

KEMENTERIAN TENAGA, SAINS, TEKNOLOGI, ALAM SEKITAR DAN PERUBAHAN IKLIM

Bil	Berita	Media	Capaian Berita Penuh
1.	60 NGO anti-Lynas serah memorandum kepada PM esok	Sinar Harian Online	Klik pada tajuk berita
2.	Johor cari sumber bekalan air baharu	www2.bharian.com.my	Klik pada tajuk berita
3.	Penswastaan sektor awam tingkat kualiti perkhidmatan	Berita Harian Online	Klik pada tajuk berita
4.	Ribut petir dijangka berlarutan hingga 15 April	Sinar Harian Online	Klik pada tajuk berita
5.	Johor kaji alternatif sumber air dari bawah tanah dan air kitar semula	Bernamea Online	Klik pada tajuk berita
6.	Economic blueprint poisonous river	johor.chinapress.com.my	Klik pada tajuk berita
7.	Illegal activities in the vicinity	penang.chinapress.com.my	Klik pada tajuk berita
8.	The air quality is medium	Sin Chew Online	Klik pada tajuk berita
9.	How MOL's Founder Uses His 15 Years Of Experience As CEO To Elevate E-Commerce Startups	Vulcanpost.com	Klik pada tajuk berita
10.	Mega First mulls Malaysian renewable energy venture	The Edge Markets	Klik pada tajuk berita

Bil	Berita	Media	Capaian Berita Penuh
11.	<u>Fluttering into new national record</u>	The Star	Rujuk lampiran 1
12.	<u>Cypark sees double-digit revenue growth</u>	The Edge Financial Daily	Rujuk lampiran 2
13.	<u>Alam kekal lestari bersama Janamanjung</u>	Berita Harian	Rujuk lampiran 3

TEMPATAN

Bil	Berita	Media	Capaian Berita Penuh
14.	<u>'I did not issue shellfish warning'</u>	New Straits Times	Rujuk lampiran 4
15.	<u>Kongsi ilmu urus alam sekitar</u>	Harian Metro	Rujuk lampiran 5
16.	<u>Pulau Botol Plastik</u>	Harian Metro	Rujuk lampiran 6
17.	<u>Women in science</u>	New Straits Times	Rujuk lampiran 7
18.	<u>Modul, permainan didik masyarakat cintakan laut dihasilkan</u>	Sinar Harian Online	Klik pada tajuk berita
19.	<u>Indonesia, Malaysia tingkat protes kepada EU</u>	Berita Harian Online	Klik pada tajuk berita
20.	<u>Mangsa banjir terima bantuan</u>	Harian Metro	Klik pada tajuk berita
21.	<u>Customers good response to SESB's 24-hour kiosks</u>	Kosmo!	Klik pada tajuk berita

22.	Penduduk rimas pencemaran habuk arang batu	Astro Awani	Klik pada tajuk berita
23.	SWCorp ambil tindakan atasi pencemaran bau	Utusan Malaysia	Klik pada tajuk berita

ANTARABANGSA

Bil	Berita	Media	Capaian Berita Penuh
24.	NASA cipta robot 'lebah' baiki ISS	Kosmo!	Rujuk lampiran 8
25.	Waste management - Sorting the rubbish out	Edie.net	Klik pada tajuk berita

LAMPIRAN 1
THE STAR (STAR METRO): MUKA SURAT 8
TARIKH: 10 APRIL 2019 (RABU)



Dr Mohd Azhar (centre, in red cap) releasing the butterflies alongside guests of honour and schoolchildren at National Science Centre's Garden of Nature in Bukit Kiara. — Photos: SAMUEL ONG/The Star

Fluttering into new national record

Most number of butterflies released at National Science Week event in Bukit Kiara

By HANS LOO LING HAU
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THE crowd rejoiced as the most number of butterflies being released into the Garden of Nature at the National Science Centre, Bukit Kiara, fluttered its way into the Malaysia Book of Records.

About 120 pupils from SK Putrajaya Presint 8 (2) arrived at the garden where each of them received a butterfly in a container.

Altogether, more than 600 butterflies comprising 10 species were released from the containers, creating a magical atmosphere as they soared in freedom.

Some of the species were *Captosilia*, *Apilio*, *Junonia*, *Danaus*, *Eulope* and many more.

The release of the butterflies was one of the programmes held in conjunction with National Science Week, which took place between April 1 and 7.

The event was held to spread awareness of the importance of butterflies; these insects are not only one of the pollination agents that allow trees to bear flowers and fruits, but they are also a food source to other animals and insects.

Malaysia Book of Records Sdn Bhd event and corporate communication manager Aaron Bong hoped more records would be broken in the future.

