

**KERATAN AKHBAR-AKHBAR TEMPATAN
TARIKH: 6 NOVEMBER 2016 (AHAD)**

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Cyber hacking – it's a real threat

Security of everyday applications becoming a major concern, says organisation

By SHAHANAAZ HABIB
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KUALA LUMPUR: Imagine you are in hospital and someone bearing a deep grudge decides to kill you by increasing your medication, manipulating your oxygen or delivering a fatal shock to your heart.

You don't even see it coming because it is all done in cyberspace by hackers hacking into the hospital's system to meddle with the medical device that you are hooked up to.

Or what if you are driving and suddenly your brakes don't work? And you don't have control of the steering wheel either because hackers have hacked into your car's On-Board Diagnostics (OBD) system and remotely taken control of your car.

Sounds far-fetched? No.
CyberSecurity Malaysia CEO Dr Amirudin Abdul Wahab says with

the growth of technology and devices, these are the kinds of cyber security threats that Malaysians can expect in the future.

He says cyber criminals will exploit more and more the vulnerabilities of these devices as they "continue to follow the money, target high profile targets and continue to find success in mobile platform."

He lists five coming threats in cyber security – ransomware, online fraud, third party hacking of sensitive data of companies, hacking of smart medical devices and electronic medical records, and connected vehicles.

"The traditional security approaches are no longer sufficient to address these even more complex and sophisticated cyber threats," he says in an interview.

On the healthcare industry, as it adapts to digital revolution, Dr Amirudin says, there are a number of concerns about privacy, safety

and cyber security threats.

He points out that the medical equipment at various hospitals are increasingly connected to the Internet so that data can be fed into the patient records system.

"But if these are hacked, then the hackers can have access to a patient's personal data and health records and use this for a false insurance claim.

"Those with a grudge can alter the patient's medical records and treatment plans and put the patient's life at risk by increasing the dosage of his medication and causing him to over-dose."

Dr Amirudin says of even more concern is the risk of a "remote compromise" of a device directly connected to a patient.

"We may see in the future, hackers or cyber criminals being able to manipulate the oxygen pump, insulin pumps, x-ray machines or even a pacemaker.

"Hackers can hijack a pacemaker and deliver a fatal shock to the patient's heart!"

On the cyber threats in the automotive industry, Dr Amirudin says vehicles these days are getting more advanced and they are able to collect driving data and be connected to multiple devices.

These of course provide benefits such as added safety features, better fuel savings and greater overall convenience.

However, Dr Amirudin says the features of these vehicles' computer and electronics system can be easily hacked and these modern types of vehicles are easily stolen by hackers using just their laptops.

He says there are also vulnerabilities of the On-Board Diagnostics (OBD) system, which is the vehicle's self-diagnostic and repairing capability, that gives the owner or repair technician access to the status of the vehicle's various subsystems.

"But this can be used as an instrument of cyber sabotage," warns Dr Amirudin.

"When the OBD port is hacked, the hackers can hijack, have access and take control of the whole car system including the car on-board system, the braking system so that the vehicle can be stopped suddenly or fail to function at all.

"They can also take control of the vehicle's steering wheel.

"This situation can really be life threatening to the driver," said Dr Amirudin.

Just last year, he says security researchers had proven that some vehicles are easy to hack.

"For instance, they remotely killed the transmission of a 2014 Cherokee Jeep," he says.



For more stories:
See pages 20 & 21

The dark side of mobile convenience

Cyber criminals lie in wait for unsuspecting users who log into Public Wi-Fi to conduct online transactions.

Stories by **SHAHANAAZ HABIB**
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MOBILE devices are now an essential part of everyday life. These days, people do practically everything on their smartphones or tablets.

They book and pay for their flight tickets and hotel rooms using their smartphones. Some shop or order groceries online, pay their bills online and do their online banking all using their smartphones.

And of course there is the usual checking and sending of email, WhatsApp and Snapchat messages, updating their Facebook and Instagram photos, and tweeting.

The list goes on.

But why is it then that despite using their smartphones so much that people give so little thought to cyber security and cyber crime?

CyberSecurity Malaysia CEO Dr Amirudin Abdul Wahab says there is a clear shift from fixed computers to mobile devices.

So the tendency now is for cyber criminals to also make that shift because that is where the money and opportunity lie.

"Hackers will follow the money. There are areas of vulnerability that the cyber criminals have identified. It is a business for them.

"As we move towards more mobility, we have to remember there is also a dark side," he adds.

Dr Amirudin believes people are more vulnerable on their mobile phones because they tend to put security measures like antivirus programmes on their personal computers (PC) but not on their smartphones.

"When people do online transactions, do they know there are threats out there? Why do they have antivirus on their PC but not on their smartphone? What is the difference?"

"And what happens if they don't have antivirus? It makes it more attractive for cyber-criminals to attack," he warns.

Dr Amirudin says it is also crucial to update the antivirus regularly so that it can scan, detect and remove the latest threats.

All this might seem like "basic knowledge" but he says the level of awareness is low among Malaysians.

"Malaysians see cyber security as something to do with 'business'. They don't see how it touches their own lives until they themselves become victims of cyber crime. By then it's too late.

"People should ready themselves for any possible cyber attack - whether they are going to be attacked or not."

Dr Amirudin says mobile devices are safe for transactions if "best practices" are followed.

First and foremost, he says, people should never access online banking, their credit card accounts or do transactions using public Wi-Fi or public Internet access.

"Even if it is password-protected, it is not safe because it is for public use, hence accessible to hackers.

"There are a lot of tools that can hack into accounts to obtain user names and passwords when you do online transactions using public Wi-Fi.

"Hackers can create 'honeypot' Wi-Fi hotspots to attract usage and they would then compromise these devices when people use it."

He says it is not a problem if people use public Wi-Fi merely to browse.

"Just don't do transactions or access sensitive information. Use your mobile data or your own private Wi-Fi connection for that."

He says even accessing email through pub-



Dr Amirudin: 'People should ready themselves for any possible cyber attack - whether they are going to be attacked or not.'

lic Wi-Fi has risks.

"A CEO using hotel Wi-Fi to email sensitive and confidential information might not be aware he is vulnerable to cyber attacks and hacking. Some cyber criminals pursue high profile targets so those in top management should be aware of these dangers."

