

# NLMK GROUP

Corporate Magazine

# 4-5, August-October 2012



## The Multi-Million Dollar Question

### First Person

Interview with Vice President  
for Procurement  
Garg Brijesh Kumar

7

### Infographics

Pushing the Pedals

18

### Extreme Hobby

Into the Wind

22



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Corporate Magazine  
#4-5 August-October 2012

**NLMK Group is a publication of Novolipetsk OJSC**

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Extreme Hobby  
**INTO THE WIND**



## LETTERS TO THE EDITOR

— Some employees read the magazine inside out, while others find it annoying.

In every new issue of the corporate magazine one can find coverage of the plans pursued by NLMK and recent developments in the steel sector, learn about industrial safety measures; find out what qualities and skills a modern day manager is required to have; and many, many other things ...

The NLMK employee team is immense, and this team needs a magazine which covers diverse facets of life.

*Grigoriy Khlopun, Service Chief, Water Supply Shop, Novolipetsk*

— I can't recollect when the NLMK Magazine first came out, but one thing I can say for certain: both then and now I am attracted by the quality of its printing and the great photos. As a metallurgical engineer I am fascinated by articles about the history of metallurgy. And as a woman, I am quite keen on fancywork. I remember in one edition I read about a woman from the Baltics who embroiders items made of metal, and I was really fascinated by an embroidered pail and thought to myself: "It would be a pity if the embroidery got rubbed away; one should not use that pail, it should remain an object of art. Maybe I can do something like that myself?"

*Irina Utkina, Engineer, Occupational Health and Industrial Safety Department, Novolipetsk*

— I think the magazine could dedicate a page to covering innovative proposals at different sites, their descriptions and

interviews with innovators. I would also like to see photos and blueprints; maybe, it will get introduced at one of the sites. Or some engineering solutions and process tweaks.

*Alexander Naymushin, Senior Foreman, NSMMZ*

— Thank you for the redesigned magazine, it looks balanced and fresh! I like that the magazine has become more reader-oriented.

*Stanislav Mischenko, Chief Software Specialist, Production Efficiency Enhancement Department, Novolipetsk*

**Spotted an error?  
Enjoyed an article?  
Have an idea?  
Write to us at  
magazine@nlmk.com**

**The most interesting responses  
will be published and we  
will be sure to answer  
all your  
e-mails!**

— I, for one, really enjoy the insightful articles about history or offering general overviews. Naturally, I also enjoy the articles about high-profile celebrated personalities, their lives, views, outlook and the like.

In general, keep up the good work of making the magazine a pleasant read for everyone, whether a Company employee or an outsider.

*Igor Korvyakov, Specialist, Treasury Department, Novolipetsk*

— It's great that the magazine covers hobbies pursued by employees of various NLMK Group businesses. It would be good if our employees would spend all their spare time in fitness rooms, gyms, or swimming pools, focusing on their own wellness. After a workout you perform better at the job.

*Oleg Losev, Locomotive Driver, Rail Transport Shop, Stoilensky*

— In recent issues I was captivated by the article about Vladimir Rubashkin, collector of photo cameras. "Film captures emotions, rather than images," claims Vladimir. I agree with that! Like many other kids in the 1980s, I also owned film cameras; first, a Smena, and later a Zenit, and a Kiev. Notwithstanding the fact that now there is a proliferation of digital photo and video cameras, I believe that once they read this article, many would want to see and feel their old film cameras.

*Andrey Makarenko, Main Control Board Electrician, RCP, Novolipetsk*

— I was really excited about the multimedia presentation of the magazine. It's like nothing else I have seen on the Internet: it's like you are turning the pages of a hardcopy edition. Great! Top marks for novelty.

*Gennadiy Kravchenko, Chief Specialist, BOF Shop No. 2, Novolipetsk*

► All issues of the Magazine are available electronically at

<http://nlmk.com/en/media-center>



# THE MULTI-MILLION DOLLAR QUESTION

*The 2008 crisis dealt a severe blow to the steel and mining sector, once again reminding the markets of the age-old rule, "If you wish for peace, prepare for war", in other words, cut your costs, manage your debt better, be careful with your acquisitions. It also sowed fear of a new round of the recession.*



It has been almost four years since the mortgage crisis in the US had caused a dramatic slump in the global financial and real sectors, and now the world is facing new challenges: an expected slowdown in China coupled with the debt crisis in the Eurozone and uncertainty in the United States.

Whether or not to buy coking coal now is a multi-million dollar question

China is the world's second largest economy, the leader in production of steel and the key indicator of the state of affairs in the sector. In Q2, Chinese GDP grew by 7.6%, the lowest recorded since Q1 2009. At the same time, according to a median forecast by analysts surveyed by Bloomberg, in 2012 the Chinese economy would grow by 8.2%, the lowest in 13 years. At end of Q2, domestic demand for steel in China failed to show expected growth rates, causing a steady decline in prices for steel and relevant raw materials. Mining companies, which had well outpaced the steel sector in terms of margins, no longer look as attractive. Analysts and market players have diverging views as to whether this is a long-term trend or if stimulus measures by the governments of China, Europe and the US will have an effect.

HITTING BOTTOM

"Prices are very weak and buyers are staying out of the market, expecting prices to fall even further. The economic situation in China and the world in general is getting worse," says Gavin Vend, founder of Mine Life Pty, as quoted by Bloomberg.

In August-September iron ore prices fell to their lowest levels since 2009. Coking coal is also setting low price records given the instability in Europe and expected economic slowdown in China.

It is yet impossible to know for certain whether the prices have hit bottom or if they will continue to fall further. "Whether or not to buy coking coal now is a multi-million dollar question," a senior manager of India's third largest steel company said as quoted by Bloomberg. According to him the sector is waiting for the right time by focusing on commodity prices.

Prices for ore (with 62% iron) fell below USD\$90 per tonne in September, while in the last two months its price fell by one quarter to around half of its USD\$178 per tonne price recorded in August 2011.

BENCHMARKS ARE AN UNSTEADY MEASURE

One also needs to take into account that we are approaching that time of the year when key global producers will be signing contracts for the supply of coking coal in Q4 and setting the so-called benchmark\* price, which serves as the guideline for the whole sector.

It is already obvious that the benchmark is unlikely to stay at the previous quarter's level of USD\$225 per tonne, but how significantly will it fall?

According to a Bloomberg poll of seven analysts and market participants the benchmark price for coking coal in Q4, as referenced in contracts signed by leading global producers, may fall by 11% from USD\$225 to USD\$200 per tonne. If it should fall below USD\$200 per tonne, then global giants like BHP, Rio Tinto, Teck Resources Ltd. and Alpha Natural will have to curb their production.

Global mining companies are already focusing on cost reductions. For example, BHP Billiton recently announced that it intends to consider a less capital-intensive plan for developing the Olympic Dam copper ore project in Australia because of lower global commodity prices and increased capital costs. This implies that the company will not be in a position to approve the development plan to meet the deadline of December 15, 2012.

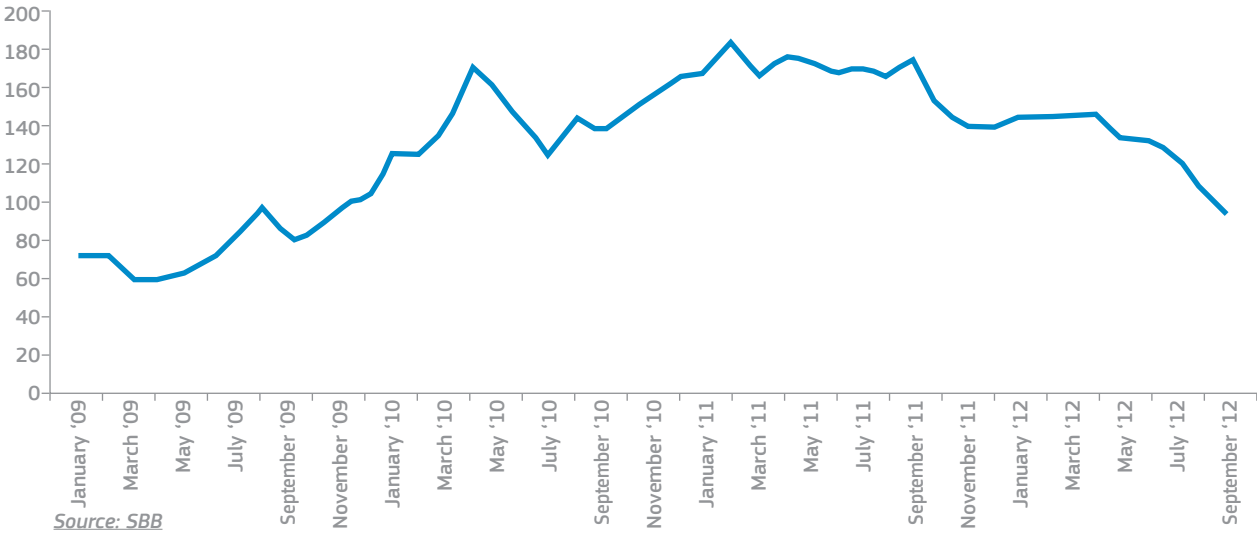
In the meantime, the Australian iron ore producer Fortescue Metals may consider cutting costs (whether by laying off personnel or reducing capital outlays for new projects) if prices remain at below USD\$100 per tonne in the long term; the company, however, is expecting the prices to rebound soon.