"I also wish more information about butterfly cultivation can be shared with children so they can help protect the environment and



A close-up of a butterfly.

butterflies," he added. "Butterflies are important to our ecosystem and in our daily lives," said Ministry of Energy, Science, Technology, Environment and Climate Change (Mestec) chief secretary Datuk Seri Dr Mohd Azhar Yahaya.

He also expressed his interest in making science fun and engaging. "We have opened a brand-new Science Valley with more than 62 interactive exhibitions in tandem with current technological advancements in current days," he added.

He also urged the public to visit the National Science Centre to experience the latest exhibitions.



SK Putrajaya Presint 8 (2) pupils (from left) Nur Alya Maisarah Muhammad Azlan, Hanis Dayini Solihem and Nur Syafiah Qistina Saiful Bahri admiring the beauty of a butterfly before setting it free.



This butterfly can disguise itself as a leaf to protect itself from natural predators. (Right) Butterfly cocoons on display. The butterflies will emerge from the confined cocoons after completing the metamorphosis process.

LAMPIRAN 2
THE EDGE FINANCIAL DAILY (HOME BUSINESS): MUKA SURAT 7
TARIKH: 10 APRIL 2019 (RABU)

Cypark sees double-digit revenue growth

Group's renewable energy segment set to emerge as main revenue contributor — CEO

BY TAN XUE YING

KUALA LUMPUR: Cypark Resources Bhd expects to register another double-digit percentage growth in revenue for the financial year ending Oct 31, 2019 (FY19), as the group's renewable energy (RE) projects come to completion and with more opportunities arising from government initiatives.

The RE segment is set to overtake the group's environmental engineering division as the main revenue contributor as soon as next year, said Cypark chief executive officer (CEO) Datuk Daud Ahmad.

"I foresee revenue growth to continue to be double digits, on the back of strong industry roadmap. We have recorded double-digit [growths]. The rule is to be competitive," Daud told reporters after

Cypark's annual general meeting yesterday.

The group is targeting its 50-acre waste-to-energy (WTE) plant in Ladang Tanah Merah, Negeri Sembilan, with a 20MW power output capacity, to achieve commercial operation date (COD) by June.

Daud stressed that there has been no delay in the project, as the government agreement had since the beginning stated June 2019 as the plant's commissioning date.

"We are targeting to meet that deadline. It is very challenging because it is the first [WTE plant in the country], but we are working very hard to make sure that we are there," he said.

Once completed, the project could start contributing to the group's top line this year, before a RM80 million full-year annual revenue kicks in from FY20. Cypark

has to date invested some RM500 million in the project.

By end-2020, Cypark will manage a combined capacity of 231MW from the completed WTE plant, as well as its projects under the government's initial and second cycle of its large-scale solar schemes, LSS1 and LSS2.

For LSS3, Daud said Cypark is in the midst of finalising its bid for a maximum quota of 100MW. He believes the group's cost leadership in RE and high historical success rates positions the group well as a winning bidder.

Based on Daud's back-of-the-envelope estimation, a 100MW plant could generate an annual revenue of between RM50 million and RM60 million.

"We have not submitted it (bid). But we have been preparing for this even before the tender was

open, as it requires a lot of effort and preparation. We will place our bid for the largest size of 100MW [for LSS3] and we hope to win what we bid for.

"With Cypark being the cost leader, we think we are positioned well in being [a] successful [bidder]. We have also had good success rates in LSS1 and LSS2, and believe that as we continue with efforts of bringing competitive costs, our chances of scoring more [of such jobs] moving forward will be pretty high," he added.

On funding, Daud said the group will first look into internally-generated funds before exploring a combination of equity and bank financing — which may include the restructuring of current assets, conventional bank or sukuk financing — in a tax- and interest-efficient manner.

The government's LSS3 scheme, with an estimated RM2 billion worth of projects, is open for tender in February for six months. The outcome of the bidding exercise is expected by year-end, according

to Energy, Technology, Science, Climate Change and Environment Minister Yeo Bee Yin.

For FY18, Cypark recorded a 12% revenue growth to RM337.88 million, from RM301.68 million the year before. About 73% of the revenue was contributed by its environmental engineering segment, followed by green technology and RE at 14%.

Net profit grew 22% to RM70.4 million, from RM57.6 million in FY17.

Shares in Cypark finished unchanged at RM1.69 yesterday, bringing a market capitalisation of RM774.5 million.

LAMPIRAN 3
BERITA HARIAN (PRASARANA): MUKA SURAT 17
TARIKH: 10 APRIL 2019 (RABU)

Janamanjung mengekalkan kelestarian alam sekitar.



