

newspaper December 2016

XXIII / 1

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GORIČANSKE PAPIRNICE



GORIČANE

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GORIČANE

Newspaper of the company
Goričane, tovarna papirja Medvode, d.d.,
Ladja 10, 1215 Medvode
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AD&D: KOFEIN / Printing: Tiskarna Grafos
Printed on **SORA press cream 140g** and
SORA matt premium 80g.



PM1

EDITORIAL:

40 years of the paper machine and 230 years of papermaking in Goričane

A word from the Managing Director at the 40th anniversary of the Goričane paper machine

Paper is so much more than just a transformed, processed piece of pulp. It is the foundation of civilizations and their evolution, it is the reason for a papermaker's joy, and it is something that is touched by just about every person on this planet. Paper made at Goričane, however, also carries the history of entrepreneurial development in miniature. The only thing I can say at this moment is that we are all in a way not only enchanted by paper but also wrapped in it.

The event that took place on April 13, 2016 was dedicated to the 40th anniversary of our main hero, the paper machine. It allows us not only to produce and sell paper to 38 countries across the globe, but also to continuously develop new and increasingly complex paper grades, sold under the common brand name – Sora. The paper machine makes it possible but the people in the background bring its potential to reality.

When we were preparing for this event and tried to gather as much information as possible about the subject of the celebration, we talked to the people who installed it in the first place and realized that the history of paper in Goričane goes further back for almost 230 years. Namely in 1785, a papermaker by the name of Johan Scherer decided to set up a paper mill at the exact spot where it still stands today, and it became operational in 1788.

Luckily, I don't have to go over the whole dynamic history of Goričane, it would take too much time. And the reason I don't have to do a summary is Mr. Darko Cafuta, our former colleague who put his years of research on paper and published a book on the history of Goričane. His book is not just a story about the development of the paper industry in Slovenia, it is mainly a story about the dramatic twists and turns of business and ownership in the long history of what we now call Goričane, tovarna papirja Medvode. Just like paper twines around rollers in a paper machine, the story twines mainly around the technological developments and investments. Which is how it should be because paper – seemingly such an everyday, simple product – is really a result of an extremely complex technological and business process. I am certain you will enjoy this book just as we all enjoy knowing that we now have an expertly recorded piece of our history to leave to our posterity.

CURRENT NEWS



BAND MEDVODE WELCOMED US
AT THE CELEBRATION

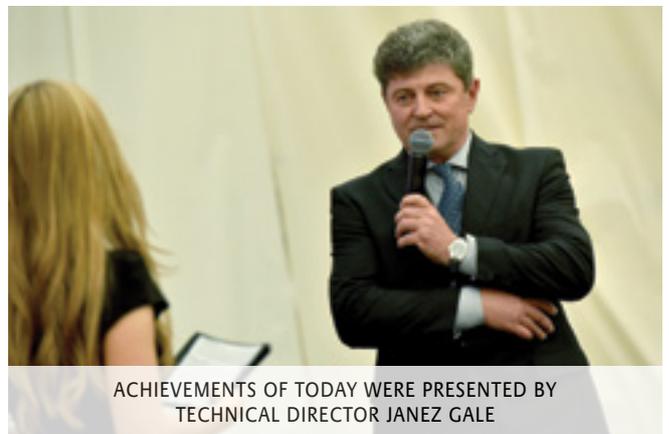
Mr. Cafuta's historical overview is an illustrative presentation of the co-dependency of technological improvements and the ability to manage a comprehensive business process. It shows the effect of technology and managing the part that neither one nor the other has almost any power over – our dependence on global social changes. If the first developments of the former paper mill at Goričane were driven by technological demands of industrialization and at the same time impeded by the capital capabilities of its environment, neither World War I or the economic crisis of the 20th century, nor World War II or the independence Slovenia proclaimed in 1991 were events that could be in any way affected by the people who managed Goričane at that point in history. That, after all, is the destiny of entrepreneurship. We might try to implement cutting edge technology and get ahead of our competitors, predict the demands of the market and the technological developments but in the end, there is always a factor in our environment that we cannot affect and that we simply have to except as a fact, and adjust as much as we possibly can.

We are also grateful to Mr. Cafuta for finding archival video materials about the construction of the paper mill in Goričane. Just like coincidences often shaped the destiny of Goričane, the incredible determination of the management in that period ensured that paper production was once again restored on this site. The truth, therefore, is that our hero is not the machine but the man.

We, papermakers, are fortunate enough to be able to draw inspiration from the experiences of our predecessors, and we can go as far back as the second century before Christ. The first papermaking process is thought to have been invented by Cai Lun from the Chinese dynasty of Han. The invention then travelled to the Middle East and further on to Europe where the first water-driven paper mills were set up



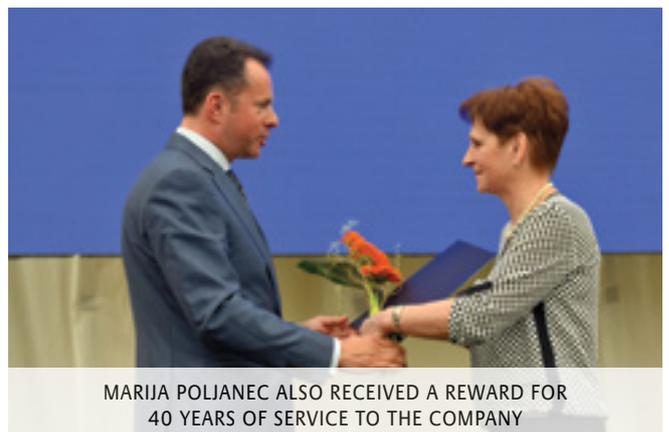
HISTORY WAS TOLD BY FRANČ MLAKAR



ACHIEVEMENTS OF TODAY WERE PRESENTED BY
TECHNICAL DIRECTOR JANEZ GALE



THE MD ANDRAŽ STEGU GRANTED THE AWARD TO EMPLOYEE
LJUBO VEJNOVIČ FOR LONG-TERM SERVICE TO THE COMPANY



MARIJA POLJANEC ALSO RECEIVED A REWARD FOR
40 YEARS OF SERVICE TO THE COMPANY

CURRENT NEWS

in the 13th century. It is not far from there to Guttenberg who invented printing and propelled the demand for paper into unimaginable numbers. In the renaissance period, paper became the fundamental platform for the transfer of knowledge, and the transfer of knowledge became the core drive of the evolution of modern civilization.

Of course, the story of paper is not nearly as idyllic as it sounds. There was, is and will be drama. We all remember how – when the first computers appeared – people predicted the decline of paper. They said that we will no longer write on paper and all information will be stored on computer disks. Those dramatic predictions were never realized, not even close. On the contrary – the more computerized business is, the larger quantities of paper are coming out of the increasing number of printers. The next threat was supposed to be electronic books and web media, currently expanding with incredible speed. However, analyses are being made that indicate clearly enough how it is far easier for us to memorize information from a piece of paper than from a screen. Let us be aware that the goal is not paper; the goal is us, human beings, and our ability to live a quality life during the time we are given to spend on Earth. Maybe it is too bold to say that paper is everlasting but it will certainly not go down any time soon.

As the managing director of Paper mill Goričane, I of course cannot and should not be misled by excessive optimism. I have to be constantly aware of any threats posed by our competitors, technology trends or social changes. But as a papermaker who is aware of the rich history of paper, I feel not only the economical but also the indescribable power that emanates from this amazing material, so full of history and stories, and passes over to us, the papermakers.



DARKO CAFUTA, JANEZ GALE, ANDRAŽ STEGU, FRANC MLAKAR, BORIS TAVČAR

Business results in 2016

Andraž Stegu

In 2016, we continued with the ongoing projects focused on energy investments, production and development. In June, an agreement was reached between Paper mill Goričane and its financial creditors on a voluntary preventive financial restructuring of the company's liabilities for the 2017-2022 period.

