



# PM6 stamps Muda Paper as the largest industrial grade paper producer in Malaysia

By Noorashah Omar

Following the success of their past technical collaboration experience on the PM4 Paper Machine Project with ABB, Malaysia's leading Paper Mills, MUDA PAPER MILLS SDN BHD once again invited ABB to take part in providing the complete technical design and supply of critical motors, major parts and state of the art process control instrumentation solutions for its latest 150,000 tonnes per year PM6 installation project at its Mill located in Kajang. This latest capacity expansion program essentially doubles its existing capacity from 150,000 TPY to 300,000 TPY when fully commissioned.

## Muda Paper in Retrospect

With a start up history that went back to as far as 1964 and as a pioneer in the paper industry under a different name then, Muda Paper Mills Sdn Bhd is today a wholly-owned subsidiary of Muda Holdings Berhad, a company listed on Bursa Saham Kuala Lumpur. It has two Paper Mills under its fold, one of which is located in Kajang, Selangor and the other one

is located in Tasek, Simpang Ampat, Penang. With the addition of PM6 at its Mill in Kajang, Muda Paper would emerge as the largest industrial grade paper producer in Malaysia with a combined output capacity of 500,000 tonnes per year. It produces a wide range of industrial grade product comprising Test Liner; Corrugated Medium; Laminated Chip Board; Grey Chip Board; Yellow Wrapping Paper; Inserting Paper; Manila Paper and MF Kraft.

What better person is there to recount the history of Muda Paper with PaperASIA other than Tan Sri Lim Guan Teik, the founder and Chairman of Muda Group himself. It is truly a remarkable story of a man who together with his brothers, Mr Lim Wan Hoi & Dato' Lim Wan Peng, rose from being just employees of the company they worked for to eventually becoming employers themselves in the same industry, who collectively groomed and developed the company from its humble beginning to its admirable success today.

According to Tan Sri Lim, the first

paper mill namely North Malaya Paper Mill, under his former employer, was established with a mere start up capacity of 150 tonnes per month in the early 1960's in Tasek, Simpang Ampat, Penang. He only joined the company in 1968 and several years later in 1971, the company had expanded to set up another paper mill in Kajang, Selangor known as Kajang Paper Mills. Two years later, in 1973, the company acquired its first carton plant and together with the two paper mills they had already owned, the company went public in 1977 under the company name of Paper Products Bhd. Subsequently, from 1980 to 1983, within a short span of 3 years, the company had already changed ownership twice. In early 1983, who would have imagined that Tan Sri Lim who had earlier left the company a while ago, returned, but this time he came back to acquire the entire assets and liabilities of the company with the support from some local bankers. A year later, the company was eventually listed on Bursa Saham Kuala Lumpur under the



company name of Muda Holdings Bhd.

In the last 28 years, the company has grown from strength to strength, and in the year 2000, North Malaya Paper Mills and Kajang Paper Mills were merged to become what is now known as Muda Paper Mills Sdn Bhd under the same group. With a combined output capacity of 500,000 tonnes per year, there is no doubt that Muda is today the largest industrial grade producer in Malaysia.

### The Kajang Mill

The location of Kajang Mill was painstakingly studied in the early years before being chosen as a suitable site for the establishment of a paper mill. Apart from having to ensure that there will be sufficient volume of river water which is absolutely essential for the setting up of a paper mill, the site location which is not far from the Sungai Langat intake point is also a key consideration before Tan Sri Lim decided on the present location of the mill in Kajang.

Keenly aware of its corporate social

responsibility in protecting the environment in which it operates, the Paper Mill is currently equipped with a comprehensive range of biological effluent treatment facilities capable of meeting the most stringent standard of the DOE effluent discharge standard A. To date, the mill has invested no less than RM20 million (USD6.7 million) on its raw water treatment plant and effluent treatment facilities, which is under constant surveillance by the Department of Environment.

As paper mill is considered quite an energy-intensive industry, the Kajang Mill has in recent years taken the initiative to install 3 units of 4.8 MW combined heat and power plant thus generating a total of 14.5 MW for its own power consumption whilst topping up with another 7.0 MW from the TNB grid. At the same time, the waste heat generated is recovered through the Heat Recovery Steam Generator to produce sufficient process steam for the paper mills usage. This green project has contributed in no small

measure to reduce carbon emission by the mill and at the same time allow the mill to mitigate the escalating cost of energy expenditure. To date, Muda is the first and only paper mill in Malaysia that has successfully embarked on cogeneration technology in the paper milling industry.

