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Potash Industry in Russia: Present and Future

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Ladies and Gentlemen,

I am going to look at recent developments and prospects of the Russian potash industry in terms of production, distribution and logistics. All volumes will be given in K₂O equivalent

Russia accounts for:

- 31% of world proven reserves of potassium salts
- ~50% of total world reserves of potassium salts

Global reserves of potassium salts (billion t K ₂ O)				
Region/Country	Proven reserves	% of world proven reserves	Total reserves	% of world total reserves
World	11.7		40.2	
Europe, including Russia	5.9 3.7	31%	22.3 19.1	47%
Asia	1.3		2.8	
Africa	...		0.2	
Americas, including Canada	4.5 4.4	37%	14.9 14.5	36%

Source: Russian Research Institute of Halurgy, St. Petersburg

According to the Russian Research Institute of Halurgy based in St. Petersburg, global proven reserves of potassium salts are estimated at 11.7 billion t. Of these Russia accounts for 31% being number 2 after Canada. (Slide 2) In terms of total world reserves of potassium salts which are put at 40 billion t the share of Russia is around 50%.

• Proven reserves are located in 3 regions of Russia:

• Volgograd region – the Greymyachinsk deposit ▲

• Irkutsk region – the Nepsk deposit ▲

• Perm region – the Verkhnekamsk deposit (by far the biggest deposit in Russia) ▲

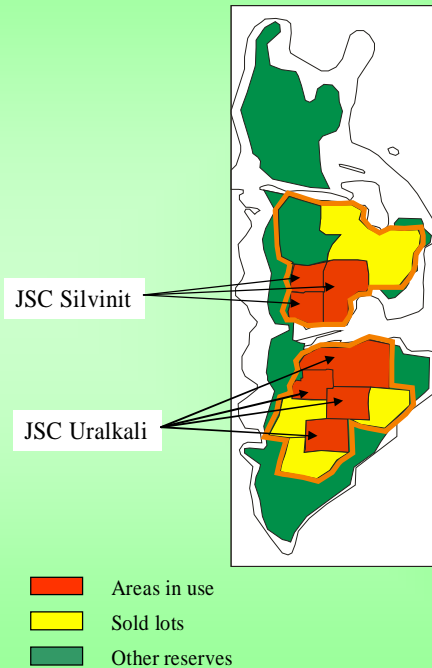


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On the proven reserves of potassium salts in Russia, they are found in 3 regions: in the Volgograd region - the Greymyachinsk deposit (0.076 billion t), in the Irkutsk region – the Nepsk deposit (0.38 billion t) and in the Perm region – the Verkhnekamsk deposit. (Slide 3.)

Verkhnekamsk potassium and magnesium deposit

- Major Russia's K reserves are found in the Perm region in the Verkhnekamsk potassium and magnesium deposit:
 - proven reserves of potassium salts are 3.25 billion t K₂O
 - discovered in 1925
 - 136 km long and 40 km wide
 - potash production started in 1934



The Verkhnekamsk deposit is the biggest one in Russia in terms of both proven and total reserves. Its proven reserves are around 3.3 billion t. (Slide 4) A peculiarity of the deposit is that it has been developed over many years. It has necessary infrastructure in terms of transport and energy supply, qualified workforce as well as water supplies. It is around 140 km long and 40 km wide. It is the second largest deposit in the world after the Saskatchewan deposit in Canada. The deposit was discovered in 1925.

PRESENT - CAPACITIES:

The current potash industry in Russia is represented by 2 manufacturers- JSC Silvinit and JSC Uralkali



JSC Silvinit 3.3 million t K₂O

Solikamsk I (mine, plant)

Solikamsk II (mine, plant)

Solikamsk III (mine, plant)

JSC Uralkali 3.2 million t K₂O

Berezniki I (plant)

Berezniki II (mine, plant)

Berezniki III (plant)

