

Russian Far East's Mineral Sector and its Interconnections with the Northeast Asia

**XXIV Economic Forum of North-East Asia
Ulan-Baator, Mongolia
August 26-27, 2010**

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The Far East's Mineral Sector Perspective Role Estimation in State Documents

The State Strategy of the Far East Development until 2025:

- «use of natural resources potential is a real competitive region's position in the domestic and foreign markets»;
- a structural task– modernization and holding the leading role of mining industry as a specialization core in the Far East's economy

The Federal Target Program of the Far Eastern Region's Development until 2013:

- «positioning of the Russian Far East's economy ... is to be realized on the basis of natural resources extraction and processing development and of use of the region's transit capacities»

The Far East's Mineral Resources in the Mineral Resources Complex of the Russian Federation (estimation of 2009, %)

	Share in MRC of RF		
	Extraction	Reconnoitered Stock	Predicted Resources
Diamonds	100,0	81,0	50,0
Gold	50,0	33,0	45,0
Silver	50,0	30,0	85,0
Tin	100,0	92,0	100,0
Tungsten	87,0	23,0	60,0
Lead	63,0	9,0	27,4
Zinc	10,0	3,6	15,9

New Kinds of Mineral Resources in the RFE

- **Titanic-magnetite ores in Amurskaya Oblast (deposits: Kuranakhscoe, Bolshoi Seiim);**
- **Nickel and kobalt in Kamchatskiy Krai (experimental-industrial extraction from the Shanuch deposit of kobalt-copper-nickel ores);**
- **Iron ores in Jewish Autonomous Oblast (Kimkanskoe and Sutarskoe deposits) and Amurskaya Oblast (Garinskoe deposit).**

Diamond Extraction in the Russian Federation (Russia's Ministry of Finance data)

Year	Weight, thousand carats	Cost, million dollars	Average cost, dollar/carat
2005	38000	2531	66,61
2006	38361	2575	67,11
2007	38291	2625	68,56
2008	36925	2509	67,95
2009	34759	2340	67,34

Transition to the Underground Diamond Extraction

Way of extraction	2005	2009 (fact)	2015	2025
Open, %	98	80	35	25
Underground, %	2	13	65	75

The Eastern Regions' Share in Russia's Gold Extraction

	2001		2005		2008		2009	
	t	%	t	%	t	%	t	%
RF	141,5	100	152,1	100	163,9	100	178,3	100
Siberian Federal Okrug	48,0	33,9	57,4	37,7	59,9	36,5	60,8	34,0
Far Eastern Federal Okrug	80,0	56,5	79,4	52,2	89,3	54,4	102,4	57,4
Total in Eastern Regions	128,0	90,4	136,8	89,9	149,2	91,0	163,2	91,5

Gold Extraction by the Fareastern regions, tons

	1991	2000	2005	2006	2007	2008	2009	2009/2008 %
RF	133,7	142,7	152,0	147,6	144,9	163,9	178,3	108,7
Far East	96,2	73,5	79,3	73,6	70,2	89,3	102,4	114,6
including:								
Yakutia	32,8	16,1	18,8	19,9	18,9	18,9	18,6	98,4
Khabarovsk	7,8	9,2	18,2	15,7	14,8	16,2	14,7	90,7
Kamchatka	-	-	0,2	1,4	2,1	1,5	2,3	153,3
Amur Oblast	10,8	11,8	14,7	14,5	14,7	18,7	21,9	117,1
Magadan	30,4	30,0	22,7	17,3	15,3	13,9	13,7	98,5
Chukotka	14,4	6,4	4,7	4,8	4,4	20,1	31,2	155,2

Transition to the Ore Gold Mastering

	Share of Gold Extraction from Native Deposits, %				
	2001	2005	2006	2007	2008
RF	43,5	54,5	57,9	59,5	67,0
Republic of Sakha (Yakutia)	26,0	47,0	49,7	48,5	51,4
Chukotka	17,0	42,9	49,3	56,6	94,2
Khabarovsk	57,7	69,8	66,0	70,0	72,2
Amur oblast	23,7	38,9	44,0	49,5	62,0
Magadan	51,6	46,7	40,0	32,5	29,2

Share of the Far Eastern Enterprises in the Precious Metals Extraction by Large Companies, %

Companies	2005	2006	2007	2008	2009
«Polus Zoloto»	3,2	12,0	11,5	11,6	11,0
OJSC «MNPO Polimetal»	68,2	59,3	79,3	72,9	64,8
Kinross Gold Corp	-	-	-	100	100
Petropavlovsk Plc	100	100	100	100	100
Highland Gold Mining Ltd	88,9	73,5	100	100	100

Share of Foreign Companies in the Precious Metals Extraction in Russia and the Far East, %

