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

Bil	Berita	Media	Capaian Berita Penuh
	15 OKTOBER 2018 (ISNIN)		
1.	**Komersialkan hasil R&D** Fungsi utama Agensi Nuklear Malaysia ialah menjalankan penyelidikan dan pembangunan (R&D), khidmat dan latihan dalam bidang teknologi nuklear bagi pembangunan negara dan menggalakkan penggunaan, pemindahan dan pengkomersialkan hasil-hasil R&D tersebut.	Utusan Malaysia	Rujuk lampiran 1
2.	**IGEM 2018**	Nanyang Siang Pau	Rujuk lampiran 2
3.	**No need to fuss over rare earth** THE Lynas Advanced Materials Plant is back in the news. I still remember the time when the issue started. The Academy of Sciences Malaysia, had engagements not only with local experts, but also from the Academy of Sciences China, University of Queensland in Australia as well as the United States.	The Star	Rujuk lampiran 3
	14 OKTOBER 2018 (AHAD)		
4.	**WORLD STANDARDS DAY 2018**	Nanyang Siang Pau	Klik pada tajuk berita
5.	**Four more appointed to advisory council** They are technical and vocational education and training (TVET) specialist Datuk Boonler Somchit; Malaysian Education Association secretary-general P. Ramanathan; Universiti Teknologi Malaysia member of university senate Prof Dr Omar Yaakob and Energy, Science, Technology. Environment and Climate Change Ministry (Science, Technology and Innovation	The Star	Rujuk lampiran 4

	Sector) deputy secretary-general Assoc Prof Dr Ramzah Dambul.		
13 OKTOBER 2018 (SABTU)			
6.	**Sabah on tsunami watch** In the wake of dozens of tremors in southern Philippines and the Indonesian islands over the past two weeks, the Malaysian Meteorological Depart-ment (MetMalaysia) has put Sabah on a tsunami watch.	The Star	Rujuk lampiran 5 atau klik pada tajuk berita
7.	**Fuziah leaves Lynas committee** When asked about her replacement, Fuziah said she would leave it to Energy, Science, Technology, Environment and Climate Change Minister Yeo Bee Yin to make an announcement soon.	New Straits Times	Rujuk lampiran 6 atau klik pada tajuk berita
8.	**Semak Lynas: Fuziah lepas jawatan** Baru-baru ini, Menteri Tenaga, Teknologi, Sains, Perubahan Iklim dan Alam Sekitar, Yeo Bee Yin mengumumkan Fuziah dan Ahli Parlimen Bentong, Wong Tack akan mengetuai jawatankuasa itu yang meneliti operasi pemprosesan nadir bumi Lynas di Gebeng, di sini.	Utusan Malaysia	Rujuk lampiran 7 atau klik pada tajuk berita
9.	**Fuziah tarik diri ketuai kaji operasi Lynas** Ditanya siapa akan menggantikannya bagi jawatankuasa itu, Fuziah berkata, Menteri Tenaga, Teknologi, Sains, Perubahan Iklim dan Alam Sekitar, Yeo Bee Yin akan membuat pengumuman tidak lama lagi.	Berita Harian	Rujuk lampiran 8
10.	**Fuziah to step aside if Lynas wants her out of review team** The Kuantan MP said she had proposed to the Energy, Science, Technology, Environment and Climate Change Minister Yeo Bee Yin that the committee be revamped without her participation.	The Star	Rujuk lampiran 9 atau klik pada tajuk berita

TEMPATAN

Bil	Berita	Media	Capaian Berita Penuh
15 OKTOBER 2018 (ISNIN)			
11.	**Didik pelajar jaga alam sekitar** Menurutnya, program berkenaan mendedahkan kepada pelajar mengenai falsafah 8R iaitu rethink (fikir semula), refuse (jangan guna), reduce (kurangkan), reuse (gunakan semula), repair (baiki), re-gift (hadiahkan), recover (jana semula) dan recycle (kitar semula).	Sinar Harian	Klik pada tajuk berita
12.	**Kementerian serius kuat kuasa larangan guna straw** Kementerian Wilayah Persekutuan serius menguatkuasakan larangan penggunaan straw plastik berkuatkuasa 1 Januari 2020 untuk kelestarian alam dan kesejahteraan penduduk di ibu negara.	Berita Harian	Rujuk lampiran 10
13.	**Melaksanakan perolehan hijau** Adalah diharapkan dengan usaha kerajaan akan berterusan dan bakal menjadi garis panduan penting memartabatkan perolehan hijau dalam organisasi swasta, seterusnya mengalakkan amalan hijau dalam masyarakat Malaysia.	Sinar Harian	Rujuk lampiran 11
14.	**Sisi positif nuklear** “Kelima-lima teknik ini digunakan mengikut kesesuaian tapak projek dan komponen atau bahan yang ingin diuji.	Utusan Malaysia	Rujuk lampiran 12
15.	**A lesson in sustainability** He's not wrong – green energy in Malaysia in all forms has still not matured to the point of costs decreasing exponentially in order for it to be a viable alternative. It is a fact that our country is powered by coal energy to the tune of 53% of our total supply.	The Sun Daily	Rujuk lampiran 13 atau klik pada tajuk berita

14 OKTOBER 2018 (AHAD)			
16.	**Serius kuat kuasa larangan penggunaan straw** “Sebagai generasi muda yang mewarisi kepemimpinan negara, mahasiswa perlu memiliki daya pemikiran kreatif dan kritis berhubung kelestarian alam sekitar yang kondusif untuk didiami manusia, flora, fauna dan semua makhluk,” katanya.	Berita Harian	Klik pada tajuk berita
13 OKTOBER 2018 (SABTU)			
17.	**The future of energy** Malaysia, however, still has a long way to go in terms of fully embracing renewable energy- especially when it comes to business.	The Sun	Rujuk lampiran 14
18.	**Risiko gempa bumi di Malaysia** Gempa bumi berskala berskala 7.4 magnitud disusuli tsunami melanda Palu dan Donggala di Sulawesi Tengah, Indonesia pada 28 September lalu mengingatkan rakyat negara ini kepada gempa bumi di Sabah, dua tahun lalu.	Berita Harian	Rujuk lampiran 15 atau klik pada tajuk berita

ANTARABANGSA

Bil	Berita	Media	Capaian Berita Penuh
15 OKTOBER 2018 (ISNIN)			
19.	**Gempa, tsunami ancam penduduk dunia** Dunia digemparkan dengan berita bencana alam kebelakangan ini dengan menyaksikan sebilangan besar nyawa terkorban, kemusnahan kediaman dan harta benda akibat fenomena 'kemarahan' alam.	Utusan Malaysia	Rujuk lampiran 16 atau klik pada tajuk berita

20.	**Letusan Gunun Berapi Fuego berakhir** Pada 3 Jun lalu, Fuego meletus dengan menghamburkan batu, gas toksik dan lahar panas sehingga mengorbankan 190 orang dan 235 yang lain hilang.	Utusan Malaysia	Rujuk lampiran 17
21.	**'Zombie' hurricane smashes into Portugal, Spain** Storms packing nearly 180km/h winds hit Portugal early yesterday leaving hundreds of thousands of people without power before carrying heavy rain on into Spain, authorities said.	Malay Mail	Rujuk lampiran 18
22.	**Tree plantation to keep environment clean** “The tree plantation campaigns can improve not only the environment but also can increase natural beauty of our surroundings,” he said. He added that in the coming years, drastic measures would be required to plant maximum trees to avoid environmental destruction. He stated that participation of the civil society was of special importance in this regard.	The Nation	Klik pada tajuk berita
	14 OKTOBER 2018 (AHAD)		
23.	**Banjir kilat gegar Sumatera** Di Sumatera Utara, 11 kanak-kanak sekolah Islam di Kampung maut, selepas dinding kelas mereka runtuh, ketika sungai berhampiran melimpah, kelmarin.	Berita Harian	Rujuk lampiran 19
24.	**Umpama kena bom** Pasukan penyelamat menggunakan anjing pengesan di sekitar Mexico Beach untuk mencari mangsa yang mungkin terperangkap di bawah sisa runtuhan.	Harian Metro	Rujuk lampiran 20
25.	**Earth's defences against asteroids** If you watched the 1998 movies “Armageddon” or “Deep Impact”, you’d have the impression that the way to deal with a big asteroid hurling towards earth would be to send some astronauts to land on it and place some bombs on it.	New Straits Times	Rujuk lampiran 21 atau klik pada tajuk berita

26.	**12 pelajar madrasah maut banjir lumpur** Sekurang-kurangnya 12 pelajar madrasah maut dihanyutkan banjir lumpur besar yang merempuh kelas ketika waktu pembelajaran dalam kejadian di Desa Muara Saladi, Ulu Pungkut.	Utusan Malaysia	Rujuk lampiran 22 atau klik pada tajuk berita
27.	**Hurricanes like Michael show why we can't ignore climate change** The fact that both events occurred within a few days of each other is pure coincidence, of course. But it does leave the feeling that Nature just put one or more planetary-scale exclamation marks on the main takeaway from the IPCC report: Act now to reduce emissions, or suffer the consequences!	The Denver Post	Klik pada tajuk berita
28.	**The Guardian view on artificial intelligence: human learning** This is a welcome decision that illuminates two important facts about machine learning, the most widely used technique of AI at the moment. The technical or operational point is that these programs, no matter how fast they learn, can only learn from the data presented to them.	The Guardian	Klik pada tajuk berita
	13 OKTOBER 2018 (SABTU)		
29.	**Nature-based solutions** This is the warning that is sounded in the latest Intergovernmental Panel on Climate Change (IPCC) report.	New Straits Times	Rujuk lampiran 23
30.	**Switch to green energy – and save £250 on your bill** A British Gas customer, in an average UK home – on the firm's standard variable tariff – spends about £1,200 a year heating and lighting their home. If they live in a bigger house, or have teenage children, bills will be somewhere in the £1,600- to £2,000-a-year range.	The Guardian	Klik pada tajuk berita

LAMPIRAN 1
UTUSAN MALAYSIA (MEGA SAINS): MUKA SURAT 27
TARIKH: 15 OKTOBER 2018 (ISNIN)

Komersialkan hasil R&D

FUNGSI utama Agensi Nuklear Malaysia ialah menjalankan penyelidikan dan pembangunan (R&D), khidmat dan latihan dalam bidang teknologi nuklear bagi pembangunan negara dan menggalakkan penggunaan, pemindahan dan pengkomersilan hasil-hasil R&D tersebut.

Ini dizahirkan melalui aktiviti-aktiviti utama di Nuklear Malaysia iaitu menjalankan R&D dalam bidang teknologi nuklear dan berkaitan.

Nuklear Malaysia menumpukan aktiviti R&D kepada enam bidang keutamaan, industri, pertanian, pembuatan, perubatan, tenaga dan alam sekitar, selain daripada bidang-bidang teras seperti keselamatan nuklear dan radiasi, serta pengurusan sisa radioaktif.

Menerusi ciri-ciri pelbagai disiplin, teknologi nuklear mempunyai keupayaan untuk menawarkan penyelesaian teknikal bagi masalah teknikal yang timbul.

Ketua Pengarah Nuklear Malaysia, **Dr. Mohd. Abd. Wahab Yusof** berkata , projek R&D yang berorientasikan pasaran bagi menghasilkan produk yang baik adalah untuk menjana ekonomi melalui aktiviti hiliran.

Pelaksanaan projek R&D dipantau dan dianalisis secara berkala untuk memastikan ia berada pada landasan yang betul dan memenuhi sasaran tempoh masa yang ditetapkan. Untuk mengukuhkan pelaksanaan projek dan mengoptimumkan perkongsian sumber, beberapa projek berkaitan telah disatukan ke dalam beberapa projek utama, yang memberi kesan sosioekonomi yang lebih menguntungkan.

"Dalam hal ini, selain menjalankan penyelidikan bersama secara dalaman melalui sistem matriks, penyelidikan juga dijalankan melalui kerjasama dengan organisasi penyelidikan lain.

"Kerjasama penyelidikan dengan rakan kongsi industri juga telah dipertingkat untuk menghasilkan produk penyelidikan yang memberi manfaat secara langsung kepada pengguna akhir. Oleh itu, usaha telah dibuat untuk memastikan hasil penyelidikan dapat dikomersialkan melalui pemindahan teknologi," ujarnya.