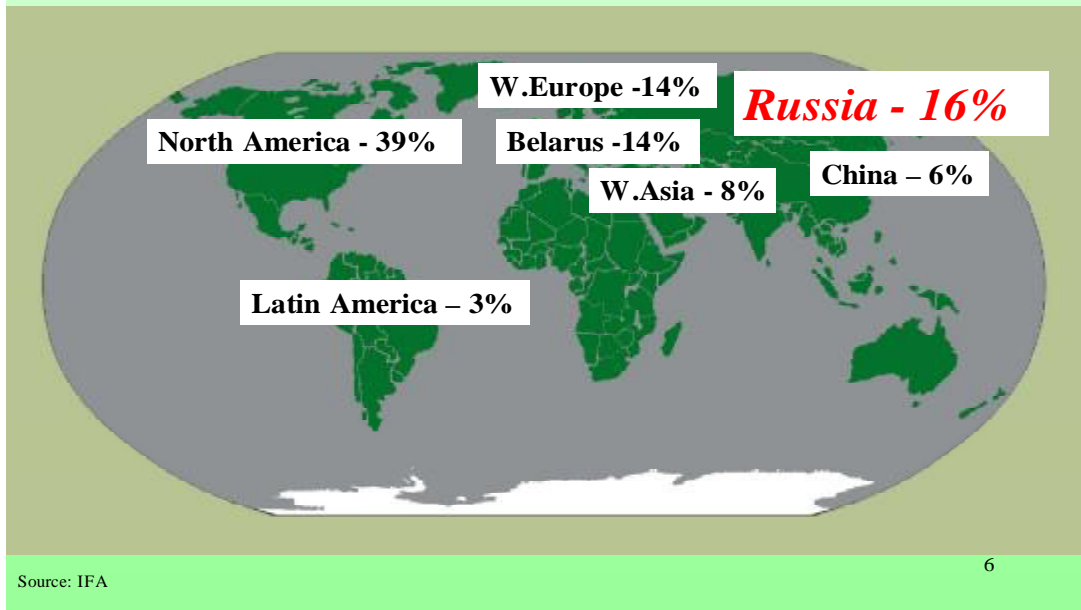
Berezniki IV (mine, plant)

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The history of the Russian potash industry is linked with this deposit . It started in 1934 when a potash plant was built and put into operation in Solikamsk. Today 2 manufacturers represent the potash industry in Russia– JSC Silvinit and JSC Uralkali. (Slide 5)

CAPACITIES:

Russia accounts for 16% of global K capacities

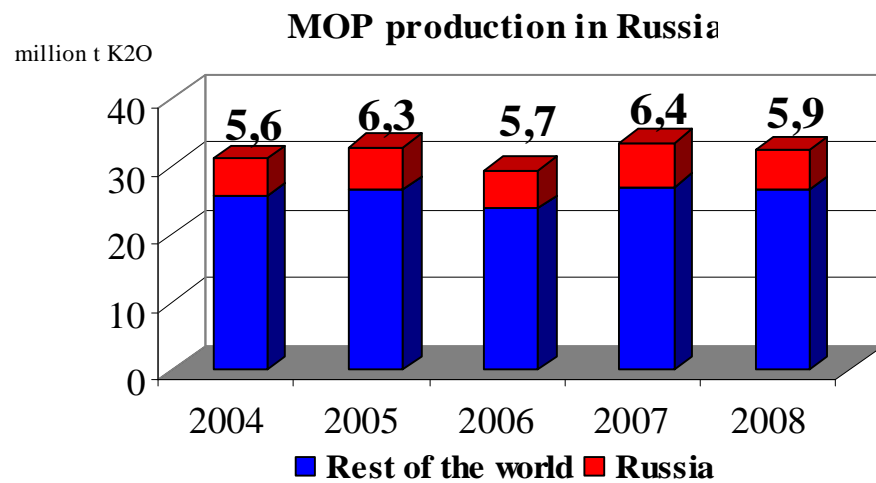


The 2 producers have 5 mines and 7 processing plants in total with an overall potash capacity of over 6.5 million t K₂O which is 16 % of world potash capacities and is significantly behind North America with a 39% share. (Slide 6)

Muriate of potash is the major product for the Russian potash industry. However, it has capacities to mine and enrich carnallite – product supplied to the magnesium industry. It also produces industrial and food salts. Now JSC Silvinit is the sole carnallite supplier covering all domestic requirements for carnallite. Since 2006 carnallite production at JSC Silvinit has increased by 33%.

PRODUCTION:

- Russia produces ~ 20% of MOP in the world
- In 2008 MOP output in Russia was 7% down due to the global economic and financial crisis against 2007



