

# MALAYSIA INNOVATES 2022



JABATAN PERDANA MENTERI  
UNIT PERANCANG EKONOMI



## HOME GROWN MALAYSIAN INNOVATIONS

#innovate4sustainableprosperity

SUSTAINABLE AGRICULTURE AND FOOD SECURITY

SUSTAINABLE BUSINESS

SUSTAINABLE COMMUNITY AND GREEN CITIES

# Malaysia Innovates 2022

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# FOREWORD

BY YAB PRIME MINISTER

“A fast-changing global economy landscape demands for a dynamic and proactive approach by the nation.”

Research, development, commercialisation and innovation (R&D&C&I) plays a vital role in nurturing and enculturating innovation to accelerate socioeconomic development towards an enhanced state of social wellbeing. Emphasis will be given to augmenting R&D&C&I capacity and capability for wealth generation. In this regard, coordination and harmonisation of funding mechanisms for all R&D&C&I activities will be implemented in ensuring these activities are in line with national priorities.

This very first edition of **Malaysia Innovates Report** features 24 homegrown innovation projects developed by Malaysians from diverse fields and backgrounds.



It also highlights five (5) innovation projects by primary and secondary schools. It is a documentation of Malaysians' achievements and capability to strive further in R&D&C&I and contribute to the nation's prosperity.

This report also serves as a manifestation of the nation's capability and competitiveness towards achieving a high-income nation status. It is my sincere

wish that this report will continue to inspire more local innovators, researchers, academia and industry players to join hands in building up synergy in the effort to develop more high-impact innovation products.

**DATO' SRI ISMAIL SABRI YAAKOB**

Prime Minister of Malaysia  
Putrajaya

August 2022

# PREFACE



“The Twelfth Malaysia Plan outlined efforts to modernise the economy through the acceleration of research, development, commercialisation and innovation.”

**DATO' SRI MUSTAPA BIN MOHAMED**

Minister in the Prime Minister's Department (Economy)  
Putrajaya

August 2022

“Research, development, commercialisation and innovation plays a vital part in nurturing innovation and accelerating socioeconomic development for an improved quality of life.”

**DATUK SERI SAIFUL ANUAR BIN LEBAI HUSSEN**

Director General, Economic Planning Unit, The Prime Minister's Department  
Putrajaya

August 2022



“If there is one silver lining to the pandemic, it was the unleashing of the phenomenon of grassroots innovation, a surfacing of the best of human ingenuity. Of finding a way, working out a solution, of making a good or even great, out of a bad. UNDP is proud to be part of this effort that celebrates the possibility that the space for ideas is unconstrained and unbounded.”

**NILOY BANERJEE**

UNDP Resident Representative for Malaysia, Singapore and Brunei  
Darussalam

August 2022





This very first edition of the Malaysia Innovates report features twenty four innovations developed by local innovators from diverse backgrounds and fields. It also highlights five innovation projects developed by primary and secondary school children.

# INTRODUCTION

## INNOVATION FOR SUSTAINABLE PROSPERITY

This report aims to inspire local innovators, researchers, academia and industry as Malaysia strives towards becoming a high-income nation through innovation. Projects featured in this report were meticulously vetted by ministries' internal selection process before being evaluated further and selected by prominent panels. This publication is by no means an exhaustive list or a ranking of innovations in this country. The innovations featured here are merely a drop in a vast ocean of innovators making positive contributions to Malaysia's development.

Projects in this report are based on the three themes and four catalytic policy enablers outlined in the Twelfth Malaysia Plan. The three themes are Resetting the Economy, Strengthening Security, Wellbeing and Inclusivity as well as Advancing Sustainability. The four catalytic policy enablers to support the three themes are developing future talent, accelerating technology adoption and innovation, enhancing connectivity and transport infrastructure as well as strengthening the public service.

These projects have high potential to be commercialised in line with resetting the economy, strengthening security, wellbeing and inclusivity, and advancing sustainability.

Malaysia aspires to align its research and development (R&D) efforts towards commercialisation, wealth generation and economic growth. The commercialisation of research will play a significant role in enhancing knowledge transfer, economic growth, job creation, and entrepreneurship. This will be coordinated by the newly established Research Management Unit (RMU), under the Economic Planning Unit of the Prime Minister's Department.

This report will be published annually to encourage members of "Keluarga Malaysia" involved in the field of R&D&C&I to continue producing high impact innovations.

# Sustainable Community and Green Cities

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# SELLING A SOLUTION WITH AEDESTECH

“I’m not here to sell a product, I’m here to sell a solution.” This is the mindset of Mr. Lim Chee Hwa, Managing Director of One Team Networks Sdn. Bhd., who aims to combat dengue in Malaysia and across the globe, eventually. Almost 10 years ago, Mr. Lim met an entomologist who conceived the idea for the AedesTech Mosquito Home System (AMHS) to contain the spread of the *Aedes* mosquito. Mr. Lim immediately was on board with the idea, and consequently formed an alliance with his entomologist partner. From day one, he believed in the project and the potential AedesTech had. However, five years after his project began, sales were not as what he had expected and shortly afterwards,

his partner left. However, that did not break Mr. Lim’s spirit.

