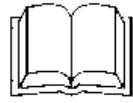


Research Group



Info Mine 

Association of Independent Consultants and Experts
in the Field of Mineral Resources, Metallurgy and Chemical Industry

Building Stone Market in Russia

*Moscow
November 2006*

CONTENTS

Overview.....	7
INTRODUCTION.....	9
1. Reserves and Deposits of Raw Materials for Production of Building Stone	10
2. Extraction of Raw Materials and Production of Building Stone.....	23
2.1. Production of Crushed Stone.....	24
2.2. Production of Gravel.....	28
2.3. Production of Rubble Stone.....	30
3. Quality Requirements for the Product.....	32
4. Current State of Extracting Enterprises.....	40
4.1. JSC “Pavlovskgranit” (Voronezh Region).....	40
4.2. JSC “Uralasbest” (Sverdlovsk Region).....	42
4.3. JSC “Granit-Kuznechnoye” (Leningrad Region).....	46
4.4. JSC “Orskoye Karieroupravleniye” (Orenburg Region).....	50
4.5. JSC “Olkon” (Murmansk Region).....	54
4.6. LLC “Karelnerud” (Karelia Republic).....	56
4.7. JSC “PO “Lenstroimaterialy”” (Leningrad Region).....	63
4.8. CJSC “Yuzhuralnerud” (Chelyabinsk Region).....	66
4.9. JSC “Pervouralskoye Rudoupravleniye” (Sverdlovsk Region).....	69
4.10. CJSC “Sokskoye Karieroupravleniye” (Samara Region).....	72
4.11. JSC “Piatovskoye Karieroupravleniye” (Kaluga Region).....	73
4.12. LLC “PIK-Nerud” (Moscow).....	76
<i>LLC “Sortavalsky Drobilno-Sortirovochny Zavod” (Karelia Republic).....</i>	<i>76</i>
<i>JSC “Khromtsovsky Karier” (Ivanovo Region).....</i>	<i>78</i>
<i>LLC “Sychevsky Proizvodstvenno-Tekhnologicheskyy Kombinat” (Moscow Region).....</i>	<i>81</i>
5. Foreign Trade Operations with Building Stone.....	84
5.1. Export of Building Stone.....	85
5.2. Import of Building Stone.....	88
6. Consumption of Building Stone in Russia.....	92
6.1. Building Stone Production-Consumption Balance.....	92
6.2. Review of Prices for Building Stone in Russia.....	94
6.2.1. Review of Home Prices for Building Stone.....	94
6.2.2. Review of Export and Import Prices for Building Stone.....	101
6.3. Pattern of Consumption of Building Stone.....	103
6.3.1. Seasonality of Deliveries.....	103
6.3.2. Sectoral Structure of Consumption of Building Stone.....	104
Construction.....	105
Construction, Repair and Exploitation of Motor Ways.....	108
Using Crushed Stone in Railway Construction.....	110
Other Industries.....	110
6.3.3. Regional Pattern of Consumption of Building Stone.....	114
7. Forecast on Development of Russian Market of Building Stone.....	118
Appendix.....	121
Addresses and Contact Information of the Principal Russian Manufacturers of Building Stone.....	121