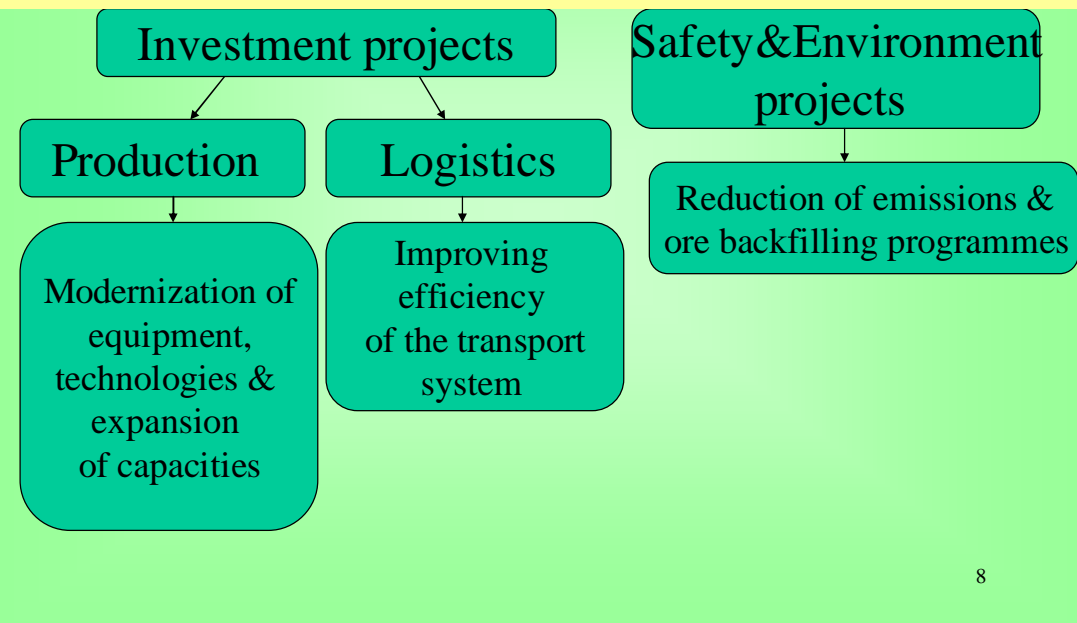
Source: IFA, company data

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On potash, Russia produces roughly 20% of all potash in the world. (Slide 7) Last year MOP output was 5.9 million t nutrient. It is half a million or 7% down on 2007. The decrease was caused by the global economic and financial crisis which resulted in lower demand for fertilizers including potash. According to IFA estimates, demand for potash was down by almost 12% in the world. Thus, Russian producers had to cut back production to match lower market requirements. However, the crisis is believed to be short-lived and fundamentals are strong in the mid- and long-term.

PRODUCTION/INVESTMENTS:

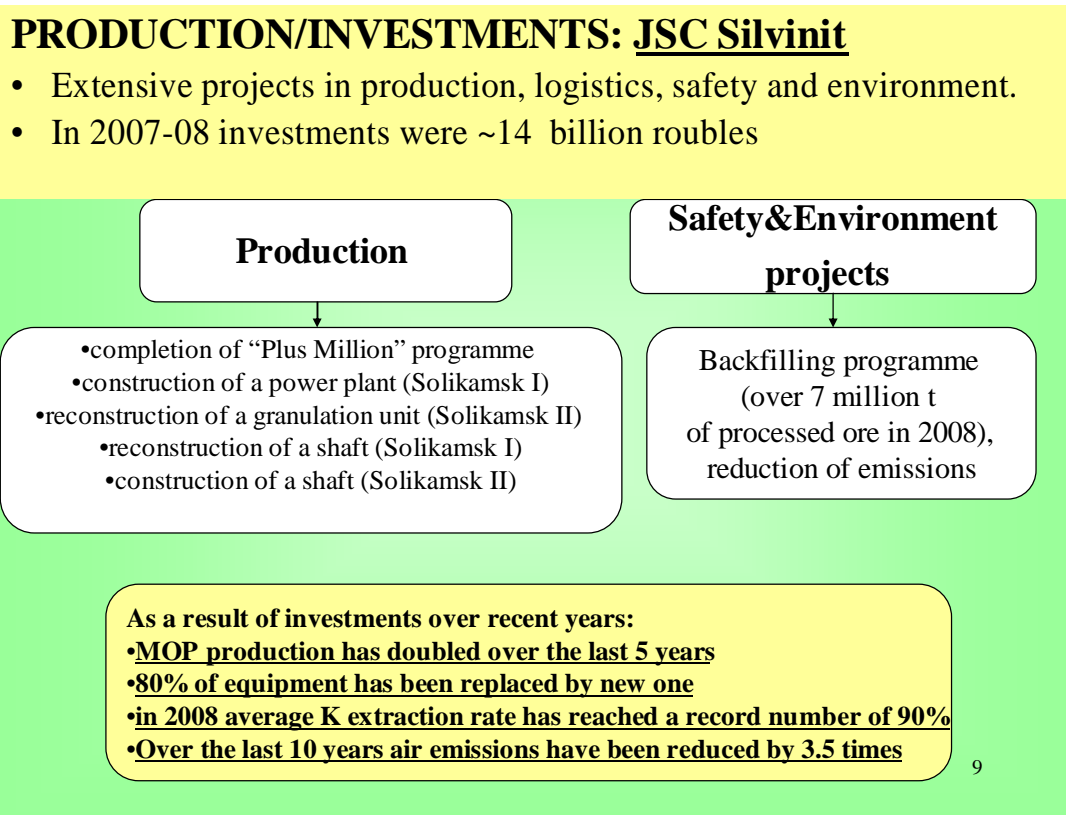
- Russian potash industry is committed to maintain and expand production, improve logistics, safety and environmental performance
- in 2008 investments were > 22 billion roubles



