

**KERATAN AKHBAR-AKHBAR TEMPATAN**  
**TARIKH: 05 MAC 2014 (RABU)**

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## 1,400 Hadir Kongres Kejuruteraan, Sains, Teknologi Sedunia Kuala Lumpur

KUALA LUMPUR, 4 Mac (Bernama) -- Kira-kira 1,400 peserta terdiri daripada pegawai kanan kerajaan, ahli akademik, penggiat industri dan pelajar dari 50 negara akan menghadiri Kongres Kejuruteraan, Sains dan Teknologi Sedunia 2014.

Kongres selama tiga hari mulai 3 Jun itu berlangsung di Pusat Konvensyen Kuala Lumpur.

Persidangan kali ketiga di Malaysia itu dianjurkan bersama oleh Universiti Teknologi Petronas, dengan sokongan Kementerian Pendidikan, **Kementerian Sains, Teknologi dan Inovasi**, Agensi Inovasi Malaysia (AIM), Yayasan Universiti Teknologi Petronas dan Kperak Implementation and Coordination Corporation.

Pengerusi persidangan Datuk Dr Abdul Rahim Hashim berkata persidangan itu diadakan bagi mewujudkan peluang menjalin kerjasama antara sektor swasta dan kerajaan serta menyelidik bagi memanfaatkan kepakaran mereka dalam penyelidikan berkualiti tinggi, penyelesaian industri yang dikehendaki dan objektif strategik nasional.

Pameran akan berjalan serentak dengan persidangan itu bagi membolehkan penggiat industri mempamerkan produk, perkhidmatan dan inovasi terbaharu mereka kepada umum," katanya pada majlis prapelancaran persidangan itu, Selasa.

Abdul Rahim berkata kongres tahun ini menambah bahagian baharu iaitu padanan inovasi bagi memudahkan peluang untuk pengkomersilan.

Sementara itu, Ketua Pegawai Eksekutif AIM Mark Rozario berkata pembiayaan menyediakan sumber utama untuk pencipta meningkatkan dan mengembangkan sayap mereka.

Beliau berkata kerajaan Malaysia sentiasa menyediakan dana dalam bentuk geran.

Ia boleh didapati dalam pelbagai peringkat proses inovasi, daripada mencipta konsep sehinggalah kepada penempatan akhir idea atau penyelidikan itu," katanya pada majlis prapelancaran itu.

AIM ialah badan berkanun yang ditubuhkan oleh kerajaan melalui Akta AIM 2010 dengan matlamat untuk merancang inovasi bagi membantu Malaysia mencapai status negara berpendapatan tinggi.

KERATAN AKHBAR  
KOSMO (INFINITI): MUKA SURAT 29  
TARIKH: 05 MAC 2014 (RABU)



NOVASI • SAINS • GAJET

RAGAM KRISIS AIR  
SELANGOR 32

IMPAK BERKESAN  
SLEEPING DOGS 36

# Impak Planetarium Negara

# Pusat cambah ilmu angkasa

Memasuki dua dekad penubuhan Planetarium Negara pada bulan lalu, ia dilihat meninggalkan impak positif kepada pengetahuan masyarakat mengenai angkasa lepas.

Oleh HAFIZ AHMAD  
mohammadhafiz.ahmad@kosmo.com.my

**K**EDATANGANNYA di Planetarium Negara, Sabtu lalu bukan yang pertama kali. Kunjungan pertamanya ketika berumur 12 tahun iaitu kira-kira tiga tahun lalu atas dasar ingin mengetahui tentang selok-belok dunia sains, terutamanya mengenai angkasa lepas.

Minatnya itu terus bercambah sehingga ke hari ini dengan mengikuti setiap perincian perkembangan sains angkasa di dalam atau luar negara. Bagi Musaddiq Azli Mubarak, 15, ruang pameran khusus untuk sains angkasa lepas itu memberikan pengajaran secara teori dan praktikal dalam bidang sains.

"Banyak boleh dipelajari di sini sebagai

contoh program angkasawan negara yang melahirkan angkasawan negara pertama kita. Selain itu, terdapat juga informasi-informasi berkaitan sains angkasa yang terdapat di Planetarium Negara," ujar pelajar Sekolah Tahfiz di Sentul, Kuala Lumpur itu ketika ditemui *Infiniti* di pusat tersebut baru-baru ini.

Ditemani bapanya, Azli Mubarak Tahir dan ahli keluarga lain, dia turut menzahirkan kekaguman dengan teknologi yang terdapat di Planetarium Negara.

Berukuran 11,148 meter persegi, bangunan berkubah biru itu jelas kelihatan kerana terletak di puncak bukit di Taman Tasik di Jalan Perdana, Kuala Lumpur.

AZLI

pameran yang menarik, Planetarium Negara turut menyediakan aktiviti interaktif kepada pengunjung," ujar Azli.

Kunjungan kali kedua Azli dan keluarga adalah kerana ajakan oleh anak sulungnya, Musaddiq yang menunjukkan minat dalam bidang sains angkasa.

"Sekurang-kurangnya, mereka dapat belajar sesuatu selepas berada seharian di sini," tambahnya yang merupakan seorang jurutera di sebuah syarikat swasta.

## Pengetahuan

Bagi Rozila Rafie, seorang guru di Kolej Matrikulasi Selangor, kewujudan Planetarium Negara telah meningkatkan kesedaran dan pengetahuan rakyat Malaysia mengenai isu-isu berkaitan angkasa lepas.

"Jika dibandingkan sebelum penubuhan pusat ini, ramai yang kurang jelas mengenai subjek angkasa. Malah, ramai yang kurang memberikan tumpuan kepada angkasa lepas," ujarnya yang datang bersama sekumpulan rakan kolejanya.

Tambahnya, pusat pendidikan tersebut membuatkan minat pelajar semakin bertambah dan mula menunjukkan kecenderungan kepada bidang sains angkasa.

"Pembelajaran teori di dalam kelas dapat diselaraskan dengan pameran yang terdapat di Planetarium Negara," ujarnya.

Rozila berkata, Kolej Matrikulasi Selangor yang terletak di Banting, aktif dalam menghadiri dan menyertai program-program yang dijalankan oleh Agensi Angkasa Malaysia (Angkasa).

"Malah, penubuhan Pusat Angkasa Negara di Banting turut memberikan impak positif bukan sahaja kepada pelajar, malah ekonomi penduduk setempat juga berkembang dengan baik," ujar Rozila.