DR. MOHD. ABD. WAHAB YUSOF

Kata beliau, teknologi nuklear juga dimanfaatkan dalam sektor-sektor yang diharapkan menghasilkan produk-produk tersendiri, perkhidmatan dan peralatan, atau metodologi diagnostik untuk perubatan dan industri, dan juga untuk memberi nilai tambah kepada produk-produk pertanian bagi meningkatkan hasil negara.

Hasil-hasil penyelidikan ini dapat membuka peluang kepada Nuklear Malaysia untuk memberi perkhidmtaan kepada pengguna menjana pendapatan dan juga dapat dipindahkan atau dikomersialkan kepada syarikat-syarikat tempatan.

Aktiviti R&D dijalankan menggunakan pelbagai jenis dana daripada kerajaan.

Ini termasuklah dana penyelidikan yang diuruskan oleh kementerian, peruntukan pembangunan dari kerajaan pusat, sebahagian daripada peruntukan mengurus dan dana-dana lain dari pelbagai sumber dari dalam dan luar negara. Nuklear Malaysia juga mendapat hasil daripada pemberian perkhidmatan berbayar kepada pelanggan-pelanggannya melalui kewujudan tabung akaun amanah yang dibenarkan oleh Kementerian Kewangan.

Sumber tersebut juga dapat digunakan untuk pelbagai tujuan selain dari untuk membantu aktiviti-aktiviti R&D di agensi berkenaan.

LAMPIRAN 2
NANYANG SIANG PAU: MUKA SURAT A9
TARIKH: 15 OKTOBER 2018 (ISNIN)

IGEM

地点：吉隆坡国际会展中心（KLCC）
日期：2018年10月17至20日
时间：上午9时至傍晚6时

国际绿色科技及环保产品展会
招徕绿色工业外资来马

能源、工艺、科学、气候转变与环境部长杨美益指出，第9届“国际绿色科技及环保产品展览会暨论坛”（IGEM 2018）关注4大主题，即再生能源、能源效率、垃圾处理及绿色产品，让国内外投资者能够更有信心投资在绿色工业。

她透露，全球196个国家签署了巴黎协定（Paris Agreement），加入减碳行列，而大多数国家，至少三分之一的能源来自电力，因此IGEM着重于再生能源及能源效率，不但是我国可以履行巴黎协定，我国的企业在国内市场有一定经验后，可到国外竞争。

她说，垃圾处理与绿色产品息息相关，关系着卫生问题，就从垃圾问题及垃圾场即可看出，都是些不能分解的塑料，保丽龙，因此需寻找替代方案，尤其到了2050年，全球达100亿人口时，垃圾也会因而越来越多，因此有效处理垃圾，也是一个世界趋势。

料吸引3万人入场

这场由能源、工艺、科学、气候转变与环境部主办的东南亚最大型的绿色科技展览IGEM 2018订于10月17至20日，在吉隆坡会展中心（KLCC）开展，获欧洲、韩国、中国、日本、台湾等35个国家及地区的250个参展单位，料吸引3万人入场观展及取得25亿令吉销售额。

杨美益指出，本身也会在展会上宣布有关再生能源的利好消息及我国能源前景，以便我国能在2025年达到20%再生能源，此外，让我国加快展开环保项目，以增加企业实力，同时也能降低电费的波动率。

再生能源降低电费

“现在，我国依靠煤及天然气发电，因此电费中的3分之二是燃料价钱，这也是为何我国电费会起伏不定，而采用再生能源，不仅绿化，还能够降低电费价格的波动。”

随着我国减少使用塑料，杨美益也会在现场宣布零一次性塑料路线图（Zero Single Use Plastic Road Map），让塑料生产商能够从中获知趋向，转型生产生物可分解塑料袋（Biodegradable Bag）。

她冀望，通过IGEM，为我国塑造一个形象，让国外企业要在中国以外的亚洲国家投资绿色工业时，都会想到马来西亚，因此本身都会出席4天的展会，与大家交流，尤其是投资者，以吸引更多的绿色工业投资者来马投资。

她说，我国业者需要外国投资者的资金与技术转移，通过合作的模式，让我国企业能够学习更多，然后放眼国际。

另外，杨美应与大马年轻科技创业者进行对谈会，探讨企业与政府的合作机会，此外亦与大马交易所、国家银行共同与各金融机构代表，针对绿色工业融资进行小型对谈会。

本届大会主题“绿色经济与工业4.0”，邀来超过40位不同领域的主讲人前来分享精辟见解，同时也会举办市长大会，汇聚加拿大、挪威、丹麦等国家。

杨美益：欢迎企业、公众及对绿色工业有兴趣的学生前来观展，了解国家绿色工业最新的发展走势。

IGEM 2018开放时间上午10时至下午6时，最后一天免费开放予公众入场参观，时间为上午10时至下午5时。更多详情，览：www.igem.my。

Ditrolic Solar 总执行长谭志安

提供干净太阳能方案

Ditrolic Solar是建基于大马的国际太阳能发展与工程公司，是国内与东南亚其中一家太阳能工业先锋。2009年成立以来，在新山、吉隆坡、沙巴、新加坡及马尼拉设有办事处。

我们为本区域的客戶提供干净的太阳能解决方案，其中包括松下、丰田、DHL、西门子、实达集团和博宜机场。目前，我们已完成超过100个项目，所安装的太阳能设备，总发电容量超过40兆瓦时。

这是Ditrolic Solar第3次参与IGEM展会，我们将展示商用能源与发电厂解决方案。

大金（马）销售与服务私人有限公司总经理宋侑洛

VRV X系列空调更节能

基于“只使用所需的能量”理念，由大金（Daikin）研发的VRV X系列产品，通过对空调的制冷剂体积、温度和空气流量，进行最精确的控制，大幅度地提升空调系统的经济性和效率。它能根据室内环境自动调整温度，最大限度地节能，营造凉爽舒适的空间。

大金认为节能对永续发展十分重要，绿色科技提升能源生产力是未来趋势，因此致力开发VRV X，提供更好的冷却方案，并以此技术为环保作出贡献。

Plus Solar Systems 私人有限公司总执行长许传真

助工商业建筑物革新

Plus Solar Systems Sdn Bhd是一家提供一站式净能源方案的服务供应商。我们的信念建立于能源三部曲之上，也就是产电、节能和蓄电。我们展望带领着世界迈向一个干净、持久和更美好的未来。

截至今年8月，我们帮助了超过700间工商业建筑物革新了他们的用电模式，其中包括国际著名商场IKEA、KLIA、Sunway Sales Gallery、Thong Guan Industries和PKT Logistics。除此之外，我们还为大型的太阳能光伏电站提供工程、采购、施工和调试（EPCC）的服务。

（资讯）

LAMPIRAN 3
THE STAR (VIEWS): MUKA SURAT 25
TARIKH: 15 OKTOBER 2018 (ISNIN)

No need to fuss over rare earth

THE Lynas Advanced Materials Plant is back in the news. I still remember the time when the issue started. The Academy of Sciences Malaysia, had engagements not only with local experts, but also from the Academy of Sciences China, University of Queensland in Australia as well as the United States.

The most interesting experience for me was when I was asked to visit a similar rare earths facility in La Rochelle, France. La Rochelle is a popular beach holiday resort. I went expecting to see an isolated rare earths extraction facility away from residents.

I found that the facility was right in the midst of the resort town and had been in operation for more than two decades without any fuss from the locals. A big contrast to what we experienced here.

We suggested that critics of Lynas visit the La Rochelle facility. The offer is still open. It would be a pity if a genuine business like Lynas is judged based on hearsay and unsubstantiated facts.

Business interest in rare earths has surged in recent years. Many believe this has been driven mainly by the growing demand for new electronics.

Super magnets and sensors require rare earths. Both light and heavy rare earths have become much sought after materials.

The search for better batteries to support the growing demand for electric transport has also fuelled the demand for rare earths.

China has vigorously mined rare earths. However, as with all chemical processing, strict environmental procedures are necessary in the extraction of rare earths.

China has since learned the lessons to tighten the rules on environmental safeguards .

In the case of Lynas, experts in rare earths processing have given their environmental standards the thumbs up.

I am told that the recent concern by opponents of Lynas is with regard to the management of their wastes which, as expected, do contain some radiation.

At the La Rochelle facility, the waste materials are kept under tight security. This is because the wastes still contain traces of rare earths which they hope to recover in the future using some newly developed technique.

The price of rare earths is expected to rise in the future. We should consider evaluating our own rare earths deposits for possible revenue generation in the future.

Experts have confirmed that we have rich deposits of rare earths waiting to be exploited, especially the higher-priced heavy rare earths.

PROF DR DATUK AHMAD IBRAHIM
Fellow, Academy of Sciences Malaysia,
UCSI Universiy

LAMPIRAN 4
THE STAR (NEWS): MUKA SURAT 3
TARIKH: 14 OKTOBER 2018 (AHAD)

Four more appointed to advisory council

FOUR more prominent figures have been appointed to the Education Ministry's National Education Advisory Council (MPPK) for the 2018 to 2020 session.

They are technical and vocational education and training (TVET) specialist Datuk Boonler Somchit; Malaysian Education Association secretary-general P. Ramanathan; Universiti Teknologi Malaysia member of university senate Prof Dr Omar Yaakob and Energy, Science, Technology, Environment and Climate Change Ministry (Science, Technology and Innovation Sector) deputy secretary-general Assoc Prof Dr Ramzah Dambul.

Education Minister Dr Maszlee Malik said the council chaired by former Education director-general Tan Sri Dr Wan Mohd Zahid Mohd Noordin and Royal Selangor International Sdn Bhd chairman Tan Sri Yong Poh Kon who is the council's deputy chairman, will advise him in all matters related to education, from preschool to higher education.

"The appointed council members are among those with experience, knowledge and expertise in matters relating to education.

"This is the best group to help improve the country's education system taking it to a higher level," he told reporters after presenting letters of appointment to the council recently.

The other members of the National Education Advisory Council appointed on Aug 16 are Parent Action Group for Education Malaysia chairman Datin Noor Azimah Abdul Rahim; Khazanah Nasional education adviser Datuk Satinah Syed Saleh; former Universiti Kebangsaan Malaysia deputy vice-chancellor Datuk Dr Sukiman Sarmani who is also a Chemistry and Nuclear Science specialist; Air Defence Artillery Group Malaysia Commander Brig-Jen Datuk Yusri Anwar and Universiti Islam Antarabangsa Malaysia Faculty of Economics and Management Science Department of Economics Prof Dr Ruzita Mohd Amin.

Dr Maszlee said the council will meet in the next four weeks to convey its KPI to him. — Bernama

LAMPIRAN 5
THE STAR (NATION): MUKA SURAT 2
TARIKH: 13 OKTOBER 2018 (SABTU)

Sabah on tsunami watch

MetMalaysia on alert following recent tremors in Philippines, Indonesia

PETALING JAYA: In the wake of dozens of tremors in southern Philippines and the Indonesian islands over the past two weeks, the Malaysian Meteorological Department (MetMalaysia) has put Sabah on a tsunami watch.

The department is on alert particularly for earthquake activities in Mindanao and Sulawesi, closely observing the Celebes and Sulu Sea for a possible tsunami that could sweep Sabah's coastline with little or no warning.

A MetMalaysia official told *The Star* that in the past two weeks, there were at least 24 earthquakes in Indonesia's Sulawesi and Lesser Sunda Islands and the Philippines' Mindanao island, with the magnitude ranging between 4.4 and 6.0 on the Richter scale.

"We are worried that an earthquake could take place in the middle of the sea, resulting in a tsunami which could engulf Sabah's northern or easterly coast towns," the official said.

At 1.30am on Thursday, a 1.2-magnitude earthquake struck Sabah. The quake was detected at a depth of 9km, with its epicentre located 13km northeast of Ranau.

The official said MetMalaysia was working closely with Philippine and Indonesian agencies to monitor seismic movements in the region around the clock.

"If we suspect any tsunami activity, we will issue immediate public warnings to alert residents of the possible danger and activate other emergency protocols," the official said.

Aside from working closely with the Indonesian and Philippine meteorological departments, MetMalaysia will also monitor the tidal gauge placed around Sabah's coast.

Although Sabah is not seated within the Ring of Fire, a belt of seismic activity running around the basin of the Pacific Ocean, it is close enough to the edge of these fault lines and is susceptible to the compression forces from the interaction of three main tectonic plates.

Sabah is actually located on the southeastern Eurasian Plate which is bordered by the Philippine Plate and the Pacific Plate.

