

M E R D E K A
A W A R D

Fostering a Culture of Excellence

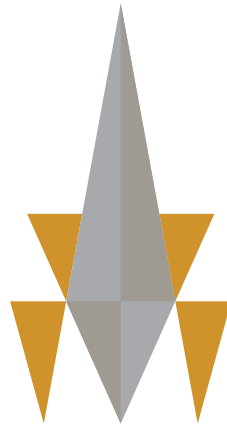
2016

MERDEKA AWARD 2016

ExxonMobil



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M E R D E K A
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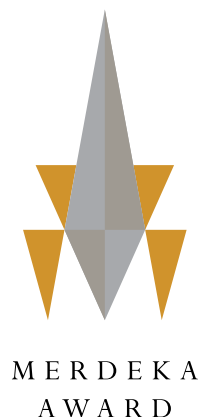
The Merdeka Award aims to promote
thought leadership and innovation,
foster a culture of excellence, encourage
a world view, thereby enhancing
Malaysia's standing as a dynamic,
competitive 21st Century Global Player
in all key sectors from science and
technology to the arts.

www.merdekaaward.my

Orang Asli village in Pulau Indah Klang :
The future is ours to embrace

Photo by: **Chong Keng Loy (22 Nov 2015)**
Winner of the fourth Merdeka Award Thumbs-Up Challenge
- *"The Spirit of Merdeka"* Photo Contest





FOUR OUTSTANDING INDIVIDUALS CONFERRED 2016 MERDEKA AWARD



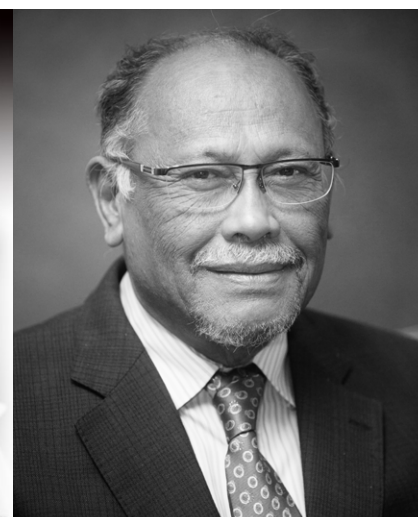
Tan Sri Lakshmanan Krishnan



Tan Sri Dato' Seri Dr Salleh Mohd Nor



Distinguished Professor
Datuk Dr Looi Lai Meng



Professor Dato'
Ir Dr Wan Ramli Wan Daud

The Merdeka Award Trust, founded by PETRONAS, ExxonMobil and Shell, conferred the prestigious 2016 Merdeka Award to four outstanding individuals, in recognition of their achievements and contributions to the nation.

The year 2016 marks the ninth year in which individuals, both Malaysian and non-Malaysians, are being recognised for their outstanding work and enduring contributions to the people of Malaysia, in their respective fields.

Each year the Merdeka Award is conferred in five categories:

- Education and Community
- Environment
- Health, Science and Technology
- Outstanding Scholastic Achievement
- (and) Outstanding Contribution to the People of Malaysia

Each Merdeka Award recipient will receive a trophy, a work of art by Malaysian artist Latiff Mohidin and a cash award of RM500,000.

The selection of Merdeka Award recipients, which began in January 2016, was wide-ranging and thorough, with only the most outstanding accomplishments and contributions making it to the final round.

Since it was established in 2007, 34 individuals and two organisations have received the Merdeka Award.

For 2016, the Merdeka Award recipients are:

- **Tan Sri Lakshmanan Krishnan**
(Education and Community category)
For outstanding contribution to laying the foundation for the modern film industry in the country and for his instrumental role in developing early acting talents including Malaysian film icon the late P Ramlee

Tan Sri Lakshmanan Krishnan is a pioneer in the Malay film industry and is widely regarded as the father of the Malay film industry. He is a prolific director and is recognised for his instrumental role in developing early acting talents including Malaysian film icon, the late P Ramlee, and laying the foundation for the modern film industry in the country.

L Krishnan was the founding member of Shaw Studios and Cathay Keris Film Productions in Singapore before setting up Merdeka Studio in Kuala Lumpur from where he directed Tun Teja, the first film produced in Malaysia.

The pioneer film maker then went on to set up the first Malaysian commercial film production house, Gaya Film in 1970, which won many awards during its time. L Krishnan also proposed the Made in Malaysia ruling for films to ensure the growth of the fledgling industry. He played a key role in the setting up of the National Film Development Corporation (FINAS) in 1981. He also introduced the first 16-track recording studio in the country and the only private film processing laboratory, which still serves the industry.

- **Tan Sri Dato' Seri Dr Salleh Mohd Nor**
(Environment category)
For outstanding contribution to the conservation of the natural environment and forestry in Malaysia through his leadership role at the Forest Research Institute Malaysia (FRIM) and the Malaysian Nature Society (MNS)

Tan Sri Dato' Seri Dr Salleh Mohd Nor has played a major role in the protection of the Malaysian environment and the conservation of nature and natural resources, particularly in his position as the Director-General of the Forest Research Institute Malaysia (FRIM) and among its founders, and the President of Malaysian Nature Society (MNS).

Salleh's passion for championing ecological causes has seen him dedicate over three decades of his career to successfully meeting environmental challenges, not just in Malaysia but also on the regional as well as global fronts.

Salleh was active in many national organisations notably the Malaysian Nature Society (MNS) where he was President for 30 years. Under Salleh's leadership, MNS managed to establish the Endau Rompin State Park and Belum National Park and a number of Nature Education Centers. During Salleh's tenure as President, MNS became a recognised voice on nature conservation in the country.

- **Distinguished Professor Datuk Dr Looi Lai Meng**
(Health, Science and Technology category)
For outstanding contribution in pioneering research in amyloidosis, renal pathology and cancer pathology and for her significant contributions and role in promoting the field of pathology in Malaysia and the region

Distinguished Professor Datuk Dr Looi Lai Meng is an internationally recognised and leading authority on amyloid disease. Her research on amyloidosis, renal pathology and cancer pathology has provided seminal knowledge and understanding for practice-changing developments in the diagnosis and management of these disorders. These include the formulation of consensus, guidelines and algorithms that have benefited the diagnosis, stratification and management of patients.

Looi is the longest-serving diagnostic renal pathologist in Malaysia, and a holder of many firsts in the field of pathology. Promoted to Professor (Chair) of Pathology at

University of Malaya at 36 years of age (1986), she was one of the youngest holders of a University Chair at the time.

Looi's contribution to the education of pathologists in Malaysia, has been noteworthy. As Deputy-Dean at the University of Malaya, she internationalised the medical specialist training programme, a move that was subsequently adopted by other universities.

- **Professor Dato' Ir Dr Wan Ramli Wan Daud**

(Outstanding Scholastic Achievement category)

For outstanding scholarly research and development in advancing the technology of fuel cells and hydrogen energy in Malaysia and the region

Professor Dato' Ir Dr Wan Ramli Wan Daud, Professor of Chemical Engineering and former Founding Director of the Fuel Cell Institute, Universiti Kebangsaan Malaysia, is instrumental in advancing scholarly research and development in the technology of fuel cells, drying technology and hydrogen energy, in Malaysia and the region, for more than 35 years.

He is a global expert in zero emission energy conversion technologies called fuel cells which use hydrogen, alcohols and wastewater as fuels, and renewable hydrogen production technologies from renewable fuels such as biomass, wastewater, alcohols and solar energy, and in sustainable drying technology.

As a scholar and an indication of the impact of his research work on fuel cell technology, Wan Ramli has authored and co-authored books and articles with 263 articles published in reputed international and high-impact journals. His Web of Science Hirsch (H) index is 31 and his papers have been cited 3,526 times. To date, he has supervised 75 PhD and 46 MSc candidates.



Merdeka Award Presentation Ceremony 2015

MERDEKA AWARD INITIATIVES IN 2016

Merdeka Award Grant for International Attachment



Merdeka Award Grant recipients 2016, with Royal Patron



Dr Khamarrul Azahari Razak and Ms Koh Lily

The Merdeka Award Grant for International Attachment (Grant) is the Merdeka Award's signature programme designed to inspire young Malaysians to pursue excellence in their chosen field, with particular focus on the areas of Education and Community; Environment; Health, Science and Technology; Visual and Performing Arts; Heritage and Social Work; and Economics and Finance.

Open to qualified Malaysians between 22 and 35 years of age, the annual Grant presents two outstanding individuals the opportunity to

engage in short-term collaborative projects at selected, internationally-recognised host institutions or organisations abroad. For up to three months, Grantees are able to build on their work and experience, exchange ideas and knowledge with other experts, as well as expand their network and widen their world-view; as they continue to contribute to the advancement of their respective fields upon their return to Malaysia.

The 2016 Merdeka Award Grant was accorded to Dr Khamarrul Azahari Razak, 35, and Ms Koh Lily, 24, placing them as the seventh and eighth recipient respectively, to be awarded this highly sought-after Grant since its launch in April 2012.

Specialising in geoscience, Dr Khamarrul's research aims to promote an integrated university-government-industry partnership in managing and reducing disaster risks in changing environments such as Malaysia. His study also critically addresses multi-discipline-centric approaches in strengthening natural disaster research in the country.

Ms Koh's research focuses on developing expertise and academic exchanges on data-driven business models to help Malaysia's SMEs strategically position themselves in the value chain. This is in line with Industry 4.0, an initiative by the EU Commission as part of the EU Framework Programme for Research and Innovation.

In 2015, the Merdeka Award Grant was awarded to Ms Chua Ling Ling, 26, and Dr Mohd Sukor Su'ait, 31, who completed their Attachments in 2016 at the New York University Medical Center and at the Ecolé Polytechnique Fédérale de Lausanne in Switzerland, respectively. Ms Chua's research explores the interaction between gut microbiome and the immune system, and how it leads to the development of age-related illnesses and premature ageing.

Dr Sukor's study aims to reduce the dependency of petrochemical based polymer for electrolytes application through the fabrication of solid-state dye-sensitized solar cell (DSSC) using Malaysian commodities such as rubber, palm and seaweeds as solid polymer electrolyte. This will in turn avail safe and environmental-friendly energy resources for electrochemical devices.

Malaysians are able to share in the Grantees' experience as they progress from the preparation stage right up to their return from their Attachment via the Merdeka Award website and Facebook page. There, members of the public could also learn more about the Grant, as well as about previous recipients who continue to make significant contributions in their chosen fields.

It is hoped that more young Malaysians will be inspired by the achievements of these outstanding individuals and go further in the pursuit of excellence and contribution to the nation.

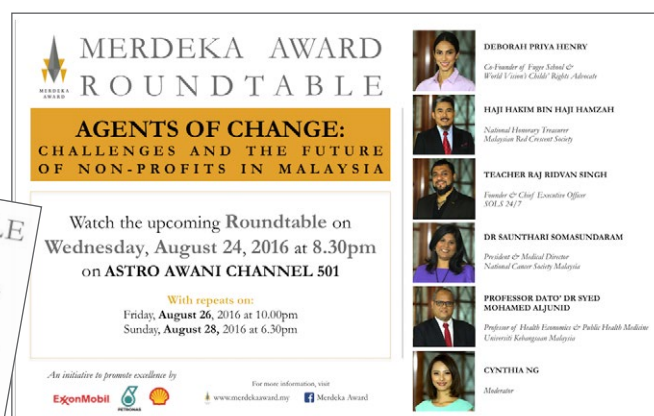
The Grants are made possible through the global network and reach of PETRONAS, ExxonMobil and Shell, the founding partners of the Merdeka Award Trust.

