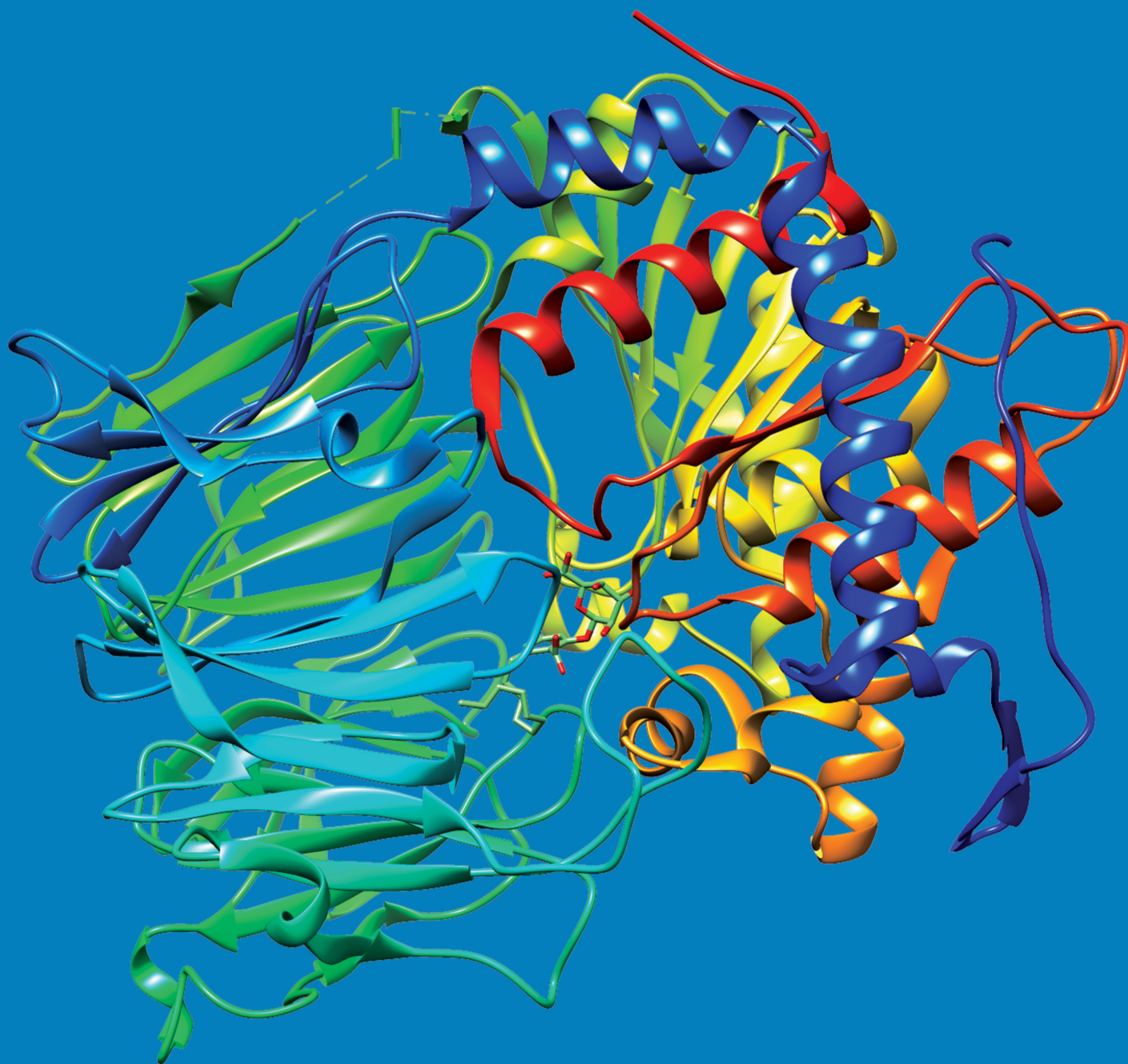




Sarawak
Biodiversity Centre



ANNUAL REPORT **2021**

COVER DESCRIPTION

Picture depicts the molecular docking of novel compound - FGS03 with human Prolyloligo peptidase (POP) enzyme. Being a POP inhibitor, FGS03 may be used to treat or improve the quality of living of people suffering from neurodegenerative diseases such as Alzheimer's disease or Parkinson's disease.

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The background of the page is a close-up photograph of several petri dishes. Each dish contains a layer of small, white, spherical beads, likely for tissue culture. Various green plant samples, including leafy herbs and small seedlings, are placed on top of the beads. The entire image is overlaid with a semi-transparent blue filter.

OUR VISION

ENRICHING LIVES WITH
BREAKTHROUGH INNOVATIONS
IN BIODIVERSITY

OUR MISSION

TO DECODE BIODIVERSITY
FOR THE BENEFIT OF SARAWAK

A background image showing several petri dishes containing green, filamentous algae cultures. The dishes are arranged in a grid-like pattern, and the algae appears to be growing in a liquid medium. The overall color scheme is a light blue overlay.

TAGLINE

BIODIVERSITY FOR
A BETTER TOMORROW

FOREWORD FROM THE CHAIRMAN

The year 2021 is the beginning of Sarawak Biodiversity Centre's (SBC) journey towards its goal *"as a global knowledge enterprise that leverages on biodiversity and indigenous knowledge through technology and strategic partnerships with renowned organisations from all over the world"*. This is the Centre's vision under its Strategic Plan 2021 to 2030.

SBC has established itself to be in the forefront of various programmes which include the setting up of Sarawak Bioindustrial Park, producing innovative intellectual property and commercial-oriented projects, collaborative projects, technology transfer, digitalisation, and discovery of natural products through artificial intelligence (AI).

SBC also continues to have strong engagement with local communities, partners and stakeholders on projects where traditional knowledge provides socio-economic benefits for the communities.

These programmes and projects are aligned and geared towards achieving the desired outcomes of the Sarawak Government Post COVID-19 Development Strategy 2030 (PCDS 2030) Innovation Cluster catalytic initiatives. These are expected to create significant impacts in the innovation-based economy through the establishment of demand-based and private-led innovation clusters. The innovation cluster is primarily focused on areas with concentration in knowledge (patents and intellectual property) and technology output.

I am proud that the SBC's strategic Plan is in place and SBC is ready to contribute and implement the PCDS 2030 where *"Sarawak will be a thriving society driven by data and innovation where everyone enjoys economic prosperity, social inclusivity and sustainable environment"*, a 2030 vision of Sarawak's journey as a developed society.



YB Datuk Amar Jaul Samion
Chairman
Sarawak Biodiversity Council

CORPORATE INFORMATION

SARAWAK BIODIVERSITY COUNCIL

CHAIRMAN



YB Datuk Amar Jaul Samion
State Secretary of Sarawak

DEPUTY CHAIRMAN



YBhg Datu Kameri Bin Haji Affandi
Permanent Secretary
Ministry of Education, Science and
Technological Research

SECRETARY



Dr Yeo Tiong Chia
Chief Executive Officer
Sarawak Biodiversity Centre

MEMBERS



**YA Dato Sri Talat Mahmood
Bin Abdul Rashid**
State Attorney General



**YBhg Datuk Amar Ahmad
Tarmizi Bin Haji Sulaiman**
State Financial Secretary
2004 - 2021



**YBhg Dato Sri Dr Wan
Lizozman Bin Wan Omar**
State Financial Secretary
w.e.f. 1st July 2021



YBhg Datu Sr. Zaidi Bin Haji Mahdi
Permanent Secretary
Ministry of Natural Resources and
Urban Development



**YBhg Dato Sri Haji Mohamad
Abu Bakar Bin Marzuki**
Deputy State Secretary
(Socio-Economic Transformation)



**YBhg Datu Hamden
Bin Haji Mohammad**
Director of Forests
Forest Department Sarawak



Dr Alvin Chai Lian Kuet
Director of Agriculture
Department of Agriculture Sarawak



Mr Justine Jok Jau Emang
Controller of Environmental Quality
Natural Resources and Environment Board
1st January 2019 - 30th April 2021



Mdm Peggy Anak Ronin Edin
Controller of Environmental Quality
Natural Resources and Environment Board
w.e.f. 1st May 2021



YBhg Dato Goh Leng Chua
Director
Lawmakers

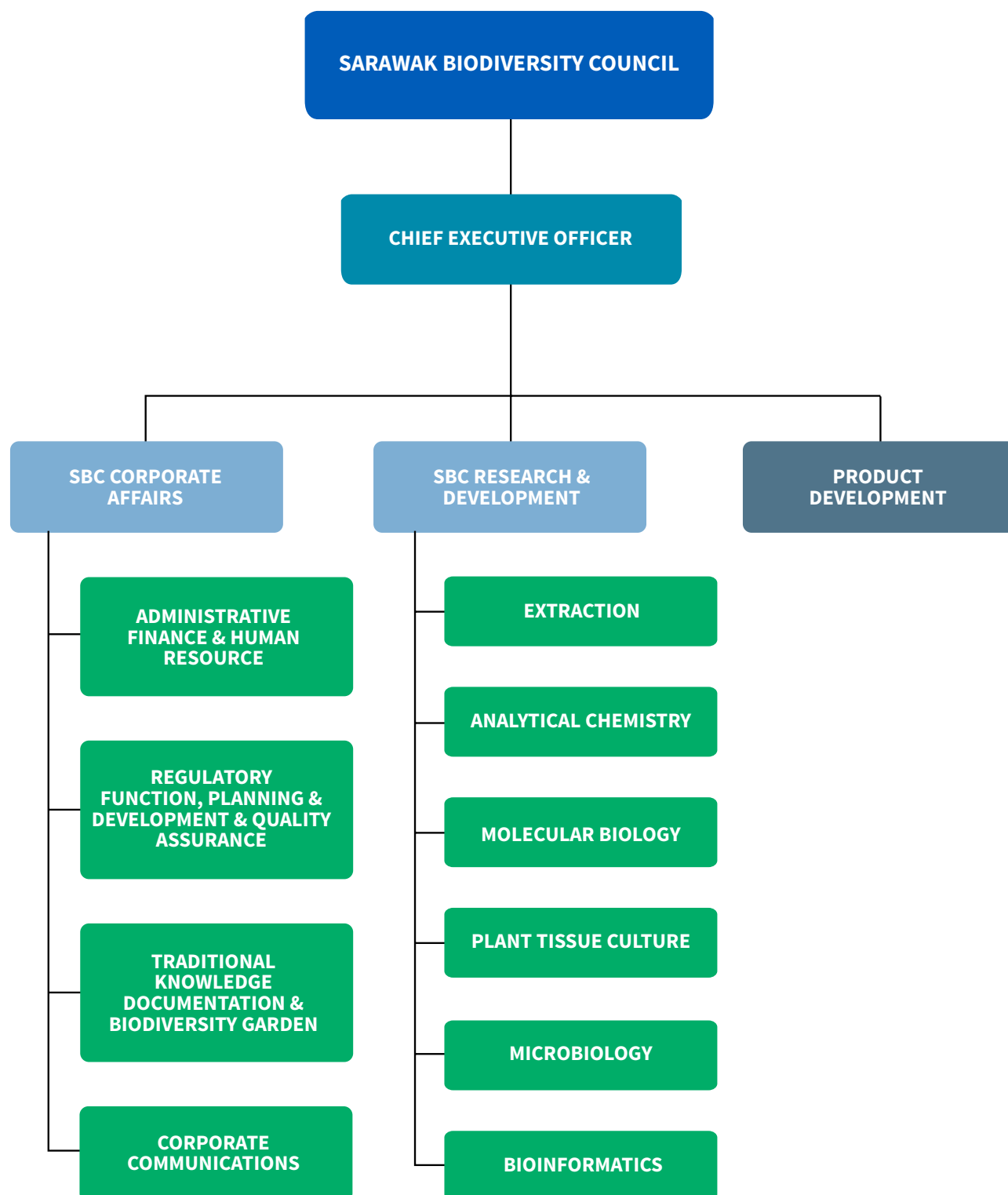


YBhg Prof Datu Dr Andrew Kiyu Dawie
Professor
Public Health, Faculty of Medicine
and Health Sciences, University of Malaysia, Sarawak



Dr Avijit Roy
Board of Director
IML Development Services Sdn Bhd

Organisation Structure





COMMITTEES UNDER THE COUNCIL

COMMITTEES UNDER THE COUNCIL

ESTABLISHMENT COMMITTEE

CHAIRMAN



YBhg Dato Sri Haji Mohamad Abu Bakar Bin Marzuki
Deputy State Secretary (Socio-Economic Transformation)

MEMBERS



YBhg Datu Sr. Zaidi Bin Haji Mahdi
Permanent Secretary
Ministry of Natural Resources and
Urban Development



Dr Alvin Chai Lian Kuet
Director of Agriculture
Department of Agriculture Sarawak



**YBhg Datu Haji Ismail
Bin Mohamad Hanis**
Director
State Human Resource Unit

SECRETARY



Dr Yeo Tiong Chia
Chief Executive Officer
Sarawak Biodiversity Centre

COMMITTEES UNDER THE COUNCIL

FINANCE AND INVESTMENT COMMITTEE

CHAIRMAN



**YBhg Datuk Amar Haji Ahmad
Tarmizi Bin Haji Sulaiman**

State Financial Secretary
2004 - 2021



**YBhg Dato Sri Wan Lizozman
Bin Wan Omar**

State Financial Secretary
w.e.f. 1st July 2021

MEMBERS



YBhg Datu Kameri Bin Haji Affandi

Permanent Secretary
Ministry of Education, Science and
Technological Research



YBhg Datu Hamden Bin Haji Mohammad

Director of Forests
Forest Department Sarawak



Dr Alvin Chai Lian Kuet

Director of Agriculture
Department of Agriculture Sarawak

SECRETARY



Dr Yeo Tiong Chia

Chief Executive Officer
Sarawak Biodiversity Centre

COMMITTEES UNDER THE COUNCIL

AUDIT COMMITTEE

CHAIRMAN



Mr John Kennedy Janang

Director
Financial Compliance Unit
State Financial Secretary's Office

MEMBERS



Mr Justine Jok Jau Emang

Controller of Environmental Quality
Natural Resources and Environment Board
1st January 2019 - 30th April 2021



Mdm Peggy Anak Ronin Edin

Controller of Environmental Quality
Natural Resources and Environment Board
w.e.f. 1st May 2021