In the 1990s after the collapse of the domestic market the Russian potash producers concentrated on increasing production efficiency, improving product quality and distribution network. Thus, they had to buy new equipment, railcars, look for port terminals and develop a sales system for their products. This was against the background of insufficient funds available. In the last 2-3 years the strategy of the potash enterprises in Russia has changed. Today, they manufacture products in compliance with international quality standards, keep high operating rates and arrange shipment and delivery of the products to customers worldwide. So, urgent tasks have been accomplished. Now the potash producers are facing other challenges – investments in improving efficiency of shipments, modernization of production and greenfield projects. In the last few years the Russian government has held a number of tenders/auctions on licenses to develop potash deposits in the country. In 2005 the government sold a license to develop the Gremyachinsk deposit in the Volgograd region. The winner was Eurochem. The price of the license was 3 billion roubles. In March 2008 another auction was held where major undeveloped lots of the Verkhnekamsk deposit were put on sale. The winners were Silvinit, Acron and Eurochem. The prices of their licenses were 35.14, 16.8 and 4 billion roubles respectively. Besides, in 2004 Uralkali bought a license to develop another area of the Verkhnekamsk deposit. I will look at these projects a little later in my presentation.

Last year despite the crisis the Russian potash producers implemented extensive investment programmes. (Slide 8) They are estimated at over 22 billion roubles. Besides, the producers

have large safety and environmental projects in place that include programmes on reduction of emissions and ore backfilling.



In particular, JSC Silvinit has invested roughly 14 billion roubles over the last 2 years in production and logistics. (Slide 9) It has successfully completed its “Plus Million” programme that has increased its production potential to 6 million t product, reconstructed one of the granulation units at Solikamsk II, built its own power plant at Solikamsk I. It has been involved in reconstruction of an existing shaft and construction of a new one – at Solikamsk I and II respectively. The plant has a unique ore backfilling programme in place in terms of volumes. Last year over 7 million t ore or 1/3 of processed ore were put back in the voids. This plan provides for safety of mining operations, community and lower environmental impact. As a result of measures taken over the recent years potash production has doubled in the last 5 years, 80% of equipment has been replaced by new one, in 2008 the average extraction rate of potassium reached a record number of 90%. Air emissions have gone down by 3.5 times over the last 10 years. Under an agreement with the government this year the company has undertaken an obligation to pay 1 billion roubles as part of the package to cover the construction of a 53 km railway bypass.

PRODUCTION/INVESTMENTS: JSC Uralkali

- In 2007-08 investments in production were ~ 15 billion roubles

Production

- modernization of existing facilities
- expansion at Berezniki IV
- energy project (construction of a gas power plant)
- infrastructure

Safety/Environment

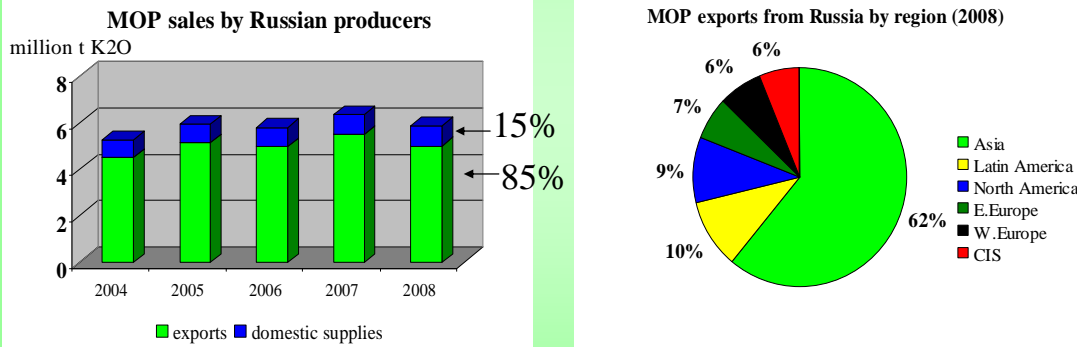
- reduction of emissions (switch from fuel oil to gas)
- water conservation
- land reclamation
- backfilling of clay and salt tailings