Merdeka Award Roundtable



The Merdeka Award Roundtable was launched in August 2011 as a series of TV talk shows on Astro AWANI, focusing on key issues that are of importance to Malaysia and Malaysians. Designed to inspire debate, each Roundtable features a panel of experts from the corporate, academic and social sectors to share insights on the discussion topic. The Roundtables serve to nurture a more engaged and informed society in building a successful and developed nation.

Broadcasted on November 23, 2016, the 15th Merdeka Award Roundtable entitled “The Future of our Past – Safeguarding Malaysia’s Historic and Heritage Places” featured five panellists from diverse perspectives who discussed the association and challenges among heritage, development and sustainability in Malaysia. The discussion also focused on how, in view of the country’s developing society, economy and priorities, Malaysia’s heritage can be used to shape a secure and sustainable future for the nation.



Previous Roundtables that aired in 2016 include:

The 14th Merdeka Award Roundtable - Agents of Change: Challenges and the Future of Non-Profits in Malaysia (August 24, 2016)

A five-member panel made up of representatives from NGOs, scholars and members of the business community who work with non-profits organisations, gathered to discuss the challenges facing local NGOs, such as the increasing need for funding alongside growing expectations and scrutiny from both the public and private sectors. Panelists also shared their insights on how NGOs transformed themselves, and the way forward where NGOs could achieve an optimal balance between playing greater roles in policy responses and the formulation of national development plans, and maintaining their independence and adherence to their fundamental principles amidst demands from donors.

The 13th Merdeka Award Roundtable - Banking on Biodiversity: Striking a Balance between Conservation and Development in Malaysia (April 5, 2016)

The 13th Roundtable shines the spotlight on the importance of addressing biodiversity preservation, particularly in rapidly developing countries such as Malaysia. Panelists stressed that it takes the cooperation and an enhanced sense of ownership of all stakeholders – from the government and policy makers to individual citizens, to effectively battle biodiversity decline in the pursuit of sustainable development and growth in Malaysia.

The 12th Merdeka Award Roundtable - Create Malaysia: Harnessing the Creative & Cultural Industries to Spur Economic Growth (January 17, 2016)

Creative industries have an immense potential to spur growth, create jobs and foster cultural identity in Malaysia. The 12th Roundtable centered on the role of creative industries in diversifying and expanding the nation’s income, and ways in which this dynamic sector could be developed to compete on a global platform. Panelists also explored the direct relationship between the Global Creativity Index (GCI) and the country’s levels of economic output and competitiveness, entrepreneurship, urbanisation and overall human development.

The Merdeka Award Roundtables are broadcasted on Astro AWANI Channel 501 and are available for viewing on the “Merdeka Award” YouTube Channel.



Merdeka Award Thumbs-Up Challenge



Winners of the 2nd MATUC



K C Lee and Priscilla Ho



Launched in May 2015, the Merdeka Award Thumbs-Up Challenge (MATUC) presents Malaysians the opportunity to share impactful, sustainable and tested ideas in inspiring others to contribute to the nation. Each challenge is based on a selected theme that reflects the Merdeka Award categories and Merdeka Award Roundtable topics. This extends across the Education and Community; Environment; Health, Science and Technology; Heritage; and the Arts sectors, as well as other areas of outstanding contributions.

The fourth and latest MATUC series, an Instagram Photo Contest capturing *The Spirit of Merdeka*, was concluded in October 2016. The Grand Prize winner will receive an iPad Mini, while the Second Prize winner will receive an iPod Nano. All winners received a Certificate of Award and exclusive invitations to the 2016 Merdeka Award Ceremony in December.

Prior to this was the third MATUC held in April 2016 on Contributing to a Healthier Community. Priscilla Ho won the First Prize for her Anti-Bullying Programme, Creativity at Heart, which was initiated in 2010 to reach out and foster better mental health amongst youths in Penang. K C Lee was named the Runner Up for the Hope For Change initiative by Michael's Badminton Academy (MBA), a charity programme to help inculcate positive values amongst children in need, through sports.

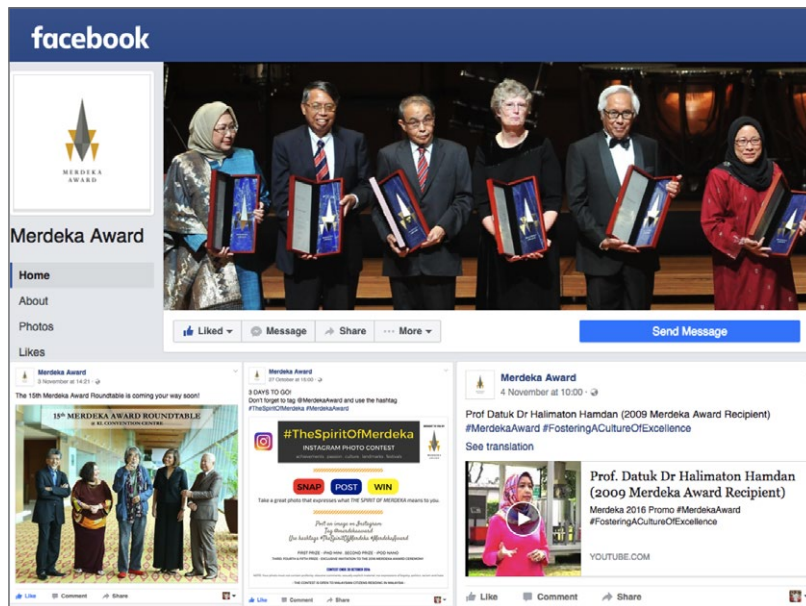
In November 2015, four inspiring Malaysians emerged as winners of the second MATUC on Preserving Our Malaysian Culture. The Grand Prize winner, Chuo Yuan Ping, was lauded for his contribution to the revival and contemporisation of Wayang Kulit, whilst First Runner Up, Welyne Jeffrey Jehom was selected for her contribution to the conservation and restoration of Pua Kumbu, a traditional Sarawakian craft of weaving textiles. There were two recipients of the Second Runner-Up prize, Emilia Tan and Chen Yoke Pin. Emilia was awarded for her efforts in revitalising the Malaysian Batik culture through various home-grown artist-led initiatives and workshops for the community. Chen, meanwhile, was noted for her efforts in providing innovative community-based



arts and culture education for young people and adult communities.

For more information on the upcoming Merdeka Award Thumbs-Up Challenge, please visit the Merdeka Award Facebook site.

Merdeka Award Social Media Engagement



Facebook

The Merdeka Award Facebook page was created to reach out, engage with and inspire the online community, particularly the post-Merdeka generation.

With four to five postings a week, the page regularly updates Malaysians with the latest news, hot topics, as well as announcing Merdeka Award events and contests. It serves as a platform where followers are able to share in the experiences of recipients and winners of the prestigious Merdeka Award, the Merdeka Award Grant for International Attachment, and Merdeka Award Thumbs-Up Challenge, and watch recordings of the latest Merdeka Award Roundtables.

Malaysians are also able to engage with like-minded members as they share their feedback, comments, questions and new ideas relating to the Merdeka Award and its various initiatives.

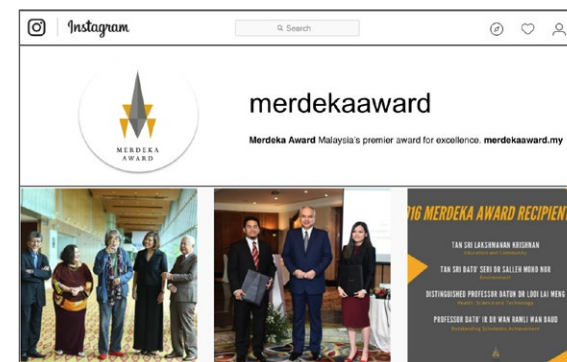
To date, the Merdeka Award Facebook page has garnered a following amongst professionals, academics, as well as leading organisations and individuals who share a common aspiration in expanding their network and world-view in the pursuit of excellence and contribution to the nation.

Facebook: <http://j.mp/merdekaaward>

Instagram

With more than 500 million users and counting, Instagram is another viable social media channel to connect with Malaysians and our counterparts from around the world. At @merdekaaward, followers are able to keep up-to-date with the various Merdeka Award initiatives currently taking place via bite-sized information, interesting snapshots and mini clips of previous Merdeka Award recipients.

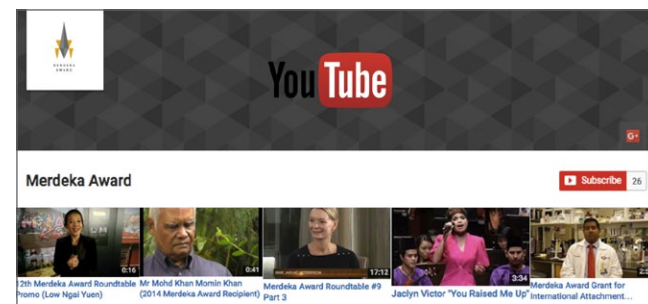
Instagram: [merdekaaward](https://www.instagram.com/merdekaaward)



YouTube

The Merdeka Award YouTube channel (Merdeka Award) is yet another effective social platform where viewers can enjoy at their leisure, full-length videos on the Merdeka Award Roundtable, Award Ceremony highlights, on-going promotions and events, as well as one-on-one interviews with the Merdeka Award and Merdeka Award Grant for International Attachment recipients. Viewers and subscribers could also demonstrate their support by 'liking' the videos and/or sharing their comments with the community.

YouTube: [Merdeka Award](https://www.youtube.com/MerdekaAward)



Nomination & Selection

The nomination and selection of Merdeka Award recipients are administered by the Merdeka Award Board of Trustees and six committees – five Nomination Committees and one Selection Committee.

The Board of Trustees comprises two representatives from PETRONAS and one representative each from ExxonMobil and Shell, as well as two independent members.

The Board of Trustees and the various committees go through a long and rigorous selection process that reflects the high ideals of the Merdeka Award.

The committee members are made up of eminent Malaysians and non-Malaysians, bringing with them a wealth of knowledge, experience and expertise to allow them to nominate and select outstanding individuals and/or organisations that have laboured tirelessly, with great sincerity and conviction for the good of this country and its people.

Each year, the committee members will deliberate, examine the merits and finer qualities of each nominee, and in the end, identify those who stand above and beyond the rest, in their embodiment of the *Spirit of Merdeka*.

