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Gas

April 2017

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ON THE COVER

Cleaner energy flourishes -
The world blossoms with gas' abundant potential in ensuring a possible sustainable future.

Editor-in-Chief

Zahariah (Liza) Abdul Rahman

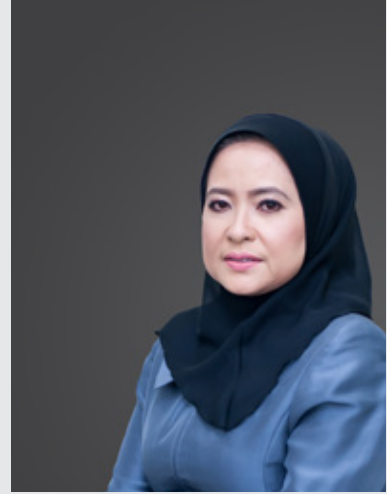
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Sreerema Banoo • Jacqueline Pereira • Brigitte Rozario

GREETINGS



A warm welcome to our very first issue of **FLOW MAGAZINE**

Though the name FLOW previously belonged to our Upstream magazine, this similarly monikered magazine was created from ground zero, with a totally new approach to how we would like to communicate to our stakeholders and the industry.



Unlike the previous FLOW, this magazine features stories from the entire PETRONAS eco-system. It also puts forth stories, opinions and ideas relating to the oil and gas industry. Our aim is to create thought-provoking articles that would encourage constructive discourse among stakeholders and industry peers.

The oil and gas landscape is currently in transition – a very fertile environment for the creation of ideas and innovations with the power to redefine the sector. FLOW is PETRONAS' platform to address issues that have been brought about by the changes in the oil and gas environment as well as a medium to participate in discussions on innovative ideas.

In this issue, we examine the role of natural gas in addressing the crucial need for eco-friendly fuel, while painting a realistic picture of the natural gas landscape, both locally and globally.

Also featured are articles on workplace flexibility and addressing the expectations of four generations of employees – Baby Boomers, Gen X, Gen Y and Gen Z; pushing for compassion as an intrinsic corporate value; the role technology plays during a downturn, and cultural diplomacy through art.

There are also stories on our latest edition to our Formula One team - Valtteri Bottas, along with a glimpse of what it is like to be working on the PETRONAS Floating LNG facility.

We at FLOW, would very much love to hear your feedback on the articles; do email us at flow@petronas.com.my.

Thank you and happy reading.

A handwritten signature in black ink, which appears to be 'Zahariah (Liza) Abdul Rahman'. The signature is fluid and cursive, written over a horizontal line.

Editor-in-Chief
Zahariah (Liza) Abdul Rahman

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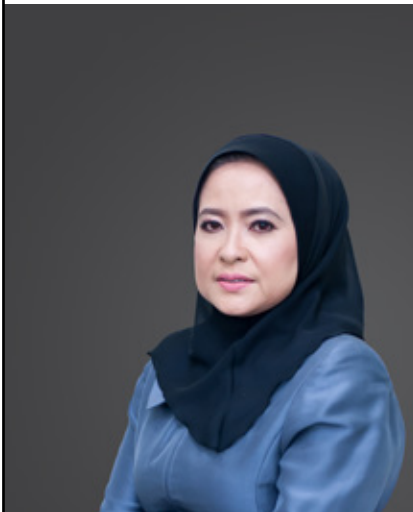
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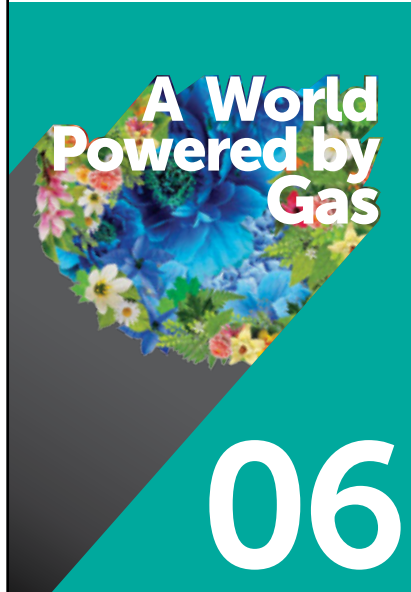
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Cool Bottas Heats it Up in Malaysia

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A World Powered by Gas

by Sreerema Banoo

Natural gas will continue to increase its share of the global energy mix – estimates by the International Energy Agency put growth at 1.5 per cent per year until 2040. In Malaysia, the expanding economy coupled with improvements in the infrastructure and regulatory framework, gas price reforms, and abundant supply of resources are setting the stage for natural gas to play a pivotal role in securing the country's energy security.

The world in full bloom - Gas has great potential in creating a cleaner environment.

In the past few years, there has been a growing interest and enthusiasm for natural gas across the globe. Its advocates point to the role of gas in enhancing global energy security and reducing the effects of climate change by acting as a complementary fuel for renewables in the transition towards a low carbon energy future.

Natural gas is commonly recognised as the most environment-friendly, affordable, reliable, efficient and secure of all the fossil fuels. From production through to use in electricity generation, natural gas produces about half the greenhouse gas emissions compared to coal, and in contrast to both coal and oil, natural gas results in negligible emissions of sulphur dioxide, nitrogen oxides, mercury and particulates.

Thanks to this clean-burning quality, governments are looking to natural gas

BEFORE



AFTER



The solution at hand - Lanzhou controlled pollution by switching to gas.

as a way of reducing air pollution. Take China's northwest city of Lanzhou, for instance. It used to be one of the country's most polluted cities – so often shrouded in thick smog that it was described as “a city you can't see from satellites”. There were more than 1,000 coal-fired heating boilers, three large thermal power plants and about 200,000 civil small boilers in the city's urban area. To remove the source of pollution, Lanzhou spent two years encouraging gas use rather than coal for heating, and all coal-fired boilers in the city were switched to natural gas. Today, the city has rid itself of heavy air pollution and become a model for pollution control.

That said, there are climate risks concerns from an over-reliance on natural gas. As the Union of Concerned Scientists (UCS) pointed out, natural gas is a fossil fuel. It produces heat-trapping carbon dioxide when combusted, and generates other global warming emissions when it leaks during extraction and distribution through pipelines. A shift from a coal to a natural gas-dominated electricity system would still generate substantial global warming emissions, and as such fail to effectively address the growing dangers of climate change.

Although simply replacing coal with natural gas is not the panacea in addressing climate change, there is a consensus that natural gas can play a role in a clean energy future.

Burning natural gas instead of coal, for example, results in immediate public health and environmental benefits, as shown in the case of Lanzhou. In addition, because natural gas generators can be ramped up and down quickly, they can help support the integration of variable renewable resources – which are characteristically intermittent – contributing to a reliable electricity supply, and be used quickly during peak electricity demand.

Natural gas has also become a natural part of the transportation choices across the world – for personal and public transportation, heavy-duty trucks, and

In the last 30 years, 60 per cent of the growth in the country's energy needs was met by natural gas, rising from 32 per cent of total energy needs in 1990 to reach its peak of 53 per cent in 2006.

marine and rail transport. The global drive to increase energy efficiency and reduce emissions is also spurring innovation for natural gas-fuelled household installations, from hot water and heating systems to residential cogeneration systems. On the latter, Tokyo Gas has been driving this innovation ahead – introducing in 2009 the first-ever commercialisation of a residential fuel cell cogeneration system.

Against such broad changes in the global energy landscape, natural gas is expected to continue to increase its share of the global energy mix, growing at 1.5 per cent per year until 2040, according to the International Energy Agency (IEA). It adds that higher demand will spur growth in production, two thirds of which will initially come from the US – from the Marcellus Shale of Pennsylvania and surrounding states – and Australia. But beginning in the early 2020s, output is expected to surge in East Africa and the Middle East. The IEA estimates that there are enough technically recoverable gas resources (both conventional and unconventional) to last at least the next 200 years at current production levels.

EXPERTS WEIGH IN ON THE CASE FOR GAS



“ Malaysia now has the flexibility to import from a portfolio of LNG supply. The third largest LNG exporter (after Qatar and Australia), Malaysia has traditionally sold its LNG to its customers in the Far East, and is currently eyeing opportunities in the Middle East and South Asia. ”

AHMAD ADLY ALIAS

Vice President, LNG Marketing and Trading, PETRONAS



“ With the new Train 9 in Bintulu, together with the two Floating LNG (FLNG) facilities, it is possible to bring in LNG from East Malaysia into Peninsular Malaysia if there is a demand for it. ”

MUHAMMAD ZAMRI JUSOH

Vice President, Malaysia Petroleum Management, PETRONAS



MEETING MALAYSIA'S ENERGY NEEDS

In Malaysia, the development of the natural gas industry is closely linked with the country's own development.

In the last 30 years, 60 per cent of the growth in the country's energy needs was met by natural gas, rising from 32 per cent of total energy needs in 1990 to reach its peak of 53 per cent in 2006.

Data from Malaysia Petroleum Management (MPM) points to strong growth in demand in the last decade or so, particularly upon the introduction of regulated gas pricing in 1997 for power sector and in 2002 for reticulation. (The MPM, a unit within the Upstream division at PETRONAS, oversees the overall policy and the management of the domestic petroleum resources and the development of

the local oil and gas industry to ensure energy security for the country).

Today, more than half (54 per cent) of natural gas consumption in Peninsular Malaysia comes from the power generation sector, followed by small (19 per cent) and large (19 per cent) industries.

Gas is made available to industries, commercial and residential customers in Peninsular Malaysia by Gas Malaysia Bhd, which owns and operates 2,139 km of gas distribution pipeline network, with 74 km of new pipelines added in 2015. Within the manufacturing sector, the rubber products industry is the biggest user of gas followed by food, beverages and tobacco.



PAU KIEW HUAI

Head, Malaysia LNG

“Bintulu is now able to produce LNG of up to 30 mtpa. “This total capacity accounts for over 80 per cent of the current PETRONAS LNG production capacity, and with that, PETRONAS LNG Complex shall be our anchor LNG supply base.”



DATUK ZAINUDDIN IBRAHIM

Vice President (Generation), Tenaga Nasional Bhd (TNB)

“A reasonable load or power can be obtained within 30 minutes for a gas-fired plant, and the full load within an hour. With coal it’s within four hours. Gas plants are also easy to operate. There is also a consistency in the quality.”



IR ROSLEE ESMAN

Director, Gas Development and Regulation, Energy Commission Malaysia

“As the gas subsidy to the power sector gradually reduces, the gap or spread between gas and coal-based generation becomes wider since coal is already at market price.”