Alam kekal lestari bersama Janamanjung

➔ Selain patuh syarat ditetapkan JAS, diperakui sebagai teknologi penjaan mesra alam

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Manjung

Stesen Janakuasa Sultan Azlan Shah (SJSAS) di sini, membuktikan bahawa teknologi mampu menyatukan keharmonian dengan alam kerana bukan sahaja tidak menjejaskan, malah sudah menjadi sebahagian daripada ekosistem semula jadi sepanjang 20 tahun kewujudannya.

Kelima-lima unit yang menjana sejumlah 4,100MW itu menggunakan teknologi bersih arang batu, khususnya Manjung 4 dan 5 sebagai Ultra-Super Critical Coal-Fired Power Plant yang pertama seumpamanya di Asia Tenggara.

Pengarah Urusan TNB Janamanjung (TNBJ), Datuk Shamsul Ahmad berkata pihaknya mempunyai sistem pemantauan alam sekeliling dalam lingkungan lima kilometer dari stesen, selain mematuhi semua syarat ditetapkan oleh Jabatan Alam Sekitar (JAS), sekali gus diperakui sebagai teknologi penjaan mesra alam.

"Kehidupan flora dan fauna sekeliling, kekal lestari dengan kehadiran stesen ini," katanya dalam temubual khas sempena perjalanan dua dekad kewujudan Janamanjung di atas pulau buatan seluas 325 hektar, di sini, baru-baru ini.

Stesen berkenaan mempunyai kolam abu arang batu berkapasiti 25 tahun, yang rendah kadar penggunaannya berikutan bahan buangan itu mendapat pasaran sebagai input membuat simen.

Terdapat juga kolam air rawatan daripada buangan stesen sebelum dilepaskan ke alam semula jadi. Kolam itu menjadi tempat pembiakan ikan tilapia sebagai bukti bahawa air buangan berkenaan telah ditapis dan selamat untuk hidupan marin.

"Tidak dinafikan, TNBJ ketika mula beroperasi, mendapat beberapa tentangan daripada penduduk setempat berikutan persepsi bahawa loji tenaga berasaskan arang batu ini akan menyebabkan pencemaran kepada kawasan sekitar.

"Sejak itu, kami mengambil pendekatan mewujudkan hubungan

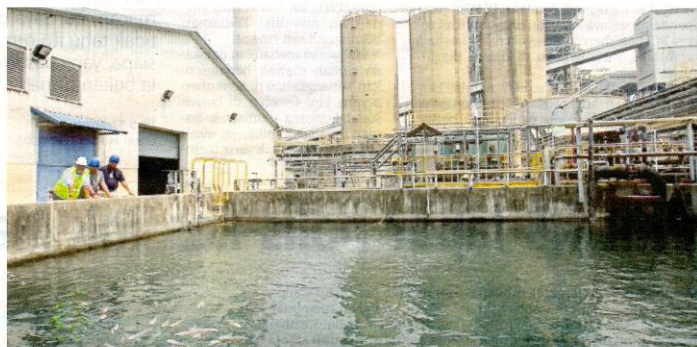
rapat bersama penduduk setempat, dan mengambil peluang untuk mendidik mereka bagaimana TNBJ mengendali loji tenaga ini serta menjelaskan teknologi yang digunakan serta inisiatif bagi menjaga kebersihan alam sekitar.

"Seterusnya, kami melaksanakan pelbagai program kehijauan bersama penduduk termasuk aktiviti menanam pokok paya bakau di lokasi terpilih. Sehingga kini, kami sudah menanam 5,000 pokok paya bakau di Pulau Janamanjung, Pasir Panjang dan Kampung Sungai Tiram," katanya.

Jelajah berbasikal

TNBJ juga mewujudkan acara Jelajah Berbasikal Janamanjung Fellowship Ride (JMFR) sejak 2008 yang menerima penyertaan dari seluruh dunia yang setiap peserta menyumbang satu benih paya bakau melalui yuran penyertaan masing-masing.

Sebuah sekolah berhampiran, Sekolah Menengah Kebangsaan Kg Dato Seri Kamaruddin (KDSK) pula dijadikan anak angkat sehingga ia memenangi tiga kategori pertan-



Ikan dipelihara bagi memastikan kualiti air yang telah digunakan betul-betul bersih di Janamanjung.



Roslina bersama anugerah yang diterima sekolahnya yang berhampiran dengan Stesen Janakuasa Sultan Azlan Shah.

dingan sempena program Keselamatan dan Kesihatan Pekerja Kebangsaan.

Pengetuannya, Roslina Ishak berkata, untuk bantuan ke arah pembangunan pendidikan, TNBJ turut

menyediakan sejumlah peruntukan membeli keperluan pelajar seperti pakaian dan beg sekolah, membantu pelajar serta bantuan khususnya dalam pengajaran aktiviti sukan.