With the support of the Supervisory Board and the banks, a project worth 1.5 million EUR was launched to build a new biological waste water treatment plant, scheduled for operation in 2017.

Renovations were done on the north-facing exterior of the plant and the railroad crossing as well as on one of our paper mill's historical symbols, a 45 m concrete chimney. Our teams were also involved in the reconstruction of the road that passes the mill.

Production was constantly operating to its full capacity, even in summer, which is quite unusual. August – otherwise always considered the slowest month of the year – was so busy that we had to reschedule a planned shutdown, and production quantity was exceeded by 480 tons.

Our annual production plan was achieved and exceeded in 10 months. On the slitter, the plan was exceeded by 1 717 tons, whereas the actual sales followed up on the quantities planned.

In the first ten months of 2016, 67 507 tons of paper were produced and 61 171 tons were sold. A total of 87.7 % of production was exported. Net income from sales in the first ten months of the year therefore amounts to 54.31 million EUR.

Sales on foreign markets brought us EUR 44.6 million or 82 % of total income. EU market sales represent 62% of foreign sales whereas the remaining share of foreign sales was produced on markets outside the EU, especially in Turkey.

For the past few years, the share of sheet paper sales remains at the level of 40% production.

ANNUAL GENERAL MEETING

Tea Rezelj

The annual general meeting of Goričane d.d. was held on August 1, 2016. The meeting was attended by 97.36% of shareholders with the right to vote. The 2015 annual report and the report of the supervisory board were presented, and the



MANAGING DIRECTOR: ANDRAŽ STEGU, B. SC.

The prices of pulp started dropping at the beginning of 2016 and continued falling throughout April until they finally stabilized in May. They remained stable in the summer months and we don't expect any increases soon, at least not until the end of 2016. The costs of energy were reduced considerably as well. I expect us to exceed the annual business plan and end 2016 with a profit.

In 2017, a new business-information system – for which we have been preparing for the past two years – will become operational, and besides the construction of the biological waste water treatment plan, this is going to be the most significant project of the year. Other projects, just as important as the two I have just mentioned, will be described by my colleagues in their articles on the next pages of this magazine issue.

I would like to thank my colleagues for all that you have accomplished this year. I hope you spend the upcoming Christmas and New Year surrounded by your families, in good health and looking forward to a new working year with optimism.

proposed conclusions were approved. Fiscal year 2015 was concluded with a profit. In addition, a decision was adopted that as of January 1, 2016, Goričane d.d. will start using the International Financial Reporting Standards.

History of Paper mill Goričane

Tea Rezelj

The special event held on April 13, 2016, organised by Paper mill Goričane to celebrate the 40th anniversary of the new paper mill construction in Goričane, included a presentation of a new book called »The History of Paper mill Goričane«, written by Mr. Darko Cafuta, an avid amateur historian.

In addition to the more recent developments at the paper mill, the book describes the history of papermaking, which in Goričane reaches back to year 1787. The hardback edition reproduces numerous compelling historical documents, and outlines the 230-year evolution of this important local industry. The book was edited by Tea Rezelj and Andrej Drapal, and designed by Kofein dizajn.



visit the new website of
Paper mill Goričane

www.goricane.si/en/



Sora brand sales in 2016 – an overview

Andrej Gradišek

Since 2015 was quite a successful year and in addition, some new things started that gave us an extra boost of motivation, we entered this year with very positive expectations. The main characteristic of 2015 was that the prices of pulp reached historically highest values. Despite that, our production capacities were full throughout the year, which resulted in a small profit achieved with the second biggest quantity sold in the history of the company, and the highest gross production amount of all times.

A similar trend continues in 2016 as well. Our production capacities have been fully utilized throughout the year which allows for smooth transitions between various grades, resulting in optimum quality. The sheet cutter was particularly busy in the first six months of the year so we decided to cut paper at Vipap again and in addition, discussions are being held with an Italian partner on the possibility of cutting Sora Medico paper which is sold in Italy. The prices of fibre have gone down slightly but paper prices are more or less the same as before, enabling us to achieve good business results and successfully conclude this financial year.

For years, Paper mill Goričane has had a well-established, clear strategy of the company development; it is focused on producing specialty and high-quality paper grades that are used in various segments of application. Our flagship brand, Sora (since 2014 protected as a trademark), is nowadays specifically distinct in the segment of pharmaceutical fact sheets where we managed to gain a significant share on the European market, and we expect it to grow even further, especially in the lightweight segment. In addition, we managed to get Sora paper regularly shipped to Japan and USA.

Sora Medico and Sora Medico Opaque – we are seeing particular growth in sales for the latter – are becoming two extremely powerful brands both in Slovenia and abroad. They are our chance to break into the US market where the quantities are much larger than in Europe but most of the paper is imported

from Europe. The product was also remarkably well accepted in Turkey where its sales are growing rapidly.

The market in the segment of paper for silicone coating seems to be opening again as well, and there are new investments with two of our customers on the horizon, meaning that we have the opportunity for further growth in this particular market segment. Paper grammages are dropping here as well, causing the buyers to keep increasing their quality requirements but at the same time, this reduces the amount of waste left after the end product is used.

For quite a few years, we have been active in the segment of label papers as well. Our production style provides label paper with specific benefits that separate us from the competition and are of key importance for certain applications in this segment. Most of our marketing and development-related activities in this segment will be focused on luxury packaging where our paper has become greatly successful, especially due to its distinctive technical specifications that we managed to bring in line with the customer requirements.

Our paper mill is active in the colour paper segment as well. The quality grades we produce are very highly valued, especially among designers and publishers, which is reflected in the growing number of quantities sold both in Europe and overseas. With lightweight papers, we have been increasingly active in the segment of bible papers and our product are already very well recognized and accepted in some of the markets of this segment.

In 2016, we have been working closely with Kaspar Papir, a company from Croatia, to develop the paper for sublimation, ie. transfer of colour from paper to textile. The sublimation paper market is experiencing a two-figure annual growth rate, which makes it very promising for specialty paper producers. The quality of this grade we currently produce puts us to the very top globally, and we were also the first to produce 35-gram sublimation transfer paper which turned to be an extremely high-quality product. The quality requirements are very high, and the printing technology is quickly developing and has become very complex – the biggest focus is on speed and the amount of colour used. We expect sublimation transfer paper to become one of the more important products in Goričane, and are already planning new variations together with our Croatian partner.

Sora Matt Cream, a paper that we initially developed for the Middle Eastern and Turkish markets, was produced in October. We can have a very good competitive position with this product, so I am certain that it will find its place in Europe as well. I expect we can use it in Turkey to partially replace Sora Press Cream and thus further strengthen our position on the market.

Based on everything we have already achieved, I can definitely say that this will be a successful year. The current situation also provides us with optimistic expectations for the next year since we have several potential opportunities opening for us in the segments of lightweight, sublimation transfer and silicone papers.