ROSMAN HAMZAH

Secretary General, Malaysian Gas Association

“We’re also looking at gas for transportation, for example, the use of LNG for heavy haulage vehicles as is the case in the US and China.”



Over in Sabah and Sarawak, domestic demands are relatively small – taking up about 15 per cent of the available supply there – but Vice President of MPM Muhammad Zamri Jusoh expects the proportion to grow when the SAMUR project in Sipitang, Sabah, which uses natural gas as feedstock, and Samalaju Industrial Park, Sarawak are fully operational.

SECURITY OF SUPPLY

According to MPM in 2016, 93 per cent of gas supply in Peninsular Malaysia came from natural gas (from offshore Peninsular Malaysia, the Malaysia-Thailand Joint Development Area, the PM3 block located within a Commercial Arrangement Area set up between

Malaysia and Vietnam, and West Natuna in Indonesia), and the remaining from liquefied natural gas (LNG).

An LNG regasification terminal (RGT) built in Sungai Udang, Melaka commenced operations in May 2013 – enabling LNG to be brought in, converted into gaseous state and then fed into the Peninsular Gas Utilisation (PGU) pipeline.

The completion of the RGT in Melaka is an important development for Malaysia’s energy security, says Malaysian Gas Association (MGA) Secretary General Rosman Hamzah, adding that with the RGT Pengerang project in Johor (to be commissioned in the third quarter of 2017), there is no shortage of gas in Malaysia.



+ **The answer to energy security** - Regasification terminal in Melaka allows Malaysia the flexibility to import from a portfolio of LNG supply.

Reiterating the significance of the RGT in Melaka, PETRONAS Vice President of LNG Marketing and Trading, Ahmad Adly Alias, says Malaysia now has the flexibility to import from a portfolio of LNG supply.

The third largest LNG exporter (after Qatar and Australia), Malaysia has traditionally sold its LNG to its customers in the Far East, and is currently eyeing opportunities in the Middle East and South Asia. Although the LNG from the PETRONAS LNG Complex (PLC) has been fully contracted to its customers, there have been instances where PETRONAS was able to deliver one or two cargoes from Bintulu to Melaka.

"With the new Train 9 in Bintulu, together with the two Floating LNG (FLNG) facilities, it is possible to bring in LNG from East Malaysia into Peninsular Malaysia if there is a demand for it," says Zamri.

Head of Malaysia LNG, Pau Kiew Huai adds that the PLC in Bintulu is now able to produce LNG of up to 30 mpta. "This total capacity accounts for over 80 per cent of the current PETRONAS LNG production capacity, and with that, PLC shall be our anchor LNG supply base," he adds.

Research and development (R&D) and innovation are indeed driving the natural gas and LNG industry. FLNG units for instance, play a role in gas monetisation projects, opening up opportunities to monetise gas reserves from remote, marginal and stranded gas fields, which

would otherwise be uneconomical to develop. PETRONAS currently has two FLNG units – PFLNG Satu, which is already deployed and commissioned in the Kanowit gas field, offshore Sarawak, and PFLNG Dua currently under construction.

Investments are also going into gas processing and pretreatment facilities. The Terengganu Gas Terminal (TGAST) in Kertih, a joint venture between PETRONAS Carigali Sdn Bhd (PCSB) and Hess Exploration & Production Malaysia uses PN1, a PETRONAS proprietary membrane for CO₂ removal method.

TOP PICK FOR ELECTRICITY GENERATION

Thanks to the security of supply and its clean-burning attributes, natural gas has been the top choice for electricity generation. Data from the Energy Commission shows that as part of the electricity generation mix, natural gas comprised 50.4 per cent of all fuel types in 2013, a rise from 41.7 per cent twenty years prior. (It's also worth noting that in the same period, coal recorded a more significant growth, from 11.6 per cent to 38 per cent.)

Tenaga Nasional Bhd (TNB) Vice President (Generation) Datuk Zainuddin Ibrahim points to the benefits of gas-fired power plants. Thermal efficiency of coal plants stands at 37 per cent and 41 per cent for ultra supercritical coal fired plants. "With gas, the evolution of gas-fired turbines has come a long way. The first combined cycle gas

turbine (CCGT) power plant in Paka back in 1984, recorded thermal efficiency of 35 per cent but now with the H-class CCGT in Prai it's 60 per cent.

"A reasonable load or power can be obtained within 30 minutes for a gas-fired plant, and the full load within an hour. With coal it's within four hours. Gas plants are also easy to operate. There is also a consistency in the quality," he says.

Nonetheless, Zainuddin, whose priorities include ensuring that power plants generate power required in the most reliable manner, and is highly available and highly efficient, says that at the end of the day it is an issue of affordability. "TNB does its generation planning on the least-cost basis," he says.

Ir Roslee Esmam, Director of Gas Development and Regulation at the Energy Commission, explains that the fuel mix is also determined by the Herfindahl-Hirschman Index (HHI). This gauges market power and the concentration of certain fuels and commodities. If the index for a certain fuel type hits its limit then it necessitates a reduction in the dependency on that fuel.

Growing the share of gas in the power generation fuel mix is challenging, he says. "Historically, coal as a fuel cost component is always cheaper than gas or LNG, from a regional or international market perspective, which eventually translates into lower electricity tariff," he says.

A boost in capacity - Train 9 of PETRONAS LNG Complex in Bintulu has increased production capacity to approximately 30 mpta.



Regulated gas prices have been increased by RM1.50 per MMBtu since 2014 - the gas price to the power sector price was increased once in Jan 2014, and then followed by four automatic increases every six months from July 2015 until January 2017, while the gas price to the non-power sector has been increased six times from May 2014.

However, the government has taken several steps to liberalise the gas market and pursue market-based gas pricing. It is hoped that these steps will eventually shift the reliance on coal to cleaner gas. At the moment, gas proponents point out that although the government has allocated 1,000 MMscfd per day to the power generation sector on regulated price, there are days when this is not fully taken up because coal is still cheaper.

“As the gas subsidy to the power sector gradually reduces, the gap or spread between gas and coal-based generation becomes wider since coal is already at market price,” Roslee says. He notes that the current coal price is at RM13-17 per million British thermal units (MMBtu) compared to the regulated gas prices to the power sector at RM21.20 per MMBtu and the non-power sector (those supplied by PETRONAS) at RM23.75 per MMBtu.

Regulated gas prices have been increased by RM1.50 per MMBtu since 2014 - the gas price to the power sector price was increased once in January 2014, and then followed by four automatic increases every six months from July 2015 until January 2017, while the gas price to the non-power sector has been increased six times from May 2014.

The MGA in its annual review last year noted that coal consumption is projected to steadily increase due to the introduction of new coal-fired generating units with a combined capacity of 5,010 MW and by 2020, coal-fired power plants will make up 65 per cent of total installed capacity compared to 45 per cent in 2014.

Policy intervention such as a minimum offtake by the power sector may therefore be required to increase the share of gas in the fuel mix, Roslee adds.

EXPANDING THE SHARE OF GAS

Although there are a few gas power stations that will come online in the near future such as Edra Global Energy Project in Alor Gajah, Melaka and the SIPP Energy project in Pasir Gudang, Johor (generating more than 3,000 MW of electricity), proponents of natural gas argue that it is important to grow the share of gas in other sectors.

Cogeneration is one of these. “Cogeneration is an efficient energy production system and can be used to simultaneously produce electricity, heat and/or chilled water. Cogeneration is already being used in CUF (Centralised Utilities Facilities) in Kertih and Gebeng, GDC (Gas District Cooling) in KLIA, Putrajaya and UTP, and PCP (Pengerang Co-Generation Plant),” says Zamri.

Due to its high thermal efficiency of up to 90 per cent, such systems enable customers to utilise more energy from the same volume of gas, thus significantly reducing the total energy cost.

The transportation sector is another growth area. Compressed natural gas or NGV is already being used in public transportation, mostly taxis in the Klang Valley, and a number of private vehicles. “We’re also looking at gas for transportation, for example, the use of LNG for heavy haulage vehicles as is the case in the US and China,” adds Rosman.

Although gas demand from the industrial sector has remained relatively flat, improving prospective customers’ access to gas by expanding the infrastructure for gas, such as gas pipelines, to as-yet-to-be-reached locations may be a move in the right direction. The market should also target industries with the highest value-add, those that are less sensitive to the fluctuations in gas prices, suggests Adly.

GAME CHANGER FOR GAS

There is no denying that a major driver for natural gas is its comparative advantages to other non-renewable sources of fuel (see sidebar). What's more if Malaysia is to meet its commitment to reduce 45 per cent of its greenhouse gas emission intensity by 2030, articulated during the 2015 United Nations Climate Change Conference (COP 21) – the Paris Agreement – then natural gas has to be the fuel of choice, say its proponents.

There are some bright spots for the sector. Natural gas and LNG may help to diversify fuel mix, which indirectly helps to maintain and improve the security level of energy industry. It may also offer a cheaper alternative to distillate and medium fuel oil (MFO) in the event of domestic gas supply shortages.

Perhaps the most significant development for Malaysia's natural gas sector is the liberalisation of the domestic gas market. The Gas Supply (Amendment) Act 2016 was gazetted on September 2016 by Parliament

and it paves the way for Third Party Access (TPA) system that will allow new players to participate in the Malaysian gas market (currently dominated by PETRONAS and Gas Malaysia).

The TPA, explains Roslee, will allow parties who do not own gas facilities in Malaysia to use those facilities on equal terms for equal utilisation – creating a bigger pool of suppliers, which will then result in healthy competition. "This will ultimately be mutually beneficial for both suppliers and end users as gas prices will be decided by the market," he adds.

Welcomed by industry players, the MGA goes as far as calling the TPA a "game changer" for the Malaysian natural gas market.

To govern the access of these gas facilities, the Energy Commission has published three codes to be adhered to by all parties involved, namely the Regasification Code, the Transmission Code, and the Distribution Code. The Commission is also responsible for ensuring that the tariffs imposed for the use of



+ **More efficient energy can curb GHG emission** – PETRONAS' Pengerang Cogeneration Plant in Pengerang Integrated Complex equipped with Siemens' H-class gas turbine, waste-heat recovery steam generator and steam turbine will provide a nominal capacity of 1,729 MW power supply, where 600 MW will be supplied to TNB.

the facilities are fair and reasonable to users, and at the same time allow service providers a fair rate of return.