Dr Amirudin says when using Wi-Fi, it is best to manually select the network rather than have it automatically connect.

And after using it, he says, make sure to instruct the smartphone or tablet to "forget" the network, otherwise it could automatically connect when in range, without you noticing.

Another precaution, he adds, is to turn off the sharing and Wi-Fi capabilities when not in use.

"This is easy enough to do and goes a long way to protect against cybercrime. The longer you stay connected the faster people will notice that you are there and start snooping around."

For Dr Amirudin, online banking and shopping and accessing email should be done from home where "hopefully your Internet service provider delivered router is both password- and firewall-protected".

For five consecutive years, fraud, intrusion and malware attack (malicious code) have been the top three cyber crimes in the country.

The threats are getting more serious because the cyber attackers are getting more and more sophisticated.

"When you want to drive a car, you have to first take driving lessons and pass a test. So when there is a 'Don't Turn Right' sign you won't turn right; and when you come to a 'Stop' sign or a red light, you stop.

"But when we go on the Internet do we take lessons first? We don't! We just use our smartphone, tablets and our PC without learning how to 'drive' safely.

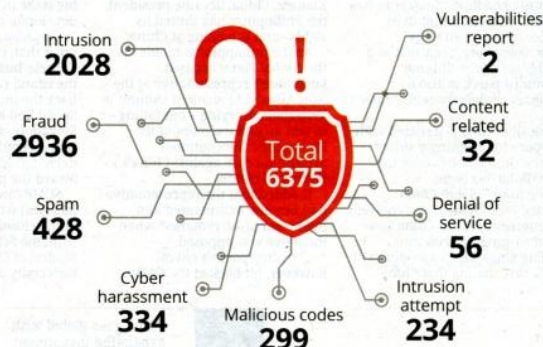
"That is why we are so vulnerable and why cyber crimes happen."

Dr Amirudin says people should download, install and use mobile apps from only trusted sources like Google Play Store or iTunes.

"Don't download apps if you don't know where it comes from," he says.



Reported incidents to CyberSecurity Malaysia (Jan - Sept 2016)



Source: CyberSecurity Malaysia

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He points out that while most reputable organisations make it as safe as possible for customers to do online business, the problem is cyber criminals today are highly skilled at creating fake websites.

And they lure people into doing what they want through all sorts of tactics including social engineering and phishing.

Dr Amirudin says mobile apps and your mobile devices should be kept up to date before using it for online transactions.

"This is because the updated mobile apps and devices have fixed the security flaws found on the old versions which can be used by hackers to steal information or even hijack your online session."

It is common sense too that people should buy their devices from only trusted authorised sellers and only use devices which are not rooted or jailbroken for online transactions.

And when making a mobile transaction online, Dr Amirudin says it is best to use your own device and not someone else's because you would never know if theirs has been infected by a Trojan malware.

(A Trojan is a malware which hides within seemingly harmless programs and allows

the hacker to gain access to a person's identity, IP address, banking information and passwords.)

Dr Amirudin suggests that whenever possible, to enable and use the two-factor authentication like the Transaction Authentication Code (TAC) or One Time Password (OTP) for online transactions.

He also advises people to log out and not to stay permanently signed into their personal accounts.

"You leave yourself exposed if you are still signed in to your personal accounts and you access public Wi-Fi hotspots."

For Dr Amirudin, it makes sense for people to use all the security features available for their mobile devices.

This includes using a password, passcode, patterns and biometrics to protect their device. And passwords should be strong with a combination of letters, numbers, special characters and symbols; and they should be changed often, at least once in every six months or so.

He also advises people to enable the autolock feature on their mobile so that the device would autolock if left unattended.

"This will prevent unwanted persons from

SAMBUNGAN...

SUNDAY STAR (NATION) : MUKA SURAT 20

TARIKH : 6 NOVEMBER 2016 (AHAD)



Safety first:
People should never access online banking, their credit card accounts or do transactions using public Wi-Fi or public Internet access.

Some tips for online transactions

-  **Don't use public wifi** for online banking, credit card transactions and accessing email or sensitive information.
-  **Only download**, install and use mobile apps from trusted sources like Google Play and iTunes App Store.
-  **Make sure mobile apps, mobile devices and anti virus are up to date** before online transactions.
-  **Look for HTTPS or the security padlock sign at the start of the URL address bar.** This indicates website has a valid digital certificate & up-to-date encryption which makes attacks less likely.
-  **Enable and use the two factor authentication (OTP/TAC)** when possible for online transaction.
-  **Password, passcode and biometric to protect your mobile devices.** Choose a strong password and change passwords often. Don't use same password for multiple accounts.
-  **Enable auto-lock** and remote wipe on mobile devices.
-  **Manually select wifi networks** rather than have it automatically connect.
-  **Turn off sharing and wifi capabilities** when not in use.
-  **Don't stay permanently** signed into your personal accounts.
-  **If you travel a lot and don't have a cellular dongle but still need connectivity, consider using a virtual private network (VPN).**

Source : CyberSecurity Malaysia

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using your mobile device to do unauthorised online transactions when you are not looking."

The remote wipe on the mobile phone is useful as well, he says, in the event the phone gets lost or stolen, the victim can quickly erase personal information and online transactions before it falls into the wrong hands.

Drawing parallels between cyber security and a house, he says, if "you don't lock your door or window, the tendency of someone breaking in is more likely compared to a house that has installed security measures".

"In cyber space, you have to assume you will be attacked so you put up security measures to mitigate the threat."

CyberSecurity Malaysia's portal www.cybersafe.my gives tips on how to stay safe and ethical online. They also conduct cyber security awareness programmes to educate people on the best online practices.

Dr Amirudin stresses that cyber security is the responsibility of everyone and not just the technical people or IT department.

"For example, an organisation may have already put in the antivirus and firewall but

all it takes is for someone to click on an email from an unknown source that has a malware and it could infect the whole system.

"These are not technical issues but human weaknesses. When people are not educated with basic awareness, they tend to have bad practices which is not good in cyberspace."

He also cautions people against sharing too much personal information on social media.

"People are sometimes so negligent that they share so many details about themselves, their families and their lives online."

"In our programmes we have a slogan: Sharing is Caring. Oversharing is Careless."

