

KERATAN AKHBAR-AKHBAR TEMPATAN
TARIKH: 12 JANUARI 2014 (AHAD)

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Are our fish safe to eat?

CAUTION: Three years after an earthquake left Japan with a nuclear plant leaking radioactive material into the Pacific Ocean, people living in countries around the region continue to worry over whether their fish is safe to eat. The authorities are closely monitoring all food items that are coming in from Japan, as concerns around the world continue to escalate over the safety of its food products. Tan Choe Choe and Arman Ahmad take a look at the issue

IN the last few months, fish radiation fears spread across South Korea, prompting its government to issue a statement assuring the populace that fish is safe to eat.

Taiwanese officials have issued a similar statement to their populace.

Newspapers in the Philippines are talking about the possibility of "radioactive tuna".

Rumours of radioactive fish have spread to places as far as Hawaii, prompting experts from the University of Hawaii to reassure people that it's safe to eat fish.

But is it really safe? What measures are in place to ensure the public does not unwittingly eat radioactive fish in Malaysia?

The Malaysian Nuclear Agency says measures have been put in place to monitor whether radiation from the Fukushima disaster area has reached our shores.

Malaysia is part of the International Atomic Energy Agency's (IAEA) Regional Co-operative Agreement for Research, Development and Training Related to Nuclear Science and Technology for Asia and the Pacific efforts to monitor Fukushima from 2011 to 2015. Fifteen countries are taking part in the initiative.

Its aim is to monitor whether radioactivity reaches Malaysian shores.

Radiochemistry and environment manager at the waste and environment technology division of the Malaysian Nuclear Agency (MNA) Dr Abdul Kadir Ishak said they were on the lookout for three types of elements — cesium 134, cesium 137 and iodine 131.

"Cesium 134 and iodine 131 have short half-lives. However, cesium 137's half-life is 30 years.



Dr Abdul Kadir Ishak says there is little to worry about

"This is why there is concern that it could contaminate other areas. For this reason, sea water is constantly monitored."

Kadir said the project would go on for a few years.

"It's a regional project. However, up to today, there has been no increase in the readings."

He said the agency had a baseline reading from 2003 for the country's entire coast.

"We started gathering baseline readings for a database as we were asked to by the Atomic Energy Licensing Board. In 2003, the AELB wanted to know the natural radioactivity present."

There are five stations throughout the country and samples are taken twice a year. The stations are located on the islands of Tioman, Perhentian, Bakungan Kecil and Karimun, as well as Bintulu Port.

Kadir said up until October last year, the readings were normal, adding that whatever cesium 137 was found was there as a result of fallout.

"These are the remnants of above-ground nuclear testing from around the world. In the Asia-Pacific region, it is around 1 or 2 Becquerel per metre cube of sea water."

Kadir said if the reading was

higher than that, then there was new input from "some other activity", perhaps via an accident or discharge.

"Nuclear submarines, for example, could ply our waters without us knowing. These submarines might leak or release waste."

In the wake of the Fukushima disaster, the IAEA did modelling to find out where sea currents would take the radionuclides. Based on the model, the order in which it spread would see it heading west towards the California shore, said Kadir.

"By the time it reaches our shores, which will take many more years, it will be very diluted."

For the public, there is very little to worry about, as food coming from Japan is continuously tested.

"The Health Ministry sent food samples in the first year the incident happened. They imposed level 5 import controls, where the food consignment is held until tests are done," said Kadir.

Food samples reach Malaysia in the morning for testing. By the afternoon, after being tested, they are released.

The level 5 import controls were imposed between March and April 2011.

Samples were analysed using gamma spectrometry. The samples were taken from airports, seaports and land borders.

According to the MNA, airborne radioactivity could be deposited on the ground or washed out with rain. Vegetation and soil could also be contaminated. The deposited radioactive materials could also be attached to leaves, which later transfers to plants by foliar uptake.

The plants then transfer radioactivity to animal meat. Lactating animals produce radioactive milk. In the sea, there are a number of ways in which radioactive particles could be spread, including direct

release of contaminated water into the sea, the conveyance of airborne pollutants into rivers and seas and fallout in the sea from radioactive plumes.