Dr Alvin Chai Lian Kuet

Director of Agriculture
Department of Agriculture Sarawak

SECRETARY



Ms Wong Hie Ping

Accountant
Sarawak Biodiversity Centre

COMMITTEES UNDER THE COUNCIL

TECHNICAL COMMITTEE ON ACCESS AND BENEFIT SHARING

CHAIRMAN



YBhg Datu Sr Zaidi Bin Haji Mahdi
Permanent Secretary
Ministry of Natural Resources and Urban Development

MEMBERS



YBhg Datu Dr Muhammad Abdullah Bin Haji Zaidel
Director
Economic Planning Unit Sarawak



YBhg Datu Hamden Bin Haji Mohammad
Director of Forests
Forest Department Sarawak



Dr Alvin Chai Lian Kuet
Director of Agriculture
Department of Agriculture Sarawak



Tn Hj Zolkipli Bin Mohamad Aton
Chief Executive Officer
Sarawak Forestry Corporation



Dr Yeo Tiong Chia
Chief Executive Officer
Sarawak Biodiversity Centre



Ts Dr Peter Morin Nissom
General Manager
Sarawak Research and Development Council



YBhg Datu Ronnie Edward
Head of Council
Council for Native Customs and Traditions

COMMITTEES UNDER THE COUNCIL

DISCIPLINARY COMMITTEE - MANAGEMENT & PROFESSIONAL GROUP

CHAIRMAN



YB Datuk Amar Jaul Samion
State Secretary of Sarawak

MEMBERS



YA Dato Sri Talat Mahmood Bin Abdul Rashid
State Attorney-General



YBhg Datu Kameri Bin Haji Affandi
Permanent Secretary
Ministry of Education, Science and Technological Research



YBhg Dato Sri Haji Mohamad Abu Bakar Bin Marzuki
Deputy State Secretary (Socio-Economic Transformation)

COMMITTEES UNDER THE COUNCIL

DISCIPLINARY COMMITTEE - SUPPORT GROUP

CHAIRMAN



YBhg Datu Hamden Bin Haji Mohammad

Director of Forests
Forest Department Sarawak

MEMBERS



Dr Alvin Chai Lian Kuet

Director of Agriculture
Department of Agriculture, Sarawak



YBhg Datu Haji Ismail Bin Haji Mohamad Hanis

Director
State Human Resource Unit



Dr Yeo Tiong Chia

Chief Executive Officer
Sarawak Biodiversity Centre

COMMITTEES UNDER THE COUNCIL

DISCIPLINARY APPEAL COMMITTEE - MANAGEMENT & PROFESSIONAL GROUP

CHAIRMAN



YB Datuk Amar Michael Manyin Jawong
Minister
Ministry of Education, Science and Technological Research

MEMBERS



YBhg Datuk Amar Haji Ahmad Tarmizi Bin Haji Sulaiman
State Financial Secretary
2004 - 2021



YBhg Dato Sri Wan Lizozman Bin Wan Omar
State Financial Secretary
w.e.f. 1st July 2021



YBhg Datu Hamden Bin Haji Mohammad
Director of Forests
Forest Department Sarawak

COMMITTEES UNDER THE COUNCIL

DISCIPLINARY APPEAL COMMITTEE - SUPPORT GROUP

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YBhg Datu Kameri Bin Haji Affandi
Permanent Secretary
Ministry of Education, Science and Technological Research

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Natural Resources and Environment Board
w.e.f. 1st May 2021

HIGHLIGHTS - NETWORKING



HIGHLIGHTS - FUNDINGS

TERAJU Dana Pembangunan Usahawan Bumiputera entitled “Improving Sarawak’s Indigenous Community Livelihoods Through Sustainable Production and Commercialisation of LitSara®”.



United Nations Development Programme (UNDP) Orang Asli/Asal Micro Grant Facility for Conservation and Livelihood Project entitled “Strengthening Community-Based Enterprise in Conservation and Commercialisation of Products Developed from Traditional Knowledge Based on Access and Benefit Sharing Among the Bidayuh of Kampung Semadang, Penrissen and Iban of Rumah Simon, Lubok Antu, Sarawak”.



United Nations Development Programme (UNDP) COVID-19 Socio-Economic Recovery Funds entitled “Recovery Initiative of Community-Based Sector, SMEs and MSMEs Associated with Bio-Related Products in Sarawak”.

Engineering and Physical Sciences Research Council (EPSRC) grant under the University of Kent with project entitled “Developing Novel Phyto Chemicals with Malaysia to Solve Medicinal Needs.”



Engineering and Physical Sciences Research Council

University of Kent



Embarking on research innovations between Diamond Gas Holdings Sdn. Bhd. and Sarawak Biodiversity Centre in sustainable and renewable energy production.

A promising way to recycle CO₂ into biomass via photosynthesis which in turn can be used for the production of biofuel and other value-added products under the New Energy and Industrial Technology Development (NEDO) collaboration.



HIGHLIGHTS - PUBLIC REPORTS



TEDxThoughtForFood: A TEDx Countdown to a Greener Future Event

SBC was invited as a speaker for TEDxThoughtForFood: A TEDx Countdown to a Greener Future event on 8th November 2021. The goal of the event is to amplify and demonstrate climate solutions from the food and agriculture sector. Through this international event platform, SBC was able to share ideas and create awareness, especially on actions around climate solutions in support of the Conference of the Parties (COP26) of the United Nations. Margarita Naming, SBC Senior Research Officer shared Sarawak's experience in Access and Benefit Sharing (ABS) especially on the LitSara® project.



The Story of Sekiu

The Story of Sekiu, the golden oil of Sarawak, also known as Skiu or Ketiau (*Madhuca motleyana*) was published in Borneo Talk edition Vol.62 (October-December 2021). Sekiu is found mostly at Kampung Jemoreng, in Matu, Mukah. Its oil is traditionally used by the communities as food flavoring. This is one of Sarawak's collaboration projects with the United Nations Development Programme (UNDP) Malaysia aimed to empower community based business through enhanced digital skills to improve the livelihood of rural communities. The project is also supported by the Ministry of International Trade & Industry, Industrial Terminal & Entrepreneur Development (MINTRED) and Sarawak Digital Economy Corporation (SDEC).



@fortomorrow2030 - LitSara® project

@fortomorrow2030 is a partnership between Hyundai Motor Company and the United Nations Development Programme (UNDP) on empowering people to share their creative sustainability solutions towards the 2030 Sustainable Development Goals (SDGs). It is also a platform to connect innovators, to share insights and resources and to help build a better world for mankind. LitSara® was one of the brands highlighted in @fortomorrow2030.



Publications

- i. Microbial Degradation of Rubber: Actinobacteria. Authored by Dr Ann Anni Basik with co-authors, Dr Jean-Jacques Sanglier, Dr Yeo Tiong Chia and Professor Dr Sudesh Kumar. Published in the peer-reviewed, Polymers Journal by Multidisciplinary Digital Publishing Institute (MDPI, Basel).
- ii. Rubber Degrading Strains: *Microtetraspora* and *Dactylosporangium*. Authored by Dr Ann Anni Basik with co-authors Dr Nanthini Jayaram, Dr Yeo Tiong Chia and Professor Dr Sudesh Kumar. Published in the peer-reviewed, Polymers Journal by Multidisciplinary Digital Publishing Institute (MDPI, Basel).
- iii. The contribution of Access and Benefit-Sharing (ABS) to the Sustainable Development Goals. Lessons learned and best practices. Information compiled by Union for Ethical BioTrade (UEBT), GeoMedia GmbH & Institute for Biodiversity Network (ibn). Commissioned by the German Federal Agency for Nature Conservation with funds from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.
- iii. Strengthening the National ABS Framework and delivery environmental, social and economic benefits through the anti-microbial and anti-inflammatory properties of *Litsea cubeba* was authored by Pek Chuan Gan (UNDP, Malaysia) and Margarita Naming (SBC). This article was published in UNDP and Global Environment Facility (GEF) Access to Genetic Resources and Benefit Sharing: Theory to Practice under the Nagoya Protocol.



EMERGING FROM THE PANDEMIC

EMERGING FROM THE PANDEMIC



The molecular laboratory also improved its screening capability and upgraded research tools by adding biosafety cabinet class III, which allows handling of coronavirus

OUR EXPERIENCE

Worldwide spread and rapid increase of COVID-19 cases throughout the world and in our country has led to the implementation of the nationwide Movement Control Order (MCO) since March 2020. Since then, Malaysia has gone through different phases of lockdown as part of the measures taken by the government to control the spread of COVID-19. In line with the government implementation, the Work from Home Policy was implemented in SBC. Face masks from the laboratories were distributed for all to use as well as our very own LitSara® hand sanitiser. Social distancing as well as frequent sanitising of common work areas and surfaces were also implemented.



EMERGING FROM THE PANDEMIC



Anti-viral screening of SBC's Natural Product Library that inhibit various viral proteins essential to the replication and transmissibility of SARS-CoV-2

A series of discussions in early 2021 with the Sarawak Research and Development Council (SRDC) on future preparedness against SARS-CoV-2 and other emerging infectious diseases were carried out. Following this, a 2-year joint project in screening for anti-viral activities from SBC's Natural Product Library took place. Sarawak's journey to find a solution from the rainforest for the covid disease has taken off on a hopeful start.

EMERGING FROM THE PANDEMIC

POST COVID-19 DEVELOPMENT STRATEGY 2030 (PCDS 2030)

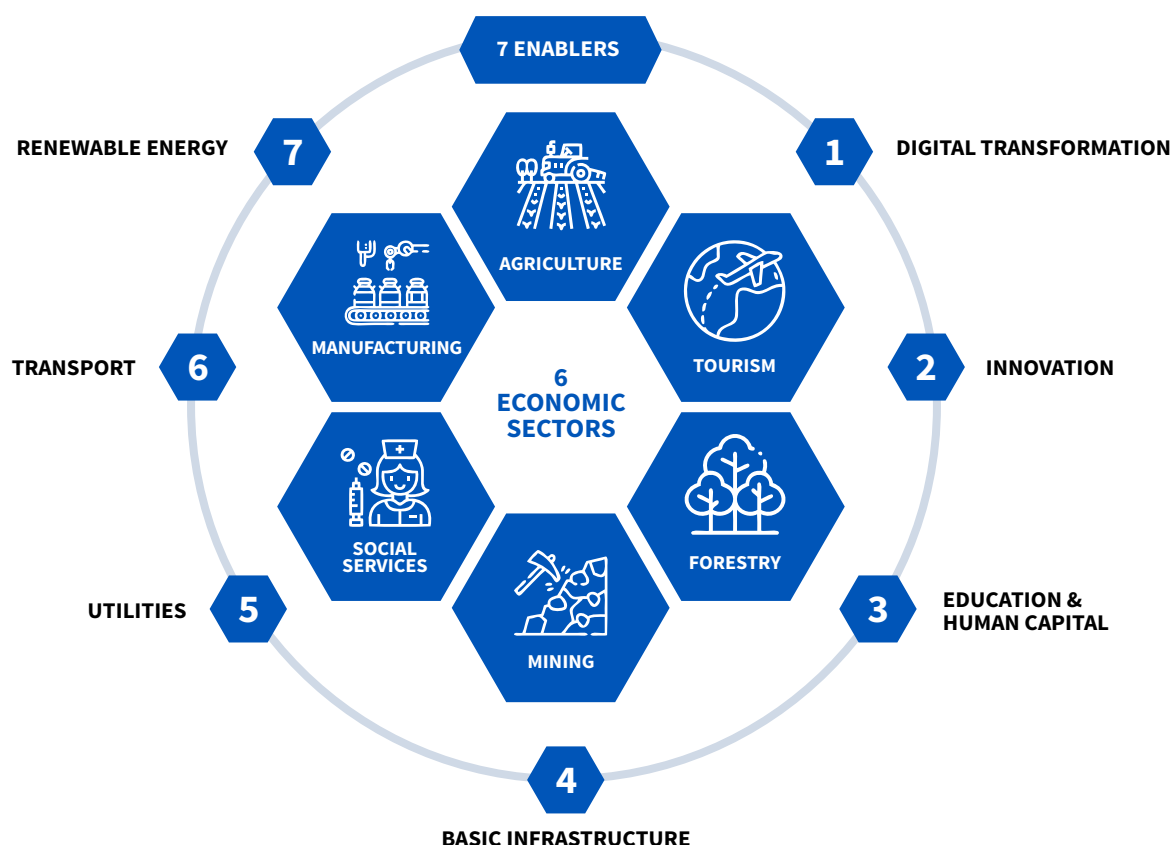
The Premier of Sarawak envisions that Sarawak will be a thriving society driven by data and innovation where everyone enjoys economic prosperity, social inclusivity and sustainable environment by 2030. This vision is anchored on three key pillars namely economic prosperity, social inclusivity and environmental sustainability.

The respective targets are:

Economic prosperity	Grow GDP at ~8% per year and achieve RM282 billion by 2030, from an average 3.4% annual growth between 2006 - 2019
Social inclusivity	Increase median monthly household income from estimated RM4,500 in 2019 to RM15,000 by 2030, driven by higher job and entrepreneurial opportunities
Environmental sustainability	Ensure a clean and healthy environment for current and future generations with safely managed water and sanitation services, sustainable forest management, as well as adoption of new technologies and innovation to support Malaysia's commitment to reduce greenhouse gas (GHG) emissions intensity of GDP by 45% by 2030

The Plan represents a cohesive and robust strategy, necessary to address the worldwide economic disruption caused by the COVID-19 pandemic. This Plan is also designed to propel Sarawak towards a transformed economy that focuses on globalization, supply chain resilience, digitalization, new industrial revolution, circular value chain, and low carbon emission.

The Plan has identified 13 key sectors. Six economic sectors and seven enablers. Economic sectors produce economic activity and employment, while the social services sector is focused on providing services to the people. The enablers aim to produce employment opportunities and provide conducive environments for activities in economic sectors to thrive. The list of economic sectors and enablers is illustrated below.