LAMPIRAN 4
NEW STRAITS TIMES (NATION / NEWS): MUKA SURAT 7
TARIKH: 10 APRIL 2019 (RABU)

HEAVY METALS

'I DID NOT ISSUE SHELLFISH WARNING'

UMT lecturer surprised that he was quoted in Bernama report

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LIKE most Malaysians, Associate Professor Dr Ong Meng Chuan was shocked after reading the news on Monday claiming that shellfish from the Straits of Malacca were unsafe for consumption.

The lecturer at Universiti Malaysia Terengganu's School of Marine and Environmental Sciences, who was quoted in the Bernama story, said he had never issued such a warning and now found himself inundated with re-

quests for interviews to clarify the matter.

"I did not issue such a warning and the article is not related to the sample we collected en route to Lima (the Langkawi International Maritime and Aerospace Exhibition) 2019.

"We have yet to start processing the samples we obtained from the trip," he said.

He showed a stack of clear plastic tubes that contain the sediment samples from 45 stations along the route that UMT's research vessel, RV *Discovery*, took on its way to Lima 2019 in Langkawi.

"There are huge differences between the heavy metal concentrations in marine sediment and marine organisms, as the organisms' uptake of heavy metals is complex, with various parameters that differ between species."

He said although a study in 2015 showed that the heavy met-

als pollution level in sediments taken along the Straits of Malacca was higher than samples taken from the South China Sea, it did not indicate that shellfish reared or caught in the former were unsafe for consumption.

"The South China Sea is a huge area with strong currents that can disperse pollutants to a bigger area much faster compared to the estuarine on the west coast of Peninsula Malaysia.

"The effects of currents also contribute to lower readings of pollutants at the northern part of the Straits of Malacca as it meets the Indian ocean," he said.

Ong said he loved eating shellfish and did so regularly.

He said the permissible levels of heavy metals in shellfish were based on their content in raw specimens.

"In Europe, especially in France, it is the norm to consume shellfish, such as oysters, raw.

"Cooking shellfish, as practised in Malaysia, will remove most of the heavy metals," he said.

On another note, he said it was good that Malaysians were more aware of the presence of pollutants in the environment.

"Pollutants, including heavy metals, are on the rise with the increase in human activities. Industrial and agricultural run-offs from populated areas are higher than less populated areas.

"What we should do is increase monitoring and take steps to reduce pollutants."

A press statement from the Fisheries Department director general Datuk Munir Mohd Nawi echoed what Ong said about the presence of heavy metal pollutants in shellfish.

He said Malaysia produced three main shellfish species, with cockles leading at 12,482 metric tonnes, mussels and oysters at 2,274 and 1,402 metric

tonnes, respectively.

"Since 2013, the department has conducted safety monitoring of shellfish under the National Shellfish Sanitation Programme (NSSP) involving samples from farms and specimens harvested from the wild.

"Last year, 1,128 shellfish samples were taken from all over Malaysia for heavy metal analyses for cadmium, lead and mercury."

He said the levels of heavy metals in shellfish samples taken in Melaka (Sebatu), Johor (Air Baloi, Teluk Jawa and Teluk Kabong) and Penang (Seberang Prai Selatan) were within the limits under the Foods Act 1983.

"In Selangor (Sungai Besar, Jeram and Kapar), the levels for lead and mercury did not exceed the limit, but the level of cadmium was found to be above the limit for cockles samples taken in Sungai Besar at the end of last year."

LAMPIRAN 5
HARIAN METRO (NUANSA): MUKA SURAT 46
TARIKH: 10 APRIL 2019 (RABU)

KONGSI ILMU URUS ALAM SEKITAR

Program sempena Hari Hutan dan Air Sedunia disertai
197 ahli Renjer Konservasi Alam Malaysia

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Seramai 197 ahli Renjer Konservasi Alam Malaysia berkampung di Sekolah Kebangsaan (SK) Teluk Bahang, Pulau Pinang sempena sambutan Hari Hutan dan Air Sedunia, baru-baru ini.

Sambutan Hari Hutan dan Air Sedunia diraikan pada 21 dan 22 Mac setiap tahun bagi memberi pendedahan terhadap kepentingan pemeliharaan hutan serta sumber air semula jadi.

Pertubuhan Konservasi Alam Malaysia (PERKAM) dengan kerjasama Renjer Konservasi Alam Malaysia diberi mandat untuk menganjurkan program berkaitan di peringkat negara.

Peserta yang terpilih dari enam negeri iaitu Pahang, Perak, Selangor, Melaka, Kedah dan Pulau Pinang berpeluang melakukan pelbagai aktiviti berbeza sepanjang program berlangsung.

Pengerusi PERKAM, Dr Santharasekaran Subramaniam berkata, pendedahan terhadap pemeliharaan hutan dan haiwan adalah satu tanda kasih sayang manusia.

