



# CASE STUDY TAF TATARSTAN PROJECT

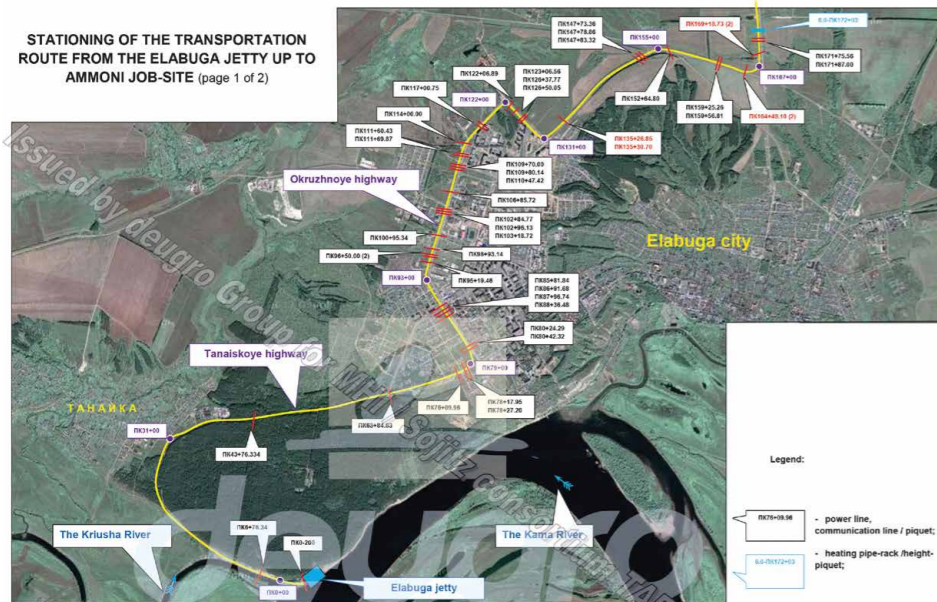
## CASE STUDY TAF TATARSTAN PROJECT

Four years of planning, engineering and execution. Construction of a custom-built jetty to handle weights up to 2,000 tons. A multinational team of engineers and logistics experts to execute all of these transports in the most demanding time frame. Read this story of deugro's logistics solution in one of the most complex and challenging environments!

### The Destination

Russia. A territory almost twice the size of the United States, or four times as big as the European Union. A huge country with far-from-ordinary challenges and mega-projects requiring logistics solutions that are both complex and unique.

For countries around the world, infrastructure is both an asset and a liability: an asset because it is the basis of all economic activity, but a liability because it must be maintained, updated, modernized and expanded. This is no different in Russia, but infrastructure here is also subject to a number of additional challenges, such as the nation's sheer geographical size as the world's largest country and temperature variations in some regions of up to 60 °C between summer and wintertime.



Minds over matter

## THE TEAM

### deugro Moscow

Has its own transport and mechanical engineering resources responsible for jetty construction, cargo operation and all inland transportation to site, as well as client consultancy services for obtaining customs single code resolution status for the project.

### deugro Japan

Responsible for the offshore shipping scope to the logistics hub in Antwerp and contracting party of MHI for jetty construction.

### Dachser Germany (deugro's JV partner)

Responsible for the overall transportation contract with the Sojitz Corporation, direct truck transport from Antwerp to the job site, rail transport and sea freight from Antwerp to Ust Luga, including all Russian port operations.

### deugro Germany

The communications and coordination hub between the teams in Russia, Japan and the JV partner Dachser Air and Sea GmbH, Germany.

## THE PROJECT

In May 2009, Tatarstan President Rustam Minnikhanov visited Japan and signed a memorandum of intent to construct a methanol, urea and ammonia production plant.

In November 2010, Ammoni awarded the engineering, procurement and construction (EPC) contracts for the plant, establishing a new fertilizer complex in the town of Mendeleevsk in the Republic of Tatarstan. The contract was awarded at the Asia-Pacific Economic Cooperation (APEC) summit in Tokyo, Japan.

The integrated fertilizer complex will produce ammonia, granulated urea and methanol using natural gas as feedstock. It will also be one of the largest plants to simultaneously produce methanol and ammonia. It is located about 1,000 kilometers southeast of Moscow.