PRODUCTION

Production is in good shape

Maja Mrgole

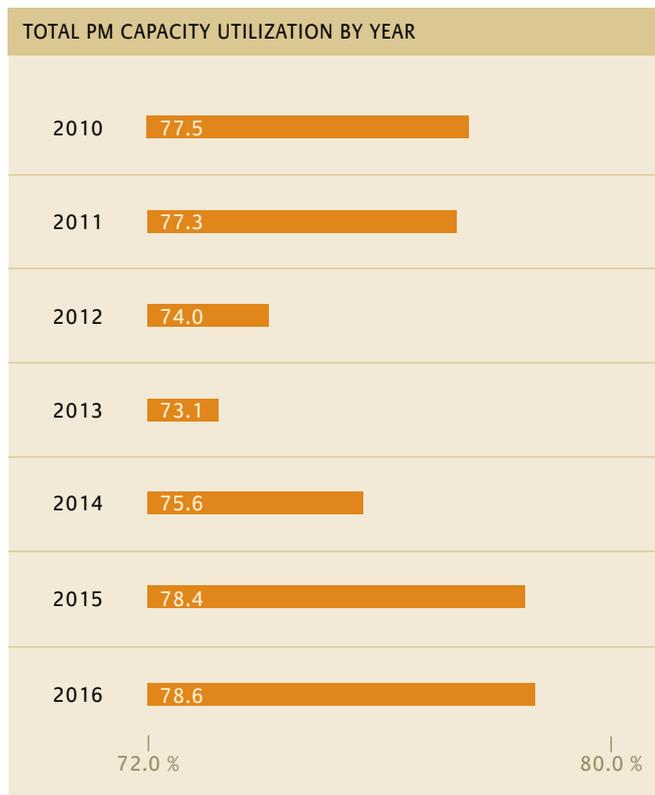
If 2015 was a year of records in the number of tons produced, 2016 will break a record in total capacity utilization, proving that the right steps were taken, that the level of organization is high and departments are cooperating with each other, and that the production goals are being implemented and fulfilled. Total capacity utilization is moving towards 79 percent.

Low average grammage will prevent us to break a quantity record in 2016 but despite that, the number of paper breaks have been further decreased, broke amounts are comparable with the previous year, and the average time of production shutdown is 6.5 hours per month lower, which amounts to three additional operation days or approx. 700 tons of paper produced per year.

Production plans for 2016 were focused on four main projects:

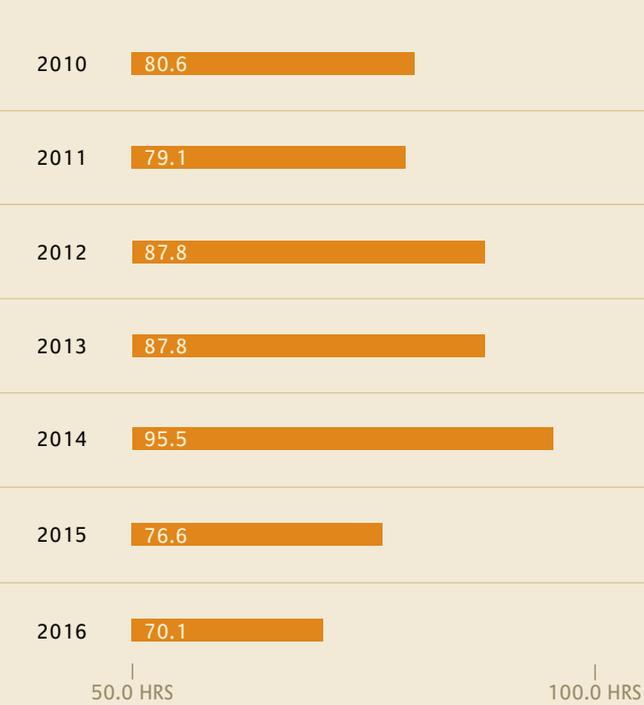
1. An investment was made into the first stage of cleaning and an overhaul of the cylinder drying wires operation in the pre-drier section. The whole process is described in more detail in a separate article.
2. Ensuring stable retention is completely under control, which was achieved by a constant retention system, implementation of boundary conditions and the right choice of fillers. In addition, we provided for a stable and smooth machine operation, a possibility to increase the share of fillers, and the option for optimized refining, resulting in improved energy efficiency.
3. The application system for concentrated dyes was successfully overhauled, which is also described in a separate article.
4. The amounts of paper removed due to chains, canals and soft edges remain a major challenge, but we are closer to our goals in this area as well. The cause of this issue is clear – it stems from the calender and started during the reconstruction in 2006. The calender is too narrow and makes edge regulation practically impossible, and the software controlling the SymCD roll needs updating as well.

Several new challenges surfaced during the year, including the overly strong draw on the Nipco bottom roll, the occurrence of holes and the unstable operation of the SF, but our



PRODUCTION

PM SHUTDOWNS – PRODUCTION IN LAST YEARS



PM SHUTDOWNS – PRODUCTION 2016



curiosity, engagement, teamwork and systematic approach are again helping us move towards proper solutions. What we have done so far has reduced the number of paper breaks in the press area by half. The draw, unfortunately, is just slightly weaker, but we have detected the cause and established proper measures for 80% of holes. The coating aggregate is a tougher nut to crack – it will require changes in technological, technical and maintenance areas.

Our plan is to keep learning and especially to teach the younger generation everything we know about this line of work. The generation gap is approaching fast and causing a considerable employee fluctuation. The goal is to choose the right people for the PM, people who will understand that paper-making is not just a profession but a way of life, and will proudly remember their first steps in this paper mill, just like our colleagues who now remember how they started working at Goričane 40 years ago.

To sum up: the storm has calmed down a little bit. Production caught a good rhythm. All we have achieved is a result of knowledge, cooperation and responsibility, and therefore not a coincidence. There are still many good suggestions out there, and we implement most of them.

I would like to conclude by quoting Albert Einstein: »We cannot solve our problems with the same thinking we used when we created them.« It will definitely take a lot of effort to upkeep and further improve our company, and this is both a big obligation and a new challenge.

All we can do is continue at the pace we set for ourselves and try to be better and more efficient, attracting more and more satisfied customers. We definitely achieved that in 2016 and should achieve it again in 2017.



Maintenance and investments in 2016

Janez Gale

Each year is different. However, the one that is now coming to an end is particularly special, and it is something that needs to be mentioned in this article as well.

We have celebrated the 40th anniversary of our paper machine. The occasion included several things and events. A neatly presented book was published, containing a quick history of paper production on this site. It was also presented at the Medvode library and provided an opportunity to talk about the past, present and future vision of our paper mill.

Year 2016 was also positive from the perspectives of production, technology and investments. The production sector is highly efficient and flexible to adjust to the sales program. Any maintenance activities were therefore – as much as possible – scheduled to accommodate the needs of production and the technical conditions of machines and devices. The scheduled shutdowns were well-coordinated and in line with the replacement of machine clothing, with the largest scope of maintenance and investment activities in the last few years.

At the beginning of the year, production was shut down for maintenance for several days, and the new investment equipment was installed amongst other things.

Quite a few changes were made in the investment area. In order to fully control and eliminate impurities in stock, we replaced the whole 1st section of high-consistency cleaners, whereas others were partially modified or fully serviced. The investment also included modifications of a larger number of pipelines and we either moved or installed quite a few pumps, resulting in extensive construction works.

To improve the functioning and capacity of the disk filter, an additional ring segment was installed. Although this investment did not require major mechanical procedures, we took the opportunity to overhaul the whole disk filter.

Dewatering on the wire section was considerably upgraded as well. Some dewatering elements were upgraded or replaced. The ceramic foils on the top wire were replaced as well.

A new white water consistency measurement for retention control was installed in the wire section because although the existing gauge was still operational, spare parts were no longer available.

In stock preparation, preliminary works started for the installation of a dye dosing station, and the investment lasted almost the whole year.

In the drying sections, a project was launched to modify the operation of fabric dryers with the aim of preventing impurities from accumulating on the guide rolls. The operation of the 3rd bottom fabric dryer was upgraded during the January shutdown, whereas the other dryers in the pre-drying section were upgraded during the September shutdown.

To facilitate the work of process operators and provide for extra flexibility in refiner selection, washing performance or process component elimination, manual valves were replaced with a larger number of automatic valves which were then integrated into the processes by means of computer software.

Throughout the year, investments were made in purchasing various measuring, transport and IT equipment, and a new oilless screw compressor was bought to provide for a stable supply of compressed air.

