

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

Bil.	Berita	Media	Capaian Berita Penuh
26 NOVEMBER 2018 (ISNIN)			
1.	<u>Selangor's plastic waste auction: From green dream to toxic nightmare</u> The federal government is finalising details of its ban on non-recyclable plastic waste imports and expects it to be ready by year end, Energy, Science, Technology, Environment and Climate Change Minister Yeo Bee Yin said last month.	Malaymail	Klik pada tajuk berita
2.	<u>Perkenal E-Derma, E-Purchased</u> Majlis itu disempurnakan Menteri Tenaga, Sains, Teknologi, Alam Sekitar dan Perubahan Iklim yang juga Ahli Parlimen Bakri, Yeo Bee Yin.	Kosmo	Klik pada tajuk berita / Rujuk Lampiran 1
3.	<u>Bank perlu ada tiga teras utama</u> Menteri Tenaga, Sains, Perubahan Iklim, dan Alam Sekitar Yeo Bee Yin berkata, tiga teras itu hanya perlu dipraktikan di institusi perbankan, tetapi juga sedang dilaksanakan dikementerianya.	Harian Metro	Rujuk Lampiran 2
4.	<u>Bank perlu 3 teras kukuh ekonomi</u> Menteri Tenaga, Sains, Perubahan Iklim, dan Alam Sekitar Yeo Bee Yin berkata, tiga teras	Berita Harian	Rujuk Lampiran



	itu hanya perlu dipraktikan di institusi perbankan, tetapi juga sedang dilaksanakan dikementerianya.		3
5.	<u>Banks need to practice three core values</u> Energy, Science, Technology, Environment and Climate Change Minister Yeo Bee Yin said: "The most important things is to have integrity so that we can manage the people's finance well'.	NewStrait Times	Rujuk Lampiran 4
25 NOVEMBER 2018 (AHAD)			
6.	<u>'All banks in Malaysia must have three core values'</u> Energy, Science, Technology, Environment & Climate Change Minister Yeo Bee Yin said these three core values was practiced at her ministry.	New Straits Times	Klik pada tajuk berita
7.	<u>Time ripe for Cabinet reshuffle</u> Along with Loke and Dr Ong, there are also generous praises for Yeo Bee Yin, who heads the Energy, Technology, Science, Climate Change and Environment Ministry.	The Star	Klik pada tajuk berita
8.	<u>Over 2,000 throng Sabah job fair</u> Also present at the programme were City Mayor Datuk Yeo Boon Hai, Deputy Minister of Energy, Technology, Science, Climate Change and Environment Isnaraissah Munirah, State Minister of Youth and Sports Frankie Poon Ming Fung, and Deputy Minister of Trade and Industry Ben Chong.	Daily Express	Klik pada tajuk berita



9.	<u>Awat perangkap maut</u> Jabatan Meteorologi Malaysia menjangkakan terdapat antara empat hingga enam episod hujan lebat akan berlaku sepanjang perubahan angin tersebut yang berlarutan sehingga Mac tahun hadapan.	Utusan Malaysia	Klik pada tajuk berita
10.	<u>Bomba nasihat orang ramai waspada</u> “Penduduk khususnya mereka yang tinggal di rumah-rumah di lereng bukit dan berhampiran kawasan yang dalam pembangunan perlu sentiasa mengikuti perkembangan laporan Meteorologi.	Utusan Malaysia	Klik pada tajuk berita
24 NOVEMBER 2018 (SABTU)			
11.	<u>Power shake-up</u> Energy, Green Technology, Science and Climate Change Minister, Yeo Bee Yin has a plan to disrupt the power industry, where a few players control lucrative contracts.	The Edge Markets	Klik pada tajuk berita
12.	<u>Going plastic-free by 2020</u> “While the policy on use of biodegradable products falls under the Energy, Science, Technology, Environment and Climate Change Ministry (Mestec), it was decided by the Cabinet that the FT Ministry would continue it as a pilot project since we started the initiative in 2016,” said Khalid.	The Star	Klik pada tajuk berita
13.	<u>‘Kami sedia disiasat’</u> Kami sedia disiasat, kata pengurusan	Metro	Rujuk Lampiran



	Mentiga Corporation Berhad, Syarikat Pelesen yang bertanggungjawab menebang dan membawa keluar balak di Hulu Sungai Lembing susulan siasatan awal Jabatan Alam Sekitar Pahang.		5
14.	<u>We are ready to be investigated</u> This was after the state Department of Environment (DoE) initiated investigations against the company.	NewStrait Times	Rujuk Lampiran 6

TEMPATAN

Bil	Berita	Media	Capaian Berita Penuh
26 NOVEMBER 2018 (ISNIN)			
15.	<u>Tengku Permaisuri Selangor rasmi Pusat Sehenti Kucing</u> Medic Pets merupakan sebuah syarikat pengeluaran produk bio-herba dan bioteknologi untuk haiwan peliharaan dan telah ditubuhkan pada tahun 2014.	Sinar Harian	Klik pada tajuk berita
16.	<u>Pertimbangkan segera bantuan khas</u> Kerajaan Negeri Pulau Pinang diharap mempertimbangkan segera bantuan khas bencana banjir kepada mangsa yang dilanda banjir kilat di beberapa daerah di negeri ini, Rabu lalu.	Utusan Malaysia	Klik pada tajuk berita

17.	<u>Selangor's plastic waste auction: From green dream to toxic nightmare</u> Selangor's plan to auction its towering piles of plastic waste shipped in illegally from China this year for recycling is fast unravelling after three legit factory operators snubbed a recent sale, saying the garbage mountain is too contamin	Malaymail	Klik pada tajuk berita
18.	<u>VIVE Pro Starter Kit, VIVE Consumer Edition</u> SISTEM VIVE Pro Starter Kit dan VIVE Consumer Edition telah dilancarkan pemimpin reality maya (VR) skala besar, HTC VIVE baru-baru ini.	Sinar Harian	Rujuk Lampiran 7
19.	<u>3R kita gagal?</u> Berpanduan kepada penguatkuasaan Pengasingan Sisa Pepejal Di Punca yang telah dilaksanakan pada 1 Jun 2016, didapati penerimaan masyarakat amat menggalakan.	Utusan Malaysia	Rujuk Lampiran 8,9,10,11
20.	<u>Kejayaan ini amat membanggakan</u> Muhammad Alif, Muhammad Noorsuffian lakar kejayaan meskipun baru selesai duduki peperiksaan.	Harian Metro	Rujuk Lampiran 12,13
21.	<u>Sahut cabaran Revolusi Perindustrian 4.0</u> Revolusi Perindustrian Keempat(IR 4.0) adalah satu konsep perindustrian yang kian hangat diperkatakan, namun masih ramai memahami apa dimaksudkan dengan revolusi tersebut.	Harian Metro	Rujuk Lampiran 14

25 NOVEMBER 2018 (AHAD)			
22.	<u>'Bring own shopping bags' advice</u> Kota Kinabalu: Consumers are encouraged to bring their own bags from now on when going shopping for groceries and other goods so as to avoid paying 20 sen for each plastic bag at the cashier's counters.	Daily Express	Klik pada tajuk berita
23.	<u>Should manufacturers have to pay more recycling costs?</u> The government's long-awaited resource and waste strategy is due to be published in the next few weeks, and is expected to force manufacturers, retailers and supermarkets to pay significantly more towards recycling their waste.	BBC	Klik pada tajuk berita
24.	<u>'Tiga hukum robotik' Asimov</u> Dunia robot yang menjadi minat subjek ciptaan karya-karya Asimov berdasarkan 'Tiga Hukum Robotik' (Three Laws of Robotics) bersama John W. Campbell Jr. yang menjadi ikutan kaedah penciptaan watak robot selepas eranya.	Utusan Malaysia	Klik pada tajuk berita
25.	<u>Bakke Salleh: 'We'll bounce back'</u> Bakke said the group had incorporated new breakthrough technologies and innovations into its operations in line with the aspirations of Industry 4.0.	New Starits Times	Klik pada tajuk berita
26.	<u>Ke arah bandar sukan dan rendah karbon</u> Setiausaha Majlis Bandaraya Ipoh (MBI), Mohd Zakuan Zakaria berkata, program yang disertai 8,000 orang ini turut memupuk kesedaran	Sinar Harian	Klik pada tajuk berita



	dikalangan orang ramai mengenai kepentingan alam sekitar, kesihatan, keselamatan, sejarah dan warisan Ipoh.		
27.	<u>The Robots are coming</u> At some point we're all going to lose our jobs to Artificial Intelligence.	The Star	Rujuk Lampiran 15
24 NOVEMBER 2018 (SABTU)			
28.	<u>Thailand's Phuket launches foam and plastic clean-up campaign</u> One of Thailand's most popular tourist destinations, the province of Phuket, has declared it their mission to go Styrofoam and plastic-free as of next year.	Free Malaysia Today	Klik pada tajuk berita
29.	<u>Tiga kampung dilanda banjir kilat</u> KUALA LUMPUR: Tiga kampung di daerah Hulu Langat terjejas akibat banjir selepas paras air berpunca daripada limpahan Sungai Beranang dan aliran air hujan dari Negeri Sembilan mencecah melebihi satu meter berikutan hujan lebat sejak awal pagi tadi.	Berita Harian	Klik pada tajuk berita
30.	<u>Tiga kampung dilanda banjir</u> TIGA kampung di daerah Hulu Langat terjejas akibat banjir selepas limpahan Sungai Beranangs akibat hujan lebat, hari ini.	Harian Metro	Klik pada tajuk berita
31.	<u>46 penduduk kampung terjejas akibat banjir kilat</u>	Kosmo!	Klik pada tajuk berita



	HULU LANGAT - Kira-kira 46 individu dari Kampung Sesapan Minangkabau di daerah ini terjejas ekoran banjir kilat sejak awal pagi di sini hari ini.		
32.	<u>Empat kampung terjejas banjir kilat di Beranang</u> KUALA LUMPUR 24 Nov. - Kira-kira 60 orang daripada empat buah kampung di Beranang, Selangor terjejas ekoran banjir kilat akibat hujan lebat sejak pukul 3 pagi semalam.	Utusan Malaysia	Klik pada tajuk berita
33.	<u>Banjir surut, PPS di Melaka ditutup sepenuhnya</u> MELAKA: Pusat Pemindahan Sementara (PPS) di Sekolah Kebangsaan (SK) Belimbing Dalam, Durian Tunggal, dekat Alor Gajah, ditutup pada jam 4 petang, hari ini.	Berita Harian	Klik pada tajuk berita

ANTARABANGSA

Bil	Berita	Media	Capaian Berita Penuh
26 NOVEMBER 2018 (ISNIN)			
34.	<u>Interest girls in Stem fields</u> In this age of technology, it is unsettling that there is a very small percentage of women in Stem (science, technology, engineering and mathematics) occupations.	The Straits Times	Klik pada tajuk berita



35.	<u>STEM curriculum</u> At Holly Area Schools, we are committed to providing all students with a wide range of innovative and diverse learning opportunities and real-world experiences to prepare them for 21st century careers. Science, Technology, Engineering and Math (STEM) instruction plays a central role in this effort to prepare all Bronchos for the modern workforce.	Myfenton.com	Klik pada tajuk berita
36.	<u>The World's Plastic Problem Is Much, Much Bigger Than You Think</u> There are an estimated 5 trillion pieces of plastic floating on and in the world's oceans. The massive pool noodle will move through the Great Pacific Garbage Patch, driven by the wind and currents and picking up the plastic it encounters along the way. Ocean Cleanup, the organization that developed the device, promises "the largest cleanup in history."	Inverse	Klik pada tajuk berita
37.	<u>Ginger serving up ap a slice of tech</u> Nepal is better known for its soaring mountain peaks then technological prowess, but a group of self-taught young innovators are seeking to change that.	The Sun	Rujuk Lampiran 16
38.	<u>To counter climate change effects, all countries must be involved</u> THE 24th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24) is scheduled to be held from Dec 2-14, in Katowice, Poland.	New Strait Times	Klik pada tajuk berita / Rujuk Lampiran 17

39.	<u>Light at the end of the tunnel</u> More than 20 million km of the earth's surface area, roughly equal to Canada and China combined, and nearly 27 million km of marine area, are protected.	NewStrait Times	Rujuk Lampiran 18
25 NOVEMBER 2018 (AHAD)			
40.	<u>21 maut banjir di Iraq</u> BAGHDAD 25 Nov. – Sekurang-kurangnya 21 orang terkorban dalam tempoh dua hari selepas bencana banjir melanda utara Iraq.	Utusan Malaysia	Klik pada tajuk berita
41.	<u>9 maut banjir di Iraq</u> Sekurang-kurangnya tujuh maut apabila hujan lebat membanjiri bandar Shirqat di utara Iraq.	Astro Awani	Klik pada tajuk berita
42.	<u>6.0-magnitude earthquake strikes off Colombia coast</u> A 6.0-magnitude earthquake struck off the coast of Colombia on Saturday, according to a preliminary report from the US Geological Survey.	CNN	Klik pada tajuk berita
43.	<u>From parcel delivery to security, Singapore bets big on drones</u> SINGAPORE: Hi-tech Singapore is planning to roll out a swarm of drones for tasks that include delivering parcels, inspecting buildings and	Free Malaysia Today	Klik pada tajuk berita



	providing security, but safety and privacy concerns mean the initiative may hit turbulence.		
44.	<u>Plastic Pollution</u> A scavenger collecting plastic materials at a dumpsite in Medan, North Sumatra, Indonesia.	NewStrait Times	Rujuk Lampiran 19
45.	<u>Hutan hujan Amazon bakal musnah?</u> Kadar kemusnahan Hutan Amazon dilaporkan sudah mencapai tahap tertinggi dalam tempoh sedekad berpunca daripada kegiatan pembalakan haram dan pencerobohan hutan secara berleluasa.	Mingguan Malaysia	Rujuk Lampiran 20
46.	<u>Api tukar Paradise jadi 'neraka'</u> Camp Fire ubah wajah daerah di California bagai medan perang.	Berita Harian	Rujuk Lampiran 21
47.	<u>Beneath the ice is a graveyard of dead continents</u> Antartica is the least understood continent on earth, and many mysteries remain about its subsurface world.	NewStrait Times	Rujuk Lampiran 22
48.	<u>Pollution shortens life by years</u> People could add years to their lives in smog-plagued parts of the world if authorities could reduce particulate pollution.	The Star	Rujuk Lampiran 23
49.	<u>Researcher wins international award</u> DR Ong Wee Jun aspiration to make the world	The Star	Rujuk Lampiran 24



	a better place using green technology has won him more than 10 international awards.		
24 NOVEMBER 2018 (SABTU)			
50.	<u>Crazy weather Down Under</u> From wildfire to snowy thunder, Aussie weather gets intense.	The Star	Rujuk Lampiran 25
51.	<u>Nasa counts down to 'InSight' landing Mars</u> The National Aeronautics and Space Administration (NASA) is counting down to a nail biting touchdown on Monday of the US\$993 million(RM4.1 billion).	NewStrait Times	Rujuk Lampiran 26
52.	<u>What Lies Beneath</u> A group of scientists has been using new technology to better understand the twilight zone's strange inhabitantans.	NewStrait Times	Rujuk Lampiran 27

LAMPIRAN 1
KOSMO! (NIAGA): MUKA SURAT 45)
TARIKH: 26 NOVEMBER 2018 (ISNIN)

KOSMO! ISNIN 26 NOVEMBER 2018

Niaga!

