

MONDI FELIXTON:

THE FUTURE OF MONDI PACKAGING'S STAR, POST-PROJECT KHULISA.

In 2007, Mondi Felixton began Project Khulisa (Zulu for "We are growing") – a R 250 million expansion project that began with a new recycled fibre plant in December 2007 and ended with an upgrade to the mill's paper machine in March 2008.

The motivation for the upgrade was to increase production from 110 000 tonne/annum to 155 000 ton/annum and to increase overall efficiency of production, through reduced levels of energy and water consumption, as well as reduced fibre loss. Mondi Felixton have achieved all of this and more. TAPPSA Journal chatted to Neil Hunt, Mondi Felixton's technical manager, about why Project Khulisa was so successful and what challenges still lie ahead for the mill.

PAPER MACHINE UPGRADE

The highlights of the paper machine upgrade were as follows:

- Approach Flow – increased throughput from 50 000l/min to 69 000 l/min
- Wet end – increased dewatering elements
- Press section – extensively upgraded including incorporation of a shoe press
- Dry end – added 3 drying cylinders, replaced line shaft with sectional drives
- Pope reeler, kitchen rails and unwinder – total replacement

The new shoe press, manufactured by GapCon, lies at the heart of the expansion project. The aims of this particular facet of the upgrade were to increase ex-press dryness to 45 %, eliminate draws to reduce breaks and improve operability.

To this end, the shoe press has a pressure of 1200N/m, a design speed of 1000m/min and a grooved belt. The Shoe Press counter roll was manufactured by Bellmer who were the main equipment supplier on the paper machine rebuild.

So far, the shoe press has given impressive results with not a single break in the press section since March 2008 – primarily due to the elimination of draws through the suction Pickup and Transfer rolls. Dryness has also successfully increased from 39% to 45% which has meant lower steam consumption.

The paper machine upgrade necessitated an extensive



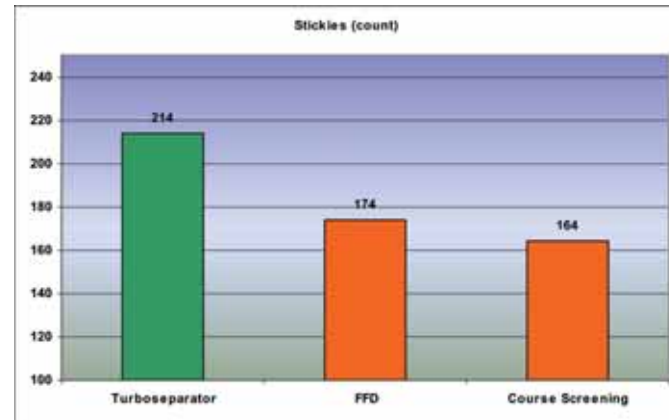
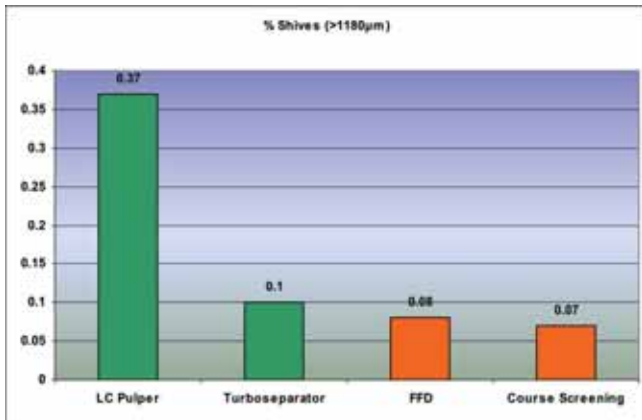
reinforcement of foundations and supports to the PM floor, which had previously remained untouched since the 1970s. A 260 tonne foundation slab was also required for the FFD, the further details of which will be discussed shortly.

NEW RECYCLED FIBRE PROCESSING PLANT

The existing recycled fibre plant was old and too small (only 200 BDT/d) for the increased output levels. The solution came in the form of an Andritz Fibre Flow Drum - 350 BDT/d and course screening process, as well as a Metso Conical Refiner RF4. The Fibre Flow Drum (or FFD) stands at 25 metres long, runs at 14 rpm and has a 12 mm perforated screen.

Despite being costly and incorporating new technology on OCC pulping, the FFD offered a number of substantial advantages:

- Lower stickies count (main advantage)
- Lower energy costs
- Better trash handling, with no ragger rope and a compactor to reduce water content in trash



- Lower landfill mass and landfill costs
- Better screening than in previous turbo separator

A comparison of the pulping performance of Mondi Felixton's new FFD and their Low Consistency pulper and turbo separator can be seen below:

Mondi Felixton's LC pulper remains on site, and will be used for pulping of wet strength papers.