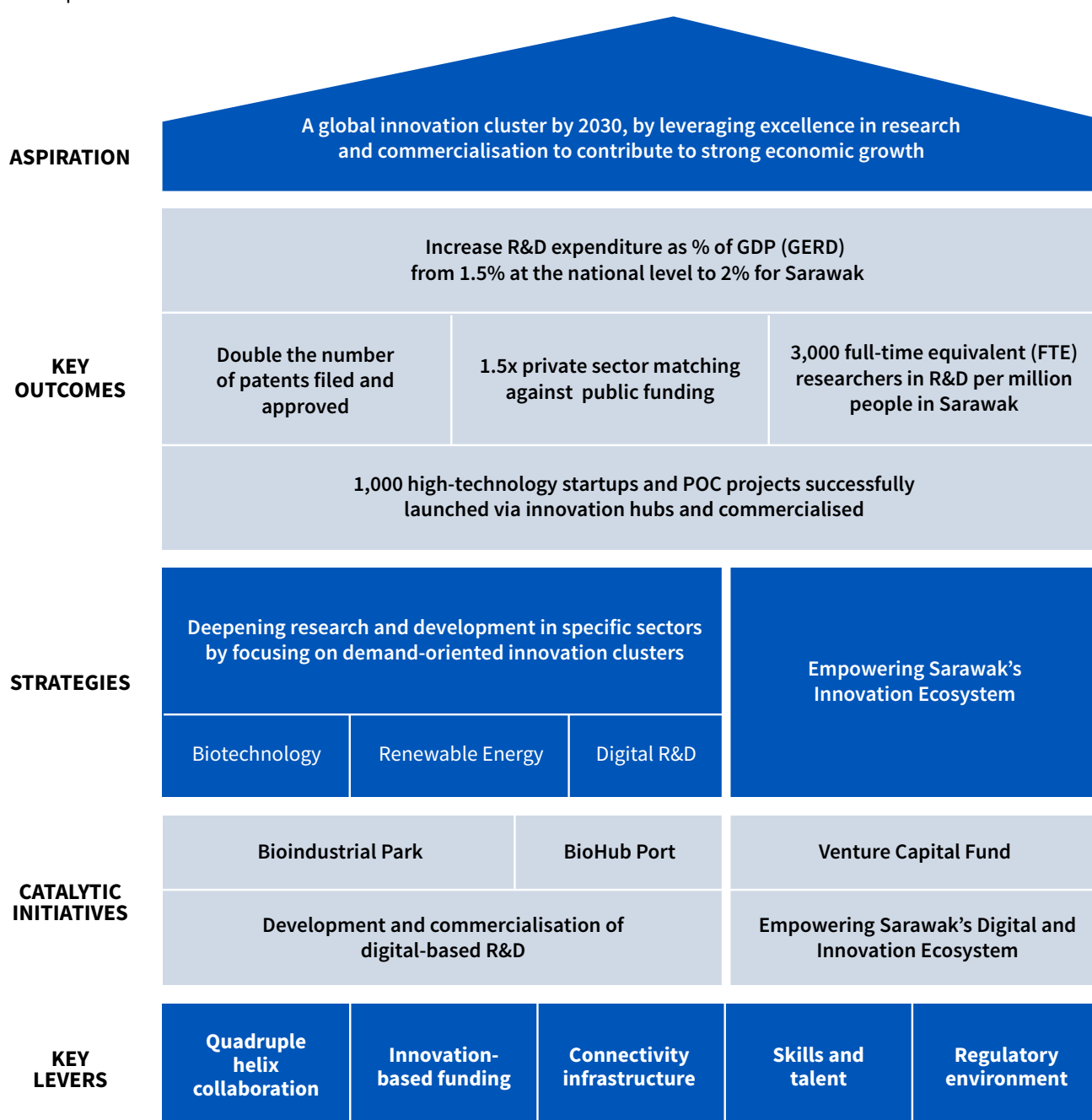


EMERGING FROM THE PANDEMIC

POST COVID-19 DEVELOPMENT STRATEGY 2030 (PCDS 2030)

SBC spearheads Innovation cluster for PCDS 2030. An innovative nation will place Sarawak on the map not only in terms of economic growth but will also create more opportunities for our people to perform high-value jobs. Innovation will be the key to catapult Sarawak towards a high-income nation. Innovation cuts across all sectors and touch all segments of society.

Sarawak will power innovation through ramping up R&D efforts, such that R&D expenditure in the State should increase to at least 2% of the State's GDP and for every Ringgit the government spends on R&D, we require the private sector to invest, matching at least 1.5 times the public funding. We are also targeting to double the number of patents from Sarawak, increase the number of researchers and build a friendly environment for Sarawakians to start their own businesses. Our goal is to achieve more than one thousand (1,000) high technology start-ups and world-class business culture from our innovation hubs.

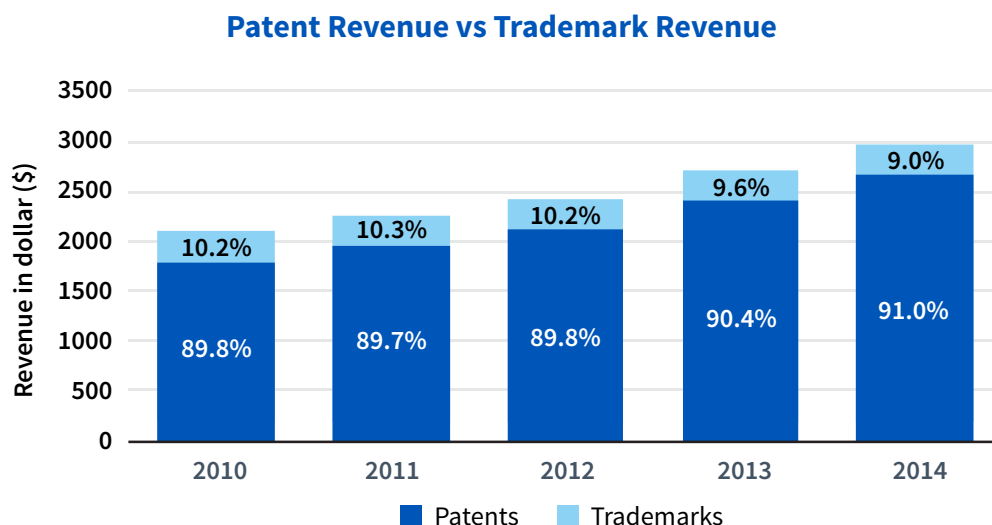


Aspiration framework for Innovation cluster

EMERGING FROM THE PANDEMIC

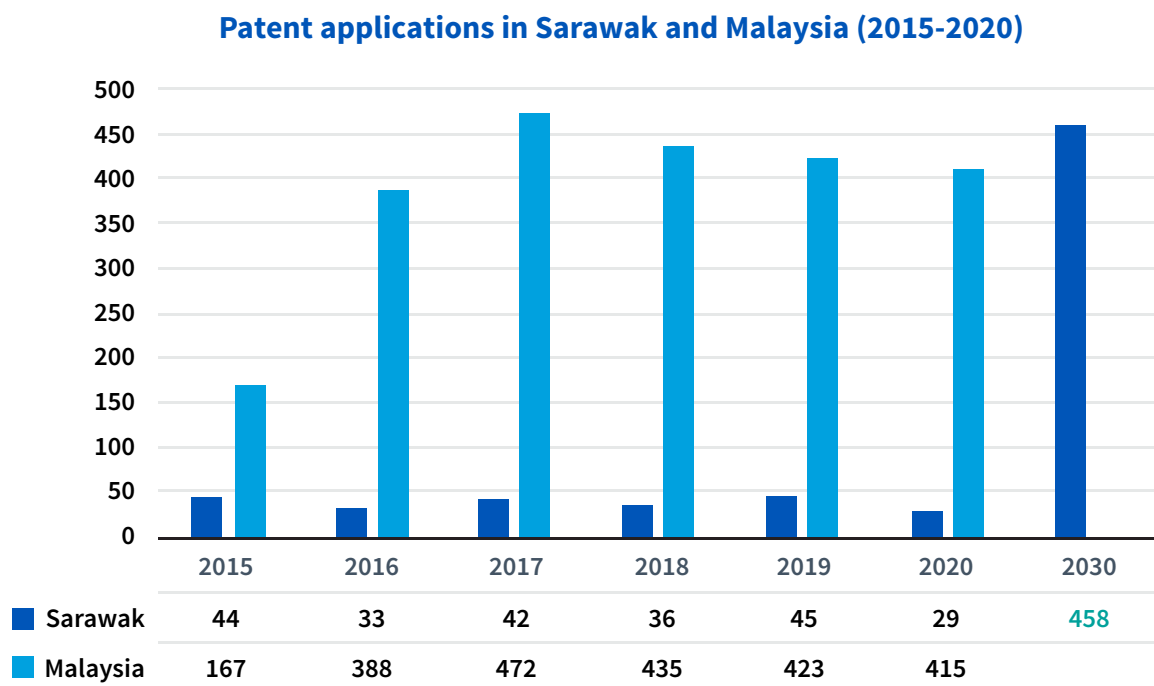
POST COVID-19 DEVELOPMENT STRATEGY 2030 (PCDS 2030)

The innovation cluster uses Global Innovation Index (GII), data site published by the World Intellectual Property Organization (WIPO), to provide insightful data on innovation and assist policy makers evaluate innovation performance and make informed innovation policy decisions. Based on the GII tool, the Innovation cluster aims to double the number of patents. According to United States Patent and Trademark Office (USPTO), around 90% revenue comes from IP related to patent as compared to trademarks.



Source: USPTO website (2015)

The accumulative number of patents applied in Sarawak from 2015 to 2020 is 229 patents. Hence, by 2030, we target the key outcome of 458 patents registered from Sarawak.



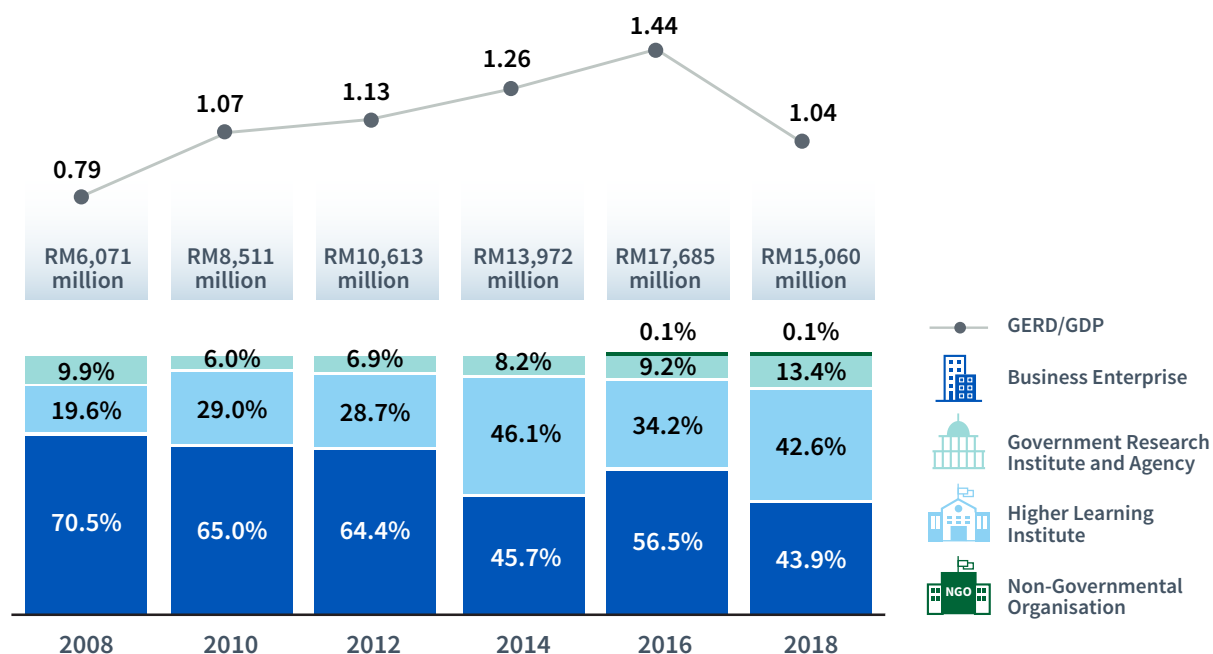
Source: MyIPO Statistics Database

EMERGING FROM THE PANDEMIC

POST COVID-19 DEVELOPMENT STRATEGY 2030 (PCDS 2030)

Malaysia's gross domestic product (GDP) to reach RM3.4 trillion by 2030 based on Shared Prosperity Vision 2030. MOSTI's Dasar Sains, Teknologi dan Inovasi Negara (DSTIN) targets 3.5% GERD by 2030. This is equivalent to RM119 billion. Sarawak targets 2% GERD by 2030 which is equivalent to RM5.5 billion by 2030, based on Sarawak's target of RM282 billion GDP by 2030.

R&D Expenditure in Malaysia, 2008-2018



Source: National Survey of Research and Development (R&D) in Malaysia 2019, Malaysian Science and Technology Information Centre (MASTIC), 2020

Full-Time Equivalent (FTE) is the amount of time in a year that researchers, whether full or part time, devote to R&D projects. Under the Innovation cluster, it aspires to achieve 3,000 full-time equivalent (FTE) researchers in R&D per million population in Sarawak.

	2010		2019		Projected Value	
	Total Population	No. of FTE of R&D personnel	Total Population	No. of FTE of R&D personnel	Total Population	No. of FTE of R&D personnel
Malaysia	28,210,000 ^A	41,253 ^D	32,520,000 ^B	89,200 ^E	36,400,000 ^B	192,800
Sarawak	2,471,140 ^C	NA	2,810,000 ^C	NA	3,285,000 ^B	9,600

Data Source:

A. The World Bank, World Development Indicator

B. Department of Statistics Malaysia (DOSM)

C. The Official Portal of Sarawak Government

D. Science Outlook, 2017, Academy of Sciences Malaysia

E. Malaysian Science and Technology Information Centre (MASTIC)

EMERGING FROM THE PANDEMIC

SARAWAK BIOINDUSTRIAL PARK (SBP)

The Sarawak Bioindustrial Park (SBP), is a catalytic initiative under PCDS 2030 located in Kota Samarahan district. The SBP focuses on fostering bio-based industries in five niche areas of Bioactives, Biohealth, Biomaterials, Bioenergy and Bioenvironmental sectors. The core concept of SBP is to embrace the commercialisation of bio-based research and to promote itself as a high-tech investment opportunity and resource for biotechnology companies.

The SBP is committed to position itself as a One Stop Centre (OSC) to provide end-to-end assistance and to link key companies in the Sarawak's bioeconomy value chain. It seeks to facilitate access to Sarawak's biodiversity and natural resources as well as to maximise the potential for commercialisation of these resources.

The physical development of SBP will be carried out in four phases over the period of 15 years (Figure 1). Upon completion, the 100-acre SBP will be equipped with a Central Hub, common infrastructure, and 27 industrial plots. The Central Hub serves as a co-working lab, an operation & administrative centre, and office spaces to fulfill the operational needs of companies at different growth stages.

The SBP offers exciting new opportunities for companies to expand their operations and geographical reach in Asia's fast-growing bio-based industries. Coupled with the attractive incentives offered by the Federal and Sarawak governments, SBP offers an ideal opportunity and a strategic location for bio-based companies to establish their businesses.