One of the priority tasks in finishing was to increase the sheet cutting capacity. Based on several consultations with the crews, we were able to define the bottlenecks in the sheet cutting phase. Experts were invited – a technician, a representative of the cutting machine producer, and qualified cutting instructors who even visited twice. The results were positive but as it turned out, one of the issues is also the capacity of the existing cut-off press that did not allow for higher cutting speed, so we purchased a new, higher-capacity press.

The largest investment made this year is the construction of the biological waste water treatment plant, scheduled for regular operation in the middle of next year.

The scope of maintenance works included a thorough upgrade of buildings and chests, especially of the concrete structures that have been in quite a bad condition for a while. In the pallet preparation and packaging sections of the finishing area, new floor coverings were installed that allow for the transport of pallets on platform trucks without vibration.

Extensive maintenance works were also performed in September.

Like I already mentioned, we upgraded the operation of the rest of the drying can. To improve the moisture profile, grinding of a larger number of drying can was conducted, and two of the dryers were diffused with a mechanically resistant covering.

During the longer scheduled shutdowns, a general upgrade of the key rolls is usually performed, especially in the press section (Nipco rolls, central roll) and in the wire section (couch roll, pick-up roll). This time, however, the upgrade also included extensive servicing of the coating aggregate.

The goal of any scheduled works is to complete them as soon as possible, which is why – in addition to our internal teams, of course – more than 100 outsourced contractors from Slovenia and abroad are usually involved in any overhaul.

There is never a boring day in production and maintenance, that is for sure! Having had such a successful year, we are optimistic and ready to face new challenges that we are never short of.

Upgrade of fabric dryers running in the pre-drying section

Maja Mrgole

As producers of specialty and lightweight pharmaceutical papers, we are strongly committed to producing papers without impurities.

Like every other paper mill that has switched to neutral sizing and the use of sizes applicable in this sizing system, we are facing the issue of hydrolytic products accumulation on the pre-drying guide rolls which are positioned on the outer side of the fabric dryers, so it was important to find a proper solution for upgrading their running.

The upgrade is conducted in steps and by assembly. The 3rd bottom drying section was upgraded in January 2016 and the other three were done in September. Admittedly, the January upgrade was launched with some anxiety but fortunately, everything went according to plan, which made our preparations for the September upgrade much easier. The 2nd bottom drying section is the same as the 3rd one, so there were no issues there. With the 3rd and 4th top drying section, our options were strongly limited by the minimum and maximum length of the dryer, considering that we wanted the tension rolls to remain in a horizontal position. As it turned out, an

800 mm difference is perfectly sufficient. The rolls were thus only slightly moved and we only installed one support for the regulating roll. The start-up was launched according to plan.

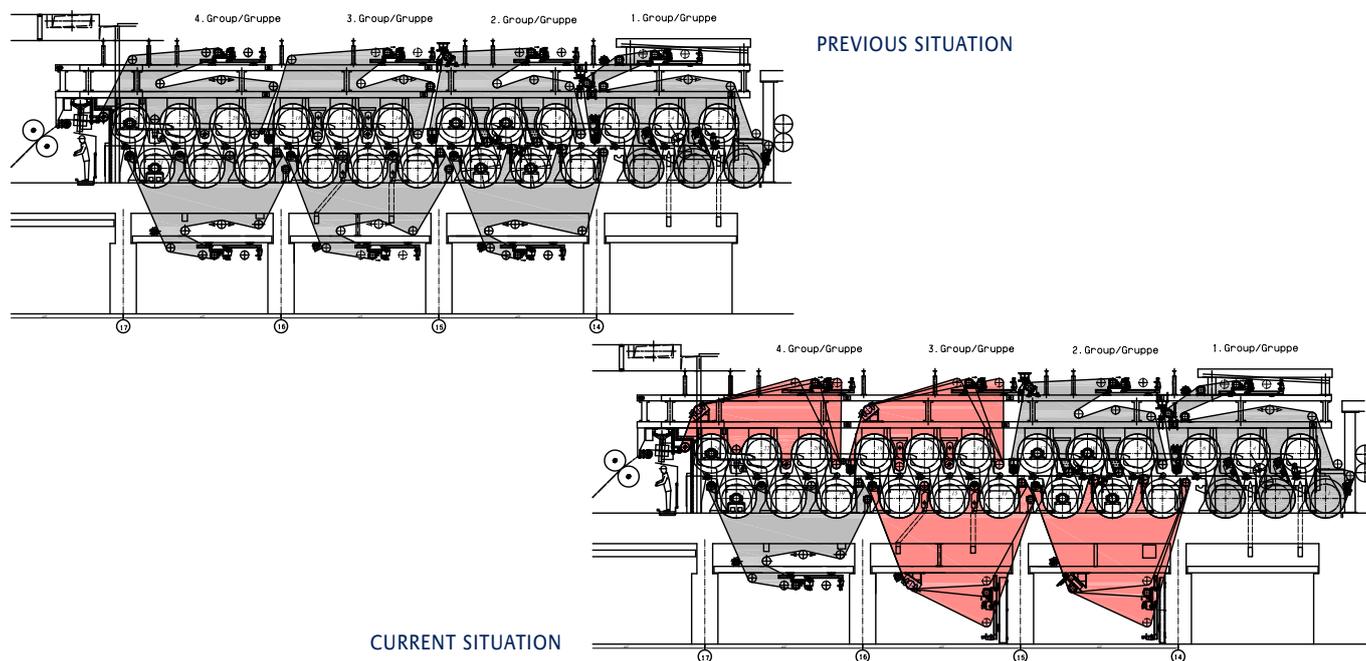
In 2017, we plan to upgrade the slalom section as well. It will be the most demanding section but the preliminary designs are already being made and the final plan will be approved soon. We also need to think about the possibility of online cleaning, especially in the slalom section; the existing devices that were installed in 2006 no longer justify their purpose.

The extremely complex investment is the result of our own ideas (the same as with the concentrated dyes). The whole plan was developed by the production sector and completed with the help of the IB-TECHNO planning company, and the well-coordinated team of VTS put individual elements in their right place.

Our solutions were based on cost efficiency (minimum upgrade, fast completion ...) and the possibility of reverting to the previous state if necessary. The previous configuration is now history; the operation of dryers is very smooth and stable, and all the tension rolls and regulating elements are much more accessible. The amount of impurities has dropped significantly and the rolls are clean. There are already 12 rolls less in the pre-drying section now and when this investment is over, the number will be further reduced to only 18, which means enormous savings for maintenance. Purchasing new guide rolls will not be necessary for a long time. The investment's contribution to energy efficiency will be evaluated as soon as we upgrade all sections, followed by the optimization of hood ventilation and the possibility of segment cross-regulation of moisture 2.

During the project, an interesting thought by Schopenhauer was confirmed in practice: »All truth passes through three stages. First, it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident.«

The realization of this and similar investments only proves the high level of internal knowledge, the well-coordinated teamwork and our great desire for progress.



Environmental report

Jerneja Pečnik

In 2015, Paper mill Goričane met all the legislative requirements of the IPPC environmental permit for emissions to the environment. The monitoring of emissions to air confirmed the eligibility of investment into a new steam boiler, and Go-

ričane paper mill fulfilled the stricter environmental requirements for the consumption of natural gas and fresh water, and for emissions to air. Emission monitoring conducted in 2016 is in compliance with the environmental legislation.



ENVIRONMENTAL REPORT

Consumption of natural resources

A rational consumption of natural resources is measured by the index of material loss from the production process. Material loss calculated on the waste water treatment plant is based on the amount of extracted sludge. We failed to reach the material loss targets in 2015 but we did achieve the lowest rate of material loss in the last three years. The numbers increased in the first six months of 2016, mainly in the transition period after the investment into new high-consistency cleaners.