He points out that people receive so many friend requests from strangers on Facebook.

"In the physical world, if I don't know you, you are not my friend. But we tend to trust cyberspace so much."

"I don't know you personally but we can still be friends on Facebook even though I wouldn't know if you are really who you say you are. That in itself should make us careful. Crooks or criminals would want to take advantage of that."

KERATAN AKHBAR
SUNDAY STAR (NATION) : MUKA SURAT 20
TARIKH : 6 NOVEMBER 2016 (AHAD)

FBI: Cyber crime is now a 'business'

MICHAEL Eubanks was a software engineer before he joined the FBI some 18 years ago. His sole focus? Cyber crime. He has seen how cyber criminals have learnt through trial and error and evolved over the past 15 years.

"Over time, I saw criminals working together using their speciality and looking for distribution platforms.

"When they have enough credibility as a criminal, they would do business with other criminals so that they can target different businesses," he said recently at an international conference on financial crime and terrorism financing in Kuala Lumpur.

He says cyber criminals have turned what they are doing into a "business".

Eubanks says a cyber criminal could specialise in stealing credentials then sell these to other cyber criminals who would figure out how to use them.

"The reason you should be concerned is because the criminals are considering themselves as businesses."

From the cases Eubanks has worked on over the last six years, he has found that cyber criminals have an organisational structure.

"They have a development team, recruitment and management, sales and marketing people to market to other criminals.

"These guys work as a team. There is a whole underground infrastructure of people that provide such services.

"It is no different from the business world. Most of the criminals refer to their organisations as their business. Their mindset is that 'This is business'.

"These criminals keep business records of every transaction. They know who owes them money, who they owe money to and what the transaction is for and the date and time it was executed.

"They maintain ordinary business records," he adds.

He says the cyber underground market these days exists on different platforms with more and more popping up each day which makes it much more difficult for law enforcement to track.

"You don't even have to be a criminal to get in there. You only need a bit of credibility to purchase stolen data."

Another speaker at the conference, Md Khairul Anam, deputy director of Bangladesh Financial Intelligence Unit, spoke of how hackers took advantage of a weekend in early February this year to hack into Bangladesh Bank's central system and steal US\$81mil (RM341.1mil) through unauthorised payment using the SWIFT system.

(The SWIFT system is one of the pillars of international finance. It is the network that financial institutions rely on to send and receive information about financial transactions supposedly in a secure and reliable environment. So what happened to Bangladesh's central bank sent shock waves through the international banking community.)

Md Khairul says Friday and Saturday is the weekend in Bangladesh, so the hackers waited until Thursday night (Feb 4) to hack into the system.

"They choose a moment in such a clever way to commit the crime during the weekend (Feb 5 & 6) when the bank is closed so that their action will go undetected (until after the weekend)."

He says people at the bank noticed that the printer was not working but did not think anything of it because this was something normal for the bank.

He says the hackers had actually tried to circumvent US\$926mil (RM3.9bil) from the central bank but a number of transactions did not go through.

"It was a criminal master plan. The criminals are smarter than us. Everyday they build new adware and malware. We have a lot to do to have a foolproof and secure system."

Sophisticated hackers

In an interview with *The Star*,

CyberSecurity Malaysia CEO Dr Amirudin Abdul Wahab says the techniques used by attackers are getting more sophisticated.

He warns that a lack of user awareness and negligence among users and organisations in terms of security could put people and organisations at risk against cyber security threats.

Any sector, he says, which has online business and transactions for the public, is exposed to cyber attacks and most sectors use the Internet and computer technology to run their business and operations.

"Along with sophisticated technology, hackers motivated by financial gain and individual satisfaction continuously launch cyber attacks."

He says the sectors most exposed to cyber attacks is the Critical National Information Infrastructure (CNII) such as the banking and finance sector, emergency services, energy, goods and agriculture, government, health services, information and communication, national defence and security, transportation and water.

"These sectors have the most valuable information to a nation in terms of people, business and processes.

It is no different from the business world. Cyber criminals work as a team: they have a development team, recruitment and management, sales and marketing people to market to other criminals.

Michael Eubanks, FBI

"Targeting and successfully compromising a CNII sector may have a high impact."

In parliament this week, Deputy Science, Technology and Innovation Minister Datuk Dr Abu Bakar Mohamad Diah disclosed that there has been a sharp increase in computer hacking over the past two years.

He said in 2014, there were only three cases, one involving the CNII and two involving corporate companies.

That number skyrocketed last year, he said, with 20 cases involving CNII, 43 to do with corporate companies, three involving institutions of higher learning and 21 home users.

This year, the number continued to be worrying, with 23 cases involving CNII, 18 with corporate companies, three universities and six home users.

Dr Amirudin says what we are seeing these days is an advanced persistent threat. He warns that future threats are only going to get "more sophisticated, more advanced and more challenging".

"In the past, they just dump viruses randomly. But now the attacks are more targeted and focused.

"If you are a bank for example, they will focus on you and attack and persist until they get what they want.

"And with more advanced highly sophisticated malware and advanced persistent threats, the antivirus program might not be able to detect it.

"And it might get past the firewall and even the intrusion detection system."

He says organisations have to put the best security measures they can in place to stave off these cyber attacks.

"For criminals, that is their bread and butter. They will find ways. If I say it is safe today, they will try to find other ways tomorrow. That is why we have to be always adaptive and not wait until things happen."

KERATAN AKHBAR
MINGGUAN MALAYSIA (DALAM NEGERI) : MUKA SURAT 20
TARIKH: 6 NOVEMBER 2016 (AHAD)



RAMZAH DAMBUL (dua dari kiri) menyampaikan sijil kepada anggota bomba yang hadir dalam Program Latih Amal Tsunami di Dewan Sri Putatan, Kota Kinabalu, Sabah semalam.

Ancaman kemungkinan pantai barat Sabah

Terdedah tsunami

Oleh **RODELIO JUNJUN TAUCAN**
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■ KOTA KINABALU 5 NOV.

PENDUDUK di pantai barat Sabah disaran mendapatkan maklumat lengkap daripada agensi pengurusan bencana dan sentiasa berwaspada dengan ancaman tsunami berikutan bencana alam setinggi lebih lima meter itu dijangka bakal melanda sekiranya gempa bumi dasar laut berlaku di Manila Trench (barat Filipina).