Figure 1: The Physical Development of SBP in 4 phases over a 15-year period

Key Niche Areas



Bioactives

- Functional foods
- Fragrances
- Flavouring



Biohealth

- Nutraceuticals
- Pharmaceuticals



Biomaterials

- Bio-based manufacturing
- Bio-based chemicals



Bioenergy

- Sustainable fuels



Bioenvironment

- Bioremediation

EMERGING FROM THE PANDEMIC

OUR STRATEGIC PLAN 2021 - 2030

Our strategic plan serves as the milestone in the implementation of our journey for the next 10 years. The aim is to develop SBC as a global knowledge enterprise that leverages on biodiversity and indigenous knowledge through advancements in technology and smart partnerships with renowned organisations from all over the world.

Through this plan, SBC aspires to achieve the following:



RM1 billion funding for R&D

Spur research and development (R&D), infrastructure development, expansion of research areas, capacity enhancement and recruitment of talents.

Bioresource-based products

Produce and commercialise products with a total value of RM250 million.



Community Benefit RM40 million

Provide an average of RM1,500 additional income for 200 households.

Established Bio-Industrial Park

Attract RM1 billion in investments. Catalysing the growth of a solid bioindustry in Sarawak. 100 acres construction complete by 2030.



Bio-Industry investment of RM1.3 billion

Equivalent of 1% Sarawak's GDP based on the 2018 GDP of RM132.7 billion.

AI-driven R&D

Establish core competencies in AI-driven data analytics for natural product discovery and development.



Positioned as a Global Knowledge Enterprise

Unleash the full potential of Sarawak's biodiversity.

1,000 Jobs

Creation of 1,000 jobs in the bio-sector.





EMPOWERMENT OF COMMUNITIES

EMPOWERMENT OF COMMUNITIES

Preserving Traditional Knowledge Through Documentation

Since early 2002, under the Traditional Knowledge (TK) Documentation Programme, SBC works closely with the indigenous communities throughout Sarawak to preserve their TK on useful plants. TK is the know-how, skills, and practices that are developed, sustained, and passed on from generation to generation within a community, often forming part of its culture.

Since then, SBC has documented a total of 6,818 plants from 103 locations with 1,798 species identified. This year, the Lahanan community participated in the programme, bringing a total of 22 out of 28 ethnic communities that have participated in the programme.



Documentation of useful plants with Iban community of Rumah Simon, Lubok Antu, Sri Aman



Youth of Kampung Panakub Ulu, Mukah recording and taking photos of useful plants during the 1st TK Documentation Workshop

TK Consultative Meetings with the Community Leaders

- Bidayuh community, Padawan Sub-District Office, Kuching
- Iban community, Serian District Office, Samarahan
- Sihan and Tanjung communities, Belaga District Office, Bintulu
- Lahanan and Seping communities, Sg Asap Sub-District Office, Bintulu
- Lakiput community, Marudi District Office, Miri
- Iban community, Debak Sub-District Office, Sri Aman

1st TK Documentation Workshops

- Lun Bawang community at Long Kachu, Trusan Lawas, Limbang
- Iban community at Kampung Engkeranji, Sri Aman
- Lahanan community at Kampung Lahanan, Long Semuang, Belaga, Bintulu
- Iban community at Kampung Semada, Gedong, Simunjan
- Bidayuh community at Kampung Bra'ang Temurang, Padawan, Kuching
- Melanau community at Kampung Penakub Ulu, Mukah

TK Follow-Up Workshops

- Bidayuh community at Kampung Peninjau Baru, Bau, Kuching
- Iban community at Kampung Encharang Banting, Lingga, Sri Aman
- Penan community at Long Sayan, Baram, Miri
- Melanau community at Kampung Igan, Mukah
- Sekapan community at Kampung Sekapan Piit, Belaga, Bintulu
- Kenyah community at Long Apu, Baram, Miri

EMPOWERMENT OF COMMUNITIES

NUMBER OF PLANTS DOCUMENTED AND COLLECTED

COMMUNITY	NO.	VILLAGES	NO. OF PLANTS COLLECTED	TOTAL PLANTS COLLECTED
BIDAYUH	1	Kampung Duyoh, Bung Jagoi, Bau, Kuching	46	1,258
	2	Kampung Kiding, Padawan, Kuching	530	
	3	Kampung Semadang, Penrissen, Kuching	311	
	4	Kampung Semban, Padawan, Kuching	124	
	5	Kampung Serin, Serian, Samarahan	17	
	6	Kampung Lanchang, Serian, Samarahan	59	
	7	Kampung Simuti, Padawan, Kuching	50	
	8	Kampung Chupak & Skuduk, Siburan, Kuching	14	
	9	Kampung Peninjau Baru, Bau, Kuching	48	
	10	Kampung Tringgus, Bau, Kuching	16	
	11	Kampung Tepoi, Tebedu, Kuching	13	
	12	Kampung Rejoy, Padawan, Kuching	12	
	13	Kampung Bra'ang Temurang, Padawan, Kuching	18	
IBAN	1	Rumah Skatap, Betong	276	1,603
	2	Rumah Janang (previously known as Rumah Nyambong), Selangau, Sibu	89	
	3	Rumah Emak, Kapit	89	
	4	Rumah Changai, Song, Kapit	86	
	5	Rumah Simon, Bui Panjai, Batang Ai, Lubok Antu, Sri Aman	86	
	6	Rumah Patric (previously known as Rumah Bana), Sebauh, Bintulu	86	
	7	Rumah Roland (previously known as Rumah Lulut), Kapit	55	
	8	Rumah Rapak Tepus, Pantu, Sri Aman	54	
	9	Rumah Bajau, Julau, Sarikei	71	
	10	Rumah Ngumbang, Nanga Sumpa, Batang Ai, Sri Aman	32	
	11	Kampung Sual, Simunjan, Samarahan	53	
	12	Ulu Mentawai expedition, Limbang	51	
	13	Rumah Entakong, Nanga Medamit, Limbang	54	
	14	Rumah Misoon, Sibuti, Miri	45	
	15	Kampung Sungai Rama, Sebuyau, Samarahan	48	
	16	Karangan Mong, Lubok Antu, Sri Aman	33	
	17	Rumah Kino, Lubok Antu, Sri Aman	39	
	18	Rumah Tanjung Baru, Maludam, Betong	16	
	19	Kampung Jambu Kelampak, Ulu Laya, Betong	16	
	20	Rumah Sabang Babang, Krian, Saratok, Sarikei	14	
	21	Rumah Charlie, Nanga Melipis, Kanowit, Sibu	14	
	22	Rumah Abok/ Kampung Mulong, Beluru, Miri	20	
	23	Rumah Encharang, Banting, Lingga, Sri Aman	53	
	24	Kampung Pulau Sibau, Balleh, Kapit	52	
	25	Rumah Nyalong, Pakan, Sarikei	34	
	26	Rumah Tengah (Marcus Minggu), Sg Peking, Tinjar, Miri	17	
	27	Rumah Machup, Roban, Betong	18	
	28	Rumah Kenedy, Beletik Undop, Sri Aman	23	
	29	Kampung Terasi, Sadong Jaya, Samarahan	14	
	30	Kampung Engkeranji, Lingga, Sri Aman	44	
	31	Kampung Semada, Gedung, Simunjan, Samarahan	21	
	32	Kampung Sepaya, Lubok Antu, Sri Aman	27	

EMPOWERMENT OF COMMUNITIES

NUMBER OF PLANTS DOCUMENTED AND COLLECTED

COMMUNITY	NO.	VILLAGES	NO. OF PLANTS COLLECTED	TOTAL PLANTS COLLECTED
KAYAN	1	Rumah Lesong, Sungai Asap, Belaga, Kapit	81	251
	2	Long Bedian, Baram, Miri	75	
	3	Uma Bawang, Long Lama, Baram, Miri	29	
	4	Long Amo, Belaga, Kapit	66	
KELABIT	1	Pa' Derung, Bario, Miri	12	500
	2	Pa'Lungan, Bario, Miri	303	
	3	Pa'Ukat, Bario, Miri	163	
	4	Long Lellang, Baram	22	
KENYAH	1	Long Pelutan, Baram, Miri	127	303
	2	Long Ikang, Marudi, Miri	79	
	3	Long Palai, Baram, Miri	31	
	4	Long Apu, Baram, Miri	14	
	5	Uma Kelep, Sungai Asap, Belaga, Kapit	52	
LUN BAWANG	1	Ba' Kelalan, Lawas, Limbang	48	702
	2	Long Kerebangan, Lawas, Limbang	184	
	3	Long Telingan, Lawas, Limbang	120	
	4	Long Sebangang Asal, Lawas, Limbang	49	
	5	Long Tuyu / Paya Maga Expedition, Lawas, Limbang	137	
	6	Long Tuyu/ Long Sukang, Lawas, Limbang	59	
	7	Pa' Berunut, Lawas, Limbang	20	
	8	Long Tuan, Trusan, Lawas, Limbang	23	
	9	Kampung Long Kachu, Trusan, Lawas, Limbang	30	
	10	Kampung Long Semadoh, Lawas	32	
MELANAU	1	Kampung Jebungan, Mukah	96	252
	2	Kampung Pangtray, Daro, Mukah	48	
	3	Kampung Jemoreng, Matu, Mukah	30	
	4	Kampung Paloh, Belawai, Mukah	37	
	5	Kampung Igan, Mukah	21	
	6	Kampung Tanam, Dalat, Mukah	20	
PENAN	1	Long Iman, Mulu, Miri	538	1,112
	2	Batu Bungan, Mulu, Miri	452	
	3	Long Latei, Long Bedian, Marudi, Miri	6	
	4	Long Wat, Murum, Bintulu	51	
	5	Long Seridan, Miri	9	
	6	Long Malim, Murum, Bintulu	38	
	7	Long Sayan, Long Lama, Apoh Baram, Miri	18	

EMPOWERMENT OF COMMUNITIES

NUMBER OF PLANTS DOCUMENTED AND COLLECTED

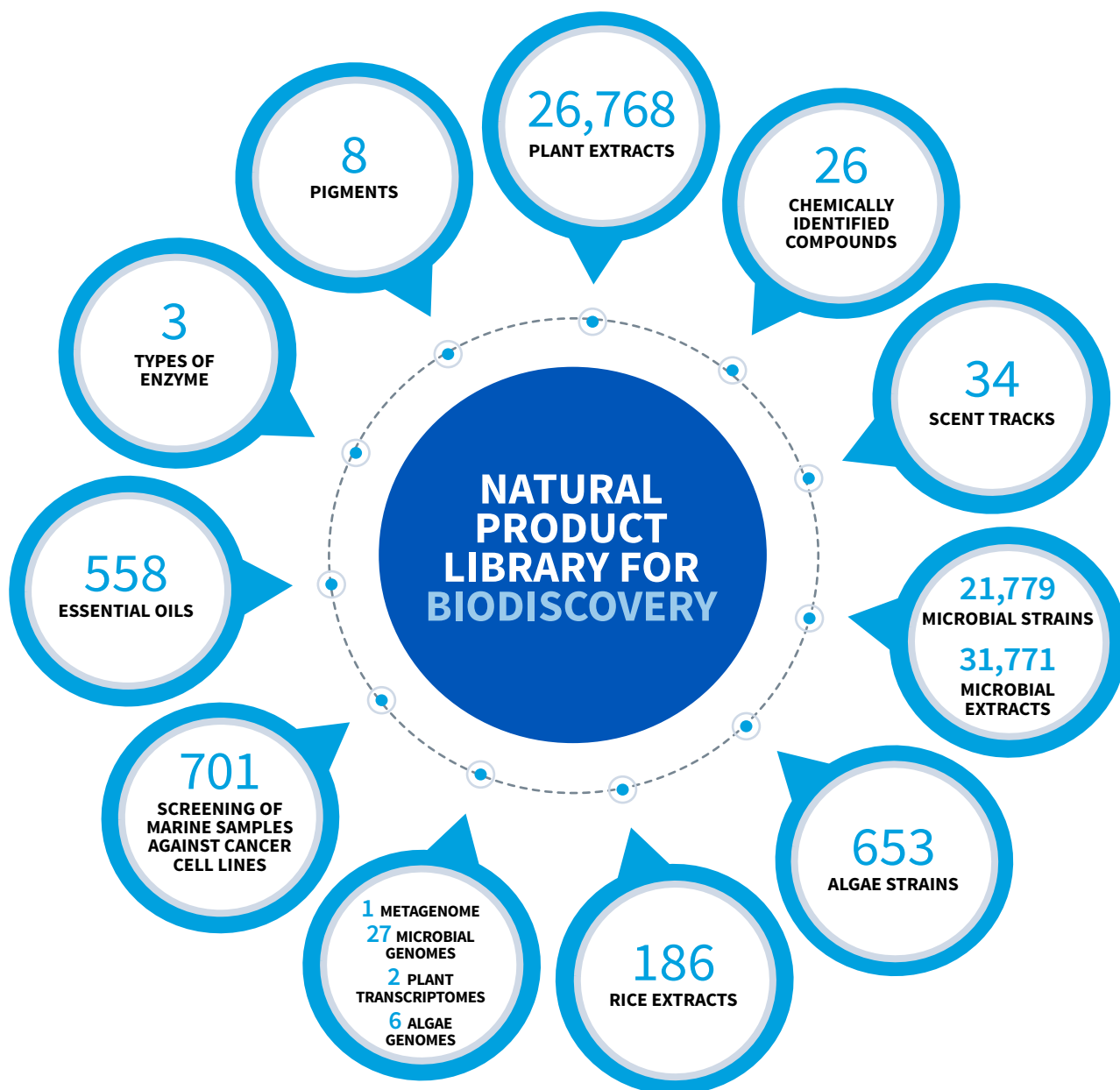
COMMUNITY	NO.	VILLAGES	NO. OF PLANTS COLLECTED	TOTAL PLANTS COLLECTED
PUNAN	1	Rumah Ado, Tatau, Bintulu	39	39
SELAKO	1	Kampung Pueh, Sematan, Kuching	112	137
	2	Kampung Temaga Dayak, Sematan, Kuching	25	
KEDAYAN	1	Rumah Ajan, Merapok area, Lawas, Limbang (with Iban & Lun Bawang communities)	85	85
TABUN	1	Kampung Kuala Medalam, Nanga Mendamit, Limbang	51	51
BISAYA	1	Kampung Bidang, Limbang	30	30
MALAY	1	Sundar, Lawas, Limbang (with Lun Bawang & Chinese)	38	213
	2	Maludam area, Maludam, Betong (with Iban community)	25	
	3	Kampung Hulu, Bako, Kuching	30	
	4	Kampung Hilir, Bako, Kuching		
	5	Sebuyau area, Samarahan	48	
	6	Kampung Pasir Pandak, Santubong, Kuching	28	
	7	Kampung Selabat/ Pasir Putih, Muara Tebas, Kuching	24	
	8	Kampung Bangka Semong, Muara Tuang, Samarahan	20	
BEKETAN	1	Rumah Seking, Nanga Merit, Kapit	35	35
SA'BAN	1	Long Banga, Marudi, Miri	79	79
SEKAPAN	1	Kampung Sekapan Piit, Belaga, Kapit	33	33
TANJONG	1	Kampung Man Ili, Kapit	24	24
TAGAL	1	Long Tengoa, Lawas, Limbang	20	20
BERAWAN	1	Long Terawan, Mulu, Miri	22	22
KEJAMAN	1	Kampung Kejaman Lasah, Belaga, Kapit	39	39
LAHANAN	1	Uma Lahanan, Long Semuan Belaga	30	30
TOTAL NUMBER OF PLANTS COLLECTED				6,818



SUSTAINABLE BIOPROSPECTING

SUSTAINABLE BIOPROSPECTING

Treasure of Sarawak, Natural Product Library



SBC's Natural Product Library (NPL) comprises of Borneo's most comprehensive collection of chemical and biological diversity. Since 2004, the NPL has expanded to include not only plant resources with traditional knowledge but also microbial, marine, essential oil, algae and genomes. The expansion of the NPL will increase the chances of more success in drug discovery and also for the development of product in cosmeceutical, nutraceutical and pharmaceutical. The recent addition to SBC's microbial collection is the lactic acid bacteria (LAB). LAB from eleven distinct species include *Lactobacillus* sp., *Pediococcus* sp., *Weissella* sp., and *Leuconostoc* sp., isolated from indigenous fruit and vegetable samples and faeces of primates and native birds of Borneo. These LAB can be developed into functional ingredients such as probiotics or as antimicrobial agents.