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JSC Uralkali invested in modernization and expansion of capacities around 15 billion roubles over 2007-2008. (Slide 10) Among its large-scale projects there is expansion of capacities at Berezniki IV, construction of its own gas power plant. The enterprise has also been implementing a diverse and costly programme on safety and environment. It includes reduction of air emissions through switch from fuel oil to gas, land reclamation in the territory of over 900 sq m and backfilling of clay and salt tailings. Under an agreement with the government this year the company has undertaken an obligation to pay 5 billion roubles as part of the package to cover the construction of a 53 km railway bypass.

PRESENT – DISTRIBUTION:

- Russian potash industry has become export oriented:
 - 85% of product is exported, 15% is consumed in the domestic market
 - Asia – the largest market for the industry absorbing > 60% of exports
- The bulk (~ 80%) of domestic supplies feed local compound fertilizer industry



Source: company data, Azotecon

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The Russian potash industry has become export-oriented. (Slide 11) 85% of product manufactured is exported. Russia accounts for 20% of international potash trade. In 2008 due to the crisis exports were down by 9%. The major import market is Asia that absorbs over 60% of Russian potash exports. It is followed by Latin and North America – with 10% and 9% respectively. Domestic supplies account for 15% of total sales. The bulk (around 80%) of this volume is consumed by compound fertilizer manufacturers. The rest is supplied to industry and farms. In agriculture potassium is largely consumed in the form of compound fertilizers. A very small volume is applied directly. The share of domestic supplies has been rising slightly over recent years.

PRESENT-LOGISTICS:

Challenges:

- long distance to ports of loading
- rising railway tariffs



■ ports of loading

JSC Silvinit (2008)

- reconstruction of a railway station (Solikamsk II)
- expansion of railcar repair capacities
- purchase of 300 mineral railcars (> 3500 in total)

JSC Uralkali (2008)

- ~90% exports are shipped through its own terminal at St. Petersburg - Baltic Bulk Terminal (6.2 million t throughput, 240,000 t storage capacity)
- purchase of ~ 300 mineral railcars (> 4600 in total)
- contribution to construction of a 6 km rail bypass

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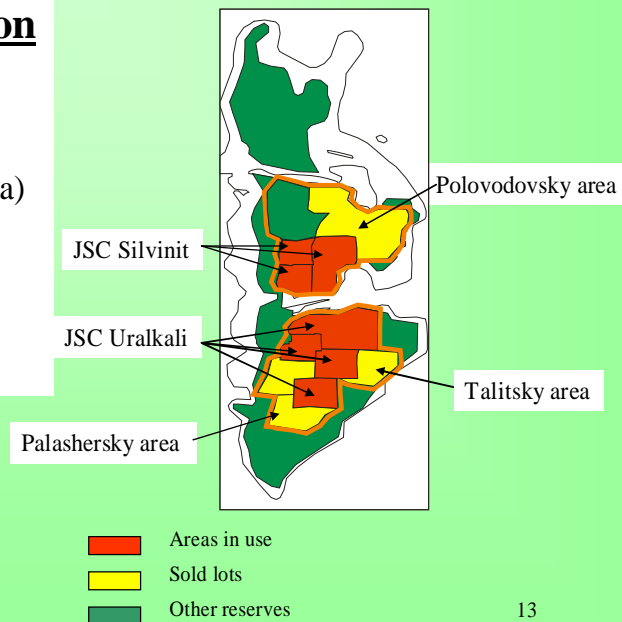
On logistics, potash in Russia is shipped by river and railway - in bulk, bags and containers. (Slide 12) In terms of logistics the potash producers face a number of challenges. First, the potash plants are located at mining sites – 2-3,000 km away from ports of loading to major export destinations. Second, most terminals are located outside of Russia - in the territory of the former Soviet republics – Latvia, Lithuania and Ukraine. It is obvious that political situation and bilateral relations between Russia and its neighbors affect the use of foreign ports. Third, railway tariffs increases put upward pressure on overall transport expenses for the plants eating into their revenues. In view of this Russian potash producers have been constantly improving efficiency in shipments. This is achieved through the purchase of railcars, expansion of storage capacities, construction of terminals. For example, in 2008 JSC Silvinit invested heavily in reconstruction of the railway station Solikamsk II, expansion of railcar repair capacities and the purchase of 300 mineral railcars that put the total number at over 3500 railcars. The enterprise is diversifying its shipment channels. As a part of the plan, in 2008 JSC Silvinit shipped around 1 million t of product through its port on the Kama river. In 2008 JSC Uralkali exported around 90 % of its product through its own terminal in St. Petersburg – Baltic Bulk Terminal with a throughput of 6.2 million t and a storage capacity of 240,000 t. The enterprise also increased its rolling stock by around 300 railcars to over 4600 railcars. Besides, JSC Uralkali contributed to the construction of the 6 km bypass railroad.