Pusat Angkasa Negara di Banting, Selangor siap dibina pada tahun 2005 yang

PLANETARIUM NEGARA menjadi tumpuan aktiviti riadah sambil menimba ilmu sains angkasa.



JEFFRI IBAN



SEJAK ditubuhkan pada tahun 1994, Planetarium Negara yang terletak di puncak bukit Jalan Perdana, Kuala Lumpur telah menerima lebih lima juta pengunjung.

## Tumpuan

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Dibuka secara rasmi oleh mantan Perdana Menteri, Tun Dr. Mahathir Mohamad, ia memberi impak positif kepada perkembangan sains angkasa dalam kalangan masyarakat tempatan.

Sehingga kini, ia telah menarik lebih lima juta pengunjung dari dalam dan luar negara. Ia menjadi tumpuan pelancong asing sehingga menjadi lokasi utama dalam senarai lawatan mereka di Malaysia. Bagi warga tempatan, ia merupakan salah satu aktiviti riadah yang bermanfaat kepada anak-anak muda.

"Anak-anak sangat suka berada di sini kerana selain ruang



PERASMIAN Planetarium Negara dilakukan oleh Dr. Mahathir.



TAYANGAN filem baharu, *We Are Astronomers* dipersembahkan sempena ulang tahun Planetarium Negara.

**SAMBUNGAN...  
KERATAN AKHBAR  
KOSMO (INFINITI): MUKA SURAT 31  
TARIKH: 05 MAC 2014 (RABU)**

KOSMO! 2 RABU 5 MAC 2014

Infinity 31



ANTARA kumpulan pelajar yang mementi bidang sains dan teknologi angkasa berkunjung ke Planetarium Negara baru-baru ini.



PARA pelajar dapat belajar dan mengetahui ilmu sains secara teori dan praktikal.

menempatkan Pusat Kawalan Misi (MOC) satelit RazakSAT-1.

Pada masa akan datang, ia akan menempatkan RazakSAT-2 dan Makmal Ujian Optik bagi menjalankan pengujian optikal ke atas satelit RazakSAT-1 atau sebarang komponen optikal satelit pada masa akan datang.

**Kesedaran**

Sejak ditubuhkan, Planetarium Negara berjaya menganjurkan pelbagai aktiviti kesedaran kepada masyarakat, malah mengadakan jalinan kerjasama dengan beberapa negara dalam bidang sains dan teknologi angkasa.

Pada tahun 2007, Planetarium Negara dan Jepun menjalankan program-program pendidikan Eksperimen Sains Mikrograviti susulan daripada kejayaan Program Angkasawan Negara.

Antara aktiviti-aktiviti tersebut ialah Try Zero G, Space Seed, Parabolic Flight dan Pertandingan Teknologi Pelancaran Roket Asia Pasifik.

Selain itu, pusat tersebut menjadi rujukan program-program pendidikan angkasa kepada negara-negara jiran seperti Indonesia, Singapura, Thailand dan Vietnam.

Bercakap mengenai senarai panjang kejayaan 20 tahun Planetarium Negara, tidak lengkap jika tidak melibatkan sejarah yang dicatatkan oleh Datuk Dr. Sheikh Muszaphar Shukor.

Menerusi program Angkasawan Negara yang diadakan pada tahun 2007, beliau menjadi rakyat Malaysia pertama berada di ruang angkasa lepas.

Mengimbas detik bersejarah itu, program bawah Kementerian Sains, Teknologi dan Inovasi tersebut telah mendapat penyertaan sebanyak 11,267 orang.

Selepas melalui pelbagai cabaran fizikal dan mental, Dr. Sheikh Muszaphar akhirnya dipilih untuk menyertai misi angkasa itu. Beliau berlepas ke Stesen Angkasa Antarabangsa (ISS) menggunakan roket Soyuz TMA-11 buatan Rusia dari tapak pelancaran Baikonur Cosmodrome, Kazakhstan tepat pukul 7.21 malam (9.21 malam waktu Malaysia).

Pada masa sama, beliau menjalankan kajian mengenai perkembangan penyakit barah, tropika dan mikro tempatan.

"Tidak dinafikan ia telah mengubah hidup saya kerana berada di ruang angkasa menjadi impian kepada semua orang," ujarnya ketika dihubungi baru-baru ini.

Dia menambah, kejayaan program tersebut telah membuka minda ma-

syarakat, khususnya kanak-kanak untuk mendalami bidang sains.

**Inspirasi**

"Kejayaan program angkasawan negara telah memberi inspirasi kepada generasi muda. Jika mereka mempunyai cita-cita untuk menjadi seperti saya, kejarlah impian tersebut sehingga tercapai. Saya juga seperti mereka, maka tiada halangan untuk mencapai impian tersebut," katanya.

Sheikh Muszaphar berkata, negara perlu memberi perhatian serius dalam bidang sains dan teknologi kerana ia memberi manfaat dalam jangka masa yang panjang.

"Seluruh dunia berlumba-lumba untuk menguasai sains dan teknologi melalui bidang tersebut, sebuah negara akan lebih maju," jelasnya.

Melalui Planetarium Negara juga telah mewujudkan program Mikrosatelit negara TiungSAT pada September 2000. Ia dilancarkan ke ruang angkasa lepas dari Baikonur, Kazakhstan.

Satelit itu membawa tiga misi iaitu penceraian bumi, uji kaji saintifik Cosmic-Ray Energy Disposition Experiment (CEDEX) dan juga aplikasi komunikasi. Satelit ketiga negara kini sedang dalam rangka pembinaan yang dinamakan RazakSAT-2.

Dalam usia dua dekad itu, Planetarium Negara terus kukuh sebagai pusat pengumpulan maklumat mengenai angkasa lepas.

Penubuhan Pusat Angkasa Negara di Banting dan Pusat Observatori Langkawi (ONL) di Langkawi, Kedah bakal merancakkan lagi perkembangan bidang sains angkasa dalam negara.



ROZILA

## Program mantapkan Planetarium Negara

PERANCANGAN awal negara untuk menceburi bidang angkasa dimulakan sejak tahun 1989. Ia dilakukan untuk melonjakkan kedudukan Malaysia yang sedang membangun dan sebagai perediaan kepada pembentukan sebuah negara maju.

Inisiatif itu diharap dapat meningkatkan kefahaman dan pada masa sama memberikan inspirasi kepada rakyat Malaysia dalam bidang sains negara.

Sehingga kini, Planetarium Negara terus memacu bidang sains angkasa dengan peningkatan mutu dan kualiti program agar terus selari dengan perkembangan semasa.