Timbalan Ketua Setiausaha Kementerian Sains, Teknologi dan Inovasi, Prof. Madya Dr. Ramzah Dambul berkata, walaupun gempa bumi sukar diramal dan kemungkinan untuk berlaku kecil, namun semua pihak perlu sentiasa bersedia menghadapinya kerana kajian saintifik telah mengesahkannya.

Tegasnya, kerajaan telah menyediakan teknologi secukupnya bagi mengesan kehadiran tsunami yang dijangka bermula di daerah Kudat tetapi semua itu tidak bermakna jika tiada koordinasi antara agensi-agensi pengurusan bencana dengan penduduk tempatan.

"Bukti saintifik mengesahkan tsunami akan berlaku tetapi gempa bumi tidak boleh diramal dan kalau berlaku, bukti yang ada menunjukkan tsunami sampai ke Sabah, maka kita perlu sentiasa berwaspada.

Simulasi tsunami dan waktu dijangka tiba

• Kudat	2 jam	6.06 meter
• Kota Kinabalu	2 jam 48 minit	4.14 meter
• Putatan	3 jam 25 minit	3.09 meter
• Labuan	3 jam 5 minit	2.90 meter
• Miri	2 jam 53 minit	3.33 meter
• Pulau Layang-layang	1 jam 33 minit	0.58 meter
• Mukah	5 jam 40 minit	3.34 meter
• Kuching	7 jam 3 minit	1.78 meter
• Pulau Perhentian	10 jam 28 minit	1.27 meter
• Tumpat	11 jam 40 minit	1.41 meter

"Kalau bercakap soal teknologi, semua teknologi yang ada di Jepun telah dibawa ke Malaysia, walaupun risiko di negara ini lebih kecil berbanding Jepun tetapi kita tetap mendapatkannya," katanya ketika ditemui pemberita selepas Program Latih Amal Tsunami membabitkan agensi-agensi pengurusan bencana dan penduduk tempatan di Dewan Sri Putatan di sini hari ini.

Yang turut hadir, Ketua Penga-

rah Jabatan Meteorologi, Datuk Che Gayah Ismail.

Sementara itu, Che Gayah berkata, bukti saintifik berkenaan diperoleh melalui kajian oleh jabatannya, Universiti Putra Malaysia (UPM) dan Universiti Pertahanan Nasional Malaysia (UPNM) yang bermula 2014 dan siap tahun ini.

Tegasnya, bukti itu menyatakan daerah yang terlebih dahulu dilanda tsunami ialah Kudat dan penduduk di situ mempunyai masa hanya dua hingga tiga jam untuk bertindak sebaik sahaja amaran dikeluarkan.

Sehubungan itu katanya, satu dokumen iaitu Pelan Bertindak Kecemasan Tsunami telah dikeluarkan untuk memastikan penduduk dan agensi terlibat di kawasan yang bakal dilanda bencana dapat bersedia sepenuhnya.

"Pelan ini adalah untuk senario yang paling teruk, bermakna kita lengkapkan masyarakat dengan maklumat iaitu apabila berlaku tsunami mereka tahu apa perlu dilakukan dan tempat-tempat yang selamat untuk berlindung," tambahnya.

Dalam pada itu, menurut maklumat simulasi tsunami daripada Jabatan Meteorologi, kejadian alam tersebut dijangka turut boleh melanda Miri, Mukah dan Kuching di Sarawak, Pulau Perhentian di Terengganu dan Tumpat di Kelantan.

KERATAN AKHBAR

MINGGUAN MALAYSIA (RENCAM) : MUKA SURAT 32

TARIKH: 6 NOVEMBER 2016 (AHAD)

TEKNO

Menjana ekonomi melalui industri berasaskan bio

PERUBAHAN iklim, isu persekitaran dan populasi yang bertambah adalah antara masalah yang dihadapi banyak negara di dunia ini. Menangani cabaran berkenaan adalah salah satu tugas besar bagi menghadapi generasi akan datang.

Produktiviti pertanian setiap ekar perlu ditingkatkan, proses yang merosakkan alam sekitar perlu digantikan dengan proses lebih hijau dan mampan, penjagaan kesihatan perlu ditingkatkan dan cara menguruskan sumber perlu dinilai semula.

Secara ringkasnya, dunia sedang beralih kepada ekonomi berasaskan bio. Selaras dengan trend global masa kini, penjenamaan semula

The Malaysian Bioeconomy Development Corporation, mencerminkan perluasan skop organisasi ini sebagai pemacu ekonomi di Malaysia.

Sebelum kami terus menyelidik bioekonomi dengan lebih teliti, adalah baik untuk mengkaji gambaran sejarah yang membawa kepada konsep baru ini, iaitu konsep yang termasuk dalam pelan tindakan negara maju dan membangun.

Terma bioekonomi pertama kali digunakan oleh Juan Enriquez dan Rodrigo Martinez (pengasas Projek Sains Hayat Sekolah Perniagaan Harvard) semasa seminar genomik tahun 1997.

Bioekonomi bermula daripada

proses lanjutan dan memahami sains biologi dan boleh digunakan dalam pelbagai industri, termasuk pertanian, perhutanan, hortikultur, perikanan, akuakultur, tanaman, biakbaka tanaman dan haiwan, makanan dan minuman, perakyuan, kertas, kulit, tekstil, bahan kimia, farmaseutikal dan tenaga.

Dalam beberapa tahun ini, penyelidikan bioteknologi dan inovasi telah membawa kita lebih dekat dengan ambang masa depan yang mempunyai potensi besar dalam meningkatkan kehidupan.

Sebagai contoh kita boleh membangunkan loji bagi mengeluarkan bahan api bio dan bahan biodegradasi produk

makanan khas bagi memenuhi permintaan tertentu dan menepati keselamatan makanan dan meningkatkan kesejahteraan orang ramai dengan membantu melegakan pelbagai jenis penyakit.

Dalam pembangunan ekologi berasaskan bio, idea utama sekarang adalah untuk membangunkan, mengeluarkan, memproses, proses semula dan menggunakan apa saja bentuk sumber biologi atau biomas termasuk daripada haiwan, tumbuhan dan mikroorganisma.

