

# Mohd Nazlee Kamal

- CEO, BiotechCorp (Malaysia)
- Former Professor at the University Technology Malaysia

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## Championing Biotech and Bioeconomy Initiatives in Malaysia

Mahaletchumy Arujan and Brian Chow

Malaysia is one of the few countries in Asia to have a national policy dedicated to biotechnology. The National Biotechnology Policy (NBP) was formulated in 2005 and the Malaysian Biotechnology Corporation or BiotechCorp is the lead development agency for the biotechnology industry in the country. Dr. Mohd Nazlee Kamal, a chemical engineer by training and former professor at the University Technology Malaysia for 10 years, is CEO of BiotechCorp. He occupies the hot seat of biotech in the country as it has an investment target of RM15 billion (USD4.3 billion) by 2020.

“I am proud to be involved in formulating the National Biotechnology Policy (NBP) and the Bioeconomy Transformation Programme (BTP),” says Dr. Kamal who spearheads and implements both policies. As BiotechCorp enters its 10th year, Malaysia has witnessed encouraging development in terms of investment and industry growth.

“Biotechnology and the bio-based domain is an exciting and rapidly expanding area. Leading the sole economic developer for the bio-based sector in Malaysia is a huge responsibility to shoulder, however, with it also comes a sense of fulfillment as well.”

“Biotechnology and bio-based applications offer a technological platform with immense potential to deliver advancements in the fields of healthcare, agriculture and industry. In Malaysia, our challenge is to develop an ecosystem that is conducive to the growth, development and adoption of these technologies. It is an exciting challenge. Our companies need to increase technological content in their products and encourage more innovation,” adds the BiotechCorp CEO.

“Through biotechnological advancements, we can create new and less invasive medical solutions to save lives as well as reduce unwanted side effects in patients. Bioprinting for instance is an exciting breakthrough. In the future, we might be able to print 3D organs for transplantation! It does not stop there. We are now able to provide cheaper, more reliable methods of cultivating agricultural products by creating better plant cultivars that require less land usage and less pesticides. We can make better quality food and feed with these improved plant characteristics. And finally, we can also develop cleaner and more sustainable forms of energy and fuel by utilizing environmental- friendly options such as biomass. Though these may all sound far-fetch, the fact is, it is happening right now as we speak. Truly, when it comes to biotechnology, the only limit is our imagination. The prospects of what we could further achieve in the coming years get me excited,” Dr. Kamal notes.

## **The Biotech Aspiration for Malaysia**

The ultimate objective of the NBP is to transform the biotechnology sector into one of the key economic pillars of Malaysia. With its pro-business and pro-science policies, Malaysia is an excellent destination for biotechnology companies and investors.

“Through NBP, biotechnology will not only contribute to economic gains of the country but would produce significant benefits to the society,” says Dr. Kamal who envisages the country to join the ranks of other developed countries and major biotechnology and/or bioeconomy players such as Canada, the United States and South Africa in the foreseeable future.

Dr. Kamal sees adapting the best of the U.S. and its initiatives might be the game changing plan for Malaysia. The education system that produces innovative and productive students, research at universities, funded and driven by industry and tertiary education reflect the current needs of the industry, which is up to date and relevant. As a result, the American education system produces a pool of talented and innovative workforce. These are the main ingredients needed for growing the biotechnology industry.

Dr. Kamal envisions putting in place similar initiatives to encourage relevant biotechnology companies to work closely with local universities and to provide sufficient funding platform for our researchers. BiotechCorp has already implemented programs to encourage more collaborations between universities and industry through public- private partnerships. A key component for building the biotechnology industry and strengthening the funding ecosystem in the country is the need for experience and technical expertise. To address the issue, BiotechCorp aims to partner with key institutions in creating University-Industry Centre of Excellences (CoEs) for the bio-based sector.

BiotechCorp has also forged strategic partnership with international partners such the University of California Institute for Quantitative Biosciences (QB3) and the Larta Institute – two prominent organizations that are vital in advocating entrepreneurship and public private partnership for training of local scientists, entrepreneurs and start-ups“. In the long run, it is hoped that all strategies will help achieve the objective of making Malaysia a global biotech player,” Dr. Kamal says.

## **Thoughts on Emerging Technologies**

Dr. Kamal feels genetically modified (GM) crops, cloning of tissues, gene therapy and synthetic biology are controversial and complex with many concerns surrounding them, largely due to ethical concerns raised by various parties, be they scientists, academics, activists, industry, religious representatives or consumer bodies. “The ethical debate is very subjective itself, in the way that values or standards that people use to determine whether the actions are good or bad differ.”

Being an old hat in this field, he understands that biotechnology is not spared from this global science debate, citing genetic modification as an example which is one of the core components in modern day biotech technique. “Many see it as human intervention in altering the blueprint of life itself and hence, an unnatural act. Others may believe that biotechnology disrupts the natural order and violates the limits of what humans are ethically permitted to do. But on the other end, some may also share the view that life sciences/ biotechnology are merely tools for progress designed to benefit mankind,” stresses Dr. Kamal.

## **Responsible Use of Biotech**

He further explains that there are pros and cons to the argument. “Not limiting to biotechnology, what is more important is these knowledge and/or technologies are being used responsibly. It is true that there will be some

universal ethical concerns that we must consider and to address accordingly. However, these technologies present opportunities for progress faster than what nature can offer.”

“If done responsibly, these are all very promising technologies, yielding enhanced products to provide social and economic benefits, without compromising health, safety and the environment. Because of these reasons, I strongly support these emerging technologies,” proclaims the CEO.

### **Fighting Pseudoscience**

Dr. Kamal sees the internet as a double-edged sword. He says it is disheartening to see all the misconception revolving around biotechnology. Most people in general, without a basic understanding of biotechnology, are vulnerable to misleading information found on the internet. He urges everyone to bear in mind that not all information is reliable information and some basic understanding of biotechnology may enable readers to distinguish between trustworthy from misleading ones. Practitioners of pseudoscience and scaremongers spread inaccurate and false information through the exploitation of the general population’s lack of understanding, not only in biotechnology but perhaps any other topic you can think of.

“People tend to fear what they don’t understand. And biotechnology is something a lot of people assume is too technical or too complicated to comprehend. Truly, this is not the case,” laments Dr. Kamal. He does not underestimate the need to promote biotechnology awareness and education with a goal to spread scientific awareness to the public and other important stakeholders relating to modern day biotechnology.

“We have similar initiatives in Malaysia. For example, the Malaysian Biotechnology Information Centre (MABIC) is a non-profit organization dedicated to building the public ‘s understanding and awareness of biotechnology. For the past 10 years, MABIC has conducted various outreach programs targeting a broad spectrum of audiences,” explains Dr. Kamal.

### **Vandalism on GM Field Trials**

Dr. Kamal’s one word to describe this act is “wrong”. “I wonder whether those responsible for the vandalism realize the consequences of the action. They may have a different point of view with regard to GMOs, however field trials are also the culmination of years of research and are equally the hard work done based on the different views held by well-intentioned scientists and researchers. Vandalism of GM crops will definitely put academic and research freedom at risk, not to mention the act of vandalism itself is against the law in civic societies. “

If any good can come out of vandalizing or destroying field trials, those who are responsible will put themselves under greater scrutiny in the future. Each person’s opinion is valid as long as it is based on accurate information and any action taken should abide by the law,” the BiotechCorp CEO opines.