Yet for the TPA to effectively realise its intent, the gas subsidy rationalisation has to continue. Zamri points out that although there are parties who have expressed interest to access the RGT, but until the gas price is fully deregulated, it is difficult to see third parties actually entering the domestic gas market.

In the longer term, the outlook for the domestic gas sector is positive. On the other hand, any delay in gas price deregulation will prolong the economic distortion, hinder third party participation in the gas market and the country may miss out on the current window of opportunity, cautions Zamri.

The time to act therefore is now, which means that industry players and stakeholders need to ramp up gas advocacy and outreach efforts. The key message for consumers when choosing their preferred fuel is to prioritise energy efficiency and environmental concerns. "Gas makes sense. It is the cleaner alternative," says Adly succinctly.

Welcomed by industry players, the MGA goes as far as calling the Third Party Access System a "game changer" for the Malaysian natural gas market.

MERITS OF NATURAL GAS

- The cleanest fossil fuel - when burned, it releases up to 50 per cent less CO₂ than coal, and 20 to 30 per cent less than oil. When used in power generation, natural gas emits as much as 50 per cent less CO₂ than coal.
- Most efficient fossil fuel especially in power generation. Combined heat and power installations enable the utilisation of more than 80 per cent of the energy content in natural gas.
- In the transport and maritime sectors, natural gas reduces CO₂ emissions by about 24 per cent compared to oil and produces almost no particulate matter.
- Cost savings for the consumer. In the US, consumers using natural gas for heating, water heating, cooking, and clothes drying spend an average of US\$654 less annually than consumers using electricity for the same appliances.
- Contributes to improved air quality and public health.
- Modern gas power plants can be built quickly with lower project risk and capital cost.
- Complementary fuel for renewables as gas turbines can be quickly used to alleviate the intermittency of the availability of renewables during peak electricity demand period.



by Sreerema Banoo

INROADS into

INDIA

PETRONAS is eyeing the Indian liquefied natural gas market as part of its plan to seek greater growth opportunities across the sub-continent's oil and gas value chain. Leading the charge is Rizan Ismail, who is optimistic of the potential especially given the role of natural gas in India's push to combat climate change.

Rizan Ismail will have his hands full in the coming months and years ahead. The former PETRONAS' head of brand management, Rizan has recently been entrusted to lead the company's portfolio in India – a significant role that is not without its challenges. But with more than 26 years of experience under his belt – half of which were in senior management positions abroad – the 47-year-old is not only excited about his new assignment but is also optimistic about PETRONAS' prospects in India.

"I started my career in PETRONAS in trading and marketing, and over the years – I was assigned abroad, heading various operating units, being the country manager for South Africa and Sub-Sahara Africa as well as heading the brand management department. These experiences form an arsenal that I can use to grow the PETRONAS brand in India," says Rizan who has a Degree in Finance and an MBA in International Business.

India, he says, is a key market for PETRONAS particularly as it seeks to expand its footprint in the sub-continent. "India is no stranger to us. We've been in India for a great number of years. India is our largest Malaysian crude oil customer. Along with that we are also in a joint venture with Indian Oil Corporation Ltd in the liquefied petroleum gas business, which includes terminalling, bottling, bulk sales and auto gas stations," he says, adding that the company has also made a foray into the Indian lubricants business.

Building on the success of these existing ventures, the company is excited to explore other growth prospects, in particular the Indian LNG market.

Rizan points out that the Indian energy sector is very much keen on LNG, and this segment has seen steady growth over the years in particular, because of climate change considerations.

Although the country's natural gas sector is in the transition phase – with its share of highs and lows – an article last year by the Observer Research Foundation (ORF), an independent think tank based in India, noted that India is committed to carbon emission reduction and that natural gas would play a key role in the country's drive to combat climate change. To that end, increasing domestic gas production and increasing LNG imports were both favoured approaches in growing the percentage of natural gas reserves in the country's energy basket. India's Petroleum Minister Dharmendra Pradhan was reported to have expressed interest in increasing the country's natural gas use from the current 6.5 per cent market share to 15 per cent.

It was also reported that since 2011, India has seen a 32 per cent decline in domestic gas production, which is matched by a near equivalent rise in LNG imports of 38 per cent – indicating a growing demand for gas in India. According to the Petroleum and Natural Gas Regulatory Board, this demand is expected to soar at a CAGR

of 6.8 per cent from 242.6 MMscmd in 2012-2013 to 746 MMscmd in 2029-2030.

India has carried out several initiatives and policy reforms across the natural gas value chain to boost the gas sector growth. These, as respondents to the PwC India Gas Sector Survey 2016 pointed out, include the introduction of a uniform licensing policy for conventional and unconventional hydrocarbons, a new gas pricing policy and a government mandate to shift to gas in certain potential sectors.

Although these reforms will provide a supply pull and demand push for the sector to grow, Rizan is mindful of the challenges from existing suppliers and producers as well as new players, especially LNG traders.

"Traders who had large trading desks in oil have now moved to the LNG space because they see the potential. And what that has done is broken down the traditional manner in which one trades and markets LNG. In the past, for example, a lot of the marketing plan was based on a long-term approach but traders, coming from a creative mindset, are offering short-term approaches. Prices have also come down, which means it tends to be a buyers' market," he says.

INTEGRATED, MEASURED APPROACH

Rizan stresses the importance of taking a measured stance. "We want to establish ourselves as a credible, sustainable gas supplier. Although



Rizan making himself at home in New Delhi.

we need to move fast given the competition, at the same time we also need to take a measured approach.

"It's more than just marketing LNG but also getting involved down the value chain, and if we cannot compete against price then we have to find that edge. We must be able to provide an array of customised solutions, which could also be done through collaboration in infrastructure, technology, capabilities and market.

"It's definitely not the traditional way of doing things. We need to be able to find that edge to compete against both the established gas players as well as the more creative traders who are able to provide competitive terms and conditions and pricing. We have to be ahead of the game, be quick and agile in terms of coming up with decisions and in finding creative solutions for our customers and working with them to meet their needs," he says.

Through its wholly-owned company, PETRONAS Energy (India) Pte Ltd, whose main focus will be to promote LNG in India, PETRONAS is also committed to exploring growth prospects across all segments of the oil and gas value chain. "The company will not only be pushing the agenda of LNG but also providing integrated solutions for India," says Rizan.

As a fully integrated oil and gas company, PETRONAS, he says has much to offer potential customers, and as such it is crucial that it leverages on the offerings of its core and non-core businesses whether in terms of technology, motorsports, the arts, science, education or environment.

With more than 20 years in the Indian energy sector, the company also counts on the relationship it has nurtured over the years with various stakeholders. "We have built a

reputation and credibility, and we have built partnerships," he says, adding that it can leverage on these relationships as a part of its foray into the Indian LNG market.

"India is an important emerging market for us, and we want to be part of the whole Indian energy sector and to be able grow and work with India in meeting their energy needs. We have a wonderful brand ethos, which basically says that we defy conventions to provide essential energy to people. We want to bring this philosophy to India and tell our partners and prospects that we are a company that is constantly defying conventions, constantly pushing boundaries and breaking the limits in order to find the best solutions for them," says Rizan. It is thus unsurprising that Rizan, whose focus for the last two years has been on brand strategy, is excited to be able to use the PETRONAS brand as part of the company's inroads into India.

Energy rocks.



IR. DR CHAN TUCK LEONG
Pacific Northwest LNG

Energy has spurred the growth of nations for decades and continues to fuel economies and human imagination. Rich sources of energy can be found within layers of humble and seemingly ubiquitous shale rock, often in remote places and in the toughest of terrains. People like Dr Chan Tuck Leong are traversing the globe to unlock this resource in order to light up megacities, keep us cool on a sweltering afternoon and power the internet that keeps families and friends connected. We're going to need energy for the future. And we won't stop looking. [Empowering Lives.](#)

Watch the full story at www.youtube.com/PETRONASofficial

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PLANTING TOMORROW

by Sreerema Banoo

Balancing himself carefully on the boat that's moored by the riverbank, Muhammad Abdullah tilts a black container just above the water line. Water from the swift flowing river that is a murky shade of ochre, not unlike milk tea, fills the container very quickly. "When I was growing up, this was how we would collect water for our daily needs," recalls the villager from Kampung Pinapak in Pitas, Sabah as he hoists the container on his shoulders, stepping gingerly out of the boat onto the riverbank. Having collected the water, Muhammad would then have to make the long trek home – a journey that was repeated daily, especially during the dry season, until he moved to a nearby town.

Muhammad is one of the more fortunate ones for the days of making the backbreaking journey to obtain water are behind him. But there are countless others who still make journeys of some three hours to obtain water, a fact of life most people with piped water supply may not be able to fathom. But such is the reality of life in the rural areas.

Taking cognisance of this, PETRONAS through its Corporate Social Investment (CSI) programme embarked on an initiative, which is called Planting Tomorrow, to provide clean water to some of the most remote villages in Sabah.

Outlining the goals of Planting Tomorrow, Josephine Liew, a member of the national oil corporation's CSI department, says the aim is to improve the socio-economic condition of communities in the areas where the company operates, in line with the country's national agenda on poverty eradication, and at the same time promote PETRONAS as a socially responsible corporate citizen.

The villages that have been earmarked for the Planting Tomorrow initiative are some of the poorest in Sabah, with households earning an average monthly income ranging between RM358 and RM371.

"The programme involves the provision of an alternative water supply solution and agricultural training to 160 families in seven villages in Mukim Dandun in Pitas namely Dowokon, Bambang Ulu, Maliau Layung, Maliau Pusat, Perupok, Pinapak and Nunguh; and three in Mukim Simpangan in Kota Marudu namely Patiu, Kotud, and Pulutan," says Liew who heads the clean water project team.

PETRONAS is joining forces with Yayasan Sejahtera, a non-profit group mandated to help improve the lives of the poor in Malaysia, to undertake these initiatives.

Besides the villages around Pitas and Kota Marudu, PETRONAS has also included Kampung Imbak in Sabah under the Planting Tomorrow initiative. "Here, homestay development will be the main livelihood improvement initiative.

Kampung Patiu and Kampung Kotud meant that villagers no longer had to rely on rainwater or make the trek to the river to obtain water for their daily needs. With the new water supply system, spring water is directed to a dam, which is then piped to storage tanks and filtered. From these tanks, water is then piped to several taps in a particular village, with each village having its own source of water supply, dam and storage tanks.

There are 22 households involved in the homestay development," says Liew, adding that this programme is undertaken in partnership with Yayasan Sabah, and will complement the construction of the Imbak Canyon Studies Centre.