Dalam pada itu, bioteknologi dan teknologi berasaskan bio lain adalah platform penting yang boleh digunakan untuk meningkatkan potensi bioekonomi.



Di Malaysia, bioekonomi merujuk kepada semua aktiviti ekonomi yang terbit daripada aktiviti berasaskan bio - dalam kata lain ini adalah kejayaan besar dalam produktiviti pertanian, penemuan dalam penjagaan kesihatan dan penerimaan proses industri mapan yang boleh meningkatkan kesejahteraan masyarakat dan negara melalui kekayaan.

Dalam memperjuangkan bioekonomi di Malaysia, Bioeconomy Malaysia dan Bioeconomy

Transformation Programme (BTP) yang ditubuhkan atas inisiatif kerajaan pada November 2012 sebagai strategi untuk terus meningkatkan dan mengukuhkan Polisi Bioteknologi Kebangsaan (NBP) sedia ada.

Selain itu, BTP direka untuk bertindak sebagai platform sektor swasta bagi menyalurkan dan memaksimumkan peluang komersial dalam industri berasaskan bio.

Program teras lain Bioekonomi Malaysia adalah Program pembangunan Komuniti Bioekonomi (BDCP). Ini adalah mandat yang diberikan dari Perdana Menteri Datuk Seri Najib Tun Razak sendiri seperti yang diumumkan semasa Bajet 2014 bahawa kerajaan akan melaksanakan BDCP.

Di bawah program berkenaan, tanah terbiar akan dibangunkan menggunakan aplikasi bioteknologi

dan teknologi berasaskan biologi.

Projek dari BDCP akan terus memberi kesan kepada industri berasaskan bio menambah nilai kepada apa yang dihasilkan oleh petani, meningkatkan kepakaran mereka sebagai usahawan bio dan meningkatkan pendapatan isi rumah bagi kumpulan bawah 40 peratus (B40) ke peringkat lebih tinggi.

Ini berlaku dengan mempercepatkan penggunaan peralatan berasaskan bio dan penyelesaian kepada

amalan pertanian sedia ada bagi meningkatkan keberkesanan dan produktiviti.

Tambahan lagi, ia juga memperkenalkan pertanian tanaman bernilai tinggi, perikanan dan penternakan kepada komuniti petani.

Lanjutan daripada itu, penjenamaan semula merupakan salah satu langkah penting bagi menggambarkan evolusi negara kita dari arah bioteknologi kepada bioekonomi.

Oleh itu, menjenama semula agensi Malaysian Biotechnology Corporation (BiotechCorp) kepada Malaysian Bioeconomy Development Corporation (Bioeconomy Corporation) sebagai pemacu industri bioteknologi dan industri berasaskan bio adalah satu langkah yang wajar.

Usaha penjenamaan semula membawa organisasi ke arah identiti baru. Lebih penting, usaha penjenamaan semula akan memberi penjelasan kepada peserta



MAJLIS pelancaran penjenamaan semula 'BiotechCorp' kepada 'Bioeconomy Corporation' semasa BioMalaysia & Asia Pacific Bioekonomi 2016 dirasmikan oleh Menteri Sains, Teknologi dan Inovasi (MOSTI) Datuk Seri Panglima Madius Tangau (tiga dari kiri).

industri dan pihak berkepentingan yang lain bahawa Bioeconomy Corporation adalah sebuah agensi pembangunan ekonomi dalam industri berasaskan bio.

Dipadankan

Ini melengkapkan peranan organisasi untuk terus menarik pelaburan dalam sektor berasaskan bio, lalu menyumbang kepada pertumbuhan dan kesejahteraan ekonomi negara.

Penjenamaan semula Bioeconomy Corporation juga dapat memainkan peranan penting dalam menyumbang kepada pencapaian Dasar Bioteknologi Negara (NBP), terutama semasa Fasa III sehingga tahun 2020.

Semasa Fasa II NBP (2010

- 2015) 'Sains kepada Bisnes', industri bioteknologi Malaysia telah mencatatkan pelaburan bernilai lebih daripada RM11 bilion, pendapatan lebih daripada RM37 bilion, dan mewujudkan lebih 72,000 peluang pekerjaan.

Dalam usaha memacu industri bioteknologi tempatan ke peringkat global di Fasa III NBP (2016 - 2020), dan bagi memastikan perniagaan berasaskan bio terus berkembang, sokongan ekosistem serta aspek kawal selia dan teknikal yang kukuh adalah penting untuk dipadankan dengan keperluan industri yang semakin meningkat.

Penjenamaan semula ini akan mengukuhkan lagi daya saing industri tempatan dalam pembangunan teknologi dan

inovasi. Syarikat-syarikat bioteknologi di Malaysia, terutamanya syarikat-syarikat berstatus BioNexus akan menjadi perintis teknologi berasaskan bio.

Sehingga kini, kami mempunyai sejumlah 276 syarikat yang terlibat dalam beberapa aktiviti. Dalam Fasa III NBP kini, fokus adalah untuk memajukan syarikat-syarikat ini, yang kebanyakannya terdiri daripada SME ke atas rantaian nilai dan ke arah *further up the value chain*, "Going Global" melalui program khusus dan inisiatif.

Sebagai contoh, rangkaian BioNexus Partners di bawah Bioeconomy Corporation adalah strategi berkesan dalam membina model perniagaan yang berjaya bagi tujuan pengkomersialan produk berasaskan bio tempatan.

Syarikat-syarikat Malaysia yang berasaskan bio ini boleh menembusi dan bersaing dalam pasaran global jika produk atau perkhidmatan mereka memenuhi standard antarabangsa dari segi keseksamaan, keselamatan dan keberkesanan.

Dalam mendorong peserta tempatan untuk memberi fokus kepada pasaran global, Bioeconomy Corporation menggalakkan mereka untuk sentiasa membuat perubahan dan beralih ke peringkat seterusnya. Ini dapat meningkatkan nilai eksport produk mereka yang berasaskan bio.

Disasarkan bahawa Malaysia akan mempercepatkan pertumbuhan industri berasaskan bio dengan menghasilkan sekurang-kurangnya 20 syarikat Malaysia berstatus global pada akhir Fasa III, lalu terus menerajui

proses penciptaan nilai bagi industri selepas tahun 2020.