Research officer and laboratory technical manager for radiochemistry and environment laboratory at MNA Yil Mei Wo said there were controls in place to ensure food was monitored for contamination.

"Recently, the highest radioactivity level recorded was a fish from the greenling family of fishes, recording 740,000 Becquerel per kg.

"Japanese authorities have put the safe limit at 100 Becquerel per kg of iodine and 1000 Becquerel per kg of cesium 137."

In Malaysia, in early 2011, the highest readings seen did not exceed 12 Becquerel per kg. "Only a few samples were contaminated, and even then they were nowhere near the minimum safety limit."

Kadir said in addition to testing

at ports, the agency also took live fish from local waters to be tested.

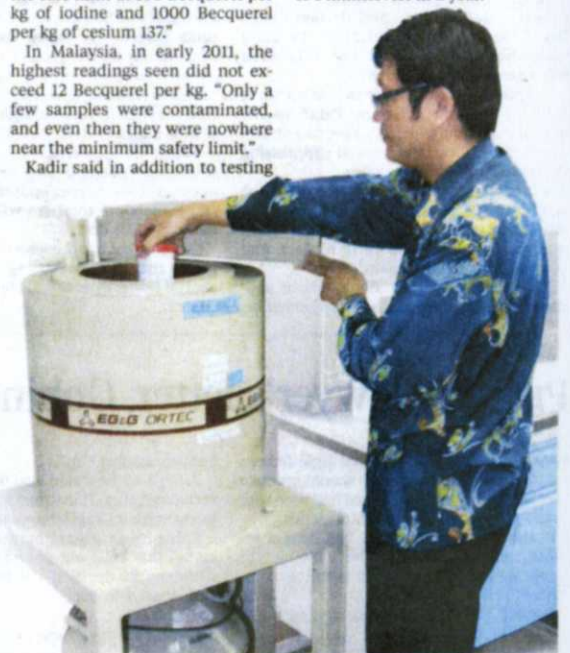
"We collected fish from Sabah and the peninsula and none of them was contaminated."

Among the species tested include ikan kembung, rays, squid and prawn. The food is analysed, first by drying it, then tested for radioactivity.

The increase of radioactive nuclides in the body raises the risk of cancer, said Yil. The more exposure that you are exposed to, the higher the risk.

Nuclear workers at MNA, for example, have a limit of 20 millisievert of exposure in a year.

"Meanwhile, civilians are limited to 1 millisievert in a year."



Yil Mei Wo says there are controls in place to ensure food was monitored for contamination

Moulding a Malaysian laureate of global stature

In 1998, then Prime Minister Tun Dr Mahathir Mohamad threw the gauntlet to the Malaysian scientific community to strive for scientific excellence and produce a Nobel Laureate by 2020. With six years to go, are we on track to meet the challenge?

Stories and photos by
CHRISTINA CHIN
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AIMING to be a Nobel winner calls for a lot of patience and perseverance.

It is another form of entrepreneurship where not unlike the business entrepreneur, you must be willing to take risks and you must be ready to fail. Academy of Sciences Malaysia (ASM) chief executive officer Dr Ahmad Ibrahim explained.

He added that while we have some scientific talents, many have left to work overseas where the research environment is more conducive, especially in basic and fundamental research.

"We tend to give more emphasis to applied research here because of the urgency to create wealth from science rather than to really contribute towards the advancement of scientific knowledge," he said.

"This will change as the country moves towards a developed country status. By then we should be able to fund more long-term basic science than the short-term science just to create wealth."

Welcoming former premier Tun Dr Mahathir Mohamad's challenge for the nation to produce a Nobel winner by 2020, Dr Ahmad pointed out that realistically, we have less than seven years to make it.

Setting the mark

"So far we have not seen any promising Nobel research but at least by setting the challenge, scientists have been alerted to their mission," he said.