SUSTAINABLE BIOPROSPECTING

Extraction Process

A total of nine new collection of essential oils and five scent profiles were established this year. These include two floral scents trapped in the vicinity of the Permai Rainforest at Santubong, and three scents from the *Cinnamomum parthenoxylon* species.

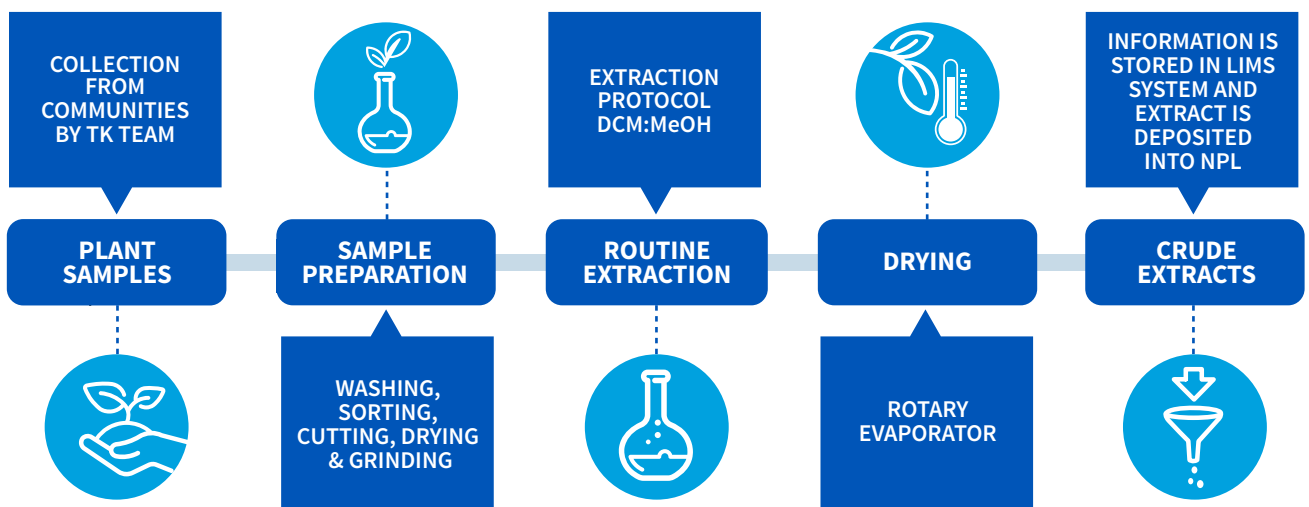


Preparing plant samples for extraction



Distillation of essential oil from aromatic plants using the cleverger apparatus

Extraction of plants and essential oils have become a routine process at SBC in expanding the NPL. In the process, SBC ensures that the extracts and essential oils produced are of high quality with constant monitoring using High Performance Liquid Chromatography (HPLC) and Gas Chromatography Mass Spectrometry (GCMS).



Process of plants collection to extraction of samples

Notes: MeOH, Methanol ; DCM, Dichloromethane ; LIMS, Laboratory Information Management System

SUSTAINABLE BIOPROSPECTING

From Nature to Product



NatureSara® linen spray is infused with scents captured from intact flowers and reconstructed into SBC's proprietary fragrance ingredients. The product, although pocket-in-size, can last up to 110 spritz

Two new products were launched under the trademark of NatureSara®, which are the linen spray and biodegradable wipes. These products are now available in retail stores, widening the brand awareness on products with SBC trademarks. The linen spray comes in four varieties of nature identical scents of Hedychium, Magnolia, Cananga, and the Sarawak's official flower, the Bellina orchid. The eco-friendly wipes are available in three scents namely Sarawak Litsea, Aglaia and also Bellina. The product development team is also finalising the formulation of repellent spray and mouthwash products which contain AdenoSara® essential oil and their identical Oregano scents. These new products will be commercialised under the NatureSara® trademark.



NatureSara® and AdenoSara® prototypes developed from the essential oil extracted from the Adenosma nelsonioides' plant. The plant, often regarded as weed, has long been used by the local communities to protect their domesticated livestock against ticks and flea. When analysed, the essential oil exhibits superior anti-microbial activity as well as repellency towards pests

SUSTAINABLE BIOPROSPECTING

Sustainable Supply of Plants



Planting stocks of aromatic material

Plant Tissue Culture (PTC) plays a vital role in providing a sustainable supply of planting stock for research and product development. In 2021, PTC produced 25,000 planting stocks for four commercial plant species, namely the *Piper sarmentosum* (Kadok), the *Pogostemon cablin* (Nilam), the *Cymbopogon citratus* (Serai makan) and the *Cymbopogon nardus* (Serai wangi). The planting stocks are supplied to contract farmers for mass propagation to produce sufficient raw material for distillation of essential oil. Other targeted plants for essential oil production includes *Artemisia vulgaris* (Hiya) and *Plectranthus amboinicus* (Ati-ati putih and Ati-ati hijau).

A total of 12,500 and 21,000 tissue culture plantlets of *Boesenbergia stenophylla* (Jerangau Merah) and *Litsea cubeba* (Pahkak), respectively were successfully propagated and will be further acclimatised. Agricultural protocol for *Adenosma nelsonioides* (Bunga Ta'ang) was established and is shared with community for mass propagation.

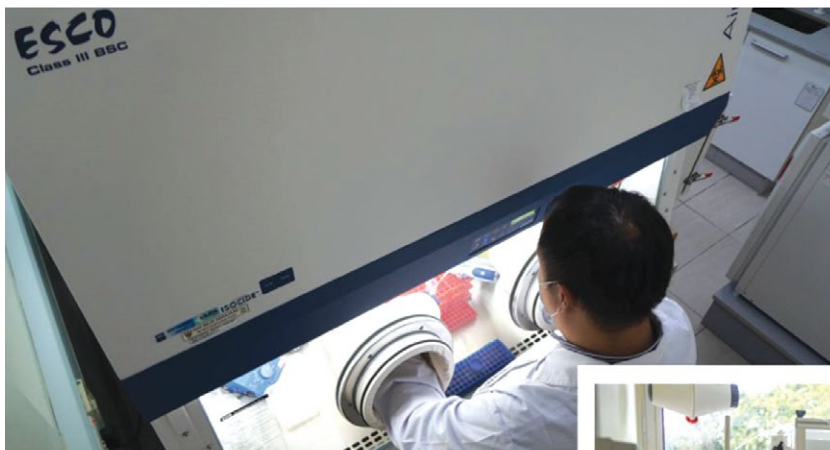


Propagation of *Litsea cubeba* - from tissue culture plantlet to seedling

SUSTAINABLE BIOPROSPECTING

Discoveries, Bioactive Compounds

The Analytical Chemistry Laboratory, Molecular Biology Laboratory and Microbiology Laboratory are working synergistically in the discovery of novel compounds that are biologically active and patentable.



Class III Biological Safety Cabinet for handling pathogenic samples

Automated flash column chromatography system for pre-fractionation



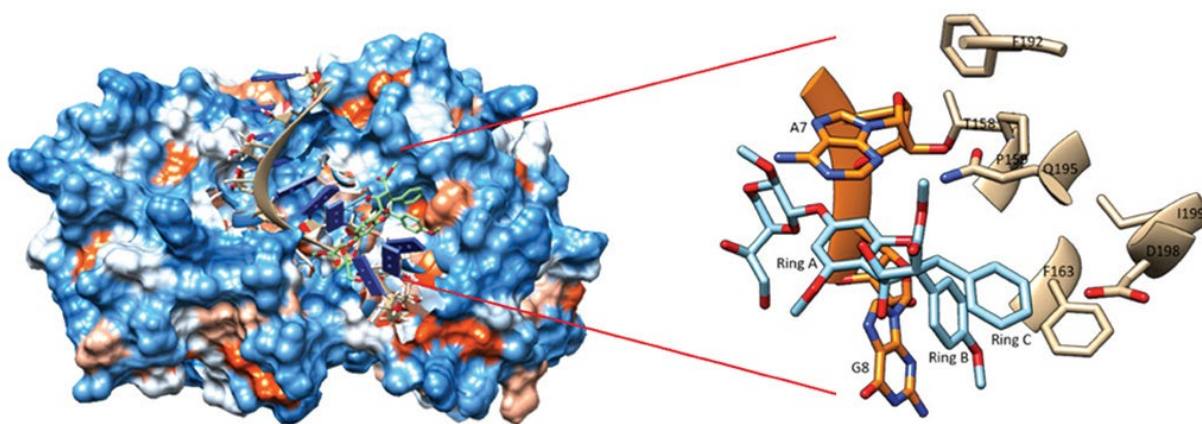
Fermentation process to fractionation of bioactive compounds



SUSTAINABLE BIOPROSPECTING

Discoveries, Bioactive Compounds

Silvestrol was recently evaluated as a potential clinical candidate for treating autoimmune diseases. The preliminary efficacy and safety of silvestrol was confirmed in an *in vivo* study using mice model of immune inflammation. The team also undertook transcriptomic profiling assay of silvestrol in a number of mammalian cell lines to understand the mechanism of action and the cellular regulatory roles of silvestrol.

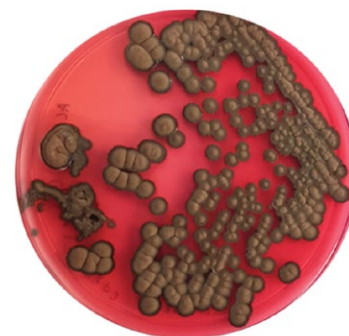


3D molecular images of Silvestrol Binding site in eIF4A

A novel bioactive compound isolated from a fungal strain, *Fusarium sp.* found in a flower of a yam plant, *Alocasia sp.* (Keladi Semerang) has prolyl oligopeptidase (POP) activity. Hence, a patent application of the novel compound for potential treatment of neurodegenerative disease and its chemical isolation method was filed in 2020. To ensure sufficient compound material for further pre-clinical studies, the team embarked on studies to synthesise the compound. The study is still on-going due to the complexity of the compound structure.

A red pigment isolated from a fungus strain, *Ramichloridium sp.* was found to be stable under acidic to neutral condition (pH1 to pH7). The pigment demonstrated mild antioxidant activity and weak antimicrobial activity against *Staphylococcus aureus*, *Klebsiella pneumoniae* and *Aspergillus niger*. It was found to have cytotoxic activity against both normal and cancer cell lines.

We will be looking into the compound Structure Activity Relationship (SAR) to determine its identity.



Ramichloridium sp

SUSTAINABLE BIOPROSPECTING

Refining the “Green Gold”



Daily sampling at the 1,000 m² Algae Cultivation Facility

With the establishment of the 1,000 m² Algae Cultivation Facility (ACF) in the year 2019, high-quality microalgae compound called phycocyanin, a blue protein-pigment complex has been produced from spirulina.

Two other microalgae species, a *Chlorella* sp. and a *Isochrysis* sp. are being scaled up for potential use in aquaculture and healthcare industries. Prawn pellet formulation made with microalgae biomass has been developed and tested at shrimp farms to determine commercial possibility. The ACF is further equipped with a vacuum insulated evaporator tank, a drying shed and sensors for Internet of Things (IoT) to improve production of raw materials. This complete the set up, makes ACF a perfect test bed for bioindustrial players to evaluate their strains of interest. SBC plans to obtain Malaysian Good Agricultural Practices (MyGap) certification for the ACF.



Phycocyanin, extracted from *Spirulina* (left) and *Spirulina*, dried biomass (right)

SUSTAINABLE BIOPROSPECTING

Chemical Diversity of Borneo Rainforest in a Bottle



With the increasing number of NPL entries, SBC's secured Laboratory Information Management System (LIMS) plays an important role in keeping track of the natural products through a systematic barcoding system. The extracts are individually labelled with barcodes containing unique identifiers which lead to vast array of encrypted information such as the species name, the plant part(s), the GPS location of the collection site and its documented traditional knowledge. The extracts were subsequently deposited into the Natural Product Library and assigned to undergo in-house analytical work. LIMS is crucial in ensuring that any utilisation of the biological resources obtained from the indigenous communities is traceable.