Through Planting Tomorrow, it is estimated that some 1,000 villagers around Pitas, Kota Marudu and Tongod can expect to see a positive change to their quality of life.

Planting Tomorrow notched its first major milestone recently when two villages became the first to enjoy clean water supply. The installation of a gravity-fed water supply system in



That clean, filtered water is now easily available is a blessing that Hamzah Haruna of Kampung Patiu deeply appreciates. Hamzah, who heads the village development committee (Jawatankuasa Kemajuan Kampung), says the villagers had long practised rainwater harvesting during the wet season or collected water from the river during the dry season.

"There are old gravity pipes that were connected to the spring but these are decades old and rusted so we don't use them anymore. So the river is our only option during the dry season, which lasts for more than a month. The nearest river is 3½ kilometres away, which takes us about 1½ hours on foot. But now with the pipes and thanks to PETRONAS we don't need to make that journey," adds Hamzah.

Liew, who works closely with the communities involved, attest to the villagers' gratitude. "They are grateful

and happy with PETRONAS' assistance. They used to walk more than an hour, carrying water containers to collect water from the river. With this facility, clean water is now available just a few steps from their homes," she adds.

The access to clean water has also had a positive impact on the villagers' overall socio-economic wellbeing. "They are now able to focus their time and energy on farming because water is not an issue anymore," says Liew.

According to her, works are currently underway for the installation of a similar system in Kampung Pulutan, as well as the seven villages in Mukim Dandun.

The project however is not without its challenges. "Logistics is still the major issue because of the location and the lack of access. For instance, we need to transport our materials, such as sand and cement using small boats or sampan and this is not only labour intensive but it also involves a high logistics cost," she says, adding that the uncertainty in weather conditions also impacts the timeliness of the project.

Challenges aside, the rewards are gratifying. Especially when those involved in the project who experience the hardship and difficulties of the villagers appreciate the value of clean water, and see the joy in the faces of the villagers when the first pipes are installed and clean water flows from the taps.

Apart from Planting Tomorrow, PETRONAS' Corporate Social Investment programme also includes the Food Basket and the Youth Development programme. All these initiatives are aimed at empowering people living in remote areas by providing them access to amenities like water, nutritious food for children and agricultural knowledge to promote wellbeing and provide economic opportunities.



■ The Technology Game Changer

by Brigitte Rozario



CHALLENGING times have always created fertile ground for grand innovations, heroes and even legends. It is during such times that the true heroes step forward, arm themselves with courage and bravery, and tackle each obstacle as it arises. Dr Nasir Hj Darman is such a man and his weapon of choice is technology.

As Head of Group Research & Technology Sector, Project Delivery & Technology (PD&T) Division, PETRONAS, Dr Nasir faces the challenges head-on. He knows that technology is the defining factor that will save the day; it is what separates the heroes from the also-rans.

“Technology is a very risky business. It needs to be challenging. If not, it is not disruptive enough for the company or the industry to survive,” he quips assertively.

He believes that oil and gas companies should focus on cutting-edge technology during downturns. “We need to have disruptive technology so that we can change ourselves for the better. Otherwise, you face the risk of being ‘disrupted’. That is what technology is all about in order for us to survive in this very competitive business,” he states matter-of-factly.

“Just imagine what would happen if somebody finds a way to produce hydrogen very, very cheaply and safely. The oil and gas will be gone. History. Nuclear is already cheap now, but it is not safe. What happens if those who are knowledgeable about nuclear power find a way to make it safe?”

“In technology, we have to have the foresight to see what is going to happen in the future and position the company that way,” says Dr Nasir.

While his faith in technology is firm, he doesn’t believe companies should be caught up in producing technology for the sake of producing, nor should proprietary be expensive.

Technology depends on ideas and how innovative we can be. Innovative technology makes a difference in meeting energy needs to deliver long-term value with added advantage of niche capabilities across the oil and gas value chain.



One of the first things he did as Head of the Group Research & Technology Sector was to strategise for a scientists development programme for PETRONAS. The programme is going forward and Dr Nasir hopes to attract some of the brightest minds worldwide this year.

PETRONAS' commitment to technology has been validated by its numerous innovations, some of which are responsible in changing the face of the oil and gas industry.

Dr Nasir is also a great believer in the power of collaboration, saying that it is another effective way of bringing in new innovations and ideas into the company. There is no reason to reinvent the wheel when the technology is already available.

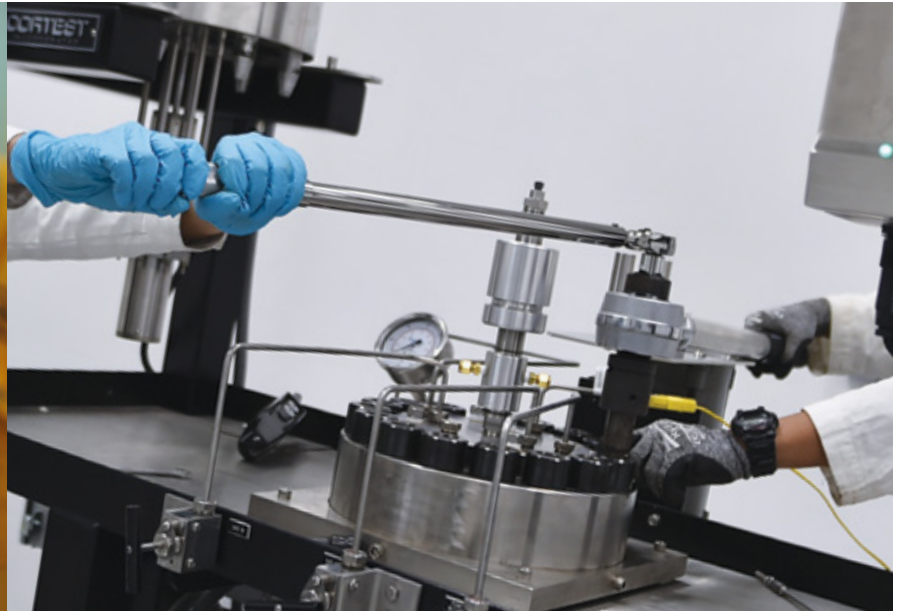
"At PETRONAS, we know that we can't do everything by ourselves and that is why we leverage on our technology partners when it comes to developing new technologies or acquiring them."

One example is the development of Hycapure™ Hg in collaboration with a university in the UK. This innovation is a viable, low-cost treatment option for the removal of impurities in hydrocarbon production.

"We need to unlock a lot more reserves which we currently have, but cannot develop because of the economic values or of environmental issues. We are currently pursuing the development of cutting-edge technologies to unlock new opportunities and potentials not just for the oil and gas industry but also to the world.

My team is tasked with coming up with the technology for the whole value chain; how to produce, separate, transport, utilise and sequester the CO₂ back into the reservoir."

Dr Nasir also highlights PETRONAS' commitment in developing technology solutions via Enhanced Oil Recovery (EOR) that has enabled us to bring back to life and increase resource recovery rate in fields that were considered depleted.



“EOR is another example. At this moment at US\$50 per barrel for an offshore environment like we have, EOR will not work because the cost is so high. So, in this environment, the oil will remain underground. We have to develop the technology to produce that at US\$30 a barrel. That’s our target,” he says.

PETRONAS’ proprietary Geomaging technology has enabled greater accuracy in identifying resources, thus reducing exploration and development cost and risks as well as improving oil recovery.

Technology is an enabler as it facilitates the production of reliable, affordable and clean energy. PETRONAS technology delivers breakthrough technological advancement, cementing its significance and maintaining its reputation among the top players in the global oil and gas arena.

Dr Nasir is very philosophical yet practical in his approach to making technology a priority. He likens it to running on a treadmill.

“In this current situation, in order to maintain your position and if you want to be in front, you have to increase your speed and be faster than your competitors. If you wait until your solution is perfect, you will miss the boat. We do not believe in that. We believe in improving our technology in phases,” he says, explaining that while version one is being released, his researchers are already working on versions two and three.

Dr Nasir also emphasises on the importance of innovative thinking. “We need to spur discussions and brainstorming sessions to come up with more ideas. An oil and gas company that doesn’t leverage on technology will not last long. Especially in this downturn, they are the first to go because of the stiff competition. To remain relevant, you need to have something to both sustain and propel yourself into the future, and that ‘something’ is technology and innovation.”

“**In this current situation, in order to maintain your position and if you want to be in front, you have to increase your speed and be faster than your competitors.**”

ART FOR THOUGHT

ADVOCATING CULTURAL DIPLOMACY THROUGH ART AND CULTURE

by Jacqueline Pereira



GoodEarth exhibit - A limited edition from Victor Vasarely Torony - hand painted acrylic on wood.

Art inspires us to look at differences while harnessing, strengthening and reinforcing our very identities. In a culturally globalised context, art is the most compelling means to enable learning about who we are, what we stand for and how we position ourselves amongst people of other nations.

This year, GALERI PETRONAS celebrates its 25th anniversary, steadfast in its original vision. The gallery was incorporated as a nation-building exercise to promote a holistic society, propagating a high sense of moral compass in embodying PETRONAS' shared values of Loyalty, Integrity, Professionalism and Cohesiveness.

In line with this, the gallery's Curator of Collections, Ratna Siti Akbari offers the late PETRONAS Chairman Tun Azizan Zainul Abidin's foresight, "To elevate the human capital as part of our cause in nation-building, to develop the arts alongside science, research and technology."

She adds that art allows for a study in subjectivity. "You explore it at your own pace within your own environment; deducing, analysing and understanding. But with references to our history, encompassing our social, political, religious, cultural and traditional intricacies."

Malaysian art has a relatively short history compared to neighbours Indonesia and the Philippines. They have had a 300-year head-start, influenced by their Dutch and Spanish colonial masters. Malaysian art is strongly rooted in literature, its social strata lineage blurring the fine line between folk art and fine art. However, it has evolved with Chinese, Indian, Arabic and Western influences.

"All this has brought forth a richness in our cultural wealth. Here PETRONAS plays its role, tapping art to further inspire new learning and new knowledge. Inspiring us to think beyond what is ours."

You talk about multiculturalism, the separation between 'them' and 'us' that creates imbalances and inequality. How does art provide the answer?

It is important to look at how art benefits us as people and whomever we interact with, while comprehending

universal values. Definitely art provides the study in appreciation and understanding, if only to provoke one person to consciously change.

When we talk about change and transforming, it's about global and contemporary issues. The world is full of imbalances – look at the situation now. Modern civilisation in the last 200 years has brought about a lot of these imbalances. There is an acute struggle over shares of natural resources. Issues brought about by erratic weather conditions. Social upheavals, conflicts, wars and catastrophes that have befallen mankind.

