

Inspiring Futures, Nurturing Possibilities

# RES NANCE



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**12** | UKM Wins  
Top Award and  
Three Gold Medals  
at PECIPTA



**11** | RM91.2  
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Research Grants  
for UKM in 2015



**07** | UKM the  
only Local  
University to  
Win Top  
ASEAN  
Solar  
Energy  
Prize



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RESONANCE connotes dynamism and vibrancy. Resonance reflects our vision and philosophy, and it is also in tandem with our sister publication SENADA. As one of the research universities of Malaysia, dynamism is a virtue much prized by us for it ensures our pre-eminence in the field. Other aspects of campus life are not neglected. After all, we are a community of scholars, support staff and students. The pulse and vibrancy of the whole community can be felt as you read through the pages of RESONANCE. Happy Reading.

Editorial Team



# Message from the **Vice-Chancellor**

Assalamualaikum and Good Day,

The year 2015 was filled with a variety of events, achievements, successes and challenges. It witnessed the strengthening of the six national Key Results Area (6 KRA's) as a template for UKM to be the Guardian of the Nation.

2015 also reflected the various achievements of UKM which further enhanced the university's reputation. In view of these successes, I urge all to continue the good work to achieve greater advances, so that UKM remains relevant referred and respected. The impact of our academia needs to be close to the community and UKM must always strive to need our motto, Inspiring Futures, Nurturing Possibilities.

The year 2016 will see more and more demands to be met. We have to be innovative, creative and should embrace and manage the changes UKM will continue to challenge the convention in order to achieve more, work through experimentation to achieve something new. Let us enter 2016 with enthusiasm, understanding and mutually-agreed goals.

May the year 2016 brings more successes and innovations for all.

**Prof. Datuk Dr. Noor Azlan Ghazali**





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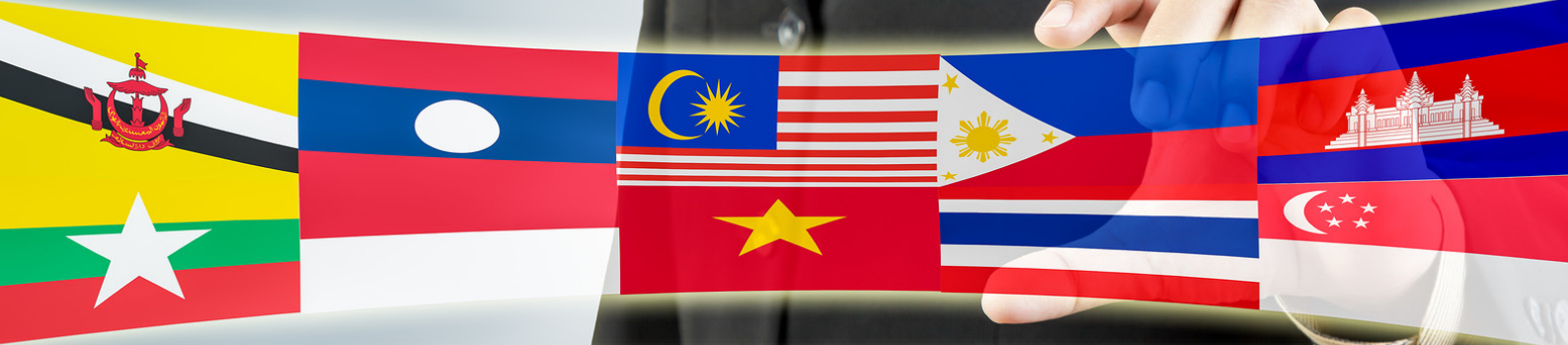
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**22**