"Kita hidup bersama dalam rantaian ekosistem yang saling memerlukan antara satu sama lain, oleh itu, ini satu daripada inisiatif yang boleh kami laksanakan.

"Program ini berkonsepkan perkongsian sumber ilmu pengurusan alam sekitar bersama generasi muda.

"Kami ingin memberi pendedahan berkenaan kepentingan dan fungsi hutan serta sumber air kepada manusia," katanya dalam satu kenyataan.

Menurutnya, menerusi program ini peserta berpeluang melawat Empangan Teluk Bahang di bawah kendalian Perbadanan Bekalan Air Pulau Pinang (PBA), sekali gus menikmati pemandangan tasik yang indah.

Katanya, tadahan air di empangan berkenaan digunakan sebagai bekalan air minuman bersih bagi penduduk di Pulau Pinang. Pada hari pertama



PESERTA berpeluang melakukan pelbagai aktiviti sepanjang program berlangsung.



DI Pusat Konservasi dan Penerangan Peny, Pantai Kerachut.



DIDIK generasi muda.



MUHAMMAD Haikal Daniel

supaya bertanggungjawab dan berjiwa kasih pada alam sekitar.

"Menerusi program ini, saya boleh mendekati alam semula jadi secara langsung," katanya.

Selain membersihkan pantai, peserta juga dapat melihat Tasik Meromiktik yang juga tasik semula jadi yang terbentuk, air laut di dasar dan air tawar di lapisan atas.

Sebagai penutup program, peserta turut menonjolkan kehebatan masing-masing menerusi pertandingan reka cipta, syarahan dan fotografi yang kemudiannya diadunkan Exco Alam Sekitar dan Masyarakat Penyayang Pulau Pinang, Phee Boon Poh.



Kita hidup bersama dalam rantaian ekosistem yang saling memerlukan antara satu sama lain. Ini satu daripada inisiatif yang boleh kami laksanakan

DR SANTHARASEKARAN

program berkenaan, peserta turut dibawa melawat Taman Rimba Teluk Bahang di bawah pengurusan Jabatan Perhutanan Pulau Pinang.

Bagi memberi pendedahan lebih baik, peserta turut melakukan sesi soal jawab berkaitan sumber hutan di Malaysia, spesies tumbuhan dan mengetahui aspek kerjaya renjer hutan.

Pada hari kedua, peserta dibawa menerokai Taman Negara Pulau Pinang yang memakan masa perjalanan selama tiga jam. Meskipun memenatkan, peserta tertarik dengan keindahan hutan pantai dan sumber hutan.

Menariknya, peserta juga berpeluang melihat sendiri usaha pemuliharaan anak

penyu di Pantai Kerachut oleh Jabatan Perikanan Pulau Pinang.

Sementara itu, peserta, Muhammad Haikal Daniel Khairul Abidin, 17, menyifatkan dirinya bertuah apabila terpilih menyertai program berkenaan.

"Pendedahan ini antara usaha memberi jaminan kepada rakyat Malaysia



USAHA selamatkan bumi.

LAMPIRAN 6
HARIAN METRO (NUANSA): MUKA SURAT 47
TARIKH: 10 APRIL 2019 (RABU)

PULAU BOTOL PLASTIK

Kakitangan Pusat Konvensyen Kuala Lumpur bersama keluarga meriahkan Earth Hour

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Pulau Marmoset antara pulau pertama buatan manusia dibina menggunakan barangan kitar semula seperti kepingan styrofoam dan botol plastik yang dilancarkan Sunway Lost World of Tambun sempena Earth Hour, baru-baru ini.

Pengurus Besarinya, Nurul Nuzairi Mohd Azahari berkata gerakan Earth Hour selaras dengan visi dan misi untuk merealisasikan 'sustainable development goals' (SDG).

"Kami berbesar hati menyertai inisiatif ini kerana menjadi tanggungjawab kami untuk mendidik masyarakat berkenaan kepentingan mengurangkan bahan buangan untuk kebaikan semua.

"Gerakan Earth Hour ini turut meningkatkan kesedaran dalam pelbagai cara yang boleh dilakukan bagi melindungi ruang hidup kita sebelum ia berubah menjadi sfera plastik.

"Penyertaan ini juga sebagai simbol komitmen kepada alam sekitar dan sokongan terhadap polisi perubahan iklim," katanya



PULAU Marmoset diperbuat daripada barang kitar semula.

dalam satu kenyataan media.

Earth Hour dianjurkan World Wide Fund for Nature (WWF) julung kali diadakan dengan acara menutup suis lampu di Sydney, Australia pada 2007.