TABLES

Table 1. Raw Material Base of Non-Metallic Construction Materials in Russia	10
Table 2. Regional Structure of Allocation of Building Stone Deposits in 2000	11
Table 3. Regional Structure of Reserves of Raw Materials for Producing Non-Metallic Construction Materials in Russia in 2004	11
Table 4. Trends in the State of Raw Material Base for Producing Non-Metallic Construction Materials in Russia in 1987-2004	12
Table 5. Average Size of Deposits of Raw Materials for Producing Non-Metallic Construction Materials in Russia in 1987-2004	12
Table 6. Principal Exploited Deposits of Building Stone	13
Table 7. Production of Crushed Stone in Russia in 1997-2005	24
Table 8. Regional Pattern of Production of Crushed Stone in Russia in 2004-2005	25
Table 9. Dynamics of Production of Crushed Stone by Largest Russian Manufacturers in 1997- 2005	27
Table 10. Production of Gravel in Russia in 1997-2005	28
Table 11. Regional Pattern of Production of Gravel in Russia in 2004-2005	29
Table 12. Production of Rubble Stone in Russia in 1997-2005	30
Table 13. Regional Pattern of Production of Rubble Stone in Russia in 2004-2005	31
Table 14. Residue on Redresser Sieves at Dispersing Crushed Stone of Different Fractions According to GOST 8267-93	32
Table 15. Classification of Crushed Stone Depending on the Shape of Grain According to GOST 8267-93	33
Table 16. Crushability Classification of Crushed Stone Made of Sedimentary and Metamorphic Rock According to GOST 8267-93	33
Table 17. Crushability Classification of Crushed Stone Made of Igneous Rock According to GOST 8267-93	34
Table 18. Crushability Classification of Crushed Stone Made of Gravel According to GOST 8267-93	34
Table 19. Abradability Classification of Crushed Stone According to GOST 8267-93	34
Table 20. Limiting Values of Content of Soft Rock Grain in Crushed Stone According to GOST 8267-93	35
Table 21. Frost-Resistance Classification of Crushed Stone According to GOST 8267-93	35
Table 22. Maximum Content of Powder-Like and Argillaceous Particles in the Crushed Stone According to GOST 8267-93	36
Table 23. Maximum Content of Lumps of Clay in Crushed Stone According to GOST 8267-93	36
Table 24. Stability of Structure Requirements for Crushed Stone Made of Accompanying Rock According to GOST 8267-93	37
Table 25. Breakup Requirements for Crushed Stone for Ballasting Railways According to GOST 7392-2002	37
Table 26. Shape of Grain Classification of Crushed Stone According to GOST 7392-2002	38
Table 27. Strength Classification of Crushed Stone	38
Table 28. Principal Consumers of Crushed Stone Produced at JSC “Pavlovskgranit” in 2004- 2005	42
Table 29. Principal Consumers of Crushed Stone Produced at JSC “Uralasbest” in 2004-2005 ..	45
Table 30. Principal Consumers of Crushed Stone Produced at JSC “Granit-Kuznechnoye” in 2004-2005	49
Table 31. Principal Consumers of Crushed Stone Produced at JSC “Orskoye Karieroupravleniye” in 2004-2005	52
Table 32. Principal Consumers of Crushed Stone Produced at JSC “Olkon” in 2004-2005	56
Table 33. Realization of Non-Metallic Construction Materials Produced at LLC “Prionezhsky Karier” in 2005	58

Table 34. Principal Consumers of Crushed Stone Produced at LLC “Prionezhsky Karier” in 2004-2005	59
Table 35. Realization of Non-Metallic Construction Materials Produced at LLC “Pudozhsky Karier” in 2005	60
Table 36. Realization of Non-Metallic Construction Materials Produced at LLC “Shokshinsky Karier” in 2005	62
Table 37. Principal Consumers of Crushed Stone Produced at JSC “PO “Lenstroimaterialy”” in 2004-2005	65
Table 38. Principal Consumers of Crushed Stone Produced at CJSC “Yuzhuralnerud” in 2004-2005	68
Table 39. Principal Consumers of Crushed Stone Produced at JSC “Pervouralskoye Rudoupravleniye” in 2004-2005	70
Table 40. Principal Consumers of Crushed Stone Produced at JSC “Piatovskoye Karieroupravleniye” in 2004-2005	75
Table 41. Principal Consumers of Crushed Stone Produced at LLC “Sortavalsky DSZ” in 2004-2005	78
Table 42. Principal Consumers of Crushed Stone Made of Gravel Produced at JSC “Khromtsovsky Karier” in 2004-2005	80
Table 43. Principal Consumers of Gravel Produced at JSC “Khromtsovsky Karier” in 2004-2005	80
Table 44. Principal Consumers of Crushed Stone Made of Gravel Produced at LLC “Sychevsky PTK” in 2004-2005	83
Table 45. Principal Consumers of Gravel Produced at LLC “Sychevsky PTK” in 2004-2005	83
Table 46. Export of Building Stone in 1997-2006	86
Table 47. Principal Exporters of Building Stone in 2004-2006	87
Table 48. Import of Building Stone in 1997-2006	89
Table 49. Principal Importers of Building Stone in 2004-2006	91
Table 50. Building Stone Production-Consumption Balance in Russia in 1997-2006	92
Table 51. Dynamics of Prices for Crushed Stone and Gravel in Russia in 2001-2006	94
Table 52. Prices for Building Stone Quoted by Some Russian Manufacturers	96
Table 53. Seasonality of Deliveries of Building Stone in 2004-2005	103
Table 54. Sectoral Structure of Consumption of Building Stone in Russia in 2005	105
Table 55. Completed Orders on Building Contracts in Russia in 2000-2005	106
Table 56. Largest Russian Consumers of Building Stone in 2005	111
Table 57. Regional Pattern of Consumption of Building Stone in Russia in 2005	115