In 2015, we experienced a decrease in the consumption of fresh well water caused by the implementation of the new steam boiler and the termination of cogeneration. The consumption of cooling water used during the operation of Bosch steam boiler is treated as the consumption of waste process water because due to the termination of cogeneration, this is not about cooling water used in thermal power plants anymore. In the production process, the water loop containing waste cooling water from the Energy sector was opened in order to keep any charges within set limits.

The high energy efficiency of our production process in 2015 was reflected by e.g. the low level of specific consumption of electricity and heat

in comparison with the IPPC Directive. The consumption of natural gas was lower due to significant purchase of electric power, and we have 12,984 emission coupons left from 2015.

FSC and PEFC products

In 2015, 12 582 tons of FSC Mix mixed pulp and 16 669 tons of FSC CW pulp (controlled origin) were used in FSC® production. A total of 8 135 tons of FSC paper (FSC Mix Credit) were sold.

A total of 1 560 tons of PEFC certified pulp were used in PEFC™ production and 1 314 tons of 100% PEFC certified papers were sold.

Emissions

To air

Emissions to air are caused by steam production and paper drying and cutting. The monitoring of emissions to air is stipulated by the environmental permit and has to be conducted by an accredited external institution every third year for boiler devices and every fifth year for dust collectors.

TABLE 1: Average material loss from production process

Material loss	Indicator	Goal	2011	2012	2013	2014	2015	First half of 2016
	% (calculation acc. to gross production)	0,7	0,75	0,84	0,88	0,89	0,77	0,81

TABLE 2: Consumption of fresh water

Consumption of water	Indicator	Goal	2011	2012	2013	2014	2015
	Fresh water (water wells) 1000 m ³	4.624	4.401	4.189	3.760	2.272	
Fresh water (cooling in the power station) 1000 m ³	3.492	3.309	2.887	1.925 (cooling as thermal power plant) 485 (cooling as technological purpose)	1.063 (cooling as technological purpose)		
Fresh water (technological purpose) 1000 m ³	1.133	1.091	1.302	1.348	1.209		
Spec. consumption of process water	15	11,6	10,9	16,2	15,4	13,5	

TABLE 3: Consumption of energy products

Consumption of energy	Indicator	Goal	2011	2012	2013	2014	2015
	Natural gas 1000 Sm ³			15.987	15.937	14.628	13.462
Electricity purchased MWh			26.766	28.809	26.328	36.791	50.851
Emission coupons		32.834	29.963	29.868	27.416	25.229	19.850
Surplus of emission coupons			2.871	2.966	5.418	7.605	12.984
Consumption of electricity MWh/ton		0,7 to 0,9	0,652	0,651	0,647	0,640	0,622
Net consumption of heat GJ/ton		7 to 8	3,82	3,69	4,05	3,98	3,79

ENVIRONMENTAL REPORT

Steam is produced on the Bosch or Wagner steam boiler. In addition to steam production, the latter also enables the production of electric power (cogeneration). By investing in the new Bosch steam boiler, we managed to significantly reduce emissions of NO_x to air; the guaranteed value is now below 100 mg of NO_x per m³ of air. The first measurements taken in 2015 confirmed that the situation with NO_x is improving.

Because steam was produced with the Wagner steam boiler in 2016, a monitoring of emissions to air will be conducted for this boiler by the end of the year as well.

To water

Before being discharged to the water course, process waste water is treated on the mechanical chemical waste water treatment plant. Annual monitoring shows compliance with the environmental permit requirements.

In 2015, the reopened water loop enabled us to reach the required limitations regarding emissions to water per 13,5 m³/tons of product.

Noise

In accordance with the environmental permit, noise monitoring is conducted every third year by an accredited external institution. In 2016, the level of noise was measured on three different locations in the vicinity of the paper mill. It was below the maximum permitted limit for daytime, evening time and nighttime, thus in compliance with the requirements of the environmental permit. The next monitoring of noise imissions to the environment is scheduled for 2019.

Waste

Paper mill Goričane has a well-established system of separating waste at its source – we have smaller containers for separate types of waste being disposed of by our employees on a daily basis. There are waste disposal units available with separate containers for different types of waste. Waste packaging is contractually collected and treated by Dinos UNIREC company.

Hazardous substance management

In hazardous substance management, our well-kept and regularly maintained storage tanks and pumpings enabled us to retain a low risk rate. We have a well-established plan of hazardous chemicals management outlining all the activities that are necessary in order to bring our operations in line with the legislation. Our employees are being regularly trained for hazardous substance management and the course of conduct in cases of accidental spillage of hazardous substance.

In 2015, the emergency regulations (first aid and securing spillage sites) were updated in accordance with the new safety data sheets and GHS (Globally Harmonized System) labels. The new safety data sheets with GHS labels were distributed to workplaces.

In 2016, an accredited institution conducted an inspection of storage facilities with hazardous chemicals. Any non-compliance will be resolved by the end of 2016.

Exceptional events

No exceptional events that would affect the environment were recorded in 2015. In 2016, however, several complaints were sent

by a fishing club from the nearby town of Medvode about occasional foaming and the stench of waste process water by the discharge into river Sora. The discharge from the waste water treatment plant in the area of river Sora was changed in accordance with the building permit of the hydropower plant operator Savske Elektrarne for the repair of the mHE dam. Discharge into the laminary flow of the dam is causing issues due to the lagging of the waste process water that results in occasional foaming and stench. Our process water has a low organic charge which – due to its starch content – is susceptible to foaming and fast microbiological degradation, and that can result in an unpleasant stench, especially in the summer heat. The foaming issue is being solved by adding a defoamer, and the stench that comes up in the heat will be eliminated by the new biological waste water treatment plant.

Environmental goals and programs

The following environmental projects were implemented in 2015 and 2016:

1. Reducing BOD₅ process waste water with specific water consumption below 10 m³/ton:
In 2016, activities were performed for the selection of the proper biological waste water treatment technique. Biofiltration was chosen as the most convenient treatment method due to the low organic charge of process waste water from the primary section, and also due to the organic charge fluctuation (depending on the production program).
2. Project for reducing emissions of NO_x to air below the level of 150 mg/m³. Investment into the new Bosch steam boiler was concluded in 2015. The first measurements of emissions to air were conducted at the beginning of 2015 and confirmed the guaranteed values. Optimization of the cooling water consumption was conducted as well.
3. Several containers for separate waste were purchased to reduce the amount of municipal waste and increase the level of separating waste at its source. In 2015, we launched the 5S project and increased the level of separation for biological waste as well.
4. A GMP system was established by means of the 5S project. It was approved by a health inspector during the review conducted on March 2nd, 2016. Organizational procedure OPK 7.5.6 GMP; Good manufacturing practices.
5. Monitoring implementation was brought in line with the VD 35536-24/2009 water permit. Two observation bore holes of the underground water level (piezometers) were specified. It was equipped with an applicable level gauge.
6. We are currently working on bringing the existing oil separators of the car repair shop and D2 pumping station in line with the SIST EN 858-2 standard; our plan is to complete this project by the end of 2016.

The company management is regularly reviewing the environmental aspects and potential risks that might compromise achieving the environmental goals and program for 2016. Resources are allocated accordingly.