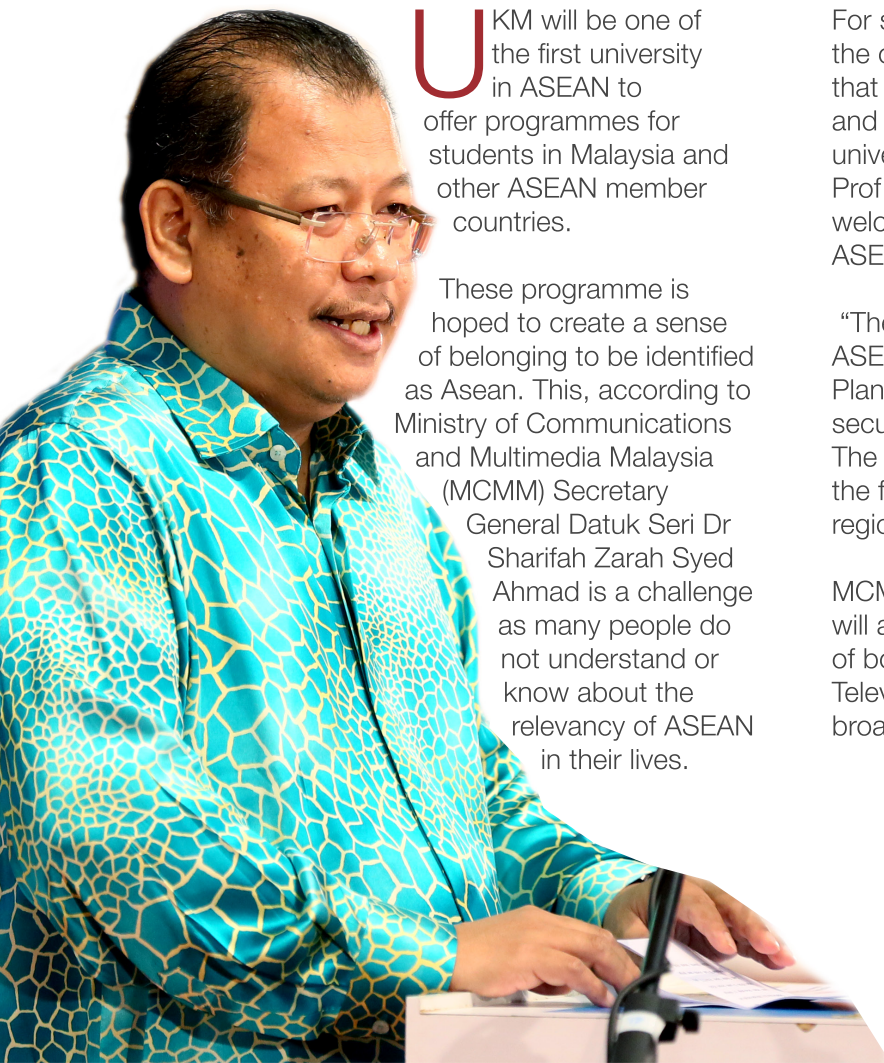




UKM@ASEAN



# UKM Ready to Be **ASEAN** Varsity – VC



**U**KM will be one of the first university in ASEAN to offer programmes for students in Malaysia and other ASEAN member countries.

These programme is hoped to create a sense of belonging to be identified as Asean. This, according to Ministry of Communications and Multimedia Malaysia (MCMC) Secretary General Datuk Seri Dr Sharifah Zarah Syed Ahmad is a challenge as many people do not understand or know about the relevancy of ASEAN in their lives.

For students enrolled at UKM, this includes the opportunity to participate in programmes that involve the exchange of student leaders and credit transfer system among the top 30 universities in the group, said Vice-Chancellor Prof Datuk Dr Noor Azlan Ghazali in his welcoming remarks at the celebration of the 48th ASEAN Day.

“The government in collaboration with other ASEAN partners are providing the ASEAN Action Plan 2016-2015, which includes the politics and security, economic and socio-cultural aspects. The plan we can use as guidelines for charting the future of our nation with countries in the region,” he explained.

MCMC, through the Department of Information, will also be cooperating in the field of digitization of books and creating ‘Internet Protocol Television (IPTV) to offer online television broadcasts with ASEAN partner countries.



# UKM the Only Local University to Win Top ASEAN Solar Energy Prize



**U**KM is the only local public university to have won a prize at the annual 2015 ASEAN Energy Awards.

The Solar Energy Research Institute (SERI) of UKM was declared winner with its' project, a telecommunication base station powered by solar energy using a Maximum Light Detection (MLD) system that automatically follows the path of the sun.

UKM Vice-Chancellor, Prof. Datuk Dr. Noor Azlan Ghazali, Deputy Vice-Chancellor (Research and Innovation) Prof. Datuk Dr. Mazlin Mokhtar and SERI Director Prof. Dato' Dr. Kamaruzzaman Sopian accepted the award at the 33<sup>rd</sup> ASEAN Ministers On Energy Meeting (AMEN) and ASEAN Energy Awards Gala Dinner.

This is the third consecutive year that UKM was honoured at the ASEAN Energy awards, with SERI winning top prizes in 2014 and 2013 also for the Special Submissions category.

In 2014, SERI was awarded first prize for application of venturi-shaped wind-induced natural ventilation tower and photovoltaic thermal collectors for low energy homes, while in 2013 it won the top award for the Green Hospital – Large Scale Solar Assisted Hot Water Heating System at the UKM Hospital.

Earlier, Prof Kamaruzzaman explained that the MLD or Maximum Light Detection principle is based on the most accurate, fastest and most energy-saving tracking system of the solar module toward the maximum light point.







# UKM Expands Alliances with 16 Indonesian Colleges in Various Fields

The National University of Malaysia (UKM) has broadened cooperation with 15 Indonesian higher learning institutions and an Agency for the Assessment and Application of Technology (BPPT). The collaboration was sealed with the signing of a Memorandum of Understanding (MoU) by UKM Vice-Chancellor Prof Datuk Dr Noor Azlan Ghazali with rectors and deputy rectors of the higher education and research institutions on Nov 20, 2015.