BURSA MALAYSIA

FBM KLCI	1,695.86 (-10.5)	FBM ACE	4,940.19 (-4.93)
FBM Emas	11,778.89 (-89.17)	FBM 100	11,629.61 (-87.74)

Kirimkan maklumat dan maklum balas kepada: ekonomi@kosmo.com.my Faks: 03-9221 8590

Memudahkan pelanggan menderma dan melakukan pembayaran melalui Kod QR

Perkenal E-Derma, E-Purchased

MUAR – Bank Muamalat Malaysia Bhd. (Bank Muamalat) memperkenalkan perkhidmatan E-Derma dan E-Purchased melalui kod respons pantas (QR) untuk memudahkan pelanggan menderma di masjid serta melakukan pembayaran di institusi terlibat.

Ketua Pegawai Eksekutifnya, Datuk Mohd. Redza Shah Abdul Wahid berkata, Bank Muamalat merupakan bank ke-11 di negara ini yang memperkenalkan perkhidmatan ini bagi memudahkan transaksi tanpa tunai.

"Pelanggan hanya memertukan telefon bimbit untuk membuat pembayaran ataupun menderma di masjid-masjid atau institusi yang menggunakan aplikasi kod QR.

"Cara pembayaran ini lebih selamat, mudah dan dapat mengurangkan penggunaan dompet elektronik," katanya ketika berucap pada majlis perasmian cawangan Bank Muamalat Muar di sini semalam.

Majlis itu disempurnakan Menteri Tenaga, Sains, Teknologi, Alam Sekitar dan Perubahan Iklim yang juga Ahli Parlimen Bakri, Yeo Bee Yin.

Mohd. Redza berkata, menerusi E-Derma, pelanggan bank boleh menderma serendah RM1 dan aplikasi itu disediakan secara percuma di masjid manakala perkhidmatan E-Purchased akan diperluaskan di institusi pendidikan lain yang memerlukan.

Sementara itu, Ketua Bahagian Operasi Bank Muamalat, Mohd. Yusoff Yusoff berkata, pihaknya akan membuka empat lagi cawangan baru sehingga hujung tahun ini.

"Sasaran kita adalah membuka cawangan di bandar-bandar utama dan kawasan yang ekonominya sedang membangun, selain menyasarkan lokasi yang mempunyai kepadatan penduduk serta penjawat awam dan institusi pengajian," katanya.

– Bernama



Mohd. Redza (kanan) memerhatikan Bee Yin menggunakan perkhidmatan mesin juruwang automatik sebagai gimik perasmian Cawangan Bank Muamalat Muar semalam.

LAMPIRAN 2
HARIAN METRO (SETEMPAT): MUKA SURAT 25)
TARIKH: 26 NOVEMBER 2018 (ISNIN)



YEO (kiri) dan Mohd Redza Shah (kanan) berdiri di mesin pengeluaran wang di cawangan baru Bank Muamalat di Muar, semalam.

Muar

Bank perlu ada tiga teras utama

Setiap institusi perbankan di negara ini termasuk Bank Muamalat Malaysia Berhad perlu memiliki tiga teras utama iaitu integriti, perkhidmatan yang cemerlang dan fokus kepada perancangan masa hadapan bagi memperkasakan ekonomi negara.

Menyentuh mengenai Terapi, Teknologi, Sains, Perubahan Iklim dan Alam Sekitar Yeo Bee Yin berkata, tiga teras itu bukan hanya perlu dipraktikkan di institusi perbankan, tetapi juga sedang dilaksanakan di kementerian.

Beliau berkata, sama ada di kementerian atau di bank, paling penting ialah perlu ada integriti supaya dapat menguruskan soal kewangan rakyat dengan baik.

"Kedua ialah setiap bank khususnya Bank Muamalat juga perlu menyediakan perkhidmatan cemerlang bagi memberi kepuasan kepada pelanggan.

"Ketiga ialah mengenai perancangan fokus masa hadapan. Kadang-kadang kita lupa kita atau dunia menaju ke arah masa depan yang tidak berapa pasti. Jadi, kita kena menyediakan masyarakat atau pelanggan kita untuk menghadapi masa depan itu.

"Sebagai sebuah bank, kita kena fikir tempoh lima tahun akan datang,

10 tahun akan datang, apakah landskap industri, landskap ekonomi di Malaysia dan di dunia. Justeru, kita kena merancang supaya organisasi kita bersedia untuk menghadapi landskap berkenaan," katanya berucap pada Majlis Perasmian Bank Muamalat Cawangan Muar di Pusat Dagangan Bakar di sini, semalam.

Hadir sama, Ketua Pegawai Eksekutif Bank Muamalat Malaysia Berhad Darul Mohd

Redza Shah Abdul Wahid, Ketua Divisyen Operasi Bank Muamalat Malaysia Berhad Mohd Yassin Yaacob serta Pengurus

Wilayah Selatan Bank Muamalat Malaysia Berhad Mohd Zamri Pardi.

Pada majlis itu, Yeo turut menyampaikan sumbangan Bank Muamalat Malaysia Berhad sebanyak RM1,000 masing-masing kepada 10 masjid, surau dan pertubuhan bukan kerajaan (NGO) sekitar daerah ini.

Sementara itu Mohd Redza Shah berkata, pembukaan cawangan terbaru bank itu di Muar yang juga ke-10 di Johor dan ke-64 di seluruh negara memberi pilihan kepada penduduk dan ahli perniagaan untuk meneroka pasaran baharu sejajar dengan perkembangan ekonomi pesat di daerah ini.

FAKTA

Cawangan terbaru Bank Muamalat di Muar yang juga ke-10 di Johor.

Bank perlu 3 teras kukuh ekonomi

Muar: Setiap institusi perbankan di negara ini, termasuk Bank Muamalat Malaysia Berhad perlu memiliki tiga teras utama iaitu integriti, perkhidmatan yang cemerlang dan fokus kepada perancangan masa hadapan bagi memperkasakan ekonomi.

Menteri Tenaga, Teknologi, Sains, Perubahan Iklim dan Alam Sekitar, Yeo Bee Yin, berkata tiga teras ini bukan hanya perlu dipraktikkan di institusi perbankan, tetapi juga sedang dilaksanakan di kementerian-nya.

"Sama ada di kementerian atau di bank ini, paling penting kita perlu mempunyai integriti supaya dapat menguruskan soal kewangan rakyat dengan baik.

"Keduanya, setiap bank khususnya Bank Muamalat juga perlu menyediakan perkhidmatan yang cemerlang bagi memberi kepuasan kepada pelanggannya.

Hadapi masa depan

"Ketiga, mengenai perancangan fokus masa hadapan. Kadang-kadang kita lupa bahawa kita atau dunia sedang menuju ke arah masa depan yang tidak berapa pasti. Jadi, kita perlu menyediakan masyarakat atau pelanggan untuk menghadapi masa depan itu.

"Sebagai sebuah bank, kita perlu fikir tempoh lima tahun akan datang, 10 tahun akan datang, apakah landskap industri, landskap ekonomi di Malaysia dan dunia.



[FOTO NURUL FHATHAH ZAKINAN /BH]

Bee Yin mendengar penerangan Mohd Redza Shah (dua dari kanan) mengenai operasi Bank Muamalat Malaysia Berhad Cawangan Muar, semalam.

"Justeru, kita patut merancang organisasi sedia untuk menghadapi landskap berkenaan," katanya berucap-pada Majlis Perasmian Bank Muamalat Cawangan Muar di Pusat Dagangan Bakri di sini, semalam.

Yang turut hadir, Ketua Pegawai Eksekutif Bank Muamalat Malaysia Berhad, Datuk Mohd Redza Shah Abdul Wahid; Ketua Divisyen Operasi Bank Muamalat Malaysia Berhad, Mohd Yassin Yaacob dan Pengurus Wilayah Selatan Bank Muamalat Malaysia Berhad, Mohd Zamri Pardi.

Bee Yin turut menyampaikan sumbangan Bank Muamalat Malaysia Berhad sebanyak RM1,000 masing-masing kepada

10 masjid, surau dan pertubuhan bukan kerajaan (NGO) sekitar daerah ini.

Bee Yin yang juga Ahli Parlimen Bakri berkata, selain menjadi peneraju kepada kewangan Islam di negara ini, Bank Muamalat Malaysia Berhad juga perlu menjadi pelopor ke arah kewangan hijau bukan sahaja di Malaysia tetapi juga di rantau ini.

Kewangan hijau

"Saya berasakan kewangan Islam akan memainkan peranan dalam kewangan hijau, terutama industri hijau di Malaysia dan juga Asia Tenggara pada masa akan datang.

"Justeru, saya menggalakkan

Bank Muamalat Malaysia Berhad dan juga rakyat apabila kita melihat industri atau perniagaan, kita tidak boleh hadkan pasaran ini kepada 30 juta rakyat di Malaysia, sebaliknya kita perlu melihat pasaran kita melangkaui wilayah ini, iaitu pada peringkat Asia Tenggara, Asia Pasifik dan dunia," katanya.

Sementara itu, Mohd Redza Shah berkata pembukaan cawangan terbaru Bank Muamalat Malaysia Berhad di Muar yang juga ke-10 di Johor dan ke-64 di seluruh negara memberi pilihan kepada penduduk dan ahli perniagaan untuk meneroka pasaran baharu sejajar dengan perkembangan ekonomi pesat di daerah ini.

LAMPIRAN 4
NEWSTRAITTIMES (NATION): MUKA SURAT 11)
TARIKH: 26 NOVEMBER 2018 (ISNIN)



Energy, Science, Technology, Environment and Climate Change Minister Yeo Bee Yin (centre) with recipients of Bank Muamalat's contributions at the opening of the bank's Muar branch yesterday. With them is Bank Muamalat chief executive officer Datuk Mohd Redza Shah Abdul Wahid (fourth from left).
BERNAMA PIC

BRANCH OPENING

'Banks need to practise three core values'

MUAR: Banks in Malaysia, including Bank Muamalat Malaysia Bhd, must have three core values — integrity, excellent service and future planning — to empower the country's economy.

Energy, Science, Technology, Environment and Climate Change Minister Yeo Bee Yin said: "The most important thing is to have integrity so that we can manage the people's finances well. Secondly, banks must provide excellent services to give satisfaction to customers.

"Thirdly, with regard to future planning, we sometimes forget that we are heading for an uncertain future.

"As a bank, we need to think five or 10 years ahead about what is the landscape of the industry

and the Malaysian and world economy. Therefore, we need to plan so that our organisations are ready to face that landscape," she said at the opening of the Bank Muamalat's Muar branch at Bakri Business Centre here.

Present were Bank Muamalat chief executive officer Datuk Mohd Redza Shah Abdul Wahid, head of banking operations division Mohd Yassin Yaacob and southern region manager Mohd Zamri Pardi.

In conjunction with the branch's opening, Yeo, who is Bakri member of parliament, presented Bank Muamalat's contribution of RM1,000 each to 10 mosques, surau and non-governmental organisations in the district.

Redza said the opening of the

branch, the 10th in Johor and 64th in the country, would provide people and businesses with an option to explore new markets in line with the expansion of the economy in the district.

"At the same time, Bank Muamalat offers financial facilities to the government and private sectors in the area to conduct financial transactions and generate economic progress.

"Besides consumer banking like deposit accounts, Ar-Rahn services, personal, housing and vehicle loans, we also provide facilities like corporate banking, treasury market, commercial banking Gold-i Muamalat and a comprehensive financial management service from birth to death," said Redza.