Vale SA, the world's largest producer of iron ore, is nevertheless projecting that prices for this commodity will begin to recover starting from September, due to lower inventories in China and increased demand for steel by construction companies.

In turn, BHP Billiton is expecting that the markets will remain volatile in the short term; still, the company believes that economic stimulus measures, especially in China, would lead to some recovery in the markets in the first half of 2013.

\*Benchmark is a financial markets indicator used to assess the condition of the market or any of its segments. Most often, stock market indices are used as benchmarks. In a more general sense of the word, a benchmark may be the price of a key export or import commodity.

Spot Prices for Iron Ore, 62% Iron Content, CFR China



Three-month Contract for Coking Coal, FOB Australia



RAW MATERIALS AND STEEL

Troika Dialog analysts claim that producers with a lower level of vertical integration are likely to reap the greatest rewards from weaker prices for iron ore and coal. Among Russian steelmakers, MMK will benefit most from the price adjustment, because it has the lowest self-sufficiency in iron ore compared to other Russian peers.

NLMK acquires coal on an arm's length basis and this will have a positive impact in the context of weaker prices. In terms of revenues, their largest share is generated by sales to export markets where

prices are currently below domestic prices in Russia. In 2012, according to Troika Dialog analysts, revenues will come under pressure from low steel prices but cheap coal and a weakening ruble would lead to lowered costs for the company. The performance of its Europe Strip Division remains the key uncertainty for investors in 2012.

Ferrexpo is most heavily dependent on iron ore prices and its 2012 EBITDA (forecasted at \$500 million) declines by 10% for every \$5 lost in terms of iron ore prices.

But then falling steel prices immediately offset any advantages gained.

“ *Nobody knows how deep-rooted the economic difficulties facing the world’s largest economies could be*

Statistical data released by the World Steel Association show that in July China increased production by 4.2% to 61.7 million tonnes compared to July 2012, whereas in June output grew by only 0.6% (60.2 million tonnes).

Oleg Petropavlovsky, an analyst with BKS, an investment company, suggests that these developments may signal a change in the price trends for iron ore and coal. The recent downside trend in coal and iron ore prices, in his view, will reverse and be replaced by an upside trend because of the continuing demand for these commodities from China. “For example, inventories of iron ore in Chinese ports decreased in August by 4% to 870 million tonnes, and this corroborates the high demand in this country for raw materials used in steelmaking,” notes the analyst.

Most likely, iron ore prices will revert to around \$120–125 per tonne from the current \$112 per tonne, assumes Mr. Petropavlovsky, while coal prices will increase to \$200 per tonne. This will be encouraged by demand from China, and the Q4 benchmark prices, according to his forecast, will be at around the same level.

“And as regards steel prices, it is a reverse situation,” notes the analyst. “Strong output in China will have a negative impact on the global supply and demand, putting pressure on prices for rolled products.”

Meanwhile Nomura experts doubt that Chinese steelmakers will increase output while prices for products continue to decline.

The slump in steel prices which began in July prompted several large Chinese steelmakers to announce at the end of the month that they are planning to temporarily shut down production in an attempt to cut costs and eliminate excess supply.

According to MetalBulletin (a trade publication), this past summer steelmakers in Europe had shut down production for 6–8 weeks instead of the usual two. In the United States average capacity utilization in July fell to 75%, from 76% in June and 80% in May.

In the domestic Russian market Brok-Invest-Servis notes the peak of the construction season and the availability of a sufficient amount of orders for construction-grade steel. In the rolled sheet segment, commissioning of new capacity and sluggish world markets are keeping prices at their current levels.

Natalia Pravdina, Head of Marketing at Brok-Invest-Servis, expects some pick-up in activity in the global markets for long and flat products in the run-up to the construction season; however, consumption will grow at a slow pace, given the strong financial uncertainty and the absence of regions which would drive the growth. Revived demand will allow suppliers to achieve a marginal increase in prices.

Major Russian steel companies are also expecting steel prices to rebound in Q4.

In the meantime, the turmoil in world markets has led to slumping share prices, mostly for the global mining giants, like Vale or BHP Billiton. While analysts are trying to avoid the scare, claiming that activity in the Asian steel sector remains at a fairly strong level, nobody knows how deep-rooted the economic difficulties facing the world’s largest economies could be. ■

**SVETLANA BURMISTROVA is the Metals & Mining sector columnist for Interfax news agency**



**Dossier**

**Garg Brijesh Kumar**

Age: 48

Work at NLMK Group: since April 2012

Experience in the steel industry: 27 years

Family: married, 2 children, a son and a daughter

Hobby: photography, travelling

# I ENJOY SPEAKING RUSSIAN!

*Vice President for Procurement Brijesh Garg talks about how our existing procurement system will transform into best in class, and why he likes the Russian language.*

**BY YULIA TARANOVA**

— **Why did you choose NLMK Group? Does it meet your expectations?**

— I thrive on challenges. They have always been an essential part of my career. So a challenging role, combined with NLMK’s global strategic vision that gives me an opportunity to make a difference, and my passion for the steel industry, were the reasons why I decided to come here.

And as I see it, this is even more challenging than I expected (smiles)... Of course it excites me!

— **Please tell me about your first 100 days at NLMK Group. What are the challenges ahead of us?**

— Initially my time was spent on assessing the current situation and preparing the new vision for how the procurement system would be organized in the future. I also took time to understand and adapt to our operations, and the geographical diversity.

Along with my team I have prepared an action plan, covering both short and long term measures,

which will take the procurement system to a new level. Recently we received approval from the NLMK Group Strategic Planning Committee (SPC) to implement a major project for the Russian operations of the group. This project, which aims to transform the procurement system and processes to create a lean procurement function, will take place over the next year.

I constantly emphasize to my team the importance and need for change, in processes and in their attitudes. My biggest challenge is to make people realize that “change” is not a one-off phenomenon but a continuous process.

— **What are the most important things to do now?**

— In today’s world, we in Procurement spend a lot of time on non-value adding process steps which are either unnecessary or require redesigning. Some processes are legacies of old practices and need to be overhauled. In other cases we are missing links in the procurement sub-processes.

So we need to review everything asking ourselves two main questions.

The first is how efficiently should we manage transactions? Transactions, from the time the user requests the materials, and till the time we bring the



materials to the user. There is a need to improve the efficiency of transactional process by elimination, reduction or automatization, without compromising the quality of our service.

The second question is how effectively can we add value to the company? This needs to be based on knowledge-based decisions, by looking at the total cost of operations and not just the initial price of the material or service.

So we need to change the procurement focus from the price to total cost of operations, see what the product will cost us during its life-cycle.

— **What do you want to change in NLMK's procurement system?**

— The basic principles of effective and efficient work methods are the same for every company. However, each company has its own culture and country-specific requirements that need to be understood and incorporated into our decisions.

Clear gaps exist upon comparing our current procurement practices with those of other Best in Class organizations.

My initial challenges are to develop a corporate procurement strategy, build a result-oriented procurement team, and establish strong governance by setting policies, procedures, procurement responsibilities and KPI metrics.

Our vision is to conduct business in a fair, transparent and professional manner using the best

“ **Action without vision just passes the time. Vision with action can change the world.**

*Joel A. Barker*

practices through collaboration with internal and external stakeholders.

How do we achieve that? – Practicing lean and proactive procurement practices helps us take control of the situation rather the situation controlling us.

Our procurement transformation project spread over the next year will cover three important dimensions: People, Processes and Systems.