The MoU is to provide more opportunities for Indonesian students to do their Master and Doctorate degrees at UKM, increasing levels of expertise and development of human capital for all parties involved, such as student and lecturer exchanges, co-writing of papers for high-impact international journals and the strengthening of ties between Malaysia and Indonesia.

The education cooperation between UKM with the government of Indonesia was implemented through various means, such as conferences, forums, discussion, lecturer exchange, visits, and joint reviews. There has been 80 cooperation agreements in the form of Letter of Intent (LoI), 23 MoU's and four Memorandum of Agreements (MoA) between UKM with the Indonesia government and various institutions in Indonesia. The cooperation was strengthened when there are 13 academicians of Indonesia is currently being served at UKM.

The MoU involves four faculties at UKM such as the Engineering and Built Environment, Islamic Studies, Fuel Cell Institute and Graduate Centre. At present the number of UKM postgraduates now stands at 11,169 and 333 of them are from Indonesia, while the total alumni members from Indonesia is more than 3,000.



## Strategic Partners@UKM

The Indonesian institutions of higher education which signed the MoU are Universitas Malikussaleh (UNIMAL), Universitas Sumatera Utara (USU), Universitas Islam Negeri Sumatera Utara (UINSU), Universitas Sriwijaya (UNSRI), Universitas Muhammadiyah Sumatera Utara (UMSU), Universitas Medan Area (UMA) and Universitas Muslim Nusantara (UMN) Al Washliyah.

Other institutes are Akademi Teknik Indonesia Cut Meutia (ATICM), Universitas Bung Hatta (UBH), Universitas Putra Indonesia "YPYK" Padang, Universitas Serang Raya (UNISERA), Universitas Mercu Buana (UMB), STIE Bisnis Indonesia (STIEBI), Universitas 17 Agustus 1945 Cirebon (UNTAG) and Universitas Islam Indonesia (UII).

The event was witnessed by Malaysian Ambassador to Indonesia Datuk Seri Zahrain Mohamed Hashim.



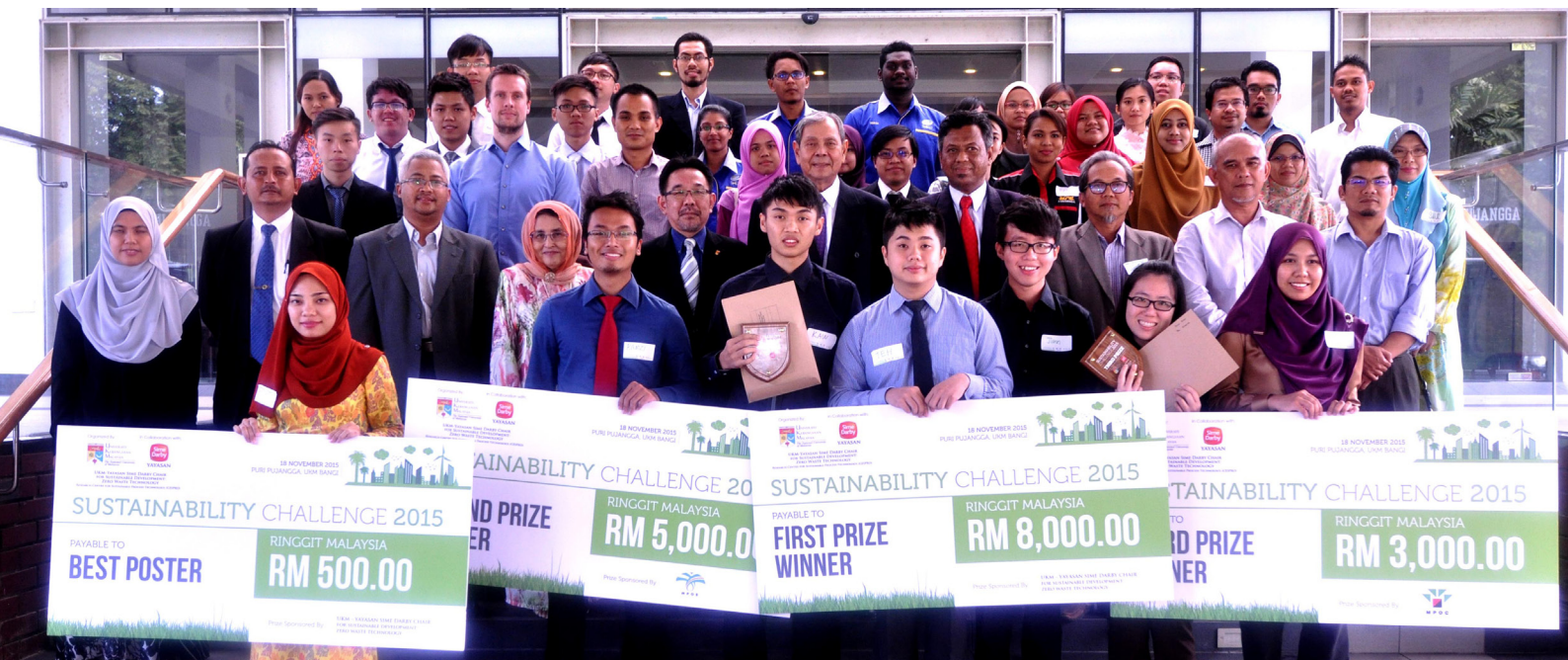
# UKM Pioneers New Frontiers for **Greater Asean** Economic Integration



