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Can we win a Nobel Prize?

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A NOBEL prize scientist from Malaysia by the year 2020? Not at the rate we're going.

It will take some "rehabilitation" before we can shift gear and make it happen. Nobel-worthiness was a much discussed topic at the 1999 Malaysian Science and Technology Congress held in Kuala Lumpur last month at which a record 158 scientific papers were presented by Malaysians.

It was a huge gathering of scientists - more than 200 signed up - and the range of papers reflected the diversity of ongoing scientific research.

At many sessions, at least one person dropped the word "Nobel". Clearly, it's on their minds: many talked about the major obstacles on that path. It comes at a time when we are getting the greatest ever encouragement for science from the state, but everywhere, people report a declining interest, if not resistance, in science.

Since Prime Minister Datuk Seri Dr Mahathir Mohamad threw the Nobel Prize challenge to the local scientific community a year ago, that concept has been viewed as a window of opportunity.

Shortly before that, the Confederation of Scientific and Technological Associations in Malaysia (Costam), organiser of the annual congress, had created the Nobel Laureate Foundation which has a definitive charter to motivate scientists in that direction. (Costam is an assembly of 29 organisations representing some 30,000 scientists in Malaysia.)

Still, some brilliant re-engineering may be required before we get to Stockholm. The good news is that there are some home-grown ideas for solutions.

The first overall criticism is that there is no focus in scientific research. The only visible concerted effort has come from the Ministry of Science, Technology and Environment which provides funding for scientific research through the Intensified Research Priority Areas programme since 1995.

But even that is accused of being a bureaucratic behemoth - long waits for grant approvals and delays in getting money. So much so, that some research team leaders claim they use their own money to pay assistants to stop them from quitting and get additional funds from other agencies.

The other policy problem is that what actual focus there is has been on applied sciences rather than basic sciences where major breakthroughs happen. Basic sciences are studies of fundamental things like how atoms split or how superconductors perform or the precise behaviour of a certain enzyme.

Most Nobel prizes for the sciences have been awarded for work on basic sciences - breakthrough findings or definitive explanations of long-standing phenomena which must benefit humanity in a big way.

For example, this year, German molecular biologist Guenter Blobel won the Nobel for work on how proteins are transported in the cell. This is science at its most basic level. It's not something that can be patented but it helps explain how diseases like cystic fibrosis happen. Someday, another person will use this knowledge to design drugs to fight cystic fibrosis. That would be applied science. And the drug may be patentable.

The local focus on applied sciences is linked to a national interest in income-generating science and business-related knowledge. Since local universities are gradually being "corporatised", they have a

responsibility to ensure that their work is financially rewarding. But remember, financial independence means a university can eventually claim complete management autonomy from the civil service.

But take comfort that this not uniquely Malaysian. Worldwide, educationists have noted that there is a global pre-occupation with making money and much funding has been directed to business schools.

Further down, at the nuts and bolts level of operating research centres, there are serious fundamental problems.

* Leadership: A serious matter. Accusations range from "simply no good" to "prefers to play golf". The bottom line is that some research directorships are held by the wrong people. Leadership roles require the rare combination of excellent technical and administrative skills plus talent for motivating others.

Ideally, says Costam president Tan Sri Augustine Ong, the right leader makes the difference. "In fact, even leaders need motivation. I'd like to propose research chairs at local centres for foreign professors of high standing."

* Atmosphere: It's stifling, say some scientists, because research centres are run like government departments and there's no way we're ever going to have completely indigenous work. But note that most Asian Nobel winners did their work in a European or American institutions. That says a lot.

"Yes, we should be open to that idea," argues Ong, a chemist who went on to head Porim and lead the national counter-campaign for palm oil. "Nothing wrong with Malaysians researching abroad in the best labs and winning prizes. Asking someone to start up a lab is not always fair. It takes a huge administrative effort."

Ong would know because in 1959, he started up the Chemistry Department in Kuala Lumpur, and later in Penang. "Then again, really outstanding scientists have outstanding determination. They find ways. That's important. Remember, even in the best centres, nothing comes easy."

* Retirement age: A long standing complaint. At 55, most people have just arrived at expert status. "Right now, a good number of Malaysian scientists are sitting at home collecting a pension although they are rated as experts in their fields," says Datuk Dr C.P. Ramachandran, vice-president of the Malaysian Scientific Association and professor of medical parasitology at Universiti Putra Malaysia's medical school.

"Fifty-five is when a person becomes an expert in his field. If you've kept someone as professor for several years, then he or she must have been good."

One solution: create professor emeritus positions in the Oxford, Cambridge and Ivy League tradition. "Bring the expert back into the gene pool immediately after official retirement," says Ramachandran, a world authority on filariasis. "Let the professor continue his research and teach but no more administrative work."

Note that the average age of most Nobel-winning scientists is about 65-70. That's because their breakthroughs come some years after they became experts and still more years will pass as other scientists quote its authority. Only then does the Nobel committee consider it.

* Support staff: Big problem. Lab assistants and technicians are mostly SPM or diploma holders, most salaries don't go above RM1,000. "In some labs, it's the weakest link," says Ramachandran, "although technicians play a vital role. Most senior scientists say they prefer basic degree holders. Perhaps an upgrading system would help."

* Infrastructure: Old, outdated facilities still exist, in some places no facilities at all. But the biggest transgression is run-down facilities from the lack of maintenance. Cutting edge science does need expensive

equipment and materials but these need expert maintenance which can also be expensive plus the right buildings to house them in. For example, electron microscopes perform best in basements. Vibrations from ground and above ground levels are known to throw off readings. They also need specialist maintenance technicians.

Malaysian scientists have complained of even basic things like power cuts which ruined ongoing experiments in freezers.

* Basic education: Interest in science is declining. "Basic school science teaching needs strengthening," says Ramachandran. "The 2020 generation has just started school, let's catch them. There are no Nobel winners overnight. There are many steps to reach that level."

The R&D culture has to begin early, says Ong, and it will take a major change in mindset. "Children must be provoked into being natural investigators. Interest is a powerful force in learning. And parents must understand that this is not government work."

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