Plant extracts in a controlled 4°C room



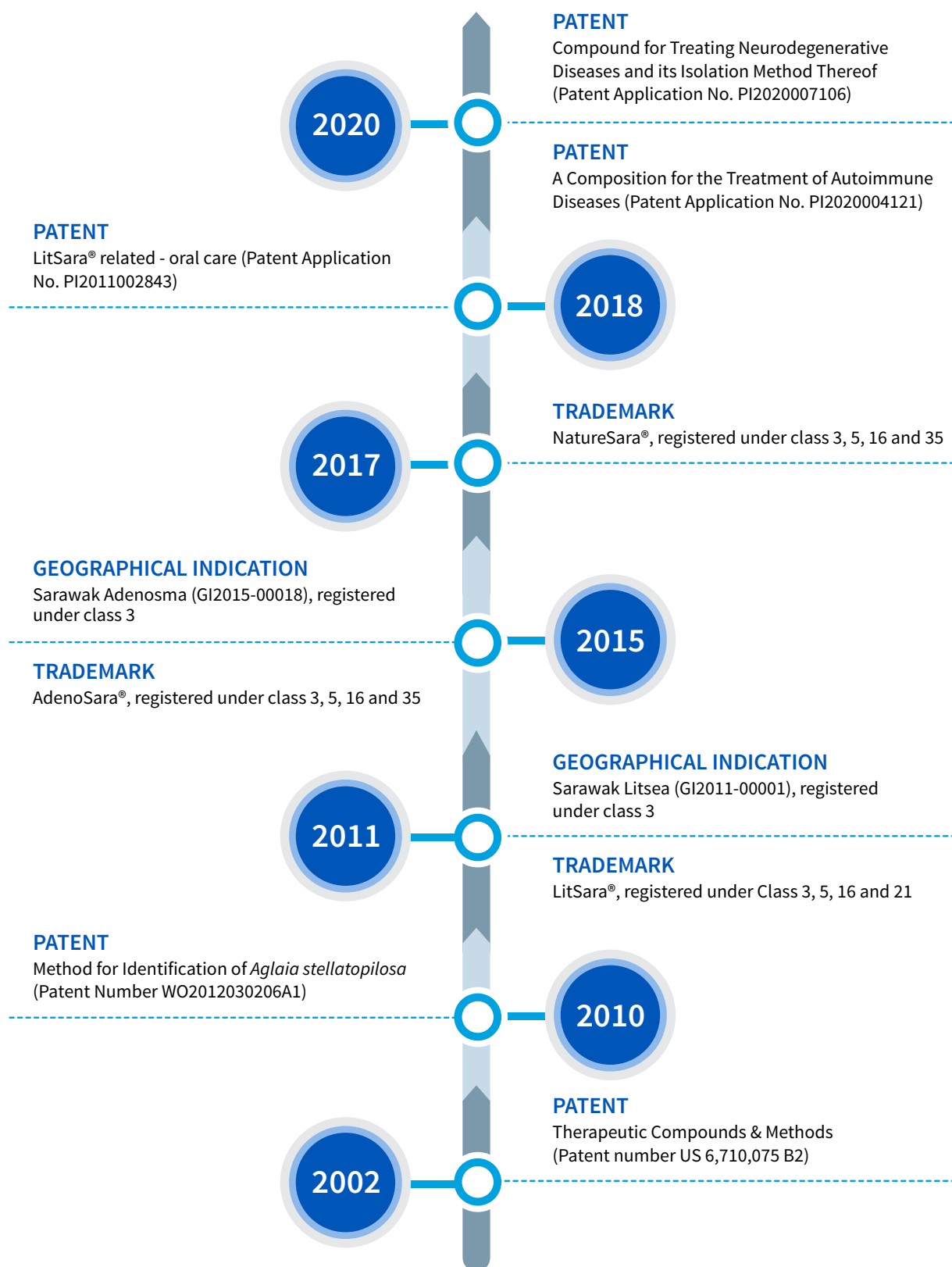


**GLOBAL,
REGIONAL,
LOCAL**

GLOBAL, REGIONAL, LOCAL

INTELLECTUAL PROPERTY RIGHTS (IPRs)

In 2021, SBC continues to isolate and identify new bioactive compounds from our NPL while continuing the development of its existing IPRs portfolio. SBC'S IPRs are as follows:



Development of IPRs since 2002

GLOBAL, REGIONAL, LOCAL

INTELLECTUAL PROPERTY RIGHTS (IPRs)



2

**GEOGRAPHICAL
INDICATION (GI)**



3

TRADEMARK



5

PATENT

COLLABORATION & FUNDING

SBC continues to expand its collaborations with academia, industrial and commercial partners for research, development, and commercialisation of its research outputs. In 2021, SBC signed 14 Non-Disclosure Agreements, 6 Memorandum of Undertakings, 4 Material Transfer Agreements, 3 research funding agreements, and 1 Collaboration Agreement, in the following areas:

- Development and commercialisation of algae
- Anti-cancer drug discovery from plant and marine organism extracts
- Development of nutraceutical products
- Development of essential oils for personal care and wellness industry
- Development of health-related products from Sarawak's ingredients
- Potential tenancy and investment in the Sarawak Bioindustrial Park (SBP)

The signing of a Memorandum of Understanding (MoU) with potential tenants of SPB is an important step for SBC to engage investors and bio-based industrial stakeholders who have shown keen interest in expanding their business operation and investment in Sarawak.

SBC received several research fundings for key projects. These fundings came from TERAJU Dana Pembangunan Usahawan Bumiputera, United Nations Development Programme (UNDP), University of Kent, UK, Mitsubishi Corporation (through its subsidiary company Diamond Gas Holdings Sdn Bhd), New Energy and Industrial Technology Development Organization, Japan (NEDO) (through Chitose Laboratory Corp.).

TERAJU Dana Pembangunan Usahawan Bumiputera entitled "Improving Sarawak's Indigenous Community Livelihoods Through Sustainable Production and Commercialization of LitSara®".



Harvesting of Litsea cubeba for distillation of essential oil at Long Telingan, Lawas



Setting up of distillation unit at Long Telingan, Lawas

Duration: September 2021 - September 2026 (5 years)

Dana Pembangunan Usahawan Bumiputera (DPUB) is the Federal Government's initiative mandated to TERAJU through the Ministry of Economic Affairs (MEA). It is part of the 11th Malaysia Plan (RMKe-11) and the Third Rolling Plan (RP3) to enhance the Bumiputera agenda by fostering inclusiveness and strengthening well-being of the indigenous community.



Demonstrating LitSara® products by the women folks of Long Rusu, Ba'Kelalan

The objectives of this project are (i) to improve the livelihood of the community through the expansion of the production infrastructures of LitSara® oil, (ii) to develop new products as well as to enhance the marketing and commercialisation of LitSara® products and (iii) promoting continuous preservation of traditional knowledge and conservation of the biological resources. The three communities involved are the Bidayuh of Kampung Kiding, Padawan, and Lun Bawang of Long Telingan Lawas and Long Rusu Ba'Kelalan.

GLOBAL, REGIONAL, LOCAL

COLLABORATION & FUNDING



AdenoSara® communities proudly present the Adenosma plants and AdenoSara® products

United Nations Development Programme (UNDP) Orang Asli/Asal Micro Grant Facility for Conservation and Livelihood Project Entitled “Strengthening Community-Based Enterprise in Conservation and Commercialization of Products Developed from Traditional Knowledge Based on Access and Benefit Sharing Among the Bidayuh of Kampung Semadang, Penrissen and Iban of Rumah Simon, Lubok Antu, Sarawak.

Duration: July 2020 - April 2022 (2 years)

This project is co-funded by the Government of Malaysia and implemented in partnership with UNDP Malaysia through the Orang Asli/Orang Asal Micro-Grant Facility for Conservation and Livelihood. It is an effort to manage and protect the environment of orang asli/orang asal (OA) communities and to support sustainable livelihoods among the communities. The main goal of this project is to develop a sustainable utilisation process - from cultivation and extraction to product development and commercialisation of an indigenous plant, *Adenosma* sp., while promoting the conservation of traditional knowledge and improving the livelihoods of the Bidayuh and Iban communities of Sarawak. The two communities involved in this project are the Bidayuh of Kampung Semadang, Penrissen, Kuching, Sarawak, and the Iban of Rumah Simon, Bui Panjai, Batang Ai, Lubok Antu, Sri Aman, Sarawak.



Harvesting of Adenosma plants by the community of Rumah Simon

GLOBAL, REGIONAL, LOCAL

COLLABORATION & FUNDING

United Nations Development Programme (UNDP) COVID-19 Socio-Economic Recovery Funds entitled “Recovery Initiative of Community-Based Sector, SMEs and MSMEs Associated with Bio-Related Products in Sarawak”

Duration: October 2020 - March 2022 (2 years)

The UNDP COVID-19 Socio-Economic Recovery Funds is an effort to support the socio-economic recovery of informal sector, Micro, Small & Medium Enterprises (MSMEs) and Small Medium Enterprises (SMEs) during the COVID-19 crisis and its recovery phase. The main goal of this project is to help the community-based business to recover from the business crisis that is affected by the COVID-19 pandemic and to adapt to the ‘New Normal’ way of doing business. The seven communities that benefited from this project are the Melanau community of Kampung Jemoreng and Kampung Pantray, Mukah; and the Iban community of Kampung Kuala Mendalam, Rumah Emak, Kapit, Rumah Janang, Selangau, Rumah Manchup Roban, and Rumah Bajau Julau, Sarikei.

Entrepreneurship and E-commerce workshop

Duration: 14th June 2021 - 12th July 2021

An online capacity building session on Entrepreneurship and E-commerce workshop was held from 14th June 2021 until 12th July 2021 with the communities from Kampung Jemoreng, Matu, Rumah Bajau, Julau and Rumah Emak, Kapit. This programme is supported by the Ministry of International Trade & Industry, Industrial Terminals, and Entrepreneur Development (MINTRED) and Sarawak Digital Economy Corporation Berhad (SDEC).



The programme aimed to equip the communities with the digital knowledge and skills to start their online businesses. The communities learned about basic entrepreneurship skills and business management, including costing, branding, digital marketing, and e-commerce platform. They were also exposed to new knowledge such as using digital platforms Zoom application for meetings and Canva for logo design. “The workshop also offered opportunity for the communities to get to know each other, as well as to get to know other business communities from the other regions whereby we can exchange our experience and knowledge,” said Encik Junaidi Bin Haji Rakawi, a participant from Kampung Jemoreng, Matu, Mukah.

GLOBAL, REGIONAL, LOCAL

COLLABORATION & FUNDING

Embarking on research innovations between Diamond Gas Holdings Sdn. Bhd. and Sarawak Biodiversity Centre in sustainable and renewable energy production.

Duration: May 2021 - May 2024 (3 years)

Diamond Gas Holdings (DGH), owned by Mitsubishi Corporation (MC), is an established Malaysian investment holding company for upstream development, midstream and gas to liquid (GTL) projects in Malaysia. Stemming from a long-term SBC-MC collaboration, this SBC-DGH partnership aims to open a new chapter in efforts to spur green technology innovations and offers alternatives to achieve sustainable renewable energy production. This objective is in line with 2021 International Biodiversity Day's theme - "We're part of the solution #ForNature" announced by the Secretariat of the Convention on Biological Diversity in May 2021.

The SBC-DGH partnership agreement was formalised on 20th May 2021 in conjunction with International Biodiversity Day. DGH was represented by the Managing Director, Mr Yasuyuki Suzuki and the Sarawak Biodiversity Council was represented by its Chairman, YB Datuk Amar Jaul Samion, Sarawak State Secretary. The formalisation of the agreement was witnessed by Mitsubishi Malaysia Chief Executive, Mr Masashi Shiraishi, Permanent Secretary, Ministry of Education, Science and Technological Research, Sarawak and Deputy Chairman of Sarawak Biodiversity Council, Mr Kameri Haji Affandi, and Chief Executive Officer of SBC, Dr Yeo Tiong Chia.

Under the new research agreement, DGH is channelling research funding to support research and development (R&D) activities in developing microalgae towards various potential industrial applications. Microalgae is a viable alternative energy source and shows a high potential for the generation of fuel such as biohydrogen, bioethanol and biodiesel. The partnership hopes to achieve the demands of both producing enough renewable energy to meet future needs and preserving the environment by reducing greenhouse gas emissions.

The Microalgae library has a collection of more than 650 strains with 75 genera that are indigenous to Sarawak. More than half of these strains have known biotechnological applications, and some remain yet to be decoded. Currently, the SBC research team has successfully demonstrated the cultivation of locally isolated *Chlamydomonas* sp. and *Spirulina* sp. as the starting materials for biofuel and aquaculture applications.



GLOBAL, REGIONAL, LOCAL

COLLABORATION & FUNDING

New Energy and Industrial Technology Development Organization (NEDO)

Duration: April 2021 - April 2023 (2 years)

SBC had the opportunity to collaborate with Chitose Laboratory (CL), a biotechnology company from Japan, and with Sarawak Energy Berhad (SEB) on a microalgae project funded by NEDO. This joint project is the first attempt in South East Asia to tap carbon dioxide (CO₂) using flue gas from the coal fire plant to grow microalgae at large scale (5 hectares). Using such technology is a promising way to recycle CO₂ into biomass via photosynthesis which in turn can be used for the production of biofuel and other value-added products.

The objectives of the project are:

- i. to setup a five hectare Algae Cultivation Facility which will produce between 180 - 330 ton biomass per year;
- ii. to implement a project that will adopt a circular economy concept using CO₂ emitted as flue gas and waste produced from Sejingkat Power Corporation (SPC) as carbon and nutrient sources respectively;
- iii. to aim for a zero-waste industrial process; and
- iv. to produce algae biomass which is sustainable environmentally and economically.

This project supports the key innovations that will attract global interest in various industry, among which is adopting a circular economy concept on algae waste biomass as sustainable and environmentally friendly materials.

University of Kent, United Kingdom

Duration: September 2021 - March 2022 (7 months)

The collaboration between SBC and the University of Kent is to screen 273 plant extracts from Sarawak on drug resistant cancer cell lines, which consist of over 2,500 human cultures. The objective of the collaboration is to identify the bioactive compounds isolated from the indigenous plant of Sarawak for the development of anti-cancer agents. Through the Engineering and Physical Sciences Research Council (EPSRC) Grant, two targeted plants were identified for further isolation and fractionation work to isolate the bioactive compounds.