The Philippine Plate and Pacific Plate are moving westwards, colliding with the Eurasian Plate, at the speed of 10cm a year.

The southern part of the Australian Plate is also inching northwards at 7cm per year. It is the most active and unstable plate.

Although Sabah is located 1,000km away from the collision of these plates, it still can feel the compression force.

In June 2015, Ranau was struck by a 6.0-magnitude earthquake.

Eighteen people, including nine Singaporeans, were killed when they were struck by falling rocks on Mount Kinabalu. Some 137 climbers were stranded on the mountain but were later rescued.

The quake struck at a depth of 10km, with its epicentre located 19km from Ranau town and 54km from Kota Kinabalu.

Tremors were also felt on Sabah's coast and as far in as Bandar Seri Begawan in Brunei and Kudat, 190km north of Kota Kinabalu.

In 1966, Ranau was hit by a 5.3-magnitude earthquake, and another 5.2-magnitude tremor in 1991.

On Sept 28, Palu and Donggala, both coastal towns in Sulawesi, were hit by a powerful 7.5-magnitude earthquake, resulting in a tsunami.

The death toll from this earthquake stands at more than 2,000, with 680 people officially still missing.

However, it is feared there could be as many as 5,000 people still buried in the rubble after large swathes of Palu were swept by waves.

The United Nations estimates that some 80,000 people have been displaced by the disaster, with many now living in tents outside their destroyed homes.

Ongoing work: Excavators being

Wet days ahead nationwide

PETALING JAYA: The entire country is expected to receive plenty of heavy rainfall and thunderstorms as the monsoon enters its transition period.

A Meteorological Department official said that some areas in Kedah, Penang, Sarawak and Sabah would likely receive heavier rainfall, more than the average, and that could lead to flooding.

He said heavy rain and thunderstorms were expected in the late afternoons and evenings in the west coast, interior areas of the peninsula, Sabah west coast and central parts of Sarawak.

He said the period, which marked the end of the south-west monsoon, would also see the country's regional areas experiencing a light breeze from various directions.

The weatherman also warned the public to take extra precautions during this period and keep themselves updated with the department's website or social media page for the latest weather updates.

DID: Stagnant floodwaters cannot be avoided for now

KOTA BARU: Stagnant floodwaters in some parts of Kelantan cannot be avoided during the rainy season as the capacity of the existing pumps to drain water is limited.

State Drainage and Irrigation Department (DID) director Kamal Mustapha said the department's 15 mobile pumps could only do that much to reduce the volume of water as quickly as possible.

"The pumps would release the floodwater through outlet gates in Kelaburan and Pisau Raut," he said when asked if the state had enough pumps to address the recurring stagnant floodwater phenomenon especially in Tumpat.

Folks in Tumpat are worst hit by the stagnant floodwater woes, as scores of villages would remain inundated even after it stopped pouring for days.

Kelantan DID has also outlined comprehensive short, medium, and long-term structural and non-structural measures to address flood woes during the rainy season.

Short-term structural measures include reducing risk of floods by widening and deepening rivers, stabilising riversides, removing hydraulic obstacles, and realigning the embankments.

The ongoing Sungai Kelantan and Sungai Golok integrated river basin development projects are part of the long-term plans implemented to mitigate floods, and create a living river as well as an environment-friendly irrigation system.

Another RM1bil is needed for a total solution involving projects in Tumpat, Pasir Mas, Tanah Merah and Jeli.

Non-structural measures undertaken include holding briefings on preparation and action plans, and disseminating information through website (*publicinfobanjir.water.gov.my*) and mobile application (KelGovJPS).

Long-term non-structural measures undertaken include flood survey, flood hazard mapping, and flood assessment.

LAMPIRAN 6
NEW STRAITS TIMES (NEWS/ NATION): MUKA SURAT 12
TARIKH: 13 OKTOBER 2018 (SABTU)

CHAIRMAN POST

FUZIAH LEAVES LYNAS COMMITTEE

Easier for me to comment and fight from the outside, says Kuantan MP

MOHAMAD AZIM FITRI ABD AZIZ
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KUANTAN Member of Parliament Fuziah Salleh has relinquished her post as chairman of the Lynas Corporation Ltd (Lynas) evaluation committee, set up to review the rare-earth plant's operations.

Fuziah, who is deputy minister in the Prime Minister's Department, said she had taken serious consideration before informing the cabinet about her decision on Tuesday.

"I do not want Lynas to use me to divert attention from the issue (radioactive waste)... If I remain in the committee, I will not be able to provide comments to the media and the public.

"When I am no longer chairman, it will be easier for me to make comments and fight from the outside. If I am inside (part of committee), I can't talk as they will question me," she said at the Asnaf (underprivileged) Entrepreneur Carnival here yesterday.

Bentong MP Wong Tack is part of the committee, which was established last month.

Fuziah Salleh

When asked about her replacement, Fuziah said she would leave it to Energy, Technology, Science, Climate Change and Environment Minister Yeo Bee Yin to make an announcement soon.

On the peaceful rally by some 1,000 Lynas Malaysia staff and their families at Balok here last Saturday, Fuziah said the management spoke about the plight of their workers but did not discuss in depth about the fate of the 600,000 residents living in the state capital.

She said the management from Australia informed only that the radioactivity from the Lynas operation was low but did not discuss radioactive waste emissions.

"We are speaking about radioactive waste and not low radioactivity... the waste should not be left in Gebeng Industrial Park.

"I challenge them (Lynas). If they claim that it (radioactive waste) is safe, then send it to Australia."

LAMPIRAN 7
UTUSAN MALAYSIA (DALAM NEGERI): MUKA SURAT 20
TARIKH: 13 OKTOBER 2018 (SABTU)

Semak Lynas: Fuziah lepas jawatan

KUANTAN 12 Okt. - Ahli Parlimen Kuantan, Fuziah Salleh memutuskan keluar daripada Jawatankuasa Eksekutif Semakan Semula Lynas bagi mengelakkan kehadiran beliau dijadikan alasan oleh pihak-pihak tertentu untuk mempersoalkan ketelusan jawatankuasa tersebut dan dianggap berat sebelah.

Timbalan Menteri di Jabatan Perdana Menteri itu yang lantang mengkritik Lynas Corporation Ltd. (Lynas) sejak projek berkenaan diperkenalkan pada 2008 berkata, beliau membuat keputusan melepaskan jawatan selaku pengerusi jawatankuasa tersebut pada Selasa lalu dan sudah memaklumkannya kepada Kabinet.

"Secara peribadi saya tidak mahu Lynas menggunakan saya sebagai isu untuk mereka mengalih tumpuan daripada isu sebenar. Jika saya menjadi pengerusi jawatankuasa ini, Lynas 'bantai' saya. Jadi, ia tidak menceritakan masalah sebenar.

"Akhirnya saya membuat keputusan keluar daripada jawatankuasa tersebut. Saya tidak mahu memberi Lynas alasan," katanya ketika ditemui pemberita selepas majlis perasmian Karnival Usahawan Asnaf yang disempurnakan oleh Tengku Puan Pahang, Tunku Azizah Aminah Maimunah Iskandariah di sini hari ini.

Baru-baru ini, Menteri Tenaga, Teknologi, Sains, Perubahan Iklim dan Alam Sekitar, Yeo Bee Yin mengumumkan Fuziah dan Ahli Parlimen Bentong, Wong Tack akan mengetuai jawatankuasa itu yang meneliti operasi pemprosesan nadir bumi Lynas di Gebeng, di sini.

Menurut Fuziah, keputusan berkenaan juga membolehkan beliau bebas untuk bercakap tentang isu Lynas secara terbuka terutama berhubung pengurusan sisa radioaktif.

Kata beliau, perkara berkenaan dilihat paling utama kerana sisa radioaktif merupakan isu penting yang perlu dibincangkan daripada perspektif kelestarian dan pembangunan mampan.

LAMPIRAN 8
BERITA HARIAN (ISU): MUKA SURAT 4
TARIKH: 13 OKTOBER 2018 (SABTU)

Fuziah tarik diri ketuai kaji operasi Lynas

Kuantan: Ahli Parlimen Kuantan, Fuziah Salleh mengambil keputusan drastik mengumumkan penarikan diri daripada mengetuai jawatankuasa mengkaji semula aspek penetapan syarat dan operasi kilang memproses nadir bumi oleh Lynas Corporation Ltd (Lynas) di Kawasan Perindustrian Gebeng, dekat sini.

Beliau sudah memaklumkan keputusan itu kepada Kabinet, Selasa lalu, selepas membuat pertimbangan sewajarnya.

"Secara peribadi saya tidak mahu Lynas gunakan saya untuk alihkan isu ini (sisa pembuangan radioaktif)...jika saya berada dalam jawatankuasa itu, saya tidak boleh beri komen kepada media dan orang awam.

"Apabila saya bukan lagi pengerusi jawatankuasa berkenaan, mudah saya membuat komen dan akan lawan daripada luar, tetapi jika berada di dalam, saya tidak boleh cakap dan mereka akan persoalkan saya nanti," katanya selepas hadir pada Karnival Usahawan Asnaf Negeri Pahang, di sini, semalam.

Jawatankuasa ditubuhkan pada bulan lalu itu turut dianggotai Ahli Parlimen Bentong, Wong Tack.

Ditanya siapa akan menggantikannya bagi jawatankuasa itu, Fuziah berkata, Menteri Tenaga, Teknologi, Sains, Perubahan Iklim dan Alam Sekitar, Yeo Bee Yin akan membuat pengumuman tidak lama lagi.

Elak peranan dipertikai

Beliau yang juga Timbalan Menteri di Jabatan Perdana Menteri (Agama) itu berkata, tindakannya menarik diri mengetuai jawatankuasa itu juga bagi mengelak peranannya dipertikai jika timbul perkara berbangkit, selain lebih selesa menyuarakan sebarang permasalahan sebagai wakil rakyat.

Mengulas perhimpunan aman oleh lebih 1,000 pekerja Lynas dan anggota keluarga mereka, Sabtu lalu, Fuziah berkata, pengurusan Lynas hanya bercakap mengenai nasib pekerja mereka, tetapi tidak membincangkan secara telus mengenai nasib 600,000 penduduk di daerah ini.

Katanya, pengurusan dari Australia itu hanya memaklumkan syarikat mereka selamat dan beroperasi dalam kadar radioaktif rendah, namun tidak membincangkan soal sisa buangan radioaktif.

"Sekarang kita bercakap soal sisa buangan radioaktif, bukan kadar radioaktif rendah...sepatutnya sisa itu tidak berada di Kawasan Perindustrian Gebeng. Saya cabar (Lynas) jika mereka kata ia selamat (sisa buangan radioaktif) hantar semula ke Australia," katanya.

Beliau turut mendakwa, terdapat lebih satu juta tan sisa buangan berjadual di Kilang Lynas pada masa ini.

LAMPIRAN 9
THE STAR (NATION): MUKA SURAT 6
TARIKH: 13 OKTOBER 2018 (SABTU)

Fuziah to step aside if Lynas wants her out of review team

By ONG HAN SEAN
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KUANTAN: Lynas review committee chairman Fuziah Salleh is prepared to step down in light of objections from the rare earth materials producer.

The Kuantan MP said she had proposed to the Energy, Science, Technology, Environment and Climate Change Minister Yeo Bee Yin that the committee be revamped without her participation.

Fuziah said she refused to be used as ammunition by Lynas seeing that any outcome of the review would be criticised with her in the committee.

"No matter how impartial the review, Lynas will not accept it due to my involvement.

"My concern is for Malaysia, the people and our environment," she said, adding that she was prepared to step aside if Lynas wanted her out of the review team.

"I have no doubt that there will be highly qualified personnel who can fill the void.

"I prefer not to be used by Lynas to criticise the review when it has a very important function to perform for the country," she said yesterday.

Fuziah's appointment as chairman of the executive review committee had been heavily questioned due to her anti-Lynas stance.

Lynas employees recently held a rally here to call for fair treatment from the government.

Fuziah, who is Deputy Minister in the Prime Minister's Department, said she would still continue to speak out on issues surrounding the Lynas Advanced Materials Plant (LAMP) in Gebeng here.

She said a fresh review was necessary following the mandate given by the people to the Pakatan Harapan government.

"Of course we have to review Lynas again.

"Malaysians have placed their trust and hope on Pakatan Harapan and the Cabinet is obliged to set up an executive review to look into the approval process and safety issues related to the LAMP," she said.