"This is a good start. If we look at past winners of the Nobel prize, all took many years of scientific research before they eventually made the kind of breakthrough deserving of such a prestigious award."

"With the exposure to Nobel meetings that the academy has been



Imagine this: Goggles that show you what it feels like to have various visual impairments at the Tom Tits Experiment.

sponsoring, scientists will hopefully continue to harbour the ambition and dream to strive for the award," he added.

The ASM also organises the annual National Science Challenge (NSC) - a much anticipated event among students.

The NSC is meant to cultivate a culture of competition among science students.

The competition was based on a quiz format. But last year, a week-long hands-on competition in a research laboratory setting at a local university was introduced at the semi final stage.

The reward which was won by three fifth formers from Kolej

Yayasan Saad Melaka, was a trip to witness the Nobel Prize giving ceremony in Stockholm, Sweden as well visits to the Nobel Museum and some science centres in the country.

"The idea of the reward is to make the NSC as prestigious as possible and to fire up the interest in science among students. We want to inspire them to pursue science as a profession and aspire to one day be a Nobel Laureate," said Dr Ahmad.

Apart from the NSC, the academy has sent young scientists to the Lindau programme in Germany which also brings together many Nobel Laureates.

It has also brought a number of Nobel winners to Malaysia to give

presentations and talks to young scientists here.

The Nobel recognition is often bestowed upon scientists who contribute to the advancement of scientific knowledge.

Malaysia must continue to expose our young scientists to the research culture of Nobel winners while simultaneously creating a motivating eco-system for the conduct of basic and fundamental research, he stressed, as Nobel prizes are given for breakthroughs made in the frontier science.

Prof Dr Yang Farina Abdul Aziz, who is a Fellow of the ASM and Malaysian Institute of Chemistry, said Malaysians already have the



Mind games: (clockwise) Muhammad Ha museum was one of the science centres it



Prof Yang Farina says that Malaysia needs a strong research eco-system if it wants to produce Nobel Laureates.

right mindset and capability to produce Nobel Laureate-worthy research but still lack the necessary eco-system to pull it off.

"Facilities, equipment and a large team of post doctorate students to assist are crucial to support Nobel-type studies."

"We need to work towards creating a strong research eco-system if we want to realise the dream of producing a Nobel Laureate," said Prof Yang Farina, who is a senior professor of Inorganic Chemistry at Universiti Kebangsaan Malaysia.

KERATAN AKHBAR THE STAR (STAR EDUCATE) : MUKA SURAT 8 TARIKH : 12 JANUARI 2014 (AHAD)



is Danial, Nur Fatihah Athira and Amir Fariq challenging their IQs with mental puzzles at the Tom Tits Experiment in Stockholm. The trio visited on their trip to Sweden.

She advised Malaysian students abroad to stay on and try to work with Nobel-associated researchers and if possible, the recipients themselves.

"Instead of demanding that they come home immediately after completing their studies, we should encourage these students to take advantage of countries that already have a solid research eco-system in place.

"They can go on to become post doctoral students of Nobel recipients or be absorbed into the lecturing staff of top universities like the University of Cambridge where some 50% of all Nobel Laureates have spent time at," she said.

Prof Yang Farina was head of the delegation which comprised the winners of the NSC to the Nobel Prize giving ceremony last December.

Malaysian Ambassador to Sweden Datuk Badruddin Abdul Rahman said the country has a lot to learn from its Scandinavian counterpart, especially in science.

"Close co-operation between the government, private sector and educational institutions and accessible science parks that produce entrepreneurs and provide networking opportunities can spark ideas.

"With financial support from the government and universities that support research, these ideas can be transformed into reality," he said.



Close encounter: (clockwise) Muhammad Haris Danial, Amir Fariq and Nur Fatihah Athira taking a closer look at an exhibit at the Tom Tits Experiment.

We can do it!

STUDENTS Muhammad Haris Danial Mohd Anwar, Amir Fariq Anwar and Nur Fatihah Athira Muhammad are confident Malaysia can produce a Nobel Laureate — eventually.