Categories & Recipients 2016

EDUCATION & COMMUNITY CATEGORY

TAN SRI LAKSHMANAN KRISHNAN

For outstanding contribution to laying the foundation for the modern film industry in the country and for his instrumental role in developing early acting talents including Malaysian film icon the late P Ramlee

ENVIRONMENT CATEGORY

TAN SRI DATO' SERI DR SALLEH MOHD NOR

For outstanding contribution to the conservation of the natural environment and forestry in Malaysia through his leadership role at the Forest Research Institute Malaysia (FRIM) and the Malaysian Nature Society (MNS)

HEALTH, SCIENCE & TECHNOLOGY CATEGORY

DISTINGUISHED PROFESSOR DATUK DR LOOI LAI MENG

For outstanding contribution in pioneering research in amyloidosis, renal pathology and cancer pathology and for her significant contributions and role in promoting the field of pathology in Malaysia and the region

OUTSTANDING SCHOLASTIC ACHIEVEMENT CATEGORY

PROFESSOR DATO' IR DR WAN RAMLI WAN DAUD

For outstanding scholarly research and development in advancing the technology of fuel cells and hydrogen energy in Malaysia and the region

OUTSTANDING CONTRIBUTION TO THE PEOPLE OF MALAYSIA CATEGORY

NO RECIPIENT

Education and Community

Awarded to individuals and/or organisations to honour exceptional thinking and research in strengthening the educational infrastructure of Malaysia, in elevating the level of education and in benefiting the marginalised.



TAN SRI LAKSHMANAN KRISHNAN



PROFILE

Pioneer filmmaker Tan Sri Lakshmanan Krishnan, widely regarded as the father of the Malay film industry, is a prolific director who is recognised for his instrumental role in developing early acting talents including Malaysian film icon, the late Tan Sri P Ramlee, and laying the foundation for the modern film industry in the country.

Tan Sri L Krishnan was born in Madras, India, in 1922, but was raised in Penang and attended the Bukit Mertajam High School where he obtained his Senior Cambridge in 1941.

During the Japanese Occupation of Malaya, he was briefly employed as a translator. In 1946, he was sent back to Madras by the British army and a year later, he found work as an assistant film director at Kalairani Film in Madras. In 1949, Tan Sri L Krishnan moved to Singapore where he became a film director at the Shaw Studios.

Tan Sri L Krishnan first met the late Tan Sri P Ramlee in 1941 in Singapore. P Ramlee's phenomenal success at Shaw Brother's Jalan Ampas studios in Singapore, was the apparent result of the studio's incredible milieu of experienced film crew, choreographers and directors which the Shaw Brothers had assembled from India, Hong Kong and Indonesia, and chief among them was Tan Sri L Krishnan.





Krishnan directing the film *Jenny*

In his long-established vocation as a film maker and cultural advocate, Tan Sri L Krishnan has directed more than 30 films and worked with Malaysian movie luminaries such as Datuk Maria Menado, the late Kasma Booty and the late Datuk Mustapha Maarof.

Among his directed films starring P Ramlee are *Bakti* (1950), *Takdir Ilahi* (1950), *Penghidupan* (1951), and *Antara Senyum dan Tangis* (1952).

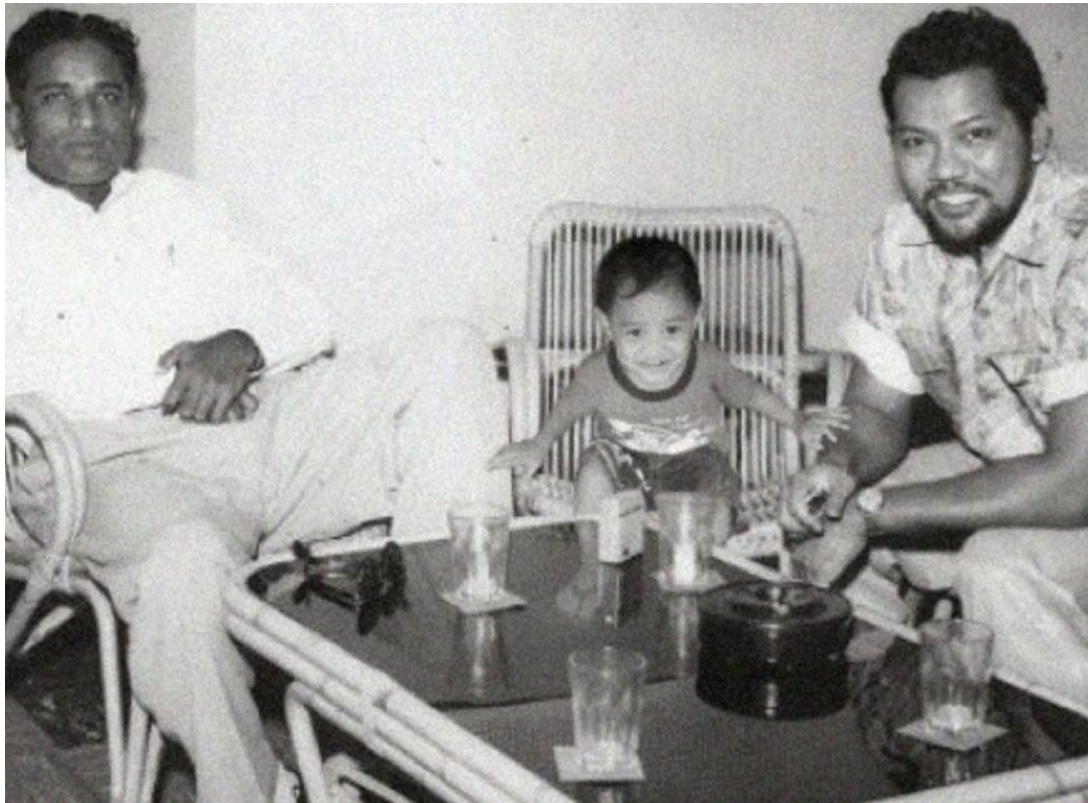
Tan Sri L Krishnan's cinematography talents in Shaw Brothers, Cathay Keris Studio and Studio Merdeka are widely recognised with him receiving the Anugerah P Ramlee in the 12th Malaysia Festival in 1995 and Galeri Sinema Melayu Award (Pioneer in the Malay Film Industry) in 1996.

He began his work in film in 1949 when he was in Singapore and took up the appointment of Film Director at Shaw Studios. In 1960, he came to Kuala Lumpur to work for the late Mr Ho Ah Loke at Merdeka Studio. In between these years, he directed many films

that captured the early romanticism and idealism of Malaysia and its people.

His first film was *Bakti*, the movie that launched P Ramlee as a romantic hero of the silver screen. Kasma Booty was the heroine, Siput Sarawak the femme fatale and Roomai Noor the villain. "The plot was borrowed from *Wuthering Heights* and *Les Misérables* but scripted on the well-tested formula of song-dance-and-drama, and the local audience loved it," he says.

Tan Sri L Krishnan also broke new ground in film in the early days when he ventured



Krishnan and P Ramlee

into the genre of horror films through '*Orang Lichin*' (1957); '*Orang Minyak*' (1958); and '*Serangan Orang Minyak*' (1959) - some of the first such movies in Malaysia and Singapore.

Regarded as a trendsetter, the long-standing impact of the films by Tan Sri L. Krishnan through the Merdeka Studio carved the path for FINAS, or the National Film Development Corporation of Malaysia, to be the beacon of the Malay film industry in Malaysia. FINAS has retained the original Merdeka Studio complex and built its administrative centre around the site which bears a tribute to Tan Sri L. Krishnan's contribution in giving rise to an ethnic, home-spun film industry.

As a director, apart from P. Ramlee, Tan Sri L. Krishnan was also responsible for launching the film careers of Datuk Maria Menado, Roomai Noor, Mustapha Maarof, Abdullah Chik, M. Amin, Nordin Ahmad, Wahid Satay, Hussein Hassan, Omar Rojik, and Muhammad Jun, all of whom have become household names and venerated for their contribution to Malaysian film.

In 1970, Tan Sri L. Krishnan formed Gaya Filem Berhad. He convinced the Government of the need for protective tariffs in favour of Malaysian produced films. The slap down of the 50 percent surcharge and subsequently a complete ban on all foreign-produced commercials, boosted the commercial film industry in Malaysia. Gaya Filem Berhad became a truly local and fully integrated production house that specialised in TV commercials and jingles.



Krishnan being conferred the title Dato' Seni Nilam DiRaja by Almarhum Sultan Sallahudin Abdul Aziz Shah



Her Majesty Queen Elizabeth II, the Queen of England, being briefed by Krishnan, when Her Majesty visited Malaysia in 1997



In Sarawak whilst filming *The Virgin of Borneo* (from left) A tribal chief, the late Ho Ah Loke, Krishnan and the late Tun Temenggong Jugah

In 1980, Tan Sri L Krishnan once again made headlines when he established the first 16-track Gaya Music Studio to enhance the music industry which was fast becoming popular in the country.

Two years later, Tan Sri L Krishnan once again led the pack by establishing the first motion picture Colour Laboratory and was invited by Datuk Harris Salleh, then Chief Minister of Sabah, to be the Chairman of Borneo Film Organisation Sabah, and subsequently in 1984 he was made Chairman of Cathay Organisation Malaysia.

Apart from his many film accolades, Tan Sri L Krishnan is well-known as a philanthropist who has provided service to the community through several organisations including the Rotary Club of Kuala Lumpur (Past President); Discharged Prisoners Aid Society; Malaysian Association for the Blind; Medic Alert Foundation of Malaysia; Netaji Welfare Foundation; Persatuan Kebajikan NASARRE; Chinese Maternity Hospital; and the Tun Hussein Onn National Eye Hospital. On a personal level, for 33 years (1979 – 2012) during the Deepavali celebrations, Tan Sri L Krishnan brought joy and had played host to about



Krishnan at a film festival in Tokyo, with Romai Noor, and a Japanese actress



Krishnan was a prime player in the advertising-commercial industry



Krishnan celebrating his 80th birthday with his family



As a philanthropist and social worker

1,000 underprivileged members of society including special children.

For his outstanding contribution for developing the Malaysian film industry, Tan Sri L Krishnan was honoured with many other awards including the Setia Mahkota Selangor (1976); Dato' Seri Nilam DiRaja (1978); Kesatri Mangku Negara (1990); Panglima Jasa Negara (2003); Panglima Setia Mahkota (2011); Associated of Accredited Advertising Agent Annual Award (pioneer in the Advertising Industry (1986); Malaysian Video Award (MVA Millennium Award for contribution made to the Advertising Industry) (1999); Rotary International Service Above Self Award for exemplary Service in Rotary (1999); International Tamil Film Awards (2003) - Lifetime Achievement Award (2003); 50th Asia-Pacific Film Festival (2005); Seniman-Lifetime Achievement Award



With wife Puan Sri Rukmanee

(2006); Anugerah Seri Temasek (2011); Anugerah Tokoh Perfileman Malaysia (2013); 1Malaysian of the Year – National Press Club Malaysia (2014); and South India Cinematography Award (2015).

In 2013, Tan Sri L Krishnan received the Gandhi Memorial Trust award for public service and “will be remembered as the man who discovered the talent and groomed the late legendary Tan Sri P Ramlee to stardom.”

CONCLUDING REMARKS

Over six decades, Tan Sri L Krishnan has made immense contributions in film, advertising and music. At the age of 94, Tan Sri L Krishnan still pursues a healthy schedule and has not lost his sense of humour, passion and charm.

Today, together with his wife Puan Sri Rukmanee, Tan Sri L Krishnan continues to touch lives with his philanthropy and charity work in Thailand and in Malaysia.

Tan Sri L Krishnan’s pioneering and innovative work in nurturing the Malaysian film industry personifies the creative, adventurous and indomitable *Spirit of Merdeka*.