Bioeconomy Corporation juga menyasarkan untuk menjadi penyumbang utama kepada ekonomi negara dalam bidang industri sains dan teknologi.

Matlamat dasar penjenamaan semula itu adalah untuk menarik lebih banyak pelaburan dalam industri berasaskan penyelidikan.

Justeru, Bioeconomy Corporation akan bertindak sebagai cabang komersial MOSTI bagi menggalakkan pertumbuhan industri berasaskan bio dan produk berasaskan bio tempatan, di samping membantu dan berkerjasama dengan agensi-agensi serta institusi-institusi penyelidikan lain dalam mengkomersialkan sains dan teknologi.

Pada masa ini, Malaysia berada di jalan yang betul dalam menggalakkan perniagaan berasaskan bio sebagai enjin baru untuk berkembang dengan Bioeconomy Malaysia direka untuk membawa transformasi sosial dan ekonomi kepada negara.

Dengan sokongan berterusan oleh Kementerian, Sains, Teknologi dan Inovasi (MOSTI), organisasi berkenaan sentiasa memandang ke depan untuk bekerjasama lebih rapat dengan semua pemegang saham bagi mendapat faedah bersama.

Apatah lagi semasa kita sedang berusaha ke arah membina ekonomi berasaskan bio yang teguh dan mampan dan mengubah Malaysia kepada negara berpendapatan tinggi dan sebagai kuasa bioekonomi global.



Jabatan Meteorologi Nafi Keluar Amaran Tsunami

KUALA LUMPUR, 6 Nov (Bernama) -- **Jabatan Meteorologi Malaysia (METMalaysia)** hari ini menafikan mengeluarkan sebarang amaran tsunami yang akan berlaku di negara ini.

Jabatan itu dalam kenyataannya menasihati orang ramai supaya tidak mempercayai khabar angin yang tersebar di media sosial termasuk melalui aplikasi Whatsapp dan Facebook mengenai perkara tersebut.

Sebarang pertanyaan boleh menghubungi hotline METMalaysia di talian 1300 22 1638.

-- BERNAMA



Madu Kelulut Perlu Piawaian Standard-Shabery

KEMAMAN, 6 Nov (Bernama) -- Satu piawaian seragam untuk produk madu kelulut perlu dibangunkan bagi memastikan keluaran produk itu bermutu tinggi dan tulen bagi menembusi pasaran eksport.

Menteri Pertanian dan Industri Asas Tani Datuk Seri Ahmad Shabery Cheek berkata berdasarkan sambutan semasa kelulut diperkenalkan di China dan Timur Tengah sebelum ini, kementerian itu menyasarkan kelulut akan menjadi produk negara yang boleh dipasarkan di peringkat antarabangsa.

"Untuk itu satu pasukan telah dibentuk melibatkan pelbagai agensi termasuk Institut Penyelidikan dan Kemajuan Pertanian Malaysia (MARDI), **Jabatan Standard Malaysia, Institut Genom Malaysia (MFI)** untuk membangunkan standard yang seragam," katanya.

Beliau berkata demikian kepada pemberita sempena Program Kelulut Walk 2016 di Padang Astaka, Chukai di sini hari ini. Turut hadir, Duta Madu Kelulut Walk, Sabri Ali dan Pegawai Daerah Kemaman Rosman Roslan.

Shabery berkata kementerian itu berharap dalam tempoh enam bulan hingga setahun, penyeragaman dan penjenamaan kelulut di seluruh negara akan dapat dikeluarkan bagi memudahkan usaha untuk menjadikan madu kelulut sebagai produk eksport, selari dengan pembentangan Bajet 2017 yang menggariskan keutamaan dalam pembangunan standard madu kelulut.

"Sekarang (penetapan standard) sudah bermula, dan ada produk yang dikeluarkan telah diberikan standard oleh MARDI, namun ia mesti dipersetujui oleh semua pihak yang lain," katanya.

Bila ada standard dan penjenamaan, pengguna akan dapat memilih antara kelulut asli dan tidak, termasuk kandungan airnya, katanya.

"Eksport madu kelulut berpotensi besar. Ada negara yang membuat kajian tertentu dan mendapati bahawa kelulut keluaran Malaysia mempunyai kandungan yang dianggap lebih baik daripada madu biasa, dan kita sudah mendapat permintaan dari beberapa negara seperti China dan Timur Tengah," katanya.

Shabery berkata pembangunan standard produk tersebut juga meliputi pelbagai aspek termasuk kualiti, pembungkusan dan menepati piawaian yang ditetapkan.

"Mungkin kita juga akan adakan pusat pengumpulan untuk membantu usahawan memenuhi standard yang akan ditetapkan.

Menurut Shabery bagi mencapai hasrat untuk menjadikan kelulut produk eksport negara, kementerian itu juga akan turut melihat beberapa kekangan lain yang mungkin timbul seperti bekalan kelulut yang diusahakan 1,000 pengusaha di seluruh negara, mencukupi.

Beliau berkata kerjasama dari Jabatan Hutan juga diperlukan bagi menyelaraskan pemerolehan sarang atau koloni kelulut dari kawasan hutan.

Sempena program tersebut, Ahmad Shabery yang membuat pelepasan, turut berjalan kaki kira-kira dua kilometer bersama Sabri yang akan meneruskan misi berjalan kaki ke Balok, Kuantan.

Sehingga semalam, Sabri telah menamatkan perjalanan sejauh 1,012 kilometer merentasi sembilan negeri.

-- BERNAMA

KERATAN AKHBAR
NEW SUNDAY TIMES (LEARNING CURVE) : MUKA SURAT 6
TARIKH : 6 NOVEMBER 2016 (AHAD)

LEARNING CURVE

Shoot for the stars

FROM LOCAL TO GLOBAL:

Professor Emeritus
Datuk Dr Mazlan
Othman paves the
way for women in
STEM

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**"In astrophysics
I found the
beauty of art
and literature."**

Mazlan Othman,
Academy of Sciences
Malaysia Mega Science 3.0
project director

FOR Malaysia to compete with the rest of the world, more scientists, mathematicians, engineers and technologists are needed to manage the country's natural resources and develop new technologies for future growth and development.

This means that as competition becomes keener, the demand for both skilled male and female scientists and researchers in the sciences will increase in tandem.