This is where art plays its role. It canvasses that human plight. Art is truth, its agenda altruistic, not self-seeking glory. Art is very much a message for change.

You wanted to be a museum curator since you were 16. And you have spent your life immersed in furthering

the cause of art, especially in the last 20 years you have spent at GALERI PETRONAS. What is good art to you?

Personally, I base my view on three levels. Firstly, the dexterity of the art work, technicalities used to stir my sight and touch. Secondly, whether a piece can critically provoke, disturb and engage me intelligently. Thirdly, if I can derive further understanding of who I am, what my true role and direction are and how I can benefit myself for the betterment of others.

Of course, each one views art on their own matrix but, for me, it must have historical relevance or connection, scholarship and elements of cultural values brought together with technical ingenuity.

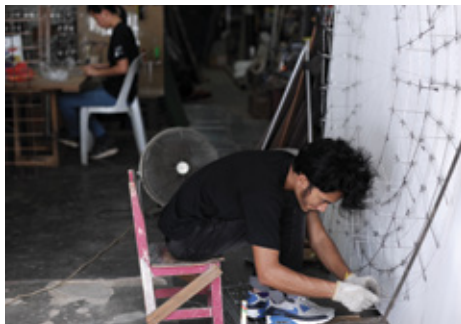
How do you construct an exhibition?

The ideation arises with a strong belief based on theory, either from written works, practices, values or dogma. These references play a significant role. The Quran is one. So are philosophies, books, films, records and documents. In reference to the context, we construct exhibitions for current audiences, as well as those 100 years from now.

It is important to be mindful of relevance. For me, values do not change but expressions, words, manifestations and interpretations do. It is only what we exhibit is interpreted, how it is manifested depending on the creative genius of the *pengkarya*, the artist.



Prof Ramlan Abdullah at his studio in Shah Alam. His work will be displayed at the GoodEarth: Expressions of Creative Energy exhibition at GALERI PETRONAS.



Hard at work - Two of Prof Ramlan Abdullah's students at his studio.

GoodEarth exhibit - 'Siri Meditasi No 1 - Pucuk Paku', made with wood and metal, by Mad Anuar Ismail.



GoodEarth:
Expressions of Creative Energy

Can you elaborate on the GALERI PETRONAS Collection, as well as the upcoming GoodEarth Exhibition in May 2017?

Since art allows for the study of precision and understanding, we position the gallery as a centre to aid the pursuit of knowledge. We construct our exhibitions and strategise our acquisitions within that framework, aligning our acquisitions with PETRONAS' corporate agenda. We aim to preserve modern and contemporary Malaysian artwork, as well as house a representative collection of works from abroad.

In embodying the transient beauty of nature, the GoodEarth exhibition is premised on New Reality - Driving New Approaches. Based on clean emission, GoodEarth will explore artistic interpretation and practices concerning how artists associate themselves with the world they live in. Nature is like watching the *ombak*. You see the wave and then it's gone. That's what nature is. It's transient.

The exhibition will feature paintings, photographs and sculptures from the PETRONAS Art Collection, as well as from the artists' personal collections and pieces on loan from institutions and private collectors.

There will be works from Latiff Mohidin, who marvels at constructive abstract expressionism. Expect the 'grandfather' of the op-art movement, eye surgeon Victor Vasarely and his optical art, Sarawakian Anniketyni Madian's 3-D sculpture that almost defies gravity. We plan to feature architect-turned-sculptor Abdul Multalib Musa's 7-metre sculpture that will be displayed at the KLCC Esplanade. I'm going to contrast this exhibition with poetic images, such as Eric Peris' photographs and Anthony Lau's 1958 piece on the new nation.

What is important about all these works is that they use purism in their art. Mindful of resourcefulness, without anything superfluous in their discipline. That is the essence of GoodEarth.

GoodEarth: Expressions of Creative Energy will show at GALERI PETRONAS from 3 May to 30 July 2017, together with a series of discourses, workshops, curatorial walk-throughs, engagement with artists and an art forum.

KEEPING UP

Disruption is the new world order in the workplace. So reinvent it.

by Jacqueline Pereira



“Your main asset is your people. How you develop, retain and attract talent is how you will sustain any organisation.”

Zahira Sughra Zainuddin



For the first time globally, four generations will be in the workplace simultaneously; Baby Boomers, Gen X, Gen Y and Gen Z. While access to this extensive talent pool is exhilarating, employers managing across such a broad demographic range will require adaptable leaders meeting employees where they are.

For PETRONAS Head of HR Transformation Office, Group Human Resource Management, Zahira Sughra Zainuddin, the right leadership is imperative to head this movement to change. “PETRONAS has evolved. Now when we look at people, instead of their strengths, we think of how to harness those and stretch them, so that they are the best they can be.” A view that accepts diversity and difference, yet working with one another to leverage and complement rather than “expecting everyone to fit into a mould that we set ourselves.”

Zahira finds old Human Resource (HR) operating models no longer valid. “Every day something is going obsolete, so how do we stay relevant?” It is an interesting time for HR and human capital, she says, because everything is being disrupted. “Your main asset is your people. How you develop, retain and attract talent is how you will sustain any organisation.”

TRANSFORMING HR

HR has to reinvent its approach, she asserts, and move away from conservatism. “We must now look through the lens of the employees, not through the organisation’s perspective, policies and processes.” She poses the question: “What do employees want?”

Traditional techniques have to be humanised and conversations started. “Ultimately, people want to feel appreciated and valued. We must give them that platform.” Therefore engagement is critical to ensure employee retention and productivity, as well as offering a sense of belonging and purpose at work.

Throughout her 19-year career in the national oil company, chemical engineer Zahira has always been involved in its business aspects, including the petrochemical business, commercial and project management (Project RAPID) and LNG Marketing. When she started at HR in February 2016, she found it very interesting. “HR is the engine. I never realised the amount of work HR does to keep this organisation going.”

In adapting to current workforce trends, Zahira is mindful of contextualising, supporting and implementing these shifts within the organisation. It must be ready and so must the leadership. However, she does not think any organisation will ever be ready. “You just have to take a chance and make it happen. It may not be perfect, but it’s a journey and that’s a very important aspect for us.”



DIVERSITY & INCLUSIVITY

Two years ago, in line with the role of custodian of the company's greatest asset - its people - three pillars were devised in formulating global talent strategy. The right leaders, the right talent and the right environment. "What we are doing is creating that right environment for our people to have the right talent. We had to ask ourselves: are we doing enough to develop the right leaders?" The three pillars support much of the HR department's activities. Among them are the Compressed Work Week and Enhanced Flexible Working Hours (EFWH), a six-month pilot programme launched in January 2017.

Although 55 per cent of the PETRONAS workforce is under 35, Zahira feels that it is not just about the Millennials wanting a more flexible working environment, "That is the misconception. It is more about the life stages in an employee where flexibility is needed to tend to a sick spouse or child and caring for elderly parents."

As the fine line between work and life becomes more blurred, work-life integration is another key driver. "Especially when technology has ensured that we are connected 24/7 - we are always on." Which is why the workplace must be one that employees are happy to get to every morning. Although one-third of PETRONAS staff are women, she stresses that flexible working hours are non-gender-discriminatory, as men are just as involved in raising their families.

Zahira believes that diversity and inclusivity are crucial aspects in the workplace, but not limited to the

colour of skin or eyes. "It's about your characteristics and personalities; will we be able to work together and be part of that winning team? We need that diversity and inclusivity to stay ahead of the game."

"Although one-third of PETRONAS staff are women, she stresses that flexible working hours are non-gender-discriminatory, as men are just as involved in raising their families."

MATURITY MATTERS

In becoming a more mature organisation, Zahira says they strive for behavioral change within the organisation. "In a mature organisation, you should know what you need to do and you should be responsible for your own deliverables."

Since 2011 PETRONAS has been following flexible working hours. Employees can come in any time from 7 to 9 am and leave between 4 and 6 pm. With the recently adopted EFWH, an hour is added to the system. "Coming in at 10 am works for those who like to go to the gym or have breakfast with their friends, other than running errands. Commuting, too, is better after 9 am."

"The whole point is it's no longer about the hours you put in; it's the kind of work you do. The output is what really matters." Certain guidelines not only measure matrices, but collect data as well. The initiative will be adopted permanently, depending on staff performance and productivity. So far the response has been very encouraging.

REINVENTING HUMAN RESOURCES

- Why** The evolution of demographics is changing the face of business.
- What** To stay relevant, flexible leadership must harness and stretch employee strengths.
- How** Move away from convention, look through the lens of the employees, actively engage with staff and humanise traditional techniques.
- Who** Develop the right leaders who will create the right environment for employees to acquire the right talent.
- Where** The future is digital, real-time connected experiences and an effective work culture.
- When** No organisation is ready to embrace change. Be mindful of the context and support necessary measures to make new shifts. Take a chance and make it happen.
- What else** Diversity and inclusivity to drive behavioural changes in striving for a mature organisation where it is not the hours that matter, but deliverables and output.



The other key initiative, the Compressed Work Week, allows employees Friday afternoon off at the end of the work week. This is provided they have fulfilled the required hours by working an extra hour in the preceding four days. "We wanted to make people more focused, efficient and productive while they are in the office." Generally the hours are long, so the slightly longer weekend will ensure staff get a much-needed rest.

YOU CAN'T PLEASE EVERYONE

"One thing I've learned about HR is that you cannot make a policy that will satisfy everyone." But, Zahira says, you have to think of the greater good. Although the global 50,000 headcount is her biggest challenge, yet she finds it most satisfying when able to craft a policy that meets the needs of both the organisation and the employees. "Inclusivity is not about looking at myself and what I prefer, but looking at everyone around me and how I make it easier for you to do your best work."



The emphasis in this era, though, is on-going digital: "It's how we automate more, use apps and gadgets for people to enjoy real-time connected experiences." So now HR is focused on customer experience – in this case creating the right employee experience.

Zahira also feels HR should be seen as marketing, offering their services

to employees. "And, if we want to sell a product, we have to offer the best in the market."

The PETRONAS Cultural Beliefs, another key driver in the organisation's transformation journey, were introduced to instill a more effective work culture. They are also a way to break down hierarchies and humanise the organisation.

"The whole point is it's no longer about the hours you put in; it's the kind of work you do. The output is what really matters."