FIGURES

Figure 1. Dynamics of Production of Non-Metallic Construction Materials in Russia in 1997-2005	24
Figure 2. Dynamics of Production of Crushed Stone at JSC “Pavlovskgranit” in 1997-2005	40
Figure 3. Dynamics of Production of Crushed Stone at JSC “Uralasbest” in 1997-2005.....	44
Figure 4. Dynamics of Production of Crushed Stone at JSC “Granit-Kuznechnoye” in 1997-2005	48
Figure 5. Dynamics of Production of Crushed Stone at JSC “Orskoye Karieroupravleniye” in 1997-2005.....	51
Figure 6. Dynamics of Export Deliveries of Crushed Stone Made at JSC “Orskoye Karieroupravleniye” in 1997-2005	53
Figure 7. Dynamics of Production of Crushed Stone at JSC “Olkon” in 1997-2005.....	55
Figure 8. Dynamics of Production of Crushed Stone at LLC “Karelnerud” in 1997-2005	57
Figure 9. Dynamics of Production of Crushed Stone at JSC “PO “Lenstroimaterialy”” in 1997-2005	63
Figure 10. Dynamics of Production of Crushed Stone at CJSC “Yuzhuralnerud” in 1997-2005	67
Figure 11. Dynamics of Production of Crushed Stone at JSC “Pervouralskoye Rudoupravleniye” in 1997-2005.....	70
Figure 12. Dynamics of Production of Crushed Stone at JSC “Sokskoye Karieroupravleniye” in 1997-2005	72
Figure 13. Dynamics of Production of Crushed Stone at JSC “Piatovskoye Karieroupravleniye” in 1997-2005.....	74
Figure 14. Dynamics of Production of Crushed Stone at LLC “Sortavalsky DSZ” in 1997-2005	77
Figure 15. Dynamics of Production of Crushed Stone and Gravel at JSC “Khromtsovsky Karier” in 1997-2005.....	79
Figure 16. Dynamics of Production of Crushed Stone and Gravel at LLC “Sychevsky PTK” in 1997-2005.....	82
Figure 17. Dynamics of Foreign-Trade Operations with Building Stone in Russia in 1997-2006	84
Figure 18. Dynamics of Export of Building Stone from Russia and Average Prices for the Product in 1997-2005	85
Figure 19. Dynamics of Russian Import of Building Stone and Average Prices in 1997-2005....	88
Figure 20. Dynamics of Average Prices for Crushed Stone and Gravel in Russia in 2001-2006.....	95
Figure 21. Dynamics of Average Export and Import Prices for Building Stone in 1997-2006 ..	102
Figure 22. Average Seasonality of Deliveries of Building Stone in 2004-2005	104
Figure 23: Dynamics of Construction of New Residential Apartments in Russia in 2000-2005.....	106
Figure 24. Regional Pattern of Consumption of Building Stone in Russia in 2005.....	114
Figure 25. Forecast on Consumption of Building Stone in Russia in 2006-2010.....	119

Overview

The subject of the present report is overview of the current situation on the market of building stone in Russia and the forecast of its development. The report consists of seven parts, contains 129 pages and includes 25 figures, 57 tables and an appendix. The report is a kind of the cabinet investigation. Data was used, as informational sources, from the State Statistics Committee of Russia, State Statistics Committee of CIS, Federal Customs Office of RF, official statistics of railway transportation of the Ministry for Communications of RF, branch and regional media, annual and quarterly reports from issuers of securities, as well as from web sites of manufacturing enterprises. Trucking transportation is not subject to compulsory statistical reporting in Russia, so, at the present report, only data are presented on the transportation via railway, as well as data from some enterprises.