GLOBAL, REGIONAL, LOCAL

COLLABORATION & FUNDING

International Meetings

Informal Sessions of the 24th Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA 24)

Organizer : Convention on Biological Diversity (CBD)
Date : 17th - 19th & 24th - 26th February 2021
Platform : Interactio
Participants from SBC : Holed Anak Juboi & Dr Mohd Farith Bin Kota

Informal Sessions of the 3rd Meeting of the Subsidiary Body on the Implementation (SBI 3)

Organizer : Convention on Biological Diversity (CBD)
Date : 8th - 12th & 14th March 2021
Platform : Interactio
Participants from SBC : Holed Anak Juboi & Dr Mohd Farith Bin Kota

Formal Sessions of the 24th Meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA 24)

Organizer : Convention on Biological Diversity (CBD)
Date : 3rd - 4th May, 23rd - 26th May & 7th - 9th June 2021
Platform : Interactio
Participants from SBC : Holed Anak Juboi & Dr Mohd Farith Bin Kota

Formal Sessions of the 3rd Meeting of the Subsidiary Body on the Implementation (SBI 3)

Organizer : Convention on Biological Diversity (CBD)
Date : 16th - 18th May, 28th - 30th May & 11th - 13th June 2021
Platform : Interactio
Participants from SBC : Holed Anak Juboi & Dr Mohd Farith Bin Kota

Third Meeting of the Open-Ended Working Group on the Post-2020 Global Biodiversity Framework (OEWG 3)

Organizer : Convention on Biological Diversity (CBD)
Date : 23rd Aug - 3rd Sep 2021
Platform : Interactio
Participants from SBC : Holed Anak Juboi & Dr Mohd Farith Bin Kota

EID-SEARCH Southeast Asia Partner Meeting

Organizer : EcoHealth Alliance
Date : 25th October 2021
Platform : Zoom
Participants from SBC : Jorim Ujang & Dr Mohd Farith Bin Kota

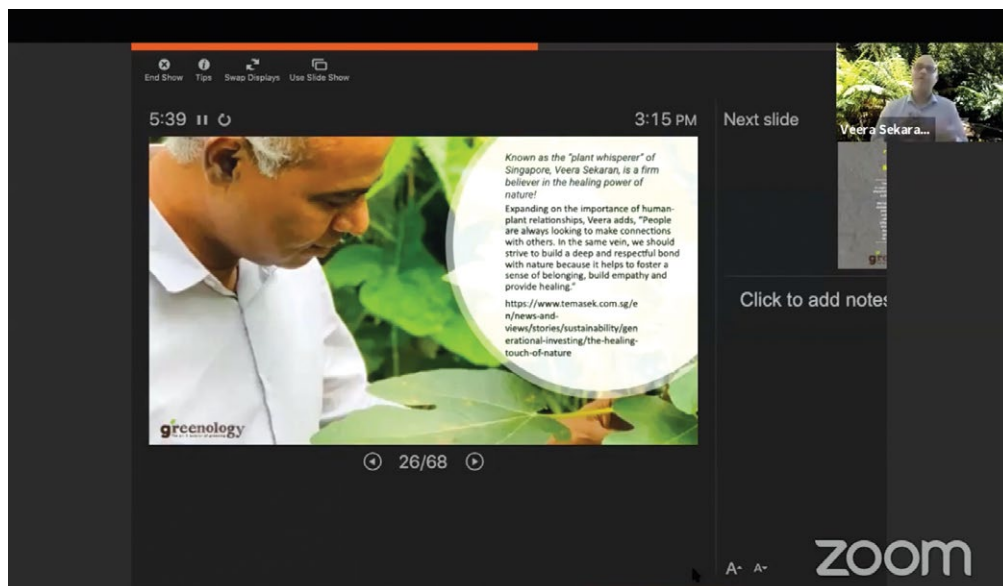


A VIRTUAL YEAR

A VIRTUAL YEAR

SBC BIODIVERSITY DAY

The Sarawak Biodiversity Centre (SBC) continued to organise its annual Biodiversity Day 2021 in conjunction with the International Day for Biological Diversity (IBD), despite the restrictions brought about by the COVID-19 Pandemic. The IBD is observed worldwide annually on 22nd May to promote the understanding and the awareness of biodiversity. Each year, the IBD is celebrated with a theme that addresses current biodiversity concerns. This year, the IBD theme is “We’re part of the solution #ForNature” which is a carry-over of the year 2020 theme, “Our solutions are in nature”. The theme serves to remind us that the answers and solutions to issues ranging from climate change, food and water security, sustainable livelihoods, to health and well-being, lie in our rich biodiversity.



Seeing the green during COVID and getting closer to nature by Mr Veera Sekaran, Greenology, Singapore

SBC’s Biodiversity Day event kicked off with a webinar entitled ‘Seeing the Green during COVID-19 and getting Closer to Nature’ by Mr Veera Sekaran. He is the Founder and Managing Director of Greenology, Singapore. The webinar was held on 21st May 2021, at 3pm via Zoom and streamed live on SBC’s official Facebook page. The webinar highlighted nature as a solution to humans during trying times.

In the spirit of creating awareness and appreciation for our biodiversity among the younger generation, SBC also held a ‘Show and Tell’ video contest on the protected species in Sarawak. The contest was open to secondary school students aged between 15-18 years, and undergraduate students aged between 19-24 years.

WEBINARS

1. Discoveries and Extinctions in the Borneo Rainforest - The Race to find New Species Before they are Lost Forever by Mr Chien C. Lee, 20th January 2021, 10am via Zoom

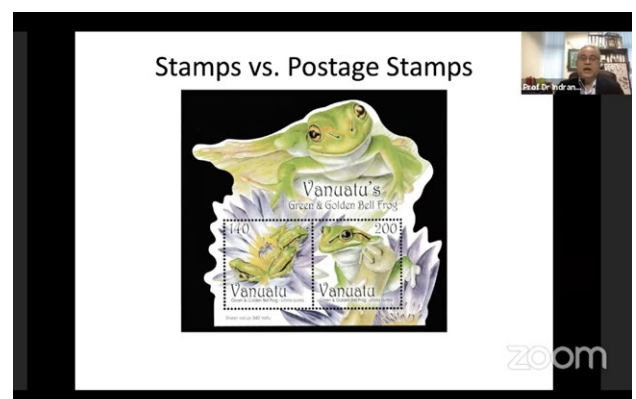
The webinar series in 2021 kicked off with “Discoveries and Extinction in the Borneo Rainforest - The Race to Find New Species Before they are Lost Forever” by Mr Chien C. Lee. The webinar showcased the discoveries of new species currently being made in the world’s most diverse tropical rainforests and the race biologists are striving in to find them before they go extinct. Technological advances in research tools combined with increasingly better access to remote regions enable biologists to efficiently study our planet’s biodiversity and identify new species faster than ever before.

The webinar highlighted many fascinating discoveries and the stories behind them. Mr Chien C. Lee, a wildlife photographer, shared photographs of many new species found in the biodiverse Borneo’s tropical forests in recent years such as the blue-legged tarantulas, pitcher-plant, and many more. The webinar was well attended with over 500 participants from across the globe.



2. Philatelic Biodiversity: Frogs on Stamps by Prof Dr Indraneil Das, 28th January 2021, 10am via Zoom

Prof Dr Indraneil Das, a renowned herpetologist from the Institute of Biodiversity and Environmental Conservation (IBEC), Universiti Malaysia Sarawak (UNIMAS), shared on the Guinness World Record collection of frogs, toads, newts, salamanders, and caecilians. A total of 172 participants attended the webinar. Prof Dr Indraneil Das shared the fascinating collection of stamps of different species of frogs and their natural habitat.



A VIRTUAL YEAR

WEBINARS

3. Biodiversity Conservation and Its Management in Malaysia by Emeritus Professor Dato' Dr Abdul Latiff Bin Mohamad, 24th June 2021, 3pm via Zoom

The online webinar entitled “Biodiversity Conservation and Its Management in Malaysia” on 24th June 2021 via Zoom was delivered by Emeritus Professor Dato' Dr Abdul Latiff Bin Mohamad, a pioneer in the fields of plant taxonomy and conservation biology in Malaysia.

The webinar aimed at sharing insights on biodiversity conservation and the implementation of strategies for effective management of biodiversity. Emeritus Professor Dato' Dr Abdul Latiff addressed the sustainable development and management of biodiversity in line with Malaysia's strategies to create a high impact on socio-economic growth. He also highlighted future challenges in biodiversity conservation and management. A total of 201 participants joined the webinar via Zoom and 112 participants viewed via SBC' Facebook page.



WEBINARS

4. Computer-aided Approach in Accelerating Natural Product Research by Dr Xavier Chee, 25th August 2021, 3pm via Zoom

The webinar entitled “Computer-aided Approach in Accelerating Natural Product Research” on 25th August 2021 aimed to share insights on how bioinformatics and computational approaches could be used to augment and capitalize Sarawak’s natural product research. The webinar was delivered by Dr Xavier Chee, a lecturer at Swinburne University of Technology, Sarawak Campus. A total of 82 participants attended the webinar.

5. Botanical Drug Development in the Malaysian Herbal Industry; Issues, Challenges and Breakthrough from the Perspective of a Biotechnology Company by Professor Dr Aman Shah Abdul Majid, 27th August 2021, 3pm via Zoom

The webinar provided insights into the status of the herbal industry and the development of high potential botanicals from pre-clinical studies to gaining approval. During the webinar, Prof Aman also addressed issues, challenges, and breakthroughs from the perspective of a biotechnology company. A total of 86 participants attended via Zoom and 31 participants via SBC’s Facebook page. The participants included personnel from research institutions and biotechnology companies as well as members of the public.



A VIRTUAL YEAR

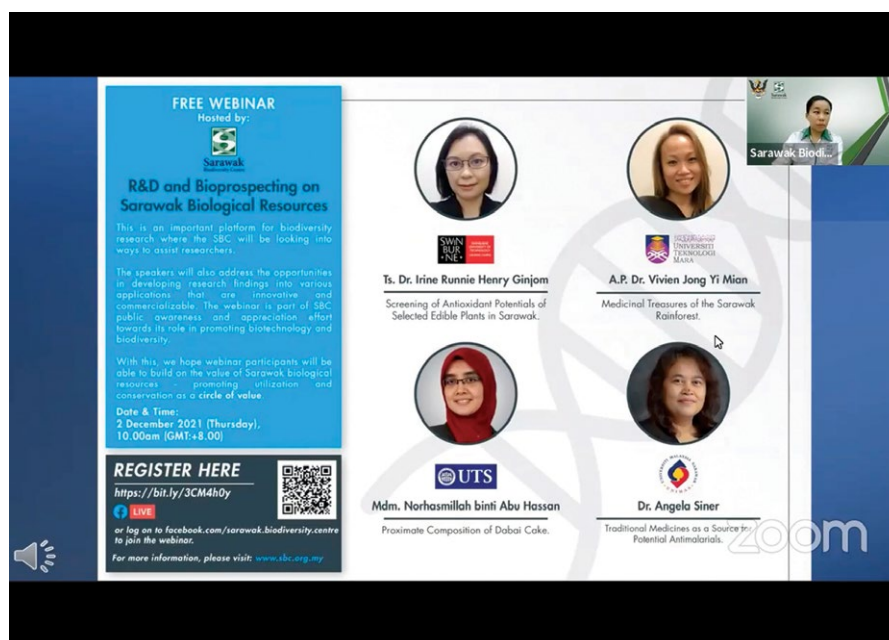
WEBINARS

6. Webinar on R&D and Bioprospecting on Sarawak Biological Resources, 2nd December 2021

In 2021, SBC invited speakers from Swinburne University of Technology Sarawak (SUTS), Universiti Teknologi MARA (UiTM) Sarawak, University of Technology Sarawak (UTS) and University Malaysia Sarawak (UNIMAS) to speak about their research projects and address the opportunities in developing research findings into useful applications that are innovative and commercialised. The objectives of the webinar were:

- to highlight the research work of researchers who had applied and received a Research Permit from the Sarawak Biodiversity Council under the Sarawak Biodiversity Regulations, 2016;
- to share their insights, their experiences, and outcomes of their research on biological resources with the research community; and
- to enhance knowledge, to encourage collaboration, and to bring about improvements to the field.

The webinar is part of SBC public awareness and appreciation effort towards its role in promoting biotechnology and biodiversity. The webinar was attended by 120 participants via Zoom and Facebook live.



Webinar on R&D and Bioprospecting on Sarawak Biological Resources

List of Webinar Speakers

- Ts Dr Irine Runnie Henry Ginjom, Senior Lecturer, Swinburne University of Technology Sarawak (SUTS)
- Associate Professor Dr Vivien Jong Yi Mian, Senior Lecturer, Universiti Teknologi MARA
- Mdm Norhasmillah binti Abu Hassan, Lecturer, University of Technology Sarawak (UTS)
- Dr Angela Siner, Senior Lecturer, Universiti Malaysia Sarawak (UNIMAS)

7. Regulatory Awareness Talk with UPM Bintulu, 8th July 2021

The Regulatory Awareness Talk is an annual event, held at various higher learning institutes to promote the awareness of the Sarawak Biodiversity Centre Ordinance, 1997, the Sarawak Biodiversity Regulations, 2016 and requirements in obtaining a R&D Permit when conducting R&D on biological resources in Sarawak and provision relating to Access and Benefit Sharing (ABS). In 2021, the Regulatory Awareness event was conducted on 8th July 2021 with Universiti Putra Malaysia (UPM) Bintulu via Zoom. Participants were briefed on the Wild Life Protection Ordinance, 1998 and the National Parks & Nature Reserves Ordinance, 1998. The event was attended by 28 postgraduate students and lecturers.

8. Regulatory Awareness Talk with Government Agencies and Non-Government Agencies (NGO)

The briefing with various government agencies and NGOs was held on 28th - 29th October 2021. The objective of the briefing was to inform the participants on the Sarawak Biodiversity Regulations, 2016 and the requirements for conducting research and development in Sarawak and Access and Benefit Sharing (ABS).

The first session on 28th October 2021 was with the government agencies such as Malaysian Palm Oil Board (MPOB), Malaysian Agriculture Research and Development Institute (MARDI), Malaysia Cocoa Board, Malaysian Pepper Board (MPB), Malaysian Pineapple Industry Board and Lembaga Kemajuan Ikan Malaysia (LKIM). This session was attended by 12 participants via Zoom.

The second session, conducted on 29th October 2021, was with NGOs such as World Wide Fund For Nature (WWF) Malaysia, Malaysian Nature Society (MNS), Wildlife Conservation Society (WCS) and indigenous local communities associations in Kuching namely Dayak Bidayuh National Association (DBNA), Orang Ulu National Association (OUNA), Persatuan Lembaga Amanah Kaum Melanau Sarawak, Persatuan Bisaya Sarawak (PBS), Rurum Kelabit Sarawak and Persatuan Lun Bawang Sarawak (PLBS). They were first briefed about the roles and functions of Sarawak Biodiversity Centre particularly on TK Documentation Programme as well as the Access and Benefit Sharing (ABS) Framework. The session was attended by 22 participants.