As the largest industrial grade paper producer in the country, Muda Paper recycles as much as 600,000 tonnes of wastepaper per annum. In order to ensure that its Paper Mills are constantly fed with sufficient quantity of waste paper which is the main raw material for recycling, Muda Paper has over the years built up a strong network of waste paper collection centres strategically located in most of the major cities throughout Malaysia namely Penang, Butterworth, Ipoh, Johor Bahru, Kajang, Melaka, Batu Pahat, etc.

Following the commissioning of PM6, Muda Paper is now faced with another challenge, that is, to ensure the continuous availability of raw material to feed

### ABB DCS-QCS-Drives System for MUDA PM6

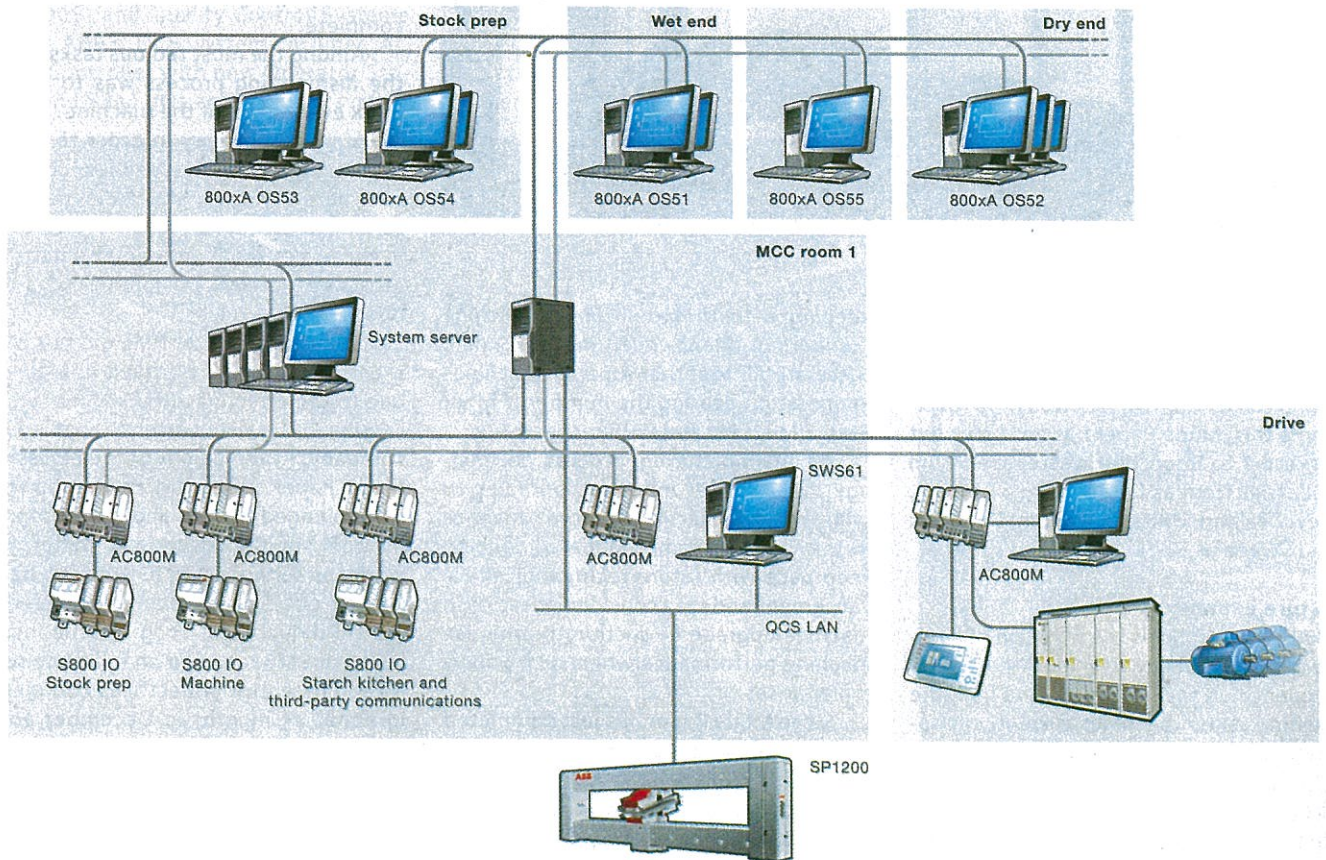
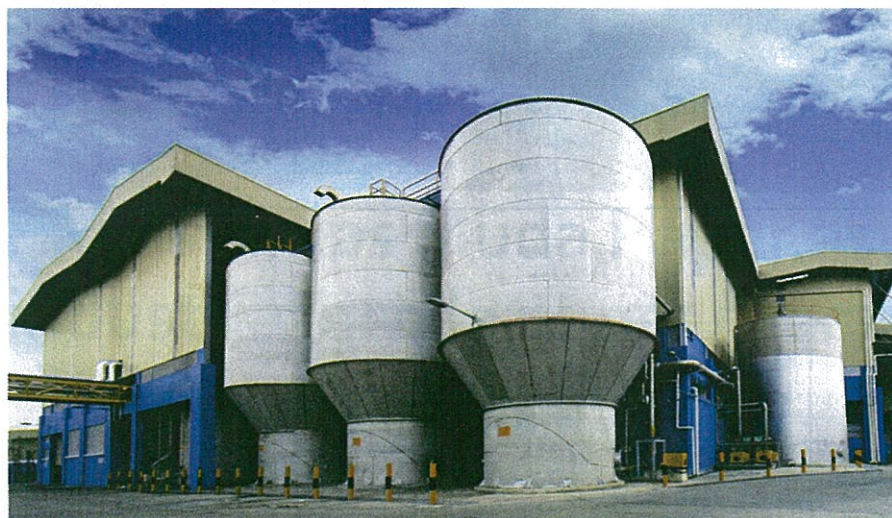