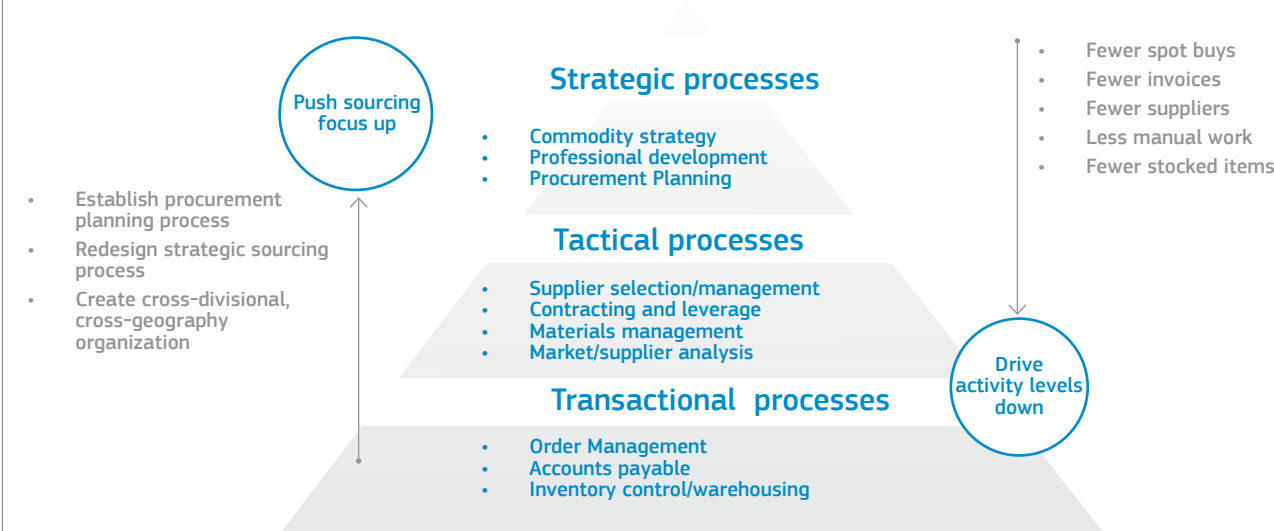
Another area of concern has been the inventory of MRO items (known as maintenance, repair and operations items). This year we are focusing on Inventory Management policies and processes to optimize inventory across the Group and specifically at Lipetsk.

Supplier collaboration is another area which we will effectively exploit to receive new technological ideas and optimize our resources and total cost together with suppliers.

— **What does your day look like?**

— All I can say is that it is never the same!

**Our procurement vision**



Every day comes with surprises and brings new excitement...

— **What language do you speak at work?**

— As a rule, Russian. I think I am able to manage up to 70% without any help. My colleagues now understand the way I pronounce certain words so it is becoming easier... But of course for some formal meetings I need the help of interpreters.

— **When have you learned the Russian language?**

— I first learnt Russian when I was working in Kazakhstan. In fact my teacher, at that time, acknowledged me as one of the fastest learners!

When I migrated to New Zealand I lost touch with this language for nearly 5 years; I didn't speak a single word of Russian. Only when I went to Ukraine, a couple of years ago, I picked it up again.

— **Do you know any other foreign languages?**

— Actually yes, besides English and Russian I know a couple of Indian languages such as Hindi, Punjabi. At one point I was learning Chinese as well. But Russian is my favorite language!

— **Really? Why?**

— Because the Russian language has a similar structure and endings to that of the ancient Indian language, Sanskrit. At school I used to get 100 % on tests in Sanskrit, it was like mathematics - if you write the correct form, you will always get 100 %. When I started learning Russian, I found a lot of resemblance between them! And I really don't know why but I like listening Russian - “мне приятно слышать такие слова” (“mne priyatno slishat' takije slova”), it is like music to me...

— **How do you like living in Russia?**

— I enjoy Russian vodka! (*laughs*) But seriously, I enjoy soaking up the history Russia has to offer, I admire and respect Russian family values, close knit families, which is quite similar to Indian culture, so it's easy for me to relate to it.

My family recently visited me and we went to St. Petersburg. It was an unforgettable experience... We loved the Russian ballet and National dance, it was great to see that Russians love to preserve and share their history and culture just like Indians do.

— **Is your family with you now?**

— Actually my family is widely distributed; my daughter is in Sydney, Australia, my son is studying in Philadelphia, USA and my wife is in Auckland, New Zealand, she is working there, but hopefully soon she will join me, it just depends on the visa.

— **What character traits do you appreciate in people? What is your main life principle?**

— Straightforward, friendly, helpful, hardworking and fun loving nature.

My life principles are to be honest and work hard but smartly. Some say just work smart but I follow work smart & hard principle in my life. I also believe that you must always challenge yourself or you will never progress.

— **What do you think is the most effective way to success?**

— I believe in what Joel A. Barker said: “Vision without action is merely a dream. Action without vision just passes the time. Vision with action can change the world.” If we do not act, we cannot blame success for not showing at our doors... ■





GO!

BY YULIA TARANOVA

*Blast Furnace No.7 successfully completes warranty testing*

Novolipetsk welcomes the commissioning of the new generation Blast Furnace No.7 with a capacity of 3.4 million tonnes of pig-iron per year.

BF-7 is a one-of-a-kind blast furnace facility that relies on innovative technology developed by leading Russian and foreign engineering companies. The facility is unrivaled by anything that has been built in Russia or any of the former Soviet republics in the last twenty-five years.

The project was implemented in collaboration with Paul Wurth of Luxembourg. The construction project took three years to complete and involved more than 70 construction and engineering contractors.

“The blast furnace facility relies on modern technology designs, which had been successfully tested during the construction of several other blast furnaces around the world,” says Nikolas Mosel, Sales and Project Implementation Department, Paul Wurth. “The design of the facility was developed to comply with the special requirements of Novolipetsk, local conditions, and Russian standards, and incorporates all of the most advanced technology solutions. We are certain that this combination of new technology and the existing operations expertise will allow the facility to perform at its best.”

During the full-scale testing phase 2.4 million tonnes of pig-iron have been produced over a period of ten months, confirming that the new blast furnace complies with its design features. By now it has become clear that BF-7 will signal a production breakthrough at Novolipetsk, with output of pig-iron increasing by 3.4 million tonnes per year and annual production of steel reaching 12.4 million tonnes.

“A huge amount of work has been done to build, commission and start up the BF-7 complex, as well as to bring it up to its rated capacity,” says NLMK Head of Blast Furnace Production, Eduard Shcheglov. “Every day, we had to address issues of how to integrate the equipment, communications, and steel structure in order to create a single organism. It was also important not to forget that everything we were building today had to work like clockwork tomorrow, from both a safety and a quality/quantity standpoint.”

BF-7 is one of the most efficient blast furnaces in the world in terms of total fuel consumption, using just 455 kg of pulverized coal fuel per tonne of pig iron. That is 10 kilograms less than in Europe and Japan’s best blast furnaces. BF-7 is also one of the world’s 10 best furnaces in terms of its specific output, with 70 tonnes per square metre of furnace cross-section.

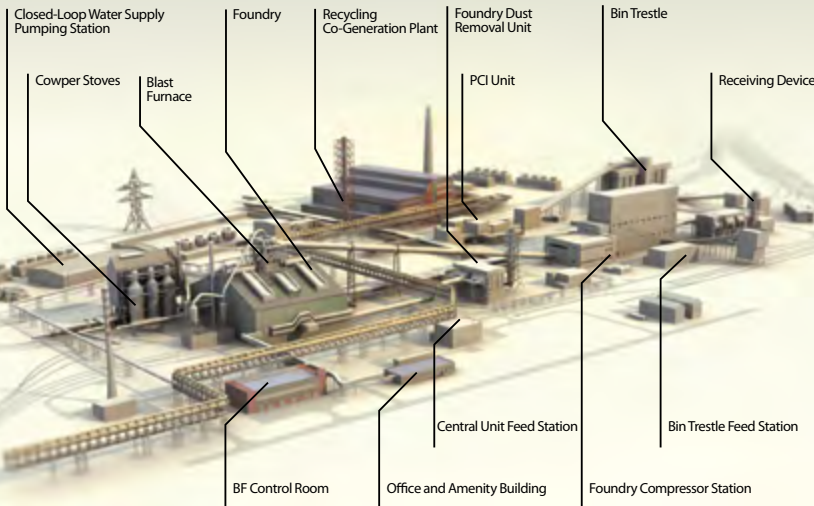
“A modern conception of the makeup of a furnace charge, a bell-less furnace charging system, pulverized coal fuel injection, reliable hydraulic cast-house equipment, multiple devices for registering technological parameters, a truly modern automation system with mathematical models, and the well-known Sachem expert system all ensure the stable blast furnace operation results that are expected and stipulated in the contract,” asserts Steffen Köhler, Senior Marketing Manager at Paul Wurth’s Corporate Management Department.