FUTURE -PRODUCTION

Verkhnekamsk potassium and magnesium deposit

Results of the state auction as of 20 March 2008:

- JSC Silvinit (Polovodovsky area)
- MCC EuroChem (Palashersky-Balakhontsevsky area)
- JSC Acron (Talitsky area)



On the future developments in the Russian potash industry, they are linked with the green-field and debottlenecking projects announced by 4 companies – Silvinit, Uralkali, EuroChem and Acron. Last year on 12 March a state auction was held in Russia on the sale of licenses to develop 3 areas of the Verkhnekamsk potassium and magnesium deposit. (Slide 13) Silvinit, Eurochem and Acron have become winners under the auction acquiring rights to develop the Polovodovsky, Palashersky-Balakhontsevsky and Talitsky areas respectively. Under the terms of the licenses the companies are supposed to make required research and submit their projects for the authorities to approve. Once projects are approved, construction of mining and processing complexes should commence. Eurochem and Uralkali hold additional licenses that they acquired earlier – Eurochem – for the development of the Gremyachinsk deposit in the Volgograd region and Uralkali – for the development of the Ust-Yayva area of the Verkhnekamsk deposit. The value of greenfield projects varies from USD 1.5 to 2 billion. Most of the projects have been announced. According to the announced plans, the Gremyachinsk, Polovodovsky, Palashersky, Talitsky projects will provide for the construction of the following capacities: 2.76, 1.5, 1.98*, 1.2 million t K₂O respectively.

* Preliminary estimate based on Eurochem`s Annual Report 2008 (total capacity by 2016 4.74– 2.76 m t K₂O (Gremyachinsk plant) = 1.98 m t K₂O)

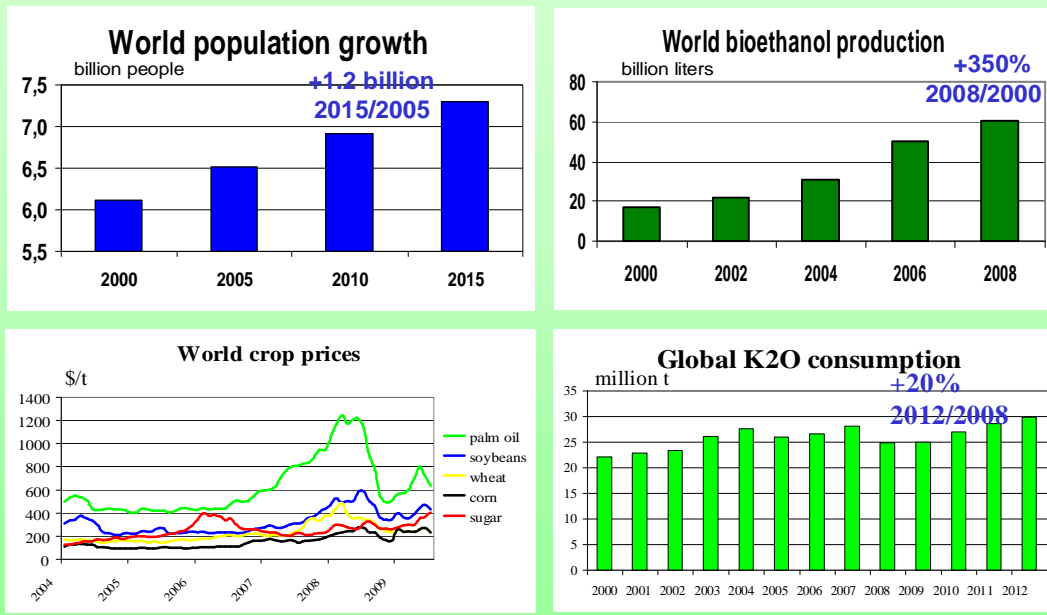
POTASH CAPACITIES IN RUSSIA, million t K ₂ O				
Company	present	future		Total (future)
		debottlenecking	greenfield	
Verkhnekamsk deposit:				
Silvinit	3.3		1.5	4.8
Uralkali	3.2	1	*	4.2*
Eurochem			2**	2**
Acron			1.2	1.2
Gremyachinsk deposit:				
Eurochem			2.8	2.8
Total Russia	6.5	1	7.5	15