Menurut Ketua Pengarah Agensi Angkasa Malaysia (Angkasa), Dr. Noordin Ahmad, beberapa rancangan telah dirangka untuk memantapkan program di Planetarium Negara.

"Antaranya, menjalankan kerjasama dengan pihak Persatuan-Persatuan Astronomi Malaysia selain mengadakan bengkel-bengkel dan program-program pendidikan sains dan teknologi angkasa secara terbuka kepada orang ramai.

"Pada masa sama, pihak Angkasa akan terus giat menerbitkan artikel-ar-

tikel berkenaan sains dan teknologi angkasa di media massa," ujarnya.

Beliau menambah, program-program yang dianjurkan oleh Planetarium Negara telah menarik para pengunjung luar dan dalam negara.

Sehubungan dengan sambutan ulang tahun kali ke-20, Planetarium Negara menganjurkan program *Malaysia Space Odysseys: 20th Years with National Planetarium* bagi memberikan pendedahan kepada orang ramai mengenai sejarah dan kejayaan pusat maklumat angkasa lepas itu.

Orang ramai turut berpeluang untuk menyaksikan tayangan baharu, *We Are Astromers* di skrin berbentuk kubah yang telah dipertingkatkan dengan *Full Dome Digital Immersive System (FDS)*. Ia memberikan imej digital keseluruhan skrin dengan hanya menggunakan sebuah komputer.

Ia boleh disaksikan dengan bayaran RM6 untuk dewasa dan RM4 untuk kanak-kanak warganegara Malaysia. Pelancong dikenakan bayaran sebanyak RM12 (dewasa) dan RM8 (kanak-kanak).



DR. SHEIKH MUSZAPHAR berharap generasi muda mendalami menimba ilmu sains, sekali gus mengubah Malaysia ke arah negara maju.

# Nerve centre for scientists

By NATALIE HENG  
star2@thestar.com.my

**T**HE 20th floor of the giant arch-shaped Matrade Tower in Kuala Lumpur is a colourful place. Curved white bookshelves and glass partitions decorated with quirky quotes scribbled in felt-tip pen give visitors a sense of creative possibility. Magazine racks loaded with up-to-date copies of *Wired* and *Foreign Policy* foster a sense of connection to technology, politics and the world economy.

This is a hive of brilliant minds that have been trained to think scientifically. And of late, it has been diversifying – social science and economics graduates are joining its workforce of physicists, chemists and biologists. It's a baby step on behalf of the Academy of Sciences Malaysia (ASM), an indication that it is taking heed of an emerging paradigm shift, where the social and hard sciences are being encouraged to break out of their silos and work together.

Moving offices was Tan Sri Dr Ahmad Tajuddin Ali's idea. The nuclear technologist who just got elected into a second three-year term as president of ASM says it was about time for an upgrade from the bungalow they used to occupy across from the Public Works Department building in Padang Merbuk, Kuala Lumpur.

What they were lacking there was space. In the new headquarters, glass office doors and brightly coloured rooms with bean bags create a more dynamic work environment.

So, what is the academy exactly? In a nutshell, it is a body of researchers and analysts, says Dr Tajuddin.

They act as a nerve centre for the science community – coordinating workshops and networking opportunities, organising forums and, sometimes, visits by notable personalities – a case in point being the recent talks by Nobel laureate in chemistry Professor Lee Yuan Tseh of Taiwan, who dropped in in December.

More recently, the ASM has started to position itself as an advisor too.

A small army of analysts, or "horizon scanners", keep track of global trends in science and technology, and analyse what Malaysia needs to do to stay on track.

Dr Tajuddin says it is helpful to look at ASM as one huge resource: "We are the thinkers, and not necessarily the actual doers. The government agencies are the doers."

Dr Tajuddin says one of its objectives is to help others make more informed decisions.

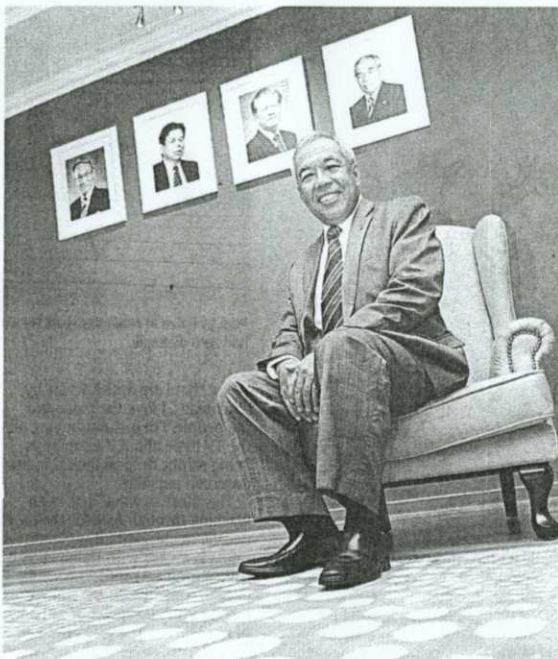
ASM provides the intelligence, making sense of science and technology in the context of trade and economics, and monitors the progress – or lack of it – on the domestic front.

It then comes up with comprehensive, fact-based reports and advisory studies, which are presented to the relevant authorities.

The idea is to be proactive, and this "horizon scanning" initiative is a first for Malaysia.

One of ASM's big-ticket items is a series of Mega Science studies which took a holistic look at specific sectors. Its Mega Science Framework study for sustained national development for 2010-2050 (or the Mega Science Agenda Malaysia 2050) was created to be a structured, practical

The Academy of Sciences Malaysia seeks to unite the science community.



**Creative thinking:** (Above) ASM president Tan Sri Dr Ahmad Tajuddin Ali decided that a move was in order. Glass doors, brightly coloured rooms, funky bookshelves and bean bags create a more dynamic work environment in the academy's new headquarters.

and sustainable model that transforms the business of science, technology and innovation.

The studies, some of which are still ongoing, assess how Malaysia is positioned in terms of its science and technology. Each sector is analysed in the context of upcoming trends within the next few decades, both worldwide and domestically, and then a set of expert recommendations is formulated. The projects have been in the pipeline for a while, mooted by ASM's previous president Tan Sri Yusof Basiron. Dr Tajuddin inherited the project, and has been driving it ever since.

"We have completed Part One – water, energy, health, agriculture and biodiversity," he says.

"Phase two will look at housing, transport, environment, infrastructure as well as electrical and electronics, and should be ready after May," he says.