When compared to best international peers, BF-7 stands out in terms of higher productivity and better final product quality, with low fuel consumption. Annually, more than 3.1 billion cubic meters of blast furnace gas will be used to generate electric power, helping conserve some 306 million cubic meters of natural gas.

In addition, modern recovery systems installed at the BF will allow it to eliminate emissions of dust altogether. Any waste products from the pig-iron operations, including particulate matter, will be recycled or recovered for processing into construction materials. A closed-loop

**Blast Furnace No.7**

|                       |                                    |
|-----------------------|------------------------------------|
| Year of Commissioning | 2011                               |
| General Contractor    | NLMK Construction and Assembly LLC |
| General Designer      | Lipetsk Gipromez                   |



Output of Pig Iron, tonnes:

9,450 PER DAY

283,500 PER MONTH

3,400,000 PER YEAR

**Blast Furnace No.7 is an environmentally safe and resource-conserving facility**

The new production facility is the first of its kind completed in Russia in the last 25 years. BF-7 applies advanced technology to maintain a high-efficiency, resource-conserving and high automation process for pig iron production.

The economic and environmental benefits are achieved through the use of new technology, including a 20% reduction in coke consumption and a more than two-fold reduction in the consumption of natural gas, as well as the reliance on high-efficiency dust removal systems, closed-loop water circulation and slag removal.

Slag generated in the process of pig-iron production will be processed into raw materials used in construction.

Blast furnace gas from pig-iron production will be used as fuel for the recovery co-generation plant, helping the company to minimize atmospheric emissions and to increase its self-sufficiency in low-cost electric power to 60%.

| BF Features       |  |
|-------------------|--|
| Net Capacity      | 4,290 cubic meters   |
| Useful Capacity   | 3,650 cubic meters   |
| Slag Generation   | 2,950 tonnes per day<br>88,500 tonnes per month<br>1,060,800 tonnes per year                                 |
| BF Gas Generation | 13,230,000 cubic meters per day<br>396,900,000 cubic meters per month<br>4,760,000,000 cubic meters per year |

| One tonne of pig iron requires |                          |
|--------------------------------|--------------------------|
| Sinter                         | 1,245 kg                 |
| Pellets                        | 336 kg                   |
| Coke                           | 287 kg                   |
| Pulverized Coal Fuel           | 160 kg                   |
| Natural Gas                    | 30 cubic meters          |
| Blast                          | 990 cubic meters         |
| Blast Temperature              | 1250° degrees Centigrade |
| Oxygen Content                 | 28 %                     |

| Purpose of the Facility  |  |
|--|--|
| Production of steelmaking iron using iron ore feedstock, coke, pulverized coal fuel and natural gas in a zero-waste and environmentally clean process. The facility also produces the following by-products: |  |
| ■ Slag for processing into crushed stone and sand for use in road construction;  |  |
| ■ Blast furnace gas used as gasiforum fuel by the co-generation plant to produce electric power in-house   |  |

| Key Construction Work Highlights for BF-7 and RCGP |                        |
|--|------------------------|
| Earthwork Operations (Excavation and Backfilling)  | 2,600,000 cubic meters |
| Solid-Cast Reinforced Concrete                     | 205,000 cubic meters   |
| Weight of Metal Structures                         | 85,500 tonnes          |
| Weight of Process Equipment                        | 22,500 tonnes          |
| Weight of Refractories                             | 25,600 tonnes          |
| Length of Pipelines                                | 135 km                 |
| Weight of Pipelines                                | 15,000 tonnes          |
| Length of Railroad Tracks                          | 34 km                  |
| Length of Automobile Roads                         | 15 km                  |

RIANOVOSTI © 2011 WWW.RIA.RU

► To see a documentary about Rossiyanika, produced by Russia-24 TV channel, visit our YouTube stream at:

<http://www.youtube.com/user/nlmkonair>



Three Questions for Eduard Scheglov

**Q: The immense project, which involved a colossal amount of work, is now complete. Are you satisfied with the outcome?**



A: My first experience with blast furnace operations happened in 1985, when I enrolled at the Lipetsk Metallurgy College to obtain skills in the very same area. By now steelmaking and production of pig iron in particular, has become a state of mind and a lifestyle to me. I was fortunate to become one of the managers for the BF-7 construction project. Participating in a project of this magnitude is a once in a lifetime experience for professionals in any occupation. Am I satisfied with the outcome? Of course, I am satisfied with what has been achieved so far. I have every reason to say “We did it!” However, what lies ahead is by no means a less challenging and exciting task of making the process of producing pig iron at the blast furnace perfect in all respects, and making it a leading facility among peers.

**Q: Any complications or ‘hidden reefs’? How did you overcome them?**

A: There were so many ‘hidden reefs’; we had to navigate them almost on a daily basis. Here is a typical example. A contractor comes in, all confused, and says “I am supposed to have a cable running according to the blueprint, but someone had installed an air duct.” So we would proceed to the site and there, basically, use equipment boxes as a drawing table to dovetail two blueprints into one. Tremendous stress is what I remember. During the peak period before commissioning in July and August the work day would end at sunset. It would have been difficult to deal with the issues without the help of our collaborators on the project, including designers, builders, riggers, equipment suppliers, and Novolipetsk personnel. We were all literally possessed by this common objective. Then of course, the production floor experience of my co-workers and my own also played an important role.

**Q: How would you gauge the furnace’s importance for the Company and the Russian steel sector in general?**

A: Honestly, I find it rather challenging to appraise the true significance of BF-7, because it goes beyond the boundaries of the ordinary. For Novolipetsk it signifies, first and foremost, increased output and upgrading of production capacity, improved quality and cleaner environment. For the Russian steel sector it is the first blast furnace to have been built in the last 25 years, in other words, ‘the first blast furnace of New Russia’. It is an example of how a company can develop in a modern setting.



water circulation system precludes any discharge of waste water into water bodies.

“The project benefits from all available best nature conservation methods,” explains Nicolas Mosel. “Dry scrubbing of waste gas is done by a high performance tangential feed cyclone, followed by wet scrubbing. The effectiveness of this method is based on the significant reduction in the amount of sieve residue generated during the wet scrubbing stage. The dust particles which are separated in the cyclone can be processed at a sintering plant for further use in a blast furnace, resulting in lower volumes of particulate matter, which will need to be processed or buried as waste. The dust removal system at the foundry was designed in such a way so as to create a more comfortable working environment. The use of waste gas energy to generate electric power is a distinct feature of the environmentally balanced operations of the new facility.

The blast furnace utilizes cutting-edge technology developed by Russian and foreign engineers, making the BF-7 construction project one of the most successful examples of international cooperation in recent years.

In 2011 the construction of the blast furnace facility was recognized as the Major Event of the Year in the Russian Metals Sector by the Metall-Expo Exhibition. ■



WE ARE ALL LINKS IN THE CHAIN OF SAFETY

*Hugo Modrian, Safety Director, NLMK Clabecq, authored this article to discuss how safety issues are dealt with at the NLMK plant in Belgium and how competitions between businesses can help to reduce the number of accidents*

Dossier

Hugo Modrian

Age: 54

Years at the plant: 32

Position: Safety Director, NLMK Clabecq

Family: married, with three children

Our worst year was 2008, when the number of accidents resulting in disabilities reached 115 cases. This prompted the decision to develop a new approach towards safety matters, to establish a dedicated position and to appoint a person with ample authority and the opportunity to select their own team. I was the person chosen for this job.

ACCIDENTS ARE NOT UNLIKE A SNOWBALL

The first thing we did, and you may find this hard to believe, was a simple cleaning operation. At first sight, it is a mere trifle. At a warehouse, however, one often finds wooden planks with nails sticking out of them or pieces of steel sheet. One wrong move and you could sprain your foot or hurt a tendon, leading to a disability for several weeks. We began with the obvious causes, and it paid back immediately. This is how we ticked off the first item on our long list of actions aimed at improving safety.

After that we introduced the practice of so-called section meetings. These are brief meetings attended by personnel representatives and supervisors of a particular sector. It begins with people describing the various issues identified to date, followed up by appropriate action. Decisions vis-à-vis the most complicated issues are made by the safety director, ▶



and simpler matters are dealt with on site. We continue to maintain this practice, but by now it is a well operating mechanism, and I no longer need to monitor it on a full-time basis.

Let me explain why we started with these simple things like tidying up and regular meetings.

Accidents are not unlike a snowball, and their gravity mounts incrementally. When you have many small incidents, this implies that you should soon expect a major one. Unfortunately, when serious accidents involving disability become an ordinary occurrence, this suggests that a fatality is waiting to happen. Hence, one needs to start from the very beginning, the minor accidents, which give rise to the snowball effect.