Zahira continues her work, and not only because she thrives in the constantly novel environment. As one of her early superiors in LNG reminded her during a negotiation, "Every cent we gain is for your children, your grandchildren and your country." This, is Zahira's contribution to building a nation.

Perplexed, Ir Siti Rafidah Moslim, 39, struggles to explain herself. "Kindness is not something we should strive to do. I believe it's a basic part of being a human being, a good person. She stresses: "It's doing something for someone else without expecting anything in return".

"I see a lot of kindness in the world," she continues. Sometimes we believe what we see and technology makes us say and see things easily." But just because the news is all bad, it doesn't mean that there is no good news. "It's what we choose to see."

Of her 15 years with PETRONAS, the Melaka-born chemical engineer spent 12 years at MLNG based in Bintulu. She had always envisioned a technical career path but, in 2011, she was promoted to Head of Technical Services, a heavier people-management role. She is currently serving as the Head of Operations Assurance in PETRONAS Carigali, her 12th position in the company.

"I have accepted many roles in the organisation that I never imagined I could do. All my experiences are a result of someone taking a chance on me." She explains, "That is how kindness has worked for me." She is grateful to those who believed in her, even when she faltered.

Bright and bubbly, her belief and enthusiasm is hard to curb. She also loves to doodle and draw, to help understand and express herself better. Ofid, as she has been nicknamed since high school, not only practises kindness, but draws it as well. She continues to see compassion in every action.



Championing Compassion

by Jacqueline Pereira

Kindness as a way of life not only drives efficiency at the workplace, but instils accountability to spur performance, too.



"But just because the news is all bad, it doesn't mean that there is no good news. It's what we choose to see."



When she was in Bintulu – not a place to which everyone rushes to relocate – she found her purpose after reading *Learning Legacy: The Malaysia LNG Story (1978-2008)*. "In signifying MLNG's importance to PETRONAS, that book helped me see meaning in what I do. That, to me, is an act of kindness". And reading about the pioneers who tirelessly built a nation, Ofid asserts, revealed their great acts of compassion.

Is there an example where compassion helped solve a key problem in the workplace?

In our restructuring effort last year to counteract the oil price volatility, many staff relocated to take on new roles. While some people adapt quickly to change, others need help. In the extensive exercise in April 2016 I saw a lot of people stepping up to offer help to ensure the affected ones found positive meaning in their changed circumstances.

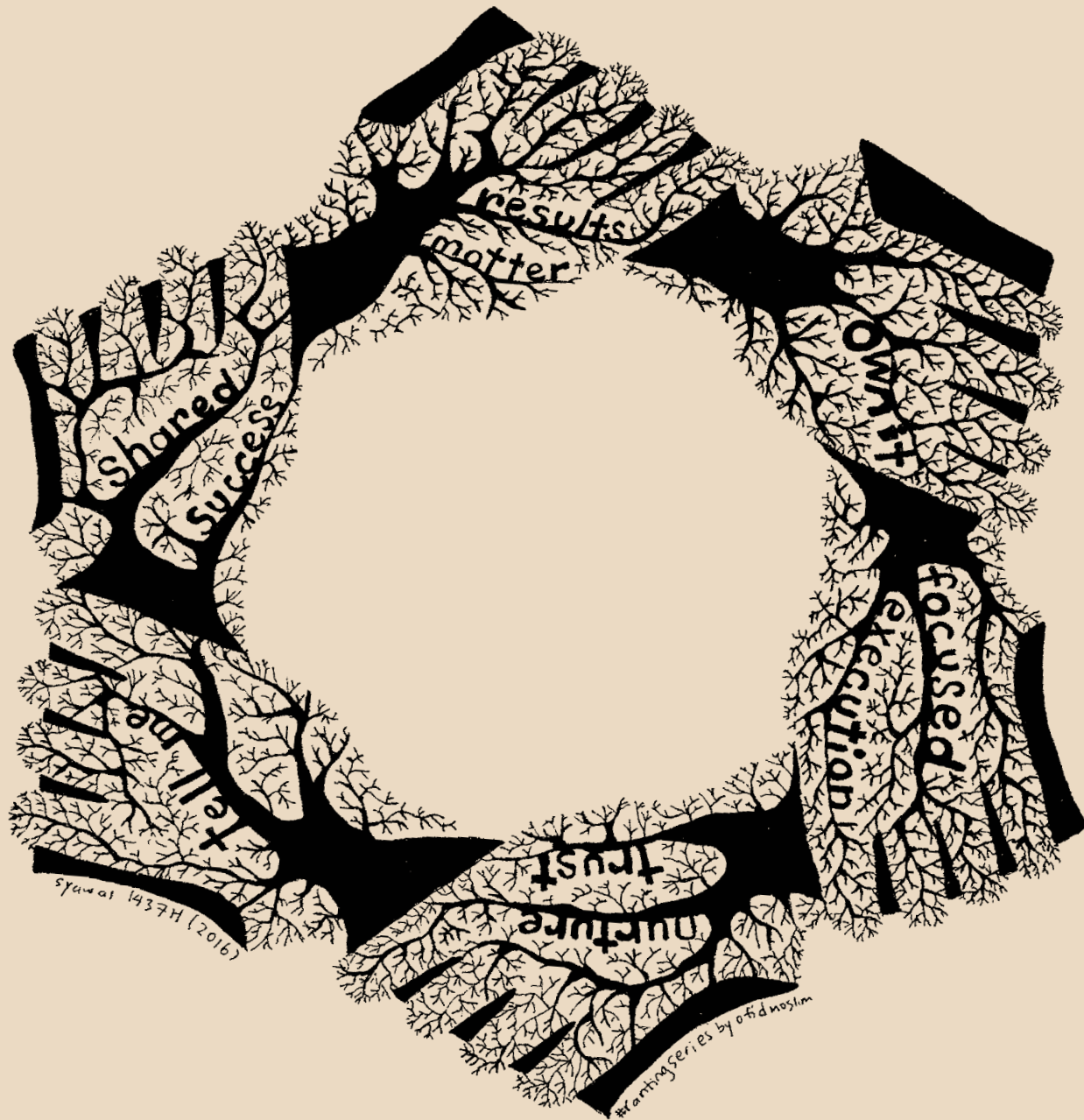
I really believe it goes back to us as human beings, in seeing meaning in what we do and wanting to do it well. If, because of us, someone has a good day, it directly translates to the person being able to do more.

What do you think are the key benefits of being kind or compassionate at work?

Even as we promote compassion at work, as human beings we need to be accountable for the tasks assigned to us. It doesn't mean people can get away without doing what they are supposed to. Work has to happen.

Being kind to each other makes for a more conducive working environment. There is a difference between accountability and blame. We have to realise our mistake, admit it and move on, avoiding blaming each other. To me, that is kindness.

Taking time to give feedback and intervene when we see an unsafe condition, or when we see someone doing an unsafe act contributes to a safe working environment. A safe working environment means we get to go home safely to our loved ones after our work is done. This is kindness in action.



Ofid's own interpretation of the six PETRONAS Cultural Beliefs.

From your observation, do you think it is difficult for colleagues to be genuinely concerned about each other's needs?

I believe that the PETRONAS Cultural Beliefs, are the perfect way to promote this practice. To drive efficiency and sustain change, we introduced six cultural beliefs: Results Matter, Own It, Focused Execution, Nurture Trust, Tell Me and Shared Success. The way I see it, these beliefs are about being kind to each other.

Take this picture. The six cultural beliefs are interlinked through trees and holding hands. It is how we help each other. For example, Shared Success is about how what I do makes you better. Results Matter - my results matter, but not just for me. It must be for everybody. If I'm in trouble and my grip gets loose, Shared Success means you hold on to me without asking, without getting anything in return.

It's how we live our lives. How we help each other, help others be better. In return, we are kind to ourselves, too. It's a circle. Kindness is not just a feel-good, positive vibe, it is based on a strong foundation.

Is there a difference in being kind to each other's colleagues as opposed to superiors and subordinates?

When I had to move from the technical side to people management, I was a little afraid. So I spoke to my mum. Her invaluable advice: "When you speak to anyone, speak as if you are talking to me and your dad."

When we grow in the organisation or change roles, we work with different people. To me there is no difference whether I'm talking to a young person, my boss or a subordinate. I'm just talking to another human being.

What my mother told me really helped. Even though we don't agree with our parents all the time, we still talk to them with respect. So if someone makes a mistake, like our parents, we should not tell them off in public. We wouldn't want that to happen to us, either.

How does promoting compassion in the workplace help an organisation excel in achieving their goals?

With the current tough market situation, everyone is suffering. If we want to reduce our cost, there is no better way than working with others. Instead of limiting ourselves, we can accept new ideas, work together and collaborate within the industry. That itself is being kind to one another.

The oil and gas industry is interconnected; we can't just think of ourselves. When we work together, the effect is more far-reaching. With the industry under a lot of pressure, it's human nature to latch onto the negative news. But if we start to see positive news, even though it's small, it gives hope. We need to work together so that we can create hope.

How can leaders show the way with compassion?

When people do their jobs well, they see things moving in a positive direction. Motivated, they'll think of even better ideas to do better. Leaders can bring people together with a common goal, a common way and behaviour in order to achieve.

What about the instances when this practice of kindness is taken advantage of?

People must be accountable. The company values performance and

accountability. It's not just about being positive. We have to deliver the business. Being compassionate is just a more holistic method of doing serious work in a kind way.

Is it possible for all employees to be equally compassionate to each other?

Yes, because it is how we live our lives. There should be no difference between the way we treat our boss and colleagues and how we treat our family and friends.

Just like at home or work, nothing is perfect. We shouldn't think too much. Life is already too complicated. Just do what you think is right. The least we can do is give our best and stay true to ourselves. Be yourself.

How do you measure the efficacy of compassion in raising productivity?

When people are accountable, the end result is achieved. In this fast-paced, competitive oil and gas environment it is viable to invest time, energy and effort in championing compassion. If we all subscribe and behave accordingly, the company can achieve results.

If everyone is above the line, seeing it, owning it, solving it and doing it; if everybody does that every single day, we cannot run away from being more efficient.