With women acknowledged as equal partners in nation-building, the government has, through the years, put in place policies covering the economy, education, women's welfare and human resources to ensure their participation. But there is still a perception that there is not enough female presence in Science, Technology, Engineering and Mathematics (STEM) and this has been linked to lack of interest in the sciences among female students in schools and universities.

However, Professor Emeritus Datuk Dr Mazlan Othman, 64, believes that the issue is not one that is gender-based but lies in the general lack of interest in sciences among all students.

"There is a large increase in the number of women in science. If you look at global university intakes, women make up 60 per cent on average compared to the past. But are these girls pursuing science or STEM stream? I believe they are," said Mazlan.

Interest in STEM is not a female but a general problem, Mazlan observed. "There is a misconception that people don't have the capacity to pursue science. If you have enough exposure, support from your family and friends



Mazlan Othman seated at a computer terminal during a visit to Balai Berita in Kuala Lumpur as a sixth former.

as well as role models, you will be encouraged to take up science."

She added that there is no lack of role models for women in science today. "Once the girls are in the science stream, they do extremely well."

WHITHER RESEARCH?

Mazlan herself is a role model for many women in science in the country.

And with a long list of firsts, she is proof of women excelling in the field. She is Malaysia's first astrophysicist; the first woman in the history of her alma mater (University of Otago, New Zealand) to earn a PhD in physics; the first director of Malaysia's National Space Agency, Angkasa; and the first head of the Angkasawan Project that successfully launched the country's first astronaut, Datuk Dr Sheikh Muszaphar Shukor, into space.

She is also the first Malaysian to serve as director of the United Nations Office for Outer Space Affairs in Vienna, Austria from 1999 to 2002 and again from 2010 to 2014.

But it was not for her teachers at Tunku Kurshiah College in Seremban, Negri Sembilan, life could have been very different for Mazlan.

"After Form Three, I wanted to do English Literature and arts. I breezed through science and math, and I wanted to do something challenging.

"And I found English Literature extremely challenging especially when I tried to read Shakespeare, and I was hopeless in art.

"But I scored the highest marks for math and science, and my teachers insisted that I do science. It was 1963, people were still clamouring for scientists and I was too young to have my own mind. So, I thought, 'If you want me to do science, I will'. But, of course, I am so glad they insisted because it turned out very well for me," she said.

She was introduced to physics in

the science stream. "My passion was physics and Einstein and people like him. It was only when I went to university that I was exposed to astrophysics and I fell in love with it.

"In astrophysics, I found the beauty of art and literature. If you look at any astronomy book, you see beauty everywhere and there is so much mystery and philosophy. Physics took my mind beyond everyday things but astrophysics expanded this mysterious world," she added.

Mazlan attended the University of Otago in Dunedin on a Colombo Plan scholarship, earning a BSc (Honours) in 1975. She then joined the Universiti Kebangsaan Malaysia (UKM) as a tutor, but negotiated an extension to her scholarship and returned to Otago, earning a PhD in physics in 1981.

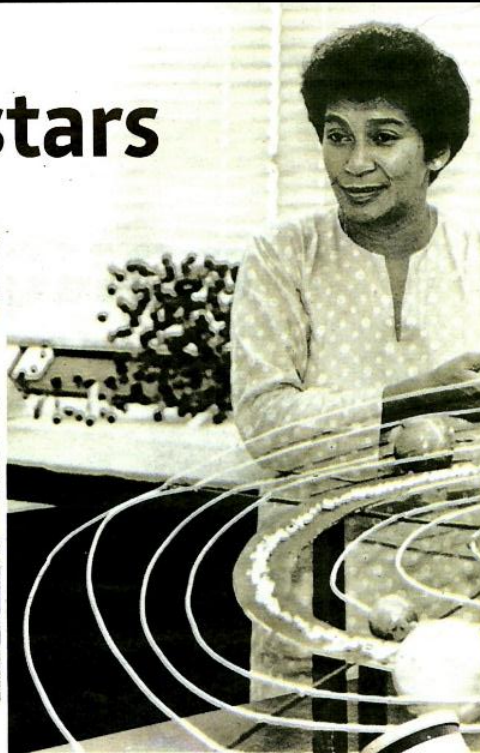
But Mazlan said she hardly had the chance to explore scientific research in the field of astrophysics early in her career while she was at UKM to create a curriculum in astrophysics as well as raise public awareness of astronomy and space.

"In 1989, I was preparing research for my sabbatical at the Harvard Astrophysics Lab. I was so excited and went to visit the lab. But the Prime Minister's Office asked me to set up the National Planetarium. I had to make a choice. I knew if I answered the call of the Prime Minister's Office, it would be the end of my research career."

Mazlan took on the job of setting up the planetarium. "I made the choice to contribute to the management and leadership field instead of research. But I keep in mind to create a research track for the people following me."

CHALLENGES

Much has been said about how women in science have it tougher. But Mazlan has never felt discriminated against as a woman.



Mazlan Othman with colleagues at Matang.

"Girls generally think that as a career, science is more difficult. There are a lot more sacrifices when you pursue science subjects. When you do research, there are no standard working hours. Researchers could be working up till two or three in the morning on an experiment or when they are writing a paper with a deadline, they work all night. This puts a spanner in the works — how do you cook dinner and put the children to bed?

"There are sacrifices and women are quite well aware of this and they choose their careers accordingly. There are many exciting career prospects in science."

For women to do well in the field of science, they need supporters — not just a coach to guide them to write papers for journals and proposals for research grants or mentors for their careers. Women need sponsors such as a dean or head of department who



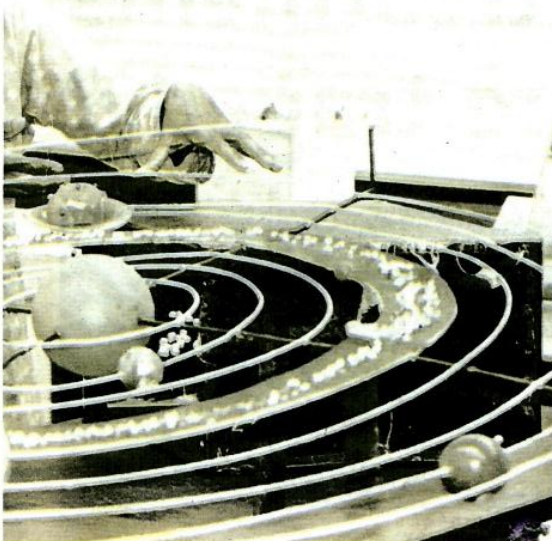
Mazlan Othman (left) shaking hands with University of Otago chancellor J. O. Medicott at the Doctorate of Science (Physics) award ceremony.