LAMPIRAN 5
METRO (SETEMPAT): MUKA SURAT (34)
TARIKH: 24 NOVEMBER 2018 (SABTU)

PENCEMARAN SUNGAI LEMBING

'KAMI SEDIA DISIASAT'

Mohamad Azim Fitri Abd Aziz
cnews@nstp.com.my

Kuantan

'Kami sedia disiasat," kata pengurusan Mentiga Corporation Berhad, syarikat pelesen yang bertanggungjawab menebang dan membawa keluar balak di Hulu Sungai Lembing susulan siasatan awal Jabatan Alam Sekitar (JAS) Pahang.

Ketua Pegawai Komunikasi Azrul Khairi Muhammad berkata, pihaknya akan memberi kerjasama penuh kepada JAS Pahang dalam siasatan yang mendakwa syarikat kontraktor dilantik mereka melanggar syarat Kajian Impak Alam Sekitar (EIA).

Ia termasuk tidak menga-



El-Dorado Timur semakin lesu



Akuan dipuntahkan dari sungai

LAPORAN Harian Metro 19 November lalu

mbil langkah pencegahan hakisan dan kelodak sehingga menyebabkan pencemaran sungai.

"Buat masa ini, mereka (JAS) belum menghantar surat atau memaklumkan kepada kami mengenai pelanggaran syarat berkenaan, kita sedia memberi kerjasama penuh untuk membantu siasatan itu.

"Kami belum dibuktikan bersalah dan berpeluang memberi penjelasan," katanya di sini, semalam.

Mengulas lanjut, Azrul Khairi berkata, pihaknya turut akur dengan arahan dikeluarkan Jabatan Perhutanan Negeri Pahang (JPNP) yang meminta kontraktornya memindahkan matau balak yang berkongsi laluan sama dengan operator pelancongan yang membawa orang ramai ke Air Terjun

Pelangi, Sungai Lembing.

"Kontraktor sudah dimaklumkan dan mereka akur. Mereka akan cari matau balak baru dan akan memenuhi spesifikasi ditetapkan JPNP," katanya.

Sebelum ini didedahkan kira-kira 500 hektar hutan di Hulu Sungai Lembing ditebang secara berleluasa tanpa mengambil kira kesan alam sekitar dan impak kepada industri pelancongan di kawasan sekitar.

Aktiviti itu menyebabkan pencemaran beberapa sungai di Hulu Sungai Lembing hingga siasatan menyeluruh dibuka JAS Pahang dan JPNP.

JAS Pahang kelmarin mengesahkan terdapat pelanggaran syarat EIA dilakukan pihak kontraktor dan siasatan dibuat termasuk mengambil sampel air untuk diuji.

LAMPIRAN 6
NEWSTRAITTIMES (NEWS/NATION): MUKA SURAT (14)
TARIKH: 24 NOVEMBER 2018 (SABTU)

RIVER POLLUTION

'WE ARE READY TO BE INVESTIGATED'

**Logging company
Mentiga Corporation
will cooperate
with DoE, says
its director**

MOHAMAD AZIM FITRI ABD AZIZ
KUANTAN
cnews@nstp.com.my

THIS was the response from Mentiga Corporation Bhd, the logging concession company which was allegedly responsible for the felling and transportation of timber from upstream Sungai Lembing.

This was after the state Department of Environment (DoE) initiated investigations against the company.

Its communication director, Azrul Khairi Muhamad, said the company would provide full co-operation to DoE on allegations that the appointed contractor had breached the Environmental Impact Assessment (EIA) regulation by not taking measures to tackle erosion and silt that could cause river pollution.

"At the moment, DoE has not sent us any letter or informed us about the violation... we are pre-

pared to cooperate in its investigations.

"We are not proven guilty and are ready to provide an explanation," he told the New Straits Time Press yesterday.

An NSTP report on Monday revealed that some 500ha of jungle in Hulu Sungai Lembing had been felled indiscriminately without regard to its impact on the environment and tourism in the surrounding areas.

The report also claimed that five rivers — Sungai Terpai, Sungai Pasir Kabor, Sungai Keliu, Sungai Jin and Sungai Daguk — had been affected by logging, with waters turning murky and yellowish.

On Thursday, DoE confirmed that there was a breach of EIA regulations in the logging concession area by the contractor and investigations were being carried out, including collecting the water sample.

State DoE director Rosli Zul said his department had opened an investigation paper on the violation of regulations.

He said checks revealed the logging concession company in the area, Mentiga Corporation, which received the EIA in 2013, had failed to adhere to the stipulated rules and regulations.

"We conducted investigations and found that the company



Department of Environment officers collecting river water samples in Hulu Sungai Lembing in Kuantan on Wednesday. PIC BY MUHD ASYRAF SANAL

failed to take proper measures to tackle erosion and silt in the area.

"The case is investigated under Section 34A of the Environmental Quality Act 1974 which carries a fine of not more than RM500,000 or a prison term of

up to five years," he said.

Azrul Khairi said the company would adhere to the instruction from the Forestry Department for the contractor to relocate the *matiau* (timber collection centre), which shares the same route with tour operators who use the

stretch to bring visitors to Air Terjun Pelangi in Sungai Lembing.

"The contractor has been informed and has agreed to follow... it will find a new *matiau* and follow the specifications set by the Pahang Forestry Department."

LAMPIRAN 7
SINAR HARIAN (BISNES): MUKA SURAT (3)
TARIKH: 26 NOVEMBER 2018 (ISNIN)

REVIU

VIVE Pro Starter Kit, VIVE Consumer Edition

SISTEM VIVE Pro Starter Kit dan VIVE Consumer Edition telah dilancarkan pemimpin realiti maya (VR) skala besar, HTC VIVE baru-baru ini.

VIVE Pro Starter Kit dan VIVE Consumer Edition diperkenalkan bagi beri pengalaman realiti maya paling realistik kepada pengguna Malaysia.

VIVE Pro Starter Kit adalah penyelesaian premium lengkap untuk peminat VR merangkumi VIVE Pro HMD, dua pengawal wayarles dan dua Stesen Penjejaran SteamVR dengan keupayaan skala bilik.

Sementara VIVE Pro HMD dilengkapi paparan dwi-OLED, menjadikan resolusi imej crisp gabungan 2880 x 1600, peningkatan resolusi 78 peratus berbanding sistem VR lain.

VIVE Pro Starter Kit telah bersedia untuk pembelian untuk pasaran tempatan pada harga RM6,099.



VIVE bakal beri pengalaman realiti maya paling realistik kepada pengguna Malaysia.

TARIKH: 26 NOVEMBER 2018 (ISNIN)



LAMPIRAN 9
UTUSAN MALAYSIA (SAINS): MUKA SURAT (22)
TARIKH: 26 NOVEMBER 2018 (ISNIN)

Laporan Khas (siri 1)

3R: Malaysia terkebelakang

MIKADIMAH

KEBERSIHAN adalah lambang kepelembutan. Justeru, apabila kita mengotorkan persekitaran, maka itu sikap kita. Apabila kerajaan memperkenalkan program kitar semula 3R (*Reuse Recycle Reduce*) harapannya adalah kita mampu mendidik masyarakat supaya mengamalkan sikap yang betul dalam penjagaan alam sekitar.

Malangnya kita sebenarnya gagal memupuk sikap tersebut, Wartawan Utusan: **Aqilah Mior Kamarulbaid, Noor Intan Suhana Che Omar dan Laupa Junus**, menyedap cerita kegagalan kita menjayakan program 3R.



KE mana sahaja pergi, pastinya mata tidak melihat daripada melihat sampah yang bertaburan di jalan raya, longkang, tandas awam atau kawasan parkir kenderaan.

Walaupun pihak berkuasa meletakkan tong sampah di pusat beli belah atau tempat awam seperti taman rekreasi bagi membolehkan orang ramai membuang sampah mengikut jenis sampah, namun rakyat Malaysia tidak mengendalikannya.

Tidak berhenti di situ, isi rumah juga dilihat gagal mengasingkan sisa pepejal seperti yang termaktub dalam Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007 (Akta 672). Kitar semula bermaksud memungut dan mengasingkan sisa pepejal bagi maksud menghasilkan keluaran turut menyumbang kepada kepadatan sampah di tempat pengumpulan sampah.

Bagaimana Malaysia ingin dipandang sebagai sebuah negara maju sedangkan hal remeh seperti menjaga kebersihan dan sampah pun masih pada tahap rendah?

Sebilangan besar rakyat Malaysia masih menjadikan alasan mengasingkan sisa pepejal sebagai membebaskan sedangkan jika diamati, budaya itu sekiranya tidak diubah, dikhuatiri akan menjejaskan imej negara.

Kedua itu sekali gus tanpa disedari menjadi punca lebih banyak sampah di tempat pelupusan sampah sehingga menyebabkan



KEMPEN pengasingan sampah bertujuan mendidik masyarakat mengenai konsep kitar semula. - GAMBAR RIASAN

tanah yang diperuntuk oleh kerajaan untuk pelupusan sampah tidak mencukupi.

Sedangkan sejak 1 September 2015 kerajaan mewajibkan pengasingan sisa pepejal isi rumah secara berperingkat-peringkat, namun selepas tiga tahun akta itu diwujudkan masih lagi dilihat sisa pepejal dicampurkan dalam satu bekas plastik tanpa mengasingkan

sampah kepada sampah domestik, sampah kitar semula dan kebun.

Cara terbaik untuk mengendalikan sampah adalah melalui konsep 3R iaitu *reduce* (kurang), *reuse* (guna semula) dan *recycle* (kitar semula).

Rata-rata rakyat Malaysia memahami tentang konsep 3R, namun hanya sebilangan kecil sahaja mengamalkannya.

Bagi penganalisis, **Mohd. Hilmi Bakar**, 38, kesedaran orang ramai terhadap amalan 3R masih sangat rendah ekoran penguatkuasaan yang lemah.

"Apabila tiada tindakan yang dikeluarkan, maka orang ramai masih beranggapan tiada kepentingan untuk mengamalkannya. Mereka beranggapan tidak perlu bersusah payah untuk mengasingkan sisa, sebaliknya membakar sampah tersebut tanpa memikirkan kesan kepada alam sekitar."

"Walaupun tong sampah disediakan, namun rakyat masih lagi membuang sampah merata-rata serta gagal mengasingkan sampah mengikut warna tong."

"Mentaliti orang Malaysia mahukan perkara mudah tanpa mempedulikan tujuan utama kerajaan menggalakkan 3R. Mereka terasa terbeban untuk membawa bekas makanan sendiri, sebaliknya lebih memilih untuk menggunakan plastik," jelasnya.

Katanya lagi, perkara tersebut bukanlah permasalahan baharu kepada negara dunia kedua seperti Malaysia apabila tiada bekangan dari pegi kewangan yang membolehkan usaha ke arah negara bersih dan hijau dilaksanakan, sebaliknya kesedaran dalam kalangan rakyat amat kurang menyebabkan langkah ke arah itu terbantut.

"Seperti sekarang, setiap plastik dikenakan bayaran 20 sen, namun bagi rakyat di negara ini, jumlah tersebut amat sedikit dan tidak membebaskan membawa beg sendiri ke pasar raya."

"Jika mahu menjual barangan yang boleh dikitar semula tidak mendapat untung yang besar. Daripada jual, baik buang sahaja," katanya.

Justeru itu, **Mohd. Hilmi** berharap kerajaan atau pihak bertanggungjawab mewajibkan pendidikan dan pendedahan tentang kebaikan amalan 3R sejak pada peringkat prasekolah dalam membentuk nilai moral

dan pemikiran mengenai kepentingan amalan tersebut. "Saya berharap pihak bertanggungjawab bukan sahaja sekadar memberi pendidikan atau kempen sebaliknya menjadikannya sebagai amalan dan cara hidup."

"Tidak semua ibu bapa mengetahui tentang 3R. Apabila anak-anak belajar dan amalkan di sekolah, mereka secara tidak langsung boleh berkongsi amalan itu di rumah," ujarnya.

Tambahnya, pelaksanaan penguatkuasaan yang kurang turut mendorong kepada amalan 3R tidak dilaksanakan secara menyeluruh di Malaysia.

"Tidak salah jika Malaysia mencontohi Taiwan yang memberi ganjaran kepada orang ramai yang membuat laporan jika ada dalam kalangan rakyat yang masih enggan mematuhi amalan 3R."

"Mereka boleh menghantar bukti dalam bentuk gambar dan pihak penguat kuasa perlu menyaman mereka yang bersalah. Kita ubah mentaliti

kepada rakyat juga adalah pihak penguat kuasa," tegasnya.

Sharifah Faridah Syed Ali, 35, merupakan seorang pelajar program doktor falsafah (PhD) di sebuah institusi pengajian tinggi awam berkebiasan bahawa kelebihan mengamalkan 3R mampu mengurangkan pencemaran alam sekitar, selain



SHARIFAH FARIDAH SYED ALI



NURAFIQ INANI MAN



MOHD. HILMI BAKAR

Semak punca kegagalan

KEGAGALAN pengurusan plastik atau kempen 3R mesti dilihat secara menyeluruh dan melibatkan semua pihak. Mungkin boleh dimulakan dengan menteri.

Apa kata Perdana Menteri dan semua menteri di Malaysia tentang sisa pepejal dan sisa plastik. Ini penting kerana isu pengurusan plastik melibatkan banyak kementerian.

Maka layak dibincangkan secara serius dalam Kabinet mencari penyelesaian segera.

Cadangan dan kaedah penyelesaian serta peruntukan kewangan perlu ditunjukkan kepada rakyat bagi meyakinkan mereka dalam perubahan sikap dan amalan tentang pengurusan plastik.