The plant is scheduled to become operational in 2015. The cost of construction is estimated to exceed RUB 46.2 billion (USD 1.6 billion). The payback period for the project will be about seven years.

The EPC contract for the urea fertilizer plant was

awarded to a consortium of Mitsubishi Heavy Industries (MHI), the Sojitz Corporation of Japan and China National Chemical Engineering (CNCEC).

Mitsubishi Heavy Industries is leading the consortium and was responsible for the overall construction of the plant. Sojitz will undertake all of the logistics requirements and transport coordination for the project within Russia. The Chinese CNCEC will be responsible for the construction of the plant.

The natural gas feedstock for the Tatarstan complex will be supplied by ZAO Tatgazinvest, a subsidiary of Gazprom. Annually, the company will supply about 800 million cubic meters of gas for fertilizer and methanol production.

The Tatarstan fertilizer complex is the largest project of its kind to be built in Russia in the past 20 years. The complex is being built in response to Russia's plans to improve its agricultural and industrial developments. The rise in food production necessitated by a growing global population will increase the demand for fertilizers.

### Timeline

- Project request for information: Winter 2010
- Evaluation and construction: 2011 – first transports on road in November 2011
- First shipment to jetty in 2012
- Six shipments to jetty in summer 2013: 30,000 FRT, heaviest piece 462 tons
- Final transports expected by middle of 2015



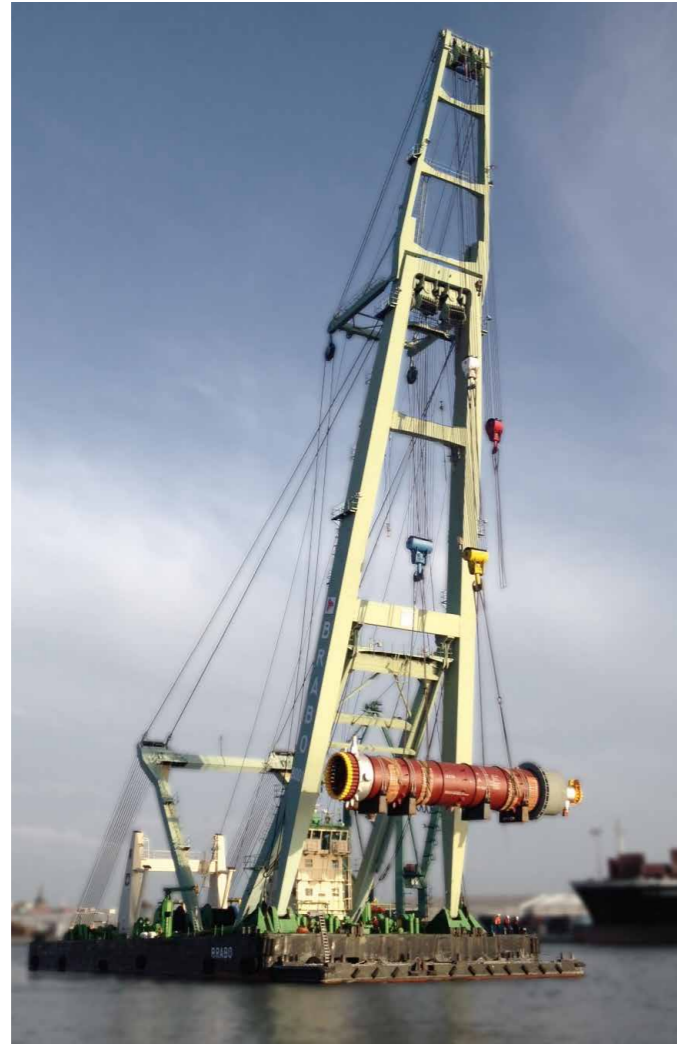
Cargo arrives at jetty.



Crossing the highway near Mendeleevsk, Russia

## THE CONCEPT

Starting in 2010, deugro Moscow conducted its first studies in cooperation with deugro's Transport Engineering Division, aiming to create a technically sound and commercially feasible logistics solution.



Floating crane Brabo in Antwerp, Belgium

Given the expected weights of up to 500 tons and dimensions of up to 70 meters, we had to think completely outside the box. It was obvious that we would have to get as close as possible to the final site destination through the Russian river system. Because the Kama river water levels had extreme seasonal variation, barge transport and roll-off operations would not be feasible.