LAMPIRAN 10
BERITA HARIAN (DASAR & PENTADBIRAN): MUKA SURAT 6
TARIKH: 15 OKTOBER 2018 (ISNIN)

Kementerian serius kuat kuasa larangan guna straw

Keratan akhbar BH 23 September 2018.

Bahan daripada biodegradasi, kertas boleh diguna kerana mesra alam: Khalid

Oleh Mohd Azrone Sarabatin
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Kuala Lumpur

Kementerian Wilayah Persekutuan serius menguatkuasakan larangan penggunaan straw plastik berkuatkuasa 1 Januari 2020 untuk kelestarian alam dan kesejahteraan penduduk di ibu negara.

Menteri Wilayah Persekutuan, Khalid Abdul Samad, berkata sebagai pengganti kepada straw plastik konvensional, bahan daripada biodegradasi atau kertas boleh digunakan kerana mesra alam.

Bagaimanapun beliau berkata, penguatkuasaan larangan penggunaan straw minuman plastik hanya untuk peniaga dan pengusaha kedai makan yang memegang lesen dan bukan orang ramai seperti tertera dalam syarat lesen perniagaan mulai 1 Januari depan.

Alam sekitar lebih baik

"Usaha bersama ke arah alam sekitar lebih baik ini tidak akan berjaya tanpa kerjasama semua pihak mencakupi masyarakat berbilang kaum, pelajar institusi pengajian tinggi dan Institut Pendidikan Guru (IPG)," katanya.

> Penguatkuasaan larangan penggunaan straw minuman plastik hanya untuk peniaga dan pengusaha kedai makan yang memegang lesen dan bukan orang ramai seperti tertera dalam syarat lesen perniagaan mulai 1 Januari depan"
>
> ***Khalid Abdul Samad,*** *Menteri Wilayah Persekutuan*

Beliau berkata demikian ketika berucap merasmikan Hari Alam Sekitar Negara (HASN) Peringkat Wilayah Persekutuan dan Pertandingan Debat Terbuka Ilmu Khas (DeTIK) di IPG Kampus Ilmu Khas, di sini, semalam.

Debat kali ini anjuran IPG Kampus Ilmu Khas dengan kerjasama Dewan Bandaraya Kuala Lumpur (DBKL), Jabatan Alam Sekitar Kuala Lumpur, Dewan Bahasa dan Pustaka (DBP), Bahagian Teknologi Pendidikan (BTP, Majlis Debat Universiti Malaysia (MADUM) dan Aktivis Debat IPG Malaysia (ADIM).

Pertandingan debat

Pertandingan debat selama empat hari sehingga esok disertai 64 pasukan meliputi pelajar universiti awam (UA), universiti swasta, IPG, kolej matrikulasi, politeknik, Maahad Tahfiz dan institusi pendidikan lain yang berusia 18 hingga 21 tahun.

Khalid berkata, HASN Peringkat Wilayah Persekutuan kali ini lebih menarik kerana diisi dengan pertandingan debat yang membincangkan isu alam sekitar sebagai topik perdebatan.

"Program seumpama ini perlu dilaksanakan berterusan untuk mencetuskan kesedaran berhubung kepentingan menjaga alam sekitar sebagai tanggungjawab bersama," katanya.

Sementara itu, Mohd Suhaimi berkata, pihaknya bersama rakan yakin program berkenaan mampu melahirkan siswa dan pendebat prihatin terhadap isu alam sekitar.

"Sebagai generasi muda yang mewarisi kepemimpinan negara, siswa perlu memiliki daya pemikiran kreatif dan kritis berhubung kelestarian alam sekitar yang kondusif untuk didiam," katanya.

LAMPIRAN 11
SINAR HARIAN (CETUSAN): MUKA SURAT 41
TARIKH: 15 OKTOBER 2018 (ISNIN)

Melaksanakan perolehan hijau

Wacana Hijau

DR MOHD AZMAN ZAINUL ABIDIN

Dalam artikel lalu, "Membudayakan Amalan Lestari", saya telah memberi sedikit maklumat mengenai langkah GreenTech Malaysia dalam mengamalkan perolehan hijau. Artikel ini akan mengupas lanjut tentang subjek ini secara khusus dari sudut sebuah organisasi.

Melalui perolehan hijau, pembelian produk dan perkhidmatan dilakukan dengan mengambil kira produk dan perkhidmatan yang telah dan akan memberi kesan minimum kepada alam sekitar pada semua peringkat; iaitu semasa proses pemilihan bahan mentah, pembuatan, pengangkutan, penyimpanan, pengendalian, penggunaan dan pelupusan.

Secara umum, perolehan hijau adalah proses pengurusan pembelian produk dan perkhidmatan yang memenuhi kriteria-kriteria tertentu. Misalnya meminimumkan degradasi kualiti persekitaran atau mengurangkan pelepasan rumah hijau dengan menggunakan bahan-bahan yang bebas bahan kimia dan produk kitar semula. Ia juga mementingkan kesihatan dan peningkatan persekitaran, direka bentuk supaya boleh kitar semula, jimat tenaga, air dan/atau sumber asli atau mempromosikan penggunaan tenaga yang boleh diperbaharui. Atau berkebolehan untuk mengitar semula sisa bahan sumber dan mendapat pensijilan daripada badan-badan persijilan tempatan ataupun luar negeri.

Perolehan hijau dapat memberi faedah dan penjimatan jangka panjang. Namun, realitinya perolehan hijau bukanlah suatu perkara yang mudah untuk dilaksanakan. Ia akan menjadi cabaran besar kepada sesebuah organisasi kerana wujudnya persepsi kos pembelian akan meningkat jika dibandingkan dengan pilihan konvensional dalam pasaran sedia ada.

Isu ini mungkin ada benarnya berdasarkan situasi yang mana kebanyakan organisasi hanya menilai faktor harga pada masa produk atau perkhidmatan tersebut dibekalkan tanpa mengambil kira faedah jangka panjang. Namun, kos bukanlah satu-satunya cabaran yang perlu diatasi, sebaliknya kekurangan dari sudut pengetahuan, kesedaran dan komitmen korporat dari semua peringkat (terutamanya dari pihak pengurusan dan pegawai perolehan), kekangan stok dan sikap perolehan yang tidak ingin berubah untuk menjaga jalinan kerjasama yang telah lama wujud dengan pihak pembekal produk atau perkhidmatan konvensional.

Persepsi di atas boleh diubah sekiranya organisasi menyedari bahawa perolehan hijau mempunyai kelebihan dari sudut kos operasi, seperti penjimatan bil elektrik melalui penggunaan produk jimat tenaga, baik pulih dan penggantian komponen boleh ganti, pengurusan dan bahan buangan merbahaya; dan mengurangkan risiko dari sudut tanggungan liabiliti, keselamatan dan kesihatan pekerja.

Untuk memulakan langkah perolehan hijau, angin perubahan perlu berlaku melalui sokongan dari dalam sesuatu organisasi, sama ada melalui kerangka polisi, prosedur dan sokongan penuh pihak pengurusan. Pihak pengurusan juga mestilah menetapkan matlamat melalui polisi, keutamaan dan pencapaian, merangka strategi dengan mengenal pasti dan melaksanakan perubahan jangka pendek dan panjang, mengenal pasti produk dan perkhidmatan yang sesuai dan menilai prestasi pembekal secara berkala.

Melalui projek perintis akan dapat memberikan pengalaman langsung secara praktikal. Ia dapat memberi sedikit panduan dalam aspek perolehan, merangka strategi komunikasi dan mewujudkan kesinambungan dalam amalan perniagaan melalui penilaian program perolehan hijau dan keberkesanannya dalam memenuhi objektif dan matlamat organisasi.

Menyedari kepentingan perolehan hijau, melalui RMK11 (2016-2020) kerajaan Malaysia telah melaksanakan Dasar Perolehan Hijau Kerajaan (GGP). Perolehan kerajaan memainkan peranan penting sebagai pemangkin kepada pembangunan sosioekonomi kerana ia mewakili kira-kira 12%-15% dari Keluaran Dalam Negara Kasar.

Dengan sasaran sekurang-kurangnya 20% perolehan hijau kerajaan menjelang 2020, GGP akan menjadi mandatori kepada semua kementerian dan agensinya serta menjadi contoh ikuran kepada sektor swasta dan masyarakat umum. GGP juga disasarkan akan mewujudkan permintaan bagi produk dan perkhidmatan hijau dan seterusnya menggalakkan industri untuk meningkatkan tahap dan kualiti produk bagi memenuhi kriteria hijau.

Adalah diharapkan dengan usaha kerajaan akan berterusan dan bakal menjadi garis panduan penting memartabatkan perolehan hijau dalam organisasi swasta, seterusnya menggalakkan amalan hijau dalam masyarakat Malaysia.

Teknologi Hijau untuk semua.

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LAMPIRAN 12
UTUSAN MALAYSIA (MEGA SAINS): MUKA SURAT 23
TARIKH: 15 OKTOBER 2018 (ISNIN)

UTUSAN MALAYSIA
ISNIN • 15.10.2018
Mega
sains
mega utusan malaysia

Sisi positif nuklear

SATU letupan besar pernah berlaku dan menggemparkan penduduk di Lawas, Sarawak sehingga menyebabkan keadaan menjadi cemas seketika suatu ketika dahulu.

Insiden yang berlaku pada awal pagi itu menyebabkan langit di kawasan tersebut terang benderang dengan nyalaan api dan menggegarkan kawasan berdekatan, namun mujur tiada nyawa yang terkorban.

Siasatan pihak berkuasa mendapati letupan tersebut berlaku dipercayai berpunca daripada kebocoran paip gas bawah tanah milik sebuah syarikat petroleum.

Disebabkan itulah, ujian kimpalan melalui kaedah Ujian Tanpa Musnah (NDT) yang dibuat bawah inisiatif Nuklear Malaysia sangat penting bagi mengenal pasti sebarang kecacatan pada struktur atau kualiti kimpalan untuk mengelakkan sebarang letupan atau runtuhan sesuatu bangunan berlaku.

LAMPIRAN 12 (SAMBUNGAN)
UTUSAN MALAYSIA (MEGA SAINS): MUKA SURAT 24
TARIKH: 15 OKTOBER 2018 (ISNIN)

Kaedah NDT bantu bidang kejuruteraan

Oleh INTAN SUHANA CHE OMAR
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X-RAY MEMAINKAN peranan penting dalam mengenal pasti kerosakan struktur dalam teknologi NDT.

TERDAPAT dua kaedah yang boleh digunakan untuk menguji permasalahan struktur iaitu menerusi ujian musnah dan ujian tanpa musnah (NDT).

Ujian musnah melibatkan perbuatan atau kaedah yang merosakkan bahan atau spesimen semasa ujian dilakukan, manakala NDT adalah sebaliknya.

Oleh itu, NDT dilihat lebih efisien dan sesuai dilakukan kerana ia tidak merosakkan komponen, tidak menyebabkan bahaya dan tidak menyebabkan kerugian ekonomi akibat kemusnahan barang yang diuji.

Individu yang bertanggungjawab memajukan bidang NDT di Malaysia yang juga Presiden NDT Malaysia, **Dr. Abd. Nassir Ibrahim** berkata, NDT merupakan satu kaedah atau analisis sains yang digunakan dalam industri untuk menentukan ciri-ciri sesuatu bahan, sistem atau komponen tanpa memusnahkan bahan tersebut.

Sirl 2

Menurutnya, ia sangat diperlukan oleh industri kejuruteraan berat yang berisiko tinggi untuk memastikan keselamatan sesuatu binaan atau struktur terjamin tanpa membazirkan wang dan sumber, selain tidak mempengaruhi atau mengubah bahan yang diuji.

Terdapat berpuluh-puluh kaedah yang digunakan dalam teknologi NDT untuk membantu mengesan sekiranya berlaku kecacatan kepada kimpalan atau struktur seperti kebocoran, retak dan sebagainya. Namun di Malaysia, terdapat lima kaedah konvensional yang sering digunakan iaitu radiografi, ultrasonik, ujian cecair penembus, ujian arus berpusar dan ujian zarah bermagnet.

"Kelima-lima teknik ini digunakan mengikut kesesuaian tapak projek dan komponen atau bahan yang ingin diuji.

"Secara mudahnya, teknik ini seperti x-ray dan visual iaitu kita melihat saja tanpa merosakkan dan sangat bagus untuk mengenal pasti sebarang kecacatan pada komponen untuk mengelakkan letupan atau runtuhan berlaku kerana jika ada sedikit sahaja retakan atau kecacatan boleh mengundang risiko-risiko tersebut terjadi," ujarnya.