The first chapter of the report contains information on reserves of raw materials for producing crushed stone, gravel and rubble stone in Russia. At present, only centralized stocktaking of building-stone reserves remains in Russia, while the reserves of sand-gravel materials are assessed at the regional level, which fact considerably complicates the evaluation of the current state of raw material base for producing the materials in question.

The second chapter of the report describes analyzing production statistics for the period from 1997 to 2006. In this section, data are presented on the volumes of production of crushed stone, gravel and rubble stone in Russia for the said period, dynamics of production of these items is traced, and regional pattern of production is presented.

In the third chapter, quality requirements are described for crushed stone used for construction work and for ballasting railways according to requirements of the current state standards, and existing classifications of the crushed stone are presented.

The fourth chapter of the report describes current state of some large manufacturers of buildingstone. Data are presented on the raw material base available, production technology and equipment used, range and quality of output product, production volumes and directions of deliveries of the products for the recent two years.

The fifth chapter describes analysis of external trade operations with building stone in Russia in 1997-2006. On the background of rather stable small volumes of export of this product, dynamic increasing of its import may be observed during recent years, which is caused by increasing demand on the home market and uneven allocation of production capacities for manufacturing high-quality products.

The sixth chapter of the report describes consumption of building stone in Russia. Production-consumption balance for the product is presented in this section. As experts say, consumption of crushed stone, gravel and rubble stone in Russia

has increased nearly two fold during the recent 8 years, and exceeded 148 million m³. In addition, in the sixth chapter, price review is presented for the products in question, seasonality of supplies is analyzed, and branch and regional consumption patterns are evaluated.

In the seventh, last, chapter of the report, forecast is presented of development of the Russian market of building stone for the period to 2010. According to experts of “InfoMine”, growth rate of consumption of building stone in Russia would remain in the nearest future on the level of not less 5% per year, and at favorable economic situation would be 9-11%, which fact would lead to increasing consumption of the product up to the level of 210-240 million m³ in 2010.

Appendix contains addresses and contact information of the principal enterprises manufacturing building stone.

INTRODUCTION

The share of building stone (crushed stone, gravel, rubble stone) is at present over a half of the total volume of production of non-metallic building materials in the country.

Crushed stone is sharp-cornered fragments of rock up to 100 mm in size, formed at eroding the rock and occurring in the form of loose or semi-consolidated aggregations. It may be a result of grinding (and sometimes dispersing) rock and artificial stone materials (for example, metallurgical slag, brick) in the form of pieces, usually angular, 5-150 mm in size, used, depending on their properties, as fillers for concrete, for ballasting railways, at construction of motor roads, waterworks etc.

Rock of three large groups is used for producing crushed stone: magmatic or igneous (primary), sedimentary (secondary) and metamorphic.

Igneous rocks are the following: granite, diorite, gabbro, diabase etc. This rock possesses the best qualities for production of crushed stone for concrete and ballasting work, namely strength, frost-resistance, abrasability, fragility.

Sedimentary rock, according to its particular genetic features, is divided into the following categories: fragmental (gravel-sand), carbonate (limestone, dolomite) and sandstone.

Sedimentary rock is not as strong as magmatic one. However, in most cases, its physical and mechanical properties meet the requirements of production of concrete materials.

Metamorphic (transformed) rock is a rock, which was formed at transformation of the primary and secondary rock (transformed igneous rock – granite gneiss; sedimentary – clay slate, limestone marble, quartzite). Their strength is in the middle between that of magmatic and sedimentary rock.

Gravel is a loose rock comprising a mixture of grains graveled to various degrees, such as fragments of minerals and rock of 5-70 mm fraction. As a rule, gravel is obtained by dressing natural sand-gravel mixtures. Gravel is used as filler for concrete, and sometimes in road building. Coarse gravel is a raw material for production of gravel-crushed stone.

Rubble stone comprises large irregularly shaped pieces of rock with edge of 150-500 mm obtained, as a rule, from limestone, dolomite, sandstone, and, rarely, granite. Cobblestone (boulders with edges up to 300 mm length) is a kind of rubble stone. In production of rubble stone, rock is used with compression breaking point up to 1000 kilogram-force per cm². Rubble stone is used for laying under-buildings, earth-retaining structures, sewer pipes, waterworks etc.

