

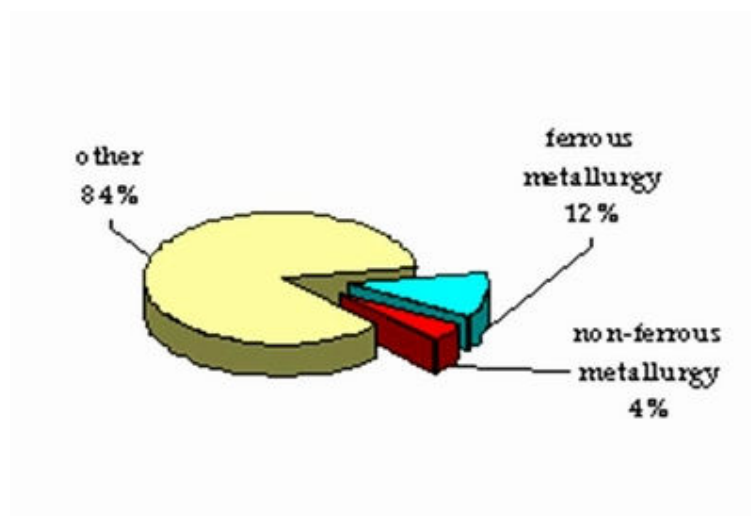
# METAL INDUSTRY



## INTRODUCTION

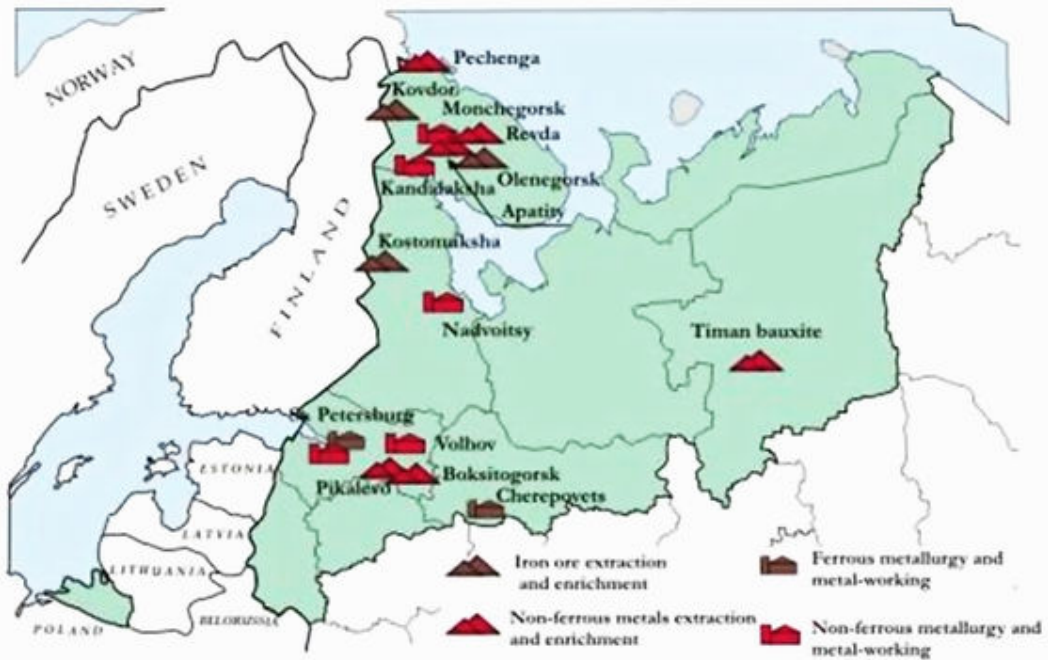
The metallurgy and metal-working industry is one of the largest industrial sectors in the Russian Northwest. In recent years, it has accounted for 15 to 20% of the total volume of industrial production in the region.

A share of metallurgy in the total volume of industrial production of Northwest Russia in 2001.