Since production has begun with the new FFD, a number of adjustments have had to be made for the FFD to fit perfectly into Mondi Felixton's manufacturing process. These are listed below:

- *Air entrainment in stock in FFD vat*
 - Replace dynamic seals with mechanical seals and dosed defoamer
- *Jamming of compactor with unpulped cores*
 - Installed video camera for easy monitoring
 - Reduced cores in feed through liaison with recyclers
- *Splashing and wind blown litter from feed shoot and rejects discharge*
 - Covered both with hoods
- *Fibre losses to drain*
 - Installed drain sump and pump to return flow to FFD
- *Accumulation of plastic "Ragger Rope" in drum*
 - Cut away part of discharge shield
 - Added studs to internal paddles

KEEPING IT IN THE FAMILY

Although a relatively small operation, Mondi Felixton

opted to create Project Khulisa's Project Management Team solely from mill staff from a number of disciplines. Despite these staff having to carry the management of the expansion project over their own work at the mill, Neil explains that using a mill team to drive the project had a number of benefits.

Most importantly, it develops a culture of ownership of the Project and its delivery - excuses are limited when you're the one doing the work after all. It also reduced the gap between the project and the operation, as knowledge of the operation is brought into the design and knowledge of the design brought back to the operation.

It also offered mill staff the opportunity to expand their own capacities, by developing new skills and a better knowledge of the plant.

A GOOD START...

Project Khulisa will definitely go down in the Mondi history books as one of the most successful expansion projects to date. Over and above the project staying in budget and on time, the first Jumbo passed QC testing. Despite a few teething problems, none resulted in a long downtime during the commissioning phase, and the PM and FFD ran for 2 weeks before the first punch list shut was required. Best of all, not a single serious injury occurred.

... TO AN EVEN BETTER FUTURE

Since completion last year, Project Khulisa has drastically minimised Mondi Felixton's environmental

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The new press section

footprint while still increasing its production capacity.

Water usage has decreased from 20 kl/tonne to 15 kl/tonne, while energy usage has plummeted from 13 GJ/tonne down to 8 GJ/tonne. Such energy cuts will prepare Mondi Felixton for the 30% increase in the price of energy that Eskom is currently predicting over the next 3 years. Neil explains that Mondi Felixton have already begun benchmarking reduced energy expenditure against the methods of their European counterparts, who are no strangers to increasing energy prices themselves.

Mondi Felixton's monthly tonnage of recovered fibre has increased to approximately 10 000 tonnes, sourced from Mondi Recycling.

Due to the superior compacting ability of the new FFD rejects handling, this increase of recovered fibre has not resulted in any subsequent increase to the mill's landfill mass. Instead, the mill's total landfill mass has been reduced from 70kg/ton to 50kg/ton – almost all of which is comprised of plastic waste that has slipped in to the recovered fibre bundles. Neil explains that Mondi Felixton is considering options to further reduce its environmental impact by recycling this plastic waste as well.

BRINGING RESPONSIBILITY BACK TO THE RESPONSIBLE

A lack of fibre, whether bagasse (Mondi Felixton's traditional fibre source) or recovered, is a common problem for the pulp and paper industry at large. With this in mind, the Department of Environmental Affairs and Tourism (DEAT) is promoting Extended Producer Responsibility (EPR), which should have a positive effect on fibre availability for South Africa's paper industry. With EPR's emphasis on packaging manufacturers not only producing the goods but managing their post-consumer collection as well, there is sure to be a greater pool of recovered fibre available for mills like Mondi Felixton. Further, DEAT is proposing the implantation of Packaging Levies in the next 3 years, to ensure that manufacturers are held financially responsible for



The new Fibreflow drum

their environmental impact. (More on EPR, packaging levies and DEAT on page 4).

But will the effect of EPR and the proposed packaging levies be as positive for the manufacturers themselves as it will be for the environment? While the cost of EPR will financially affect many mills, Neil believes that Mondi Felixton will benefit to some extent through their affiliation to Mondi Recycling. He also argues that the levies are ultimately environmentally positive as they will “drive the right behaviours, although at a cost, and will enhance EPR”.

Mondi Packaging is no doubt ahead of the pack in this regard, as EPR is in line with the lifecycle responsibility trend that the company has implemented for years. The success of Mondi Recycling, for example, has meant that Mondi Packaging already has the necessary infrastructure in place to close the loop of responsibility in the lifecycle of each packaging product.

And this, Neil says, ultimately becomes a cost saving through the amount of fibre subsequently available. For this reason, he believes that EPR, if implemented wisely, will ultimately benefit the industry which is facing fibre shortages on every front.

WITH FIBRE SUPPLY DECLINING, WILL DEMAND DROP TOO?

Despite the global drop in market demand and the tightening environmental legislation for the packaging industry, Neil believes that Mondi Felixton and its paper-based packaging products still face a robust demand in the years to come.

There certainly remains no foreseeable threat from the plastics packaging industry. Environmentally speaking, Neil believes that the paper packaging market still has many advantages over its plastic cousins with their heavy reliance on fossil fuels. “Paper is better environmentally, as it benefits from reliance on renewable sources, a high degree of recyclability, and will always have a strong demand.”