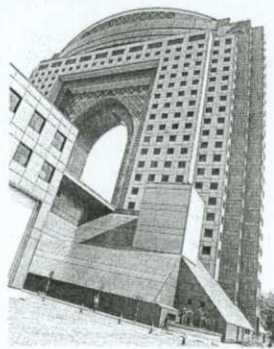
These are small but important steps to help Malaysia get on the right track.

## Challenges

Doing whatever is possible to cre-



Young scientists making use of Q&A time with Nobel laureate Prof Lee Yuan Tseh (inset), who was in Malaysia for the launch of ASM's upcoming Future Earth Forum. The Young Scientists Network allows those who are new or midway through their careers to get involved in the academy's work.



The Academy of Sciences Malaysia occupies a vibrant office on the 20th floor of the giant arch-shaped Matrade Tower. Dr Ahmad Tajuddin describes the academy as a body of researchers and analysts who act as a nerve centre for the science community.

ate a strong community of scientists is going to be very important in the coming years. As separate research institutions, universities, ministries, and policy specialists continue with their individual mandates, churning out reports, research papers and funding allocations – business as usual – ASM has made it its job to take a step back and see if the machine is actually working. Is it being oiled in the right places? Are newly formed institutes born of fresh new strategies doing what they are supposed to do? And more importantly, can they do it?

Its series of Mega Science studies complements a 2013 report by the National Science and Research Council, which indicates there is much to be done if Malaysia is to achieve its goals of becoming a developed nation by 2020.

The report, *Public Research Assets Performance Evaluation: Unlocking Vast Potentials, Fast Tracking The Future* took a critical look at Malaysia's science, technology and innovation (STI) ecosystem. Some of its key findings were that, despite enormous funding increases and new programmes designed to both

**SAMBUNGAN  
KERATAN AKHBAR  
THE STAR (SCIENCE): MUKA SURAT 11  
TARIKH: 05 MAC 2014 (RABU)**

At the same time, effective policies and programmes to overcome these core problems that prevent productive partnerships between business and researchers are lacking.

These are but a few of the challenges highlighted in the study which was published early last year, through a mandate from the Prime Minister under the Global Science Advisory Council.

And there are many more problems – relating to human capital, policy direction, availability of support staff as well as infrastructure management issues.

### **A stronger community**

Many of the solutions related to the challenges above will have to be driven by a top-down approach. That's not to say ASM is not in a position to make valuable contributions.

The Mega Science studies are one example of how it can help shape national strategies in terms of how we use science and technology to innovate. It also contributed to the Science and Technology Human Capital Roadmap 2020 that was published just this year.

The report was a response to a statement issued by the National Science and Research Council that Malaysia will need 500,000 science and technology professionals if it is to have any chance of attaining developed-nation status by 2020. ASM helped contribute to that report, which was circulated internally within government agencies, and has since been taken into account in the drafting of new policies.

Aside from its advisory capacities, however, ASM's greatest value lies in its ability to act as a platform for building a strong, healthy network of scientists who know, talk to and collaborate with each other.

In addition to a core staff of 60, ASM has a network of over 230 fellows, accomplished scientists from a wide range of fields.

"Our fellows are our greatest assets, because they represent a huge resource of brain power on everything from nuclear power to chemical engineering, from nano-

science to molecular biology," says Dr Tajuddin.

ASM has also been making an effort to introduce its fellows to the public. Inspired by the Sketches of Science exhibition at Galeri Petronas last year which featured photographic portraits of Nobel laureates and their sketches, ASM did its own Malaysian spin-off, Faces of Science, and then posted a series of videos on YouTube featuring interviews with 21 of its own fellows.

Granted, some of the videos could do with a little editing, but the effort to make the scientific community more accessible is there.

Of course, no community is complete without young blood. The average age of an ASM fellow is 61, which happens to be roughly the age by which someone would have racked up the kind of achievements needed to qualify for the fellowship. But Dr Tajuddin conceived a way for young scientists – fresh or midway through their careers – to get active with ASM too: the Young Scientists Network.

Syahrilnizam Abdullah, 41, an associate professor who heads the Clinical Genetics Unit at Universiti Putra Malaysia, says it's been a great way to expand the community.

"Previously, you would hardly see a young scientists at events or meetings, or giving ideas at policy level, but now there are more avenues for us to give our input," he says.

And if the long-gestating plan to establish an Academy of Social Sciences and Humanities alongside ASM finally comes to fruition, it will mean an even bigger pool of scientists, both from the social and hard sciences, ready to mix and mingle through ASM and Young Scientist Network events.

As soon as that happens, network chairman Mohd Basyaruddin Abdul Rahman – a professor of Chemistry at Universiti Putra Malaysia – says they, too, will take on social scientists, perhaps in the form of affiliate memberships.

How Malaysia overcomes the challenge of developing its knowledge economy and powers through its drive to developed-nation status remain to be seen, but a vibrant and lively community of local scientists is definitely going to play an important part.

build research and development (R&D) capabilities and commercialise new technologies over the years, return on investment has not been up to par.

At the heart of the problem is the lack of a coordinating body to better manage, monitor and evaluate the nation's R&D investments.

Right now different research universities and institutes – sometimes subjected to overlapping and even conflicting directions from different ministries – often end up competing for resources, influence and control over specific research areas.

Another major problem is the disconnect between private industry and public research institutions. Research conducted by the latter tends not to be market driven.

At the same time companies, especially small and medium enterprises, tend to be happy with the status quo and spend little on R&D, while exhibiting a low rate of innovation.

The general attitude seems to be that companies expect "ready-made" technologies from government-funded research institutions, without having to bear any huge costs themselves.



KERATAN AKHBAR  
KOSMO (NEGARA) : MUKA SURAT 13  
TARIKH : 05 MAC 2014 (RABU)

Tumpuan utama di kawasan selatan Semenanjung, kawasan tadahan air

# Pembenihan awan diteruskan

## KUALA LUMPUR

- Operasi pembenihan awan diteruskan semalam dengan tumpuan lokasi di kawasan selatan Semenanjung, kata Pengarah Bahagian Sains Atmosfera dan Pembenihan Awan Jabatan Meteorologi, Azhar Ishak (gambar kecil).

Menurutnya, tumpuan masih diberi kepada kawasan tadahan air dan empangan yang dilaporkan surut akibat cuaca panas dan kering yang membawa kepada catuan bekalan air di sekitar Lembah Klang.



## Pembenihan awan berjaya



KERATAN Kosmo! semalam.

"Kami akan tunggu sehingga kira-kira pukul 1 tengah hari hingga 2 petang ini (semalam) dan berpandukan kepada gambar radar untuk melihat kawasan yang terdapat pembentukan tompokan awan yang sesuai.

