

STEPping up in Russia.

Mondi recently completed its STEP project at the Syktyvkar mill in the Komi Republic – the largest mill modernization in the Russian pulp and paper industry in the past 35 years. One focus of STEP was best available technology (BAT), and that is where ANDRITZ stepped into the picture.



The STEP project is further proof of the professional, congenial, and solid relationship between Mondi and ANDRITZ."

Gerhard Kornfeld, CEO Mondi Syktyvkar

STEP, meaning simply a "step" in the right direction towards a positive future for the mill and the environment, was one of 48 major investment projects selected by the government in the Komi Republic as a basis for economic development of the country. The Syktyvkar mill modernization earned the attention of the highest government levels in Russia with a visit from Prime Minister Vladimir Putin, as well as Austria's Minister of Economy, Reinhold Mitterlehner, and other senior executives.

The EUR 545 million investment at Syktyvkar began July 1, 2008 and has been successfully concluded on schedule. The main part of the Syktyvkar modernization was carried out by ANDRITZ whose scope of supply consisted of a new woodyard, rebuilding of the existing fiberlines, and a new evaporation plant and chemical recovery boiler.

"The main targets of the project were to replace obsolete technologies, enhance environmental measures, and increase the quality and competitiveness of our products," says Gerhard Kornfeld, the CEO of

Mondi Syktyvkar. "We first presented this project to the Russian government in April 2006, and the modernization began in 2008. ANDRITZ played a significant role in the entire operation."

The Mondi Group is a producer of paper and packaging materials with key operations and interests in Western Europe, emerging Europe, Russia, and South Africa where it is headquartered. In 2009, revenues were EUR 5.3 billion and the total number of employees exceeds 30,000.

A big STEP forward in wood processing

The Syktyvkar mill started as a state-owned company some 40 years ago. The mill produces office and offset papers, newsprint, and linerboard. It is one of the major integrated mills in Russia. For the Komi Republic, the Syktyvkar mill is a major employer, and it also provides electricity and heat for the region.

According to Kornfeld, the STEP investment has enabled Mondi Syktyvkar to increase its product quality and output for



GRAND CELEBRATION OF THE STEP PROJECT ON SEPTEMBER 28, 2010

Gerhard Kornfeld, CEO of Mondi Syktyvkar (left) and Wolfgang Leitner, President and CEO of the ANDRITZ GROUP, celebrate the excellent cooperation during the opening ceremony for the STEP project.

containerboard, uncoated woodfree paper, and newsprint.

Fueling a new chapter for the Russian pulp industry

"Investments in chemical pulping have been modest in post-soviet Russia, even if the national economy has been growing rapidly," explains Igor Tretyakov, Deputy Managing Director of Pulp Production and Deputy Director of the STEP Project. "There is a growing global consciousness of the vast forest resources we have in our country. The decision by Mondi to completely rebuild and modernize the Syktyvkar mill opens up a new chapter in the history of the Russian pulp industry."

The ANDRITZ woodyard is the largest in the world. It has the capacity to debark and chip four million cubic meters of soft and hardwood logs annually – an increase of 25% for the Syktyvkar mill. Production of market pulp, paper, and board is expected to increase more than 20% over the maximum output before the investment.

There are two debarking lines with the capacity to handle 415 m³ sob/h softwood and 300 m³ sob/h hardwood per line. Each line has a PowerFeed™ infeed conveyor, steel-wheel supported debarking drum (5.5x42 m), and a horizontally fed HHQ-Chipper™. The chippers are also among the largest in operation, with 3.87 m disc diameters and 18 knives.

The completed STEP project makes Mondi Syktyvkar the most modern pulp mill in Russia, according to Tretyakov. One of the highlights is the state-of-the-art ANDRITZ 3,560 tds/d recovery boiler, equipped with odorous gas incineration systems, which



"Not only will the new recovery boiler make the mill energy self-sufficient, it will allow us to sell electricity to the national grid."

Konstantin Timshin,
Energy & Utilities Manager, Mondi Syktyvkar

LARGEST MILL MODERNIZATION IN RUSSIA IN RECENT HISTORY





"Fresh water consumption has been reduced by about 45%, and discharge to the Vyehgda River has been reduced by almost 90%."

Wolfgang Schubert, Project Director

Wolfgang Schubert (left) with Johannes Galos, Senior Project Manager for STEP at Mondi

also maximizes electricity generation from the mill. Not only does it ensure cost-effective steam and power for the mill, but it helps to protect the environment due to its low emissions.

Konstantin Timshin, Energy & Utilities Manager, oversaw installation of the recovery boiler from Mondi Syktyvkar's side. "We made no structural changes inside our department when the STEP project started. We still have three major operations: power plant, steam and hot water generation, and water treatment. For ANDRITZ and us, the major challenge to resolve was how to adapt the new recovery boiler to the Russian law regulations and rules. As a whole, we were very satisfied with the ANDRITZ site team. It is truly a very strong international team."

Future plans include an idea for ANDRITZ specialists in Finland to monitor longer term performance of the boiler remotely online. "They will submit monthly reports suggesting what could be improved and how," Timshin explains.