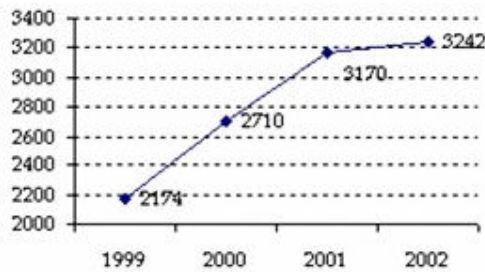
The structure of the metallurgy and metal-working industry of the Northwest of Russia was created primarily during the Soviet era, and includes all necessary components: mines and ore enrichment plants; metallurgy plants; metal-working companies; specialized educational and R&D organizations; manufacturers of equipment for metallurgy and metal-working; and companies of related and supporting industries.

**Metallurgy and Metal-working Agglomerations in Northwest Russia**



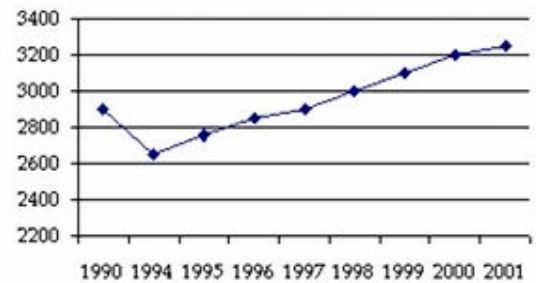
In the beginning of 90 downswing in the industry happened due to a sharp reduce of the domestic market. Nevertheless the companies could increase production output at the account of export activity during subsequent years. Non-ferrous metallurgy is more successful compared to ferrous metallurgy and it has already exceeded level of production of 1990 by many positions. Production of ferrous metal increased compared to 1995 but it continues to be significantly less in comparison with the level of production in 1990.

Total volume of production of metallurgy industry in Northwest Russia, \$ mln



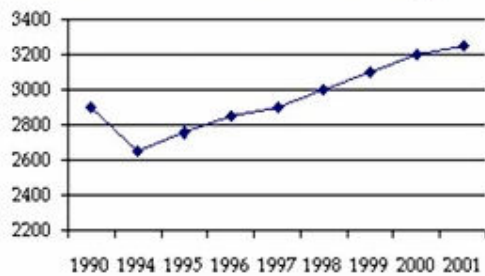
Source: Goscomstat

Production of steel in Northwest Russia, th. tons



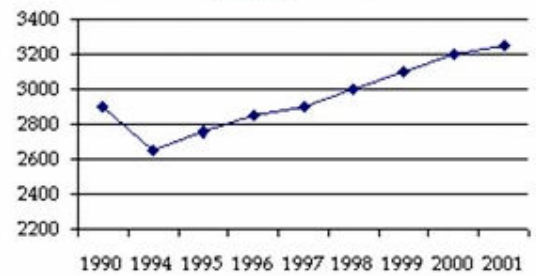
Source: Goscomstat

Production of ferrous rolled metals in Northwest Russia, th. tons



Source: Goscomstat

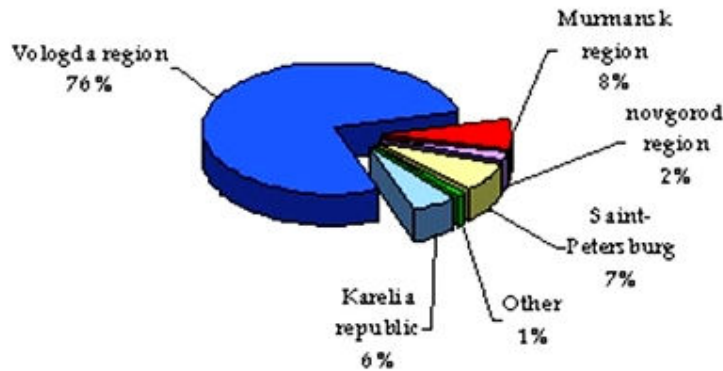
Production of aluminium in Russia, th. tons



Source: Goscomstat

The industry is distinguished by a high degree of concentration and regional specialization. Currently, it is the leading industrial sector in the Vologda and Murmansk Regions, and plays an important role in the economy of St. Petersburg, the Leningrad Region, and the Republic of Karelia.

A share of the regions in the total ferrous metallurgy production of Northwest Russia.



A share of the regions in the total non-ferrous metallurgy production of Northwest Russia.