"Kemudian, barulah kami lakukan pembenihan awan," katanya kepada *Bernamea* semalam.

Menurut Azhar, setiap operasi mengambil masa kira-kira dua hingga tiga jam dengan kos sekitar RM80,000.

Tambah beliau, sekiranya keadaan atmosfera tidak stabil, pembentukan awan akan terjadi lebih cepat.

"Sekiranya perkara itu berlaku di kawasan empangan, pihak kami akan cuba membantu mempercepatkan proses itu (pembenihan awan) supaya hujan turun di kawasan berkenaan," katanya.

Beliau berkata, maklumat tentang bacaan hujan susulan pembenihan awan yang dibuat kelmarin telah diperolehi dan sedang diproses.

Ibu negara mengalami hujan seketika pagi semalam ketika warga kota memulakan rutin harian dalam suasana berjerebu.

Menurut Azhar, hujan pagi semalam merupakan 'baki' daripada aktiviti pembenihan awan kelmarin.

Dlm Negeri

**KERATAN AKHBAR**  
**UTUSAN MALAYSIA (DALAM NEGERI): MUKA SURAT 7**  
**TARIKH: 05 MAC 2014 (RABU)**

# Pembenihan awan diteruskan

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**KUALA LUMPUR** 4 Mac - Operasi pembenihan awan akan diteruskan sehingga pertengahan bulan ini di beberapa lokasi di seluruh negara dengan memberi tumpuan khas diberikan kepada kawasan tadahan air dan empangan yang menghadapi masalah simpanan air kritikal.

Pengarah Bahagian Sains Atmosfera dan Pembenihan Awan Jabatan Meteorologi, Azhar Ishak berkata, pihaknya menjangkakan se-

lepas tempoh tersebut, hujan akan turun secara semula jadi.

"Malah selepas tempoh itu, jabatan meramalkan akan berlaku peralihan Monsun iaitu perubahan Monsun Timur Laut ke Monsun Barat Daya pada akhir Mac atau April.

"Bagaimanapun pihak jabatan akan terus memantau keadaan cuaca dan awan dari semasa ke semasa bagi menentukan kesesuaian sebelum menjalankan operasi.

"Tumpuan akan diberikan di kawasan berdekatan dengan empangan atau loji tadahan air yang yang dilaporkan surut," katanya ketika dihubungi *Utusan Malaysia* di sini

hari ini.

Jabatan itu semalam berjaya menjalankan operasi pembenihan awan apabila hujan turun di sekitar Kuala Lumpur dan Selangor.

Timbalan Menteri Sains, Teknologi dan Inovasi, Datuk Dr. Abu Bakar Mohamad Diah berkata, hasil pemantauan pihaknya mendapati hujan berlaku di kawasan operasi pembenihan awan seperti di Hulu Langat, Kuala Kubu Bharu, Hulu Klang dan Semenyih.

Menurut beliau, pihaknya juga mendapati hujan bukan sahaja di kawasan operasi tetapi turut meliputi kawasan sekitar Su-

bang dan Rawang.

Azhar berkata, keadaan atmosfera yang tidak stabil, awan 'towering cumulus' sudah terbentuk serta kandungan wap air yang banyak di kawasan itu amat penting untuk memastikan operasi pembenihan awan itu berjaya.

"Pihak kami hanya boleh menjalankan operasi ini pembenihan awan jika peluang untuk hujan berlaku berada pada tahap 80 hingga 100 peratus," katanya.

Dalam pada itu, Azhar berkata, pihaknya mendapati pembentukan awan 'towering cumulus' yang banyak pada operasi pembenihan

awan yang dijalankan hari ini di Melaka dan Negeri Sembilan.

"Pihak kami dapati hujan berlaku di bandar Seremban sekitar pukul 4.30 sehingga 5.30 petang, namun tiada di Melaka walaupun terdapat pembentukan awan *towering cumulus* yang banyak. Malah di Hulu Klang hujan turun pada pukul 4.40 petang meskipun kurang awan," katanya.

Katanya, proses pembenihan awan berkenaan yang telah bermula semalam di Selangor diikuti dengan kawasan selatan Semenanjung iaitu Melaka dan Negeri Sembilan hari ini, akan diteruskan dengan negeri lain jika perlu.



## Operasi Pembenihan Awan Diteruskan, Tumpuan Di Selatan

KUALA LUMPUR, 4 Mac (Bernama) -- Operasi pembenihan awan diteruskan hari ini dengan tumpuan lokasi di kawasan selatan Semenanjung, kata **Pengarah Bahagian Sains Atmosfera dan Pembenihan Awan Jabatan Meteorologi (JMM) Azhar Ishak.**

Menurutnya, tumpuan masih diberi kepada kawasan tadahan air dan empangan yang dilaporkan surut akibat cuaca panas dan kering sejak akhir-akhir ini yang membawa kepada catuan bekalan air di sekitar Lembah Klang.

"Kami akan tunggu sehingga kira-kira pukul 1 tengah hari hingga 2 petang ini dan berpandukan kepada gambar radar untuk melihat kawasan yang terdapat pembentukan tompokan awan yang sesuai.

"Kemudian, barulah kami lakukan pembenihan itu," katanya kepada Bernama pada Selasa.

Menurutnya, setiap operasi mengambil masa kira-kira dua hingga tiga jam dengan kos sekitar RM80,000.

Mengulas lanjut, Azhar berkata sekiranya keadaan atmosfera tidak stabil, pembentukan awan akan terjadi lebih cepat.

"...dan sekiranya ini berlaku di kawasan empangan, pihak kami akan cuba membantu mempercepatkan proses itu (dengan melakukan pembenihan awan) supaya hujan turun di kawasan berkenaan," katanya.

Beliau berkata maklumat tentang bacaan hujan susulan operasi pembenihan awan yang dibuat semalam telah diperoleh dan sedang diproses.

Ibu negara mengalami hujan sekejap pagi ini ketika warga kota memulakan rutin harian dalam suasana berjerebu.

Menurut Azhar, hujan pagi ini merupakan 'baki' daripada aktiviti pembenihan awan semalam.

Pembakaran terbuka dan cuaca panas dilapor menyumbang kepada keadaan jerebu yang melanda beberapa lokasi di negara ini.

Menurut laman web Jabatan Alam Sekitar, bacaan Indeks Pencemaran Udara tidak sihat dicatat setakat 10 pagi ini di kawasan Banting, Kuala Selangor, Pelabuhan Klang, Petaling Jaya dan Shah Alam di Selangor; Batu Muda di sini; dan Nilai di Negeri Sembilan.

