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Time to focus on creative research

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THE country's state of research and development again came under the microscope this week. Prime Minister Datuk Seri Dr Mahathir Mohamad himself expressed disappointment at the lack of creative projects undertaken by research organisations.

One area in which Malaysian researchers have not made much headway is medicine. On this score, we cannot argue with the Prime Minister, as his statement may have been made against the backdrop of the current Japanese encephalitis and Hendra-like viral outbreaks.

Although the Hendra-like virus was quickly identified by a local scientist, overall not many experts from our research institutions and universities were brave enough to come forward with scientific explanations of, and possible solutions to, the crisis.

The failure of local scientists to contribute effectively in the fight against debilitating diseases here is not due to their inadequacies. It may be due to their inability to conduct research in these areas.

If they had been given a chance to to do research on pig viruses, through a search of the relevant literature, they would surely have come across abundant reports of the scare involving these viruses in the West early last year.

For example, there was a report from Australia that microorganisms of the paramyxovirus group `jump' species from fruit bats to pigs, and then to humans.

Similarly, tissues harvested from pigs for use in transplantation procedures might be contaminated with viruses, which would then cause serious ailments, such as Hepatitis E, in the recipients.

A screening programme for testing donor pigs cannot be expected to successfully detect a new virus such as the `jumping' type especially when they are transmitted silently in the pig population.

There is also a risk that since the virus is able to jump the species barrier to man, the general population too can be affected. Because of these dangers, a moratorium on the use of porcine tissues for transplantation was sought.

This sort of information on pig viruses could have been disseminated to the authorities and public by researchers to facilitate precautionary measures.

The public would have benefited a lot more. Its perspective of the dangers of the disease would surely have been different.

The shying away from providing expert opinion is not a characteristic of the research fraternity of this country alone.

The same occurred during the outbreak of the bovine spongiform encephalopathy or BSE in cows across Europe a few years ago, culminating in the epidemic risk of a new variant of the Creutzfeldt-Jacob disease, otherwise known as the `mad cow disease'.

One of the findings of the on-going inquiry into BSE is that there was a dearth of information on the spread and severity of the disease among people.

It was realised that the failure to provide people with ample information for fear of confusing them was a major stumbling block in containing the disease.

We in Malaysia should have learnt a lot from the BSE debacle. We should have had more people doing research on diseases relevant to our society

and region.

We have come a long way in research and development since Independence. Compared with more established scientific communities of this region, Malaysia is not doing too bad.

In a recent issue of Nature, the state of R&D in an Asian nation was described as follows: "... that science in that country is characterised by a pervasive mediocrity, lack of originality and of the courage to challenge absurdity and defend truth; widespread plagiarism and the denial of credit where it is due; fear of excellence; complacency; self-glorification; cronyism of every description; careerism without commitment; lack of professional, social or financial accountability; ignorance of scientific methods and the qualities of knowledge gained through their use; lack of the realisation that science has a social responsibility and is increasingly forging and strengthening links with other areas of human endeavour; fraud, dishonesty and lack of integrity; sycophancy and crisis of leadership; the scientist-politician syndrome that drives even able and intelligent scientists to covet bureaucratic or political power; and false, premature and unsubstantiated claims."

The malaise probably exists in this country too, but certainly not on the same scale. To be fair to the local research community, the pathetic few do co-exist with a significant number who excel in various fields.

The Government has always been supportive of science. A National Science and Technology Policy was adopted in 1986. Public sector R&D funding has been in place for more than 10 years. And even as developed nations are cutting down on their R&D budget, Malaysia is poised to increase it.

A new policy equipped with an action plan for the period 2001-2010 is also in the pipeline. It is therefore timely to take a long hard look at the shortcomings of the current policy.

Research is now classified under the categories of basic, applied and strategic. Perhaps it is time to do away with this classification. Why not instead focus on creative research?

Creative research is focused research that serves intellectual opportunities and public needs. Some may want to call it basic technological research, as it acts as the interface between what is going on in the laboratories, and what is of potential interest to the industry.

A pertinent example of creative research is the development of the drug to alleviate impotence. Ten years ago, research on the biology of the blood vessels, discovered that the gaseous molecule nitric oxide was indirectly responsible for the relaxation of the muscles of the vessels.

This allows blood supply to the vessels to increase. In fact, a group of drugs called the nitrites, had been used even much earlier to help patients with chest pain due to limited blood supply to the vessels of the heart.

As erection depends on quick and adequate blood supply to the relevant vessels, the availability of nitric oxide in its vicinity definitely is a plus.

By putting two and two together, some creative researchers in the West designed a chemical that could prolong the life of the nitric oxide molecule. Thus, Viagra was born.

We also have our creative researchers. Within the last several years, Malaysia has produced rapid diagnostic kits for typhoid and dengue. Other creative products are presumably forthcoming.

In order to promote creative research, perhaps it is also time to get greater public involvement in formulating the Science and Technology policy. The American National Institute of Health for example, has set up a 25-member advisory committee comprising members of the public.

Discussions between academia and industry must also be held regularly.

This is the norm for the British scientific fraternity. Some Malaysian universities too, have started doing this. These interactions can help scientists decide on a creative research programme.

The Government alone cannot remedy or improve the state of R&D in the country. Scientists and fund administrators with a conscience must act with more concern, conviction and commitment.