The trio of fifth formers from Kolej Yayasan Saad Melaka were crowned the National Science Challenge 2013 champion when the grand final was held in Kuala Lumpur last November and are possibly among the country's hope for Nobel recognition one day.

Their reward was to witness the Nobel Prize giving ceremony in Stockholm, Sweden last December, which was led by Academy of Sciences Malaysia Fellow Prof Dr Yang Farina Abdul Aziz.

Nur Fatihah Athira said it would take "research that's truly amazing and beneficial to mankind" if we are to get the Nobel prize by the year 2020. "Students don't have the proper resources to conduct our own experiments and we don't have enough exposure to generate ideas and see how we can change the world around us," she said.

Nobel prizes are awarded for work done over a long period of time, Amir Fariq noted, adding that we have Nobel standard researchers who probably "haven't been recognised yet".

He said if we are to produce Nobel-worthy students, the way science is taught here needs to be re-looked.

"Secondary school students are more interested in the arts and business because we don't make science interesting.

"We need more interactive, hands-on classes to make it fun and exciting," he said.

Muhammad Haris Danial, however, believes that our professors and scientists are getting more advanced in their studies.

"Malaysia is capable of producing a Nobel laureate but to achieve that by the year 2020, local talents need to be based overseas where they can work with great minds associated with Nobel-quality research," he said, while calling for a mindset change among Malaysians.

"Schools and students think only bright kids can study and succeed in science but not all Nobel Laureates were successful in their secondary school years — they only did well after leaving school.

"This shows that everyone deserves a chance to study science because who knows what they can achieve one day," he pointed out.

Describing the opportunity to meet the 2013 Nobel Laureates as nerve wrecking initially, they agreed that the exposure was invaluable and inspiring.

"Everyone at the Nobel Laureate

reception were professors and doctorate holders but here we were — a bunch of 16-year-old secondary school students.

"We felt dumb but surprisingly, the laureates were nice and down-to-earth.

"Nobel Prize Laureate in Chemistry Michael Levitt even told us not to call him professor.

"He told us to always be nice to people and take smart chances," Nur Fatihah Athira shared.

Feeling "insignificant", Amir Fariq was a bundle of nerves but felt very blessed.

"We got to learn from the best. They shared their life experiences and lessons learnt in the journey to get to where they are now.

"I asked Nobel Prize Laureate in Physiology or Medicine Randy Schekman what advice he has for a boy who really loves science and he told me to always keep at it. As a boy, he would obsess over a microscope in his room and in college, he would skip classes to go into the labs and just have fun with science.

"He said that as long as you love something, don't 'over-think', just do it.

"I was immensely happy to be in the same room with them and just took whatever I could from the experience," he said.

Like his mates, Muhammad Haris Danial was soon at ease when he saw how humble the Laureates were.

Although attending the Nobel lectures earlier left him a little dazed, the reception presented the opportunity for him to glean some "really good advice about what I want to do with my life."

"Nobel Prize Laureate in Physiology or Medicine James Rothman told me to follow my heart and made me think about what I really want and not be influenced by what others think I should do. He really changed my perspective of things.

"My parents are encouraging me to do medicine because my brother is studying to be a doctor but I'm now seriously considering a career in engineering," he shared.

■ **The National Science Challenge 2013** was jointly-organised by the Academy of Sciences Malaysia, ExxonMobil Subsidiaries Malaysia, Education Ministry, Young Scientists Network and Universiti Putra Malaysia. The prize for the nationwide competition was a 12-day trip to Stockholm, Sweden. The trip included visits to museums and attending Nobel lectures, the official Nobel Prize reception for recipients and the award presentation ceremony.

A learning exploration

Visiting a science centre or museum may be a lesson in itself for it has the ability to change and inspire progressive thought and action.



Prehistoric creature: Science museums and centres have exhibits like the dinosaur (above) to capture the interest of students, providing the direct experience that is difficult to achieve in other forms of teaching.

By KOH CHONG LIN

SCIENCE education is getting more emphasis in Malaysia, since it is one of the core subjects that every student is expected to master.