The current product range of companies, in which primary metals prevail over products with higher added value, reflects the shift of the core of the industry from metal-working to metallurgy that has taken place during the past decade. This trend is opposite to that of the world leaders of the metal industry. Their product range becomes more diverse and the share of alloyed steel, alloys, pipes with special coating, preprocessed intermediary products for engineering, and other high-added-value products and services is growing.

## RAW MATERIAL BASE

The raw material base in the region is quite large: the deposits of iron ore, copper-and-nickel ore, bauxite, nepheline (the Northwest is the leading Russian region in raw materials for the aluminium industry), and coking coal are exploiting. In addition, there are promising deposits of chromium, titanium, zinc and manganese ores. During the past decade, however, the existing raw material base has been utilized but not augmented, due to a sharp reduction of prospecting. This has led to the depletion of the best resources in most deposits. The exploitation of new (explored but yet not put into operation) deposits is hindered by the lack of investment opportunities and by the extremely low density of the transport infrastructure. The network of transportation routes in the northern regions that are richest in ores (the Republic of Komi and the Murmansk Region) is the most poorly developed.

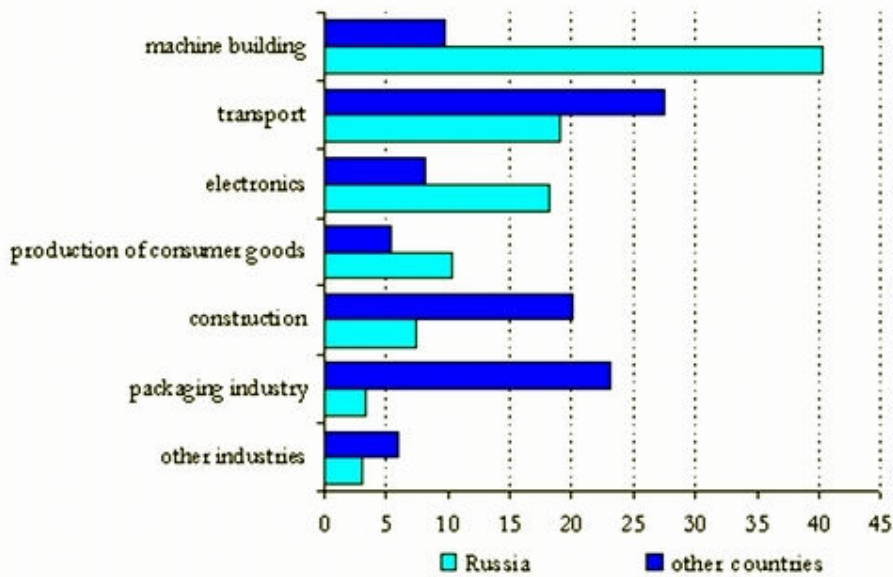
Another important raw material—scrap metal—has been obviously underutilized in Russian metallurgy in the past decade. The sector for collecting and processing scrap metal is the least efficient and transparent sector in the cluster, and is known for its high criminal activity. Most of the scrap metal collected is exported, sometimes illegally or semi-legally, due to higher prices abroad.

## EQUIPMENT

The equipment of most metallurgy and metal-working companies is outdated - the degree of wear and tear is on average around 50%, reaching as high as 80 - 85% at some plants. Technologies that have long been out of use in developed countries are still often found in Russia. This is a cause contributing to low productivity and an extremely high level of environmental pollution. A low level of automation and computerization of production processes is still very characteristic of metallurgical plants.

In addition to the drop in domestic consumption of metals, its structure also changed radically after the collapse of the Soviet Union. There was a severe reduction in the consumption of non-ferrous metals (3 to 5 times, on average, whereas for steel it was approximately 2 times), alloyed steel, preprocessed intermediary products for engineering, and other products, which were previously manufactured in large amounts for the needs of the military sector. The consumption of metals in other industries, for example, foil in the packaging industry, and metal-based construction materials in the construction industry, is still significantly lower in Russia than in developed countries.

Modern structure of consumption of aluminium in Russia and other countries, %.



Russian metal products with high added value are also not in demand on international markets. Primary metals - ingots, pigs, low-processed rolled stock, etc – as well as scrap metal and iron ore, form the bulk of the exports.