Environment

Awarded to individuals and/or organisations to honour the development, research and application of new technology and practices in renewing and protecting the environment.



TAN SRI DATO' SERI DR SALLEH MOHD NOR



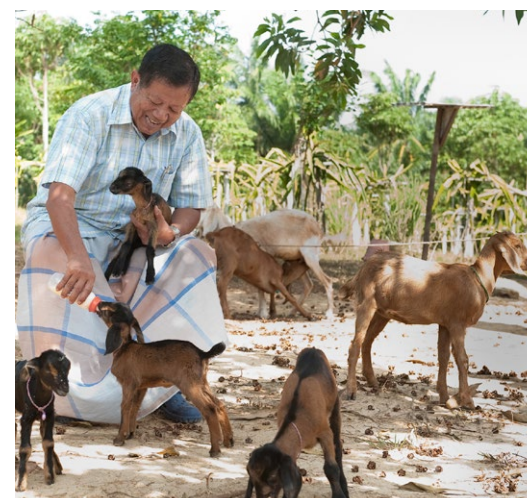
PROFILE

Academician Tan Sri Dr Salleh Mohd Nor has spent most of his professional life in advocating and protecting nature and natural resources in Malaysia – both in his previous public role as the Director-General of Forest Research Institute Malaysia (FRIM) as well as in his personal capacity as the president of the largest Malaysian environmental Non-Governmental Organisation, the Malaysian Nature Society (MNS) of which he was president for 30 years.

Born in 1940, in the village of Ulu Inas, Negeri Sembilan, Tan Sri Salleh had his early education at Tuanku Muhammad Secondary School. In 1957, he gained admission into the Federation Military College (later the Royal Military College) at Port Dickson, where he completed his secondary education and obtained a Higher School Certificate in Science. He was awarded the Director of Studies prize.

Tan Sri Salleh was a recipient of the Colombo Plan Scholarship to study Forestry in Adelaide from 1961-1962, and later at the Australian Forestry School (AFS), Canberra, from which he graduated with a BSc (Forestry) from Adelaide University and a Diploma of Forestry from AFS.





Salleh with goats at his farm

On returning to Malaysia, he started his professional career, undertaking forest resources inventory for the Forest Resources Reconnaissance Survey (FRRS) unlike his contemporaries who preferred to work as District Forest Officers. He spent months in field work in the forest, undertaking forest inventory which formed the foundation for the national land use planning for the country. He then took-up a 13-month course on Forest Photo-Interpretation at the International Institute for Aerial Survey and Earth Sciences (ITC) in Delft, the Netherlands. Tan Sri Salleh was then awarded a United Nations Development Programme (UNDP) to study for his MSc and followed by a Federal Government scholarship to study for his PhD at Michigan State University.

Tan Sri Salleh was involved with numerous international organisations in his effort to work towards addressing rising environmental concerns. He was the first Director-General of Forest Research Institute Malaysia (FRIM) before retiring in 1995. He was elected President of the International Union of Forest Research Organizations (IUFRO), the first person from outside Europe and America in 100 years history of IUFRO. He was a member of the inaugural Malaysian Human Rights Commission (SUHAKAM), former Chairman of the Board of Trustees of Kolej Universiti Terengganu (KUT) now known as Universiti Malaysia Terengganu (UMT), Inaugural Chairman of Malaysian Bio-Industry Organization (MBIO), and Inaugural Fellow, past Vice President, former Secretary-General and Council member of the Academy of Sciences Malaysia (ASM). He is now a Senior Fellow of ASM.

Tan Sri Salleh was a member of the Yayasan DiRaja Sultan Mizan (Sultan Mizan Royal Foundation) with the then Yang Di-Pertuan Agong as its Chairman. Tan Sri Salleh was elected as its Deputy Chairman. He was appointed the Chief Executive Officer of the World Endurance Championship 2008, where the Foundation has been given the honour to organise the International Equestrian Federation, the first time that this prestigious event was ever held in Asia.

In 1977, Tan Sri Salleh was appointed as the director of Forest Research Institute (FRI) Kepong, a unit of the Forestry Department Peninsular Malaysia. Eight years later, the institute was transformed into a statutory body through an Act of Parliament, and the Malaysia Forestry Research and Development Board (MFRDB) was formed to administer the Institute, which was subsequently named Forest Research Institute Malaysia or FRIM and Tan Sri Salleh was appointed its first Director-General.

His leadership at FRIM saw the institute grow from a small obscure institute to a world class tropical forest research institute.



FRIM developed numerous research and conservation programmes that have laid the foundation for good forest management and conservation of natural resources in the country. Amongst the numerous projects he initiated was the Tree Flora project to document the trees of Malaysia. With FRIM located in a prime location of Klang Valley, Tan Sri Salleh managed to save the area from pressures for development from land developers. The FRIM complex has not only been maintained but it has become a place frequented by the public and nature lovers. Tan Sri Salleh had a canopy walkway constructed with the help of German experts to promote eco-tourism. The walkway is now a very popular public destination in FRIM.

Tan Sri Salleh initiated research into the utilisation of rubber wood, which was then a waste product from the rubber plantations. Rubber wood has since become an international success with rubberwood furniture now an accepted and respected product worldwide. The technology has also spread to Africa, South America and other parts of Asia where rubber is planted.

While research in forestry and conservation formed a significant portion of Tan Sri Salleh's contribution, he also actively advocated for a greener environment and at times vehemently opposed to government policies considered to have damaging effects to the environment. In this regard, he served as the President of Malaysian Nature Society (MNS) for 30 years. When the Government proposed to construct a road from Kuala Tahan



Salleh Trail at FRIM



Everest Base Camp, 2012



Antarctica, 1996

into Taman Negara, Tan Sri Salleh, as the MNS President, led a chorus of resistance that eventually caused the proposal to be dropped. Another proposal that would have seen helicopter logging in the Kuala Muda water catchment forests of Kedah, was also shelved as the activity would have had devastating environmental impact on the rice fields in the surrounding areas. Other issues that were highlighted by Tan Sri Salleh were the proposal of a linear city over Sungai Gombak as well as the relocation of the National Zoo that were eventually scrapped after intervention by MNS.

Tan Sri Salleh is currently the Pro-Chancellor of Universiti Teknologi Malaysia where he also promotes conservation of nature and the environment.

As a conservationist, Tan Sri Salleh is keen to pass on his knowledge as a way to nurture the next generation of conservationists. As President of MNS, Tan Sri Salleh obtained support of Optimal Group of companies, an energy solutions provider, in Terengganu, for the establishment of the first Environmental Education Center to be located on the east coast of Peninsular Malaysia. Tan Sri Salleh chaired and led the Steering Committee to establish the Center, which was launched in 2013 in Kerteh, Terengganu. The Center is aimed at involving local communities around Kerteh on conservation efforts, providing education as well as creating awareness of the environment amongst the village communities, in particular, school-going children. Tan Sri Salleh also obtained Optimal's agreement to fund the running of the Center for 10 years.

What inspires him? "In my early career, I spent years undertaking forest inventory spending months camping in the virgin forests. I came to appreciate and love the



At Universiti Malaysia Terengganu



At World Endurance Championship in 2008

beauty, complexity and wonders of the Malaysian forests. It was also during the hey-days of the timber industry and I saw with my own eyes the rampant uncontrolled destruction of the thousand-year-old trees. I saw how human greed saw no limits. That motivated me to voice the concerns of the people and conservation and MNS gave me that platform. I am deeply concerned about the future generations who should also have the opportunity to enjoy the wonders of our forests and not just through the television,” he says.

Over the years, Tan Sri Salleh has published more than 300 articles and gave talks at various seminars and conferences, both locally and abroad. He has also published various books on conservation, such as *Climate Change and Sustainable Forestry in Malaysia: Research, Development and Policy Issues*, *Marine and Resources of Malaysia* as well as *A New Landmark in the Malaysian Antarctic Programme* among others. He is now working on his first novel.

His awards include the Inaugural Langkawi Award, the Third World Network of Scientific Organisations (TWNISO) prize on public understanding of Science, The Ordre Du Merite Agricole from The Ministry of Agriculture and Forestry France, Old Putra of the Year, National Science Award, Honorary Doctor of Science by Universiti Kebangsaan Malaysia, University of Aberdeen and University Malaysia Terengganu. Tan Sri Salleh was awarded the Asean Achievement Award for environment protection, the prestigious



Family

Tun Razak Award, Libur Environment Award, the Inaugural Malaysian Forestry Research and Development Board (MFRDB) Award and was one of 50 “Tokoh Malaysia” (Malaysian Heros) on the occasion of the 50th Anniversary of “Merdeka”. Tan Sri Salleh was awarded a “Fellow” of the Malaysian Scientific Association and Senior Fellowship by the Academy of Sciences Malaysia which carries the title of “Academician”. Tan Sri Salleh was awarded the Inaugural “Tapir Award” for life-long service to conservation by the Malaysian Nature Society in conjunction with MNS 75th anniversary.

Tan Sri Salleh also manages a contract R&D Company on plant biotechnology and a forestry consultancy business in forest inventory and sustainable management of forests and has undertaken consultancies in forest inventory and valuation of forest areas both locally and overseas. He is passionate on the environment and regularly gives talks and lectures on conservation.

CONCLUDING REMARKS

Tan Sri Salleh says he is currently working on a number of books on forestry and the environment. “I get up every morning at around 4 am to write and am now working on a number of books.”

He also regularly presents papers at seminars and conferences and is involved in a biotechnology venture, having acquired a tissue culture laboratory in Terengganu. What is unique about Tan Sri Salleh’s contribution to conservation is that it has been voluntary and it has gone beyond the call of duty.



Salleh and wife with Sultan Mizan Zainal Abidin



At Royal Military College

“I look forward to contributing to the development of agriculture in Terengganu and Malaysia as a whole as Malaysian agriculture has been dominated too much by oil palm and we have not given enough attention to other crops. We have to reduce our large food import bill,” he adds.

As an advocate for nature and sustainable development, Tan Sri Salleh’s leadership in nature conservation exemplifies the *Spirit of Merdeka* and its ideals of stewardship.

Health, Science and Technology

Awarded to individuals and/or organisations to honour
the creation, development, support and application of
new and innovative technology that improve
the lives of people everywhere.



DISTINGUISHED PROFESSOR DATUK DR LOOI LAI MENG



PROFILE

Distinguished Professor

Datuk Dr Looi Lai Meng is an internationally recognised and leading authority on amyloid disease. Her research on amyloidosis, renal pathology and cancer pathology has provided seminal knowledge and understanding for practice-changing developments in the diagnosis and management of these disorders.

These include the formulation of consensus, guidelines and algorithms that have benefited the diagnosis, stratification and management of patients.

Professor Looi's research projects have drawn funds in excess of RM2.4 million. She has more than 380 academic publications including more than 180 original peer-reviewed scientific publications which have received in excess of 2,200 citations and has also delivered more than 600 papers at scientific meetings, seminars and workshops, and more than 400 as guest lectures. Her Web of Science H-index is 19.

The fourth of six children, Professor Looi was born in 1950 and grew up in Bentong, a small town in Pahang. She developed an interest in science and medicine from a young age when she accompanied her father to work at a small hospital in Bentong where her father was employed as a hospital assistant.

