



**Tan Sri Adenan Satem's stewardship of Sarawak** has won him the hearts of many. However, observers say the test of the pudding will be translating this into a **convincing win for the Barisan Nasional** in the soon-to-be held state elections.

have shown a clear preference in voting for the opposition. That may have been part of the equation, but even the opposition in the state seems to be almost equally fulsome in its praise and admiration of Adenan's leadership of the state thus far.

The test of the pudding, as is commonly stated, is in the eating and observers both within and outside the state will be keenly watching to see how Adenan's stewardship translates into support come election time. They may not have long to wait as signs seem to point to the state going to the polls sooner rather than later, with some speculating that an earlier than scheduled recall of the state assembly's next sitting indicates a state election later this year rather than in 2016.

Adenan himself may be tempted to not just test his own personal popularity but also to further entrench the pre-eminent position of his own Parti Pesaka Bumiputera Bersatu (PBB) while his political honeymoon lingers.

The weak link of anaemic Chinese voter support for the state government may be as messy as ever but shows little sign of any marked improvement over time, demolishing the key argument that time may lead to some consolidation of such support.

A smarter political strategy may well be in the works: making Chinese political representation in government increasingly "optional".

Adenan, through his words and deeds thus far, seems to be telegraphing to Chinese voters that while it will be helpful that they vote for his government, whether they actually do or not will have little material impact politically. He is in fact showing that even with Chinese political support as tenuous as it is currently, his government will still be a government for all Sarawakians and will bend over backwards if need be to attend to all their legitimate interests.

The Sarawak chief minister is in a position to be magnanimous even to Chinese voters because the position of his own party, PBB, is solid and seems unassailable.

Is Adenan therefore also sending a political message nationwide? That the varied and diversified interests of Malaysia's plural society are best safeguarded and advanced by a political leadership that is sure and confident of its core electoral strength within the Malaysian majority, however, that majority may be defined.

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## Boosting role of precision medicine in Malaysia

**NEW FRONTIER:**  
More funding and resources needed for genome studies



**MOHD FIRDAUS RAIH**

**I**N the State of the Union address on Jan 20, one of the items presented by US President Barack Obama was the Precision Medicine Initiative and followed through with its unveiling on Jan 30.

The programme outlined a general initial plan, with a US\$215 million (RM770 million) budget, to build and expand the infrastructure for the future deployment of precision medicine.

What is precision medicine? One easy way to comprehend the concept is perhaps to understand that even in modern medicine, the pharmaceutical treatments given to patients are not precise. Most medical treatments take into account the average patient.

If you remember your last visit to the doctor's, one question that precedes the doctor prescribing medicine is whether you may be allergic to any medication. The problem with such an approach is that the patient must possess an awareness of the drugs or other therapeutics that they may be allergic to. Logically, it is not possible for the patient to be aware of all their allergies without prior testing. So, in this particular case, the patient may possibly be given a treatment that he or she may be allergic to.

Our bodies function differently on an individual level, although we are all from the same species. A treatment for a stomach ailment that generally works for most patients, for instance, may not be effective for certain individuals.

Unfortunately, the current state of medicine has no practical means of determining the potential effectiveness of a particular treatment on a personalised and individual patient level. Current treatments generally adopt a one-size-fits-all approach with dosage differences considered for parameters such as weight and age of the individual. So, how can modern medicine be made to be



Current modern medical treatments generally adopt a **one-size-fits-all approach.**

more precise?

We are individuals due to the differences within our DNA or deoxyribonucleic acid. DNA is actually a polymer and composed of four building blocks called bases. The total DNA content within us is the genome. The human genome is composed of 3 billion bases. The sequence of these bases in the DNA chains encode information that will enable the body to synthesise proteins and other functional molecules. These subsets of the genome are what we refer to as genes. The human genome has at least 20,000 genes. There are general similarities in the genome sequence that identify us as a species. However, there are still numerous variations in the sequence of the DNA bases that differentiate us as individuals.