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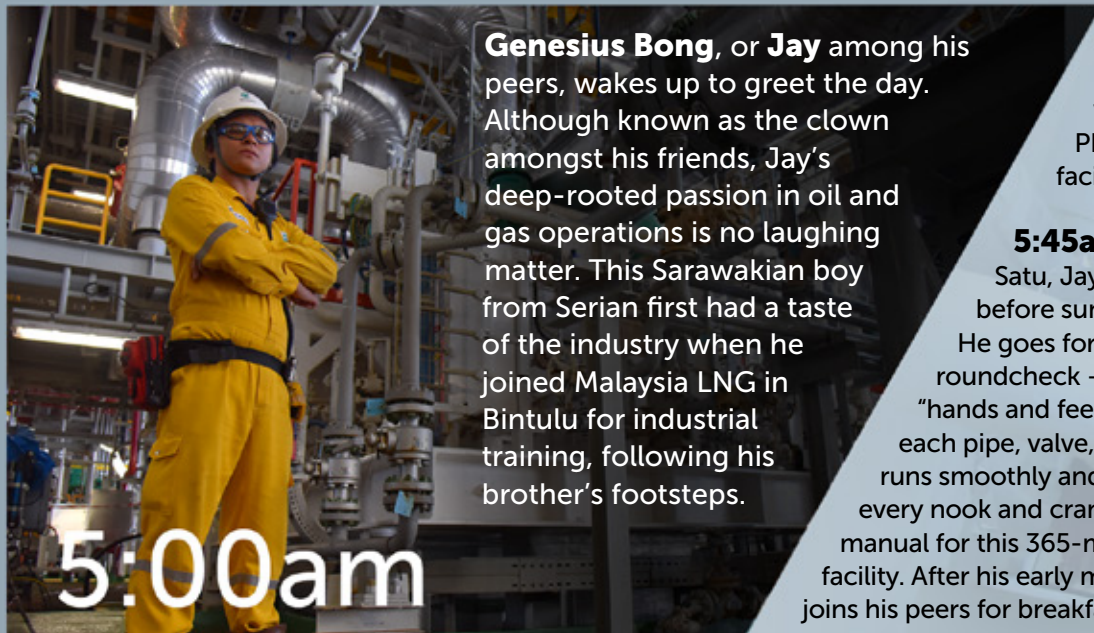
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A Day in the Life Onboard PFLNG Satu

The World's First Floating LNG Facility

by Emalina Aimi & Nursyaza Nadiah



5:00am

Genesisus Bong, or **Jay** among his peers, wakes up to greet the day. Although known as the clown amongst his friends, Jay's deep-rooted passion in oil and gas operations is no laughing matter. This Sarawakian boy from Serian first had a taste of the industry when he joined Malaysia LNG in Bintulu for industrial training, following his brother's footsteps.

The highlight of his career, however, was when he was offered to be part of the PETRONAS floating LNG (PFLNG) facility project.

5:45am As a field operator on PFLNG Satu, Jay's daily duties normally begin before sunrise, after his morning exercise. He goes for an early morning plant roundcheck – he describes himself as the “hands and feet of operations”, ensuring each pipe, valve, and pump-compressor runs smoothly and efficiently. He knows every nook and cranny of the operation manual for this 365-metre long floating facility. After his early morning round, Jay joins his peers for breakfast at the Galley.



5:45am

6:00am For **Annina Ramli**, or better known as **Annie**, the day begins immediately after she wakes up. After turning off the alarm clock, she sits up and places her feet on the floor of her cabin.

The cold surface of the cabin floor is just as effective in waking her up, Annie gets ready for the day – gently stroking her eyelashes with black mascara. In a field dominated by men, Annie jokes that the mascara is her secret weapon to change a 'no' to a 'yes' at technical meetings in just a 'blink'. The manual nature of the job does not stop her from getting dolled up.

6:30 am A piping engineer by profession, Annie knew what she was getting into the moment she chose her university major.

6:30am



PFLNG Satu Area Operators conduct structured round every day during their shift. Structured Round is designed for the Area Operator to perform organised sequence of movement and frequency for routine plant check and area surveillance. Specific data is collected using Data Logger, which will then be transferred to the Plant Information system for historical and statistical purposes as well as for further analysis.

Toolbox talk is also conducted by the Work Leader/Work Supervisor before any work is carried out to address the risk and hazards of the job. Besides the daily toolbox talk, a mass toolbox talk is done once weekly to address any Health Safety and Environment issues from audits and walkabouts.

6:00am

A graduate in Mechanical Engineering from the University of Canterbury, New Zealand, Annie said that never in a million years would she had imagined that she would be working onboard the world's first floating LNG facility. After joining PETRONAS Carigali Sdn Bhd in March 2010 as piping engineer, she was roped in to be a part of PFLNG Satu's project management team in 2015. Annie's daily duties include overseeing construction work and rectifying commissioning phase. She starts work as early as 6.30 am right after breakfast, preparing Permits to Work (PTWs) to be distributed to her contractors during the 7 am Toolbox meeting.

Jay puts it,
**"PFLNG plant runs
 24/7, non-stop."**

7:30am

7:30am Before she begins her hectic shift, Annie attends the morning operation meeting with the rest of the staff, where all the leads receive updates from various disciplines and departments to ensure everything runs safely and smoothly.

Her daily fuel? Coffee.



PFLNG Satu presents unique challenges. Being a plant located offshore, numerous real-time simulation and motion studies have to be conducted in order to capture and understand the effects of waves, winds and sea currents on the safety, integrity, reliability and operability of the whole plant. The 6 degrees of freedom in an offshore environment is not a thing to be taken lightly. This greatly affects the behavior and response of the equipment, and literally everything onboard this plant on a ship-shaped platform.

Crunch time!



8:30am

to call home every morning before her son goes off to pre-school to ask him about his day, amongst other things. This somewhat helps her get through the day, but she will start missing him again (by lunch time!).



While on the topic of challenges, Annie admitted that she has always been an “Upstream engineer” since she joined the Company in 2010. Being in the PFLNG project posed a challenge for her as she had to educate herself on Downstream operations and technology as well. “We never had to mess with Cryogenic Facility with a temperature of -196 Celcius before. This set a whole new challenging benchmark for everything that we do.” Annie took this as an opportunity to learn, expand her knowledge and sharpen her skills – she had no option but to adapt as quickly as she could.

8:30am Annie spends at least two weeks offshore and on PFLNG Satu, and while she loves what she does – she calls it passion – she cannot help but to be shrouded with guilt every time she leaves her little family behind for work. As a mother to four-year-old Wan Aqriz, Annie finds it challenging to balance her role as a mother and as an engineer whose nature of work requires her to be miles away from her family. Annie makes it a must

“I read Downstream technical papers and Downstream related codes and standards as much as possible to understand the whole system and processes,” Annie said.

This is something that Jay, too, finds relatable. Dealing with unfamiliar and new systems and facilities is no doubt difficult, but just like Annie, Jay takes these challenges as a learning opportunity. With no source of reference, Jay admits it is indeed challenging but as someone who is passionate in what he does, he enjoys every minute of it on PFLNG Satu.

PFLNG Satu's Significant Milestones

Naming Ceremony
March 2016

Sail Away to
Kanowit
Offshore,
Sarawak
May 2016

Riser Hookup
Completed
June 2016

First Gas
November
2016

First Drop LNG
December 2016

First LNG Cargo
1 April 2017



6:00pm

6:00pm After dinner, Annie hits the gym to keep herself fit for offshore work.

For Jay, he spends his downtime at the PFLNG’s F Deck. With facilities such as a golf room, cinema, ping pong table, pool table, and PS4 station, it is also known as the Fun Deck. Unlike Annie, Jay opts for futsal instead. “There is a small futsal arena at the top deck, and the players have to be extra mindful not to get too excited as there have been cases where balls are kicked into the ocean. That’s the challenge of playing futsal at sea,” said Jay with a laughter.

WHAT KEEPS THEM GOING

Annie said, **“I’ve always been a design engineer. I just love having everything on paper, and being a part of the PFLNG, I get to see the design become an actual physical facility. There’s satisfaction in seeing something on paper become a reality in front of your very eyes.”**

“Plus, I love the hustle-bustle of working on a plant,” she added.

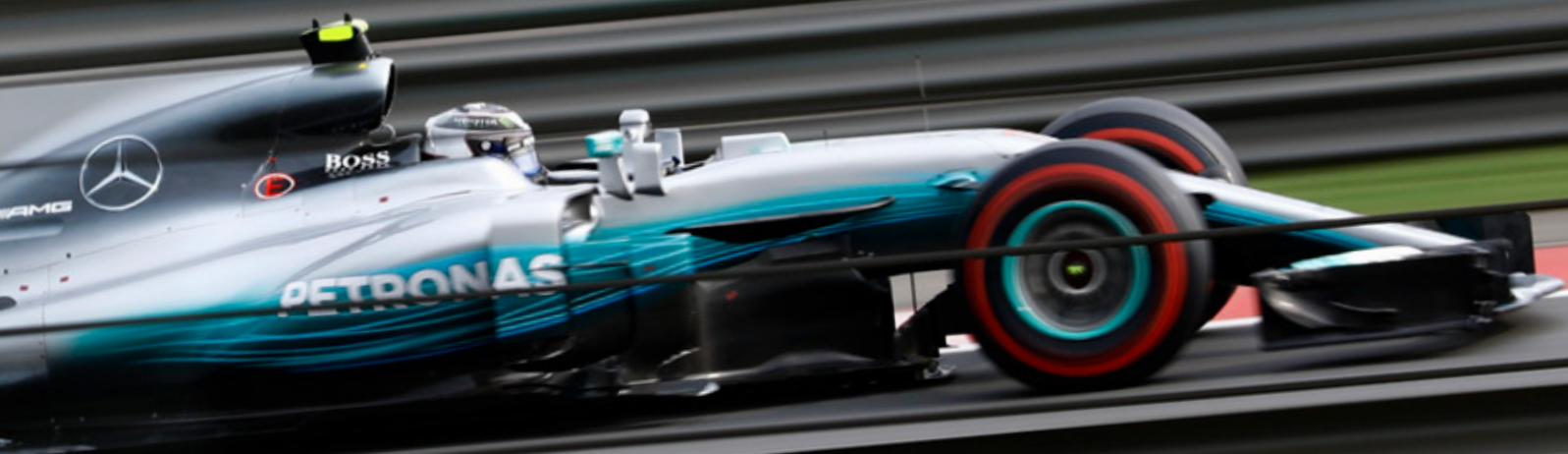
Echoing what Annie said, Jay reiterated his love for the work environment and culture. **“I don’t think I can get it anywhere else. The brotherhood – the family ties that is formed among personnel onboard the floater. We work, eat, and play together. Whenever there are issues, we will support each other through the end and make sure that everything is sorted out, safely.”**

Me time!