1. Reserves and Deposits of Raw Materials for Production of Building Stone

Mineral and raw material base of the industry of non-metallic building materials for producing crushed stone, gravel and rubble stone comprises deposits of building stone and sand-gravel materials.

It is rather difficult to obtain reliable data on the current state of deposits of mineral raw materials of that kind, because of unavailability of a centralized accounting system for some of them. Centralized accounting has only survived for building stone deposits. Summary data on reserves of sand-gravel materials and sand for building work were last published over 10 years ago (at the beginning of the 90s), and, at present, accounting of these non-metallic construction materials is carried out on the level of subjects of federation. Table 1 shows approximate composition and extent of exploitation of raw material base for producing non-metallic construction materials in Russia in 2004.

Table 1. Raw Material Base of Non-Metallic Construction Materials in Russia

<i>Kind of raw material</i>	<i>Amount of Deposits</i>			<i>Reserves, million m³</i>		
	<i>Total</i>	<i>Exploited</i>	<i>Unexploited</i>	<i>Total</i>	<i>Exploited</i>	<i>Unexploited</i>
Building stone	1282	729	583	20559.3	12776.4	7782.9
Sand-gravel materials	1926	830	1096	10312	4279	6033

Source: FSUE "VNIPHstroysyrye"

"Building Stone", the State Balance of Reserves of mineral raw materials, accounted in Russian Federation in 01.01.2000 1213 deposits of these raw materials for producing non-metallic construction materials.

Total balance reserves of A+B+C₁ categories in Russia are 20617.6 million m³ (in 01.01.2000), of C₂ category – 9122.1 million m³. Besides, 489.6 million m³ of raw material reserves are considered as off-balance. The principal explored reserves of building stone (61.4%) are on the balance of mining enterprises and organizations, and 37.6% are accounted as state reserve. Table 2 shows regional structure of allocation of deposits of building stone in Russia.

Table 2. Regional Structure of Allocation of Building Stone Deposits in 2000

<i>Federal districts</i>	<i>Amount of deposits with balance reserves</i>	<i>A+B+C₁ Balance reserves</i>	
		<i>Total, million m³</i>	<i>Share of reserves, %</i>
Central	123	3363.9	16.3
North-West	106	2594.9	12.6
South	165	1873.0	9.1
Volga	221	2751.3	13.3
Urals	150	4376.5	21.2
Siberia	257	3037.7	14.7
Far East	191	2620.3	12.8
Total in Russia	1213	20617.6	100.0

Source: "Building Stone", the State Balance of Mineral Resources of RF, 2001.

According to data from VNIPIIstromsyrye, at the beginning of 2004, resources of *building stone* were allocated rather evenly over the territory of Russia, Urals Federal District possessing a little more (22.1% of reserves), and South District, a little less (8.8% of reserves). Nearly half of reserves of *sand-gravel materials* are allocated in Siberia (25.3%) and Central (22.6%) Federal Districts, Urals District possessing the least reserves (6.2%). Table 3 shows regional structure of allocation of reserves of raw materials for producing non-metallic construction materials.

Table 3. Regional Structure of Reserves of Raw Materials for Producing Non-Metallic Construction Materials in Russia in 2004

<i>Federal districts</i>	<i>Building stone</i>			<i>Sand-gravel materials</i>		
	<i>Amount of deposits</i>	<i>Reserves, million m³</i>	<i>Share of reserves, %</i>	<i>Amount of deposits</i>	<i>Reserves, million m³</i>	<i>Share of reserves, %</i>
Central	126	3337	16.2	332	2334	22.6
North-West	132	2725	13.3	516	1065	10.3
South	167	1811	8.8	139	1500	14.5
Siberia	267	3036	14.8	343	2610	25.3
Far East	203	2641	12.8	200	927	9.0
Total in Russia	1282	20559	100.0	1926	10312	100.0

Source: FSUE "VNIPIIstromsyrye"

Extent of exploitation of base of raw materials for producing non-metallic construction materials is rather low (see Table 4). Thus, it is only 57% for building stone, and 43% for sand-gravel materials.