Penglibatan pertubuhan bukan kerajaan (NGO) penting. Persatuan Pencinta Alam (MNS) sebagai contoh sentiasa melaksanakan kempen melalui aktiviti pendidikan dan penglibatan masyarakat amnya. Mungkin kerajaan boleh menyalurkan kaedah pelaksanaan melibatkan agensi kerajaan dan masyarakat menerusi MNS.

Menurut Presiden MNS, Prof. Dr. Ahmad Ismail, kaedah paling baik dalam mengubah sikap dan fikiran manusia ialah menerusi program pendidikan yang berterusan.

Promosi dan pendidikan berterusan boleh mengubah budaya masyarakat.

"Penggunaan plastik yang sudah sebatu dalam kehidupan manusia apabila hendak diubah memang berat sekali."

"Proses perubahan mungkin mengambil masa. Mungkin dengan pengharapan

penggunaan plastik di Putrajaya dan seluruh sekolah boleh memberikan pendidikan dan penguatkuasaan yang berkesan.

"Kalau sejuta penjawat awam dan sejuta pelajar mengamalkan setiap hari mungkin dapat mengubah budaya masyarakat."

"Kita tidak mahu seperti kempen tidak merokok iaitu semakin ramai orang merokok dan semakin bertambah premis menjual rokok malah masih ada individu yang masih tegar merokok di tempat awam dan mencemar manusia lain," ujarnya.

Kegagalan kempen kitar semula, mengurangkan penggunaan plastik dan menolak penggunaannya perlu dilihat secara serius dan segera kerana ia memberikan kesan jangka panjang kepada manusia, alam sekitar dan hidupan lain di Malaysia malah di seluruh dunia.

Isu pencemaran sisa pepejal adalah isu antarabangsa.

Kata Dr. Ahmad, antara isu yang diketengahkan ialah penggunaan tanah yang mahal untuk kawasan pelupusan sampah, pengurusan tapak pelupusan sampah, pembakaran terbuka di kawasan pelupusan sampah, pencemaran gas beracun dan gas rumah hijau, pencemaran air bawah tanah dan sungai, sampah terutama plastik.

"Plastik ini akhirnya terlepas ke sungai dan akhirnya ke laut," ujarnya.

Kos pengangkutan, pengurusan sisa pepejal,

peningkatan sisa pepejal, penggunaan teknologi seperti insinerator dan mekanikal, biologi dan teknikal yang menimbulkan masalah baharu seperti pencemaran udara dan kos teknologi yang tinggi.

"Manusia mencipta sampah yang mereka sebenarnya tidak memerlukan sampah," ujarnya.

Ada dua jenis sampah yang utama iaitu bahan organik serta tidak organik, dan bahan tidak mudah diurai.

Dengan pengetahuan yang ada, manusia boleh mengurangkan sisa bahan organik daripada dibuang ke tapak pelupusan sampah seperti mengurangkan bahan organik daripada dibawa balik ke rumah, menjalankan aktiviti membuat kompos di rumah pada peringkat individu atau komuniti.

Kerajaan, kata beliau mestilah memiktikan kaedah terbaik pengurusan sisa organik dari ladang, pasar besar, kedai runcit dan rumah.

Misalnya kenapa pisang perlu dibeli bersama tandannya, begitu juga buah nenas perlu dibeli dengan jambul dan tangkainya dan ikan perlu dibeli dengan perutnya sekali.

Begitu juga dengan bahan lain yang lebih 50 peratus akan menjadi sisa organik di rumah dan akhirnya membebani pihak lain menguruskan sisa ini.

Kajian dan teknologi mesti disediakan untuk pengurusan sisa organik berkesan.

Bagi sisa pepejal, lagi banyak



AHMAD ISMAIL



KOTOR... Isu pembuangan sampah memerlukan perubahan sikap yang drastik.

perbincangan kerana ia tidak mudah diurai seperti sisa bahan organik.

Sebagai contoh katanya, sisa yang selalu dibincangkan adalah plastik.

Plastik pakai buang seperti botol air, lampin, beg plastik, straw plastik, tali plastik untuk potong rumput di tepi jalan atau taman kawasan perumahan. Polistiren juga menjadi perbincangan hangat pada peringkat global.

Bahan plastik ini akhirnya ke tapak pelupusan sampah yang mengambil masa beratus-ratus tahun untuk diurai atau mungkin hanyut di laut dan membahayakan hidupan laut yang tersalah anggap seperti makanan mereka.

Beribu-ribu hidupan laut mati akibat tercekik plastik. Begitu juga penggunaan manik mikro (microbeads)

dalam bahan kosmetik yang setiap hari dibuang melalui sinki dan ke longkang yang akhirnya mencemar ekosistem laut.

Kementerian dan agensi yang sepatutnya berganding bahu menangani masalah plastik.

- Kementerian Tenaga, Sains, Teknologi, Alam Sekitar dan Perubahan Iklim (MESTEC)
- Kementerian Air, Tanah dan Sumber Asli (KATS)
- Kementerian Pengangkutan
- Kementerian Kewangan
- Kementerian Kesihatan
- Kementerian Pendidikan
- Kementerian Pertanian dan Industri Asas Tani
- Kementerian Wanita, Keluarga dan Masyarakat
- Kementerian Perdagangan Dalam Negeri dan Hal Ehwal Pengguna
- Pihak berkuasa tempatan (PBT)

Pencemaran plastik jadi ancaman serius

PENCEMARAN plastik menjadi hangat lagi pada tahun 2018 apabila Pertubuhan Bangsa-Bangsa Bersatu (PBB) mengiktiraf plastik berbahaya di lautan serta membunuh hidupan laut dan boleh mengumpul dalam jaringan makanan yang akhirnya membahayakan manusia.

Justeru, PBB mengajak semua negara terlibat dalam pengurusan plastik yang berkesan.

Malaysia pada Wednesday

kelapan di dunia dalam pencemaran plastik juga tidak ketinggalan dalam meningkatkan pengurusan plastik. Berbagai-bagai aktiviti diadakan seperti kempen, seminar, forum, dialog, pendidikan dan penyelidikan termasuk penguatkuasaan undang-undang dilaksanakan.

Namun bagi MNS, kejayaannya belum nampak lagi. Misalnya, kempen penggunaan beg plastik semasa berbelanja. Rakyat

dikenakan bayaran 20 sen sekiranya memerlukan beg plastik. Masyarakat digalakkan merancang dan membawa beg sendiri untuk membeli barang keperluan di pasar.

Tidak ada kajian sistematik yang menunjukkan kejayaan program ini. Apa yang kita lihat dalam media ialah protes dalam kalangan masyarakat, mempersoal ke mana wang 20 sen dan meminta pilihan lain yang boleh ditawarkan peniaga atau pasar raya.

Begitu juga dengan kempen kitar semula 3R barangan plastik dan tin aluminium. Kempen ini dijalankan di merata-rata termasuk sekolah dan universiti. Namun kita masih lihat di perangkap sampah sungai banyak botol plastik dan beg plastik yang hanyut di sungai dan sekitarnya tidak dikawal akan sampai ke laut.

Semua perbincangan Hari Bumi, Hari Alam Sekitar, Hari Lautan Sedunia, Hari Habitat Sedunia dan Hari Penyus

Sedunia berbincang tentang pencemaran plastik.

Namun kita lihat bukan sahaja sampah plastik semakin banyak dibuang malah plastik dari luar negara juga terus diimport untuk diproses di Malaysia.

Ini sangat mencabar kerajaan selaras dan rakyat amnya.

■ Minggu depan Sini II
Urus sisa pepejal cara betul

LAMPIRAN 11
UTUSAN MALAYSIA (SAINS): MUKA SURAT (23)
TARIKH: 26 NOVEMBER 2018 (ISNIN)

INFO PROGRAM 3R

● Program kitar semula dilancarkan secara rasmi pada 2000 dengan pewartan Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007 (Akta 672)

● Dianggarkan sebanyak 2.3 juta tan bahan kitar semula dengan nilai mencecah RM900 juta dibuang ke tapak pelupusan sampah.

● Pelaksanaan pengasingan sisa di punca berkuat kuasa 1 September 2015 bermula di negeri-negeri yang menerima Akta 672 dan dijalankan secara berperingkat-peringkat melibatkan Wilayah Persekutuan Kuala Lumpur dan Putrajaya, Johor, Melaka, Negeri Sembilan, Pahang, Kedah dan Perlis.

● Berdasarkan statistik sehingga bulan Mei 2016, sebanyak 1,189 tan jumlah sisa kitar semula telah berjaya dikutip dan dapat dielakkan daripada terbuang ke pusat pelupusan. Daripada jumlah tersebut, sebanyak 35.8 peratus adalah plastik, 35.5 peratus adalah kertas, 28.7 peratus adalah jenama lain-lain seperti besi, aluminium, kaca, dan e-waste.

● Kerajaan menetapkan dasar bagi mengurangkan sebanyak 40 peratus jumlah sisa pepejal yang dilupuskan di tapak pelupusan menjelang tahun 2020.

● Bagi mencapai sasaran tersebut, kadar kitar semula perlu ditingkatkan, kepada sasaran 22 peratus kadar kitar semula.

● Untuk itu, amalan 3R perlu diperhebatkan menerusi pengasingan sisa pepejal di peringkat punca.

● Ada peningkatan kesedaran masyarakat akan kepentingan dan tanggungjawab berkaitan program 3R iaitu pengurangan, guna semula dan kitar semula tetapi masih belum mencukupi.



Penguatkuasaan kitar semula lemah

"BAGAIKAN mencurah air ke daun keladi." Mungkin itu peribahasa sesuai yang boleh diperkata ketika ini mengenai program kitar semula 3R yang bagaikan menemui jalan buntu dan kegagalan.

Walaupun sudah lebih 20 tahun kempen itu dilancarkan dan berbagai-bagai aktiviti dijalankan namun, ia bagaikan tidak membawa kesan kepada masyarakat, malah isu sampah dan sisa pepejal masih antara topik hangat yang dibincangkan pada ketika ini.

Mana tidaknya, setiap hari sebanyak 37,000 tan sampah dihasilkan di negara ini. Ini bermakna, kira-kira 13.5 juta tan sampah terhasil setiap tahun.

Kos bagi menguruskan sisa pepejal itu saban hari pula tidak murah, bahkan menelan belanja yang tinggi setiap setahun.

Hal ini juga menunjukkan kempen kesedaran alam sekitar yang dijalankan selama ini hanya sia-sia memandangkan masyarakat tidak menjadikan kitar semula bagi sisa pepejal yang boleh digunakan semula sebagai budaya. Di mana salapnya?

Menurut Presiden Komuniti Kitar Semula Malaysia Lestari (RComm Lestari), **Miza Pawan Chik**, kempen kesedaran yang dijalankan pihak berkuasa hanya memberi pendidikan mengenai kepentingan menjaga alam sekitar semata-mata.

Namun, katanya, pendidikan sahaja tanpa penguatkuasaan yang tegas tidak akan memberikan kesan kepada orang ramai untuk membudayakan kitar semula.

"(Program) 3R ini sudah lama, berpuluh-puluh tahun yang lalu tapi tidak ke mana pun. Masyarakat masih hidup dalam keadaan selesa tanpa memikirkan sampah sarap yang kian menimbun."

"Sedangkan, kita ada akta, kita ada polisi tapi tak dikuatkuasakan. (Pihak berkuasa) keluaranlah saman (bagi pesalah)," ujarnya.

Tambahnya, pebagai akta dan polisi yang telah dikeluarkan untuk mengawal alam sekitar daripada dicemari antaranya Akta Pengurusan Sisa Pepejal dan Pembersihan Awam 2007 (Akta 672).

Jadi, pihak berkuasa seharusnya mengguna pakai

akta dan peraturan yang telah digubal itu sebaiknya bagi memberikan pengajaran kepada orang ramai agar tidak membuang sampah dengan sewenang-wenangnya.

Sekiranya tiada tindakan tegas yang diambil, tiada siapa yang akan ambil peduli mengenai perkara ini dan ia hanya kekal menjadi 'pilihan' dalam kehidupan mereka.

Jelas Miza, penguat kuasa harus tegas mengambil tindakan dan tidak tergagah untuk mengenakan denda kepada pesalah alam sekitar sekiranya mahu mencapai tahap kebersihan seperti Jepun dan Singapura.

"Kita selalu dengar orang cakap mereka bangga dengan negara luar seperti Jepun dan Singapura sebab negara itu sangat cantik, bersih dan susah hendak nampak sampah."

"La sebab apa? Sebab pihak berkuasa mereka sangat tegas, penguatkuasaan sangat ketat terhadap pembuangan sampah di kedua-dua negara itu."

"Kerajaan telah memperuntuk wang yang banyak untuk program kitar semula ini sejak dahulu, jadi kita mahukannya berjaya dan diterima oleh masyarakat."

"Penguat kuasa kena ramai barulah penguatkuasaan akan menjadi lebih mantap dan menyeluruh. Kalau tidak, 3R, 4R atau 5R sekali pun tetap akan sama seperti ini sehingga 10 tahun tahun akan datang," ujarnya.

Menurutnya, RComm yang merupakan pertubuhan badan bukan kerajaan (NGO) yang menjalankan kempen kesedaran terhadap sifar sisa sejak 2010 dengan menggalakkan ahli-ahlinya membuat perubahan dalam meningkatkan keprihatinan masyarakat terhadap isu pembuangan sampah.