ENVIRONMENTAL REPORT

TABLE 4: Emissions to air

	Indicator	Environmental permit	2009	2010	2011	2012	2013	2014	2015
Emissions to air	NO _x mg/m ³	200 150****	163*	163*	163*	152**	152**	152*	64****
	Dust mg/m ³	150	4,2*	4,2*	4,2*	11	11	11	

*Results of the 2009 monitoring

**Results of the 2012 monitoring

***As of November 2014, the concentration limit of NO_x has been reduced to 150 mg/m³

****First measurements of emissions to air on the Bosch steam boiler

TABLE 5: Emissions of substances to water

Emissions to water	Indicator	Environmental permit (limits by 1.1.2013)	Environmental permit (limits after 1.1.2013)	2010	2011	2012	2013	2014	2015
Suspen. solids	mg/l	35		13,5	12,8	16,2	11,8	7,4	10,1
	kg/t	0,4	0,4	0,2	0,1	0,2	0,19	0,1	0,13
COD	mg/l			146	162	143	71	66,3	85
	kg/t	4**	4**	2,0	1,7	1,5	1,15	1,0	1,04
BOD ₅	mg/l	50**	25**	39	39	39	18	15,5	13,5
	kg/t			0,6	0,4	0,4	0,28	0,2	0,17
N tot	mg/l	10		5	5,6	5,2	6,1	5,6	4,6
	kg/t		0,2	0,07	0,06	0,05	0,102	0,09	0,07
P tot	mg/l	2		0,1	0,07	0,09	0,07	0,34	0,06
	kg/t		0,01	0,001	0,001	0,001	0,001	0,0047	0,0008
AOX	mg/l			0,25	0,12	0,25	0,071	0,086	0,06
	kg/t	0,015	0,005	0,003	0,001	0,002	0,0011	0,0014	0,0007

** The limit is defined for production with more than one production programme change a day

TABLE 6: Waste

	Indicator	Waste management plan	2010	2011	2012	2013	2014	2015	First half of 2016
Paper sludge	tons	max. 1.600	1.815	1.720	1.879	1.937	2.041	2.220	1.050
Municipal waste	tons	max. 35	51	31	30	35	37	35	23
Paper packaging	tons	max. 350	280	294	350	392	368	373	193
Metal packaging	tons	max. 130	123	119	126	133	124	147	79
Plastic packaging	tons	max. 40	12	9	9	43	37	37	8
Wood packaging	tons		8	43	57	45	58	51	33

Using concentrated dyes in wet end

Maja Mrgole

The idea about using concentrated dyes has been on the table for quite a few years. The biggest obstacles were the dosing pumps which have to ensure minimum water flows (even below 1 ml/min), and the high costs of the project if outsourced.

At a trade fair two years ago, we finally discovered a company that produced these kinds of pumps - they are peristaltic and at the same time function as flowmeters.

The first pump, bought in April 2015, was used to regulate dosages of optical whitener for colour papers and thus guarantee target values, which was previously impossible. It granted a constant value of the dR parameter and the complaints died away. This positive experience encouraged us to purchase another four peristaltic pumps (in September 2016) so that only one dye is still applied diluted. In order to change that, we will need a smaller pump and a new type of dye.

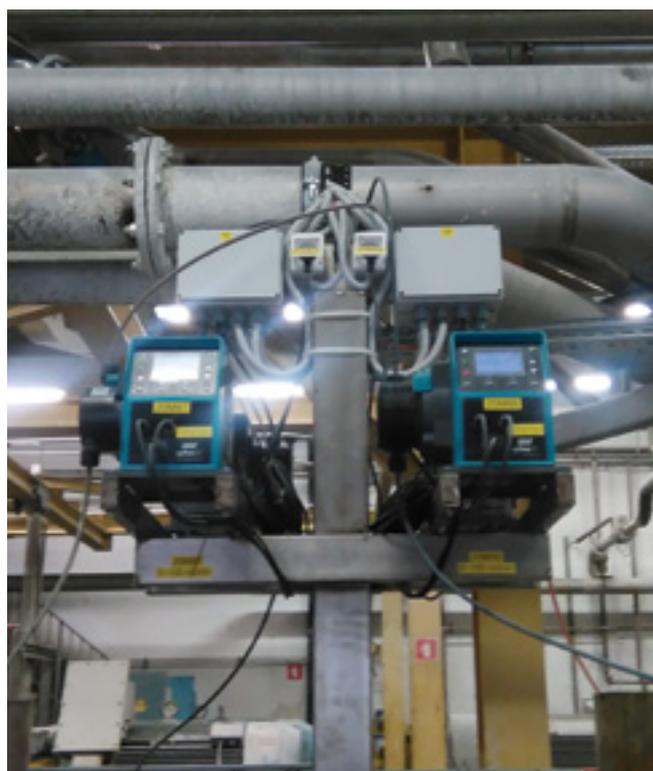
Together with the upgraded 1st stage of cleaning, the dosing spot for concentrated dyes was changed as well. We had to make a common dosing point to add all dyes into a common pipeline and then further into the chest. The lines of concentrated dyes have to be as short as possible, so we arranged an area in stock preparation where all the dyes are placed together.

We also need to buy 1250-litre containers that will serve as stationary storage tanks for individual dyes. That way, containers will not be manipulated and the whole container (1000 l) will be poured into the 1250-litre reservoir only once.

The benefits of this investment are the following:

1. Dye concentration is stable and water flows are guaranteed for all paper grades.
2. Each dye has its own line whereas before, there were two dyes per line.
3. Environmentally friendly. No decanting, less chance of spillage.
4. Very precise optical values.
5. In the future, we need to set up automatic dosing of concentrated dyes by means of the ABB system.

This investment includes another important factor we should be very proud of. **Everything – from the idea to the implementation – is a result of our own know-how.** Things did not go smoothly all the time but success is guaranteed if you have set goals, good ideas and the necessary knowledge to back it up.



Development of human resources for the production process in paper industry

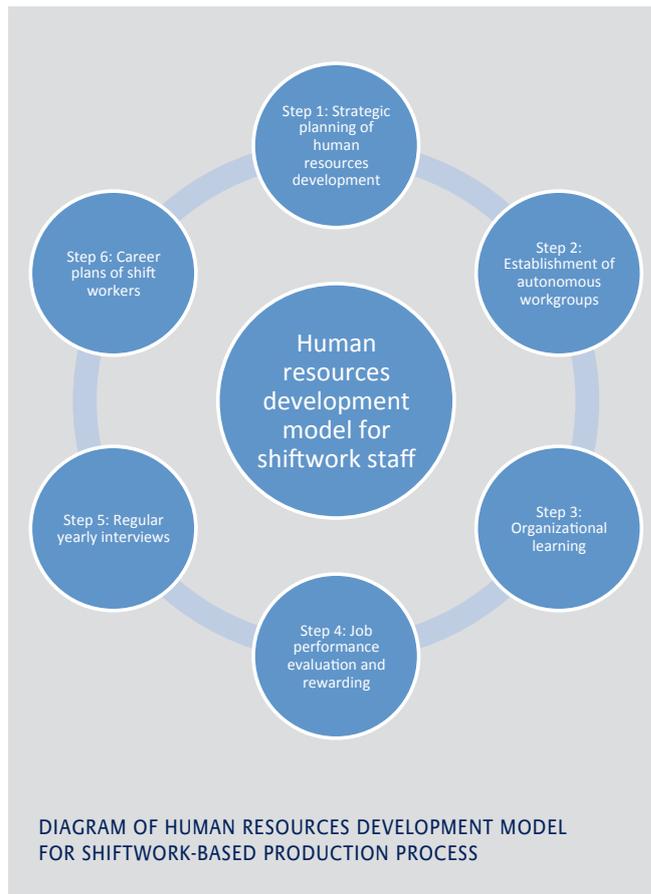
Jerneja Pečnik

A typical characteristic of the Slovenian paper industry is that in comparison with the global players, most companies are relatively small. Companies are facing the increasing demands of the global market, which requires both constant technological availability as well as a strong intellectual capital.

With the closure of the High School of Printing and Paper in Ljubljana, the Slovenian labour market is witnessing a lack of well-trained human resources with a high-school or vocational papermaking degree, and consequently, the paper industry is currently faced with the issue of the production's staff professional qualification. The companies are therefore searching for ways to assure an efficient and timely development of skilled human resources that will ensure a high-quality level of work and a continuous paper production process.