Professor Looi credits her parents for her early interest in medicine and public service. "My father was a very busy man, but very

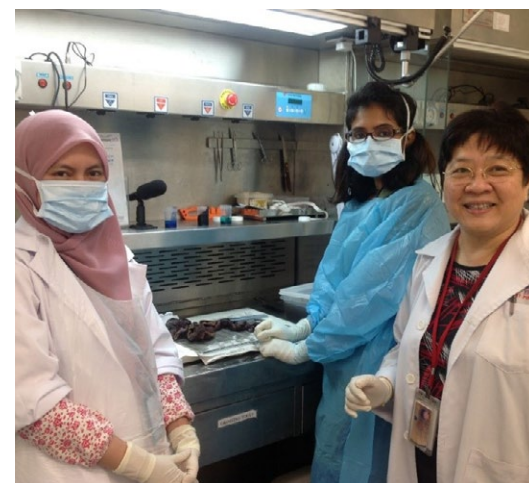




patient. He was kind and helpful and many people related to him. This desire to help people who were suffering at any time of day or night, inspired me to become a medical doctor,” says Professor Looi.

Professionally, she credits her mentor, the late Kesavan Prathap, Professor of Pathology and Head of the Pathology Department, University of Malaya, as her role model. “He was a perfectionist. His attention to detail and exemplary work ethics are an example to all who knew and worked with him,” she says.

Professor Looi is the longest-serving diagnostic renal pathologist in Malaysia, and a holder of many firsts in the field of pathology. Promoted to Professor (Chair) of Pathology at University of Malaya at 36 years of age (1986), she was one of the youngest holders of a University Chair at the time. Professor Looi was the first to recognise the occurrence of immunotactoid glomerulonephritis (an unusual form of fibrillary renal disease) in Malaysia, having earlier mooted a link between amyloid and tactoidal proteins through her editorial in the prestigious Journal of Pathology (UK) in 1993. She was also instrumental in formulating the first National (Malaysian) consensus on the histopathological reporting of breast cancer in 1994.



Examining a surgically resected specimen



Sharing success with pathology colleagues at the University of Malaya, 2010

Her doctorate (MD) research on amyloidosis, documenting several novel forms in Malaysians, was the first major work to conclusively demonstrate differences from patterns encountered in Western populations which had until then dominated the scientific literature. Unique findings included isolated atrial amyloidosis, intra-tumour amyloidosis in nasopharyngeal carcinoma, dystrophic amyloidosis, and patterns of amyloidosis in the liver and kidney. Her research on cancer prognostic and predictive factors have direct practical utility, influencing the development of more logistically-sound and cost-effective laboratory assessment of cancer patients in Malaysia.

Professor Looi's publications on the patterns of renal glomerulonephritis are seminal references in Malaysia. As lupus nephritis is one of the most common entities encountered in renal biopsies in Malaysia, she was able to provide valuable practical insights as a member of the multinational team of nephrologists and renal pathologists who formulated the 2004 revised Classification of Lupus Nephritis to replace the existing WHO classification. This seminal, highly-cited work (>600 citations) sponsored by the International Society of Nephrology and the Renal Pathology Society, has made significant global impact.

Professor Looi's contribution to the education of pathologists in Malaysia has been noteworthy. As Deputy-Dean at the University of Malaya, she internationalised the medical specialist training programme, a move that was subsequently adopted by other universities. To improve the standard and quality of pathology practice in Malaysia, she upgraded specialist (Master of Pathology) training from general to consultant level, modelled after the Royal College of Pathologists, UK. She focused training towards producing monodiscipline pathologists (i.e. histopathologist or haematologist versus general pathologist) to leapfrog pathology services to a more advanced level that will be able to assume expert roles



Receiving Chancellor's Excellence Award for Research 2007, University of Malaya

in team management of patients. She also established Malaysian training and examination centres for both Australasia and UK Royal Colleges of Pathologists, opening a path for Malaysian pathologists to attain international qualifications while training locally.



Leading Malaysian delegation to Nobel Laureate Meeting at Lindau, 2007

In 1999, Professor Looi founded the College of Pathologists under the Academy of Medicine Malaysia, uniting the pathology profession on par with other medical specialties. She introduced advanced scientific methodologies into Malaysian pathology laboratories through technical workshops and established six key guidelines encompassing competence of laboratory professionals, laboratory design and operation, which have now been adopted as National references for best practice and accreditation.

Professor Looi has also been working for stronger legislation to ensure the quality and accountability of pathology practices in Malaysia. After 28 years of advocacy, the Pathology Laboratory Act 2007 was passed, restoring credibility to pathology laboratories. She also led a project with Standards Malaysia to establish the National Accreditation Scheme for Pathology Laboratories based on ISO15189 international standards (launched in December 2004). Malaysia has the distinction of being among the first to adopt ISO15189, now widely accepted in international mutual recognition agreements. Today, laboratory accreditation is a preferred mark of quality, actively sought nationwide.

She has conducted numerous workshops to promote scientific writing, research methodology and biomedical ethics among young researchers, and even gives lectures to educate the general public on cancer biology. She has also facilitated leadership programmes for young researchers at National and International levels. An example is the Malaysian delegation she led to the meeting of Nobel Laureates in Germany in 2007.

Thanks to Professor Looi's tireless efforts, the number of pathologists have grown from about 30 in the late 1970s to more than 400 professionals today. Malaysia now trains pathologists for other countries and assumes leadership roles in global pathology



International pathology leaders at the award ceremony



Exploring a black river, Maliau Basin, 2006

networks. With Pathology playing a pivotal role, substantial advancements have been achieved in the management of cancer, kidney disease and transplant patients.

In recognition of her efforts, Professor Looi was honoured as the inaugural "Profesor Ulung Negara" (National Distinguished Professor) by the Ministry of Higher Education in December 2010, becoming the first medical scientist and woman to hold this honour. Among the international recognitions she has been conferred are the award of Distinguished Fellow of the Royal College of Pathologists of Australasia in 2010, the ASEAN Outstanding Scientist



Strumming on the guitar

and Technologist Award 2001 from ASEAN-COST and the Gold-Headed Cane from the World Association of Societies of Pathology and Laboratory Medicine in 2015.

She is an Examiner (in Histopathology) for both the Royal College of Pathologists, UK and the Royal College of Pathologists of Australasia and has served as Regional Advisor/Councillor for Malaysia to both these Professional bodies. She is a technical advisor to the World Health Organisation. She is the Founding President of Malaysia's College of Pathologists and Founding Fellow and Senior Fellow (with the title Academician) of the Academy of Sciences Malaysia. She served as President of the World Association of Societies of Pathology and Laboratory Medicine from 2013 to 2015, and is Co-Chair (second elected term) of the InterAcademy Medical Panel, a global network of 78 National Science and Medical Academies which promotes evidence-based advice to government on health-related issues. She is the first Malaysian to be elected to these positions of global leadership.



Field work at Eucalyptus camp, Scientific Expedition to Maliau Basin, Sabah, 2006



Tracking the total solar eclipse with her two brothers. Varanasi, India. 2009

Professor Looi has received a number of National accolades including the National Science Award (1999), Ministry of Science Malaysia; Rotary Research Foundation Gold Medallist (2003); and Foundation Fellow (1995) and Academician (Senior Fellow) of the Academy of Sciences Malaysia (2005).

As a result of her long-standing and respected record in biomedical research, Professor Looi has been serving on advisory and awards/grants committees such as the Mahathir Science Award Evaluation Committee, and Chairmanship of the Ranjeet Bhagwan Singh Award Committee. More recently she was appointed Chair of the Newton-Ungku Omar Fund for bilateral research programmes with the Medical Research Council, UK (2015-2018).



Family photograph



First year at school, 1957

CONCLUDING REMARKS

Professor Looi's friends describe her as "one of the most unruffled persons you'll ever meet. Nothing can fluster her."

Her message to young Malaysians: "Believe in yourself and believe that you can make a difference. Be ready and willing to learn and think out of the box. Most importantly, never be afraid of hard work."

Professor Looi is currently working on a book chapter in the Disease Control Priorities-3 Project (sponsored by the Gates Foundation and World Bank) and she continues to research, publish and lecture on cancer and renal pathology.

Looking forward, Professor Looi says she has much more to contribute. Quoting the last lines of her favourite poem by Robert Frost – "But I have promises to keep, and miles to go before I sleep" – Professor Looi says her responsibilities and societal obligations will continue to keep her busy in the years to come.

Professor Looi's leadership in raising the bar in pathology, her instrumental role in uniting Malaysian pathologists under one professional body – The College of Pathologists, Academy of Medicine Malaysia, the introduction of a national accreditation scheme for medical testing laboratories in Malaysia and the introduction of immunohistochemical techniques into diagnostic pathology across Malaysia, has seen pathology become more widely recognised by the public.

Her relentless pursuit of excellence in research and her contributions to education and medical science, epitomises the *Spirit of Merdeka*.

Outstanding Scholastic Achievement

Awarded to a scholar conducting or playing
a major role in academic research resulting
in significant discovery.



PROFESSOR DATO' IR DR WAN RAMLI WAN DAUD



PROFILE

For more than 35 years, Professor Dato' Ir Dr Wan Ramli Wan Daud FASc, has been working tirelessly on sustainable drying technology that extended his PhD work and on his major scientific fields, zero emission renewable hydrogen energy from biomass, wastewater, methanol and solar energy; and on fuel cells using hydrogen, methanol and wastewater as fuels, at a time when they were considered a novelty. He believes passionately that hydrogen energy and fuel cells that emit only water, would help Malaysia implement its commitment at the COP 21 2015 in Paris to reduce 45 percent of its carbon emission intensity by 2030, based on the 2005 level. "This could be done by replacing fossil fuels with hydrogen energy and using fuel cells in the power and automotive industries," he says.





As a scholar and an indication of the global impact of his research work in the three fields, Professor Wan Ramli has authored and co-authored 263 articles published in reputed international and high-impact journals. His Web of Science Hirsch (H) index is 31 and his papers have been cited 3,526 times. To date, he has supervised 75 PhD and 46 MSc candidates.