We therefore developed the concept of a permanent jetty construction to ensure safe unloading operations throughout the navigation period, generally limited to May to October of each year.

In order to operate river sea vessels at the jetty, we had to set up a temporary bonded customs zone, through an application with local customs in Tatarstan.

Road transport from jetty to site required partial passage through a National Reserve Park. Environmental studies, which required close cooperation with local and state authorities for final permit approval, were carried out accordingly. In order to consolidate all cargoes from worldwide origins for final shipment into Russia, the deugro team was looking for the ideal hub in Europe. The Antwerp port was chosen because almost all major liner services and parcel operators from Asia and other origins call at this port, thus avoiding extra costs for minimum inducement. Moreover, the facilities would provide all necessary crane and handling equipment.

From Antwerp, various means of transport used during the execution of the project were available.



Start of jetty construction



Lifting operation at jetty

### The Scope

The overall scope consisted of ocean freight to Antwerp, interim storage and consolidation for on-carriage to the job site in Tatarstan, Mendeleevsk, involving all types of cargo, from container to oversized cargo, and heavy lifts up to 462 tons. Various modes of transport were used, including ocean freight, air freight, road, rail and river sea vessel transport.



View inside the office container at the deugro jetty

- Total of 154 heavy lifts
- Investment volume: 1.7 billion USD
- Investment in jetty construction, route improvements and infrastructure: 15.5 million USD
- deugro and Dachser moved a total volume of 110,000 FRT for the TAF Tatarstan project.

### A Side Story



#### Pirat

The area around the national park was a home for wild dogs. One of them adopted the area of the jetty as his domestic yard and became our guard dog at night, after the workers left. Our crane driver and the dog, who we named Pirat, became friends, and Pirat found a new home with our colleague from Russia after the construction work was done.



## THE CHALLENGES

Several site inspections and route surveys were necessary to evaluate an ideal location for a material offloading jetty. We surveyed more than 200 kilometers of the Kama riverside and more than 500 kilometers of the road network in the area nearby plant construction, scouted six locations, and finally decided on Elabuga. At the time, Elabuga had the best connection to the backcountry and the distance to the final job site was only 38 kilometers. Elabuga is located next to a nature reserve, so it was our responsibility to

not only design a jetty, but also to ensure that its design would preserve the nature surrounding the port area.

Because everyone involved in the project was highly experienced and talented, we were able to achieve this ambitious goal without any significant further issues. Our engineers designed the jetty in cooperation with local experts and construction began in January 2012.

**“Our biggest challenge in arranging the transports was the missing infrastructure.”**



Heating pipes before and after disassembling

### The Solution

„When I told our owner and CEO that deugro had to prepare to design and construct an unloading jetty for a project in the Republic of Tatarstan, he immediately supported the idea to make this an integrated part of deugro’s project logistics solution,” said Klaus Hilpert, deugro Group Executive Vice President.

While we handled design, engineering and construction in partnership with Russia’s most reputable and reliable technical design bureaus and civil construction companies, the complicated fiscal and legal implications of such a venture were assigned to the consulting firm Ernst & Young in Moscow.

### Obstacles to Overcome

The continental weather in Russia implied another obstacle for our teams to overcome: river sea vessels have a limited navigation period (mainly from May to October), depending on the weather and ice conditions, and we had to unload six vessels in 2013 during this time period.

Furthermore, we faced the challenge of having to construct the jetty within a national park, an effort that required extensive negotiations with several local authorities. These negotiations continued when we planned and executed the transports from the jetty to the job site.

The on-carriage of goods was likewise complicated with regards to the technical demands. Russian infrastructure allows warm water pipes to be above ground. However, when these pipes intersect with a road, they create an overhead obstacle. Therefore the pipes had to be disassembled for the period of transport, but reassembled in time for the arrival of cold weather – a strict deadline, dated middle of August, was imposed by the authorities.

### The Execution

Again, we were acting under pressure, with the knowledge that all of Elabuga would be without access to hot water in the cold autumn and winter months if we were unable to achieve the ambitious goal of unloading six ships in six weeks.

With excellent cooperation between our local deugro teams in Russia and the local authorities, we were able to achieve this ambitious goal six days earlier than expected.



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