# Local fires causing poor air quality

Don't blame Riau as wind not blowing in our direction, says minister

By AMANDA MURTHY  
and IDA NADIRAH  
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OPEN and forest fires in peninsular Malaysia have caused the rise in poor air quality in the country.

Natural Resources and Environment Minister Datuk Seri G. Palanivel said several areas recorded unhealthy air pollutant index (API) readings yesterday.

"The dry and hot weather is causing dust particles to linger, which makes it hazy," he said in a statement.

Palanivel said the states experiencing open fires included Selangor, Perak, Johor, Kedah, Kelantan and Terengganu.

He said the haze from forest fires in Riau was unlikely to reach Malaysia as the wind blowing from Indonesia was not directed towards Malaysia.

Selangor was still faced with poor air quality with more areas recording unhealthy API readings.

Checks by *The Malay Mail* showed eight areas — Batu Muda, Putrajaya, Shah Alam, Petaling Jaya, Port Klang, Kua-

la Selangor, Banting and Nilai — recording unhealthy readings ranging from 101 to 130.

The Meteorological Department (MET) and the Royal Malaysian Air Force successfully conducted their second cloud seeding activity in several areas in Selangor at 3pm yesterday.

A department spokesman said the one-hour cloud seeding was carried out following the success of the exercise on Monday. However, the downpour which took place in the morning was not part of the cloud seeding.

"It rained naturally between 10am and 11am from northern Perak up to the central part of

Selangor," he said.

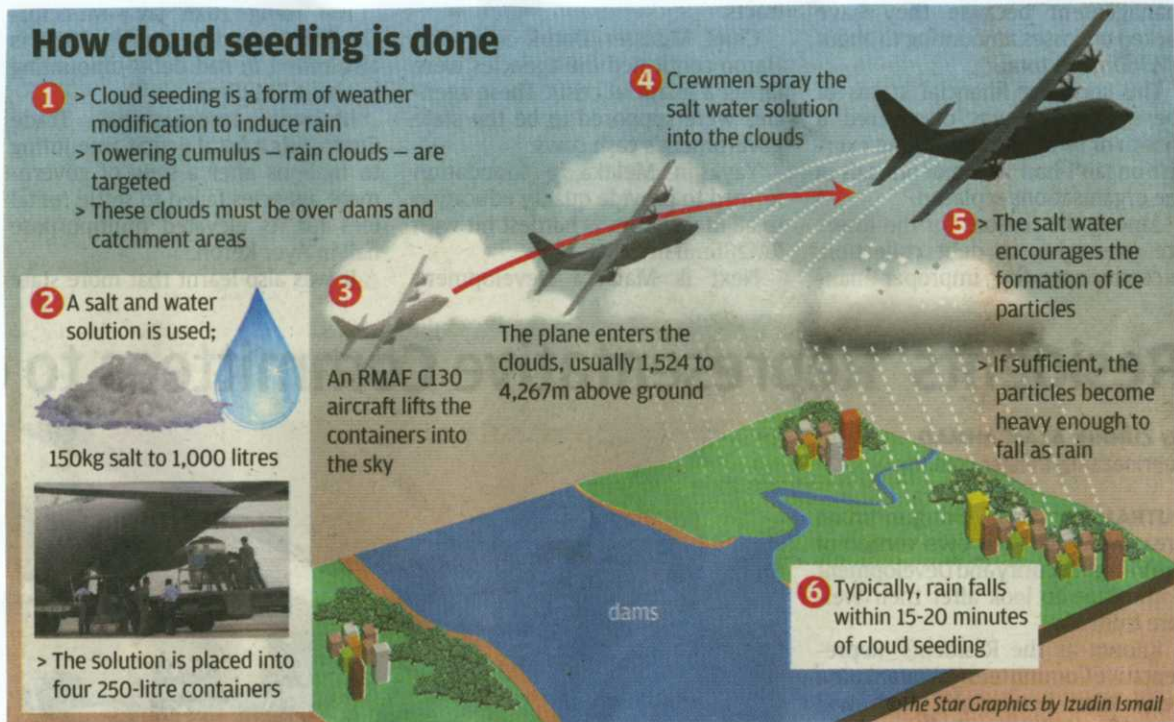
"The department had planned to carry out cloud seeding in Johor and Negri Sembilan as well but they had to be cancelled because of the absence of cloud patches in the two states."

The spokesman said although weather conditions were not improving, visibility levels had improved in a few areas yesterday.

"The visibility readings in Kuala Lumpur and Petaling Jaya increased compared to Monday. The readings in Petaling Jaya yesterday evening stood at 5km, Subang Jaya 8km and Putrajaya at 6km," he said.

# Rain relief for Klang Valley folks soon

Cloud seeding and change in wind patterns should improve dry spell, say MMD



**PETALING JAYA:** Klang Valley folks will not have to wait too long to get some relief from the prolonged dry spell as there should be changes in wind patterns soon, said the Malaysian Meteorological Department (MMD).

MMD's national weather centre director Muhammad Helmi Abdullah said rain was expected to occur gradually following the change from the north-eastern monsoon towards the inter-monsoon season over the next two weeks.

"It is difficult to predict when the next showers will occur, but by mid-March, do expect more showers and thunderstorms," he said yesterday.

Despite that, Muhammad Helmi said cloud seeding operations would continue over water catchment areas serving dams.

"At the moment, our primary focus is to increase water levels in these areas, although the rain does help with reducing the haze as well,"

he said.

Muhammad Helmi added that unless the haze reached critical levels, there would not be any cloud seeding just to fight haze.

"While rain does help to reduce the haze by breaking up the suspended aerosols in the air, it is not a long-term solution," he said in alluding to the fact that sources of particulate matter must be tackled in order to bring about clean air.

Muhammad Helmi said Monday afternoon's cloud seeding operation was a success because it brought rain in several areas, though their effect on water levels in dams cannot yet be ascertained.

Elsewhere, a round of cloud seeding was also conducted at 2.45pm yesterday at the southern part of the peninsula, said MMD's director of atmospheric science and cloud seeding division Azhar Ishak.

He added that each operation would take about two to three hours at a cost of about RM80,000.

# Minimal increase in water levels in 2 dams

**SECOND ROUND:**  
Yesterday's cloud seeding successful only in Seremban

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**T**HE Semenyih and Klang Gates dams showed improved water levels with increases of 0.16m and 0.01m.