Then, once you have organized a system for eliminating the likelihood of minor accidents, you need to focus on more serious matters. Based on this rationale we began by fine-tuning the arrangements for making decisions regarding minor issues and cleaned up the premises, and only after that went on to improve the practice of inquiries.

After an incident or accident happens we meet for 15-20 minutes to discuss the details of the event and, more importantly, any actions that may help to prevent a similar occurrence in the future. After that I interview the injured person at the medical aid station, which I would otherwise visit on a regular basis every hour. Together with the injured employee we attempt to reconstruct the event and, if possible, identify opportunities for alternative employment during the recovery period.

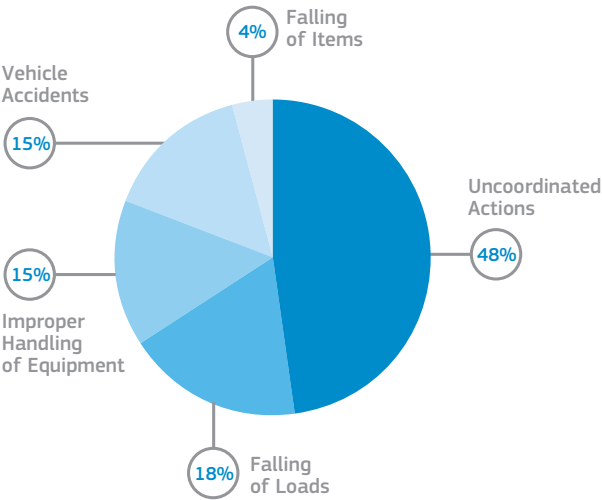
**HIDDEN CAUSES**

In the majority of cases an accident is always a sign of latent discontent. When, for whatever reason, employees are unhappy with their job, they tend to be ill more often and to sustain injuries. When you have too many accidents at the workplace, it could be an indication that the people are absent-minded and are not focused on what they are doing.

There could be other implicit reasons as well, when often a minor incident may cause a serious injury. How does that happen? Say, I injure my knee, but still report to work, thinking that the pain will go away in a couple of days. But it gets worse instead, and a week later I need to admit myself to a hospital to deal with an inflammation.

This example suggests that unless you review the accident and identify its cause, then in due time it will come back to haunt you.

**Causes of Accidents in 2011, Warehouse**



**THE GREATER THE SICK RATE, THE GREATER THE RISK?**

As a rule, the number of accidents is likely to increase during a flu epidemic. Why? Because when one of the crew falls ill, this increases the workload for other crew members, and you need to find a replacement. And any new person would immediately find themselves in a high-risk environment, because they are not accustomed to doing this particular job and they don't have the same accumulated wealth of knowledge on safety, as the other crew members. Hence, when two out of five are on sick leave, this means that half of the crew is facing hazards.

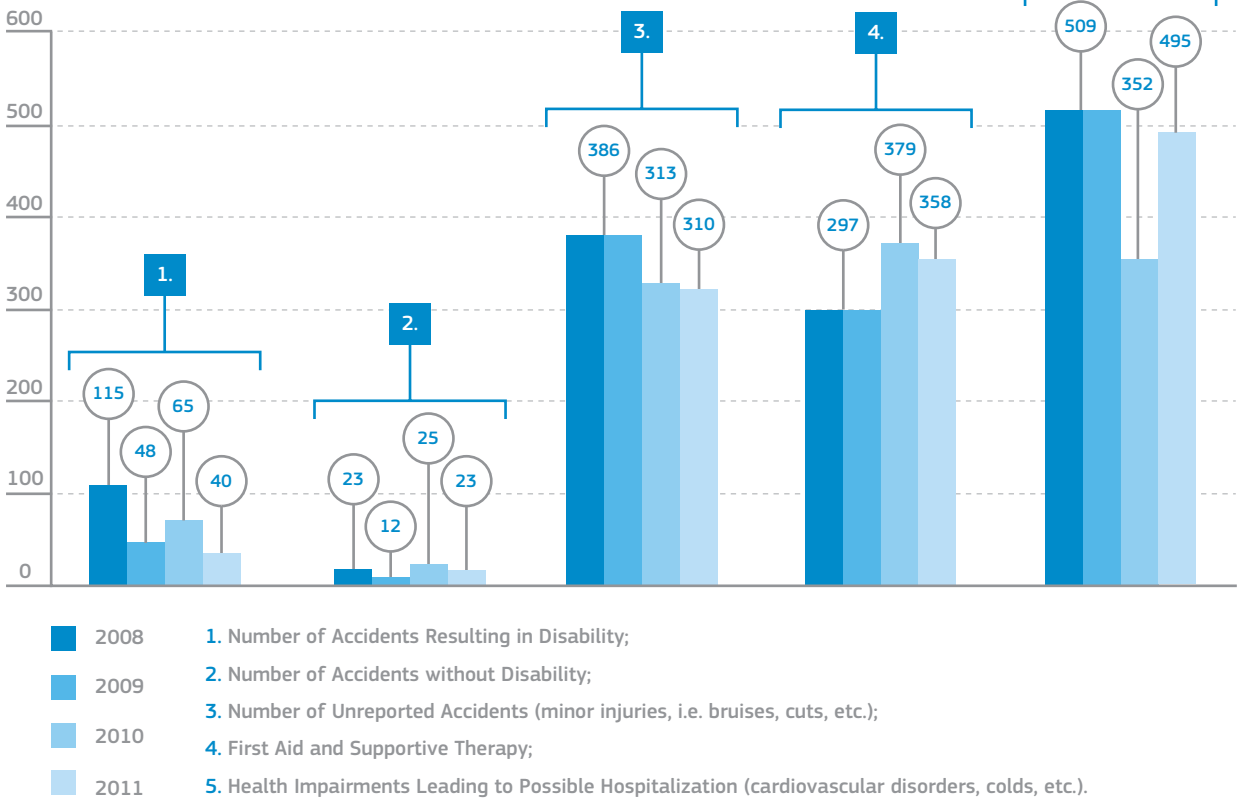
Lamentably, when you are doing an unfamiliar job, the chances of getting hurt are greater compared to someone who is more experienced with it.

I'll be frank, if a load falls on top of your head, a hard hat won't do you any good. But if you fail to see the edge of a steel sheet and it hits your head a hard hat may save your life, because the edges are sharp as a knife.

The same is true for coils. It may seem that it only takes a small effort to help it along on its proper way, but if you touch it without wearing gloves, you most certainly will get burned.

It is not just a matter of using protective equipment; it is a matter of using it in a way that fits the purpose. Take, for example, protective footwear. If you wear regular shoes, which are not intended for a high temperature environment, then any regular

**Number of Cases Requiring Medical Assistance at NLMK Clabecq**



sole would simply melt away, turning the floor into a skating rink.

**A COMPETITION THAT WORKS MIRACLES**

There is a certain point that you reach when all the key improvements have been made, but the performance indicators stay as they were. In order to move forward we decided to take part in the GESIM\* competition.

The European Trade Union of Metal Sector Businesses GESIM competition is a long-term competition between businesses, with a focus on safety.

This competition involves all metals sector companies in France and neighboring countries. Throughout the year a panel reviews a variety of performance criteria, ranging from accident statistics to cleanliness of workplaces. The 'safest' business

receives an honorary award and a cash prize. However, it wasn't the cash prize that had helped the competition gain its popularity, but the fact that all participating businesses, irrespective of their place in the rating, show a marked several-fold reduction in the number of accidents. Several years ago, when the NLMK plant in Strasbourg took part in the GESIM competition, the number of accidents there was reduced to zero!

One begins by selecting the timing of the competition and preparing a summary of safety indicators in recent years. In 2009, 2010 and 2011 we came very close to winning and look forward to winning this year.

**...AS STRONG AS ITS WEAKEST LINK**

We had identified that the storage facilities were the most challenging area, because this is where all the serious accidents were taking place. And if you reduce the number of accidents at the warehouse two-fold, this will translate into a several-fold improvement in overall statistics. This is akin to the Pareto principle\*\*: if you start at the root, you shall reap benefits across the board.

\*GESIM - Le Groupement des Entreprises Siderurgiques et Metallurgiques - Association of Ferrous and Non-Ferrous Metallurgy Businesses (French).