DR. ABD. NASSIR IBRAHIM menerima Anugerah Tokoh Mahir Sempena Hari Pekerja.

MENGENAL PASTI KEROSAKAN

Jelasnya, ujian radiografi dijalankan untuk mengenal pasti kerosakan yang berlaku di dalam komponen atau bahan melalui sinar-X (*X-ray*) yang seterusnya akan terekod pada filem yang sensitif sebelum penilaian dilakukan.

Kaedah ini katanya, mempunyai prinsip seakan-akan sama seperti sinar-X yang digunakan pada tubuh manusia dan juga menggunakan sinar gama untuk material yang berbeza.

AGENSI Nuklear Malaysia mempunyai kemudahan sistem untuk memantau sebarang kerosakan atau kecacatan pada struktur yang diuji.

Kaedah ultrasonik pula melibatkan pemeriksaan menggunakan gelombang bunyi iaitu saiz dan kedudukan kecacatan dapat ditentukan melalui pengukuran masa perjalanan dan amplitud gelombang ultrasonik yang merambat di dalam bahan yang diperiksa.

Selain itu, teknik penguji cecair penembus menggunakan penembus pewarna untuk mengesan sebarang kecacatan pada permukaan bahan.

Ujian zarah bermagnet pula sesuai digunakan untuk logam ferus yang bertindak balas dengan magnet melalui teknik semburan iaitu zarah-zarah semburan akan menunjukkan kawasan yang mengalami

LAMPIRAN 13
THE SUN (SPEAK UP): MUKA SURAT 9
TARIKH: 15 OKTOBER 2018 (ISNIN)

A lesson in sustainability

THE announcement made by the Housing and Local Government Ministry recently is something to celebrate. Zuraida Kamaruddin said the government will embrace waste to energy (WTE) technology nationwide, aiming for a plant in every state within two years.

The details of such an undertaking are still being discussed, but Zuraida said contractors were aplenty in offering their services.

With the announcement, I do hope we are looking at more projects to create a sustainable country in terms of energy generation. However, not everyone shares the same thought process. A case in point, Sabah Chief Minister Datuk Seri Mohd Shafie Apdal still insists on powering the state with coal due to its low cost of generating energy.

He's not wrong – green energy in Malaysia in all forms has still not matured to the point of costs decreasing exponentially in order for it to be a viable alternative in Malaysia. It is a fact that our country is powered by coal energy to the tune of 53% of our total supply.

Gone are the days when those of us born in the 1980s had to memorise hydroelectric dam names in our primary school's "Alam Dan Manusia" subject to show that it was the highest supplier of our needs – it now supplies a mere 5%.

Moving forward though, we do need to monitor the performance of WTEs, and also consider other developments in sustainable technology and development throughout the country. A case in point, implementing solar panels and rainwater collectors on government housing projects.

Selangor state has already done this right before the general election, teaming up with the Sustainable Energy Development Authority to place solar panels on state-sponsored affordable housing.

It should be a set standard for all affordable and low cost housing projects in the future because a feed-in-tariff returned to the poor would also lower their expenditure on energy while also allowing the government to continue developing sustainable energy infrastructure in urban and suburban settings.

It's a situation where a little counts for a lot, especially if we can move Malaysia to reduce solid waste and recycle or upcycle it to become other products.

For example, if we could open up allotment plots and encourage low cost housing projects to even provide compost, which can be used for their own planting, it encourages a level of self-sustainability.

However, we do need to address the elephant in the room – transport. Regardless of any level of society, there is a need to encourage people to take public transport. For those encouraging the "Look East" model, Japan reduces cars by making it mandatory for driving schools to have two months of classes, costing roughly US$4,000 (RM16,000 roughly) a month. Thus, most just decide to take to the train.

Of course, I am not suggesting we do the same. Instead, what Malaysia should do is to improve the public transport network, make it affordable (unlike Japan), and move towards making it reliable and trustworthy enough for people to make it an option. We are nowhere near this scenario.

In a recent forum, economist Joseph Stiglitz said that Malaysia needed to introduce new taxes. His idea?

I would fully support it, especially with the insanity we have of someone wanting to launch yet another national car company when we cannot have clear skies during rush hour, even without our annual haze.

We need to reduce vehicle emissions, and to do that would mean enforcing stricter rules on cars and even heavy vehicles. Let us be frank, we dropped the ball when it came to enforcing vehicle maintenance standards on trucks and buses.

That needs to change, perhaps even automated in the same vein as the Automated Enforcement System, which will soon be enforced nationwide.

On top of all this, we do need to mention the dinosaur in the room – we are a nation of litterbugs. Let us face the obvious truth that even if we get peeved off over the smoker throwing a cigarette butt on the floor, we are also guilty of the logical fallacy of printing an ATM receipt only to throw it out minutes later after reading information that was already printed on the screen moments ago.

We are equally guilty of being the forgetful nancy who forgot their reusable cup when going to a Starbucks, to the point it has become a piece of décor on a shelf. We are also the ones who decide leaving garbage on a table after eating is acceptable in IKEA because they have cleaners now, rather than keep to the old style of cleaning our own tables.

But most of all, we need a cultural shift to move people to think about conserving, recycling and sustainability, even about how their little efforts in doing so lead to a big win.

In short, the biggest challenge in Malaysia's quest for sustainability is to make them care about it.

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LAMPIRAN 14
THE SUN: MUKA SURAT 4
TARIKH: 13 OKTOBER 2018 (SABTU)

THE FUTURE OF ENERGY

CREATING SUSTAINABLE CONSUMPTION HABITS

By CHRISTIE CHUA
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One of Plus Solar's projects in Cyberjaya that was completed in 2014.

WE consume a lot of energy daily – from charging our multiple electronic devices to the air-conditioning that we nonchalantly turn on whenever it becomes too warm for our liking.

Many of us don't think much about it, and might even take for granted the fact that we have electricity at the mere flip of a switch – but what is the impact of our energy consumption habits?

A PwC report that takes a look at the competing forces shaping the year 2030, forecasts that the demand for energy will increase by as much as 50 per cent by then.

The foundation for this scenario is based on one of the megatrends identified by PwC, which projects that depleted fossil fuels will lead to a scarcity of resources, while climate change is inevitable as extreme weather becomes more common and sea levels continue to rise.

The report also projects that new types of jobs will have to be created to cope with these needs, especially in the areas of alternative energy, new engineering processes, product design, and waste management and re-use.

As a result, traditional energy industries will see a rapid restructuring, which will in turn affect the millions of people employed by them.

Many countries are already making the shift from traditional energy to renewable sources such as wind, water, geothermal and solar energy.

In a bid to become the first nation to be free of fossil fuels, Sweden decided to boost investments in solar, wind, energy storage, smart grids and clean transport in 2015.

Costa Rica – a country famed for generating approximately 99 per cent of its electricity using renewable resources – set a record in 2017 by producing electricity using only clean energy for 300 consecutive days, and has set its sights on becoming a fossil fuel-free nation by 2021.

RENEWABLE ENERGY IN MALAYSIA

Malaysia, however, still has a long way to go in terms of fully embracing renewable energy – especially when it comes to businesses.

While a number of small- and medium-sized enterprises (SMEs) – especially those that utilise large amounts of energy – have turned to solar energy to power their buildings and factories, most of them do so to cut their operating costs, and not for environmental reasons.

Plus Solar Systems chief executive officer (CEO), Ko Chuan Zhen (pic) identifies four factors that contribute to the shift towards solar energy: lower operating costs, tax incentives by the government, brand positioning, and corporate social responsibility (CSR).

However, the priority given to each factor is highly dependent on the respective companies and their business strategies.

Ko says that environmental sustainability is not a priority for most Malaysians, even though they are aware of the need to be environmentally-friendly.

"Most people want to solve their pain points first, and it's only after they see the returns that they will go ahead with it (solar energy). If it happens to be environmentally-friendly, then why not? But most of the time, this is not the main reason that business owners go for solar energy."

"Some SME owners also really like to explore technology and want to differentiate their business from the rest, which is why they look into solar energy – it's really about the positioning of their brand," adds Ko.

CHALLENGES IN MAKING THE LEAP

There are two main challenges in encouraging local SMEs to move away from traditional energy sources to clean energy, according to Ko.

1 Awareness

SME owners may not see how investing in solar technology can help their business in the long run, especially since they would have to fork out a large sum without seeing immediate returns on their investment.

However, Ko disagrees: "I would say that investing in solar infrastructure right now is pretty affordable; businesses will be able to break even in a little over four years."

Solar photovoltaic (PV) panels typically come with a product warranty of 25 years. In fact, some older models of solar panels have produced electricity for more than 40 years, and are still functioning well.

This means that businesses will be able to generate energy for free throughout the next few decades – long after their investment in solar infrastructure has broken even.

Ko says: "They're essentially paying their electricity bills for the next 25 years today – the price of energy will be locked down, and when utility prices increase in the future, their operating costs won't really be affected."

The Malaysian government has also been doing its part to support the transition to more sustainable sources of energy, by providing tax incentives for businesses that invest in green technology.

"The initiative was launched by the Malaysian Investment Development Authority (MIDA) back in 2015, but many business owners may not be aware of it, and so they do not take advantage of it," shares Ko.

"This lack of awareness on government policies that support green technology may also be the reason that SMEs are slow to adopt solar technology."

2 Financial constraints

Despite the reducing price of solar infrastructure over the years, it can still be quite expensive and difficult for SMEs to afford. As a consequence, they naturally shy away from it.

To help businesses make the switch to clean energy, Ko says that Plus Solar cooperates with banks to facilitate financing solutions for their clients, making it a lot easier for SMEs to get the loans they need to implement their solar energy projects.

"In fact, in most cases, businesses will be able to have a positive cash flow even though they have to service a loan during that period," claims Ko.

CONTRIBUTING TO SUSTAINABILITY

Ko likens Plus Solar to an 'energy doctor' who studies a building's energy consumption patterns, diagnoses the cause of the problem, and provides the solution – which, in most cases, starts off with the installation of solar energy infrastructure.

He elaborates: "Unlike many other companies, we continue to serve our clients in the long term with our other energy-efficient solutions – this is important because business owners will want to sustain and continue improving their building's energy-saving measures."

"We help them do this by monitoring their consumption patterns, which will help them save energy throughout the next 20 to 30 years," says Ko.

Ko adds that in the last five years, Plus Solar has helped more than 700 buildings convert a portion of their energy source to solar power. The total power generated by these buildings, which are located throughout Peninsular Malaysia and Sabah, is more than 100 megawatt peak (MWp).

Ultimately, Plus Solar aims to be at the forefront of the evolving energy industry, and help businesses cut operating costs while also reducing their impact on the environment.

Getting the whole country to shift towards renewable energy as its main energy source will take a lot of effort, but Ko is optimistic about the future.

"Solar energy is still in its early stages in Malaysia, but a lot more people are venturing into it compared to five years ago."

Ko says that the future energy trend will be true energy independence, and in this period of energy transition, three things will happen.

The first is **decarbonise**, which means that everything will eventually 'go green'.

The second is **decentralise**, where energy generation plants will become more community-based – or even individualised, such as having solar panels on your roof – thus making the energy source more efficient and economical.

The third is **digitalise**: with the advent of technology such as the Internet of Things (IoT) and artificial intelligence (AI), it has become easier than ever to monitor and analyse energy consumption.

"These 3Ds will be the future of the energy sector, which is quite exciting. This is already happening in developed countries; in fact, it's also already happening in Malaysia, but it's still in the very early stages," says Ko.

"This is the value that Plus Solar brings to the country and to all SME business owners – using clean energy will not only benefit business operations, it will benefit Malaysia as a whole as well," concludes Ko.

Ko: "This lack of awareness on government policies that support green technology may also be the reason that SMEs are slow to adopt solar technology."

LAMPIRAN 15
BERITA HARIAN (ISU): MUKA SURAT 11
TARIKH: 13 OKTOBER 2018 (SABTU)

Risiko gempa bumi di Malaysia

Gempa bumi berskala 7.4 magnitud disusuli tsunami melanda Palu dan Donggala di Sulawesi Tengah, Indonesia pada 28 September lalu mengingatkan rakyat negara ini kepada gempa bumi di Sabah, dua tahun lalu.

Gempa bumi berukuran 5.9 magnitud menggegarkan Gunung Kinabalu di Kundasang, Ranau pada 5 Jun 2015 itu mengorbankan 18 orang, termasuk 10 warga Singapura.