Drainage and Irrigation Department's Water Resources and Hydrology division director Datuk Hanapi Mohamad Noor said while the cloud seeding conducted by the Meteorological Department had proven successful, the increase in water levels in the dams was still minimal.

"We hope cloud seeding in the future will take place in catchment areas so that we can mitigate the decreasing water levels at dams quickly."

The water level at Klang Gates Dam was recorded at 89.88m, about 4m under the normal level, on Monday.

The dry spell has caused water levels at 20 dams and 21 rivers nationwide to dip between 0.3 and 1m since Feb 15.

The second round of cloud seeding, which focused on the southern part of the peninsula, was con-



The rain fell hard in Bangsar, Kuala Lumpur, yesterday, much to the delight of many. Pic by Aizuddin Saad



**DRY SPELL**

ducted yesterday. Meteorological Department (MMD) Atmospheric Science and Cloud Seeding Division director Azhar Ishak said the operation focused on increasing water levels in water catchment areas.

He said 10 MMD and Royal Malaysian Air Force (RMAF) personnel departed from the RMAF base in Subang at 3pm in a C-130 Hercules plane bearing four con-

tainers of liquid sodium chloride (salt) solution.

The operation which took an hour, began at 3.40pm in Malacca, covering Alor Gajah and Durian Tunggal.

It then concentrated on four areas in Negri Sembilan (Tampin, Rembau, Seremban and Semenyih) followed by the Klang-Gates Dam in Hulu Kelang.

"Two-and-a-half tanks of salt solution were used in Malacca and

Negri Sembilan, while the remaining 1½ tanks in Hulu Kelang," he said.

However, Azhar said the cloud seeding was successful only in Seremban, where rain was reported from 4.30pm to 5.40pm.

More cloud-seeding flights are expected in Selangor, Negri Sembilan, Malacca and Johor in the coming days. Additional reporting by Tharanya Arumugam and Mastura Yusoff

# Hello, **BLUE SKIES?**

IF the forecast by the Malaysian Meteorological Department is anything to go by, the choking haze will dissipate drastically today. The source of the relief is expected to come in the form of a northeasterly wind blowing from the South China Sea at over 20 knots. The prolonged dry spell, coupled with near-zero wind conditions and peat fires throughout the country, had blanketed most parts of the peninsula in thick smog since last month. As a contingency, the Education Ministry has given the green light to schools to close if the Air Pollutant Index hits the 200-point mark.

PRIME NEWS



# Skies may clear today

**BRIEF RESPITE:**  
 Met Dept expects haze to return in May when wind blows towards peninsula

**THARANYA ARUMUGAM**  
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**T**HE haze is expected to clear up from today, thanks to favourable winds.

The Malaysian Meteorological Department (MMD) is predicting a build-up of northeasterly winds from the South China Sea, which will blow the haze away from the peninsula towards Indonesia.

MMD director-general Datuk Che Gayah Ismail said strong winds of up to 20 knots had been forecasted and this would help disperse haze particles enveloping the west coast of the peninsula and the central region.

Prior to this, the prolonged dry spell, coupled with almost zero wind and peat fires, had contributed to a build-up of haze.

However, proactive measures, especially ongoing cloud-seeding, which resulted in rain in several areas, led to improved Air Pollutant Index (API) readings and better visibility.

Among the areas that saw rain yesterday were the federal territories of Kuala Lumpur and Putrajaya; Kajang, Klang, Port Klang, Shah Alam, Subang Jaya, Petaling Jaya, Batang Berjuntai, Puchong, Sungai Buloh, Sabak Bernam, and Kuala Selangor in Selangor; and, Tanjung Malim in Perak.

At 5pm yesterday, only four areas recorded unhealthy API readings, compared with seven on Monday. The four are Nilai and Banting (both 114), Petaling Jaya (101), and Batu Muda (104).

All the areas recorded an improved API reading at 5pm, compared with their 1pm readings of 110, 129, 121 and 115, respectively.

Port Klang, which recorded the

highest Monday API reading of 131, saw the index drop to 95 (moderate) yesterday.

The air quality in other areas that approached unhealthy levels were Shah Alam (96), Port Klang (95), Seremban (94) and Muar (90).

A reading of 0 to 50 is categorised as good, 51 to 100 is moderate, 101 to 200 is unhealthy, 201 to 300 is very unhealthy and 300 and above is hazardous.

MMD commercial and corporate services division director Dr Mohd Hisham Mohd Anip said the expected heavy rain during the inter-monsoon season from mid-March to early May would put an end to the hot and dry spell.

The rain was also expected to help douse peat fires that had been reported since the dry spell started earlier this year.

Hisham said MMD forecast rain intensity to increase from the middle of this month with the heaviest rainfall expected next month.

But the bad news is that the haze could return when the winds shift direction in May.

"This is when the southwesterly winds start blowing from Sumatra towards the peninsula, bringing with it the annual smoke and haze.

"If there is open burning there (Sumatra) again this year, then Malaysians can expect the haze to return from May onwards.

"This second wave of haze is inevitable. We are constantly monitoring the wind direction and will issue alerts if the haze occurs again."

Asked if the forecasted showers from the middle of this month would end the water crisis in dams, Hisham said it would depend on the amount of rainfall.

"The decrease in water levels in the dams has been huge.

"Therefore, it all depends on how much rain we get when the monsoon starts," he said, adding that no one had expected a prolonged dry spell in the country.

The dry spell had resulted in the authorities imposing water rationing, with water supply being two days on, two days off in certain areas in Selangor and the Klang Valley.

The rationing is expected to last until the end of this month.