“ *There is no sense in believing that one can improve the safety level at a business just by talking about safety at length. One needs to discuss it, do some explaining, take many actions, and make difficult decisions.*



Seven Pieces of Good Advice from Hugo Modrian

1. Images are more effective than words. Every time.
2. Face the truth squarely. This means that the accident numbers should always reflect the true state of things. Many companies report good safety performance, but only on paper. If you don't know the true state of affairs, you will not be able to control the situation.
3. Every unit should have safety guidelines which are adapted to the needs of that particular unit and contain a set of rules defining one's actions for that particular unit. Every employee who comes to that unit should be issued a leaflet advising them of the particular hazards.
4. Newcomers at a large operation fail to pay attention to the most important things. For this reason one should not disregard visual aids and leaflets.
5. Safety guidelines need to be properly communicated. I am referring to approved decisions. One should not expect any results from a decision made behind closed doors in an office, unless you explain the reasons behind it.
6. All third-party suppliers, especially contractors, should complete a proper, rather than a perfunctory, safety briefing and make sure to comply with all the rules. This should be governed by a clause in the contract.
7. Special attention should be devoted to personal protective equipment. Hard hats, gloves, earmuffs and earplugs should be comfortable to wear, clean, in adequate supply and always handy.

The manager, of course, bears responsibility for safety. This, however, implies that everyone else shares in this responsibility, instead of saying that until the manager tells us what needs to be done, we shall sit and watch the grass grow. In our case, when someone does something dangerous, other people tell the person to be careful, lest they hurt themselves, without waiting until the bad thing does happen.

There is no sense in believing that one can improve the safety level at a business just by talking about safety at length. One needs to discuss it, do some explaining, take many actions, and make difficult decisions. And make sure not to forget to follow up on them later. In a nut shell, this is the underlying principle of operations.

**BONUSES AND FINES**

In real life, it quite seldom happens that an employee would intentionally break the safety rules. How do we respond in such cases? Usually we issue an official letter with a warning, and in almost every case this is sufficient to cause the employee to continue working properly. At the same time, however, we have one employee who has been injured on 12 occasions over a period of three years, without violating the rules intentionally a single time. His problem is absent-mindedness, causing him to get hurt often.

In general, safety rules should be explained in a non-aggressive manner, even if it has to be done a dozen times. If the employee withdraws, everyone stands to lose. It is important for the person to realize what they have done wrong and to develop a keenness to avoid repeating the same mistake in the future.

Hence, I don't find it a very efficient measure to punish people for injuries. Rewarding people for having no injuries is much more effective. For example, if a team has no injuries for a month, the people should be rewarded. This works well.

In conclusion I would like to compare industrial safety to driving a car. You can speed along at 200 kilometers per hour without wearing a safety belt, but one fine day you will need it, and you'll be very glad if you wear it. The same is true here: one should not disregard the likelihood of an accident, because it is only waiting to happen sooner or later. ■

*\*\* The Pareto principle, or law is named after Vilfredo Pareto, an Italian economist. In general terms, it states that 80% of the effects come from 20% of the causes, while the remaining 80% of the causes only produce 20% of the effects.*



# BICYCLES ARE WELCOME AT NOVOLIPETSK

Bicycles are gaining an ever greater role in urban travel. Why? They save time, are convenient and healthy. VIZ-Stal has for a long time allowed and encouraged riding bicycles. The great expanse of the production facilities of the largest producer of transformer steel is not a formidable challenge for those employees who cover significant distances on bicycles.

Novolipetsk recently allowed bicycles as a means of in-house transportation by issuing relevant by-laws. Between April 15 and October 15 employees were allowed to use bicycles to enter the plant gates and travel between the gates and the on-site office and amenity buildings of various units. The gate passes of employees who use bicycles show special authorization.

Stanislav Mischenko, Senior Specialist and participant in the high-profile NLMK Leader 2020 personnel development project came up with the initiative last April. He proposed to begin by installing bicycle racks, possibly made by the employees themselves, at the gates or next to plant management offices.

“Without doubt, this would prove to be of great benefit,” suggested Stanislav. “Otherwise, the physically active and young employees who are willing to travel to work by bicycle are disadvantaged. Bicycles are not allowed past the gate and there is no place to park them outside the gate. I am confident that the opportunity to go to work by bicycle would make a positive impact on employee motivation.”

This initiative by the young employee did not go unnoticed. Vladimir Lisin, Chairman of the Board of Directors of NLMK, noted that “it would make sense to allow people to use bicycles for travel on plant premises during the warm seasons.”

Sergey Melnik, Personnel and General Affairs Director, assisted in quickly setting up bicycle parking lots at Novolipetsk. For example, one of these is located at a secure car park only a hundred meters away from the gate. It is relatively close, and the bicycles are secure.

Sergey Shlykov, Programmer with the Rolling Operations Systems Bureau, was encouraged by the news. “I am very glad. This translates into significant savings of both time and money. Consider this: it takes me 30 minutes by bicycle to commute from my home in a remote part of town to the corporate parking lot, and the same trip by public transportation takes about an hour. And I don't have to pay anything. All in all, it's a major convenience.”

There are, nevertheless, some challenges, like the limited number of bicycle parking lots installed so far. The bicycle users say that the old site gates and the sintering operations do not avail sufficient parking space, while only three employees use the union parking lot.

The by-laws require all bicycle users to attend annual safety briefings and wear a helmet while riding. ■



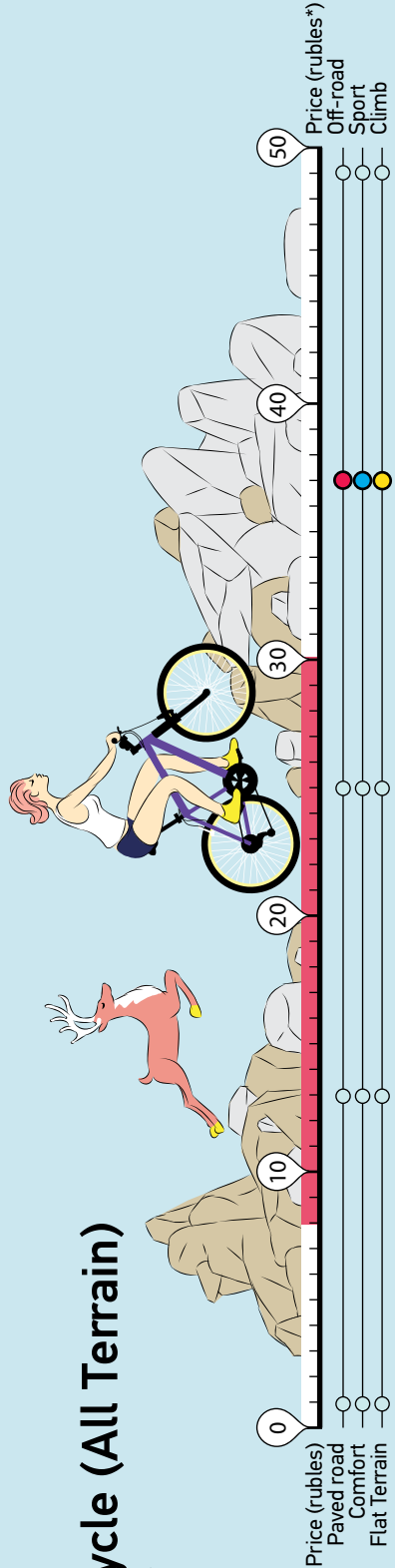
# Pushing the Pedals

Notwithstanding the popularity of mountain bikes, a city bicycle may be more suitable for riding on paved roads