Gempa bumi yang berlaku di negara ini agak membimbangkan, khususnya di Sabah yang kerap direkodkan berlaku bencana alam berkenaan, manakala di Semenanjung dan Sarawak kerisauan agak rendah.

Dari segi kedudukan geologi dan geografi Malaysia pada umumnya terletak di kawasan yang agak stabil dan hanya sedikit dipengaruhi aktiviti gempa bumi dan letupan gunung berapi dari negara jiran seperti Indonesia dan Filipina yang sering dikaitkan dengan Lingkaran Api Pasifik.

Hanya Sabah dari segi geografi berhampiran kawasan aktif gunung berapi di Filipina secara relatifnya mudah berlaku gempa bumi bermagnitud sederhana.

Sukar berlaku

Pengarah Pusat kajian Bencana Alam, Universiti Malaysia Sabah (UMS), Prof Dr Felix Tongkul menjelaskan gempa bumi yang besar, iaitu lebih 6.5 pada skala Richter sukar berlaku di Malaysia, kerana kedudukan geografinya yang agak jauh dari kawasan berlaku perlanggaran plat bumi.

Berdasarkan rekod gempa bumi dunia, beliau berkata, gempa bumi lebih besar 6.5 pada skala richter hanya berlaku di kawasan perlanggaran plat bumi.

Kekuatan gempa bumi di negara ini sebahagian besar adalah rendah, sesuai dengan kedudukan geologi dan geografinya.

"Misalnya di Semenanjung dan Sarawak, kekuatan gempa sekitar 3 hingga 5 pada skala Richter sahaja kerana Semenanjung dan Sarawak terletak pada plat bumi yang secara relatifnya agak stabil," katanya kepada *BH*.

Jabatan Mineral dan Geosains Malaysia menerbitkan Peta Bahaya Gempa Mumi di Malaysia pada 2017. Peta itu menunjukkan tahap bahayanya berkedudukan agak tinggi.

Kesan gempa

Kejadian gempa bumi didorong oleh pergerakan plat bumi. Di Semenanjung perlanggaran plat bumi India-Australia dan plat bumi Sunda di sepanjang Peparit Sunda menghasilkan stres kepada Semenanjung sehingga menggerakkan semula kesan gempa kuno sedia ada di situ.

Di Sabah dan Sarawak pula, perlanggaran antara plat bumi Sunda dan plat bumi Filipina dan sepanjang Peparit Filipina menghasilkan stres kepada Sabah dan Sarawak. Sabah menerima lebih stres menyebabkan kejadian gempa bumi di Negeri di Bawah Bayu lebih kerap berbanding tempat lain di negara ini.

Sabah akan terus dilanda gempa bumi bersaiz sederhana, iaitu kurang dari 6 pada skala Richter termasuk kawasan Gunung Kinabalu, Ranau, Lahad Datu, Kunak dan Kudat.

Bagaimanapun, kegiatan mendaki Gunung Kinabalu masih selamat walaupun berlaku gempa bumi di sekitar gunung tertinggi di Malaysia itu. Ini disebabkan laluan mendaki gunung sudah diubah untuk mengelakkan jatuhan batuan yang teruk.

Jabatan Meteorologi sudah memasang 20 alat pengesan gempa bumi di Sabah.

Antara kejadian gempa di Ranau tahun ini ialah pada 8 Mac lalu, iaitu gempa bumi berukuran 5.2 pada skala richter dengan kedalaman lima kilometer dan 3 April lalu berukuran 4.0 pada skala Richter.

Pada 16 September lalu pula, gempa berskala 3.7 magnitud melanda Kinabatangan di Pantai Timur Sabah yang turut dirasai di sekitar daerah itu, Sandakan dan Lahad Datu, namun tiada ancaman tsunami dilaporkan.

Tanah runtuh

Gempa bumi menyebabkan tanah runtuh yang berleluasa di kawasan Gunung Kinabalu. Runtuhan batuan dan tanah ini diangkut masuk dalam sungai di sekeliling gunung termasuk Sungai Kadamaian, Kota Belud.

Ini menyebabkan banjir lumpur kerap berlaku dan menyebabkan pemendapan sedimen yang sangat luar biasa di hilir sungai, seperti yang berlaku di kawasan pekan Kota Belud. Ini menyebabkan sungai menjadi sangat cetek dan kini kerap berlaku banjir.

Bangunan di Malaysia dibina dengan piawaian tertentu dan pada umumnya tahan terhadap gempa bumi yang bersaiz kecil dan sederhana.

Sementara itu, Timbalan Ketua Setiausaha Sektor Sains, Teknologi dan Inovasi, Kementerian Tenaga, Sains, Teknologi Alam Sekitar dan Perubahan Iklim, Prof Madya Dr Ramzah Dambul, menyatakan gempa bumi tiada kaitan dengan perubahan iklim.

Beliau yang juga pakar klimatologi menjelaskan perubahan iklim di negara ini hanya membabitkan hujan luar biasa, peningkatan paras laut dan banjir luar biasa.

"Pemanasan global menyebabkan berlaku perubahan cuaca sehingga kawasan yang sebelum ini tidak dilanda banjir kini mengalami fenomena itu," katanya.

Lagi berita Ms.59 dan 71

Komentar

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"Gempa bumi yang besar, iaitu lebih 6.5 pada skala Richter sukar berlaku di Malaysia, kerana kedudukan geografinya yang agak jauh dari kawasan berlaku perlanggaran plat bumi"

Felix Tongkul,
Pengarah Pusat kajian Bencana Alam, Universiti Malaysia Sabah

LAMPIRAN 16
UTUSAN MALAYSIA (LUAR NEGARA): MUKA SURAT 51
TARIKH: 15 OKTOBER 2018 (ISNIN)

Gempa, tsunami ancam penduduk dunia

KEDIAMAN musnah teruk akibat gempa bumi yang melanda Jepun, baru-baru ini. – AGENSI

MASJID runtuh dan serpihan bangunan bertaburan akibat gempa bumi dan tsunami melanda Palu, Sulawesi, baru-baru ini. – AFP

> Ratusan mayat pula bergelimpangan sehingga memaksa pihak berkuasa mengumumkan pengebumian besar-besaran dalam usaha mencegah penularan wabak penyakit.

Isu Global

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DUNIA digemparkan dengan berita bencana alam kebelakangan ini dengan menyaksikan sebilangan besar nyawa terkorban, kemusnahan kediaman dan harta benda akibat fenomena 'kemarahan' alam.

Menyoroti bencana alam melanda negara jiran, Indonesia menerima kesan buruk akibat gempa bumi mencetuskan tsunami di Kota Palu, Sulawesi yang ditadbir oleh Wali Kotanya, Pasha Ungu.

Situasi dilanda gempa bumi dan tsunami di Palu diibaratkan sebagai kiamat kecil oleh penduduknya.

Ini kerana hentaman tsunami meranap dan menghanyutkan bangunan, infrastruktur yang dibina bertahun-tahun lenyap dalam sekelip mata serta berdepan dengan kehilangan dan kematian ahli keluarga.

Lebih sukar lagi, penduduk perlu mendapatkan perlindungan, bekalan makanan, air bersih dan ada yang masih terpaksa bertahan untuk dikeluarkan oleh pasukan penyelamat akibat tertimbus di bawah runtuhan bangunan, namun tiada apa dapat dilakukan kerana kekangan jentera untuk mengangkat blok binaan.

Ratusan mayat pula bergelimpangan sehingga memaksa pihak berkuasa mengumumkan pengebumian besar-besaran dalam usaha mencegah penularan wabak penyakit.

Lebih 2,000 orang dilaporkan terkorban, manakala dianggarkan 5,000 masih hilang dalam gempa bumi berukuran 7.2 Richter yang berlaku pada pukul 6.02 petang waktu Malaysia, 28 September lalu.

PETUGAS keselamatan memeriksa lokasi gempa di Kiyota, di pinggir bandar Sapporo, Hokkaido, kawasan utara Jepun. – AGENSI

Tsunami tiba lapan minit selepas gempa terjadi sehingga penduduk di Palu bertempiaran menyelamatkan diri. Siapa sangka Palu akan musnah dalam sekelip mata akibat malapetaka.

Ketua Badan Meteorologi, Klimatologi dan Geofisika Indonesia (BMKG), Dr. Daryono menerangkan dari sudut geologi, Indonesia berpotensi berlakunya gempa bumi kerana kedudukannya berada di tiga plat tektonik besar (plat yang membentuk permukaan bumi untuk mencari kedudukan yang lebih stabil) iaitu Eurasia, Indo-australia dan Pasifik.

Jelasnya lagi, sekitar 200 tabur jalur gempa aktif telah dikenal pasti dan lebih banyak lagi dipercayai berada di negara itu maka tidak hairanlah lebih 10 gempa bumi boleh berlaku dalam tempoh satu hari.

Jika dilihat, sebelum ini, gempa bumi yang mencetuskan tsunami berlaku di Acheh pada 2004 dan di Padang pada 2009.

Antara jalur gempa aktif adalah jalur Sumatera yang dibahagikan kepada Acheh ke Lampung, dengan jalur gempa aktif antaranya di Jawa, Lembang, Jogjakarta, di utara Bali, Lombok, Sulawesi dan Kalimantan.

Sementara itu, Pakar Geologi dari Lembaga Ilmu Pengetahuan Indonesia (LIPI), Danny Hilman Natawidjaja berkata, kedudukan Indonesia yang terletak dalam Lingkaran Api sering akan mengalami gempa bumi dan gegaran gunung berapi melingkungi Lautan Pasifik.

"Jika kita lihat di seluruh dunia, kita dapati Indonesia berada dalam kawasan merah berbanding negara lain. Jepun, juga turut merah, Filipina juga," ujarnya.

Tidak hairanlah, ketika Palu dilanda gempa bumi sehingga mencetuskan tsunami, Jepun turut mengalami nasib yang sama sebulan lalu apabila dilanda gempa bumi berukuran 6.6 Richter pada September lalu sehingga melumpuhkan Pulau Hokkaido, menyebabkan semua perkhidmatan pengangkutan udara, darat dan air dihentikan buat sementara waktu dan bekalan elektrik terputus.

Selain itu, gempa bumi sekuat 5.7 Richter turut menggegar Okinawa di selatan Jepun, namun tidak mencetuskan amaran tsunami.

Papua New Guinea pada masa sama turut dilanda dua gempa bumi dengan masing-masing berukuran 7.0 dan 6.2 Richter di New Britain sehingga mencetuskan amaran tsunami yang kemudian ditarik balik oleh pihak berkuasa.

Pusat Kajian Geologi Amerika Syarikat (USGS) memberitahu, gempa bumi itu berlaku kira-kira 125 kilometer di timur Kimbe pada kedalaman 40 kilometer manakala gempa kedua berlaku kira-kira pukul 6.28 pagi waktu tempatan.

Sementara itu di Rusia, satu gempa bumi berukuran 6.8 Richter menggegar kawasan terpencil selatan Pulau Kuril, namun tiada amaran tsunami dikeluarkan.

Kesemua bencana gempa dan tsunami yang melanda baru-baru ini dapat dirumuskan akibat bumi sedang tenat, memang benar bencana adalah sesuatu yang kompleks dan terlihat sebagai fenomena semula jadi.

Begitu pun, peningkatan bencana ini menjadi tanda tanya kepada masyarakat dunia, apakah punca jumlah 'kemusnahan' ini semakin meningkat dan akan terus meningkat. Namun kini, ia banyak dikaitkan dengan aktiviti manusia yang membawa kepada perubahan drastik terhadap sifat semulajadi alam.

Adakah aktiviti manusia yang menggunakan sumber alam secara rakus tanpa kawalan atau peringatan Tuhan agar tidak berasa terlalu selesa sehingga alpa dengan duniawi.

LAMPIRAN 17
UTUSAN MALAYSIA (LUAR NEGARA): MUKA SURAT 50
TARIKH: 15 OKTOBER 2018 (ISNIN)

Letusan Gunung Berapi Fuego berakhir

GUATEMALA CITY 14 Okt. – Letusan Gunung Berapi Fuego dilaporkan berakhir semalam, namun masih menghamburkan asap setinggi 940 meter dan lahar mengalir sejauh 1,200 meter.

Agensi Seismologi Guatemala melaporkan, aktiviti gunung tersebut dijangka berhenti dalam tempoh beberapa jam.