ABB and Muda Paper representatives, Sai Prakash, Tan Sri Lim Guan Teik, Eamon Devlin & Lim Chiun Cheong



PM 6 machine building- storage towers (foreground)

the paper mills. Recently there have been occasions when the mill encountered a temporary shortage of waste paper collection domestically. To overcome this, Muda Paper has no choice but to resort to importing wastepaper from countries from as far as Japan, Australia, New Zealand, United Kingdom, Denmark and Sweden.

#### Future Expansion

Muda Paper follows the tradition of numbering its paper machines in numerical sequence. In the case of Kajang mill, the existing paper machines currently in operation are numbered PM1, PM3, PM4, PM5 and PM6. One would have noticed that PM2 is missing as it was dismantled and scrapped in the early 80s and the number was never to be repeated in

keeping with the tradition of machine numbering. Meanwhile, in Tasek mill, there are all together 5 paper machines in operation bearing the numbers PM3A, PM5, PM6, PM7 and PM8 respectively.

As manufacturing process technology in the paper industry continues to improve and becomes more advance in the years to come, Muda will aim to keep pace with future technological advancement and may consider investing in machine upgrade by section to optimise machine performance when such opportunity arises.

Since Muda Paper has just completed its RM180 million (USD61 million) investment on its PM6 project in its Kajang Mill, it will now concentrate on consolidating its financial and market leadership position before considering to venture into

any future expansion in the next 5 to 6 years. In any case, it will largely depend on the growth prospect of any particular product sector and the prevailing macro-economic environment.

#### PM6 – From Sudbrook, UK to Kajang, Malaysia

The St. Regis Group in the UK had one of its Mills located in a small town named Sudbrook in Wales. When St. Regis decided to close down the Sudbrook mill, they put the paper machine (hereinafter referred to as PM6) up for sale on the market. Through an agent, Muda Paper was informed of the newly on-the-market paper machine. Tan Sri Lim and his brothers personally went to Wales to have a first hand look at the PM6.

PM6 was purchased at the end of 2007. However, the engineering team had to put on hold the plan to dismantle the PM6 for shipment for 5 months until the end of winter season in Wales. In June 2008, engineering teams from both Kajang & Tasek Mills, together with their experienced supervisors and sub-contractors, started dismantling works on the PM6. The whole process took 8400 men-days (70 people in four months) to complete.

Among the most tedious tasks during the dismantling process was to match-mark every parts of the machine. Match-marking is necessary in order to ensure that all parts are assembled correctly over here in Kajang Mill, Malaysia. A total of 120 container loads were involved in the entire shipment and at a hefty logistics cost of RM4 million (USD1.34 million).