Source: company data
* Yst-Yaiva project is not included (no official statement on capacities available)
** Preliminary estimate based on Eurochem's Annual Report 2008

Supposing all the projects are realized Russian potash capacities may double by 2017 against 2008. (Slide 14)

FUTURE:

World potash demand is set to rise in the future



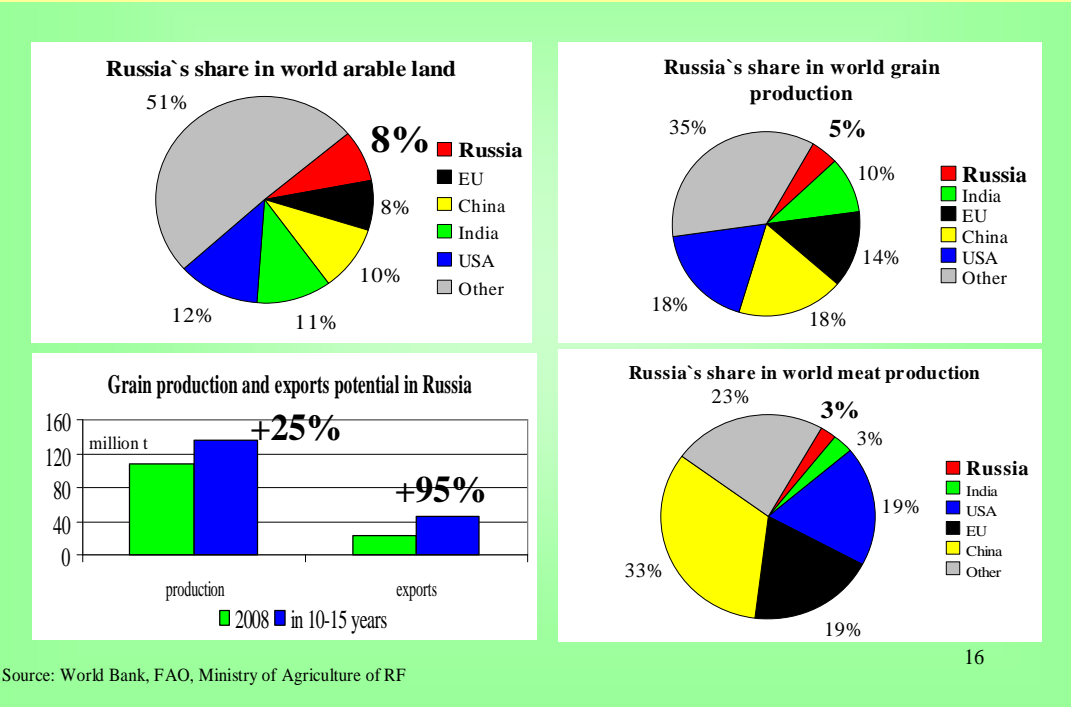
Source: UN, EPI, FAO, World Bank, IFA

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These projects are strategically important as the current crisis is temporary in nature. But there are solid factors at play that will be further driving upwards global fertilizer consumption, including consumption of potash. (Slide 15) These are growing world population, biofuels production and better diets. By 2015 world population is projected to reach 7.3 billion people. It is 1.2 billion people more than in 2005. By 2050 this number may total 9.2 billion people. Besides, even now around 1 billion of people starve in the world. So, food security is a number one priority for the international community. According to the Russian Ministry of Agriculture, global food production should double by 2050 to be able to feed world population. Limited availability of fossil fuel in the world makes large consumers, like US and Brazil, rely heavily on pursuing biofuel projects. In 2008 biofuel production more than tripled against 2000. Arable land resources are also limited. There are few opportunities for their expansion in the world. So sustainable use of fertilizers is the only way to increase crop production to meet growing requirements for food, feed and fuel. Negative effects of crop shortage were felt in 2007 and the 1st half 2008 when demand for crops outpaced supply and prices for corn, wheat and palm oil increased 2.5-3 times. Given these conditions, crop production will be growing. Fertilizer consumption will be rising accordingly. IFA expects global potash consumption to rise by 20% by 2012 against 2008. Additional demand will require additional supply to match it in order to ensure required yield increases, stability of food and fertilizer supply. So new projects being contemplated and implemented in Russia will be able to meet additional emerging potash requirements.