## COMPETITIVE RUSSIAN FERROUS METALS PRODUCED IN NORTHWEST RUSSIA

HS №	Article	Russian exports to OECD							
		1997		1998		1999		2000	
		share, %	mln. USD	share, %	mln. USD	share, %	mln. USD	share, %	mln. USD
7206	Iron and non-alloy steel in ingots or other primary	18.1	22	14	21	14.5	11	24.2	24

	forms, n.e.s.								
7207	Semi-finished products of iron or non-alloy steel	10.5	543	8.88	454	16.3	706	18.2	1,136
7201	Pig iron and spiegeleisen in pigs, blocks or other primary forms	14.9	282	15.6	297	20.2	270	15.9	261
7204	Ferrous waste and scrap; remelting scrap ingots or iron or steel	10.8	799	13.5	874	14.9	804	11.3	827
7211	Flat-rolled products of iron or non-alloy steel, of a width of less than 600 mm, not clad, plated or coated	4.77	100	4.64	104	3.42	69	6.74	148
7208	Flat-rolled products of iron or non-alloy steel, of a width of less than 600mm, hot-rolled, not clad, plated or coated	7.86	1,155	9.1	1,475	4.62	520	6.2	886
7209	Flat-rolled products of iron or non-alloy steel, of a width of less than 600 mm, cold-rolled, not clad, plated or coated	6.42	485	5.54	414	5.73	361	5.15	408
7226	Flat-rolled products of other alloy steel, of a width of less than 600mm	1.29	14	1.1	13	1.1	12	4.86	62
7215	Bars and rods of iron or non-alloy steel, n.e.s.	3.4	29	3.88	37	4.19	37	3.83	36
7225	Flat-rolled products of other alloy steel, of a width of 600mm or more	3.78	111	2.8	100	2.23	69	3.35	123
7214	Bars and rods of iron or non-alloy steel, not further worked than forged, hot-rolled, hot-drawn or hot-extruded	8.01	270	6.99	248	4.22	130	2.37	72
2601	Iron ores and concentrates; including roasted iron pyrites	2.14	241	2.87	314	1.88	179	1.98	214
7228	Bars and rods of alloy-steel; angle etc. of alloy-steel; hollow drill bars and rod of alloy or non-alloy steel	1.44	35	1.83	51	2.18	51	1.82	46
7213	Bars and rods, hot-rolled, in irregular wound coils, of iron or non-alloy steel	7.15	254	5.11	182	2.58	82	1.46	50

Source: OECD, International Trade by Commodities Statistics (ITCS)

## COMPETITIVE RUSSIAN NON-FERROUS METALS PRODUCED IN NORTHWEST RUSSIA

HS №	Article	Russian exports to OECD							
		1997		1998		1999		2000	
		share %	mln. USD	share %	mln. USD	share %	mln. USD	share %	mln. USD
7502	Unwrought nickel	27.6	964	26.1	763	23	752	24.8	1,302
7601	Unwrought aluminum	21.4	4,440	20	3,867	22.2	4,089	23.2	5,258
7503	Nickel waste and scrap	16.1	57	17.5	39	11.2	23	11.7	47
7403	Refined copper and copper	12.1	1,173	9.43	809	10.6	860	11.5	1,188

	alloys, unwrought								
7602	Aluminum waste and scrap	12.1	405	15.3	467	15.6	457	10.3	364
7603	Aluminum powders and flakes	11.5	19	8.01	15	8.22	13	8.76	17
8105	Cobalt mattes and other products of cobalt metallurgy; cobalt and articles thereof, including waste & scrap	8.71	115	8.1	104	5.51	64	6.35	70
7501	Nickel mattes, nickel oxide sinters and other intermediate products of nickel metallurgy	4.90	93	5.65	78	5.47	68	6.14	124
7504	Nickel powders and flakes	1.11	4	2.80	9	3.25	11	3.94	18
7604	Aluminum bars, rods and profiles	1.16	39	1.88	70	1.65	59	3.40	137
7404	Copper waste and scrap	11.7	510	13.1	435	8.66	257	2.13	82

Source: OECD, International Trade by Commodities Statistics (ITCS)