10:00pm

COOL BOTTAS HEATS IT UP IN MALAYSIA

by Brigitte Rozario



He may have been the third fastest man at the Australian Grand Prix in March this year, but sitting in a room full of enthusiastic fans at the PETRONAS Twin Towers in Malaysia's Kuala Lumpur, Valtteri Bottas was the epitome of the boy next door.

Although there were whispers of him being "cold" and "serious", he exuded charm and professionalism worthy of any role model in the racing world. During the short "Today's the Day" talk show that was streamed on the Company's internal website, he was even thankful to his parents and candidly talked about romancing his wife.

It was midweek, sandwiched between Melbourne and Shanghai, and the Finnish Formula One driver was in Kuala Lumpur for a quick visit to the Towers.

He won the admiration of every person in the audience in that short interview on stage. He was the man you wanted to take home to your mother, the friend you could rely on, and the person you wanted your children to spend time with.

"I like winning and this team likes winning as well. I love the good feeling that comes with racing but nothing beats winning. I haven't yet won any race in Formula One. But now I am in a team where it is possible and it is like a dream come true, racing for this team and being able to fight for races and for the championship."

The Finnish driver was in the spotlight in January when it was announced that he would be joining the Mercedes-AMG PETRONAS Motorsport team after world champion Nico Rosberg's sudden retirement.

"I think it's a great opportunity for me. For sure they are big boots to fill, but it's a great opportunity for me. The team obviously has very high standards or high expectations because Nico is the world champion and I'm kind of replacing him now. So I understand it's a big place to fill. So far, things have been going smoothly and the team has been very supportive. I believe I can fill those shoes."

"I like winning and this team likes winning as well. I love the good feeling that comes with racing but nothing beats winning. I haven't yet won any race in Formula One. But now I am in a team where it is possible and it is like a dream come true, racing for this team and being able to fight for races and for the championship. I want to be the best. I want to be the champion in Formula One," said Bottas to thunderous applause from the crowd.



While it might be a daunting proposition for anybody to fill the shoes of a world champion, Bottas seems to take it in his stride - admitting that he does not stress much, preferring to have uncompromising faith in his team.

He explained that with Mercedes-AMG PETRONAS Motorsport firmly behind him, he is able to focus on the driving and if he has any problems, he is able to gain assistance from the team.

His team-mate is three-time world champion Lewis Hamilton, who won the Chinese Grand Prix in April. All eyes have been on the duo as a good rapport is always important.

Bottas revealed that the relationship has been good and professional so far and he does not believe there will be any major issues.

"We have a team-mate relationship, very professional. He seems to be in a good mood. The team spirit is good. We've managed to work well together to try and push the team forward. We haven't yet had any tough battles on the track but that will come and I'm looking forward to it, but I have a feeling it's going to continue to be good," he added.



Little speedster - At age six, Bottas got into racing with his father by joining a go-kart race in their hometown of Nastola in Finland.

“It is something that is quite difficult to get into as you need to think about it a lot, and you can't predict what's going to happen. I think that's a nice way to relax because that puts your mind into the plot completely.”

As he has not won any Formula One races yet, Bottas admits there might be less pressure on him in that respect. However, the international press has speculated that Bottas is merely a stop-gap measure considering his one-year contract. They believe that Mercedes could be eyeing McLaren's Fernando Alonso and Ferrari's Sebastian Vettel at the end of this year when they would both be out of contract.

However, Bottas may yet surprise them all by pulling one out of his hat. After all, he is hungry for a win and there is nothing he would like more than a long future with Mercedes-AMG PETRONAS Motorsport.

"We've only had one race and I think during the race I showed some good speed and times. I'm not a big fan of talking loudly about what's going to happen. I just say let's see how the season will continue. We've only had one race and there's no number one or two driver at Mercedes," he said during the one-on-one interview after the talk show.

According to Bottas, both he and Hamilton are allowed to race against each other. However, he does not discount having to follow team instructions at some point to move away from Hamilton.

He admitted that it is not something any driver wants to hear, but if there are good reasons and for the greater benefit of the team, he is not one to challenge orders.

"My goal is to have a long future with Mercedes. I have always been very loyal to any team that I have raced with," he quipped.

Obviously very proud to have won the contract with Mercedes-AMG PETRONAS, Bottas spoke glowingly of the team where he believes he can do amazing things.

"When I joined, I realised that even though the team has won pretty much everything in the

last three years, it still wants more. It is still pushing very hard, everybody wants to break the boundaries and achieve more and more and make new records," said the 27-year-old.

His face becomes more serious when he admits being most annoyed when making mistakes on the track. At the back of his mind is always how hard the team works and he doesn't like letting them down. However, that does not mean he is never satisfied with a race.

"I have learnt it's so important to enjoy what you are doing because you can't be miserable all the time. You need to enjoy the good moments because there will always be bad moments as well, so you need to make the most out of every situation and enjoy life at the same time," he said.

With no racing background in his family, Bottas got into racing by accident at age six. He and his father went for a go-kart race in their hometown of Nastola in Finland. The little boy was excited about the go-karts and wanted to try his hand. He entered his first race 21 years ago and immediately fell in love with speed.

Having supportive parents made all the difference and he counts himself lucky. They allowed him to race from such a tender age while constantly monitoring that he still enjoyed it.

"I always dreamt about motor racing. I didn't know if I would be in Formula One but that was always my goal and target when I started driving professionally. That drove me on to work and try harder to get into Formula One. I have yet to achieve all the goals I have, but it's been a deep motivation for me."



Gaining Speed - On April 13 Valtteri Bottas took his maiden Formula One pole position after beating Mercedes team mate Lewis Hamilton by just 0.023s qualifying session for the 2017 Formula One Gulf Air Bahrain Grand Prix.

"In racing and Formula One, in particular, I like that I am competing against all the best drivers in the world in the best machinery with the best technology. I find that very cool. I just love driving cars fast and I love going into the details – as a driver how you can improve the lap time and how you can be a better driver. For me, that is very interesting. The driving itself is obviously amazing," he said, revealing that his fastest speed on the track is 375 kph.

While he loves everything related to the sport of burning rubber, there is one thing he wishes he could do – have dinner peacefully with his wife, Finnish Olympian swimmer Emilia Pikkarainen, without any fanfare.

Still, the fanfare is a small price to pay for a sport he genuinely loves and which he expects to be involved in for a long time.

Off the track, Bottas indulges in movies as a way to unwind. His genre of choice? Thrillers!

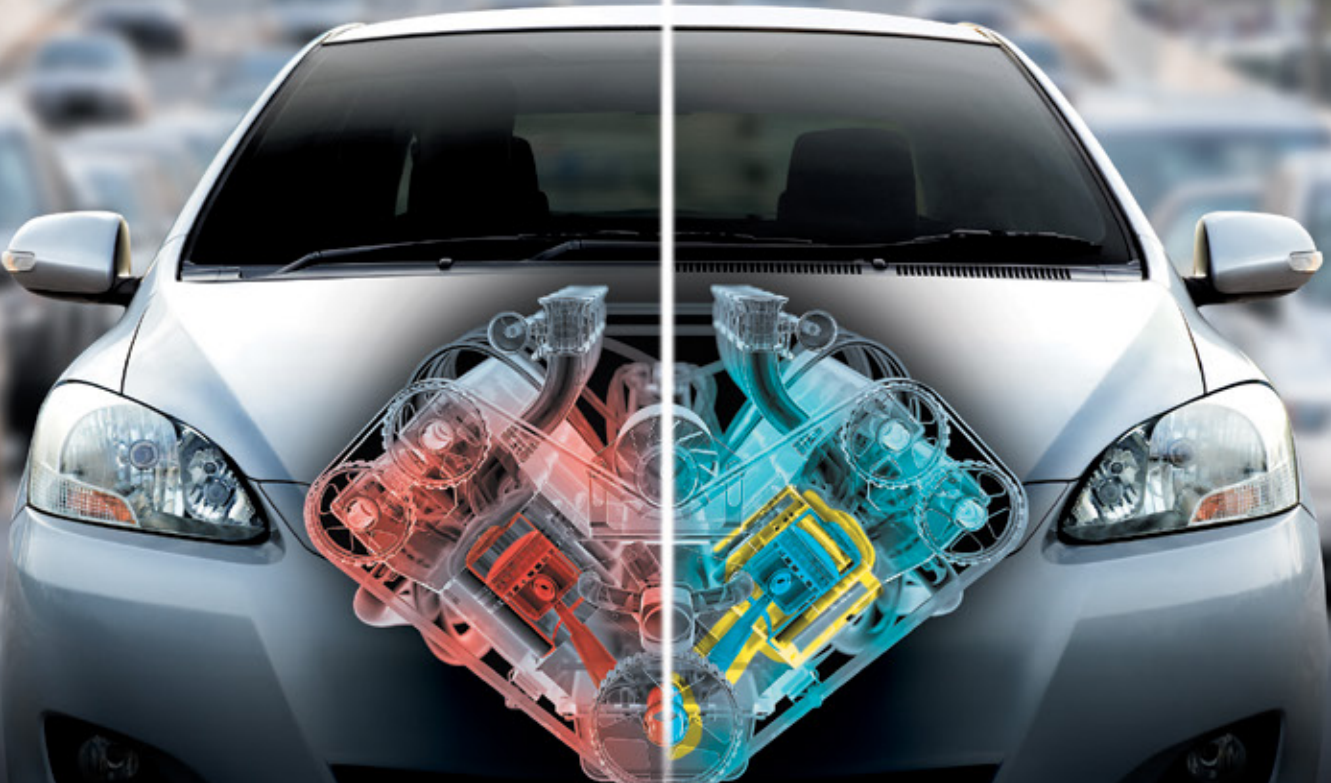
"It is something that is quite difficult to get into as you need to think about it a lot, and you can't predict what's going to happen. I think that's a nice way to relax because that puts your mind into the plot completely," said Bottas, who also enjoys cooking and whose signature dish is asparagus risotto.

Come race day, Bottas can always be found away from the crowds and in solitude. As the Grand Prix weekend is always busy, with many activities planned for drivers, apart from the qualifying rounds and race, it is important for him to have some time to himself before he climbs into his beast of speed. It helps him focus, relax and prepare himself mentally.

"There's no dream that is too big. That's what I found out. So, if you love it, if you really enjoy what you do, just go for it. If you don't try, you can't get anywhere. The main thing is to enjoy it because in any sport, and pretty much everything, if you don't enjoy what you do, it's difficult to get the maximum out of yourself," he said just before being whisked off to his next appointment in a jam-packed day in Kuala Lumpur.

EDITOR'S NOTE:

Bottas won the Russian Grand Prix in Sochi on 30 April 2017.



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