Science learning has the potential in shaping the lives of people. However, the number of students taking up science subjects has dropped in recent years, the reasons being the lack of interest in the subject.

Thus, the Education Ministry is looking at ways to encourage more students to take up science subjects.

One way for the Education Ministry to consider is to collaborate with science museums or science centres to instil interest in the subject.

Annually, the government has been spending millions to maintain or upgrade the state museums and the National Science Centre in Bukit Kiara, Kuala Lumpur.

For example, the National Science Centre which was opened by former Prime Minister Tun Dr Mahathir Mohamad in 1996, is an institution of informal learning.

It was entrusted with a mandate to promote awareness, interest and understanding of science and technology to increase the knowledge of Malaysian citizens.

In 2006, the National Science Centre had a new beginning with the establishment of its first branch in the northern region.

The project started in February 2005 on a two-hectare site in the district of Gunung Keriang, Alor



Setar, Kedah.

The building's design was based on energy-saving and environmental considerations. There was also space set aside for a large exhibition hall.

Almost all of the layout work and interactive exhibition galleries in this building are organised and managed by the centre's staff themselves.

The two science centres house many different exhibits designed to stimulate, excite and encourage visitors to take an active interest in science and technology.

The exhibits located at the centre are based on different themes and divided into two categories — Fundamental Science and Technology.

The overall concept of the centre is to link science with the environment and religion, as well as to relate science to all aspects of life, knowledge and application in life.

Another important site for informal learning in Malaysia is the National Museum.

The National Museum is the driver of museum activities in Malaysia and has been instrumental in the restoration and preservation of the nation's heritage.

Erected on the site of the Selangor Museum, which was

Informal experiences

> FROM PREVIOUS PAGE

destroyed during the Second World War in March 1945, the idea for its construction was triggered in 1957 after the country's Independence and it was officially announced in 1959.

Science museums and centres are informal environments that can promote learning.

Examples of activities that are carried out are hands-on workshops for Chinese paper-cutting, interactive tours, seminars and talks among other things.

Museums provide students with the opportunity to handle real objects, solve problems, and interact with others all at the same time.

Furthermore, science museums have interactive exhibits to capture the interest of students, providing them direct experience with real things, presenting possibilities that are difficult to achieve in other forms of teaching.

These informal science environments have the advantage to reach out to students of all ages, with varying levels of interest and knowledge in the subject so that they are exposed to scientific skills and concepts.

The learning experiences help to jump-start a student's long-term interest in the subject.

At science museums, students are able to experience informal learning, change attitudes and be more accepting of new ideas and theories.

For instance, they may have more empathy for animals and their habitats and can even engage in scientific inquiry where they will need skills related to the use of instruments and devices like microscopes or telescopes.

In conclusion, science museums or science centres are remarkable sites for learning, capable of inspiring teachers and students.

The experiences that museums offer can touch the visitors deeply, generating curiosity, motivating learning and inspiring self-confidence.

The potential of museums as centres of informal learning is gaining more attention.

Those managing museums realise that they must understand the needs of visitors in order to attract and engage them in learning.

Hence, it is important to evaluate the effectiveness of the items on display at exhibitions and other programmes initiated by museums.

The ability to evaluate what works well and requires improvement in such programmes ensures that science museums and centres can develop effectively.

> SEE NEXT PAGE

KERATAN AKHBAR
BERITA HARIAN (NATIONAL) : MUKA SURAT 22
TARIKH : 12 JANUARI 2014 (AHAD)

Ribut Tornado



▶ **322 KM**
sejam kelajuan angin

▶ **293,000**
hilang bekalan elektrik
dan meragut enam nyawa
yang berlaku di Midwest
Amerika Syarikat

Taufan Haiyan



▶ **315 KM**
sejam kelajuan angin

▶ **10,000 NYAWA**
terkorban taufan yang
melanda di Yolanda,
Tenggara Manila, Filipina



Pencairan ais meningkat
di Greenland
menyebabkan
kutub utara
berubah
beberapa
sentimeter
setiap tahun
sejak 2005.

