

Growth of Malaysian bioeconomy sector

LETTERS

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DUE to the Covid-19 pandemic, the upcoming third World Bioeconomy Forum (WCBEF) will be held virtually on Sept 10 live from Ruka in Finland.

Bioeconomy encompasses diverse aspects, including research and development of bioproducts, finance and policy making. This is reflected by the stakeholders from various backgrounds such as researchers, investors, government agencies and regulators.

In conjunction with WCBEF, it is timely to revisit the achievement of Malaysia in bioeconomy for the past 15 years since the introduction of the National Biotechnology Policy (NBP) that ends this year.

The NBP was launched on April 28, 2005 with the theme "Biotechnology for wealth creation and social well-being" to advance the development of agriculture, healthcare and industrial manufacturing. It was the first national bioeconomy initiative in Asean and second in Asia after China.

There are nine thrusts in NBP which aim to nurture an enabling ecosystem of academic, scientific and business communities to stimulate the three bio-based sectors. These cover R&D, human capital development (BioAcademy), financial infrastructure, legal and regulatory framework and strategic development with government support and commitment.

Implementation of the NBP over the three phases of capacity building (2005-2010), science to business (2011-2015) and global business (2016-2020) is led by the Malaysian Biotechnology Corporation (BiotechCorp), currently known as Bioeconomy Development Corporation.

Bioeconomy transformation projects (BTP) encourage more agbiotech, bioindustrial and biomedical industries while community development programmes (BCDP) promote contract farming and biotechnology application to idle lands to increase the income of farmers and add value to the agro-industry.

NBP has resulted in the establishment of many international and local biotechnology companies with the BioNexus status to enjoy fiscal incentives and other privileges. Majority of these companies are situated in the Klang Valley.

The bioeconomy community plays an important role in addressing the Covid-19 pandemic and climate emergency as well as shaping the future economy due to increasing global demand for bio-based products.

This creates opportunities for bioeconomy advancement for post-pandemic economic recovery, particularly in rural areas. For example, converting the abundant biomass from agri-wastes into useful materials or renewable energy for decarbonisation is an untapped potential for farmers. This is also in line with the circular economy for eliminating waste and pollution.

Malaysia is a strategic study cohort for personalised therapy due to our population diversity, which represents half of the world's population. To realise this potential, more government support and funding are required for adopting precision medicine through genomic tools for molecular diagnostics.

The same is applicable for precision agriculture with Internet-of-things (IoT) for real-time monitoring of farms to reduce greenhouse gases and integrate genomic-assisted plant breeding for accelerated crop improvement.

Currently, there is a surplus of graduates for available jobs. New stimulus plans could be initiated to sustainably expand the bioindustry to provide jobs for qualified graduates.

With the advent of data-intensive research, implementing an open science policy for inclusive research collaboration will help bioindustry to achieve sustainable development goals. This is especially apparent during the Covid-19 crisis. The full genome of SARS-CoV-2 was published within a month of the first patient admission in Wuhan. This allowed researchers all over the world to start developing biotherapeutics and vaccines. Unfortunately, Malaysian researchers missed the opportunity due to limited research infrastructure for advanced clinical studies.

As a host country for Apec this year, Malaysia has taken the initiative to lead the effort in drafting the Policy Partnership on Science, Technology and Innovation (PPSTI) Statement on Open Science.

We have been bench-marking our achievements against Thailand, Singapore and South Korea. It is high time to leverage on collaborations with other Apec member economies to map out an action plan for bioeconomy in Malaysia beyond 2020.

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