Gerakan ini memberi inspirasi kepada bandar sedunia dan menyatukan orang ramai untuk mengambail bahagian dalam inisiatif ini bagi melindungi bumi dengan menjimatkan tenaga.

Sementara itu, lebih 440 kakitangan Pusat Konvensyen Kuala Lumpur (Pusat Konvensyen) bersama keluarga memeriahkan penyertaan kesembilan dalam Earth Hour.

Selain menutup lam-

pu selama satu jam, acara 'Makan Malam dalam Gelap' untuk peserta yang memenangi pingat gangsa dalam cabaran 'Earth Hour AEG 1Earth 2018 dan tayangan filem, 'The Jungle Book'.

Antara aktiviti lain termasuk permainan berunsurkan pemuliharaan alam sekitar bagi menekankan inisiatif alam sekitar dan Earth Hour.

Pengurus Besarinya, Alan Pryor mengakui teruja dengan sokongan kakitangan Pusat Konvensyen dan keluarga mereka menyokong inisiatif #Connect2Earth.

"Acara tahunan ini menyediakan satu landasan untuk kami mengekalkan komitmen peribadi terhadap alam sekitar dan bersatu sebagai satu masyarakat global bagi melindungi bumi.

"Penyertaan ini adalah sebahagian penting daripada program tanggungjawab sosial korporat (CSR) tahun.

"Ini antara komitmen Pusat Konvensyen menjalankan operasi dengan cara bertanggungjawab dan lestari sama ada kepada alam sekitar mahupun masyarakat," katanya dalam satu kenyataan.



SUNWAY Lost World of Tambun raikan Earth Hour.

LAMPIRAN 7
NEW STRAITS TIMES (EDUCATION): MUKA SURAT 25
TARIKH: 10 APRIL 2019 (RABU)



LAMPIRAN 7 (SAMB.) NEW STRAITS TIMES (EDUCATION): MUKA SURAT 26 TARIKH: 10 APRIL 2019 (RABU)

'Scientists can wear make-up'

ZULITA MUSTAFA
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STILL bewildered about her future and with a vague ambition in mind at 17, Dr Magaret Sivapragasam never thought winning a writing competition organised by the Tiger Woods Foundation and Coca-Cola would be the starting point of her journey to inspire young minds.

Believing that it was the power of words that had helped her to win the competition, Magaret said: "Words have the power to change a nation, and we should use that power to help enrich, educate and add value to life."

Magaret was recently appointed as one of the International Union of Pure and Applied Chemistry (IUPAC) Periodic Table of Younger Chemists, in honour of a diverse group of 118 outstanding individuals from around the world.

These chemists will embody the mission and core values of IUPAC until July 2019.

IUPAC is the world authority on chemical nomenclature and terminology, including the naming of new elements in the periodic table; on standardised methods for measurement; and on atomic weights, and many other critically evaluated data.

Still in disbelief at receiving such an honour from IUPAC, Magaret is happy to be able to put Universiti Teknologi Petronas (UTP), where she is a postdoctoral research scientist, and Malaysia on such a distinguished platform.

Each of the selected scientists represents a different element. Magaret represents ytterbium (Yb), the chemical element with the atomic number 70 on the periodic table.

"I broke out in goosebumps when I saw the Malaysian flag on the Periodic Table of Younger Chemists for the first time."

The selection criteria are based on several key areas including working on scientific topics relevant to the United Nations Sustainable Development Goals.

Other criteria include increasing public appreciation and understanding of chemistry, fostering diversity in the chemical enterprise, improving chemistry and science education for students, and advancing interdisciplinary and international collaboration in chemistry research.

Magaret was recognised for her research into Ionic Liquids (ILs), alternative green solvents for water pollutant control. The liquids have replaced conventional solvents in many areas of science such as biotechnology, pharmaceuticals, medicine and agriculture.

"I am in the midst of setting up a larger ecotoxicity laboratory at UTP which will comprise all test batteries for ecotoxicity studies."

"One of my projects includes the removal of dye substances — used in the batik dyeing industry — from industrial wastewater."

"My team and I worked hard on designing a completely green biodegradable IL to absorb dye pigments. This was a group effort from chemically designing the molecules, optimising and testing them in the ecosystem."

"As ILs are highly insoluble in water, their release into the sea and rivers may damage aquatic organisms and the ecosystem. ILs are also resistant to photodegradation, making them a threat to aquatic organisms."

"For these reasons, proactive actions have been taken in evaluating the ecotoxicity of ILs. I am glad to be a part of a greater purpose and thoroughly enjoy the work I am doing."