"Kita sering menjalankan aktiviti mengutip sampah di kawasan-kawasan tertentu dengan ahli kami iaitu sukarelawan untuk menggalakkan orang ramai menjaga kebersihan."

"Sukarelawan ini bukan hanya akan mengutip sampah, malah mereka juga akan menegur sesiapa sahaja yang bertindak membuang sampah sesuka hati supaya mereka tahu perkara itu satu kesalahan," katanya.

MIZA PAWAN CHIK



ada antara bahan yang boleh digunakan semula seperti bekas air yang boleh dijadikan bekas alat tulis.

"Saya beranggapan amalan 3R di Malaysia masih pada peringkat sederhana apabila masih ada dalam kalangan kita yang tidak menggunakan semula barangan kitar semula."

"Hal ini mungkin berlaku kerana kurangnya fahaman dan pendedahan berkaitan amalan ini," jelasnya.

Tambahnya, penyediaan tong sampah kitar semula juga ini tidak diletakkan secara menyeluruh menjadi salah satu punca rakyat tidak memandang serius mengenai perkara tersebut.

Malah katanya, mendidik pada peringkat sekolah masih perlu memperkasakan lagi pada peringkat tertinggi.

"Saya menganggap usaha

kerajaan mengambil inisiatif mengurangkan penggunaan beg plastik pada hari Sabtu dan kini diperluas sebagai langkah bijak dalam usaha menggalakkan rakyat mengamalkan 3R," ujarnya.

Sementara itu, bagi pelajar, **Nurafiq Inani Man**, 33 berikata, kelebihan 3R adalah ia boleh mengelakkan kepadatan jumlah sampah di tempat pelupusan sampah, mengurangkan pencemaran alam sekitar dan juga dapat mengelakkan daripada kecederaan haiwan liar yang terdedah dengan persekitaran sampah.

"Bukan itu sahaja, kurangnya pengajaran daripada pihak atau badan tertentu mengenai amalan 3R dilaksanakan separuh jalan sahaja."

"Saya cadangkan agar pihak bertanggungjawab melakukan kempen dan mendidik

penduduk terlebih dahulu secara berterusan."

"Selain itu, ganjaran juga penting untuk motivasi berterusan untuk menayakan amalan ini," ujarnya lagi.

Bagi pekerja swasta, **Ivy Mitchel Menjis**, 30, dia beranggapan pihak penguatkuasaan perlu memainkan peranan penting dalam melaksanakan tugas yang baik dalam proses amalan 3R dan harus mendapat sokongan untuk terus melaksanakan amalan itu bagi mengelakkan berlakunya pencemaran alam sekitar yang semakin teruk.

"Kementerian bukan sahaja perlu memberi pendedahan pada peringkat sekolah, malah perlu memberi lebih pendedahan kepada masyarakat tempatan."

"Kerajaan juga perlu memperbanyak kempen kesedaran pada peringkat usia muda, selain menjalin kerjasama bersama pertubuhan bukan kerajaan (NGO) ke arah melaksanakan 3R secara menyeluruh," katanya.



IVY MITCHEL MENJIS

LAMPIRAN 12
HARIAN METRO (BESTARI): MUKA SURAT (42)
TARIKH: 26 NOVEMBER 2018 (ISNIN)



LAMPIRAN 13
HARIAN METRO (BESTARI): MUKA SURAT (41)
TARIKH: 26 NOVEMBER 2018 (ISNIN)



WAKILAH pembina peserta Aspek ekologi Fabrikasi Tong Kompos di KKTU.

DEDAH BIDANG KEJURUTERAAN, TEKNOLOGI

12 kumpulan terdiri daripada 60 pelajar bentangkan reka bentuk masing-masing

DARI MELAKA

Berita berkata, statistik pelajar sekolah menengah yang memilih aliran sains semakin meruncing saban tahun sangat membingungkan.

"Disebabkan itu kerjasama strategik ini menyasarkan pelajar tingkatan satu dari empat sekolah sekitar Melaka terdiri daripada Sekolah Menengah Kebangsaan (SMK) Durian Tunggal, Sekolah Menengah Kebangsaan Agama (SMKA) Sultan Muhammad, Sekolah Berastama Pensil Integrasi (SBPI) Selandar dan Sekolah Menengah Sains (SMS) Muaraffar Syah," katanya.

Menurut program dua tahun itu, katanya, pelajar

akan didedahkan secara berperingkat kepada bidang kejuruteraan dan teknologi, khususnya bidang kejuruteraan Pembuatan melalui lima aktiviti bertinovasi Komposit Bahan Hijau untuk Pembuatan Tong Kompos.

Dr Noraham berkata, tema terbahir dipilih sejajar dengan hasrat kerajaan Melaka sebagai penutur Teknologi Hijau di bawah sasaran Sifar Sampah.

Katanya, penggunaan Bahan Hijau atau komposit gentian asli sebagai tong kompos dilihat sebagai suatu langkah bijak dalam menangani isu lambakan sampah dan pencemaran sumber air bersih ekoran resapan air toksik kesan tindak balas kimia

sisa makanan serta pencemaran udara.

"Program ini bermula pada 10 Ogos 2018 melalui aktiviti Hari kejuruteraan yang berlangsung di Kampus Insiduk UTeM, Durian Tunggal dengan pembahitan seramai 130 pelajar," katanya.

"Pada program itu, peserta didedahkan kepada aktiviti kejuruteraan pembuatan merangkumi reka bentuk dan pencetakan 3D, robot, pemisahan ternaju dan pembuatan komposit melalui pendekatan kreatif," katanya.

Dr Noraham berkata, program itu diteruskan di peringkat kedua pada 26 September lalu apabila Pertandingan Reka bentuk Tong Kompos berlangsung di FKP, UTeM.

Katanya, sebanyak 12 kumpulan terdiri daripada 60 pelajar membentangkan reka bentuk masing-masing kepada juri yang dilantik dari kalangan penyarah UTeM-KKTU MT serta pegawai IPN Melaka.

"Aktiviti peringkat ketiga berlangsung pada 14 hingga 15 November lalu dengan Fabrikasi Tong Kompos di KKTU Masjid Tanah.

"Semua 60 pelajar daripada empat buah sekolah berkenaan telah merasakan sendiri pengalaman menghasilkan Komposit Gentian Asli melalui kaedah Bengkai Tangan (Hand Lay-up)," katanya. **Maria Ulla Zulkaefi**



GAHARA yang berprestasi dalam pertandingan UTeM.

LAMPIRAN 14
HARIAN METRO (BESTARI): MUKA SURAT (43)
TARIKH: 26 NOVEMBER 2018 (ISNIN)



DUA pelajar sekolah rendah ini tekun menyiapkan robotik ketika Jelajah Pendidikan KPM 2018.



ANTARA bengkel robotik mikrobot di sekolah rendah.



ZAINUREN (tengah) bersama pemenang.

ke Osaka selepas mengungguli WRC 2018 bagi kategori sekolah menengah.

Sebanyak 117 penyertaan membabitkan beberapa kategori seperti junior, sekolah rendah dan menengah turut dipertandingkan selain kategori khas 'soccerbot'.

Majlis perasmian dan penyampaian hadiah disempurnakan Pengarah Bahagian Pendidikan Teknik dan Vokasional Kementerian Pendidikan Zainuren Mohd Nor.

Turut hadir, Pengarah Urusan World Robotics Sdn Bhd Lee Yew Ketin dan Timbalan Presiden Operasi Asia Pacific Universiti (APU) Gupardeep Singh.

SAHUT CABARAN REVOLUSI PERINDUSTRIAN 4.0

Revolusi Perindustrian Keempat (IR 4.0) adalah satu konsep perindustrian yang kian hangat diperkatakan, namun masih ramai tidak memahami apa di maksudkan dengan revolusi tersebut.

Pengarah Bahagian Pendidikan Teknik dan Vokasional Kementerian Pendidikan (KPM) Zainuren Mohd Nor berkata, IR 4.0 adalah campur tangan yang sangat sedikit daripada tenaga manusia dan lebih banyak membabitkan sistem robotik yang dihubungkan secara tanpa wayar ke pelbagai tugas terutamanya sistem komputer.

Beliau berkata, revolusi perindustrian bermula dengan kuasa air, sim dan mekanikal seterusnya elektrik dan pengeluaran massa.

Katanya, revolusi perindustrian kemudian tertumpu kepada bidang pengkomputeran, automasi dan elektronik yang dilalui dari 1960 hingga 2010.

"Kami masyarakat dunia memasuki era IR 4.0 iaitu komputer dan sistem automasi bekerja bersama-sama dalam pendekatan yang baru."

IR 4.0 juga membabitkan pelbagai bidang termasuk automasi, robotik, pengkomputeran awan, kecekapan buatan (AI) dan Internet untuk segala-galanya (IoT)," katanya ketika berucap pada Majlis Perasmian Penutup World Of Robotics National Championship (WRC) 2018 di Asia Pacific University (APU), Kuala Lumpur, baru-baru ini.



ZAINUREN

"Selain itu, revolusi ini menjadi medium kepada golongan muda untuk mencungkil bakat dan potensi masing-masing untuk membina masa depan."

"Situasi ini kerana IR 4.0 akan membabitkan semua sektor tidak hanya meningkatkan produktiviti malah bakal menjadikan kecekapan dan hasil mekakan berlipat ganda," katanya.

Beliau berkata, pendidikan kejuruteraan robotik adalah satu daripada inisiatif positif dalam menyediaan anak muda untuk menghadapi cabaran membina kejayaan masa depan.

"Selain itu, revolusi ini menjadi medium kepada golongan muda untuk mencungkil bakat dan potensi masing-masing untuk membina masa depan."

KEJURUTERAAN ROBOTIK

Mengulas berkenaan pertandingan robotik yang dianjurkan, Zainuren berkata, pihaknya mengalu-alukan penyertaan pihak swasta dalam menyumbang ke arah pembangunan Pendidikan Teknikal dan Latihan Vokasional (TVET) dan Sains, Teknologi, Kejuruteraan dan Matematik (STEM).

Katanya, pendidikan kejuruteraan robotik adalah satu daripada kaedah terbaik untuk mendorong anak muda dengan konsep dalam empat bidang terpenting (STEM).

"Kami berharap pertandingan WRC ini akan terus memujuk minat generasi muda dalam bidang kejuruteraan bermula pada usia muda," katanya.

MENYAHUT CABARAN

Kajian statistik di laman Twitter saluran media tempatan pada April lalu, menunjukkan 75 peratus daripada 800 responden tidak mengetahui berkenaan IR 4.0.

Disebabkan kurang maklumat, Zainuren berkata, ramai pihak bimbang IR 4.0 menyumbang kadar pengangguran semakin tinggi.

Namun, apa yang ingin saya kongsi di sini, masyarakat terutama generasi muda tidak perlu bimbang akan masa depan revolusi ini.

WE all know that artificial intelligence is going to rule the world. Or at least it is, according to Stephen Hawking – and he was known for getting things right. But even if you don't believe things are as dire as us bowing down to our AI-infused robot overlords, we can all agree that at some point we'll all lose our jobs to artificial intelligence.

Now, as an actor and host, I assumed that my comeuppance in the job apocalypse of the future would be toward the end. That I would be one of the last holdouts of employed humanity as AI ate up other jobs. And to be fair, AI is not eating up jobs in the future, it is doing so right now.

Since the nineties we've been losing jobs to automation. Robotic automation can easily replace most repetitive jobs. But increasingly we're seeing more complex repetitive jobs being automated as well. Amazon's cashierless stores are an example of this.

Customers purchase what they want with their Amazon account and a combination of sensors and software analyses what you've got in your cart in real time. You get charged as soon as you leave the store.

Presumably in the future they could even add the deterrent of some bulky looking security robots to automate a light

The robots are coming

At some point we're all going to lose our jobs to artificial intelligence.

beating if you try to shoplift, but I'm getting ahead of myself.

Amazon Go stores are looking to open another 3,000 outlets by the year 2021. The days of the bored, gum chewing, slow-to-give-you-your-change cashier are numbered.

Now think about driverless cars. Car companies are working

hard to build machine learning to create a truly safe driverless car. And driverless cars are being tested in countries all around the world. But when will they show up?

Car companies seem to be set in and around 2020-2025.

Renault-Nissan says autonomous cars by 2020; truly driverless by 2025; Toyota says self-driving on highways by 2020; Hyundai highways by 2020; urban areas by 2030.

It's not just the cashier that is going to go extinct. With it, bundle up taxi drivers and truck drivers too. Another industry automated.

How about telemarketers? It is estimated that there's a 99% of that industry being automated in the future.

Now for a while automation and AI were limited to repetitive jobs and had a difficult time entering more creative realms.

And this was when my smugness came in. As a TV host and presenter I felt somewhat safe. But not after the recent news of the AI News Anchor from China.

Yes, the Xinhua news agency has released a video of an AI news

anchor modelled after a real news anchor in looks and speech, which can be programmed to say anything.

Xinhua gushed over their new AI news anchor overlord saying "It can work 24 hours a day on its official website and various social media platforms, reducing news production costs and improving efficiency".

It definitely can! Because a human under those conditions would end up dying. Humans are pesky that way, they tend to die when they're overworked. And as for improved efficiency, it certainly is more efficient as you just have to buy the software once, never pay it again, and let the AI anchor rattle off whatever you want it to say – into eternity.

Critics of the AI news anchor say it's flat, boring, monotonous. It doesn't have the decision making of a real anchor or the sincere touch a human has that cultivates a connection with an audience.