SALES:

Domestic demand for potash is set to rise in the future



Domestic demand for fertilizers including potash is also set to rise. There is a huge agricultural potential in the country. (Slide 16) First, Russia accounts for 8% of arable land resources in the world. At the same time, Russia's share in world grain and meat production is significantly lower - 5% and 3% respectively. So definitely there are possibilities for an increase. The government has a number of programmes in place aimed at higher agricultural production including crop production, milk and meat. It should be noted that over the last 5 years agricultural imports have been up 3 fold. These governmental programmes are meant to improve food security of the country, self-sufficiency in food supplies as well as to increase grain exports So, over the next 10-15 years grain production is expected to rise by 25% to 135 million t, whereas exports will almost double to 45 million t according to government plans. The plans of higher grain exports as well as higher demand for local agricultural products will require expansion of sown acreage and higher yields. Around 10 million ha have been taken out of cultivation over the last 15 years and can be brought back when required. Application of fertilizers will also have to grow accordingly, including that of potash. In fact, fertilizer application is projected to increase from 2.2 million t in 2009 to 3-4.5 million t nutrient in 2012.

FUTURE-LOGISTICS:

- Solikamsk –Y ayva railroad (part of the BELKOMUR project): 53 km long (one-way launch – December 2009)
- BELKOMUR project: ~ 1200 km railroad from Solikamsk to Arkhangelsk (under consideration by the government). Access to the White and Barents Seas. Construction is expected to start after 2016.



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Over the years potash producers have developed an efficient logistical system that ensures timely and reliable potash supplies to their customers all over the world and that has proved successful. (Slide 17) Besides, it has been improved on a regular basis. The potash producers keep looking for ways to optimize shipments and cut transport costs. In this connection I would like to look at 2 railway projects to be implemented with the assistance of the government. One is the construction of a 53 km long railroad which is currently under way. This railroad is part of a large-scale project BELCOMUR and is actually a bypass that will go from Solikamsk to the village of Y ayva and will ensure safety of potash shipments from JSC Silvinit. It has been a matter of concern after the flooding of Berezniki I mine and appearance of a sinkhole close to the old rail line used for shipments by the enterprise. The new railroad is expected to be put into operation one-way in December 2009. In 2010 the second line to be launched. The project costs above 12 billion roubles. Both potash enterprises are contributing to it. Another project is called BELCOMUR and means construction of a railroad from Solikamsk to Arkhangelsk giving access for the potash producers and not only to the White and Barents Seas. At present the project is being contemplated by the government. The railroad is supposed to be around 1200 km long. Total cost of the project is estimated at 600 billion roubles. Funds will be raised both by the government and private companies. Construction is expected to commence after 2016 and is planned to last 5 years. The payback period is put at 6.5-9 years. This project is also linked

with another one on construction of a deep-sea area at the port of Arkhangelsk. According to plans, the port would be able to load vessels up to 75,000 t deadweight. The project is being considered by the authorities. When realized, the new railroad and port would become another option for potash shipments thus enhancing flexibility of supplies for the producers.

World potash capacities, million t K₂O					
Country	Present (2008)	% in global capacities	Future (2018)	Total (future)	% in global capacities
Russia	6.5	16	+ 8.5	15*	25
Canada	15.5	38	+ 9	24.5	41
Belarus	5.5	14	+ 0.3	5.8	10
Germany	4.3	11	0	4.3	7
Israel	2.2	5	+ 0.3	2.5	4
Jordan	1.2	3	+ 0.6	1.8	3
China	2.6	6	+ 0.2	2.8	5
Other	2.6	6	+ 0.3	2.9	5
World	40.4	100	+ 19.2	59.6	100

Source: IFA, company data, FMB, Fertecon, Green Markets
 * Yst-Y aiva project is not included (no official statement on capacities available)

To sum up, I would like to say that the Russian potash industry is an integral part of the global potash industry given its substantial share in world potash production and trade. The Russian potash producers watch closely developments on the demand side and realize the inevitable trend of world growing requirements for food, feed and buefuels that will also result in higher demand for potash. New capacity projects in Russia are being implemented against the background of capacity expansion plans considered in other countries of the world.(Slide 18) So, these projects will become a solid basis for further development of the industry as well as domestic and world agriculture.

Thank you for your attention!