Periodic Table of Younger Chemists

REVEAL ALL THE FACES OF THE PERIODIC TABLE

Magaret Sivapragasam (bottom right) was chosen to represent ytterbium (Yb). Each of the selected scientists represents a different element in the Periodic Table of Younger Chemists. PICTURE COURTESY OF INTERNATIONAL YOUNGER CHEMISTS NETWORK'S TWITTER @INTLYOUNGERCHEM

Let your
personality
shine, and a little
sass never hurts!

**MAGARET
SIVAPRAGASAM**
UTP research scientist

added Magaret.

For the innovation, Magaret has won two prizes, which include Stage 2 of the Shell Ideas 360 Innovators Challenge and Honourable Mention at the Yale University Green Chemistry Challenge.

"I do not take sole credit for this as scientific accomplishments are always an amalgamation of team members who work towards a common goal."

SCIENTIFIC JOURNEY

Magaret graduated with a Degree in Biotechnology (Honours) from the Asian Institute of Medicine, Science and Technology in 2008.

For someone who was still uncertain of a career path, biotechnology proved to be a perfect match for her.

Magaret said biotechnology has a sheer diversity of applications. It deals with the study of flora and fauna, genetics, pharmaceuticals and medicine.

"Simply put, biotechnology is the application of advances made in the biological sciences. Over the years, biotechnology has helped improve food quality, quantity and processing, and many other applications. Biotechnology research is often times interdisciplinary; one works in teams comprising chemists, molecular biologists, statisticians, engineers and clinicians."

"I find this very rewarding as I get to learn from so many others along the way."

"I learnt about plants, animals, microorganisms and pharmaceuticals from some of the best in the field. It was a perfect blend of everything."

At university, she interned at Veterinary Research Institute Malaysia where she joined a team to develop vaccines for the Newcastle Disease Virus.

"I went on to pursue a doctoral degree in bioprocess engineering at Universiti Putra Malaysia (UPM). I was attached to the Department of Chemical and Environmental Engineering under the supervision of Associate Professor Dr Norhafizah Abdullah and co-supervision of Professor Raha Abdul Rahim."

"There I worked on the separation of recombinant protein using chromatographic techniques. My postgraduate course honed my abilities."

Magaret Sivapragasam celebrating International Women's Day with participants at the Asian Institute of Medicine, Science and Technology on March 22.



LAMPIRAN 7 (SAMB.) NEW STRAITS TIMES (EDUCATION): MUKA SURAT 27 TARIKH: 10 APRIL 2019 (RABU)

ity to write manuscripts. It was in UPM that I was exposed to the real world of science."

Upon completing her postgraduate doctoral degree course with distinction, she joined the Centre of Research in Ionic Liquids (CORIL) under the wing of UTP in 2015.

"At the research centre, I focused on chemistry as its core and found myself to be inferior to my colleagues. It was a struggle. Burning the midnight oil became my favourite pastime.

"However, I was pleasantly surprised at the increase in my knowledge and interest."

For the past year at CORIL, she has been working on the compatibility of biomolecules such as DNA, protein and lipids to ILs.

In 2017, she was awarded the prestigious Science Finder Chemical Abstract Service (CAS) Future Leader by the American Chemical Society (ACS).

Magaret was recently featured on Science and She, a social media campaign initiated by the International Service for the Acquisition of Agri-biotech Application and its network of Biotechnology Information Centres worldwide.

She has represented Malaysia as a young scientist in many international conferences, speaking on her research into ILs.

With a passion for science communication, she has published articles in *ACS Axial* and *The Petri Dish*, for example.

Magaret is actively involved in research pertaining to biotechnology such as enzyme technology, biochemistry and downstream purification.

"I specialise in the fields of environmental studies, microbial, microbiology, microbial/synthetic biosurfactants and surfactant-ILs binary mixtures.

"At UTP, I manage the toxicity research laboratory as well as conduct research pertaining to environmental studies.

"Being an advocate of science communication, I organise bi-monthly *Let's Talk Over Tea* sessions for UTP students. These sessions provide a platform for young scientists to share their hobbies and interests in an informal setting."

SOCIAL MEDIA INTERVENTION

In Malaysia, the use of social media platforms as a medium to disseminate scientific information is still scarce.

In December 2017, Magaret was invited by a



Magaret Sivapragasam in the laboratory at the Centre of Research in Ionic Liquids, UTP.

local public university to share her views on science communication and social media.

An active member of ACS, Magaret uses social media such as Twitter and Facebook to talk about science.

She challenges postgraduate students to be bold in communicating science through social media.

An advocate for female scientists, she started the Twitter hashtag movement #scientists-canwearmakeup to encourage them to speak up against gender discrimination.

"I was elated to learn that many female scientists picked up the Twitter handle. Sometimes, the ability to inspire is a win itself.