**T**he 27th Asean Summit at Kuala Lumpur formally launched the ASEAN Community on the 22nd November 2015. As part of Malaysia's contribution to building the ASEAN Community, the Institute of Malaysia and International Studies (IKMAS) forged a new tripartite collaboration between UKM, Oxford University and the World Trade Institute (WTI, Bern) on 9th November 2015. Aligned to the goals of the ASEAN Economic Community- one of the three elements of the ASEAN Community- this partnership aspires to contribute to the stock of knowledge and the growing research on ASEAN economic integration.



# Varsity Students' Ideas on Palm Oil Industry Sustainability Bear Fruit



UKM won second prize in the Sustainability Challenge, a competition initiated by UKM and the Sime Darby Foundation (UKM-YSD) Chair for Sustainable Development: Zero Waste Technology.

Prof. Ir. Dr. Mohd Sobri Takriff, the chairman of the Sustainability Challenge said the winner was selected from the ten best entries and those selected are the most innovative and most unique.

“This competition provides an excellent opportunity for the participants to present their sustainability ideas to the private sector for further research and development,” he said.

The team from UKM won RM5,000 while USM took home the RM8,000 prize money and UMS was placed third and received RM3,000 cash prize.

UKM proposed extracting a complex sugar, known as Furan dimethyl acetyl, (FDA) from oil palm tree trunks to be used as an anti-cancer compound similar to Cureumin.

UKM had also received an endowment fund of RM15 million from YSD with the aim of leading and directing research that is relevant to palm oil industry to aspire Malaysia to be a model for sustainable development for the world.

With the collaboration of Sime Darby Plantation, UKM is able to carry out research that can increase the value-added products from the industry, as well as reduce green house gas emissions.

These improvements include green technology and innovative practices, ultimately leading to zero waste to the ground, air and water.



# KONGRES Penyelidikan & INOVASI

INSPIRASI PEMANGKIN INOVASI

## RM91.2 Millions in Research Grants for UKM in 2015

The numerous research funds obtained by UKM academicians is one of the main contributing factor that improved UKM's research KPI (Key Performance Indicator). Not only that, it also consistently contributes to the economic and social development through an ecosystem that can foster innovation, discovery and use of knowledge.

UKM received research grants totaling RM91.2 million for the period from January to December 2015 involving 1332 research projects.

Vice Chancellor, Prof Datuk Dr Noor Azlan Ghazali said the grants were obtained through various sources such as the Ministry of Science, Technology and Innovation, Ministry of Higher Education, the private sector and overseas agencies.

The grants also enabled academicians to produce books, journal articles and innovative products, which is important in contributing towards the body of knowledge through innovations.

PELANCARAN BUKU PENYELIDIKAN





# UKM Wins Top Award and Three Gold Medals at PECIPTA

Innovation@UKM

UKM continues its winning streak, clinching the Best Award and three Gold Medals at the International Conference and Exposition on Inventions by Institution of Higher Learning (PECIPTA) 2015.



The research by Prof. Dr. Abdul Salim Babji, Assoc. Prof. Dr. Ma'aruf Abd Ghani and Dr. Zalifah Mohd Kasim from the Faculty of Science and Technology about swiftlets' nests had been chosen by judges to be the best at PECIPTA 2015.

Aptly titled Bioactive Swiftlet Nest Capsule – Natural Antioxidant & Anti-Hypertension Capsule, the research studies the usage of natural materials such as swiftlets' nests as a natural food supplement.

According to the researchers involved, bioactive edible bird nest hydrolysates capsule is touted as a natural food supplement developed via selective enzymatic hydrolysis to produce superior glycopeptides with high functional characteristics. This natural hydrolysates were reported to be scientifically tested and found to be high in antioxidant and antihypertensive properties.

The research is a beneficial alternative for those with a hectic lifestyle, and yet concerned with maintaining a healthy life.