» **Cuaca dunia jadi tidak menentu**

Oleh Rashedi Ili Abd Rahim
rasyidah@b.com.my

Perubahan iklim semakin drastik sejak 20 tahun lalu akibat peningkatan kepekatan gas rumah hijau dalam atmosfera.

Akibatnya, dunia menerima jumlah hujan yang sangat tinggi sekali gus menyumbang kepada peningkatan paras laut global secara purata sebanyak semeter (m), sekali gus menjadikan negara seperti Malaysia turut terdedah kepada ancaman banjir besar.

Kedadaan ini bertambah buruk apabila hujan dengan kerap yang tidak menentu, memberi kesan negatif terhadap negara tropika dan khatulistiwa seperti Malaysia.

Bagaimanapun, bencana banjir

di Pahang membabitkan sembilan daerah iaitu Kuantan, Pekan, Rompin, Jerantut, Temerloh, Raub, Bera, Lipis dan Maran, tidak boleh dikaitkan secara langsung dengan isu perubahan iklim akibat pemanasan global.

Pengarah Bahagian Penyelidikan dan Pembangunan Teknikal, Jabatan Meteorologi Malaysia, Dr Wan Azli Wan Hassan, berkata faktor yang menyebabkan banjir terburuk di Pahang baru-baru ini berpuncu daripada pengaruh angin monsun timur laut.

Pengaruh angin

"Ia berlaku kerana pengaruh angin monsun timur laut yang lazimnya berlaku pada musim tengkujuh di Pantai Timur.

"Ketika hujan lebat monsun timur laut di Pahang, secara kebetulan keadaan air pasang berlaku dan pada masa sama jarak bulan paling dekat dengan bumi," katanya.

Wan Azli berkata, keadaan semula



Penerokaan hutan secara berelusa mengakibatkan banjir lumpur di Cameron Highlands.

Gerakan air dari bawah tanah



bergerak cepat

jadi kedudukan bumi dan bulan itu menyebabkan paras air laut lebih tinggi daripada biasa dan banjir lebih mudah terjadi berbanding ketika air surut.

Katanya, banjir yang membawa kerugian harta benda sebanyak RM65 juta kepada penduduk Pahang itu menjadi banjir terburuk sejak 2001 kerana kekerapan hujan berlaku ketika itu.

"Jumlah hujan yang turun dalam tempoh tiga hari ketika itu mencecah 927 milimeter (mm) iaitu bersamaan taburan purata hujan untuk tempoh tiga bulan," katanya kepada BH Ahad.

Igauan ngeri taufan Haiyan

Ketika igauan ngeri taufan Haiyan yang melanda Filipina November lalu belum pun surut, dunia sekali lagi dikejutkan dengan bencana yang melumpuhkan sebahagian Amerika Syarikat, minggu lalu.

Ribut Artik yang melanda sebahagian besar Amerika Syarikat dengan suhu paling sejuk dilaporkan mencecah di bawah paras (-) 38.3 darjah celsius di Babbitt, Minnesota iaitu lebih sejuk daripada Marikh.

Agensi Angkasa Lepas Amerika

Syarikat (NASA), melaporkan kenderaannya, Curiosity menunjukkan suhu rendah pada 2 Januari lalu iaitu -36 darjah celsius, sekali gus mengatasi cuaca beku di Almaty, Kazakhstan (-22 darjah celsius), Mongolia (-23 darjah celsius) dan Irkutsk di Siberia (-33 darjah celsius).

Rekod tertinggi sejak 1990

Berbeza di Amerika Syarikat, penduduk di Sydney, Australia pula menghadapi musim panas mencecah 46 darjah celsius iaitu rekod tertinggi sejak 1990.

Penyelidik dan saintis Barat menyifatkan perubahan magnet pada kerak bumi adalah antara penyebab utama musim menjadi tidak menentu seperti yang berlaku ketika ini.

Saintis di Universiti Oxford, Conall Mac Niocaill, berkata anjakan magnet pada kerak bumi menyebabkan Kutub Utara bergerak dengan lebih cepat ke arah Siberia untuk berada pada kedudukan 40 darjah di selatan.