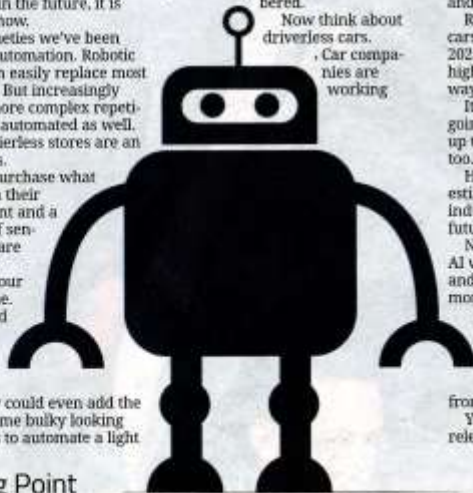
Two things about that. This is just the start. Yeah the Xinhua AI anchor is boring as cardboard right now, of course it'll be spruced up by advanced AI using

machine learning techniques forcing the bot to watch thousands of hours of Tom Cruise, Matthew McConaughey, and George Clooney movies, until that news bot is as charming as if all three of those guys had a kid.

Second point? Well, in a world where we'll be driven around by robots, shop at stores manned by robots, and be hassled by never ending robot telemarketers, are we going to even notice one extra robot droning on about the news? Probably not.

That's it. My job is indeed not safe. The advance AI is coming to tell us the news and make us unemployable. Better start hoping for a universal basic income, because unless you're the one making the AI, you're going to be out of work.

Avid writer Jason Godfrey – who once was told to give the camera a 'big smile, no teeth' – has worked internationally for two decades in fashion and continues to work in dramas, documentaries, and lifestyle programming. Write to him at star2@thestar.com.my and check out his stuff at jasongodfrey.co.



Talking Point

NEPAL is better known for its soaring mountain peaks than technological prowess, but a group of self-taught young innovators are seeking to change that.

Local start-up Paaila Technology built Ginger, a 1.5-metre-tall robot, from scratch and programmed her to understand both English and Nepali.

The bilingual humanoid robot – named Ginger for the plant – can even crack jokes like Apple's Siri or Amazon's Alexa.

Three Gingers work at Naulo restaurant in the dusty capital Kathmandu, where pot-holed roads and crumbling buildings still bear the scars of a powerful earthquake that hit more than three years ago.

"This is our testing ground. We are fine-tuning it with responses from our customers," Binay Raut (right), CEO of the company, told AFP.

The team of 25 young engineers – Raut is the oldest at 27 – worked for months to build the robot, welding and moulding

Ginger serving up a slice of tech

the prototype by hand in their tiny three-roomed office.

What Nepal lacks in tech infrastructure the engineers made up for in ingenuity – Ginger's sleek-looking plastic body was painted in a neighbourhood car workshop.

Naulo opened its doors four months ago and its robot waiters have been a big draw, attracting curious customers of all ages.

Ginger, who is able to sense movement and obstacles, deftly navigates the crowded restaurant carrying trays laden with food.

Customers order via a touch screen menu fitted into the tables, and Ginger is called to the kitchen when dishes are ready.

"It was a completely new experience," said 73-year-old

restaurant customer Shaligram Sharma.

Ginger has become quite a selfie star and is often distracted from her work by children keen to get a photo with the sleek robot.

"They look so good. I could not believe they were made in Nepal," said Neelam Kumar Bimali, a diner enjoying an evening meal with his family.

With its eyes on the global market, Paaila Technology is in the process of patenting its design to sell at home and abroad.

The World Economic Forum recently predicted that by 2025 more than half of all jobs will be performed by robots – almost twice as many as today.

That is a trend Ginger's creators are banking on.

At present, a few human waiters help Ginger but an upgrade is in the works that should make Naulo entirely robot-run. – AFP-Relaxnews



LAMPIRAN 17
NEWSTRAITIMES (LETTERS): MUKA SURAT (18)
TARIKH: 26 NOVEMBER 2018 (ISNIN)

CONVENTION ON CLIMATE CHANGE

To counter climate change effects, all countries must be involved

THE 24th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24) is scheduled to be held from Dec 2-14, in Katowice, Poland.

COP24 is deemed one of the most important conferences, as UN member countries are expected to work out and adopt a package of decisions to ensure the full implementation of the Paris Agreement. A number of high-level events, mandated events, action events and roundtables are expected to convene during COP24.

Participation from all member countries in the UNFCCC is essential. The operative word is inclusivity. Up to now, 197 member countries are involved in working towards controlling global warming. However, there is one country that appears to have been left out. Due to political constraints, Taiwan is only able to be a non-governmental organisation observer which limits its involvement in the negotiation process.

Taiwan is prone to frequent typhoons and other extreme weather patterns – it will definitely be at risk to experience firsthand the effects of climate change. Taiwan's average temperature for the past two years has spiked causing water shortages, damaging the economy, threatening the people's welfare, and restricting the generation of hydroelectric power. If Taiwan continues to be excluded from COP, it will not be able to gain access to real-time information, and be left out of early warning systems for disasters.

Despite not being a UNFCCC member, Taiwan has, on its own, implemented measures to reduce greenhouse gas (GHG) emissions and implemented an energy tax act (in 2015) – a combined existing legislation to regulate and boost energy efficiency and renewable energy capacity, and create new employment opportunities based on green products and services. Taiwan has aimed to reduce GHG emissions by 20 per

cent by 2030. It has also pledged to reduce daily carbon emissions up to 30 per cent.

During a Taiwan's Ministry of Foreign Affairs launch of "All hands on deck", the government reaffirmed that Taiwan is "ready, willing and able" to combat challenges stemming from global warming while underscoring that the nation's participation in UNFCCC programmes would benefit all.

As a nation of 23.58 million people, the world's 22nd-largest economy, the 7th largest in Asia and the 22nd-largest emitter of carbon dioxide, Taiwan has a stake in participating in the global effort to fight climate change.

Taiwan definitely has so much to offer with its expertise in green technology and renewable energy.

Considering the UNFCCC principle which encourages "the

widest possible cooperation" in countering global warming, national or political boundaries should be overcome and Taiwan should be included in this crucial climate forum.

LIYANA YAMIN

Capacity Building & Engagement Working Group, Malaysian Youth Delegation (MYD) and Participant of Indo-Pacific and Southeast Asia Seminar on Climate Change, Taiwan



The upcoming climate change conference in Katowice, Poland, will determine climate efforts for years to come.



ZAKRI ABDUL
HAMID

LIGHT AT THE END OF THE TUNNEL

More than 20 million km² of the earth's surface area, roughly equal to Canada and China combined, and nearly 27 million km² of marine area, are protected

OPENING global negotiations on "a new deal for nature" is on the agenda as thousands of government officials and stakeholders from around the world meet this month for the 14th meeting of the Conference of Parties (COP14) of member nations of the UN Convention on Biological Diversity (CBD).

Malaysia's delegation is led by Water, Land and Natural Resources Minister Dr Xavier Jayakumar. The more than 5,000 delegates are meeting from Nov 17-28 in Sharm el Sheikh, Egypt, to take stock of progress against 17 soon-to-expire biodiversity goals set in Aichi, Japan in 2010, which the world pledged to achieve by 2020.

While not a lot of good news has been shared at the meeting (a few weeks ago, the World Wide Fund for Nature reported earth's wildlife populations have declined 60 per cent since 1970), here's an exception: some 15 per cent of our planet's land area and inland water, and seven per cent of the global ocean now have protected area designation.

That's more than 20 million km² of the earth's surface area — roughly equal to the areas of Canada and China combined — and nearly 27 million km² of marine area now protected, according to the Protected Areas Report 2018, a joint undertaking of the UN Environment, World Conservation Monitoring Centre, the International Union for Conservation of Nature (IUCN), and the National Geographic Society.

According to IUCN, "A protected area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to



Adelle penguins resting on the shores of Commonwealth Bay in Antarctica. The ban on fishing in a 1.1 million sq km at the Antarctic reserve protects more than 16,000 species. REUTERS PIC

achieve the long-term conservation of nature with associated ecosystem services and cultural values".

And the increase since 2018 works out to 0.2 per cent in terrestrial area, 3.2 per cent in marine areas around the globe. That's an impressive accomplishment, not far short of the Aichi commitment of 17 per cent terrestrial and 10 per cent of coastal and marine areas by 2020.

Critics — an abundant group — point out that many biologically important ecosystems around the world are not represented, and actual enforcement on the ground of protections accorded on paper is a source of concern in many places.

And as the report itself notes, "marine areas under national jurisdiction have significantly more protection (17 per cent) than Areas Beyond National Jurisdiction, with only slightly over one per cent of protection".

Interestingly, the report celebrates a ban on fishing in 1.1 million sq km (432,000 sq miles) at the Antarctic reserve — an effort to preserve over 16,000 species, including the Adelle penguin and Minke whale.

In Malaysia, protected area coverage has been estimated in recent years at 10.8 per cent terrestrial and 1.1 per cent marine.

At this week's launch of the Protected Areas Report 2018, CBD Executive Secretary Christi-

na Pasca-Palmer suggested to nations that many "low hanging mangoes" are available in this policy area over the next two years — enough to meet the Aichi set goals and report back within the 2020 time frame.

Of course, the designation of protected areas alone is not enough to halve the rate of biodiversity loss — arguably the most important Aichi target of all. We have fallen short, to the great concern of world experts.

As the Intergovernmental Platform on Science-Policy Advice on Biodiversity and Ecosystem Services (IPBES) reported in March: "Biodiversity — the essential variety of life forms on Earth — continues to decline in every region of the world, significantly reducing nature's capacity to contribute to people's wellbeing. This alarming trend endangers economies, livelihoods, food security and the quality of life of people everywhere."

So over the next two years, member nations will establish a replacement set of global biodiversity action goals and targets — a new deal for nature to be adopted at COP15 in China in 2020.

It is a challenge as important as it is formidable, given the rates of population growth and climate change underway.

The 14th meeting of CBD member nations in Egypt is the first one ever held in the Middle East. That has put a spotlight on a crit-

ical issue: the role of biodiversity and ecosystems in countries affected by crisis and displacement — how biodiversity and ecosystems' resilience also help achieve crisis prevention and recovery goals, thereby improving world security.

As a novice in the field of biodiversity diplomacy 30 years ago I was full of hope, a feeling that turned to anguish and frustration as a veteran realising that the world would miss many of its agreed 2010 targets.

Yet, as an optimist who subscribes to the power of global cooperation and coexistence, I feel revitalised by the work underway on the 2030 Development Agenda, the post-2020 New Deal for Nature, and the 2050 Vision for Biodiversity.

It has taken some time, but the world is coming to recognise the vital importance of these issues in virtually all economic sectors — energy and mining, infrastructure, and manufacturing and processing, as well as to human wellbeing in the form of raw materials, fresh water and protection against natural disasters.

There's still light at the end of the tunnel.

The writer, the founding chair of IPBES, is one of the original members of the Malaysian delegation led by Ambassador Datuk Ting Wen Lian that negotiated the CBD from 1990 to 1992.

Over the next two years, member nations will establish a replacement set of global biodiversity action goals and targets — a new deal for nature to be adopted at COP15 in China in 2020.

LAMPIRAN 19
NEWSTRAITIMES (WORLD): MUKA SURAT (25)
TARIKH: 26 NOVEMBER 2018 (ISNIN)

**PLASTIC
POLLUTION**

A scavenger collecting plastic materials at a dumpsite in Medan, North Sumatra, Indonesia, on Friday. According to United Nations reports, more than 8.3 billion tonnes of plastic has been produced since the early 1950s and most of it end up at the landfills and natural environment. EPA PIC



Hutan hujan Amazon bakal musnah?

■ SAO PAULO 24 NOV.

KADAR kemusnahan hutan hujan Amazon dilaporkan sudah mencapai tahap tertinggi dalam tempoh sedekad pada tahun ini yang berpunca daripada kegiatan pembalakan haram dan pencerobohan hutan secara berleluasa.

Imej satelit yang dikumpul dalam tempoh 12 bulan sehingga hujung Julai tahun ini menunjukkan kira-kira 7,900 kilometer persegi kawasan hutan Amazon dimusnahkan dan keluasan itu bersamaan lebih separuh daripada wilayah Jamaica.

Kedadaan itu menunjukkan peningkatan sebanyak 13.7 peratus dari tempoh yang sama dalam tahun sebelumnya.

Pemusnahan hutan disifatkan sebagai satu daripada punca kepada pemanasan global di seluruh dunia.

Semalam, kerajaan Amerika Syarikat (AS) melaporkan perubahan iklim akan menyebabkan kerugian sehingga berbilion dolar kepada negara itu menjelang penghujung abad ini.



HUTAN Amazon di Brazil mencatatkan tahap kemusnahan paling tinggi dalam dekad ini. - AGENSI

Menteri Alam Sekitar Brazil, Edson Duarte berkata, kegiatan pembalakan haram merupakan faktor utama kepada kemusnahan hutan Amazon, sekali gus mendesak supaya kerajaan memperkasakan undang-un-

dang berkaitan perhutanan.

Negeri Par dan Mato Grosso merupakan penyumbang terbesar kepada peningkatan pemusnahan hutan.

Dalam pada itu, Pemantau Iklim Brazil menyatakan, pe-

ningkatan tahap kemusnahan hutan Amazon bukan lagi satu perkara yang mengejutkan kerana pembangunan sektor komuniti di negara ini turut menyumbang kepada permasalahan tersebut.