This research also bagged the Gold Medal, along with two other research projects, namely: A New Double-Negative Metamaterial Design for Electromagnetic Absorption Reduction in Human Head by Dr. Mohammad Rashed Iqbal Faruque, Prof. Dr. Mohammad Tariqul Islam and Prof. Ir. Dr. Mardina Abdullah from Space Science Centre (ANGKASA) and A Simple and Low Cost Z-Blade Turbine for Low Head and Low Flow Pico Hydro System by Prof. Dato' Dr. Kamaruzzaman Sopian, Prof. Dr. Sohif Mat and Mohd Farriz Md Basar from the Solar Energy Research Institute (SERI).

The PECIPTA 2015 Closing Ceremony was officiated by Minister of Higher Education Dato' Seri Idris Jusoh.

In his speech, he spoke about initiatives to develop more innovation-driven enterprises to enhance national competitiveness.





# Travelling Helps Broaden Perspective



Living abroad, travelling and learning foreign languages can help one learn more about the diverse cultures and explore ideas and prospects which will help one become a good business leader, said Michaela Dinboeck, the President and Managing Director of Novartis Malaysia.

Michaela advised prospective entrepreneurs to understand other economies, ways of being and societies beyond the borders of their own home so that they can have a business advantage adding that it is important for students to have a deeper global awareness and get out of their comfort zone.

Aside from that, she explained that to become a CEO one must be able to perform multiple roles and take cognizance of all aspects of the organization.

“You have to be able to design the strategy and direction of the organization, profit or loss of the company, develop and retain the talent and personnel control system, brand-building and the culture. In the end, you are responsible for everything that happens in the organization,” she said.

Being a respected leader does not mean you would just communicate with your peers.

“Spend regular time communicating with your staff and customers to listen to their opinions, needs and ideas. Better understanding of your staff and customers will build relationship which will further enhance their efficiency,” she added.

Michaela has 20 years experience in the pharmaceutical industry, health care and medical equipment at the local, regional and global levels.



# UKM Students Give Back To the Community in Pahang

Activities of this programme ranged from helping the Orang Asli to build a mosque from tent covers, to setting up water pumps that channelled clean water from nearby rivers to their homes.

The students also ensured the cleanliness of the inhabitants' homes by performing multiple sessions of cleaning activities.

One of the participants, Yazmalina Yaacob, 21, said that the main reason the programme was organised is to have fun with the Orang Asli.

"We did a few activities such as *senamrobik*, telematch, ice-breaking and *sembang santai*. Overall, we enjoyed ourselves and I'm sure they did too, based on the good feedback obtained from their headman," Yazmalina added.

UKM students contributed their time and skills to help an Orang Asli community in Pahang recently.

This programme was attended by 20 staffs and 20 participants.

The students of the Faculty of Education (FP) and Centre for Development and Alumni Relations (PPMPA) organised a programme, dubbed *Bakti Siswa*, which was held on 3<sup>rd</sup> of December at Kampung Bukit Serok, Pahang.

With the theme, *Career Is The Catalyst Of The Future*, the organisers of the event aimed to improve interpersonal skills like communications, management, leadership and cooperation, and foster unity amongst students involved.







# Early Screening Essential to Diagnose Breast Cancer

**T**he many factors that lead to the risk of breast cancer, makes it difficult to contain the disease, said Prof Dr Zulfiqar Muhamed Annuar, specialist and lecturer from the Department of Radiology, The Chancellor Tuanku Muhriz Hospital (HCTM), Universiti Kebangsaan Malaysia (UKM).

The best way to prevent it, she said, is through early diagnosis and treatment by qualified experts such as mammography with ultrasound.

She was speaking at her Professor's Premier Lecture titled *Breast Cancer: Early Detection and Diagnosis Using Imaging*, at the Tuanku Jaafar Chancellor Medical Education Complex, Kuala Lumpur recently.

"In the field of mammography, progress has been achieved with a transition from Analogue Mammography to Screen-Film, to Digital Mammography that uses computers to detect an abnormality in the images.

"In the field of Ultrasound, progress has been made with a transition from two-dimensional analog imaging that produces high-resolution images, to the production volume of three-dimensional images automatically," she elaborated.

For breast biopsy, i.e. the removal of breast tissue to examine it for signs of breast cancer or other problems, progress has been made with the use of excision biopsy through surgery, to Percutaneous Biopsy, or a needle biopsy by taking a small portion of tissue, using only a small incision, so it can be examined under a microscope.

She said that the progress and development in the areas of mammography, breast ultrasound and breast biopsy using imaging techniques has contributed to better detection and determination of diagnosis of breast cancer at an early stage.

"The combination of mammography and ultrasound produce higher sensitivity and specialization rates in the detection of breast cancer at an early stage," she explained further.

She also gave assurances to women not to fear the biopsy procedure as it is necessary in order to save them from cancer.