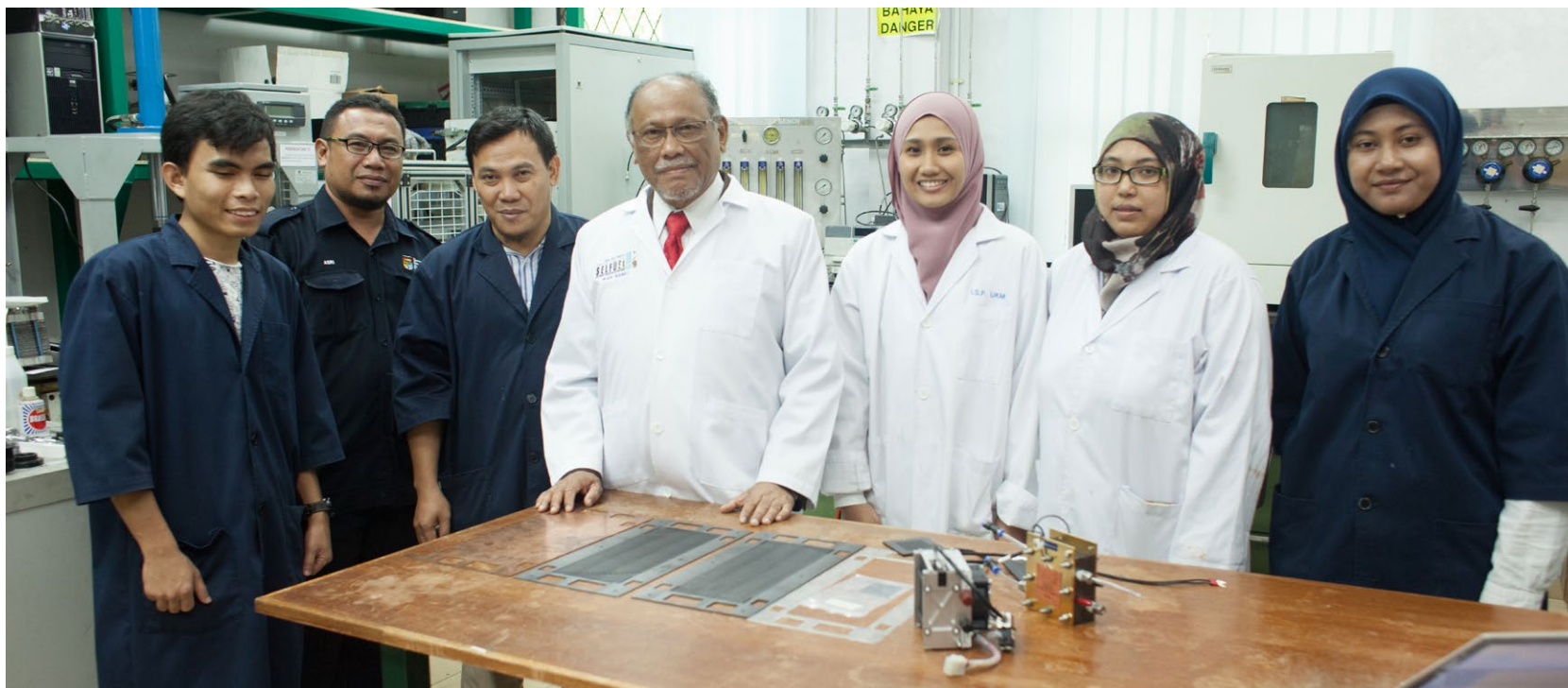
His outstanding scholarly work has earned himself the highest scientific accolade as one of Thomson-Reuters' The World's Most Influential Scientific Minds 2016, that confirmed his leading position in the three fields in Malaysia, the region and the world. In recognition of his outstanding achievement in science and engineering, he was elected a fellow of the prestigious Academy of Sciences Malaysia in 2012. He has led several high-level projects with approximately RM54 million in grants received from the Ministry of Science, Technology and Innovation (MOSTI) and the Ministry of Higher Education (MOHE) over 20 years.

Born in Bukit Mertajam, Pulau Pinang, in 1955, to a policeman and housewife parents, and growing up at a time of national turmoil during the Malayan Emergency, and frequent transfers of the family from one police station to another as duty called, Professor Wan Ramli's early education at Sekolah Kebangsaan Jalan Connolly, Ipoh (1961-1965), was disrupted by the transfer to Sekolah Kebangsaan Taiping (1966-1967) following his



father's transfer there. Undaunted by the distractions, he won a place at the elite Sekolah Dato' Abdul Razak (SDAR) in Tanjung Malim (1968-1971) and Seremban (1972-1973), thanks to the free tuition given by his teacher and role model, the late Cikgu Jaafar. He won the Gold Medal of the Institut Kimia Malaysia for best chemistry results in the 1973 Malaysian Certificate of Education (MCE).

He was selected by Majlis Amanah Rakyat (MARA) for pre-university study at Leederville Technical College, Perth, Australia, in 1974, and later won a Colombo Plan scholarship to read Chemical Engineering at Monash University, Melbourne, Australia (1975-1978) where he earned the BEng degree (First Class) in 1978. He won the Best Design Project Prize of IChemE Victoria Branch in 1978, and the Shell and Aluminium Council Prizes in 1975. After joining Universiti Kebangsaan Malaysia (UKM) as a tutor in



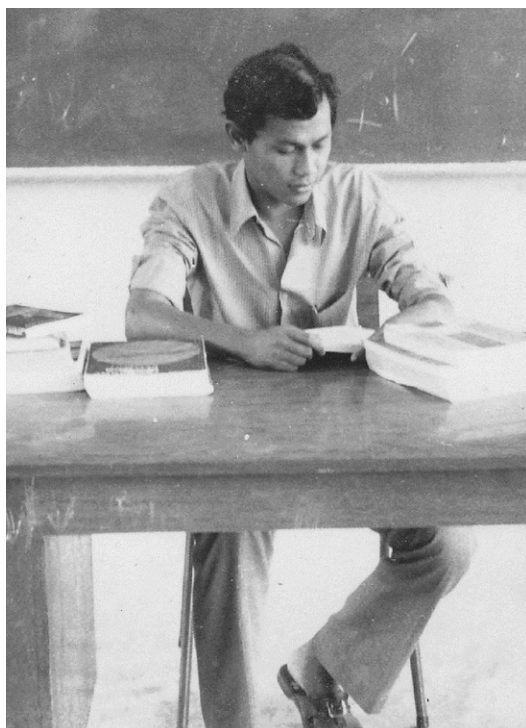
With colleagues at Universiti Kebangsaan Malaysia



1979, he won a Public Service Department (JPA) scholarship for PhD study in chemical engineering at Churchill College at the prestigious University of Cambridge, UK, where he was awarded the PhD degree in 1984.

Professor Wan Ramli says of his early interest in science at secondary school, “Although my science teachers at Sekolah Dato’ Abdul Razak (SDAR) were inspiring and taught science passionately, they could not go beyond the syllabus that would have made science even more interesting”. He was inspired by his physics teacher, K O Lim, who is now an Emeritus Professor at Universiti Sains Malaysia (USM). “My early interest in science began in the school library where the classical science fiction novels of Jules Verne and Edgar Rice Burrough, the McGraw-Hill Encyclopedia of Science and Technology and the Time-Life Science books opened a marvelous new world of wonder,” he adds.

Professor Wan Ramli was active in the school’s Science Society and was its president in 1972-1973. The 1960’s and early 1970’s was the age of Big Science when the US National Aeronautics and Space Administration (NASA) spent billions of dollars in a race with the then Soviet Union to put a man on the moon. He was so captivated by NASA’s rocket technology that he built tiny rockets out of fire crackers. His role model then was the late Dr Werner von Braun, the German rocket scientist who designed the rocket booster, Saturn V that brought man to the moon. It was then that he was first introduced to fuel cells used in the Gemini spacecraft. He built an electrolyser using carbon



Studying hard for MCE, 1973



Monash class of 1978



electrodes from discarded batteries to produce hydrogen. He wanted to be a rocket scientist or a physicist like his role models but MARA insisted that he took chemical engineering instead.

He started his scientific career in 1979 by working for his PhD at Cambridge University on the drum dryer in a food manufacturing company that has led to a better understanding of the non-ideal flow patterns and conductive drying in the dryer. After returning to UKM, he continued research on drying of agricultural products using hot air, steam, solar, microwave, fluidised bed and spray dryers and proposed new drying models for them. His role model is Professor Dr Arun S Mujumdar from McGill University and the National University of Singapore.

Professor Wan Ramli's interest in fuel cells and hydrogen energy was rekindled in the mid 1990's, when he built the first fuel cell in Malaysia using donated Nafion membranes and carbon papers in 1994. He has pioneered the proton exchange membrane fuel cells (PEMFC) by developing cheaper anodes containing low Pt content, nitrogen doped CNT, PPy/CARRA and nitrogen doped graphene. He has developed non-Nafion and composite proton exchange membranes (PEM) like Nafion-SiO₂-phosphotungstic acid, sulfonated PBI copolymer and PVDF/Nafion. He has also developed the direct methanol fuel cell (DMFC) using nanocatalysts on mesoporous carbon, porous carbon nanofiber and metal composite nanowire anodes, as well as Nafion/Pd-SiO₂ nanofiber composite membranes.



He has developed sound engineering models of PEMFC system to improve their design. He has designed and built prototype 50W, 200W and 1.5kW air-cooled open cathode PEMFC stacks and used them to power motorcycles, portable power packs and a golf cart. He is currently designing and constructing a new prototype water-cooled 5kW PEMFC stack that will be used in a PROTON fuel cell vehicle prototype.

Professor Wan Ramli has pioneered the microbial fuel cell (MFC) that simultaneously treats palm oil mill effluent (POME) and generates electricity using mixed and pure cultures of various anaerobic microbes. He has developed MFC separators from earthen ware and various Nafion- and AgGO-SPEEK nano-composite PEMs and MFC anodes from metal oxide doped CNF and CNT, PPy-CNT and CARRA composites and biocathodes. He has jointly proposed that biocathode processes in microbial electrolysis cells (MEC) are similar to microbially-influenced corrosion. His role model in this field is Professor Byung Hong Kim from the Korea Institute of Science and Technology.

In the field of hydrogen energy, Professor Wan Ramli has developed methanol and glycerol steam reforming catalysts from transition metal oxide mixtures, compact membrane reactors using Pd and PTFE-Nafion membranes on ceramic tubes for methanol reforming and compact multi-bed pressure swing adsorber. He has developed hydrogen storage materials from transition metal oxides doped on CNF, BN and ZnO nanofibers and photoanodes in photoelectrochemical cells from metal oxides mixtures and Ru-W bimetallic dye on TiO₂ nanotubes. He has built solar hydrogen production systems using hybrid photovoltaic-wind turbine-electrolyzer in the solar hydrogen eco-houses at UKM and University Malaysia Terengganu (UMT).

As a teacher of more than 30 years, Professor Wan Ramli has taught many generations of chemical engineers at UKM in both Bahasa Malaysia and English. He is very proud of



Two UKM-made 1.5 kW PEM fuel cells stacks underneath the seat of UKM's fuel cell golf cart

his PhD and MSc students from Malaysia and Indonesia who have written and successfully defended their thesis and published papers in Bahasa Malaysia, proving that Bahasa Malaysia too could become a language of science since their English papers containing the same results were published by high impact journals.

On the national stage, Professor Wan Ramli was invited by the Ministry of Energy, Green Technology and Water in 2005 to chair the Fuel Cell Sub-committee, charged with the task of creating the Roadmap for Solar, Hydrogen and Fuel Cell Research and Development Directions and Markets in Malaysia. Some of its recommendations were included in the Ninth Malaysia Plan. In 2014, he was invited by the Academy of Science Malaysia to chair the National Task Force on Fuel Cell and update the roadmap by taking into account of the latest technology developments and commercialisation in Malaysia. He was also honored with invitations to deliver nine national keynote papers.



Attending eldest daughter's graduation day at Trinity College, Dublin



Internationally, Professor Wan Ramli was invited by the United Nation Department of Economic and Social Affairs (UNDESA) and the Government of Iceland in 2006, to present a keynote paper on fuel cells and hydrogen energy. He was honored with invitations to present 21 keynote and 10 invited papers in China, Iceland, India, Indonesia, Iran, Japan, Malaysia, Netherlands, Philippines, Russia, Singapore and Thailand. He was appointed member of the international advisory and scientific panels of the International Association of Hydrogen Energy (IAHE), International Drying Symposium, World Congress of Particle Technology, International Conference on Fuel Cells and Hydrogen Energy Technology, Asian Particle Technology Symposium, Regional Symposium of Chemical Engineering and Asia-Pacific Drying Conference. He was invited a Guest Editor of the International Journal of Hydrogen Energy twice.