## Mountain Bicycle (All Terrain)

Designed for: Cities, Parks

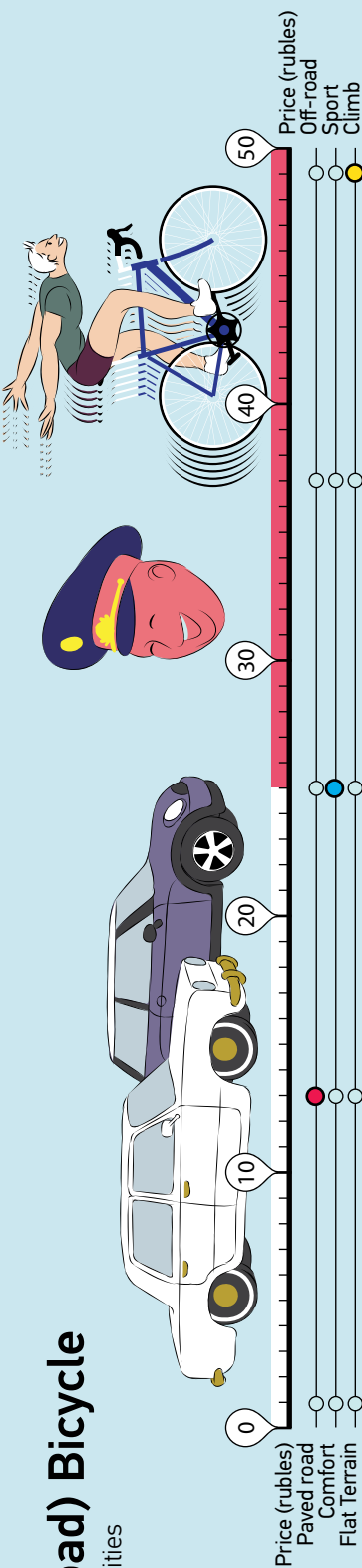
- ⊕ Versatility
- ⊖ Everybody has one



## Racing (or Road) Bicycle

Designed for: Highways, Cities

- ⊕ Speed
- ⊖ Price



## Folding Frame Bicycle

Designed for: Cities

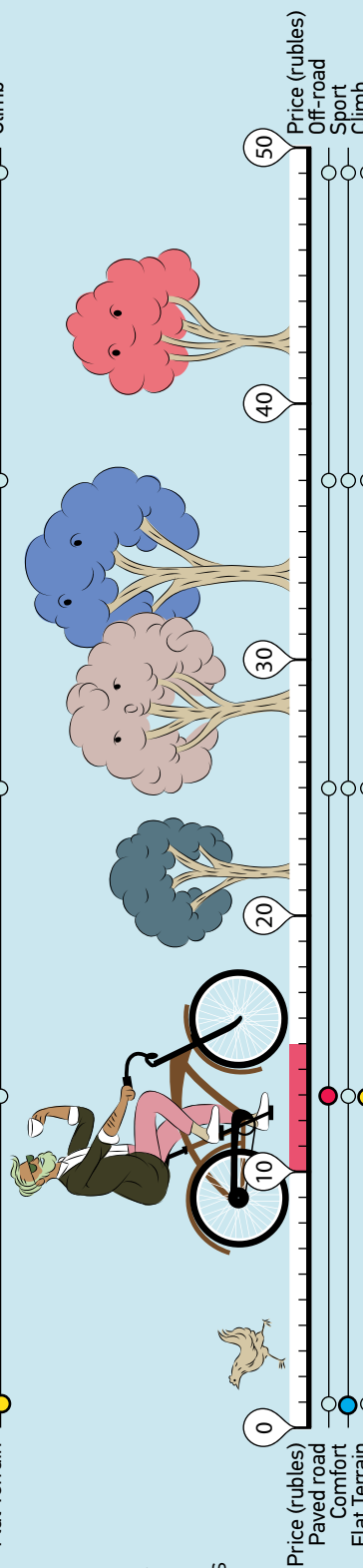
- ⊕ Portable
- ⊖ Low Speed



## Cruiser

Designed for: Cities, Parks

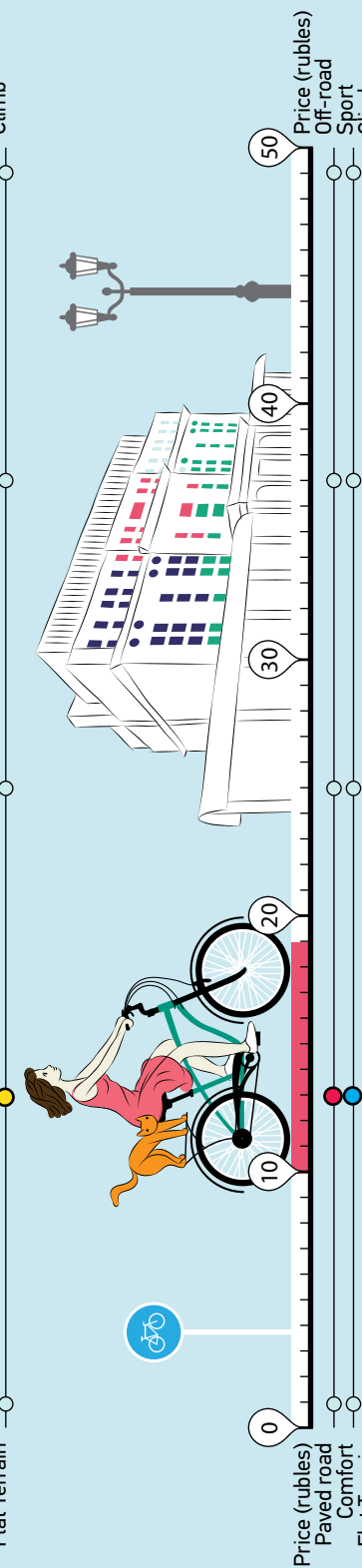
- ⊕ Stylish
- ⊖ Difficult to climb slopes



## City

Designed for: Cities, Parks

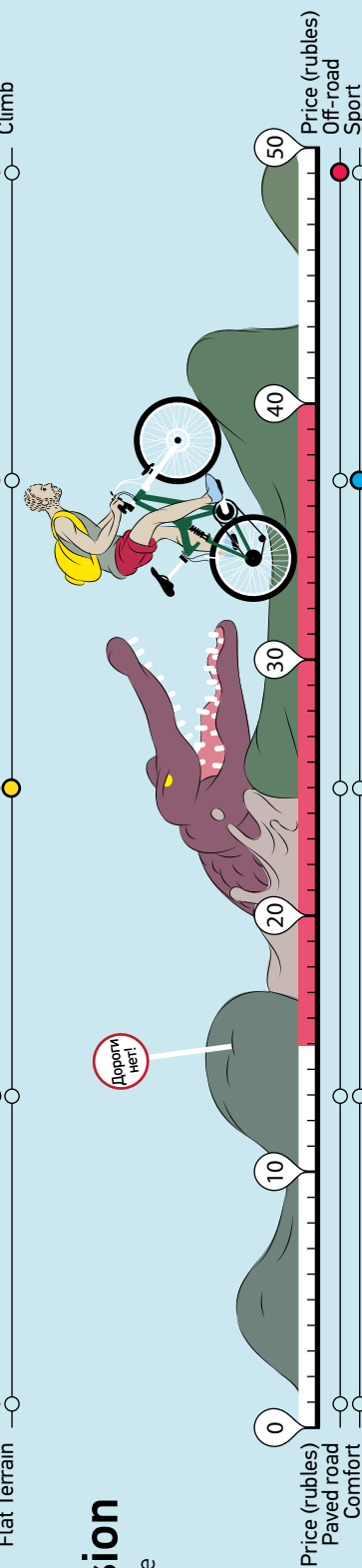
- ⊕ Comfort
- ⊖ Avoid Curbs



## Dual Suspension

Designed for: Off-Road Use

- ⊕ Cross-Country
- ⊖ Useless in Cities



\*USD/RUB = ~31  
EUR/RUB = ~41



*Fuel from waste. Could anyone have imagined something like this a couple of decades ago? It has become a reality for steelmakers today. Yana Larina was asked by NLMK Magazine to find out how BOF gas can be used as jet fuel.*

## TAKING TO THE SKIES ON BOF GAS?

Zero-waste technology is no longer a meaningless term for Russian businesses. The government policy on environmental issues related to industrial production is still under development, and it is only relatively recently that companies have begun focusing on strengthening their environmental budgets. But is that enough to address the issue of reducing waste? Let's see what we can find out.

### BIOTECHNOLOGY AS A SIGN OF GOOD FORM

LanzaTech, a company from New Zealand, is developing a technology that would allow industrial waste to become an input for the production of bioethanol. Since 2005, the Oakland-based researchers have been looking into the technology for processing industrial waste into new raw materials. Their approach is based on a process for producing ethanol from carbon dioxide.

The obvious benefits of this technology have ignited the interest of steelmakers from China

and India. In 2014 China is planning to announce the launch of commercial production of 379,000 liters of ethanol per year. The Shanghai site of the steelmaking giant Baosteel currently houses a LanzaTech pilot installation for processing BOF gas into ethanol. Baosteel is one of the few global producers of steel to successfully implement coke-less technology for making iron, the COREX process developed in the late 1970-s in Germany together with the Austrian Voest Alpine.

Vladimir Romenets, Professor at the Moscow Institute of Steel and Alloys, describes the process as follows:

"The COREX installation applies a two-stage combined smelting and reduction process in two separate units, which essentially represent the shaft and the hearth of a blast furnace. The technological features of the process require the use of fairly sophisticated auxiliary units and machinery, making the installation much larger than a blast furnace of similar capacity and resulting in higher capital expenditures. The

absence of coke-chemical operations in the production cycle, however, helps reduce the overall material and investment costs. This is the first industrial installation where the shaft and hearth of a blast furnace are spaced apart to produce pig iron by direct ore reduction using coal instead of coke.