# Malaysians Not Eating Enough Fruit

## – UKM Food Science Expert

**M**alaysians should eat more fruit and vegetables to help stave off obesity and other life style related diseases.

Epidemiological studies indicate that fruit intake will lower the risk of coronary heart diseases, hypertension and strokes and may prevent cancer and slow down the aging process, said Prof. Aminah Abdullah, an expert in Food Science at the Faculty of Science and Technology (FST), The National University of Malaysia (UKM).

Fruit, as with vegetables, have been considered to be protective food containing vitamins, minerals and fibres, but are now even more important due to their antioxidant content, said Prof. Aminah.

“Obesity is a disease, caused by improper diet. It has been on the increase in Malaysia since 2011. In 2014 49% of women and 44% of men were found to be obese,” she said.

Fruit are part of functional foods that include specialty crops, tree fruit, berries, coloured potato and vegetables.

“There are also ‘super fruit’ that have anti-oxidant, anti-ageing, and anti-inflammation properties and improves eye-sight. Some example are pears, watermelon and soursop.

“Banana is a common fruit that is easily available and is ulcerogenic, at least against gastric ulcers. It staves off constipation, depression and strokes,” she explained.

Another common fruit that is attracting a lot of attention is pink guava which have anti-oxidant and anti-diabetic properties.

In her lecture titled *Fruit: A trendy approach for maintaining optimal health*, she said a person needs at least two servings of fruit a day and three of vegetables as part of the diet to maintain health.



“All over the World many people are not taking enough fruits. There are seven fruits specifically mentioned in the Quran that offers various benefits for health; figs, olives, dates, pomegranate, grapes and Indian Jujube,” said Prof. Aminah in her public lecture here on September 29.

Sometimes, she said, fruit and vegetables can be processed into more attractive products such as juices and beverages, nutritious and tasty fruit bars and other innovative products.

She explained that all countries, including Malaysia, provide guidelines in the form of a ‘Food Pyramid’ which recommends a person to consume at least two servings of fruit each day.

“Fruit contains fructose (corn syrup) and glucose – simple sugars that are easy to absorb than sucrose, which is a processed complex sugar that is less healthy because it is not easily absorbed. Sucrose requires the enzyme sucrase to break it down to the two monosaccharides. It is more expensive than corn syrup and promotes tooth decay.

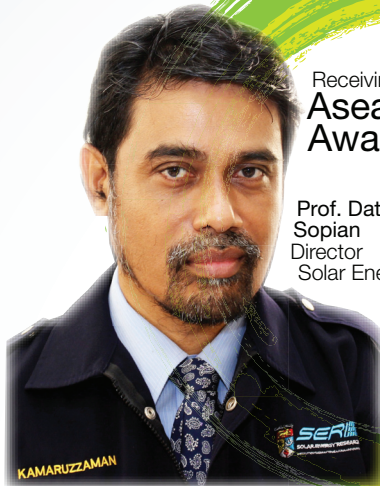
“If you are not diabetic, then eat as much (fruit) as you can. But consult a doctor first,” she advised.

Also present at her public lecture was Dean of FST Prof. Dr. Sahrim Hj. Ahmad and Deputy Dean Prof. Dr. Rusli Daik.





# Expert@UKM



Receiving:  
**Asean Energy Award**

Prof. Dato' Dr. Kamaruzzaman  
Sopian  
Director  
Solar Energy Research Institute



Receiving:  
**The Merdeka Awards 2015**

Prof. Emeritus Datuk Dr.  
Abdul Latiff Mohamad  
Fellow Researcher of UKM  
Ecology and Biodiversity



Receiving  
**The Merdeka Grant Award 2015**

Dr. Mohd Sukor Su'ait  
Fellow Research  
Solar Energy Research Institute  
(SERI)



Recipient of  
**Ma'al Hijrah Negeri Sembilan Icon**  
in Conjunction to Ma'al Hijrah  
Celebration 1437H/2015M Negeri  
Sembilan State Level

Prof. Dr. Zainul Rashid  
Mohammad Razi  
Deputy Dean of  
Graduates and  
International Affairs  
UKM Medical  
Centre  
(PPUKM)



Recipient of  
**Saudara Kita Negeri Sembilan Icon Award**

In Conjunction to Ma'al Hijrah  
Celebration 1437H/2015M  
Negeri Sembilan State Level

Dr. Nur A'thiroh  
Masyaa'il Tan  
Abdullah  
Faculty of  
Islamic  
Studies





Being elected as  
**Expert  
Panelist**  
for Malaysia Islamic Welfare  
Organization (PERKIM)

