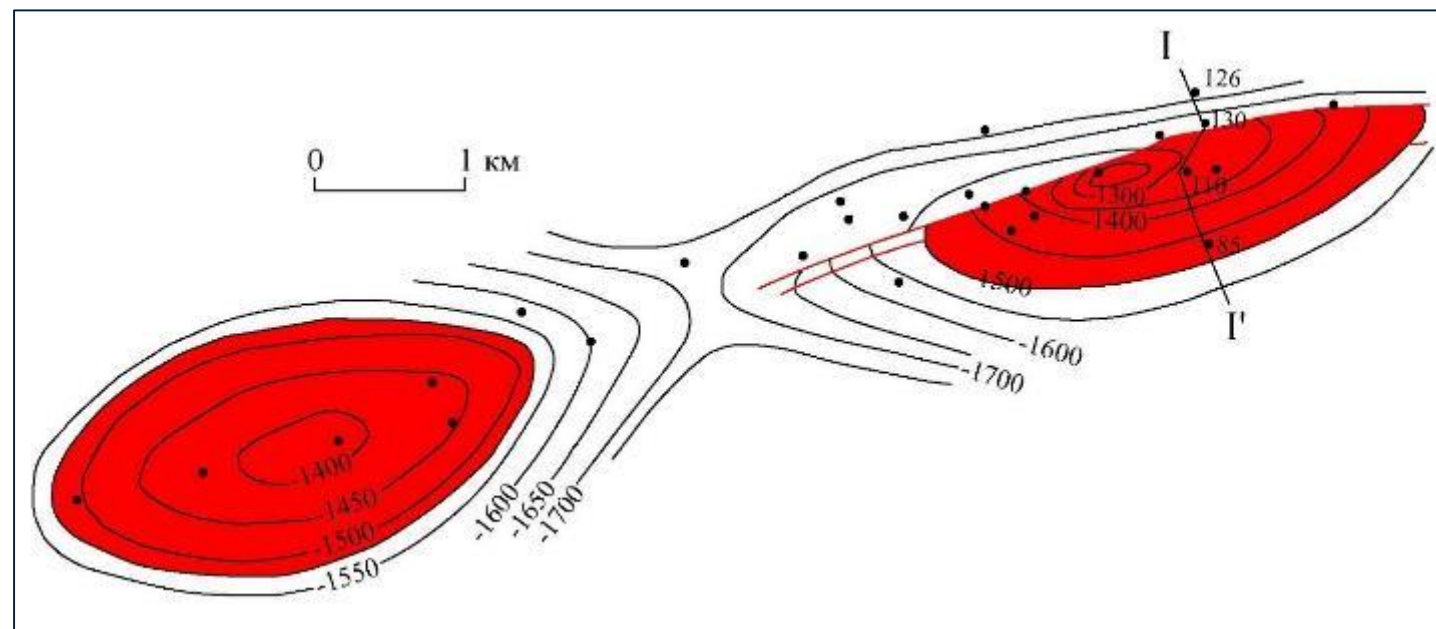


Project status, it's feasibility and confidence in estimates

- Preliminary studies of deposit No. 2 show the presence of pool, the validity of mining that can be assessed by specific development project.
- Oil and gas reserves were calculated for category C_1 . It should be noted that the calculation of reserves for category B is doubtful, because reserves for this category are calculated on the basis of approved technological scheme for deposit development, which is absent in the Kyrgyz Republic.