## INVESTMENTS

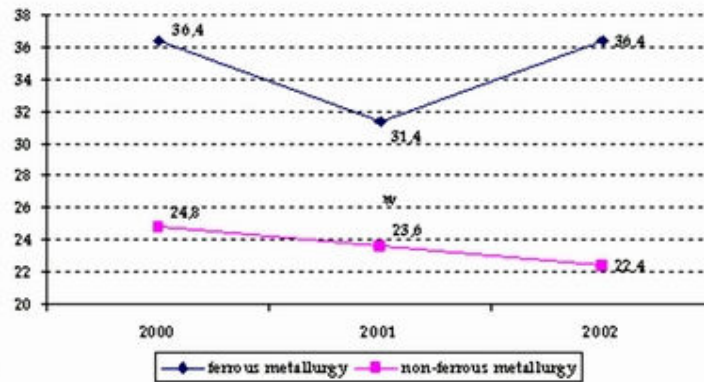
In recent years, the leading companies have been increasing their investment in modernization. They are, however, primarily modernizing equipment for manufacturing products intended for export, products with low added value. This undoubtedly lowers the competitiveness of the cluster in the long run. The modernization is carried out using both domestic equipment (Izhora Plants located in St. Petersburg is the leading regional producer) and imported equipment. The share of import grows, which signifies the lowering competitiveness of Russian equipment manufacturers.

Among related and supporting industries, the power industries and logistics are especially important for the metallurgy and metal-working cluster. Metallurgy companies are greatly dependent on the state in supplies of electric power and fuel, as well as tariffs for railroad shipping. The existing tariff policy of the government is virtually non-transparent; large exporters often receive privileges. Generally, tariffs are significantly lower than European tariffs. This is one of the major components of the price competitiveness of Russian manufacturers.

During the past decade, investment in the main production factors of the metallurgy and metal-working industry, as in many other Russian industries, has obviously been insufficient for their sustainable development. Only in recent years have companies begun to invest substantially in modernization. The implementation of large-scale projects, however, is greatly complicated by the underdevelopment of the Russian financial, banking, and insurance services. Without their participation, as well as government investment, companies are unable to develop main infrastructure. For example, when it was putting into operation the first bauxite mine in Timan, the SUAL company had to invest the most in the construction of a railway to the mine.

The relatively inexpensive workforce, fuel and electric power, and railroad transportation should not be viewed as long-term factors of competitiveness. Tariffs will probably grow and approach the average world level. Without significant investment in increasing the quality of the workforce, the companies will continue to lag behind world leaders in efficiency, and this discrepancy will grow. For the time being, the authorities are actively resisting the attempts to reduce the number of personnel at companies (as well as attempts to shift the burden of responsibility for social infrastructure to the municipalities), in order to avert serious social problems in small towns where these companies are the main employers and sources of tax revenues into local budgets.

**Labour productivity at the largest metallurgical companies of Northwest Russia, th. \$ per year**



For this reason, companies still follow the practice of developing countries—the low cost of the workforce compensating for its abundance. As a result, Russian companies fall behind the world leaders of the industry in productivity by many times. Changes in this policy are inevitable in the longer run. These changes will come due to the weak influx of new personnel as a result of the low birth rate, migration of the population to large cities, the deteriorating quality of training, and aging of existing personnel.

Since 1999, the domestic market of metals has been experiencing gradual growth. The greatest prospects in the near future will be connected with the need to renew and develop transportation and infrastructure—railroad tracks and cars, ships, pipelines, and electric power transmission grids. A significant increase in the consumption of primary metals and metal products with high added value, however, can be expected only in the event of an upswing in the Russian machine-building industry.

## THE COMPANIES

Severstal is the leader in ferrous metallurgy in the Northwest. It ranks as one of the three top Russian manufacturers in production volume, and in business transparency, quality of services, marketing activity; it is the national leader in the steel industry. In the world rating of steel manufacturers, Severstal is in the top twenty. The non-ferrous metallurgy of the Northwest is in practice shared between Norilsk Nickel and Siberian-Urals Aluminium (SUAL). Norilsk Nickel is the world leader in nickel and platinum metals production, as well as Russia's largest producer of copper. In the Northwest Region, the company possesses copper-and-nickel mines, as well as metallurgy plants on the Kola Peninsula. SUAL is the second largest aluminium holding company in Russia. It has many mines and all alumina and aluminium plants in the region in its possession.