Table 4. Trends in the State of Raw Material Base for Producing Non-Metallic Construction Materials in Russia in 1987-2004

Year	Amount of deposits			Reserves, million m ³		
	Total	including exploited		Total, million m ³	including exploited	
		number	%		million m ³	%
Building stone						
1990	938	509	54	18222	10767	57
2000	1213	762	62.8	20617.6	12561.3	60.9
2004	1282	729	57	20559	12776	62
Change +/-	+344	+220	+3	+1737	+2009	+5
Sand-gravel materials						
1987	1079	537	50	9090	4435	49
2004	1926	830	43	10312	4279	41
Change +/-	+847	+293	-7	+1222	-156	-8

Source: FSUE "VNIPHIstromsyrje", "Building Stone", the State Balance of Mineral Resources of RF, 2001.

However, in some subjects of federation, first in those with intensively developing building industry and in those, which are suppliers of crushed stone of igneous rock for other regions of the country, extent of exploration is rather high. For example, in Karelia Republic, 41 out of 42 deposits of building stone are licensed for exploitation, in Leningrad Region, extent of exploitation of deposits is about 76%, and in Sverdlovsk Region, about 78%. Extent of exploitation of deposits of sand-gravel materials is much higher in some central regions than the average extent of exploitation over Russia. Thus, at present, in Yaroslavl Region, 78% of deposits of sand-gravel materials are being exploited, in Kaluga Region, 67%.

At that, increasing of deposits amount was not caused by exploration of new ones, but by registration of already discovered deposits, usually with small reserves, with a view of licensing their exploitation. As, at the same time, some decreasing of reserves occurred, the average size of deposits considerably decreased (see Table 5).

Table 5. Average Size of Deposits of Raw Materials for Producing Non-Metallic Construction Materials in Russia in 1987-2004

Kind of raw material	Year	Average size of deposits, million m ³		
		Average	Exploited	Unexploited
Building stone	1992	20.1	21.2	18.8
	2004	16.0	17.5	14.6
Sand-gravel materials	1987	8.4	8.3	8.6
	2004	5.4	5.2	5.5

Source: FSUE "VNIPHIstromsyrje"

Reserves of the industry of non-metallic construction materials, at current level of extracting raw materials, according to evaluation of VNIPIIstromsyrye, will be sufficient for 79-125 years, and considering reserves of unexploited deposits, for about 200 years. However, in many cases, though a territory possesses on the balance considerable reserves belonging to state reserves, it often happens that a considerable, and sometimes the most, part of these reserves cannot be exploited due to various reasons. Thus, the real raw material reserves of the industry of non-metallic construction materials may be considerably less than that stated by the State Balance of Mineral Reserves.

Table 6 shows the principal exploited deposits in RF, planned capacities for extraction building stone, and brands of the crushed stone produced.

Table 6. Principal Exploited Deposits of Building Stone

<i>Deposit</i>	<i>Mineral product</i>	<i>Planned productivity, raw materials, thousand m³</i>	<i>Brand of crushed stone</i>
Central Federal District (126/78)			
<i>Tula Region (35/20)</i>			
Turdeyskoye	Limestone, dolomite	1360	Crushed stone 200-600
Gurovskoye	Limestone	1200	Crushed stone 600
Khomiakovskoye	Limestone	900	Crushed stone 600
Obidimskoye	Limestone	800	Crushed stone 600
Bernikovskoye	Limestone	450	Crushed stone 600
Dubninskoye	Limestone	400	Crushed stone 600
Sviridovskoye	Limestone	200	Crushed stone 600
Lianshinskoye	Limestone	200	Crushed stone 600
<i>Riazan Region (20/13)</i>			
Kasimovskoye	Carbonate rock	1500	Crushed stone 400 (fraction 5-20; 20-40; 40-70), rubble stone
Pogorelovo-Galinskoye	Limestone	1000	Crushed stone 200-600
Vilenskoye	Limestone	720	Crushed stone 400
Serebrianskoye	Limestone	470	Crushed stone
Korablinskoye	Limestone	250	Crushed stone 300 (fraction 5-20; 20-40)
Malo-Studenetskoye	Carbonate rock	250	Crushed stone
<i>Kaluga Region (16/12)</i>			
Zhiletovskoye	Limestone	1670	Crushed stone 600
Piatovskoye	Limestone	1400	Crushed stone 600 (fraction 5-20)
Polotniano-Zavodskoye	Limestone	830	Crushed stone 600 (fraction 5-20; 20-40; 40-70)
Kaluzhskoye	Limestone	650	Crushed stone 600