In the scope of this master's thesis, we conducted a research into the development status of our company's shift personnel. In 2015, an extensive survey of the production staff was carried out and by analysis of human resources data and an examination of the situation, the following observations were established:

- the production process is currently organized in a way that doesn't allow for a proper transfer of knowledge between individual shifts, and the shiftwork makes it difficult for the employees working in the same workplace to maintain contact and cooperate with each other,
- to improve their motivation, employees need more independence and responsibility in their work,

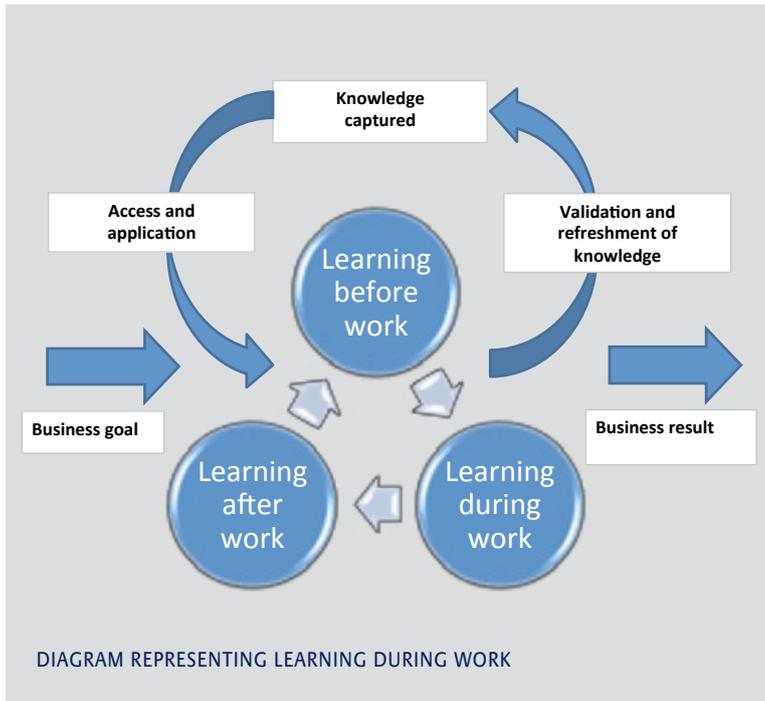


- employee motivation starts to decrease after a while due to an extended period spent on the same workplace or the same assembly, horizontal transfers of employees aren't planned.

With the implementation of staff development strategic planning, a company is executing its target-oriented strategic plan by carefully pairing up the requirements for new skills with the needs for competent human resources. By implementing strategic skill planning, a company is able to secure early and efficient recognition of the gap between the existing and upcoming technology, the gap between the existing and future organization of work, and the gap between competent human resources within the company and on the labour market. Important effects of human resources strategic planning can be recognized in a timely development of corporate strategic skills, a well-formulated plan for providing the required competent staff, a target-oriented management of the employees' personal development in accordance with the corporate strategic goals, and in effective cost management of education and training in accordance with the needs of corporate strategic plans.

Based on the fact that the empowerment of production staff is one of the bigger motivational factors, we established a plan to change how the production process is organized. The production process is shifting from the current department- and shiftwork-based structure to a mutual interaction of all

PERSONNEL



employees through autonomous workgroups. The positive results of the proposed organizational change include an efficient cooperation of shiftworkers on the same workplace, an efficient cooperation of workgroups within the same department, highly-motivated, result-driven and empowered employees who become responsible for both their work and the work of their group, as well as improved job performance and creativity.

Organizational learning was recognized as an efficient method for the creation and transfer of knowledge within the production process where staff communication is particularly difficult due to the specific nature of working in shifts. By means of software-supported learning process before, during and after work, employees are going through a learning process, building a knowledge base and thus transferring knowledge and ideas to other members of the same group. Learning supported by information technology encourages the process of learning from one another.



The effects of implementing organizational learning are manifested in an increased knowledge flow among shiftworkers. Personalized learning with the help of mentors is adapted to individuals, and both employees as well as the workgroup solve their work-related problems in a faster and more efficient way.

Rewarding job performance is an efficient tool for strengthening staff motivation and encouraging them to increase their job performance and achieve the common goals. Regularly informing employees about the performance of their workgroup in view of their initial goals set provides for a faster reaction of the group and increases the group's susceptibility to adopt the necessary corrective measures in cases of derogations from the initial goals. The significant effects of measuring and rewarding job performance are reflected in the increased motivation of all employees to achieve the group goals, and consequently in a faster process of eliminating any detours from the initial goals set.

Establishing regular yearly interviews and a career plan system has helped us recognize and successfully combine corporate interests with the personal interests of our employees. Since it is difficult for our production workers with lower education levels to make any significant career changes, the company is strategically planning career possibilities for all employees in production, both with mobility and with horizontal/vertical transfers. Each employee is able to choose their own promotion option from the map of career plans in accordance with their own personal career goals and inner capabilities. The effects of implementing a career plan system can be seen in the high motivation of employees as a result of their inclusion in the career plan system, timely provision of competent human resources in case of available job vacancies, and a reduced outflow of knowledge caused by fluctuations in the number of production staff in case they leave for another company.

The shift-based staff development model provides for a systemic approach to strategic planning of skills and competent employees, as well as for improving the motivation of empowered employees within integrated autonomous workgroups. The update of the job performance rewarding system for staff within a specific workgroup or a specific department results in a close cooperation of all employees with the aim of achieving company goals. The newly established learning environment thus enables all employees to build their career paths in line with personal and company interests.

Updating the job classification system

Petra Hunjadi

Pursuant to the provisions of the Slovenian Employment Relationship Act, having a job classification system is an obligatory internal organizational rule for any employer with more than 10 employees. The Job Classification Act, often referred to as the Job Classification Regulation, stipulates the internal organization of the company operations, including job positions and their descriptions that define work obligations, the complexity of the position, job requirements and responsibilities of the person performing a particular job.

Job classification is therefore the result of work distribution that takes into account the organizational principles of job assignments and job requirements. It has to provide all the elements needed for a proper regulation of work distribution, management of HR processes and regulation of the salary system. Job classifying is based on job assignments related to a specific job position or scope of work.

Every classification is relevant for about 5 to 7 years. The current job classification in Goričane has been »outdated« and does not correspond to the actual situation anymore. Many changes have happened during this time; technological processes and organizational models are different now, and the methods of work require a constantly increasing flexibility. This year, therefore, we decided to completely update the job classification and salary system, and to establish a competence model.

We divided the project into several phases that are either being implemented one after another or at the same time.

The first phase contains an overview of job classification, salary and competence system in our company.

The second phase focuses on the classification (design and evaluation) of job and job assignments respectively, and on the

definition of required competences. The methodology is used to design and evaluate job positions, followed by the establishment of classification involving optimal ratios of complexity between individual job positions. In addition to the job position description and requirements, classification also includes the expected professional and behavioural competences.

The third phase defines the basic salaries; once we determine the optimal ratios between job positions, employees are then allocated to their new workplaces for a test period during which we assess the elements of personal contributions or competences for each single individual. These competences are obtained from HR records and heads of departments.

The fourth phase is focused on establishing a system of job performance rewarding. This system takes into consideration both the short-term and the long-term aspects of rewarding. The short-term aspect is based on the individual performance of our best employees, the group performance of an organizational unit, the achievements of a project group etc., whereas the long-term aspect is reflected in the advancement of our most successful employees to a higher level of promotion.

The fifth phase includes the establishment of a competence profile. This profile is used to determine and evaluate the balance between the required and the actual competences of an employee (job performance reviews and assessments, annual interviews).

A system of competence management is established in the sixth phase. This includes implementation of competences in practice, assessment of employees based on required competences, analysis of actual and required competences, and proposals for HR actions or changes in the competence model.