**Prof. Dato' Dr. Idris Zakaria**  
Faculty of Islamic Studies



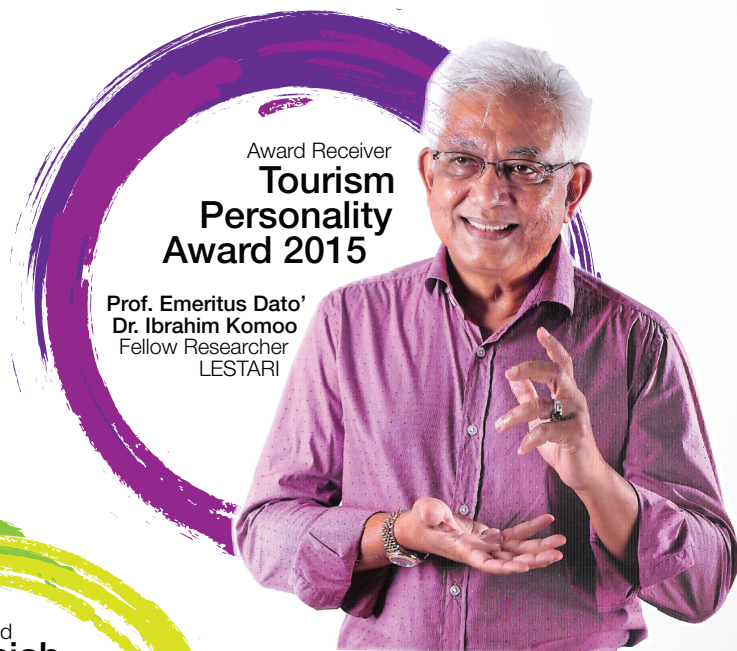
Successfully  
Gained  
**Research Grant**  
**Sultan Mizan**  
**Antartica Research**  
**Foundation 2014 &**  
**Joining Mission**  
**Scientific Expeditin to**  
**Antartica**

**Dr. Mohd Shahrul Mohd**  
**Nadzir**  
Faculty of Science &  
Technology



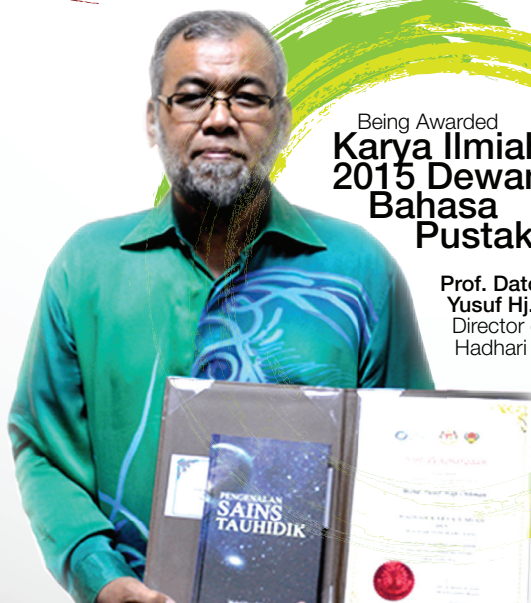
Winning  
**Sastera**  
**Perdana**  
**Malaysia Award**  
**2014**

**Prof. Madya Dr. Mawar**  
**Safei**  
Faculty of Social  
Science and  
Humanities



Award Receiver  
**Tourism**  
**Personality**  
**Award 2015**

**Prof. Emeritus Dato'**  
**Dr. Ibrahim Komoo**  
Fellow Researcher  
LESTARI



Being Awarded  
**Karya Ilmiah**  
**2015 Dewan**  
**Bahasa**  
**Pustaka**

**Prof. Dato' Dr. Mohd**  
**Yusuf Hj. Othman**  
Director of Islam  
Hadhari Institute



# Budget Commentaries



## **GREEN TECHNOLOGY AND A SUSTAINABLE LIFE**

Prof. Dato' Dr. Mazlin Mokhtar

The Malaysian government and multicultural society have always strived to raise their incomes, without sacrificing the environment and wasting of natural resources.

I applaud the Government's emphasis on the importance of innovation and creativity in enhancing development while still looking for new ways to reduce the Carbon Footprint.

This could clearly be seen from the 2016 Budget, which has dedicated efforts to reduce the carbon footprint while raising the National Gross Domestic Product by 40% by the year 2020, with or without aid from developed nations. This was witnessed in the offers of subsidies and tax incentives, from the government through various institutions to the private sector to stimulate the culture of green technology in everyday life. This includes the use of products based on Solar Energy technology and other renewable energy sources, which also paves the way for green entrepreneurship.

The government is indeed far-sighted in offering various worthwhile schemes, mechanisms and incentives for the people to improve their living standards and the environment based on green technology strategies.





## **EFFICIENT TRANSPORTATION SYSTEM**

Prof. Dato' Ir. Dr. Riza Atiq Abdullah O.K. Rahmat

To ensure the comfort of people in urban areas, an efficient public transport system is being intensively implemented, involving significant outlays.