*“I just want to do something great and contribute to society.”*

Thinking of reducing the burden of the *rakyat*, he persevered and is still determined to spread the word of AedesTech. AedesTech is an invention that reduces the population of *Aedes* mosquitos in an effort to reduce the number of dengue cases. It can also be used as a surveillance and monitoring tool. Designed to be placed anywhere, AedesTech has been proven to reduce 75% of dengue cases and 50% of labour costs. Its specialty also lies in a chemical liquid within the device itself. After carefully studying the behaviour of *Aedes* mosquitos and backed



by scientific research, Mr. Lim claims his product is superior to similar products in the market. Furthermore, AedesTech functions as a tool to control *Aedes* mosquitos and it also utilises Fourth Industrial Revolution (4IR) technologies.

***“Single products cannot stop dengue, you have to create a multidisciplinary product, then only (one) can stop dengue.”***

As *Aedes* mosquitos are attracted to the AedesTech trap to lay their eggs, the life span of those hatched eggs will be shortened. This is because they would not be able to make it to the adult stage, which in turn helps combat the spread of dengue. Not only that, because *Aedes* mosquitos do not lay their eggs in one place, they most certainly would travel elsewhere and lay their eggs

there as well. When they leave the trap, they would carry along with them the chemical liquid which has been implanted on them, and that is how they are able to contain the spread of dengue; by auto-dissemination.

One might think that chemicals used in the trap may be harmful but after dedicated research and a goal to create not only a sustainable device but an eco-friendly one, Mr. Lim said this innovation is not harmful in any way. In fact, one is able to pour it into drinking water and still drink it without being negatively affected. It does not pollute the water or air. It also offers 24/7 protection and one only needs to refill the chemical liquid in the machine after a month.

***“...you will get protection every day.”***

The public may be more familiar with fogging as a method to combat *Aedes* mosquitos but what is not known extensively is how dangerous it can actually be. Fogging is only supposed to be used as an emergency, and its effects only last a day or two. In addition, fogging is not environmentally-friendly. Though it helps to kill *Aedes* mosquitos, it also negatively affects other insects such as bees and butterflies.

Mr. Lim has won several reputable awards for AedesTech such as *Anugerah Usahasama Penyelidikan dan Perniagaan (Utama), Tahun Pengkomersialan Malaysia 2021; Anugerah Terbaik Organisasi Cemerlang Sektor Swasta, ARISe 2021, Malaysia Productivity Corporation; and Dengue Tech Challenge 2016, Agensi Inovasi Malaysia.*





He has received funding amounts of RM192,000 and RM357,000 respectively from the likes of innovation-focused agencies in Malaysia, and formed valuable networks with distinguished research institutes and agencies from Mauritius, Thailand, and Indonesia.

Even with the success he has accumulated over the years, Mr. Lim wishes that one day, he is able to build connections with ministries like the Ministry of Health and the Ministry of Housing and Local Government. He goes on to say that this has been one of the main challenges he has faced previously besides funding because it is not easy to build rapport or convince many of his innovation. Mr. Lim hopes to

receive more positive testimonials to be able to disseminate the use of AedesTech more widely in Malaysia. He also believes that more research may do the trick in convincing the population about his innovation's effectivity. Mr. Lim says, "Without scientific research to justify the benefits of any product, no one will listen to you." Recognition from the World Health Organization (WHO) compounded with successful penetration into the Southeast Asian and global markets, would be a dream come true for him.

***"To control dengue, it will be a long journey, it might take 100 years."***

***You cannot make it (dengue cases) zero, it's impossible."***

Though Mr. Lim is getting ready to pass the baton to his successor in the near future, he continues to hope that in combatting the spread of dengue, public engagement will be strengthened. The general public should understand what dengue is about and why it is important to contain its spread, otherwise adverse effects, including death, may ensue. Although Aedes mosquitoes may be around for another 100 years, we need to constantly engage with those on the ground. All of this proves that Mr. Lim is indeed a man of his word, where he is determined to sell a solution. He not only thinks of how he can support the Ministry of Health against the battle of dengue, but he also intends to reach out to the masses.

***"Public engagement and community involvement is very, very important."***

## Sustainable Community and Green Cities

**AEDESTECH MOSQUITO HOME SYSTEM (AMHS)****Game Changer**

V: Revitalising the Healthcare System in Ensuring a Healthy and Productive Nation

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**BIOGENES APTSSENS****Game Changer**

V: Revitalising the Healthcare System in Ensuring a Healthy and Productive Nation

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**UTM MEMBRANE TECHNOLOGY****Game Changer**

IX: Accelerating Adoption of Integrated Water Resources Management

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**NATURAL WATER FILTER****Game Changer**

III: Transforming Micro, Small and Medium Enterprises as the New Driver of Growth

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**MY FILTRO AQUA NATSPONGE****Game Changer**

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**MOBILE COURT INITIATIVE****Game Changer**

XI: Enhancing Digital Connectivity for Inclusive Development  
XIV: Transforming the Public Service through the Whole-of-Government Approach

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**AI FOR SENTENCING****Game Changer**

IV: Enhancing National Security and Unity for Nation-Building  
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**EUREKA HUB****Game Changer**

X: Improving TVET Ecosystem to Produce Future-Ready Talent

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**HO EASY POLY****Game Changer**

XI: Enhancing Digital Connectivity for Inclusive Development

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**THE USE OF PIEZOELECTRIC ENERGY HARVESTER****Game Changer**

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