The installation of PM6 did not commence as soon as it arrived in Malaysia due to the effect of the US economic recession in the last quarter of 2008 on the company. At the height of the recession, Muda Paper suffered a double blow as sales plunged by 30% and price dropped by 20%. In the meantime, restoration work and services of PM6 were still being carried out. The economy recovered in the third quarter of 2009 and the installation of PM6 resumed on full force soon after. The entire project was completed in about 15 months in December 2010. PM6 started machine trial run in early January this year and the company declared the machine fully commissioned in the second half of 2011. Since then the production output has been ramped



up progressively to eventually achieve 12,000 metric tonnes per month.

### The Project

Historically, ABB was used when PM6 was in Sudbrook. Therefore, in line with Muda Paper's main objective to reduce cost, ABB was chosen to supply its range of solutions through the "replugging" system.

The delivery comprises of paper machine sectional drives, DCS, QCS, single drives, transformers and low voltage motors. ABB's key advantage over other competitors was the ability to offer an entire range of solutions, which are technically proven and easily integrated, based on a common automation platform.

Electrification of PM6 includes dry type distribution transformers, sectional and single Variable Frequency Drives (VFD) and low voltage motors. The dry type transformers require minimal maintenance and unlike the oil type transformers, cause no leakage concerns. Moreover, considerable savings in energy can be foreseen with the use of ABB's transformers in the distribution of power.

PM6's automation system is supported by ABB's Distributed Control System (DCS) and Quality Control Systems (QCS). ABB's DCS system includes AC 800M Controller with new Operator Stations and S800 I/Os and the QCS system

includes AC 800M Controller with new operator stations, Basis Weight Sensor, Hemi + Moisture sensor and SP 1200 frame. The system of controllers is connected by networks for communication and monitoring.

ABB system is completely integrated and flexible because the drives and motors across the process and the paper machine are standardised to ABB drives and motors. Therefore, maintenance is easier with lesser holding cost, as there are lesser parts to hold in the inventory in case of a breakdown.

A few criteria were taken into account when assessing ABB's product. The project was awarded to ABB based on ABB's product strength, integration, experience, quality, history and service capabilities. Additionally, the cooperation between local and regional support offered by ABB proved important to Muda Paper. Service tool such as the online Remote Diagnostic Services (RDS) included in the scope reinforced ABB's commitment to service for the project. The online RDS is available around-the-clock, 24 hours - 7 days - 365 days a year. The execution of DCS and QCS is done from the ABB Pulp and Paper Regional Center in Singapore.

Despite being new to the DCS system, the operators feel the programme is user-friendly as there were no major

problems during the transition period. Prior to PM6's installation, the operators were sent to the Tasek mill to get themselves accustomed to the DCS system as the same system is used there.

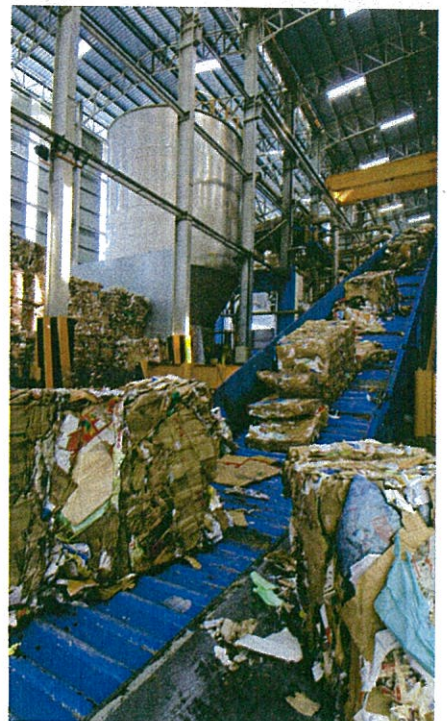
To maintain the quality and smooth running of the paper machines, Muda Paper conducts its service maintenance once a month where the machines are shut down for half a day. Major maintenance is always scheduled and carried out once a year during the Eid festival. The machines are shut down for 3-4 days.

Costing a total of RM180 million (USD61 million), the project also includes an additional unit of power generator and an upgrade to the water treatment plant. The PM6 project opened up new market for Muda Paper when the quality of medium liner is upgraded to be comparable to Amcorp Australia and Siam Kraft Thailand.

"The relationship between Muda Paper and ABB is, thus far, a 'happy marriage,' said Mr Lim Chiun Cheong, the Deputy Managing Director of Muda Holdings Berhad. He also added, "It is a long term relationship. When choosing a supplier, we look at certain criteria such as reliable after-service." ABB has been a devoted partner in the "marriage" and is committed in providing constant service and interminable assistance to Muda Paper. PA



Wet end of PM 6



Pulping section