Region	2005	2006	2007	2008	2009
RF	16,8	15,7	15,6	23,0	27,4
Far East, including:	21,1	21,0	24,0	38,2	46,5
Chukotka	76,6	82,0
Kamchatka	...	85,7	90,4	93,3	91,3
Khabarovsk	27,4	31,8	31,0	31,4	34,6
Amur oblast	47,6	51,0	57,1	65,2	67,5

The Mastering Rate of the Far East's Mineral Sector (as for 2009/01/01)

Products	Transferred for use , %
Diamonds	83,2
Gold	86,5
Silver	85,3
Platinum	100
Tungsten	31
Lead	44,9
Zinc	84,4
Tin	31,3
Iron	16,9
Manganese	72

The Far East's Mineral Sector: Forcast

Products	2008	2010	2020	2030
Gold , tons	91,8	100-110	150-75	240-75
Silver , tons	960,9	1100-1200	1500-1000	1700-500
Tin , thousand tons	0,4	0,5	1-3	5-8
Lead , thousand tons	12,3	12,5	24	24
Zinc , thousand tons	18,5	20,0	35	35
Tungsten , thousand tons	2,7	3,0	4,5	3,5
Iron / Concentrate , mln tons	0	0	30 / 10	40-45 / 20
Dioxide titanium , thousand tons	0	0	10	15
Nickel , thousand tons	6,8	10	20	25
Copper , thousand tons	3,3	3,5-5,0	50	100
Uranium , thousand tons	0	0	5	5

The Far East's Economic Development Zones Prepared for Real Investing

Economic Development Zones	Key types of recourses	Commencement of works	Labor, thousands of people
Yano-Kolymskiy	Gold	2012	60,0
Yuzhno-Yakutskiy	Coal, Iron, Gold, Uranium	2010-2015	30,0
Yuzhno - Kamchatskiy	Gold, Silver, Nickel	2010	7,0
Kupolniy	Gold, Silver	2008	2,5
Stanovoy	Iron, Titanium, Gold	2010-2015	4,0
Khinganskiy	Iron, Manganese, Gold	2015	7,0

The Far East's Mineral Sector and NEA Interconnection

1. Trade Cooperation

1. Export product structure

- **precious metals and stones – more than 95%**
- **ores and concentrates – about 5%**

2. Export geographical structure

precious metals and stones:

- **European countries – more than 70%,**
- **Middle East countries - more than 15%,**
- **North American countries – about 4%,**
- **NEA countries – less than 1%**

ores and concentrates:

- **NEA countries – more than 75% (China – about 45%, Japan – about 20%, Korean Republic - more than 10%)**
- **European countries – more than 20%**
- **ASEAN – less than 1%**

The Far East's Mineral Sector and NEA Interconnection

2. Investment Cooperation

- **Total Expected investments to new mining and processing projects in the Russian Far East (resource and infrastructure projects) exceed \$30 billion.**
- **Now we have not many signs of attracting investments from the NEA:**
- **Ex. 1: Republic of Korea's investments. In 2008 they were on the 2nd place in the whole structure (24.4%). The potential investment direction is metallurgy industry (Khalaktyrskoe titanium- magnetite sand deposit at Kamchatka).**
- **Ex. 2: Chinese investments. The formation of the mining and metallurgical cluster in Amur Area on the first step will be financed by Xuan Yuan Industrial Development (XY Group, China), that will extend credit to Joint Venture "Petropavlovsk" at the rate of about \$375 mln for 10 years (70% of all work cost)**

The Far East's Mineral Sector and NEA Interconnection

3. Technological Cooperation

- Ex.: Direct Iron Production (DRI), Joint Venture “Petropavlovsk”.
- ITmk3 - innovation developed by Kobe Steel Corporation (Japan). It is the third and the last for nowadays technology for obtaining the raw material for steel production.
- ITmk3 technology advantage: possibility to reduce cost, production period (10 minutes) and carbonic acid emissions.

The Far East's Mineral Sector and NEA Interconnection.

4. Joint Ventures Foundation.

- Ex. 1: Joint development of Eugenjenskoe apatite deposit in Amurskaya Oblast for providing production of 1.2 mln tons of complex phosphatic manure. The apatite concentration plant building in Amur Area and phosphatic manure plant construction in Hegang City (China)
- Ex. 2: The plant building for titanium sponge production in Jiamusi City (Joint Venture “Petropavlovsk”& Chinalco). Facility – 15 000 tons p.a. at the beginning and up to 30 000 tons p.a. then. Investments – approx. \$30 mln (65% - Joint Venture “Petropavlovsk” and 35% - Chinalco). Employment – 3 000 people. Raw materials – from Kuranakhskiy ilmenite- titanium- magnetite deposit in Amurskaya Oblast