The seventh, final phase is focused on system implementation and development of relevant regulations and reports.

The project is done once a week since May this year. We expect to launch the new job classification in the beginning of 2017. The project group involves the project lead-advisor, the business operations administrator, the head of HR, the representative of the Workers Council, the leader of the trade union, and in a broader sense, department managers.

The basic goals of this project are:

- create jobs,
- update the job evaluation process,
- determine proper ratios between jobs,
- determine the components of basic salaries,
- define the required competences for individual job positions,
- establish a system of promotions,
- remuneration for professional development (competences),
- establish a system of performance rewards and
- update the system of allowances for specific positions.

Education and training for papermakers

Petra Hunjadi

There are no formal education programs for papermakers in Slovenia (High School of Printing and Paper was closed back in 2001) and no available options for either youth or adults to acquire any kind of formal papermaking training on any level.

Considering the average employee age in the paper industry, as well as the fact that we are living in a period of enormous shifts in technology, the needs for training, education and qualified staff are only going to increase in the future.

In order to get the necessary profile of human resources, therefore, the paper industry has to educate and train its employees on its own. So we decided to join forces and find a group of motivated mentors who are willing to share their knowledge and experience with their fellow papermakers. The mentors created an 86-hour curriculum and prepared all the materials necessary for the launch of a professional training program for papermakers. It is called »Papermaking School«.

The 86-hour program covers the entire process of paper production. It helps the participants gain the basic knowledge and understanding of the overall process, as well as the specific knowledge for managing the various stages of the process. It is designed in eleven modules and held in afternoon sessions from September 2016 till February 2017. Four employees are attending the program from Goričane, including a paper machine assistant, slitter operator and stock preparation operator.

The Papermaking School Program

	MODULE	CONTENT	HOURS
1	Introduction to papermaking	History of papermaking, Slovenian paper industry, paper products, standards and quality.	4
2	Physical and technical fundamentals	Chemistry, physics, measurement and control technology, mechanical engineering.	4
3	Raw materials	Wood and other raw materials, basic resources and additives.	8
4	Stock preparation	Executive elements in stock preparation, control and management, measurements in stock preparation.	10
5	Paper and board machine	Essential machine components, approach flow, sheet formation, mass and water transfer, pressing, machine clothing, drying, production procedures.	22
6	Surface treatment	Coating, drying, calendering.	4
7	Finishing and processing	Paper and cardboard cutting, packaging, storage and dispatch, quality of working processes and products, professional accounting.	8
8	Hygiene paper and products	Production of paper, hygiene paper products, rolls and bundles production process, packaging, storage and dispatch, quality and control of finished products.	8
9	Accompanying processes	Maintenance, mechanical, hydraulic and pneumatic assemblies; testing - quality control, on-line control; safety at work - machinery, chemicals, fire safety.	8
10	Energy	The role and importance of energy, sources of energy, symbols, steam-condensate circuit, heat transfer, drying cylinders heating, vapour lids and recuperation of heat.	4
11	Ecology	Sustainability aspects of paper production, ecology and processes, emissions, process control, cleaning devices.	4
	Exam		2

TIA Portal tailor-made training

Andreja Kalan

Paper mill Goričane puts a strong emphasis on the continuous professional training of our employees. This year, we decided to organize a Siemens TIA Portal¹ training course.

1 *Totally Integrated Automation Portal (TIA Portal)*

PERSONNEL CHANGES IN 2016

Andreja Kalan

Up until this issue of the newspaper was published, eight employees left the company and 13 were hired anew:

- Tomaž Renko,
- Jan Bernik,
- Adnan Pečanin,
- Breda Tacer,

TIA Portal is a new generation of software for PLC² programming with integrated applications for visualization, usage and drives. The training course was organized in cooperation with VRD Dankon, the official provider of Siemens training services in Slovenia. The Goričane course specifically was prepared and led by Mr. Peter Kuzma. It was held in the maintenance sector and attended by the staff of the Electrical Maintenance team.

During the two-day course, the participants learned how to establish a system configuration in TIA Portal, and to apply and integrate other software packages into a single comprehensive project. In addition, they got to work on practical cases to familiarize themselves with the new environment for programming PLC/HMI³ and drive units (frequency converter). Thus, our employees gained useful knowledge that will facilitate and improve their daily work on controlling and managing production machines and devices.

2 *Programmable logical controller*
3 *Human machine interface*

- Robert Kernc,
- Damir Huskić,
- Jan Janžovnik,
- Franc Stritar,
- Nada Verdel,
- Feliks Malovrh,
- Martina Dolenc,
- Gregor Starman and
- Janez Poje.

ANNIVERSARIES IN 2016

Andreja Kalan

Again, rewards were presented to the following employees for 10, 20, 30 or even 40 years of service to the company.

For 40 years:

- Marija Poljanec.

For 30 years:

- Anton Košenina,
- Andrej Šušteršič,
- Janez Barle,
- Ivo Vidovič in
- Marjan Kalan.

For 20 years:

- Renata Češnovar,
- Franci Rozman,
- Azem Korać in
- Mirko Soprenič.

For 10 years:

- Uroš Zupanec in
- Adnan Mušič.

New family members were welcomed by the following employees:

- Tomaž Tratnik (daughter Izabela)
- Tine Marolt (daughter Neža)
- Jan Erik Rožič (daughter Lara)
- Suzana Jovič (son Maksim)
- Selvad Čelič (daughter Allina)

INTERVIEW:

Marija Poljanec

Andreja Kalan



Marija Poljanec or Marjanca, as we all call her, has been celebrating 40 years of working for our paper mill this year, which is quite a significant anniversary. On this occasion, we asked her for a short interview.

When did you start working at Paper mill Goričane and how?

I got my job at Aero, which is how our paper mill was called at the time, on July 15, 1976. For the first month, I worked as a secretary for Mr. Slavko Zule, the then director of the company. I was substituting for another employee who was on maternity leave. After that and until 1992, I worked as an administrator statistician in pulp production. When pulp production was shut down in 1992, I was transferred to the position of

a secretary in the technical sector. With company reorganization in 1996, I became a receptionist, and have kept this position until this day. Let me add that Goričane was actually the only company I have ever worked for – this is where my whole career started.

How do you remember your first days in Goričane?

I was only 16 when I started working at Aero, but remembering it all now, I think I was already very mature and ready to tackle any work. In those days, everything was done manually and when the computer system was installed in 1992, you could feel people were a bit scared of the change.

What did you like most about your work?

I really like my job. It is nice to know all the employees and I like listening to them and helping them.

Which work principles are important to you?

I always say that every job is honorable. I always did whatever had to be done and it was never a nuisance. Honesty, hard work and good relationships with people are still valuable.

What was the one thing you remember most about the 40 years you worked here, what is your most vivid memory?

I still remember the uncertain times before and after the pulp production shutdown, when many of our workers were let go. I also remember the time when the new information system was installed since many of us were intimidated by it, not sure how we were going to tackle computers. But as I always like to say: »Anything is possible if you put your mind to it.«

How do you usually spend your free time?

If the weather is nice, I like to spend my free time outside in nature, whether it is in my garden, on the bicycle or in the mountains. I also enjoy spending time with my five grandchildren. Actually, I don't really have that much free time ...

What are your values, what is important to you?

The most important values are honest work, sincere relationships with your family, and helping others.

Is there something you would like your colleagues to know?

Even though I really enjoy my work and I don't feel almost retired at all, I know there comes a moment where you have to give up your job and hand it over to the younger generation. I wish the company keeps doing so well in the future. And to all my current colleagues, as well as the ones who already retired, I wish you a lot of pleasure at work and in your personal lives.

MERRY CHRISTMAS AND HAPPY NEW YEAR



GORIČANE