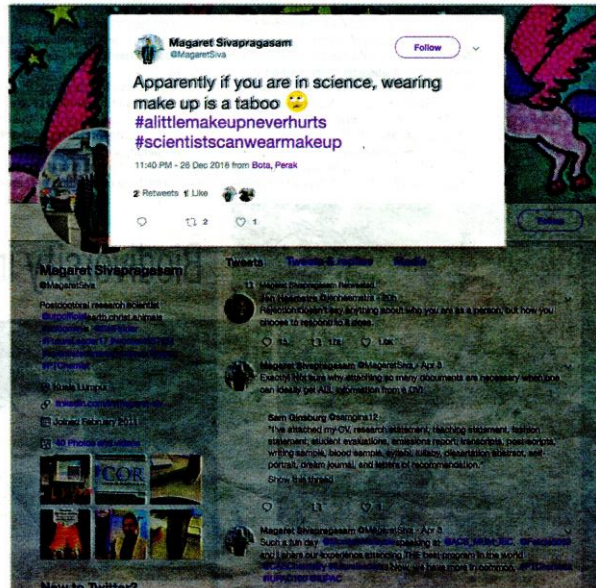
"People come up to me and say, "You look as if you belong in the media world or human resources, not science."

"In many Asian countries, female scientists are often perceived to appear in a certain way. This includes the way a female scientist dresses and carries herself. The struggle for women in science and especially for women working in male-dominated environments will only change when there are more women in the field and in positions of power within the scientific community.

"As a woman who works in a scientific field, I have had the experience of being taken less seriously when I dressed in feminine attire.

"A woman should have the liberty to dress in a way she wants without being judged. So I started that hashtag in the hope that I can inspire young girls to always be themselves. Let your personality shine, and a little sass never hurts! Ironically, this additional scrutiny makes women better scientists.

"Be proud of your achievements. Sometimes you must put yourself out there to be heard."



Magaret Sivapragasam started the Twitter hashtag movement #scientistscanwearmakeup to encourage female scientists to speak up against gender discrimination.

LAMPIRAN 8
KOSMO! (DUNIA): MUKA SURAT 41
TARIKH: 10 APRIL 2019 (RABU)

NASA cipta robot 'lebah' baiki ISS

MOUNTAIN VIEW,

California – Pentadbiran Aeronautik dan Angkasa Lepas Kebangsaan Amerika Syarikat (NASA) bakal menggunakan robot 'lebah' dikenali sebagai *Astrobee* untuk kerja-kerja membaiki pulih Stesen Angkasa Lepas Antarabangsa (ISS) kelak.

Robot itu dihasilkan dan diuji di Pusat Penyelidikan Ames NASA di sini sejak beberapa tahun lalu dengan reka bentuknya mengambil inspirasi daripada robot droid yang digunakan watak Luke

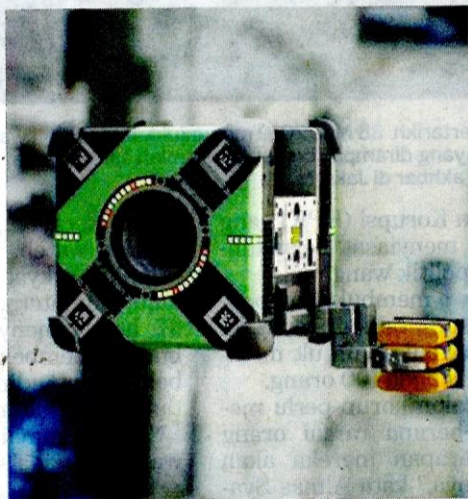
Skywalker berlatih pedang *lightsaber* dalam filem *Star Wars: A New Hope*.

"Manusia hanya boleh melakukan sesetengah tugas di angkasa lepas. Selebihnya boleh ditinggalkan kepada robot. Untuk menjimatkan masa angkasawan di ISS, kami akan menghantar tiga robot pembantu ke stesen tersebut," kata seorang jurucakap NASA.

Setiap robot *Astrobee* tersebut dilengkapi kamera tersendiri bagi membolehkannya bergerak

secara berdikari tanpa melanggar objek lain malah boleh dipasang lengan robotik tambahan sekiranya perlu membantu membawa kargo atau menjalankan eksperimen lain.

Reka bentuk *Astrobee* mula dipaparkan dalam laman web rasmi NASA pada Oktober lalu menunjukkan sebuah kiub robotik yang setiap sudutnya bersaiz 30.5 sentimeter tinggi, lebar dan panjang. *Astrobee* akan dihantar ke ISS tahun ini tetapi tarikhnya belum ditetapkan. – Agensi



NASA

ROBOT *Astrobee* sedang diuji di makmal Pusat Penyelidikan Ames milik NASA di California, Amerika Syarikat baru-baru ini.



NASA

IMEJ menunjukkan robot berbentuk kiub yang dipanggil *Astrobee*.