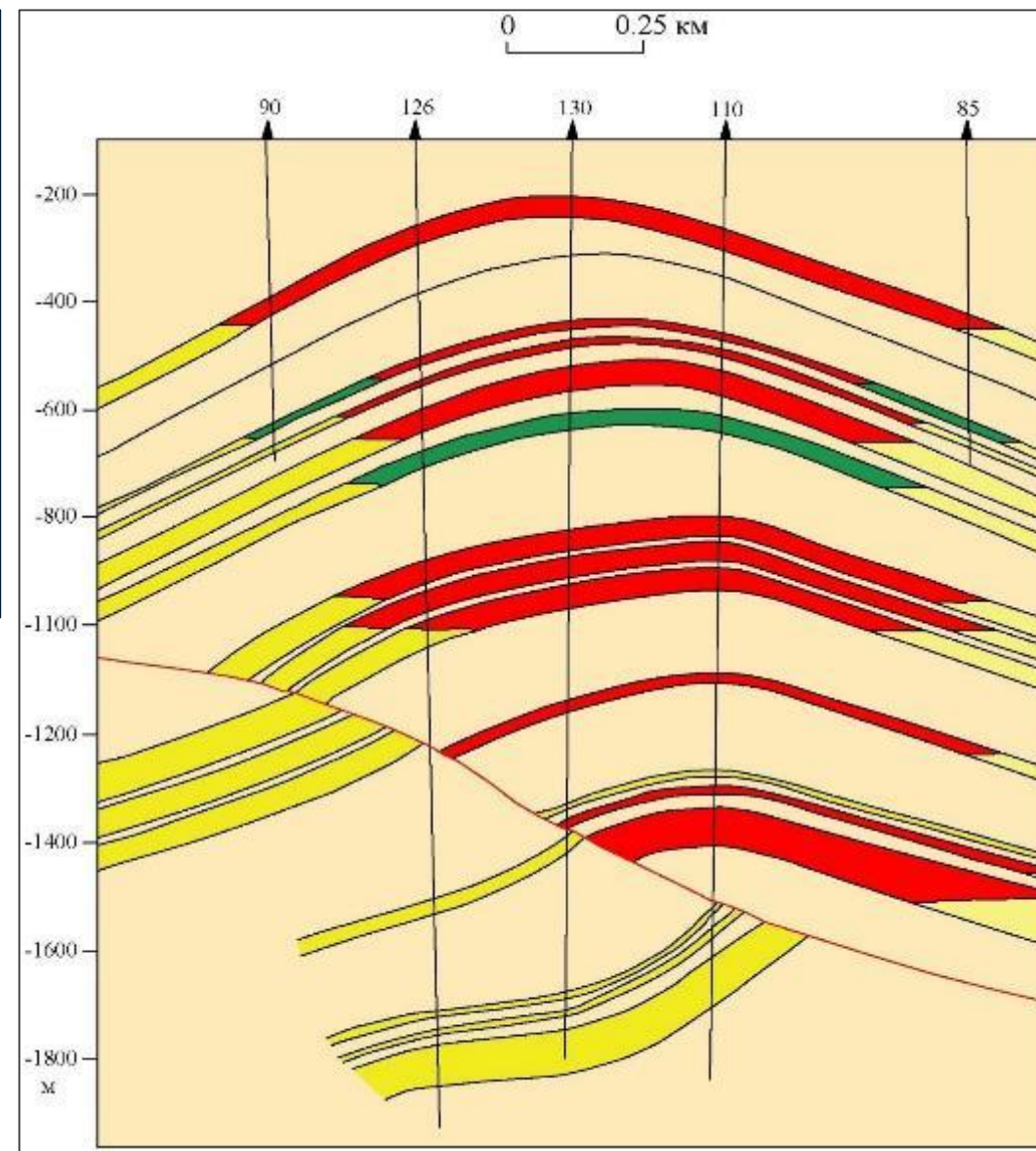
Structural map on the roof of horizon XXV of the deposit №2



LEGEND

Lithology	Pools
- sandstones	- oil
- argillites	- gas
- interbedding of sandstones and clays	- reservoirs
- carbonates	- other rocks
- conglomerates	wells

Section along the line I-I'



Classification of the deposit №2 using UNFC

- Deposit № 2 can be assigned by code **E2. F2.1. G3** in UNFC, but do not forget that there are additional quantities of oil and gas in the stratum that correspond to code **E3.3. F4. G3**.





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RES in Kyrgyzstan

RES potential in Kyrgyzstan

- Solar energy – 490 million kWh per year;
- Water energy, small rivers and watercourses - 5-8 billion kWh per year;
- Wind energy – 44.6 million kWh per year;
- Biomass energy - about 1.3 billion kWh per year.

The practical use of renewable energy in Kyrgyzstan is less than 1%.



Application of the UNFC in the field of RES

The application of the UNFC in this field will help to harmonize the regulatory framework of the Kyrgyz Republic in the shortest time. In addition, the application of the UNFC will allow get more accurate information on the potential of the Kyrgyz Republic in the field of RES, which will attract investment and allow the development of this sector.



Sustainable Development Goals Implementation

The adoption of the UNFC in Kyrgyzstan will lead to improvement of the investment climate, which would make it possible to advance towards the achievement of Sustainable Development Goals (SDG) 7 and 9. In addition, an increase in investment flows will directly affect the social status of the people, which will advance the achievement of SDGs 1, 2 and 8.

The environmental aspect, in our opinion, will not change as a result of the implementation of the UNFC, but attracting investment in renewable energy can lead to faster achievement of SDGs 11 and 13.





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CONCLUSIONS **on application of UNFC** **classifications of energy** **and mineral resource** **projects in Kyrgyzstan**

Advantages of UNFC application in Kyrgyzstan

- Global exchange of information
- Terminology harmonization
- Combination of two largest industries of the Kyrgyz Republic



Recommendations for the implementation of the UNFC in Kyrgyzstan

The start of the UNFC implementation in Kyrgyzstan should begin from this sector of industry, because at the moment there are no classifications in this field. The implementation will be simpler, and by using this example, the state will gain some experience on working with the UNFC, which will be useful in future.

Recommendations for the implementation of the UNFC in Kyrgyzstan



- Harmonization of the National Classifications of the Republic with UNFC.
- Bring into conformity some subordinate legislations of the Republic.
- Bridging document.



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Thank you!!!



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