"Medan bumi semakin lemah dan ia berganjak lebih 1,500 kilometer sejak berabad lalu," kata Mac Niocaill yang dipetik media antarabangsa, baru-baru ini.

Penyelidik di Universiti Texas, Austin pula mendedahkan pencairan bongkah ais semakin meningkat di Greenland menyebabkan kedudukan Kutub Utara berubah beberapa sentimeter pada setiap tahun sejak 2005.

LAGI BERITA RIBUT
ARTIK DALAM
DUNIA D4, D9



Perubahan magnet pada kerak bumi antara penyebab utama musim tidak menentu.

DALAM NEGARA

Banjir di Pahang

o Banjir terburuk sejak 2001.

o Hujan luar biasa dalam tempoh 24 jam.

o Lebih RM65 juta kerugian harta benda.



Banjir di Cameron Highlands

o Banjir lumpur yang meragut empat nyawa.

o Menjejaskan puluhan kediaman dan ratusan kenderaan.

o Berlaku akibat penerokaan hutan secara berleluasa.

Suhu Terpanas



o 46° CELSIUS

suhu tertinggi dicatat di Sydney

o 1990

tahun kejadian yang menjejaskan sistem pengangkutan dan bekalan elektrik.

Suhu Tersejuk



o 38.2° CELSIUS

suhu tertinggi, berlaku selepas Ribut Artik

o 21 ORANG

mati sejak Januari lalu dan memaksa perniagaan dan sekolah ditutup di Amerika Syarikat (Vorteks Kutub)



Pemanasan global meningkatkan paras air laut

Perubahan paksi bumi yang mengubah arah utara ke selatan menyebabkan kutub utara bergerak lebih cepat ke arah Siberia untuk berada pada kedudukan 40 darjah.

Paksi magnetik

Paksi menyongsang

S Magnetik Utara



Nelayan Kelantan Mula Terima Elaun 15 Jan

KOTA BHARU, 12 Jan (Bernama) -- Kira-kira 2,000 nelayan tradisional di empat jajahan di Kelantan akan menerima elaun sara hidup RM200 masing-masing bagi bulan pertama tahun ini bermula 15 Jan.

Pengarah Lembaga Kemajuan Ikan Malaysia (LKIM) Kelantan Wan Adnan Wan Ibrahim berkata wang yang akan dimasukkan terus ke akaun bank itu bertujuan meringankan beban akibat kehilangan punca pendapatan susulan keadaan laut bergelora.

"Mereka terdiri daripada nelayan Tumpat, Kota Bharu, Bachok dan Pasir Puteh," katanya kepada Bernama selepas mengadakan mesyuarat di Pejabat LKIM Kelantan di sini Ahad.

Beliau berkata kerajaan pusat menyediakan peruntukan kira-kira RM400,000 sebulan bagi elaun itu, membabitkan peruntukan hampir RM5 juta setahun.

Wan Adnan berkata nelayan boleh mencari pendapatan sampingan melalui penangkapan ikan di sungai dan kuala sementara menunggu laut kembali reda.

"Ini termasuk di terusan Semerak Tok Bali, Pasir Puteh yang mengandungi banyak ikan air tawar yang bernilai tinggi," kata Wan Adnan.

Sementara itu, [Jabatan Meteorologi](#) meramalkan angin kencang Timur Laut dengan kelajuan dari 60 km/j dengan ketinggian ombak melebihi 5.5m yang berlaku di kawasan perairan Kelantan dan Terengganu dijangka berterusan hingga 20 Jan.

Selain itu, kawasan pantai di Kelantan dan Terengganu terdedah kepada kejadian kenaikan paras air laut, dan ia dijangka berterusan hingga hari sama.

"Keadaan angin kencang dan laut bergelora ini berbahaya kepada semua aktiviti pantai dan perkapalan termasuk pekerja di pelantar minyak," menurut jabatan itu.

-- BERNAMA