In addition to variations in the genome sequence, there are additional factors that control how some genes can be switched on or off. In some cases, these variations in the sequence, referred to as mutations, can result in a gene no longer being able to produce a protein that it was supposed to. A situation when the gene switching control system is faulty can also result in a protein not being produced, or not produced in enough quantities or produced uncontrollably in excessive quantities.

These differences can also determine how a disease progresses in different individuals. Cancer, for example, we know there are different types of cancers and among the more common are lung, colon and breast cancers. But, what many of us do not realise is that despite the name of a cancer being the same, they can actually be different

diseases in different individuals.

For instance, the colon cancer in individual A can be treated with drug Z, but the colon cancer in B cannot be treated with the same drug and may require drug Y. Therefore, although the name of the cancer is the same, they are not the same disease in A and B. Because of the genetic level differences, the onset and progress of the disease at the molecular level will also be different, although they may affect the same organ.

To treat a disease that may have the same name, but essentially different at the molecular level, doctors must be able to identify the genetic differences between different individuals. This can be done by comparing the sequences of their genomes. The information contained in the genome can enable the doctors to decide on the best course of therapy. In this respect, the practice of medicine has to be personalised for each individual. Once the differences are identified, treatment for each patient can be precisely tailored on a personal level.

Precision medicine is not yet a fully realised concept although there have been instances where the genome information of patients have been used to tailor specific treatments. In order for precision medicine to be widespread and readily available, further advances must be made in the field of genomics, bioinformatics and computational biology.

The current state of the art in genome sequencing technology is still restrictive in terms of cost, thus making the sequencing of individual genomes a costly affair. The original Human Genome Project took more than a decade to the declared completion of the project in 2003. Until today, much of the functions encoded within the genome remain unknown despite billions of dollars spent. Nevertheless, the cost and speed of genome sequencing has greatly improved in the last decade.

Technologies that enable rapid and very low cost genome sequencing are almost emerging over the horizon. Once genomes can be sequenced for as low as US\$1,000, the data generated can be used for not only diagnostic purposes but also for prognostics, stratifying therapies and personalised healthcare regimens such as personalised diets.

Although genome sequencing has resulted in a deluge of data, organising and analysing the ever increasing amount of data remains an important challenge. The field tasked with this challenge is

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## Malaysian biobank a national treasure

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bioinformatics and computational biology.

Bioinformatics and computational biology bring to bear computational and informatics solutions to the analysis of biological data, in this case, genome sequence data. It is this field that is at the forefront of genome analysis — the effort in trying to understand the functions of the information encoded in the genome sequence and to have that information put in context that can be of use to a medical practitioner. Despite these challenges, institutions and departments dedicated to the deployment of genomic medicine for practical clinical use are springing up all over the west, particularly the US.

Fortunately, Malaysia does not lag too far behind. Since 2006, the Malaysian Cohort project, spearheaded by the Universiti Kebangsaan Malaysia Medical Molecular Biology Institute, has been collecting samples from over a 100,000 Malaysians aged between 35 and 70 from various socioeconomic backgrounds in the urban as well as rural areas.

The collected samples have been biobanked by cryo-preservation and they form the foundation for the next phase of the project which aims to identify risk factors to diseases, to study gene/genome-environment interaction and to discover biomarkers for the early detection of cancers and other diseases.

In this regard, the Malaysian Cohort biobank can be regarded as a national treasure. The knowledge that can be gleaned from carrying out molecular studies on these samples is perhaps an important launch pad for future precision medicine initiatives in Malaysia.

The amount spent in genome research in Malaysia has been very small compared to the billions expended by the developed countries to explore this new frontier of medicine. Although the Malaysian government has been encouraging to genome research, more needs to be done and these shortcomings can perhaps be addressed in the 11th Malaysia Plan in order to take the country towards the realisation of developed nation status under Vision 2020.

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Fighters of the **Kurdish People's Protection Units** monitoring the movements of **Islamic State fighters** in the outskirts of Tal Tamr, Syria. The best approach to combat the militant group is to **create a multinational force**. Reuters pic

## Managing the IS crisis

**REALISTIC STRATEGY:**  
Eliminating the militant group is not achievable but weakening it is



**RICHARD N. HAASS**

**O**NE day, historians will have their hands full debating the causes of the chaos now overtaking much of the Middle East. To what extent, they will ask, was it the inevitable result of deep flaws common to many of the region's societies and political systems, and to what extent did it stem from what outside countries chose to do (or not to do)?