Bagaimanapun, agensi itu tidak menjelaskan sekiranya letusan akan berlaku dalam tempoh beberapa hari akan datang.

Letusan terbaharu berlaku pada awal pagi Jumaat lalu sehingga memaksa kira-kira 62 penduduk dipindahkan dan lebuh raya berhampiran gunung berapi tersebut ditutup buat sementara waktu.

Agensi Pengurusan Bencana negara ini memaklumkan bahawa dua lagi gunung berapi kini dalam pemantauan.

Gunung Berapi Pacaya yang terletak kira-kira 20 kilometer ke selatan ibu negara ini dan Gunung Berapi Santiaguito di barat Guatemala City masing-masing menunjukkan peningkatan aktiviti.

Pada 3 Jun lalu, Fuego meletus dengan menghamburkan batu, gas toksik dan lahar panas sehingga mengorbankan 190 orang dan 235 yang lain hilang. – **AFP**

KEADAAN Gunung Berapi Fuego di Guatemala ketika meletus pada Jun lalu yang mengorbankan sekurang-kurangnya 190 orang. – AGENSI

LAMPIRAN 18
MALAY MAIL (WORLD): MUKA SURAT 13
TARIKH: 15 OKTOBER 2018 (ISNIN)

'Zombie' hurricane smashes into Portugal, Spain

LISBON — Storms packing nearly 180km per hour winds hit Portugal early yesterday leaving hundreds of thousands of people without power before carrying heavy rain on into Spain, authorities said.

The region around capital Lisbon and the centre of the country at Leiria and Coimbra were worst hit with trees uprooted, cars and houses damaged and local flooding reported.

With electricity down, dozens of people also left their homes and fled to safety.

Leslie was dubbed a "zombie" hurricane as it first formed on Sept 23, only to meander through the Atlantic Ocean for weeks.

Portuguese authorities urged those living by the coast to stay indoors and fishermen to return to port while some flights were cancelled over warnings winds could reach up to 120 kph.

Spanish meteorologists were expecting the hurricane to hit there later yesterday.

"The meteorological system has lost intensity but gained speed. It will therefore arrive a bit earlier than predicted and a bit further north of Lisbon," Portugal's civil protection chief Luis Belo Costa told reporters.

Costa warned of the risks of flooding in coastal areas, downed trees and power and telecoms outages.

In central Lisbon the situation remained calm though weather conditions were worsening by the hour.

Meteorological records indicate that only five hurricanes have ever arrived in this part of the Atlantic Ocean, and Leslie could turn out to be the most powerful storm to hit Portugal since 1842.

The exact trajectory of the hurricane, however, remains uncertain due to the presence of another storm approaching the region from the north, Portugal's meteorological institute said.

Maritime authorities advised fishermen currently at sea to return to the nearest port and Portugal's TAP airline cancelled seven flights to and from Lisbon.

"We don't know what the real and concrete impact will be, so we're erring on the side of caution," Lisbon's mayor Fernando Medina told reporters.

Over the past 176 years, only Hurricane Vince has made landfall on the Iberian peninsula, hitting southern Spain in 2005, according to weather records cited by experts.

In October 2017, strong winds from Hurricane Ophelia, which travelled north off the coast of Portugal and western Spain, fed forest fires that killed around 40 people during a heatwave.

Ophelia then made landfall in Ireland as a violent storm, killing three people.

While Leslie was likely to be downgraded to storm category when it hit western Spain yesterday, authorities still warned that it could cause damage as it adds on to other active weather fronts.

Spain's civil protection agency said storms in the south and east of the country could be "very strong locally" and that heavy rain was expected in the north and east.

On Tuesday, intense rain sparked flash floods in the Spanish holiday island of Majorca, killing 12 people.

With the new storms approaching, the civil protection agency advised people to secure doors and windows in anticipation of strong winds and to avoid going near trees, cranes or buildings under construction. — AFP

LAMPIRAN 19
BERITA HARIAN (DUNIA): MUKA SURAT 26
TARIKH: 14 OKTOBER 2018 (AHAD)

Banjir kilat gegar Sumatera

"Pemindahan penduduk, misi mencari dan menyelamat terus dijalankan. Namun banyak kawasan terjejas di kawasan gunung dan sukar diakses kerana jalan rosak"

Sutopo Purwo Nugroho,
Jurucakap Agensi Pengurusan Bencana BNPB

Petugas penyelamat dan orang ramai *menggunakan jentolak berat untuk memindahkan serpihan dan runtuhan akibat banjir kilat di kampung Saladi, Mandailing Natal, di Sumatera Utara, semalam.*

Angka korban meningkat 21, termasuk kanak-kanak sekolah agama

Jakarta

Banjir kilat dan tanah runtuh susulan hujan lebat di Indonesia mengorbankan sekurang-kurangnya 21 orang, termasuk 11 kanak-kanak sekolah dengan 15 mangsa lain hilang.

Bencana itu turut memusnahkan ratusan rumah, menurut pihak berkuasa, semalam.

Lebih 500 rumah di wilayah Sumatera Utara dan Barat dilanda banjir dengan sesetengah dihanyutkan banjir.

Tambah pegawai berkenaan, bencana itu turut memusnahkan tiga jambatan gantung.

"Pemindahan penduduk, misi mencari dan menyelamat terus dijalankan. Namun banyak kawasan terjejas di kawasan gunung dan sukar diakses kerana jalan rosak," kata jurucakap Agensi Pengurusan Bencana BNPB, Sutopo Purwo Nugroho.

Penghuni kampung *meredah air bah di kampung Saladi yang dilanda banjir kilat dan tanah runtuh, semalam.*

Di Sumatera Utara, 11 kanak-kanak sekolah Islam di kampung maut, selepas dinding kelas mereka runtuh, ketika sungai berhampiran melimpah, kelmarin.

Mangsa tertimbus

"Mangsa tertimbus dalam lumpur dan sisa runtuhan," kata Sutopo.

Ketua polis wilayah, Irsan Sinuhaji berkata, penyelamat sedang mencari seorang pelajar hilang daripada semua 29 pelajar dalam kelas, ketika bencana.

Katanya, pihak berkuasa juga memantau sama ada mangsa lain turut hilang. Dua orang ditemui maut, semalam, selepas kenderaan mereka dihanyutkan air sungai yang deras.

Empat orang maut akibat tanah runtuh di bandar Sibolga, Sumatera Utara, sementara banjir kilat di Sumatera Barat mengorbankan empat mangsa lain termasuk dua kanak-kanak. **REUTERS**

LAMPIRAN 20
HARIAN METRO (GLOBAL): MUKA SURAT 80
TARIKH: 14 OKTOBER 2018 (AHAD)

GAMBAR menunjukkan kemusnahan akibat Taufan Michael di Mexico Beach, Florida yang dirakamkan kelmarin. - AFP

UMPAMA KENA BOM

Florida musnah teruk, angka kematian terus meningkat

Reuters
Mexico Beach

Sekurang-kurangnya 17 maut akibat Taufan Michael dan angka kematian dikhuatiri meningkat selepas pasukan mencari dan menyelamat melakukan usaha pencarian di bandar Florida yang musnah teruk.

Pasukan penyelamat menggunakan anjing pengesan di sekitar Mexico Beach untuk mencari mangsa yang mungkin terperangkap di bawah sisa runtuhan.

"Mexico Beach musnah teruk. Ia seperti diletupkan oleh bom. Ia umpama medan perang," kata Gabenor Florida, Rick Scott.

Lapan kematian dilaporkan berlaku di Florida, lima di Virginia, satu di Georgia dan tiga di North Carolina.

Dua daripada dua mangsa yang maut di North Carolin berlaku di daerah McDowell apabila kereta dihempap pokok terjatuh ke seberang jalan, kata pihak berkuasa.

SEORANG penduduk melihat rumahnya yang beralih selepas dilanda Taufan Michael di Mexico Beach, Florida. - AFP

FAKTA
Banyak kediaman, kedai dan restoran diterbangkan oleh gelombang ribut

Manakala banyak kediaman, kedai dan restoran diterbangkan oleh gelombang ribut dan angin sekuat 250 kilometer sejam.

Sementara itu, ketua Agensi Pengurusan Kecemasan Pusat (FEMA), Brock Long memberi amaran bahawa bilangan kematian dijangka meningkat.

"Saya harap ia tidak meningkat secara mendadak tetapi saya mempunyai sebab untuk percaya bahawa kita belum masuk ke kawasan yang terjejas teruk.

"Tidak ramai mangsa yang tinggal untuk menceritakan bagaimana pengalaman mereka ketika dilanda taufan. Ia menyebabkan banyak nyawa terkorban," katanya.

Sebahagian penduduk tiba kelmarin dengan menaiki van dan lori dengan harapan dapat menyelamatkan barang peribadi selepas rumah mereka musnah dilanda ribut.

LAMPIRAN 21
NEW STRAITS TIMES (SUNDAY VIBES): MUKA SURAT 25
TARIKH: 14 OKTOBER 2018 (AHAD)

Earth's defences against asteroids

FUTURE PROOF
OON YEOH IS A CONSULTANT WITH EXPERIENCES IN PRINT, ONLINE AND MOBILE MEDIA. REACH HIM AT OONYEOH@GMAIL.COM

IF you watched the 1998 movies *Armageddon* or *Deep Impact*, you'd have the impression that the way to deal with a big asteroid hurling towards earth would be to send some astronauts to land on it and place some bombs on it.

Using bombs to deflect an asteroid's trajectory is a technique that's feasible but the mission wouldn't involve any astronauts. "That's something relegated to the movies — it makes a good movie, but we do not see in our studies any technique that would require the involvement of astronauts," said NASA's planetary defence officer, Lindley Johnson, in June after releasing a report entitled "National Near-Earth Object Preparedness Strategy and Action Plan". NASA is the USA's National Aeronautics and Space Administration, arguably the leading space agency in the world.

The report outlines the steps that NASA will take over the next decade to prevent dangerous asteroids from hitting Earth. "This plan is an outline not only to enhance the hunt for hazardous asteroids, but also to better predict their chances of being an impact threat well into the future and the potential effects that it could have on Earth," said Johnson, adding that the plan will help NASA "...step up our efforts to demonstrate possible asteroid deflection and other mitigation techniques".

ASTEROIDS CAN CAUSE EXTINCTION

An asteroid is a rocky or metallic object orbiting the sun. They're now defined as being larger than one metre in diameter with objects smaller than that being called meteoroids. The largest asteroid impact in recorded history is known as the Tunguska event, where an asteroid exploded over Siberia on June 30, 1908.

That explosion knocked down some 80 million trees over 2000 square kilometres of forest. Remarkably there was no known human casualty because it was such a sparsely populated part of Siberia. Scientists classify it as an impact event even though the asteroid — estimated to be between 60 and 190 metres — is believed to have disintegrated at an altitude of 5 to 10km above the earth and didn't actually hit the earth. The 15-megaton impact of the explosion though is equal to about 1,000 times that of the atomic bomb dropped on Hiroshima during World War II.

The Tunguska event, as devastating as it was, is nothing compared to the one that scientists believe hit the Earth 65 million years ago. Estimated to be between 10 and 15km in diameter, that asteroid's impact threw so much dust into the air that it would have cut off sunlight all over the world and thus prevented photosynthesis as well as lowered temperatures considerably.

The impact would have also caused mega-tsunamis while ejected melted rock would have caused widespread forest fires. Scientists believed that that event resulted in the extinction of some 70 per cent of the species on Earth.

To prevent another asteroid like that — or worse still, one that's even bigger — from ever impacting Earth, scientists have developed various mitigation techniques, most of which involve deflecting the asteroid so that it steers off course.

NUCLEAR BOMB

The way they did it in *Deep Impact* and *Armageddon* was to use some kind of explosion to deflect the asteroid. NASA has determined that a series of standoff nuclear explosions could push an asteroid off course. The idea isn't to explode a nuclear warhead on the asteroid itself — because that would risk it breaking into several smaller pieces which could still be just as deadly — but to detonate it near the asteroid. The heat from the explosion would sear one side of the asteroid and as material vaporises from its surface, the asteroid would accelerate in a direction away from Earth.

KINETIC IMPACTOR

NASA's preferred option, however, is a kinetic impactor called Double Asteroid Redirection Test (DART) which is expected to launch in 2021. DART would be "...our first technology demonstration of the kinetic impact technique to deflect an asteroid," said Johnson. The DART spacecraft, just about the size of a refrigerator, will encounter the Didymos asteroid which is expected to fly by Earth in 2022. Didymos is a binary system consisting of a larger object, 780 metres, and a smaller one, 160 metres, which is orbiting the larger asteroid. DART is programmed to strike the smaller object while travelling at the speed of six kilometres per second. The impact of this hit should disrupt the orbit of smaller asteroid and provide crucial data for such attempts on a larger scale.