In recognition of his scientific work, Professor Wan Ramli was honored with more than 92 awards, both international and local. They include the ASEAN Energy

Awards, Singapore (2007), ASEAN Energy Award, Phnom Penh (2005), IChemE Highly Commended Shell Energy Award UK (2008), Outstanding Contribution to the Drying Community 2009 Award in Bangkok, Thailand and the Award for Excellence in Research in Drying of Agricultural Products and Outstanding Contribution to the Development of Drying Technology Malaysia (2011). Additionally, for his outstanding achievements in invention and innovations, he won two Gold medals at the 29th and 33rd Salon International Des Inventions Geneve (2001, 2005), the Environmental award from the Swiss Society for the Protection of the Environment (2001), two Gold medals at World Exhibition of Innovation, Research and New Technologies, Brussels (2007), one Silver medal at 34th Salon International Des Inventions Geneve (2006) and Special Award of the Union des Innovateurs de la Croatie (2006).

CONCLUDING REMARKS

Professor Wan Ramli is currently writing a book on “Engineering: an Art or Science?” in Bahasa Malaysia and in the English language. “It is an enlarged edition of my Inaugural Lecture on the nature of engineering and of science, based on my nearly 40 years of working as an engineer, scientist and teacher,” he says.

He is also working on several books on chemical engineering based on his lectures over the years. “There is a dire need for chemical engineering books used for educating young engineers to incorporate new ideas and results from both scientific and educational research,” he adds.

As a scholar, engineer and teacher, Professor Wan Ramli has consistently been at the forefront of science and engineering research in the country and his relentless pursuit of excellence exemplifies the *Spirit of Merdeka*.

Merdeka Award News Coverage, 2016

AMAZON DI KOTA FLORA, PA...

...di Kota Flora, PA...

...di Kota Flora, PA...

air ciptaan UTM duduk Kelantan

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Dasar Industri Kreatif Negara buka peluang generasi muda berkarya

...Dasar Industri Kreatif Negara buka peluang generasi muda berkarya

...Dasar Industri Kreatif Negara buka peluang generasi muda berkarya

Do small things with great love, says Mother Mangalam

...Do small things with great love, says Mother Mangalam

...Do small things with great love, says Mother Mangalam

2016 Merdeka Award Grant Application Now Open

...2016 Merdeka Award Grant Application Now Open

...2016 Merdeka Award Grant Application Now Open

Sultan Nazrin umum penerima Anugerah Merdeka 2016

...Sultan Nazrin umum penerima Anugerah Merdeka 2016

...Sultan Nazrin umum penerima Anugerah Merdeka 2016

Life agenda in ecological, bioclimatic design

...Life agenda in ecological, bioclimatic design

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Zooming in on Going back to his roots

...Zooming in on Going back to his roots

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Recognising excellence

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Tindakan perlu diambil elak kepelbagaian bio negara terus 'sakit'

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...Tindakan perlu diambil elak kepelbagaian bio negara terus 'sakit'

Using Bird Virus to Treat Cancer

...Using Bird Virus to Treat Cancer

...Using Bird Virus to Treat Cancer

Zooming in on Going back to his roots

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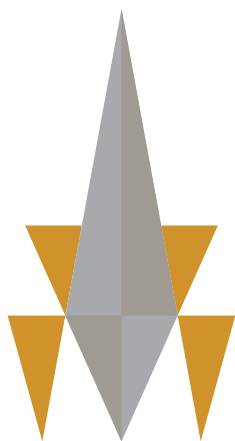
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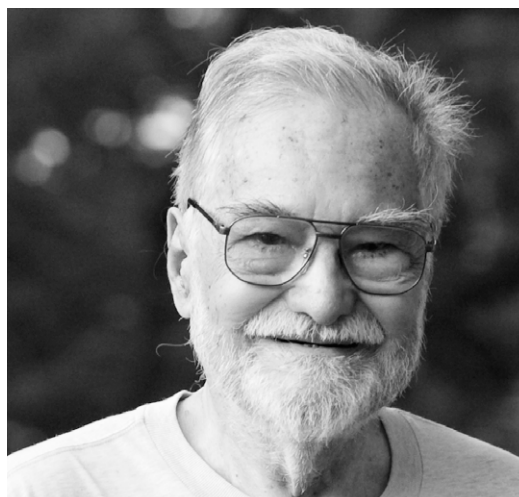
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...2016 Merdeka Award Grant Application Now Open

Merdeka Award Past Recipients



MERDEKA
AWARD
2008



EDUCATION AND COMMUNITY

**Royal Professor Ungku Abdul Aziz
bin Ungku Abdul Hamid**

For outstanding contribution to the eradication of poverty, rural economics, the development of Tabung Haji and in the field of education



ENVIRONMENT

Malaysian Nature Society (MNS)

For outstanding contribution to the Belum-Temenggor Forest Complex Conservation Initiative



HEALTH, SCIENCE AND TECHNOLOGY

**Nipah Virus Encephalitis
Investigation Team from The Faculty
of Medicine, University of Malaya**

(Joint Recipient)

For outstanding contribution to the discovery and understanding of the causes, effects and control of the Nipah encephalitis viral infection



HEALTH, SCIENCE AND TECHNOLOGY

**Professor Emeritus
Dato' Dr Khalid Tan Sri Abdul Kadir**

(Joint Recipient)

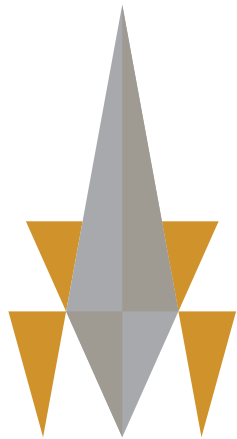
For outstanding contribution to the study and understanding of diabetes and the relationship between hormones and stresses in various tissues



**OUTSTANDING CONTRIBUTION TO
THE PEOPLE OF MALAYSIA**

Datuk Leslie Davidson

For outstanding contribution in the introduction of the pollinating insects *Elaeidobius kamerunicus* from Africa to the oil palm plantations in Malaysia, leading to the rapid development of the palm oil industry



MERDEKA
AWARD
2009



EDUCATION AND COMMUNITY

Tun Fatimah Hashim

(Joint Recipient)

For outstanding contribution to the empowerment of women in Malaysia and for protecting and securing rights and economic opportunities for women through advocacy



EDUCATION AND COMMUNITY

Tan Sri Dato' Lim Phaik Gan

(Joint Recipient)

For outstanding contribution to the empowerment of women in Malaysia and for protecting and securing rights and economic opportunities for women through advocacy



HEALTH, SCIENCE AND TECHNOLOGY

Professor Datuk Dr Halimaton Hamdan

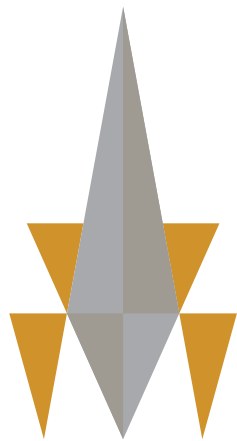
For outstanding contribution in the development and application of Maerogel as a commercially viable multi-purpose material



OUTSTANDING SCHOLASTIC ACHIEVEMENT

Professor Dato' Seri Ir Dr Zaini Ujang

For outstanding study and scholarly contributions in the various environmental initiatives concerning water supply, sewage, river rehabilitation and industrial ecology



MERDEKA
AWARD
2010



EDUCATION AND COMMUNITY

**Datin Paduka Mother A Mangalam
A/P S Iyaswamy Iyer**

For outstanding contribution in promoting the welfare of the underprivileged and for fostering national unity



OUTSTANDING SCHOLASTIC ACHIEVEMENT

**Academician Emeritus Professor
Dr Yong Hoi Sen**

(Joint Recipient)

For outstanding contribution to the development of basic and applied knowledge of Genetics, Molecular Biology, Biological Systematics, Evolutionary Biology and Biological Diversity of Malaysian Flora and Fauna



**OUTSTANDING SCHOLASTIC
ACHIEVEMENT**

**Distinguished Professor Datuk
Dr Harith Ahmad**

(Joint Recipient)

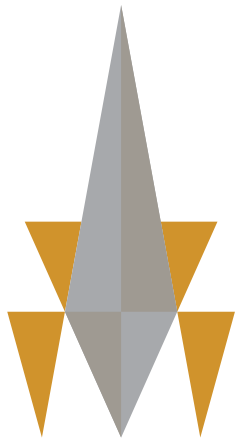
For outstanding contribution in research and promoting the development of photonics in Malaysia



**OUTSTANDING CONTRIBUTION
TO THE PEOPLE OF MALAYSIA**

Tan Sri Just Faaland

For outstanding contribution to the advocacy of equitable growth through eradication of poverty and reduction of socio-economic polarisation



MERDEKA
AWARD
2011



ENVIRONMENT

Dato' Dr Kenneth Yeang

For outstanding contribution to the development of design methods for the ecological design and planning of the built environment

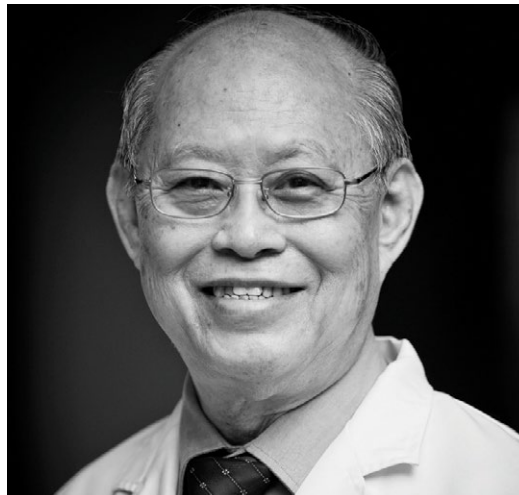


OUTSTANDING SCHOLASTIC ACHIEVEMENT

Professor Dato' Dr Goh Khean Lee

(Joint Recipient)

For outstanding contribution in elevating the study and practice of gastroenterology and hepatology in Malaysia to global standards

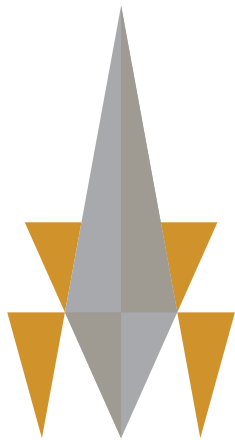


OUTSTANDING SCHOLASTIC ACHIEVEMENT

Professor Dr Mak Joon Wah

(Joint Recipient)

For outstanding fundamental and applied research in parasitology and parasitic diseases, public health and pathology