The implementation of mass public transport systems such as MRT, LRT and BRT will help ease road traffic congestion and allow commuters to be less dependent on personal transport. They will also greatly reduce air pollution and the country's carbon footprint.

These include, the first Phase of the Ampang LRT line extension project spanning 18.1km, expected to be ready for use in March 2016. Meanwhile, the LRT extension line from Kelana Jaya to Putra Heights spanning 17.4 km will be ready for commuters from the middle of 2016. Both these projects cost RM1 0 billion.

There were also plans to improve logistics infrastructure, including building and improving rail transport network and highways in 2016. These include the highways of Damansara - Shah Alam, Sungai Besi - Ulu Klang, Pulau Indah and Central Spine Road.



## **GREEN TECHNOLOGY AND SUSTAINABILITY**

Prof. Dato' Dr. Kamaruzzaman Sopian

The Ministry of Science, Technology and Innovation has allocated RM1.5 billion to turn the country into a competitive hub and 2016 has been declared as Malaysia Commercialisation Year towards spurring commercialisation of R&D products by local research institutions.

In terms of energy, the National Plan of Action focuses on 3 main areas: the promotion and encouragement of the use of electric-powered vehicles for public transport, providing infrastructure for the setting up of charging stations and empowering the local development of electric-powered mobility.

Solar energy for integrated photovoltaic buildings should be given priority over solar farms, as the former is more sustainable in the longer run because it uses less land, keeping in mind of rising property costs. It also gives public buildings a more environmental-friendly look. As there is a difference between the feed-in tariff scheme to the clean-energy metering system, the public will be able to make a choice.



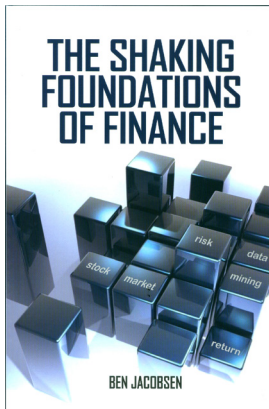
22 **RESONANCE**







# New Releases



## **The Shaking Foundations Of Finance**

2015

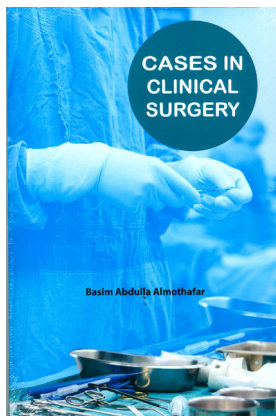
Penerbit UKM

ISBN : 978-967-412-364-2

RM25.00

Edited by Ben Jacobsen

The Shaking Foundations of Finance argues that the foundations of finance may no longer be as solid as they once seemed. Based on academic research of Ben Jacobsen and others, the author discusses the unpredictability of markets, the relation between risk and return and diversification. He discusses how new academic insights on these three topics offer opportunities for both practitioners and academics.



## **Cases In Clinical Surgery**

2015

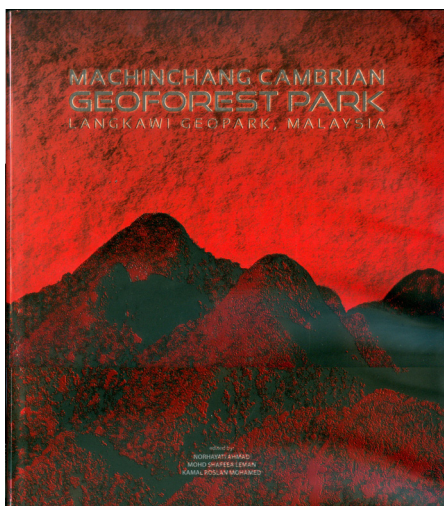
Penerbit UKM

ISBN : 978-967-412-327-7

RM35.00

Edited by Basim Abdulla Almothafar

One of the important principles of diagnostic procedure is to make connections between the history and physical examination before making a correct diagnosis. The design of this book follows this principle. This book contains eighty-two surgical cases, divided into eight chapters according to the systems. The chapters represent the main range of cases relevant to students.



## **Machinchang Cambrian Geoforest Park Langkawi Geopark, Malaysia**

2015

Penerbit UKM

ISBN : 978-967-412-321-5

RM200.00

Edited by Norhayati Ahmad, Mohd Shafeea Leman, & Kamal Roslan Mohamed

Langkawi Island was endorsed as a Global Geopark by the UNESCO Global Network of National Geoparks (GGN) in 2007 for its effort in promoting and conserving internationally significant geological features within the Machinchang Cambrian Geoforest Park, alongside Kilim Karst Geoforest Park and Dayang Bunting Marble Geoforest Park. Geoforest park is a unique concept

first developed by the Forestry Department of Peninsular Malaysia for the purpose of protecting geodiversity within protected reserved forest of Langkawi.