### The Largest Metal Companies in Northwest Russia

Players	Controlled companies at the beginning of 2003	Region	Turnover in 2002, USD million	Main products
Severstal Group	Severstal	Vologda	1,923.6	Cast iron, steel, rolled steel
Severstal Group	Cherepovets Steel Rolling Mill	Vologda	171.0	Steel products: nails, wires, chains, etc.
Severstal Group	Karelsky Okatysh	Republic of Karelia	141.3	Iron-ore pellets
Severstal Group	Olenegorsk GOK (Olkon)	Murmansk	60.4	Iron-ore concentrate
United Machine-Building Plants (OMZ)	Izhora Plants*	St. Petersburg	142.0	Steel for engineering; steel pipes, and other steel products
MDM Group	Kovdor GOK	Murmansk	162.5	Iron-ore concentrate
Several companies	Borovichi Refractory Plant	Novgorod	64.9	Refractory

SUAL	Metallurg**	Leningrad	138.5	Alumina, Aluminium
SUAL	Kandalaksha Aluminium Plant	Murmansk	59***	Aluminium
SUAL	Boksitogorsk Glinozyom	Leningrad	53.9	Alumina
SUAL	Nadvoitsy Aluminium Plant	Republic of Karelia	24.3	Aluminium
SUAL	Timan Bauxite	Republic of Komi	4.7	Bauxite
Norilsk Nickel	Kola Mining and Metallurgy Company (KGMK)	Murmansk	424.2	Nickel, copper, cobalt, converter matte
Kuusakoski (Finland)	Petromax	St. Petersburg	38.7	Processed scrap metal
Several companies	Krasny Vyborzhets	St. Petersburg	32***	Rolled non-ferrous metals
Company's management	Foil Rolling Mill	St. Petersburg	19.3	Foil

\* Here mentioned total turnover of the company in 2001 and its metal products (other products of the company are machines and equipment)

\*\* Metallurg comprises Volchov Aluminium (aluminium plant) and Pikalevo Glinozyom (alumina plant)

\*\*\* data for 2000

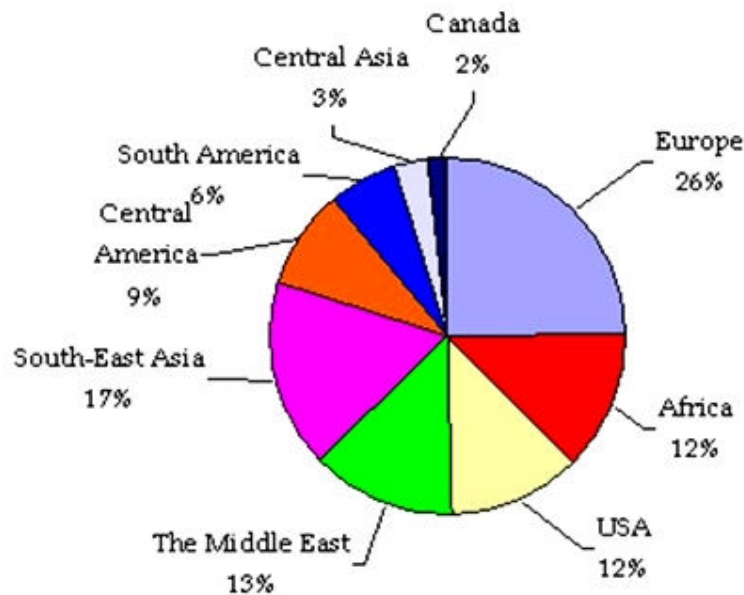
Source: Expert Northwest, 20-26.10.2003; data provided by companies

Manufacturers of non-ferrous metals are in a better position on international markets. They have not yet experienced import limitations. Unlike the non-ferrous metal companies, companies of ferrous metallurgy (Severstal in the Northwest is a good example) have been confronted with import barriers and limitations on the markets of developed countries. This forces steel producers to seek other opportunities on the markets of developing countries, where the competition is also growing, and their competitors have competitive advantages that are generally similar to those of the Russian manufacturers. It is expected that Russian membership in the World Trade Organization will simplify exports of ferrous metals. Another possible consequence of Russia's membership in the WTO is the strengthening of competition in the domestic market, which can be estimated as a positive factor of competitiveness in the medium-term perspective.