In front of the recovery boiler is an ANDRITZ six-effect evaporation plant with a design evaporation rate of 550 t/h of water. Dry solids content of the black liquor is 75%. All condensates are separated for further use within the mill. The integrated stripping system extracts the methanol-rich con-

densates from the new and the existing evaporators, which is then treated in a new methanol plant and burned as liquid fuel.

For Timshin, a significant advantage for Mondi Syktyvkar is the energy generation capabilities of the new boiler. Not only will it make the mill energy self-sufficient, but it will allow the mill to sell electricity to the national grid. "The new chemical recovery systems also improve our environmental situation by reducing the amount of emissions to the air and water," he says.

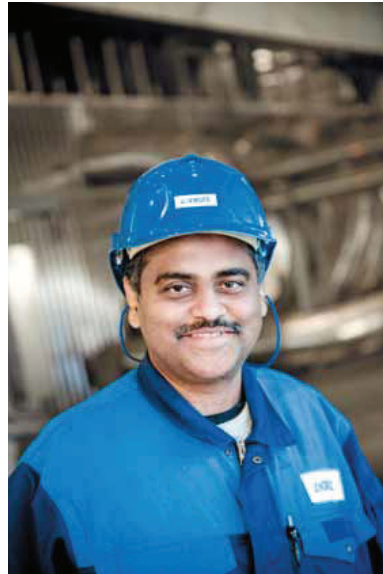
Rebuilding the existing fiberline

ANDRITZ's rebuild of the fiberline included upgrades to both the hardwood and softwood lines. A new brownstock washing system includes a pressure diffuser washer and a two-stage DD Washer. The oxygen delignification was modified from one reactor system to two reactors and the screening modernization included a new CombiScreen™. New A and retrofitted D stages with another DD Washer were added to the bleach plant. This is the first ANDRITZ A-stage bleaching process in Russia. With this upgrade, the hardwood capacity increased to 1,500 t/d.

For the softwood line, ANDRITZ converted the existing continuous digester to Downflow Lo-Solids® cooking, utilizing the TurboFeed® chip feeding system. The

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Faizur Rahman, Start-up Service Manager from ANDRITZ



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WORLD'S LARGEST WOODYARD



◀ The brownstock washing system includes new pressure diffuser (left) and new two-stage DD Washer (below).

REBUILD OF THE FIBERLINE



screening process was also modified. Capacity of the softwood line is now 1,000 t/d.

For improved environmental performance, two scrubbers were delivered in order to remove odorous gases from both lines.

A smooth partnership

Kornfeld, the CEO is very satisfied with the smooth procedure. "This was not the first project that Mondi and ANDRITZ have cooperated together," he says. "ANDRITZ helped us eliminate a bottleneck at our Mondi SCP's mill in Slovakia. Since then, the cooperation between the companies has grown to a long-term partnership. The

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Extreme weather conditions

"Winters in the Komi Republic are long and severe," says Faizur Rahman, ANDRITZ's Start-up Services Manager for the STEP project. "For example, temperatures can reach -45° C." When extreme weather conditions threatened to delay construction and start-up, Mondi mobilized additional resources near the end of the project to keep the schedule.

According to Rahman, despite the fact that winter weather conditions were ex-



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Igor Tretyakov, Deputy Managing Director

Alexander Chukhlebov, Deputy Managing Director of ANDRITZ LLC (left) with Igor Tretyakov

A new six-effect evaporation plant and a 3,560 tds/d recovery boiler were part of the ANDRITZ delivery. ▾

NEW EVAPORATION PLANT AND RECOVERY BOILER



treme, the relationship with the customer was very smooth during the whole project. "The daily coordination meetings were very useful in resolving potential problems. We had very open dialogue and the best solutions were discovered together."

Environmental improvements

The STEP project ensures that Mondi Syktyvkar can meet the BAT requirements in accordance with environmental legislation. "Fresh water consumption has been reduced by about 45%, and discharge to the Vychegda River has been reduced by almost 90%," explains Wolfgang Schubert, Project Director for STEP at Mondi.

Emissions to the river were aided by the improved washing technology and by closing the process loops. Waste to landfill has been decreased by reducing the amount of wood losses from the woodyard. COD levels have been reduced by 40%.

Johannes Galos, a Senior Project Manager for STEP at Mondi, explains that CO₂ emissions to the air were also reduced by 40% due to the new recovery boiler and lime kiln. "We have also been able to maximize our use of biomass, which helps reduce our fossil fuel consumption," he says.

According to Alexander Chukhlebov, Deputy Managing Director and Country Manager for capital systems at ANDRITZ's St. Petersburg office, environmental legislation in Russia is becoming more strict than in earlier times. "That is why we offer advanced technologies to ensure that our equipments' environmental footprints have the least impact," Chukhlebov says. "Mondi Syktyvkar acquired the best available technology from us to fulfill their requirements. In addition, local and foreign contractors provided support for the installation. This came together seamlessly with our own expert services and support."

In mid-2010, the All-Russian Lesprom Awards named the STEP project as "Investment Project of the Year" for the Russian pulp and paper industry. Mondi also received the "Most Dynamically Developing Company" award in the pulp and paper industry.

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