But it is we who must deal with the reality and consequences of the region's current disorder. However, we got to where we are in the Middle East, we are where we are, and where we are is a very bad place to be.

The stakes — human, economic, and strategic — are enormous. Hundreds of thousands have lost their lives; millions have been rendered homeless. Oil prices are low, but they will not remain so if Saudi Arabia

experiences terrorist strikes or instability. The threat to the region is large and growing, and it menaces people everywhere, as extremist fighters return home and still others who never left are inspired to do terrible things. Indeed, though the Middle East is facing an abundance of challenges to its stability, none is as large, dangerous, and immediate as the Islamic State (IS).

Those who object to calling the IS a state have a point. In many ways, IS is a hybrid: part movement, part network, and part organisation. Nor is it defined by geography. But it does control territory, boasts some 20,000 fighters, and, fuelled by religious ideology, has an agenda.

Ultimately, of course, deciding whether to call what has emerged "ISIS" or "ISIL" or the "Islamic State" matters much less than deciding how to take it on. Any strategy must be realistic. Eliminating IS is not achievable in the foreseeable future; but weakening it is.

A strategy must also be comprehensive. First, the flow of money to the IS must be reduced. Lower oil prices help, and there are only so many banks to rob. But extortion continues, as does financial support from individuals. Such flows should be shut down both by governments and financial institutions.

Curtailling the flow of recruits is even more essential. Countries can do more to make it difficult for individuals to leave for Iraq or Syria; a Europe-wide watch list, for example, would help. But nothing would have a greater impact than Turkey deciding that it will no longer allow itself to be a conduit, and that it will enforce United Na-

tions Security Council Resolution 2178, which calls for stronger international cooperation against terrorism.

Another component of any strategy must be to counter IS's appeal and propaganda. This means publicising the misery it has caused to those living under its rule. It also means persuading Muslim religious leaders and scholars to make the case that IS's behaviour is illegitimate from the standpoint of Islam.

Of course, any strategy must challenge IS directly in Iraq and Syria. In Iraq, there is some evidence that its momentum has been halted; but the growing role of Iran and the Shia militias it backs all but guarantees that many Iraqi Sunnis will come to sympathise with or even support the IS, whatever their misgivings. This is why outsiders should place greater emphasis on providing military and political support to Kurdish forces and Sunni tribes.

Syria is a far more difficult case, given its civil war and the competition among outsiders for influence. Attacks from the air on IS forces are necessary but insufficient. Because IS is a territorially based entity, there must be a ground dimension if the effort is to progress; after all, only ground forces can take and hold territory.

The best approach would be to create a multinational force consisting of soldiers from neighbouring countries, particularly Jordan. The United States and other North Atlantic Treaty Organisation countries could offer assistance, but the fight must be waged largely by other Sunnis. What is occurring in

the region is a clash within a civilisation; to enable IS to portray it as a conflict between civilisations — and itself as the true defender of Islam — would be a grave strategic mistake.

Moderate Syrian opposition forces and local Kurds could be part of such a multinational Sunni force, but they are not in a position to substitute for it. If such an expeditionary force cannot be formed, air attacks can be stepped up, thereby at least slowing IS and buying time to develop alternative strategies. Under such a scenario, IS would remain less a problem to be solved and more a situation to be managed.

Diplomacy cannot play a large role at this point. No solution can be imposed, given disagreements among the outside countries with a stake in Syria and the strength of both IS and the Syrian government. What diplomacy may be able to do is reduce, if not end, the fighting between the Syrian government and its own people, as the UN is attempting to do in Aleppo.

The biggest danger in 2015 may well be a widening of the regional crisis to Saudi Arabia and Jordan. Intelligence and military support for both countries will be essential, as will enhanced efforts to help Jordan shoulder its massive refugee burden. In this time of unprecedented turmoil in the Middle East, one of the region's basic rules still applies: no matter how bad the situation, it can always become worse. **Project Syndicate**

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