**The Severstal's sales in 1999 - 2001 period.**

Sales	1999	2000	2001
Exports	861.5	1,029.4	676.1
Domestic sales	607.5	1,043.7	1,113.0
Total sales	1,469.0	2,073.2	1,789.1

**Geographical pattern of Severstal's export for 1999 - 2001 period.**



## CONCLUSION

The processes of privatization and initial property redistribution in the metallurgy and metal-working cluster of the Northwest of Russia have been largely completed. The highest degree of assets consolidation is evident in non-ferrous metallurgy. The acquisition by SUAL of Metallurg, a smaller holding company, was the last major event of this nature. This led to the virtual monopolization of the regional aluminium industry. In ferrous metallurgy, there are a greater number of players, but the share of Severstal is now extremely great and far outstrips the shares of other companies. Severstal has strong competitors only in other Russian regions and Ukraine. The struggle to conquer markets is forcing Severstal to modernize its equipment and technologies, to broaden its product range, and to increase the quality of its services. In particular, Severstal was the first Russian metallurgy company to create its service centers in large cities.

The completion of the main property redistribution should be viewed as a positive fact, since the companies will have the opportunity to pay more attention to issues of strategy and make their businesses more transparent. In the area of development strategies, however, there are numerous problems - the strategies that companies have announced at present are very divergent from one another and do not correspond always to the market conditions. Severstal strives to get maximum control over mines and pits, and it is also actively diversifying its business, acquiring assets in other industries, such as automotive industry, the mechanical wood processing, transportation, and others. SUAL intends to modernize its extremely outdated aluminium plants (all three companies in the Northwest are outsiders in the Russian aluminium industry) and to build new, large alumina and aluminium plants. Norilsk Nickel is currently involved in reorganizing its plants on the Kola Peninsula, including changing the specialization of nickel manufacturer, the Severonickel plant, to cobalt and platinum metals.

The share of foreign capital in metallurgy and metal working is still minimal when compared to the food, forest, and even the energy cluster. This is connected with high entrance barriers, the long-term profitability of projects, their great dependence on the tariff policy of State monopolies, as well as with rough struggles for assets which distinguished the stage of privatization and initial property redistribution. There is only one large-scale project, initiated by a foreign player. This is the probable construction by the American company Alutec of an aluminum plant in the vicinity of the Leningrad Nuclear Power Plant and a new seaport in Ust-Luga (the Leningrad region).

The further development of the metallurgy and metal-working cluster of the Northwest of Russia depends greatly not only on economic conditions, but also on political conditions. It also depends on other factors connected with the forming of a new business environment in the country—with national culture, people's priorities, etc.

One may assume that in the medium term the companies will try to utilize new reserves of raw materials by additional exploring of deposits already under exploitation, by exploiting new deposits, and by increased use of

secondary metal. It is expected that Severstal will gradually transfer to cheaper and better quality iron ore from the Kursk area. There are also preconditions for the appearance of a new metallurgy agglomeration in the Republic of Komi. Initially, it may specialize in aluminium production, based on the utilization of bauxite deposits. Later the range of products may be broadened by exploiting other ore resources of this region.

The growth of the consumption of metals in the country will continue. In addition to the renewal of the transport and energy infrastructure, there are other possibilities in the development of the packaging industry (foil, aluminium cans), expansion of the metal-based construction materials production, and evidently, in inevitable growth of the military-purposed production, since already there is a great need for the technical reequipping of the Russian army and navy. The level of consumption in many indices in the late 1980s, however, will not be recovered due to the increased efficiency of the utilization of metals, and the shift of the structure of metal consumption toward saturating the consumer market.

The globalization of economic activity will result in the integration of Russian manufactures with foreign companies. Russian companies will generally keep their specialization in raw materials within the chains of over-the-border cooperation with metallurgy and metal-working companies of developed countries. Russian metal exporters in the medium term will primarily supply raw materials and products with low added value abroad. In addition to that it is highly probable to expect beginning of expansion of Russian produces to abroad. The Norilsk Nickel, Severstal and SUAL companies located in Northwest Russia possess capacities for such expansion.