SAMBUNGAN...

NEW SUNDAY TIMES (LEARNING CURVE) : MUKA SURAT 7

TARIKH : 6 NOVEMBER 2016 (AHAD)

Raising awareness of astronomy and space was part of Mazlan Othman's role as a lecturer of astrophysics at UKM in 1988.



Igong, Kudat in Sabah preparing for the solar eclipse in 1995.

gives them opportunities.

"We have two problems: one is the lateral glass, and the other, the glass ceiling. To be promoted, one would have to have wide experience such as that of the head of department or a lab. Many missed out on the position of a dean because they didn't have lateral experience. You must show your talents in different fields. You must not only be a good scientist, you must also be a good administrator. Sometimes women are denied, not upwardly but laterally.

"And we have to work towards rectifying that and take on any challenge."

That said, Mazlan cautioned women scientists to be careful of the "glass cliff" — a difficult task with 90 per cent chance of failure. "You have to learn to assess the cliffs. Of course, it is a challenge. I jumped off some cliffs but be careful which cliff you jump from. Once you have done that, there's no more glass ceiling."

Now that there are more women in science, Mazlan said that they will be winning more Nobel prizes in a decade although none won in the scientific fields this year. "The winners are getting rewarded for their work which they embarked on 40 years ago when women were new to the field."

MOVING ON

When Mazlan retired two years ago, she decided it was time to reinvent herself.

"I decided that I didn't want to stick to space as a field though I would still want to be in it. Space is a part of the bigger field of science and technology.

"And that's why I came back as the Academy of Sciences Mega Science 3.0 project director as it involves all the sciences and I wanted to see where space fits in.

"And I have the opportunity to do a forecast for 2050. I have to look beyond space towards artificial intelligence,

genetic engineering and neurotechnology. Everything is new and I love it," she said.

Having headed the panel of judges for the 2016 L'Oréal-Unesco for Women in Science Award, Mazlan has this to say to young women scientists: "For these ladies (award recipients), they have to become international scientists. They know they cannot be *jaguh kampung*. Science is a global endeavour. They are all fighting to be published in international journals. So the way to go is to attend international conferences, get involved in other groups overseas. We cannot pursue science in isolation. So, for them, going international is a no-brainer — they have to do it."

Then there is also the management and leadership aspect.

"Sometimes people think there is less reason to go international in this

AT THE FOREFRONT



Mazlan Othman (second from right) with the 2016 L'Oréal-Unesco for Women in Science Award winners (from left) Nethia Mohana Kumaran, Fatehah Mohd Omar and Reena Rajasuriar.

THREE women scientists were honoured with the 2016 L'Oréal-Unesco for Women in Science Award recently.

They are Dr Fatehah Mohd Omar, a lecturer at Universiti Sains Malaysia's (USM) School of Civil Engineering for her research on wastewater treatment for palm oil industries; Dr Nethia Mohana Kumaran, a senior lecturer at USM's School of Biological Sciences for her research on a customised treatment for nasopharyngeal cancer; and Dr Reena Rajasuriar, a lecturer at University of Malaya's Faculty of Medicine for her research on unlocking the code of immunological ageing process.

Fatehah's goal is to retain a clean water environment for the ecosystem and ultimately for the human living environment so that Malaysia will one day achieve a green culture similar to developed nations such as European countries and Japan.

"The aim is to understand the behaviour of wastewater in terms of surface charge and particle size so we can provide insightful data that is concrete and reliable to develop a long-term solution. I'm looking at suspended solids in palm oil mill effluents that are inevitably released in water courses even after extensive treatment," she said.

Ultimately her research findings can be applied to other industries to filter clean water into the eco-system.

Fatehah attributed her passion for science to her mother who is a biochemist and her father, a chemical engineer. "Persistence and consistency are key to success. Be respectful and modest, for knowledge is gained even from the smallest lessons," she said.

Nethia's research, meanwhile, is inspired by her interest in cancer biology. She has delved deeper into understanding how normal cells become cancerous.

"Upon completing my postgraduate studies in the University of Sydney, I realised

that there isn't much done in the area of nasopharyngeal cancer therapeutics as most treatments work on the concept of one-size-fits-all. My research challenges this norm and I'm finding a solution to treat every cancer as an individual entity.

"As nasopharyngeal cancer cells are addicted to certain pro-survival protein, my research focuses on identifying the proteins and inhibiting them with drugs known as BH3-mimetics. My vision is to personalise BH3-mimetics so that we can offer more effective, customised treatments and save more lives," she said.

Blessed with a supportive family, science, Nethia said, is her calling as it instils a love for learning.

For Reena, her school teacher mother played an important role in moulding her scientific career. She was encouraged to ask questions from young.

This quest for answers led her to pursue a different career path. "I didn't become a researcher in a linear path. I started my career as a clinical pharmacist and became a lecturer in this field. My interest was infectious diseases and HIV, and my work in this area as a pharmacist led me to many unanswered questions and a subsequent pursuit of a PhD in the field of immunology.

"I observed that many of the health issues faced by young adult HIV and cancer survivors resembled those experienced by the elderly. This sparked an interest to explore the role of the immune system in ageing."

Reena said her work is focused on how stress alters the immune system and impacts the process of ageing.

An annual event, the L'Oréal-Unesco for Women in Science Award gives each recipient a RM30,000 grant to help pursue research. Some 139 scientists from various fields applied for the award this year.

area. If you are a dean, why should you refer to other deans for instance? But you learn a lot from other people's experience."

And her advice for the younger generation: "Do not stay in one place. If you only have one job, you have to explore your inner self in full. If you are in the academic field, you can make time to do something else as well.

"I always move to where I can give my best contribution. You can contribute in many ways in your niche areas."

The greatest reward for Mazlan is delivering on her promise to younger people to help them in their career, especially in terms of financing.

"If you have a good idea, I will find the money. Ideas are important and as a senior in this field, financing is my concern."