PEMANDANGAN dari udara menunjukkan hutan Amazon yang diancam pembalakan haram. - REUTERS

Selain itu, beberapa badan kebajikan alam sekitar mengkritik kerajaan Brazil yang tidak mengambil langkah sepenuhnya untuk mengatasi masalah kemusnahan hutan.

Polisi baharu yang diperkenalkan sebelum ini iaitu mengurangkan kawasan hutan yang terletak bawah perlindungan Persekutuan juga dilihat hanya meningkatkan masalah terbit. - REUTERS

LAMPIRAN 21
BERITA HARIAN (DUNIA): MUKA SURAT (37)
TARIKH: 25 NOVEMBER 2018 (AHAD)



Kebakaran hutan 'Camp Fire' ditakrif paling teruk dalam sejarah di California sehingga menjadi umpama 'padang jarak, padang lekuk'.

Api tukar Paradise jadi 'neraka'

➔ Camp Fire
ubah wajah
daerah
di California bagi
medan perang

Susunan Ratnawati Rasidi
rasidiratnawati@bh.com.my

► California

Dalam tempoh setahun ini, belah sekali Amerika Syarikat sudah dilanda kebakaran hutan yang umum mengetahuinya berpunca daripada masalah perubahan iklim.

Kebakaran yang dikenali sebagai 'Camp Fire' itu ternyata sekelip mata mengubah wajah sebuah daerah yang dikenali sebagai Paradise, di California menjadi 'padang jarak padang lekuk'.

Penduduk negara kaya itu kini berdepan krisis tempat tinggal dan merempit tidak ubah seperti sebuah

negara yang baru dilanda perang. Nasib penduduk Paradise tidak ubah seperti rakyat Iraq dan Syria, dua negara yang diketahui dunia banyak mendapat kesan akibat campur tangan negara seperti Amerika.

Kebakaran hutan di kawasan Paradise, California dianggarkan sudah memusnahkan hampir 18,421 kediaman penduduk dan bangunan yang kebanyakannya adalah rumah kayu.

Sepanjang sejarah kebakaran hutan di California, apa yang berlaku di Paradise dikatakan paling buruk dalam sejarah kerana setakat ini ia menyebabkan 83 orang terbunuh dan lebih 1,600 orang hilang.

Sejak kebakaran bermula kira-kira 1,862 buah rumah musnah, termasuk 9,700 buah rumah keluarga kecil dan 118 rumah milik keluarga besar. Bencana yang berlaku di kawasan itu bukan hanya menyebabkan penduduk hilang tempat tinggal tetapi ia memburukkan lagi kekurangan kediaman untuk menampung jumlah penduduk yang semakin bertambah.

Presiden Amerika Syarikat, Donald Trump melawat kawasan itu dan mengarahkan agar bantuan kewangan bencana disalurkan untuk mangsa, pada masa sama beliau

turut menyalahkan kerajaan negeri kerana gagal mengurus tanah dan mengugut untuk membekukan bantuan persekutuan untuk negeri itu.

Kenyataan itu dibidas, Gabenor California, Jerry Brown yang mengatakan perubahan iklim adalah punca utama yang menyebabkan berlakunya kebakaran hutan secara besar-besaran di di negara itu setiap tahun.

California kini berdepan dengan krisis rumah, sedangkan populasi penduduk negeri itu semakin meningkat.

Rumah baharu yang dalam rancangan pembinaan tidak cukup untuk menampung pertambahan permintaan. California ketika ini berada di tangga 49 di Amerika Syarikat untuk setiap unit rumah per kapita. Berada di tempat ke tujuh daripada 10 pasaran hartanah termahal di negara itu.

Ekonomi semakin perlahan

Laporan laman Vox menjelaskan, permintaan meningkat dengan pantas bertanding bekalan menyebabkan pertumbuhan ekonomi semakin perlahan. Bandar Paradise dalam daerah Butte, California yang menempatkan 26,000 penduduk musnah dijita

Info

'Camp Fire' terburuk dalam sejarah

- Lokasi: Bandar Paradise, Daerah Butte
- Jumlah kawasan terbakar: 153, 336 ekar
- Jenisnya bomba: 300 trak
- Helikopter: 11 buah
- Anggota bomba: 3,745
- Bangunan musnah: 14,243 (rumah), 514 (bangunan komersial) dan 4,125 (bangunan lain-lain)

'Camp Fire'

Di Paradise, kebanyakan pendapatan isi rumah adalah antara AS\$47,000 (RM112,000), di bawah paras pendapatan sederhana kebangsaan iaitu AS\$61,000 (RM146,000) tetapi lebih daripada 70 peratus penduduk memiliki rumah sendiri.

Kebanyakan penduduk di bandar ini terdiri daripada pesara pendapatan tetap atau pasangan muda yang mencari rumah selamat dan mampu milik.

Ketika ini ramai penduduk Paradise terpaksa melarikan diri, mereka berpindah ke bandar berdekatan seperti Chico. Malah, pihak berkuasa masih tidak mengetahui jumlah sebenar penduduk yang sudah berpindah, kerana ada penduduk yang menumpang berteduh di rumah saudara mara, kembali ke kediaman masing-masing, manakala selebihnya tinggal di pusat perlindungan sementara.

Bagaimanapun, mereka menganggarkan lebih 52,000 penduduk sudah dipindahkan sejak 'Camp Fire' melanda negeri itu 13 November lalu. Ketika ini kebanyakan mangsa memerlukan makanan, tempat perlindungan dan keselesaan. Apa yang penting mereka memerlukan rumah baharu.

ANTARCTICA

BENEATH THE ICE IS A GRAVEYARD OF DEAD CONTINENTS

Antarctica is the least understood continent on earth, and many mysteries remain about its subsurface world, writes **ROBIN GEORGE ANDREWS**

THE eastern section of Antarctica is buried beneath a thick ice sheet. Some scientists simply assumed that under that cold mass there was nothing more than a "frozen tectonic block", a somewhat homogeneous mass that distinguished it from the mixed up geologies of other continents.

But with the help of data from a discontinued European satellite, scientists have now found that East Antarctica is in fact a graveyard of continental remnants. They have created stunning 3D maps of the southernmost continent's tectonic underworld and found that the ice has been concealing wreckage of an ancient super-continent's spectacular destruction.

The researchers, led by Jörg Ebbing, a geophysicist at Kiel University in Germany, reported their discovery earlier this month in *Scientific Reports*.

The findings relied on data from the Gravity Field and Steady-state Ocean Circulation Explorer (GOCE) satellite, which orbited earth just 155 miles above the surface until late 2013, when it re-entered the atmosphere at the end of its mission. Called the "Fer-



An image from a European satellite has revealed the tectonic underworld below the frozen southernmost continent. NYT PIC

rari of space", this sleek instrument could measure the gravitational fields weaving through earth's crust and mantle.

Kate Winter, who studies Antarctica's glaciers at Northumbria University in England and wasn't involved in the study, said that the GOCE satellite data, "helped us to piece the super-continent back together in magnificent detail".

GOCE's eye revealed that East Antarctica is a jigsaw puzzle of at least three geological titans named cratonic provinces. Cratons (from the Greek "kratos", meaning "strength") are stable rocky cores of continents that survived hundreds of millions of years of destructive action by earth's plate tectonics.

One craton has geological similarities with some of Australia's bedrock, while another resembles part of India's. The third is an amalgamation of pieces of old

sea floors.

Fausto Ferraccioli, a senior geophysicist at the British Antarctic Survey and co-author of the study, said that "how and when all these provinces came together to make up East Antarctica as we see it today is still a matter of speculation and debate".

The pieces may have been assembled as far back as one billion years ago, when the super-continent Rodinia was built, or as recently as 500 million years ago, when another super-continent, Gondwana, came together. Either way, what has been found beneath Antarctica is part of what's left after Gondwana's dissolution, around 180 million years ago.

Antarctica has been called the least understood continent on earth, and many mysteries remain about its subsurface world. There's only so much that magnetic and seismic data, and

ground-penetrating radar attached to airplanes, can do to see through the 1.3-mile-thick ice sheet that covers 98 per cent of it.

That's where the European Space Agency's GOCE (pronounced GO-chay) enters the story. Gravitational field strengths change depending on the objects they are associated with, and GOCE, with its ultra-sensitive gravity-measuring probe and proximity to earth's surface, could detect masses deep below Antarctica's icy surface in breathtaking detail.

"The beauty with GOCE is that we can go deep down in the lithosphere to get to the roots of the continents," Ferraccioli said.

Winter said that despite these discoveries, the exact geological makeup of Antarctica's innermost land, which sits in East Antarctica, "is yet to be discovered". One solution would be to drill into the heart of the continent and sample the rock directly, using GOCE's maps to guide scientists searching for the perfect spot to dig.

Knowing what rock the world's largest ice sheet sits on is important in a warming world, as sub-glacial geology influences how ice shifts as the climate changes. But this study has more significant implications that go much deeper into our understanding of our world.

Plate tectonics is the engine that drives our planet. It forges volcanoes, fuels atmospheres, digs out ocean basins and creates mountain ranges. We can't understand Earth's entire evolution if we can't complete the puzzle, and the data from the dead satellite has just helped discover a few more of its missing pieces. **NYT**

... despite these discoveries, the exact geological makeup of Antarctica's innermost land, which sits in East Antarctica, 'is yet to be discovered'.

PEOPLE could add years to their lives in smog-plagued parts of the world if authorities could reduce particulate pollution – soot from cars and industry – to levels recommended by the World Health Organization (WHO), a new study reported.

No other large US city would benefit more than Fresno, California, which has soot concentrations at roughly twice the WHO guideline. Fresno residents would live a year longer if the region could meet the health organization's recommended levels of exposure, according to the study by the US Energy Policy Institute at the University of Chicago.

The average resident in Los Angeles could add eight months of life. The average Sacramento resident would add nearly three.

In recent weeks, millions of Californians have been choking on high levels of particulates, due to smoke from raging wildfires.

The study doesn't account for that, but instead, focuses on everyday levels of soot and fine particles, produced largely by vehicle exhaust and other burning of fossil fuels. Worldwide, this exposure reduces average life expectancy by 1.8 years, comparable to the impact of smoking cigarettes, according to the study's authors.

"While people can stop smoking and take steps to protect themselves from diseases, there is little they can individually do to protect themselves from the air they breathe," said Michael Greenstone, an economics professor and director of the Energy Policy Institute.

The study demonstrates the health benefits worldwide of cleaning up the world's most smog-plagued regions, where an estimated 5.5 billion people live.

But cutting pollution to WHO-recommended levels will not be easy. In Fresno, a 50% reduction in particulates would require much more aggressive emissions controls on cars, trucks, agricultural equipment and oil and gas operations – regulations resisted by industries.

At issue is what is known as "particulate matter 2.5", or PM 2.5 – particles so fine they are just 3% the diameter of a human hair.

Unlike larger particles, this type

Pollution shortens life by years

A study reveals that air pollution is shaving years from people's lives.



At issue is what is known as particulate matter 2.5, or PM 2.5, particles so fine they are just 3% the diameter of a human hair that can lodge deep into the respiratory system and contribute to lung disease, strokes, heart disease and other ailments. — TMS

of air pollution can lodge deep in a person's respiratory system and contribute to lung disease, strokes, heart disease and other ailments.

In heavily populated countries such as India and China, auto emissions and smoke from coal and wood burning have created the highest concentrations of PM 2.5 on Earth.

According to the Energy Policy Institute, people in India would live 4.3 years longer on average, if that country could lower pollution to the WHO guidelines. People in China would live 2.9 years longer on average.

To estimate impacts on lifespan, the institute relied on a pair of peer-reviewed studies co-authored by Greenstone that quantify the

relationship between particulate pollution and expected longevity.

The institute used that data to develop what it calls an "Air Quality Life Index", so people can readily review the long-term health impacts of air pollution in different parts of the world.

Across the US, cities and states have a strong record of reducing soot levels in the air, the study notes. Between 1970 and 2016, particulate pollution declined by 62% nationwide, largely because of cleaner vehicles and new requirements for scrubbers, and emissions controls on power plants and industries.

But not all areas have seen cleaner skies. Fresno's ambient concentration of particulates – 20

micrograms per cubic litre – is effectively the same as it was in 1970, according to the institute.

The San Joaquin Valley Air Pollution Control District, the agency responsible for meeting federal air standards, blames the problem partly on the area's bowl-like topography, which traps pollutants.

Environment and health advocates, by contrast, say the air district hasn't been aggressive enough in regulating industries, farms and vehicle fleets.

In late 2012, the air district adopted a plan for meeting federal particulate standards by 2019.

Recently, the air district's board adopted an updated plan for coming into compliance, said executive director Samir Sheikh.

"Achieving these standards will be difficult and will require billions of dollars of new clean air investments," he said, given the Valley's geography, meteorology and volume of heavy duty trucks.

Since taking office, the Trump administration has a mixed record of addressing particulate pollution.

In October, acting US Environmental Protection Agency (EPA) administrator Andrew Wheeler scrapped a scientific panel assigned to review air standards for particulates.

This month, the EPA surprised environmentalists by announcing new pollution restrictions on heavy duty trucks. — McClatchy Washington Bureau/Tribune News Service

By M. KRISHNAMOORTHY

DR ONG Wee Jun's aspiration to make the world a better place using green technology has won him more than 10 international awards.

As a child in primary school, he was fascinated with the process of photosynthesis from sunlight and the further knowledge he picked up in science class.

Dr Ong, 29, is an assistant professor in the School of Energy and Chemical Engineering at Xiamen University Malaysia. He is currently teaching Chemical Engineering subjects such as materials science and principles of chemical engineering.