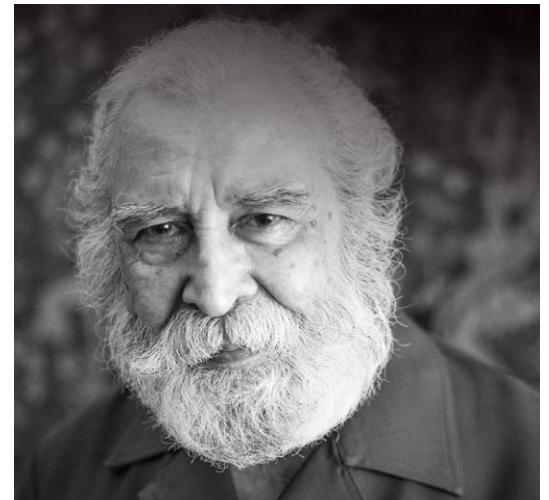
MERDEKA
AWARD
2012



HEALTH, SCIENCE AND TECHNOLOGY

**Academician Tan Sri Emeritus Professor
Datuk Dr Augustine Ong Soon Hock**

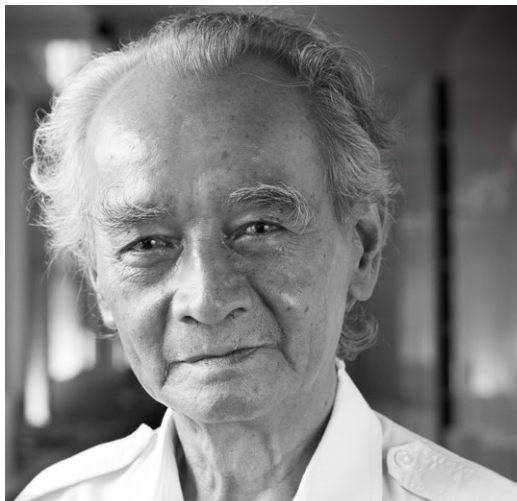
For outstanding contribution to the research and development of the chemistry and technology of palm oil and for his significant role in advocating and promoting the Malaysian palm oil industry to the world



OUTSTANDING SCHOLASTIC ACHIEVEMENT

**Tan Sri Professor
Dr Syed Muhammad Naquib al-Attas**

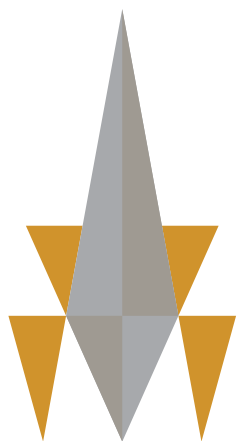
For outstanding contribution to the scholarly research in the area of Islamisation of contemporary knowledge and of Muslim education



**OUTSTANDING CONTRIBUTION
TO THE PEOPLE OF MALAYSIA**

Dr Engkik Soepadmo

For outstanding contribution to the research and conservation of Malaysia's forest plant diversity



MERDEKA AWARD 2013



EDUCATION AND COMMUNITY

Tan Sri Dato' Seri Utama Arshad Ayub
(Joint Recipient)

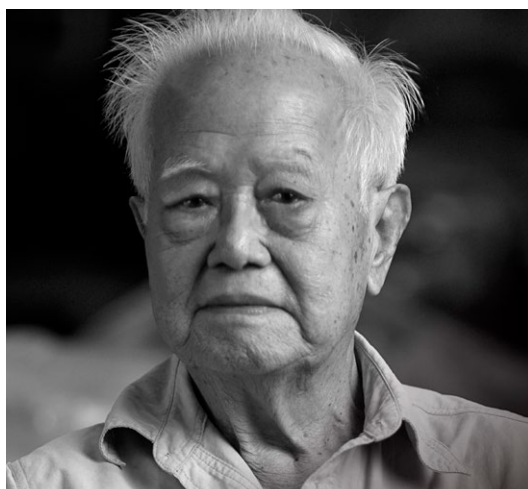
For outstanding contribution in shaping Malaysia's education landscape through the development of professional education, education reforms and innovation that have resulted in education becoming more accessible to Malaysians



EDUCATION AND COMMUNITY

**Raja Tan Sri Dato' Seri Utama
Muhammad Alias Raja Muhammad Ali**
(Joint Recipient)

For outstanding contribution to rural development and rural reform through organising successful land settlement projects (FELDA) for the many landless, rural population in Malaysia



ENVIRONMENT **Dr Lim Boo Liat**

For outstanding contribution to the conservation of Malaysia's biological diversity through the study, understanding and control of vector-borne diseases and the relationship between diseases and the environment; and for advocating the protection of our natural heritage



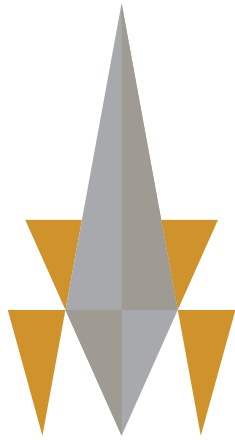
HEALTH, SCIENCE AND TECHNOLOGY **Tan Sri Dato' Dr Yahya Awang**

For outstanding contribution to pioneering the development of clinical research and cardiac surgery in Malaysia and for his instrumental role in the establishment of the National Heart Institute (IJN)



OUTSTANDING SCHOLASTIC ACHIEVEMENT **Emeritus Professor Dato' Dr Lam Sai Kit**

For outstanding contribution to scholarly research and development in medical virology and emerging infectious diseases including dengue



MERDEKA AWARD 2014



EDUCATION AND COMMUNITY **Datuk Mohd Nor Khalid (Lat)**

For outstanding contribution to the promotion and pluralism of Malaysia's cultural identity through the use of cartoons and for the promotion of understanding and respect among Malaysia's diverse ethnic communities



ENVIRONMENT **Mohd Khan Momin Khan**

For outstanding contribution to wildlife research and conservation through the setting up of captive breeding centres as well as for pioneering and successfully managing the human-wildlife conflict in affected areas



HEALTH, SCIENCE AND TECHNOLOGY **Datuk Dr Choo Yuen May**

For outstanding contribution to the development of novel, efficient and green processes for the palm-based industry through research and commercialisation of various technologies



OUTSTANDING SCHOLASTIC ACHIEVEMENT **Professor Dr Abdul Latif Ahmad** (Joint Recipient)

For outstanding contribution to the scholarly research and development of technologies in the areas of polymer science, wastewater treatment and membrane separation technology



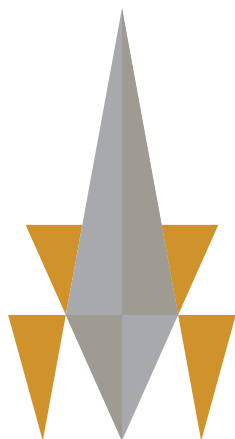
OUTSTANDING SCHOLASTIC ACHIEVEMENT **Professor Dr Ahmad Fauzi Ismail** (Joint Recipient)

For outstanding contribution to the scholarly research and development of technologies for commercialisation in membrane performance for both gas separation, and water and wastewater treatment



OUTSTANDING CONTRIBUTION TO THE PEOPLE OF MALAYSIA **Dato Sri Gathorne, Earl of Cranbrook**

For outstanding contribution in pioneering research and conservation of Malaysia's forest biodiversity and the ecology and biology of Malaysian mammals and birds, and for advocating environmental conservation



MERDEKA AWARD 2015



EDUCATION AND COMMUNITY

Tan Sri Dr Jemilah Mahmood

For outstanding contribution to the development of humanitarian and international emergency relief

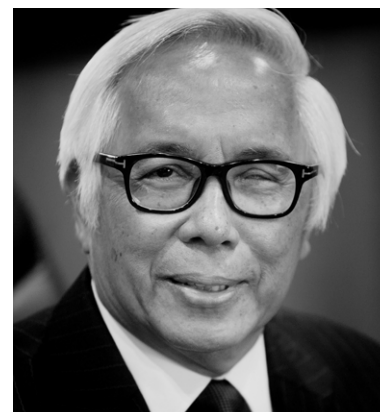


ENVIRONMENT

Emeritus Professor Dato' Dr Abdul Latiff Mohamad

(Joint Recipient)

For outstanding contribution to the research and understanding of plant taxonomy and conservation biology in Malaysia



ENVIRONMENT

Professor Emeritus Tan Sri Dr Zakri Abdul Hamid

(Joint Recipient)

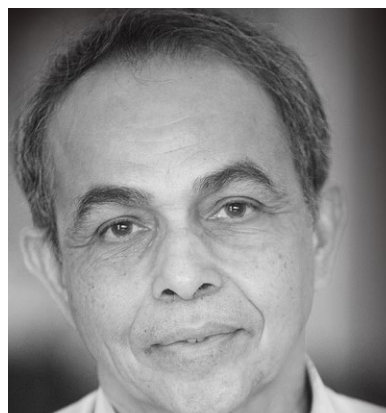
For outstanding contribution to the observation, analysis and assessment of biodiversity and ecosystem services, fostering the remediation and protection of the natural environment and promoting environmental sustainability in Malaysia and globally



HEALTH, SCIENCE AND TECHNOLOGY

Professor Datin Paduka Dr Khatijah Mohamad Yusoff

For outstanding contribution in the field of microbiology and virology through a better understanding and diagnosis of the contagious and fatal viruses in poultry and the study of the potential of the virus in combating cancer cells



OUTSTANDING SCHOLASTIC ACHIEVEMENT

Professor Dr Ir Mohd Ali Hashim

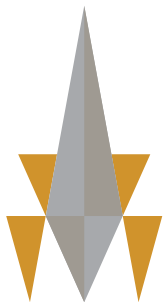
For outstanding scholastic contribution in the research of separation processes and water and wastewater treatment and for his instrumental role in the setting-up of the Centre for Ionic Liquids



OUTSTANDING CONTRIBUTION TO THE PEOPLE OF MALAYSIA

Dr Elizabeth Lesley Bennett

For outstanding contribution to the conservation and management of wetland habitats and that of endangered wildlife in Malaysia through research, advocacy and policies



MERDEKA
AWARD

Merdeka Award Board of Trustees & Committee Members

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Professor Dato' Dr Goh Khean Lee

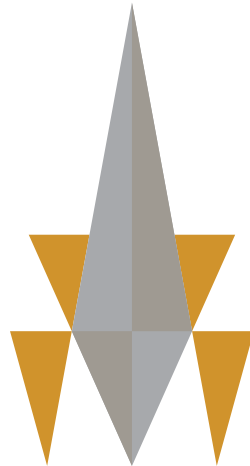
Outstanding Contribution to the People of Malaysia

Michelle Gyles-McDonnough

YAM Tunku Zain Al-'Abidin ibni Tuanku Muhriz

Professor Emeritus Dr Zakariah Abdul Rashid

The Logo and Trophy



M E R D E K A
A W A R D



Designed by Dato' Johan Ariff, the trophy is a three dimensional version of the Merdeka Award logo. It expresses convergence and ascension, the same qualities celebrated in the achievements of the Merdeka Awards winners. The trophy also represents environmental concerns in the form of a plant shoot *Rebung*, transparency, ethics, and the glorious five decades of Malaysian independence.

An Artistic Vision of Excellence



This Latiff Mohidin sculpture incorporates the kinetic element of a rotating ball symbolising freedom. The sculpture rests on a granite base denoting strength and fortitude. The piece also incorporates the traditional elements of *Sulur Bayur* underscoring heritage and *Pucuk Rebung* signifying excellence.