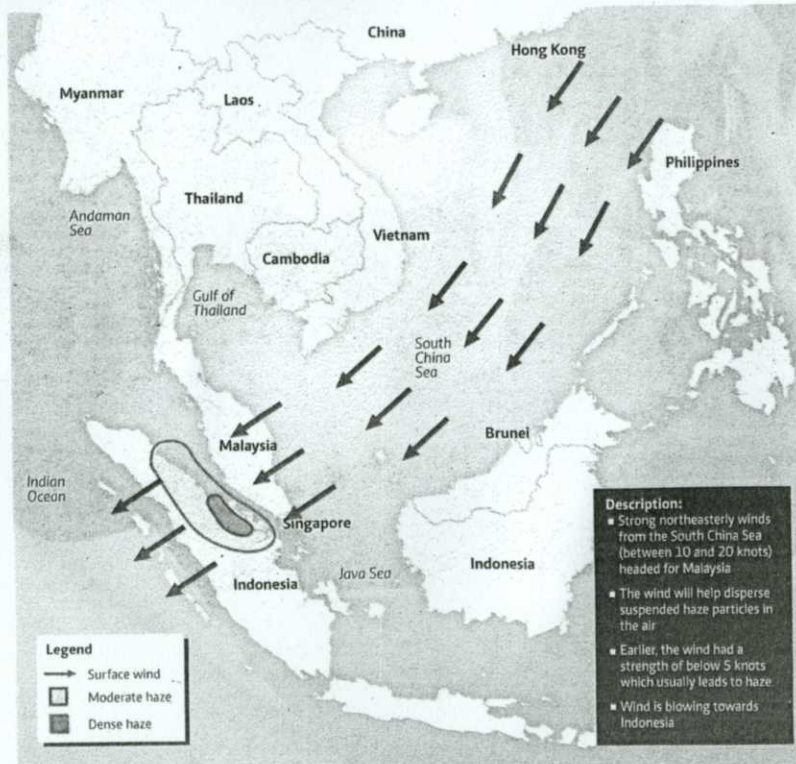
DRY SPELL



Fire and Rescue Department personnel putting out a peat fire in Sungai Endau in Rompin, Pahang. Pic by Ikhwan Muhammad

## Path of northeasterly winds

INFOGRAPHIC: NST



Source: Malaysian Meteorological Department (MMD)/Image source: Meteorological Service Singapore



**KERATAN AKHBAR**  
**BERITA HARIAN (RENCANA) : MUKA SURAT 26**  
**TARIKH : 05 MAC 2014 (RABU)**

**Minda Pengarang**

## Ubah sikap atasi krisis air, jerebu

Sejak awal tahun ini, negara mengalami keadaan cuaca yang tidak menentu. Pada pertengahan Januari, kita mengalami cuaca agak dingin dengan Jabatan Meteorologi merekodkan purata suhu minimum di kawasan pamah antara 19 hingga 24 darjah Celsius. Malah di Kuala Krai, Kelantan, suhunya serendah 17 darjah Celsius, sementara di Cameron Highlands sehingga 12 darjah Celsius. Ia dikatakan berpunca daripada tempas cuaca sejuk melampau dari negara di Hemisfera Utara yang dibawa tiupan Monsun Timur Laut. Angin monsun itu membawa suhu dingin dari China, Russia, Jepun, Kazakhstan dan Korea Selatan yang ketika itu menempuh musim sejuk di bawah bacaan suhu terendah sehingga lima darjah Celsius. Selepas cuaca dingin itu berlalu, negara dilanda masalah panas dengan bacaan suhu purata antara 34 hingga 36 darjah Celsius. Mengikut Jabatan Meteorologi, suhu panas itu berlaku kerana negara berada pada penghujung Monsun Timur Laut. Dalam kedua-dua keadaan itu, kita juga berdepan masalah kekeringan kerana kekurangan hujan. Ini kemudian mencetuskan pula masalah bekalan air apabila paras kebanyakan ampungan tadahan air di seluruh negara mulai merosot. Masalah paling teruk adalah di Selangor sehingga beberapa kawasannya terpaksa dicatu bekalan air sehingga beberapa minggu, apabila keadaan diburukkan lagi oleh pencemaran amonia.

Keadaan cuaca yang panas dan kering itu menyebabkan kes kebakaran terbuka meningkat. Mengikut Jabatan Bomba dan Penyelamat, sejak Sabtu lalu ia menerima lebih 500 laporan kes kebakaran terbuka di seluruh negara memabitkan hutan, belukar dan tanah gambut. Berikutan itu, negara berdepan pula dengan masalah lain iaitu jerebu. Walaupun hujan lebat turun di beberapa kawasan dua hari kebelakangan ini, setakat jam 5 petang semalam, tujuh kawasan kebanyakannya di sekitar Lembah Klang mencatatkan bacaan Indeks Pencemaran Udara (IPU) tidak sihat, sementara 26 kawasan pula merekodkan bacaan sederhana. Ketika berdepan masalah air dan jerebu, semua harus memainkan peranan. Bagi masalah air, berjimat perlu dijadikan amalan kita. Masalah air ini akan berlarutan jika kita terus mengamalkan pembaziran kerana sumbernya terhad sementara penduduk negara pula semakin meningkat. Kita juga mesti mengelak daripada menyumbang kepada masalah jerebu seperti tidak melakukan pembakaran secara terbuka atau mengurangkan perjalanan berkereta yang tidak perlu bagi mengurangkan pelepasan asap. Kita perlu ingat bahawa air dan udara bersih adalah dua elemen penting dalam kehidupan manusia.

## KSU enggan kerjasama laksana SPA ditegur

**Kuala Lumpur:** Ketua Setiausaha (KSU) Kementerian yang gagal memberi perhatian serius terhadap cadangan pelaksanaan Sistem Perakaunan Akruan (SPA) bagi menggantikan sistem perakaunan tunai ubah suai bermula Januari tahun depan, ditegur.

Pengerusi Jawatankuasa Kira-Kira Wang Negara (PAC), Datuk Nur Jazlan Mohamed, berkata maklumat yang diterima daripada Jabatan Akauntan Negara menunjukkan ada KSU yang enggan memberikan kerjasama dalam seminar yang diadakan sehingga menyukarkan jabatan memberikan penerangan terperinci mengenainya.

Mengakui SPA adalah sistem

perakaunan kompleks, beliau berkata PAC bertanggungjawab memantau pelaksanaannya di peringkat Kerajaan Persekutuan yang akan bermula 1 Januari tahun depan, manakala kerajaan negeri setahun kemudian.

"PAC akan memastikan program latihan dan penerangan mengenai pelaksanaan SPA akan dapat dilaksanakan di setiap kementerian dengan kerjasama semua KSU.

"Oleh itu, KSU diharap memahami pelaksanaan sistem baru ini dan memberikan kerjasama kepada Jabatan Akauntan Negara dalam melaksanakan SPA," katanya pada sidang media di Parlimen semalam.

Terdahulu berlangsung mesyuarat antara PAC, Jabatan Akauntan Negara dan pakar SPA Tabung Kewangan Antarabangsa (IMF), Dr Wayne Bartlett yang membincangkan sistem berkenaan menerusi pengalaman di beberapa negara lain.

Sehingga kini 12 negara maju dan membangun termasuk Amerika Syarikat, United Kingdom, Australia, New Zealand, Switzerland, Afrika Selatan dan Kanada sudah melaksanakan SPA yang mengiktiraf dan merekod urusan niaga apabila tunai diterima atau dibayar dalam tempoh perakaunan itu dengan New Zealand menjadi negara perintis sejak 1995.