Based on a basic knowledge of photosynthesis, Dr Ong is today convinced that in future the sun will be able to power the world's energy requirements to reduce the over-dependence on fuel.

As he was growing up, he pondered over how it was possible to have cleaner and sustainable energy without any harmful effect on the environment.

Applying the sun's energy used in photosynthesis, Dr Ong researched and developed renewable fuel technology through the use of nanomaterials, which would convert solar energy into chemical fuels and electricity.

Through these research findings on developing green technology, he won the Green Talent Award presented by the German government in Berlin last month. He was among 25 international recipients for his research on energy conversion from sun rays to energy fuels.

The jury of the Green Talent Award, made up of renowned German scientists, commended Dr Ong's approach of carbon dioxide reduction and conversion of solar energy into fuel and its potential to become a definitive solution for future energy supply in many countries.

Apart from experimental work, Dr Ong demonstrated interdisciplinary research competency by collaborating with overseas researchers. Jointly, through computational results and experimental techniques, their computer-aided nanomaterial design could be commercialised.

"We did simulation modelling with a group of international scientists to understand the fundamental principles and elementary reactions involved."

"The success of this research will spur Malaysia's quest for clean and renewable

Researcher wins international award



State Secretary at the German Federal Ministry of Education and Research Dr Georg Schütte (left) presents the Green Talent Award to Dr Ong in Berlin.

energy," he added.

As part of the Green Talent Award, the recipients attend the International Science Forum for highly gifted researchers from the field of sustainable development.

The award has been honouring talented researchers since 2009 and provides young scientists with a platform for sharing their views on green concepts to make the world a better place.

The Green Talents were on their two-week Science Forum tour from Oct 13 to 27 and visited some of the hot spots of sustainability science in the east of Germany. That offered the unique opportunity to get exclusive access to the country's research landscape,

learn about ground-breaking projects on-site and possibilities for cooperation with German experts and facilities.

On his experience at the international Science Forum, Dr Ong said it was awesome to visit the universities, research centres and companies in Germany.

"This has definitely widened my research landscape. To work at top-class research facilities and to build relationships with people from different cultures has expanded my research network."

"I discussed with leading German scientists for potential collaboration with Xiamen University Malaysia to work on fundamental science," he said.

About a month ago, Dr Ong received the Young Researcher award by the Institution of Chemical Engineers (IChemE). It was presented by Raja Permaisuri Perak Tuanku Zara Salim.

He was again highly commended internationally in the United Kingdom. His breakthrough research is on the photosynthesis process in plants by engineering a photocatalyst that can use solar light to split water and reduce carbon dioxide into energy-rich fuels.

Dr Ong was also highlighted and featured in the Emerging Investigators 2018 — Journal of Materials Chemistry A, published by the Royal Society of Chemistry.

Crazy weather Down Under

From wildfire to snowy thunder, Aussie weather gets intense

SYDNEY: Dust storms, raging bushfires, gale-force winds, heatwaves, thunder and snow, flash flooding and driving rain — Australia is enduring a bout of wild weather that's hit all parts of the vast continent in recent days.

Varied weather is not uncommon during spring in the southern hemisphere nation as the summer season approaches.

But rare and dramatic scenes of red dust storms shrouding towns as well as thundersnow — which are lightning strikes in thunderstorms that produce snow — in the alpine regions have left some scratching their heads.

The culprit is a slow-moving low pressure system that is deeper and stronger than usual, Bureau of Meteorology expert Dean Narramore said.

"Ahead of the low, it's warm, it's hot, it's windy, and then behind the low, it's cold, it's wet, it's windy," the meteorologist said.

"And then the longer the air spends over the land, it dries out and goes back into the low — there's a lot happening."

The wild weather has seen flights



Fighting the flames: A New South Wales Rural Fire Service firefighter spraying water on a bushfire next to a school bus in the Salt Ash suburb, located north of Newcastle, Australia. — AFP

delayed by strong winds in the country's busiest airport in Sydney on the southeastern coast, and a major storm leaving tens of thousands of homes in South Australia state without power.

Meanwhile, in the northeast, Queenslanders are sweltering through a days-long heatwave, with the popular tourist town of Cairns

set to reach temperatures of up to 37°C.

In the high country of New South Wales and Victoria states, a cold snap is bringing freezing temperatures and snowfall just a week before the summer season officially starts in December.

"It's a particularly strong weather system.

"We do get a couple of these a year, but normally in winter or early autumn.

It's a little bit more unusual, but it does happen from time to time in Australia," Narramore said.

Narramore said he did not see long-term weather trends such as climate change behind the current phenomena. — AFP

Govt ups anti-pollution steps

3,500 prosecuted for eco violations amid challenges in law enforcement

SHANGHAI: China prosecuted more than 3,500 people for pollution-related crimes in the first 10 months of the year, up nearly 40% on a year ago, law authorities said, as Beijing looks to courts and police to curb violations.

China has struggled to enforce its environmental laws as growth-obsessed local governments turn a blind eye to polluting local enterprises, and it has been trying to ensure violations are properly punished.

China's procuratorate said at a

Thursday briefing that it would show "zero tolerance" to environmental crimes, adding that it also prosecuted nearly 8,500 people for the wider offence of "damaging resources" in the first 10 months, up 44%.

The number of criminal prosecutions is still small compared to the nearly 130,000 environmental violations reported in the first nine months of the year, leading to fines of 10.63 billion yuan (RM6.42bil), according to environment ministry data.

Beijing has encouraged courts and police departments to establish dedicated environmental divisions, while financial regulators and other government departments are under pressure to play a bigger role in punishing polluters.

In a speech earlier this year, Chinese President Xi Jinping promised to deploy the full weight of the state to reverse decades of environmental damage, forcing several ministries and regulators to draw up their own plans to fight pollution.

However, the central government still regards grass-roots enforcement as a weak link, and has launched a series of reviews into the way local officials rectify violations, focusing on what they describe as "fraudulent", "superficial" or "perfunctory" efforts to meet pollution standards.

China is also making use of its feared graft-busting body to crack down on local government violations, documents published by the corruption watchdog showed this week. — Reuters

INSIGHT MARS LANDING
 NASA's cosmic explorer is scheduled to end its six-month odyssey to Mars on November 26.

On reaching the Martian atmosphere, at about 125 km above the surface, the spacecraft will begin its six-minute entry, descent and landing phase.

Cruise stage
 205 days
 Eight thrusters help to fine-tune the flight path.

Solar panels
 Protects the lander from harsh textures as it travels to Mars.

Backshell and heatshield

1 Parachute descent
 Heatshield jettisons. Lander extends three shock-absorbing legs.

2 Radar deployed
 Radar is deployed towards the surface.

3 Powered descent
 Backshell separates and 12 descent engines power on to slow down for landing. Onboard guidance software slows down the spacecraft until touchdown.

4 Landing
 InSight lands at Elysium Planitia, a flat plain with relatively few rocks, and suitable surface for its probe to burrow into.

Rotation and internal structure experiment (RISE) tracks the wobble's location as Mars rotates.

Seismometer measures seismic vibrations.

Heat flow and physical properties probe (Heat and Physical Properties Probe) could reach depth of 5 km.

Source: NASA

RM4.1b LANDER

Nasa counts down to 'InSight' landing on Mars

TAMPA: The National Aeronautics and Space Administration (Nasa) is counting down to a nail-biting touchdown on Monday of the US\$903 million (RM4.1 billion) Mars *InSight*, the first spacecraft to listen for quakes and study the inner workings of another rocky planet.

No one is on board the spacecraft, which launched nearly seven months ago and has travelled some 462 million km. Part of its mission is to inform efforts to one day send human explorers to the Red Planet, which Nasa hopes to do by the 2030s.

The lander is the first to reach Mars since 2012, when Nasa's *Curiosity* rover touched down to scour the surface and analyse rocks for signs that life forms may have once inhabited Earth's neighbour, now a frigid and dry planet.

InSight must survive tense entry into Mars' atmosphere, travelling at a speed of 19,800kph and swiftly slowing to just 8kph.

This entry, descent and landing phase begins at 11.47am in California and is only half-jokingly referred to at Nasa as "Six and a Half Minutes of Terror".

Of 43 missions launched towards Mars, only 18 have made it intact — a success rate of around 40 per cent. All those that made it came from the United States.

"Going to Mars is really hard. The exciting part is that we are building on the success of the best team that has ever landed on this planet, which is the Nasa team with its contractors and collaborators," said Thomas Zurbuchen, who is Nasa Science Mission Directorate associate administrator.

The name *InSight* is derived from "Interior Exploration using Seismic Investigations, Geodesy and Heat Transport". It stands about 1m and weighs more than 360kg. **AFF**

WHAT LIES BENEATH?

A group of scientists has been using new technology to better understand the twilight zone's strange inhabitants, writes **JOANNA KLEIN**

BETWEEN the ocean's bright blue surface and its blackest depths — 660 to 3,300ft below — is a mysterious, dark span of water. Welcome to the twilight zone.

Recent evidence suggests there are more animals here by weight than in all of the world's fisheries combined. But who lives here, and in what quantities?

Since August, a group of scientists has been using new technology to better understand the twilight zone's strange inhabitants. They hope their findings will lead to a more sustainable approach before the fishing industry tries to harvest some of its abundant life as fisheries closer to the surface are diminished.

"The time is right to get this knowledge before it's too late," said Heidi Sosik, a biologist at the Woods Hole Oceanographic Institution who is leading The Ocean Twilight Zone project. "This twilight zone region of the ocean is really, very rarely explored, but the more we learn, the more interesting and more important it seems to be in playing a role in the whole ecosystem."

Below are highlights of what they hauled up on their first cruise.

Seeing into the deep with sound:

Each animal in the ocean has its own auditory signature that ships usually detect by sending out sound waves that bounce or scatter off their bodies. It's how whale watching cruises often find humpbacks for you to view.

But the acoustic fingerprints of twilight zone animals are still mysterious because shipboard sonar don't have the bandwidth to distinguish the many organisms living far below the surface in what's called the deep scattering layer. It's an area so dense with life that people once thought it was the seafloor.

Around 250 different species of



A transparent hatchetfish
NYT PIC

myctophids, or lantern fish, make up much of this dense layer. Though abundant enough to trick sonar, individually they are no bigger than your index finger.

During a 10-day expedition in the Atlantic, the team towed an instrument called Deep-See from the *Henry B. Bigelow*, a ship from the National Oceanic and Atmospheric Administration. Inside that deep layer, it detected a range of frequencies that the scientists hope to match with pictures and DNA to create a kind of auditory dictionary of twilight zone inhabitants.

They collected organisms in trawl nets, on the final day attaching a small aquarium to the back of one net that kept most of the organisms they photographed on the ship alive and in good shape.

Tiny bodies, small appetites:

The common bristlemouth is the most abundant vertebrate on the planet.

"Some of them look like crazy monsters," Sosik said about the glowing, elongated fish. But she pointed out that, "most of the animals that live in the twilight zone are really small".

This size adaptation is key here where food is scarce, because small things don't need as much of it.

Though small, they're fierce:

A fang-toothed monster, the Sloane's viperfish (*Chauliodus sloani*), could fit inside your hand.

"This guy would be considered one of the big, bad predators down there," said Paul Calger, a biologist at Woods Hole and the cruise photographer.

It has one of the biggest teeth-to-body-size ratios in the animal kingdom. Its teeth are too large for its mouth to accommodate, so it just closes them like a cage, imprisoning its prey before it eats.

Making more light in the dim depths:

The belly of a hatchetfish contains light organs or photophores. Many animals down there make their own light through a chemical reaction inside photophores of various shapes, sizes and arrangements.

By turning on these lights and regulating their intensity, hatchetfish blend in with light flowing down from the surface, becoming invisible to predators looking up for silhouettes from below.

This hiding technique, called counter-illumination, is the most common use of bioluminescence in the twilight zone. Animals like the hatchetfish also use their bodies as mirrors to hide, or even make themselves transparent.

Things that go bump in the twilight zone:

For sensing a dimly-lit environment, animals like the lantern fish may turn their eyes into giant lenses for low light. Or like the common lingcod, they opt for other senses. The ridge along its body's length has pressure sensors that can detect objects, current or animals moving in the water a few body lengths away. Up close, a mucus coating enhances the fish's ability to detect chemicals around it.

And, that isn't even the weirdest adaptation. Instead of squirting ink to escape predators, the fast-size glass squid hides in plain sight, pulling its tentacles and head inside its spike-covered body cavity. Then it fills this squid orb with its own ink, becoming "an unpalatable, turgid ball".

When the navy started using active acoustics to monitor the sea in the 1930s, they noticed lots of sound bouncing off a layer they thought was the bottom. But its depth changed from night to day.

This "false bottom" turned out to be a traveling mass of animals that journey hundreds to thousands of feet from the depths to the surface each night in a living wave that wraps around the planet.

During the day, surface dwellers like sharks, tunas and swordfish dive down to the depths to eat, recent evidence has found.

"The layers are not distinct. They're very highly interconnected, and the organisms that live in one layer are influenced by the organisms that live in another," Sosik said.

Scientists working to untangle this multi-layered food chain think it may play a major role in regulating climate by keeping carbon in the ocean. And that's part of why it's so important to study these watery depths that we ordinarily cannot see.

"If you imagined erasing the life in the twilight zone, it wouldn't affect just that layer. It would affect the ocean and the whole planet," Sosik said. "It's also just amazingly interesting, and you can't look away." **NYT**

Scientists working to untangle this multi-layered food chain think it may play a major role in regulating climate by keeping carbon in the ocean.