### STEELMAKERS CAN HELP AIRLINES SAVE MONEY

Using the technology developed in New Zealand waste gas from steelmaking operations can be used for the benefit of aviation. Assuming that almost all steelmaking businesses are involved, the program would produce enough fuel to meet the demand of the aviation sector for fuel, making it an important source of revenue for steelmakers.

The aviation sector also stands to gain from this. Currently airlines are paying fines for emissions of greenhouse gases; once they shift to biofuel, these outlays can be reduced significantly. For example, Virgin Atlantic claims that by relying on this technology it can cut emissions of greenhouse gases by 20%. The price of regular and biofuel is expected to be the same; however, given the lower burden of fines, airlines can only gain from cooperating with steelmakers.

LanzaTech is not the only player in this field of research. Specialists from the Bioengineering Resources Corporation in Arkansas and researchers from the University of Oklahoma are studying the options of using bacteria to consume certain components of waste gas.

In New Zealand waste from the BlueScope Steel plant is used to produce up to 68,000 liters of ethanol. Recently, South Korean Posco also signed an agreement with LanzaTech with a view to processing gaseous products of combustion into ethanol and other substances.

"Biotechnology has made it possible to create new medicines, and plants which can produce high yields without chemical fertilizers, while withstanding negative exogenous exposure," say Igor Tikhonovich, Director of the Agricultural Microbiology Research Institute. "The future of the Russian economy, as well as of any other country, depends directly on the use of biotechnology."

Biotechnology has tremendous potential for the steel sector. There is a chance that in the next few decades most of the environmentally unsafe waste will be used for the benefit of humanity. ■



Pilot installation for processing BOF gas into ethanol in Shanghai; a joint venture between Baosteel and LanzaTech

### It's a Fact!

■ The World Bank estimates that the costs of addressing the negative impact on the environment are **30 to 35** times higher than the cost of preventive environmental activities.

■ According to Virgin Atlantic management steelmaking businesses can produce on average of **67** billion liters of fuel per year.

■ Nicholas Stern, an economist from Britain, estimates that by **2050** the market for technology and systems that can reduce the carbon intensity of power generation will exceed **USD\$500** billion per year.



# INTO THE WIND

*Anatoliy Khebnev, Novolipetsk  
Deputy Vice President for  
Procurement, tells NLMK Magazine  
about his extreme hobby  
of kite surfing*

All photos are from A. Khebnev's private archive

I am a man of action, and when I go on vacation I always look for something to challenge myself. I began with windsurfing and tried to pursue it for some time. However, windsurfing is very demanding in terms of one's physical abilities, and I was having trouble with my arm after an accident, so I failed to make a lot of progress.

Once I was visiting a very windy place called Tarifa, which is located in Gibraltar, Spain. The winds there are 30 meters per second and so strong that when you walk along the beach, it feels like being sandblasted. With winds like that my arm was giving me a lot of pain, making it impossible for me to windsurf. I almost felt bad about it, but then I noticed the kite surfers, and decided to try it myself! I never went back to windsurfing after that and found the kite much more exciting.

Besides, I got the knack of it immediately, and obtained a certificate on the very same trip.

## FACE TO FACE WITH THE ELEMENTS

Kite surfing is a captivating pastime; it's both a sport, with physical exertion and challenges, and fun at the same time. Many may remember how much fun it was to fly a kite as kids. Unlike the kites we used to fly as children, kite surfers use

one that is much larger (twelve square meters on average) and more technologically advanced. It can be steered with ease and can follow any imaginable, and sometimes unimaginable, trajectory. In addition, it creates significant pull, which lifts you out of the water; you are, literally, flying and touching the water with your board only to steer.

The thrill of any non-motorized sport is that it gives you an incomparable sense of the elemental force which seems to be propelling you in some incomprehensible fashion; and kite surfing is no exception. This feeling is strongest when you can surf on your own, with no one else around, only the ocean and the wind. It is impossible to describe it, one must try it.

This style of kite surfing, in the 'wilderness', is associated with certain hazards. The wind and the ocean are unforgiving when it comes to carelessness. It is important to have someone on the beach to monitor you; it's best when there is a lifeguard boat in the area, or someone who can quickly come to your rescue, like a more experienced kite surfer, or simply call the rescue service.

Kite surfing is one of the safest and least traumatic aquatic sports, but anything can happen on the open seas. You could run into rocks, the wind

could pull you out into the sea, the kite's lines could get tangled, or it could tear, etc.

I remember hearing this story about one surfer who made a jump (you can do that while kite surfing), and found that he could not return to the surface. The wind started to raise him higher, it grew stronger, and the surfer realized that if he were to let the kite go, he would be killed by the impact with the water; so he had to hang on. In the end, everything was fine, and he was rescued after covering some two kilometers up in the air. Like in any other aquatic sport, in kite surfing you need to follow the safety rules, and then the chances of survival are very high even in the most dangerous situation.

## IT TAKES WIND

Many may think that kite surfing is quite difficult, but they are wrong. It is simple, and inexpensive, by the way. Nowadays at almost every resort where there is wind there are stations where you can be trained and issued a certificate. Kite surfing is very democratic, and if you own a kite and board, you can do it anywhere, say, on a river or in a pool in your own backyard (I saw a video of people doing just that). It is much more convenient to have your own equipment, because then you do not need to depend on anyone and kite surf anywhere you want and whenever you want, as long as there is wind.

Some countries, however, restrict kite surfing at hotel and public beaches. You need a certificate to be able to rent a kite in any country in the world and surf without an instructor. A propos, I never had to present my certificate, because I always travel with my own gear when vacationing.

The kite is rather convenient to carry, because you can fold it into a small knapsack. The board is more difficult to carry, because it is 1.4 meters long, making it oversized luggage; still, the board, the kite and personal belongings add up to about 15 to 20 kilograms. You need a buddy to assist you when launching the kite, it may be your wife or someone else. My wife always travels with me and helps me to launch and land the kite.

## WHAT IT TAKES

How long it takes to learn to kite surf depends, naturally, on one's abilities and physical condition; on average it takes one to two weeks.

You begin learning on land, by studying the gear, safety and survival rules, and learning how to steer

a kite without a board. Together with an instructor, who is fastened to you, you attempt to steer the kite and hold it in various positions, and also learn to do figure-eight movements. The objective is to learn how to keep the kite stable in a certain position, obtain a sense of how it behaves when you adjust the control bar, and learn how to reduce or increase pull.

Training on the beach usually lasts one or two days. Then you go into water, but with no board yet, where you learn how to do body dragging. And the last step required to complete level one is to learn how to start moving in the water with a board.

As soon as you learn how to start moving in the water, you get a feeling of elation. Beginners usually kite at high speed, because they cannot control it, but very soon you learn that moving is only part of it; one also needs to know how to make turns, slow down, turn around and return to shore.

The next level is learning how to kite downwind. What does that mean? For example, the wind is blowing along the coastline and there are rocks or a reef at the end of the beach, where it may be dangerous to surf. If you don't know how to kite downwind, you will be blown towards the rocks, while your family watches this in horror from the beach. Knowing how to use the wind allows you to move in any direction, even against the wind, and avoid danger.

A kite can also be used for jumping. Some of the hot-heads can sometimes jump as high as 25 meters into the air, which is the height of a ten-story building. That is why some kite surfers refer to what they do as 'flying'. ■

## Kite Surfing Vocabulary

- Kite**, used for towing purposes, utilizes the force of the wind to create pull over land or over sea
- Harness**, used for attaching to the kite
- Body dragging**, kite surfing without a board
- Off-shore**, wind blowing from the shore, considered to be most dangerous to kite surfers
- On-shore**, wind blowing from the sea, suitable for surfing, not recommended for beginners
- Side-shore**, side wind, suitable for all
- Downwind**, surfing in the direction the wind is blowing
- Upwind**, steering the kite against the wind, considered to be an expert skill

► Watch kite surfers from Lipetsk do their jumps with the Novolipetsk plant in the background at:  
[http://youtu.be/qg\\_zkFR0hyA](http://youtu.be/qg_zkFR0hyA)





*Thunderstorm at Stoilensky Open-Pit Mine*

*The open-pit mine is deep enough to fit all the buildings in the Moskva-City business district and each ramp is wide enough to accommodate a six-lane highway*

*Photo by Dmitry Chistoprudov*





## Next issue:

Interview with Oleg Bagrin, NLMK's new president

One day at the nailery

Altai-Koks employees conquer one of Russia's highest peaks