GRAVITY TRACTOR

Another approach also favoured by NASA is something called a gravity tractor. This approach doesn't require any spacecraft to impact the asteroid. Rather, it utilises the force of gravity to do this. A spacecraft flying alongside an asteroid for years would have enough gravitational pull to change its path. Over the long haul, it would then be able to guide the asteroid away from earth. However, the technique has never been tried in practice and would require literally decades of testing, according to NASA.

OTHER EXOTIC APPROACHES

As they say, there's more than one way to skin a cat. Over the years, scientists have proposed many different options for deflecting asteroids. These include painting the asteroids white to change the amount of solar radiation. Apparently this would affect its trajectory. Other approaches include attaching solar sails to asteroids and using robotic landers to mount thrusters to gradually change the direction of the asteroid's flight path.

GLOBAL COOPERATION NEEDED

Whatever the approach adopted, NASA can't do it alone. The US, as the world's leading superpower, would naturally lead the way but it would need the help of other nations with strong space programmes.

To help the rest of the world prepare for an asteroid strike, NASA's Planetary Defense Coordination Office is working with the United Nations Committee on the Peaceful Uses of Outer Space to look at what should be the international response should a dangerous asteroid be found to be heading towards earth.

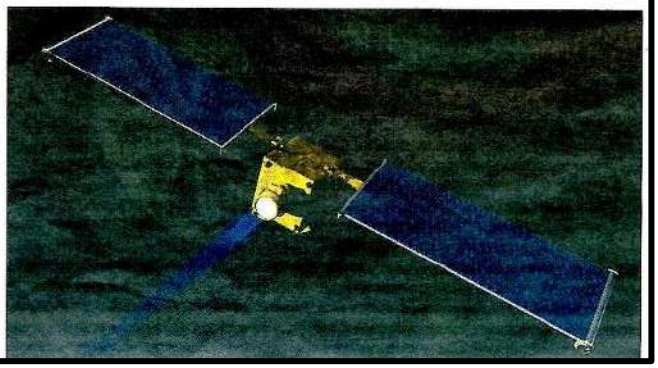
NO IMMEDIATE THREAT

In Hollywood movies about asteroids, they appear rather suddenly, requiring a rapid response by space agencies. In real life, scientists are able to see and project the trajectory of dangerous asteroids not just decades and but centuries in advance. NASA predicts that there's less than a 0.01 per cent chance of a potentially hazardous asteroid making an impact in the next 100 hundred years.

Scientists have projected that in 2135, an asteroid called Bennu will fly pretty close to the Earth.

Although there's no danger of a collision, its flyby will actually be within the moon's orbit, which could change its path such that there is a 0.037 per cent (or 1 in 2,700) chance that it could hit the earth sometime between 2175 and 2199. Between now and then, there will be generations of scientists from NASA and other nations' space agencies working on effective deflection systems. In any event, the 500-metre-wide Bennu isn't considered an extinction-level asteroid.

Of course, if you look long term enough, perhaps a few centuries or thousands of years from now, an extinction-level asteroid might indeed head towards the Earth. Fortunately for humankind, today's scientists have already started working on solutions to this problem and would have surely perfected it by the time the Earth actually needs it.



LAMPIRAN 22
UTUSAN MALAYSIA (LUAR NEGARA): MUKA SURAT 69
TARIKH: 14 OKTOBER 2018 (AHAD)

AHAD •14.10.2018

LUAR NEGARA

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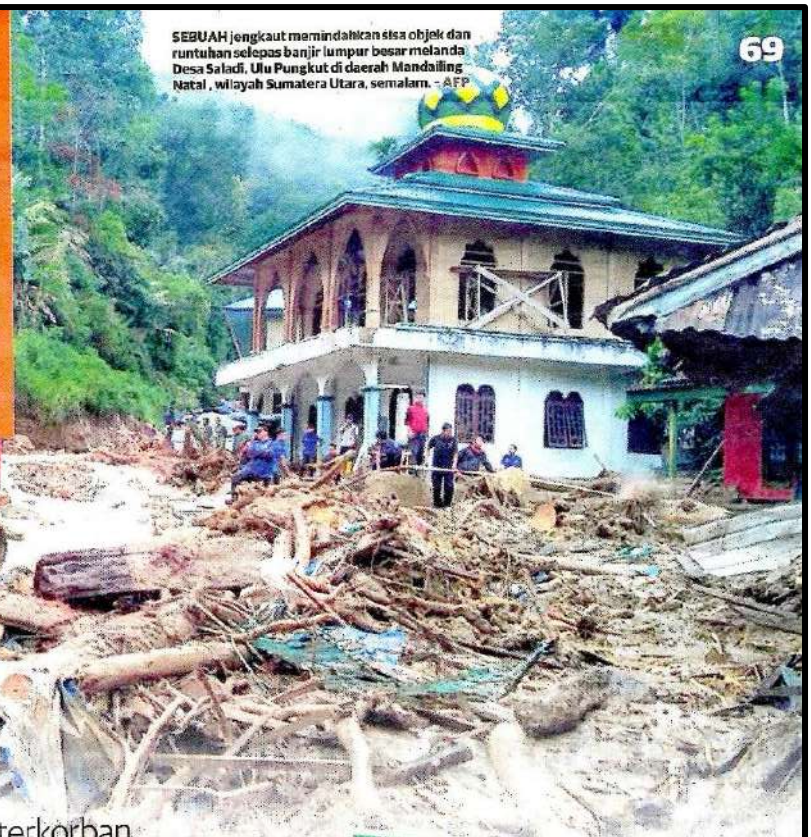

SEBUAH jengkaut memindahkan sisa objek dan runtuhan selepas banjir lumpur besar melanda Desa Saladi, Ulu Pungkut di daerah Mandailing Natal, wilayah Sumatera Utara, semalam. - AFP

Lapan penduduk tempatan turut terkorban

12 pelajar madrasah maut banjir lumpur

■ MANDAILING NATAL 13 OKT.

SEKURANG-KURANGNYA 12 pelajar madrasah maut dihanyutkan banjir lumpur besar yang merempuh kelas ketika waktu pembelajaran dalam kejadian di Desa Muara Saladi, Ulu Pungkut dalam daerah Mandailing Natal, Sumatera Utara, sejak Jumaat lalu.

Lapan lagi dari beberapa kampung juga maut dalam kejadian sama. Ini menjadikan keseluruhan korban sebanyak 20 orang.

Pelajar madrasah dilapor tidak sempat menyelamatkan diri ketika kejadian berlaku.

Menurut pihak berkuasa, sekurang-kurangnya 15 orang lagi pelajar madrasah tersebut disahkan masih hilang manakala 17 lagi terselamat.

Usaha mencari dan menyelamat berdepan kesukaran kerana mangsa-mangsa dipercaya tertimbus lumpur atau ditimpa objek-objek hanyut atau barangan dalam bangunan.

Kejadian banjir lumpur itu turut melanda 24 perkampungan di daerah ini.

"Agensi mencari dan menyelamat serta bencana alam berkejar ke beberapa kawasan di wilayah ini yang dilanda tanah runtuh," kata jurucakap Agensi Bencana Alam Sumatera Utara, Riadil Lubis.

Tanah runtuh dan banjir merupakan kejadian biasa di Indonesia yang terdedah kepada hujan lebat.

Pada Februari lalu 12 orang maut selepas tanah runtuh yang membawa lumpur dan batu melanda sebuah cerun curam di tengah Jawa.

Pada Jun 2016, hampir 50 orang turut menjadi korban selepas hujan lebat menyebabkan banjir lumpur dan batu di beberapa kawasan kampung di wilayah yang sama. - AFP

SALAH satu kawasan di Sumatera Barat, Indonesia yang mengalami banjir dan tanah runtuh. - AGENSI

BANJIR melanda sebahagian besar daerah di Sumatera Barat, Indonesia dari salah satunya di Tanah Datar. - AGENSI

LAMPIRAN 23
NEW STRAITS TIMES (OPINION): MUKA SURAT 15
TARIKH: 13 OKTOBER 2018 (SABTU)

CLIMATE CHANGE

NATURE-BASED SOLUTIONS

Consider them in all water management planning, writes **VLADIMIR SMAKHTIN**

ALMOST every day we hear news about catastrophic flooding or drought somewhere in the world. And many nations and regions are on track for even more extreme water problems within a generation.

This is the warning that is sounded in the latest Intergovernmental Panel on Climate Change (IPCC) report.

Extreme floods and droughts have a profound impact on development, particularly in less developed parts of the world. About 140 million people are affected — displaced by the loss of incomes or homes — and close to 10,000 people worldwide die annually from these twin calamities. Global annual economic losses from floods and droughts exceeds US$40 billion (RM166.14 billion); add in damages from storms like America's recent Hurricanes Florence and Michael, and the cost balloons.

Flood and drought economic losses — comparable in dollar terms to all global development aid — affect the water, food and energy security of nations. To cope with these problems, massive investments continue to be made in large reservoirs.

However, in certain regions it has started to make little engineering sense to build additional "grey (concrete and steel) infrastructure" due to a lack of suitable sites and, or, rapid evaporation. In others, ageing grey infrastructure may no longer provide the originally envisioned benefits because hydrological parameters and patterns are changing.

The appropriate response is to recognise the benefits of "green (natural ecosystems) infrastructure" and to design grey and green infrastructure in tandem to maximise benefits for the people, nature and the economy.

"Nature-based solutions" were the theme of this year's UN World Water Development Report. Nature-based solutions include:

SOIL moisture retention systems, and groundwater recharge to enhance water availability;

NATURAL and constructed wetlands and riparian buffer strips to improve water quality; and,

FLOODPLAIN restoration to reduce risks associated with waterrelated disasters and climate change.

The role of green water storage infrastructure is particularly important. The enormous potential of such approaches are only now being fully understood but its clear that green infrastructure can directly improve the performance of grey infrastructure for disaster risk reduction.

Indeed, large-scale managed aquifer recharge efforts can, in certain conditions, alleviate both flood and drought risks in the same river basin.

Recent studies suggest that agricultural income could be boosted by about US$200 million per year in a river basin greater than 150,000 km2 in area, with only 200 km2 of land converted for accelerated groundwater recharge in wetter years. Not only is additional water made available to farmers in drier periods, downstream flooding costs can also be eliminated. And the capital investment required could be recouped in a decade or less.

Such sustainable, cost-effective and scalable solutions may be relevant in developing countries, where water-related disaster vulnerability has risen to unprecedented levels and the impacts of climate change are most acutely felt.

Nature-based solutions are not feasible everywhere and, where they would help, they alone are not the silver bullet for water risks and variability — they cannot be counted on to replace or achieve the full risk reduction effect of grey infrastructure.

Nevertheless, nature-based solutions need to be considered in all water management planning and practiced where possible. Especially at river basin and regional scales, management planning should consider a range of surface and subsurface storage options, not just large concrete dams. The challenges include:

AN overwhelming dominance of traditional grey infrastructure thinking and practices (and associated inertia against nature-based solutions);

THE need for more quantitative data on the effects of nature-based solutions;

A LACK of understanding of how to integrate natural and built infrastructure for managing water extremes;

OVERALL lack of capacity to implement nature-based solutions; and,

A PREDOMINANTLY reactive rather than proactive approach to water-related disaster management.

Nature-based solutions have much greater potential if included in risk reduction planning and adopted before disaster strikes. These challenges will take time to overcome, but there is hope.

The UN General Assembly has designated Oct 13 as the International Day for Disaster Reduction, which this year has taken the theme of reducing economic losses from disasters.

The theme corresponds to a target of the Sendai Framework for Disaster Risk Reduction 2015-2030, which underlines the need to shift from post-disaster planning and recovery to proactive disaster risk reduction and calls for strategies with a range of ecosystem-based solutions.

Some 25 targets within 10 of the 17 Sustainable Development Goals the of UN Agenda 2030 either explicitly or implicitly address various aspects of water-related disaster management.

The obvious synergies between all these targets will increasingly strengthen if nature-based solutions are seen as a supporting concept to all of them. **IPS**

The writer is director of UN University Institute for Water, Environment and Health, which is supported by the Canadian government and hosted at McMaster University