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Nobel aspirations

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FOUR years ago, Prime Minister Datuk Seri Dr Mahathir Mohamad challenged the local scientific community to produce a Malaysian Nobel laureate by 2020.

Since then the idea has made its rounds among certain circles.

The Academy of Sciences Malaysia was given the task of developing the concept plan to achieve the goal.

The details of the plan are not immediately known.

In an attempt to inspire local scientists to greater heights, the academy has already invited several Nobel laureates to give public lectures.

The most recent Nobel laureate to visit Kuala Lumpur was Professor Ahmed H. Zewail from the California Institute of Technology (Caltech). He received the Nobel Prize for chemistry in 1999.

So, is Malaysia any closer to earning the coveted honour?

First of all, says Datuk Dr M. Jegathesan, chief executive officer of Sistem Hospital Awasan Taraf (Sihat), there must be a complete understanding of the concept behind the Nobel Prize.

"Nobel prizes are awarded to deserving winners. But not all deserving are rewarded," adds Dr Jegathesan, a former deputy director-general of Health (research and technical support). He is also an adjunct professor at Universiti Putra Malaysia and a joint winner of the National Science Award in 1995.

Indeed, complaints of the limitations of Nobel prizes which leave many deserving scientists out of the laureate loop are heard every year when the Nobel committee announces the winners.

Dr Jegathesan says Malaysians are capable of making significant breakthroughs in science at any point in time. But at this stage, the focus should be on laying out a solid foundation for science.

"We have to begin with nurturing the respect for science as a fundamental ingredient of national development among the people," Jegathesan adds.

Dr Khong Yoon Loong, a researcher with a multinational company, shares Dr Jegathesan's sentiments.

He says appreciation and respect for science among Malaysians are still lacking.

Khong, who holds a doctoral degree in Solid State Physics from the University of Canterbury, New Zealand, recalls the reaction of his family and friends when he wanted to do a science course abroad 20 years ago.

"At the time, friends and relatives discouraged me. They said I was only wasting my parents' money," he says.

The attitude is still the same today.

"Students would rather go for technical degrees such as engineering because it's easier to get jobs. This says a lot about the opinion people have about hard sciences," says Khong.

The public is not entirely to blame for not appreciating basic sciences enough, says Professor Ghazally Ismail, vice president for research and corporate relations at Malaysia University of Science and Technology (MUST).

There is hardly any publicity given to scientists in the electronic or print media to begin with.

Giving scientists their five minutes of fame will not only boost their

morale but is also a proces of educating the public about the importance of building an environment conducive for science exploration.

In a recent article, Singapore's The Sunday Times questions China's failure to secure, thus far, even one Nobel Prize when Japan has bagged two for literature and nine for the sciences, two of them this year.

The article, headlined China lags behind in Nobel cause, noted that seven ethnic Chinese did win Nobel prizes, the latest being Gao Xingjian for literature in 2000.

The other six were for the sciences - Professors Daniel Tsui for physics (1998), Steven Chu for physics (1997), Lee Yuan Tseh for chemistry (1986), Samuel Ting Chao Chung for physics (1976) and Yang Chen Ning and Lee Tsung Dao, jointly for physics (1957).

But none had been residing in China for any length of time prior to their winning the Nobel Prize.

The scientists were living and working in the United States and still are, except for Professor Lee Yuan Tseh, who now resides in Taiwan. Gao, a dissident writer, has been living in France since 1987.

And that, according to the experts interviewed, is the key reason why no one living and working in China or Taiwan, has won the Nobel Prize.

It has all to do with facilities and an intellectually stimulating environment and less with demographics.

China is not in the running because it has very little of these. That it has more gifted people in absolute numbers than any other country does not necessarily translate into more Nobel prizes.

Dr Vincent Yip, former head of the Singapore Science Council and former director of the Singapore Science Park, who has taught in the US and worked in China, says a country which cannot meet four basic conditions stands only a very slim chance of bagging any Nobel prizes for the sciences.

These are: modern equipment and excellent facilities; a creative environment and a critical mass of researchers; access to an international network of scientists and researchers; and government funding and popular support.

He adds that lack of recognition in places where it matters is also a factor, citing Dr Zhao Zhongxian from the Chinese Academy of Science as a scientist whose brilliant work in superconductivity has gone largely unnoticed.

Egyptian Nobel laureate Ahmed H Zewail, who was in Malaysia recently, can vouch for some of the points raised by Yip.

Zewail showed a lot of promise even as a student at University of Alexandria in Egypt but his prolific career in science only took off after he left for the United States.

Zewail feels that he was a victim of Egypt's cumbersome research bureaucracy and policy. He understands the dilemma faced by bright young scientists' whose ideas flowed freely at research institutes abroad, but had to return and work in stifling conditions back home.

Dr Jegathesan observes that many Malaysian science graduates who studied abroad come home to be a part of research teams whose members are not as dedicated as foreign ones.

"A good researcher depends on hard-working team (members) who share his commitment. We cannot progress with research teams which are ready to leave the lab as soon as the clock strikes four," he says.

But change must begin with the young.

Ghazally says that students must be taught to ask the right questions and not shown the way to give the right answers.

"By asking the right questions, students will develop creative and inquistive minds. New knowledge can only be developed with these skills,"

he says.

If we expect creativity and innovation from our children, we have to put an end to the spoon-feeding culture in our schools, says Dr Jegathesan.

Ghazally, Khong and Dr Jegathesan concur that monetary reward is secondary for most scientists.

At one point, many research institutions took the approach of promoting good scientists to managerial positions in an effort to raise the scientists' paycheque.

Yet, many talents were lost because of this policy, says Khong. Once elevated, the scientists end up being lumbered with more administrative work, leaving them less time to engage in research.

Dr Jegathesan says some institutions have begun to understand they need not fit scientists into a pyramidal structure to reward them.

Freedom to pursue his work is any researcher's dream. Yes, more pay and research grants are important but that must be accompanied by academic freedom.

If Malaysia is serious about winning the Nobel Prize, it has to concentrate on its strengths, among others, building on the achievements of existing research institutions such as Sirim Berhad, the national organisation of standardisation and quality, and Mimos Berhad, Malaysia's information, communication and technology research and development body.

These organisations should move on to leading edge technology research and more resources be put into this.

Zewail suggests creating elite institutions like the California Institute of Technology (Caltech) devoted to creative research.

He says the population in universities in essentially all the developing world has become excessive following the democratisation of education.

"As a result of that, 20,000 people or so need to be educated. There are only 24 hours to a day. Having to lecture and to also serve in committees, the professors are exhausted. They can't do creative research under this kind of situation," adds Zewail, also director of the Laboratory for Molecular Sciences (LMS) at Caltech.

The US recognised this problem a long time ago and proceeded to create state-type universities for the education of the large population and elite institutions for promising scientists.

These elite institutions are the driving force in American science and technology.

Zewail says it cannot be done any other way.

"Guess how many students we have at Caltech? Just 2,000. This small number of students is responsible for coming up with creative research on space, laser and microelectronics," he adds.

Dr Jegathesan says the goal of producing Nobel laureates should be used to galvanise Malaysians to break new frontiers.

With a critical mass of top-level scientists, Malaysia's chances in the Nobel cause can be exponentially increased.

"If the people are not ready to pay the price, we should not be asking why we are not producing the right results," says Dr Jegathesan.