A VIRTUAL YEAR

VISITS

1. Visit by YB Khairy Jamaluddin Abu Bakar, Minister of Health Malaysia on 29th May 2021

YB Khairy Jamaluddin Abu Bakar, Minister of Health Malaysia and his delegation were received by YB Datuk Amar Douglas Uggah Embas, Deputy Chief Minister Sarawak and Chairman of State Disaster Management Committee, and YB Datuk Amar Jaul Samion, Sarawak State Secretary and the Chairman of Sarawak Biodiversity Council on 29th May 2021. During the visit, YB Khairy and his delegation toured the facilities at SBC and was briefed on:

- The Traditional Knowledge Documentation Programme and the implementation of Access and Benefit Sharing with the indigenous communities in Sarawak highlighting the LitSara® and AdenoSara® projects.
- The 1000m² Algae Cultivation Facility with its IoT technology and
- The establishment of the SBP and its opportunities to leverage Sarawak's biodiversity and to commercialise potential products derived from Sarawak's diverse resources.

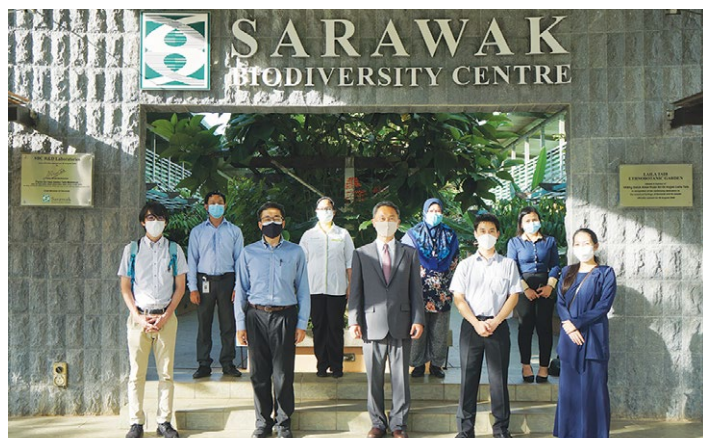
During the visit, YB Khairy encouraged collaboration between the Ministry of Science Technology & Innovation (MOSTI) and SBC especially in areas of biotechnology and development of the SBP, in-line with the national biotechnology plans and strategy. YB Khairy planted a Kesindu tree at the end of the tour.



Sharing the success story of LitSara® to YB Khairy Jamaluddin Abu Bakar, Minister of Health Malaysia

2. Visit by the Japan International Cooperation Agency (JICA) Malaysia Office on 15th November 2021

On 15th November 2021, SBC receive a courtesy visit from Mr Masahiko Takizawa, Chief Representative of Japan International Cooperation Agency (JICA) Malaysia Office. Mr Takizawa was accompanied by Ms Etsuko Hayashi, Representative of JICA Malaysia Office, Mr Tsuyoshi Kanda, JICA Japan, and Dr Mizuno Takafumi, Kyoto University.



3. Visit by His Excellency Mr Pascal Gregoire, Ambassador of Belgium to Malaysia on 30th November 2021

His Excellency Mr Pascal Gregoire, Ambassador of Belgium to Malaysia visited SBC on 30th November 2021. His excellency was given an overview of SBC's functions and roles together with a tour around the SBC facilities. To commemorate his visit, he planted a *Gnetum gnemon* tree, also known as Daun Sabong (Iban) and Belinjau (Malay). His Excellency shared that the tree signifies the new friendship between Belgium and SBC.



4. Visit by Embassy of the Republic of Korea on 8th December 2021

On 8th December 2021, SBC received a courtesy visit from the Embassy of the Republic of Korea. The delegates were Mr Lim Chaek, Commercial Attaché, Ms Jocelyn Tan, Energy and Infrastructure Advisor and Mr Chon Yong Ho, the Director/Korea Desk of Korean SMEs, and Startups Agency.



The objective of the visit by the delegates was to keep abreast on the opportunities for collaboration in biorenewable and environmental sectors between Korea and Sarawak. The delegation was given an overview of SBC's core functions and roles, and an introduction to SBC's Algae Cultivation Project, TK Programme, and the insights of the Sarawak Bioindustrial Park.

A VIRTUAL YEAR

EXHIBITIONS

Pameran Minggu Perusahaan Kecil & Sederhana (PKS) 2021

SME Corporation Malaysia organized the National SME Week 2021 virtually through the MyAssist MSME portal on 26th June 2021 until 4th July 2021. The portal was developed specifically to disseminate information on Government initiatives and assistance for entrepreneurs and SMEs during COVID-19 pandemic. SBC participated by showcasing LitSara® products through the portal.

Pameran Seni Daun Sempena Sarawakiana Festival 2021 Secara Maya

The Pameran Seni Daun Sempena Sarawakiana Festival was held at the Pustaka Negeri Sarawak, Kuching and via online from 1st September - 30th November 2021. The objective of the festival was to introduce and to promote the use of various types of leaves in the lifestyle and ethnic culture of Sarawak. The festival highlighted the use of leaves in various aspects of daily living, such as fine arts, craft, food drinks, modern/traditional medicine, religious/cultural/customary ceremonies, building construction/sculpture, traditional games, history, and music. SBC participated in the festival by showcasing LitSara®, NatureSara®, AdenoSara® and some plant herbariums. The exhibition helped to provide information on various types of leaves in Sarawak for the students and the members of the public.

Expo 2020, Dubai



LitSara® was featured during ‘Beauty of Sarawak’ talk show hosted by Ms. Ashley Pan of Borneo Talk at the Malaysia Pavilion Amphitheatre, in the 2020 Dubai EXPO on 30th December 2021. The talk show was a platform for international audiences to learn more about the uniqueness of Sarawak.

The Senses Station set up within the vicinity allowed guests to bring home 60 mL LitSara® Air Freshener containing the refreshing and invigorating essence of the Bornean rainforest.

Pasan Paran

25th August 1964 - 18th February 2021

“WE NEED TO CONSERVE BIODIVERSITY
FOR OUR CHILDREN.”

- Pasan Paran -

Mr Pasan Paran, affectionately known as Mado, from Pa'Lungan, Bario had been the heart of SBC's TK Documentation Project in his village. He had been actively involved in preserving the Traditional Knowledge of useful plants among the Kelabits since 2004. He believed in the value of biodiversity for future generations and the need for the community to share this knowledge before it is lost. He will be remembered for his warmth, kindness and gentle spirit.

Danil Dawat

14th July 1946 - 24th March 2021

“IT IS UNFORTUNATE THAT I AM TOO OLD NOW.
OTHERWISE, I WILL PLANT MORE TENEM AS I SEE THIS
PROJECT WILL BE ABLE TO GENERATE MORE INCOME FOR US.”

- Some advice to the younger generation from Danil Dawat -

Mr Danil Dawat of Long Telingan, Lawas was one of the 'Medicine Men' in his community. He had been instrumental in SBC's TK Documentation project in his village particularly in the LitSara® (*Litsea cubeba* Project. He was among the pioneers who documented the use of *Litsea cubeba* - also commonly known as Tenem among the Lun Bawang. Mr Danil Dawat had been tirelessly contributing to the preservation of the knowledge of useful plants among the Lun Bawang since 2005. He will be remembered for his passion, warmth and generosity.

REGULATORY FUNCTION

AWARENESS ON REGULATORY FUNCTION

Sarawak Online Research Application System (SORAS), implemented in April 2019, is a one stop system research application managed by State Economic Planning Unit (EPU) Sarawak. SBC is the approving authority authorized to issue the R&D Permit on Biological Resources and Export Permit for R&D on Biological Resources in Sarawak.

SORAS is applicable to both local and foreign researchers who wish to carry out research in Sarawak. Security clearance screening is compulsory for all non-Sarawakian and foreign researchers. The system also allows researchers to submit research reports, theses, and research publications. To use the system, applicant must register an account. The application process starts with the submission of completed application through SORAS. Upon approval by the Sarawak Biodiversity Council, a Permit for R&D will be issued. The applicant is required to apply for Export Permit for R&D if the nature and specialization of the R&D can only be conducted outside of Sarawak. All applications under SORAS will be reported to the Access and Benefit Sharing Technical Committee chaired by the Ministry of Urban Development and Natural Resources.

Based on record, SBC has received 275 research applications from 1999 to December 2021. From year 1999 to 2018, 232 research applications were received by SBC before the implementation of SORAS.

After the implementation of SORAS in 2019, 43 research applications were assigned to SBC for approval and monitoring. As of December 2021, 28 research are still ongoing and monitored to ensure the Terms and Conditions of the R&D Permits are complied accordingly.

STAFF ACHIEVEMENTS

Certificate of Achievement for three consecutive years without sick leave at SBC from 2019 to 2021

Ainley Anak Tumis
Barbara Anak Ngikoh @ Nyikoh
Dr Mohd Farith Bin Kota
Dr Yeo Tiong Chia
Hafizah Binti Booty
Holed Anak Juboi
Lee Jong Jen
Margarita Naming
Melissa Chang May Fung
Ng Yik Han
Romney Anak Dawur
Rosy Anak Tian Lin
Sabda Bin Safiee
Selwynn Anak Jaoui Edward
Sunarjo Bin Suip

Sijil Perkhidmatan Cemerlang 2021 (Laporan Penilaian Prestasi Tahunan 85% and above)

Annie Anthoney Empra
Arlene Alicia Anak Toaiang
Asma' Saiyidatina Aishah Abdul Rahman
Barbara Anak Ngikoh @ Nyikoh
Bernardine Ida Anak Joseph Jinam
Clare Heinzie Anak Juhin
Dr Mohd Farith Bin Kota
Dr Ng Lee Tze
Dr Noreha Binti Mahidi
Elaine Remi Anak Douglas Telajan
Ellen Tan Chia Min
Frankie Anak Kumbak
Freddie Anak Ambrose Ambol
Gilbert Lau Sei Kung
Harny Anak Chapi
Holed Anak Juboi
Hugh Anak Doyos
Katrina Binti Aslan Joe
Keekoti Sue Anak Betin
Lee Jong Jen
Margarita Naming
Mariani Binti Omarzuki @ Marzuki
Masmah Binti Jaya
Melvin George Rut
Mitchel Constance Anak George
Mohd Fadeli Haironi Bin Jemat
Mounsey Muskie Anak Moding
Ng Yik Han
Nuraqilah Binti Othman
Rigep Anak Anyain
Romney Anak Dawur
Rosy Anak Tian Lin
Selwynn Anak Jaoui Edward
Siti Muhaini Binti Haris Fadzillah
Sunarjo Bin Suip
Suria Binti Johari
Van Mc Queen Anak Thomas
Wong Hie Ping
Zurien Amiera Binti Irwan

Anugerah Perkhidmatan Cemerlang (APC) 2021

Ainley Anak Tumis
Arzie Binti Ramli
Elizabeth Alice Anak Gabriel Nasib
Hafizah Binti Booty
Julian Voong Cheng Liang
Lucy Noraini Mitis
Michele Mejin
Noor Pahtiwati Binti Bohari
Nur Khairun Nisa' Binti Mohd Sallehudin

STAFF ACHIEVEMENTS

State Awards 2021

Dr Yeo Tiong Chia

Pingat Perkhidmatan Cemerlang (Emas) PPC 2021

Date of conferral ceremony: 19th January 2022

Rigep Anak Anyain

Pingat Perkhidmatan Terpuji (PPT) 2021

Date of conferral ceremony: 3rd November 2021

Matzen Bin Saji

Bentara Bintang Sarawak (BBS) 2021

Date of conferral ceremony: 4th October 2021

Records of Sarawak Biodiversity Council and Committees under the Council Meeting in the Year 2021

No	Type of Meeting	Frequency
1	Sarawak Biodiversity Council	4
2	SBC Establishment Committee	2
3	SBC Finance & Investment Committee	3
4	SBC Audit Committee Meeting	4
5	Technical Committee on Access and Benefit Sharing	1
6	SBC Disciplinary Committee - Management & Professional Group	1
7	SBC Disciplinary Committee - Support Group	-
8	SBC Disciplinary Appeal Committee - Management & Professional Group	-
9	SBC Disciplinary Appeal Committee - Support Group	-

FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

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COUNCIL MEMBERS

Chairman

State Secretary Sarawak
YB Datuk Amar Jaul Samion

Deputy Chairman

Permanent Secretary, Ministry of Education, Innovation and Talent Development, Sarawak
YBhg Datu Kameri Haji Affandi

Secretary

Chief Executive Officer, Sarawak Biodiversity Centre
YBrs Dr Yeo Tiong Chia

Council Members

State Attorney General, Sarawak
Yang Arif Dato Sri Talat Mahmood Bin Abdul Rashid

State Financial Secretary, Sarawak
YBhg Dato Sri Dr Haji Wan Lizozman Bin Wan Omar (appointed on 1 June 2021)
YBhg Datuk Amar Haji Ahmad Tarmizi Bin Haji Sulaiman (ceased on 31 May 2021)

Permanent Secretary, Ministry of Natural Resources and Urban Development, Sarawak
YBhg Datu Sr Zaidi Bin Haji Mahdi

Deputy State Secretary (Economic Planning & Development), Sarawak
YBhg Dato Sri Haji Mohamad Abu Bakar Bin Marzuki

Director, Department of Forest, Sarawak
YBhg Datu Hamden Bin Mohammad

Acting Director, Department of Agriculture, Sarawak
YBrs Mr Dominic Chungat (appointed on 15 March 2022)

Director, Department of Agriculture, Sarawak
YBrs Dr Alvin Chai Lian Kuet (ceased on 14 March 2022)

Controller of Environmental Quality, Natural Resources and Environment Board Sarawak
Mdm Peggy Anak Ronin (appointed on 1 May 2021)
YBrs Mr Justine Jok Jau Emang (ceased from 30 April 2021)

YBhg Prof. Datu Dr Andrew Kiyu Dawie

YBhg Dato Goh Leng Chua (ceased from 28 February 2022)

Dr Avijit Roy (ceased from 28 February 2022)

Dr Mary Jane Cardoso (appointed from 1 March 2022)

Mdm Anne Kung Soo Ching (appointed from 1 March 2022)

OFFICER AND PROFESSIONAL ADVISORS

Chief Executive Officer

Dr Yeo Tiong Chia

Registered office

Lot 724, Block 3, Sentah-Segu Land District,
KM20, Jalan Borneo Heights, Semengoh,
Locked Bag No. 3032, 93990 Kuching, Sarawak

Auditor

Ketua Audit Negara Malaysia

Bankers

Malayan Banking Berhad, Level 1, Wisma Satok,
Jalan Satok, 93400 Kuching, Sarawak

RHB Bank Berhad

12 & 13, Eastern Commercial Centre, 17th Mile,
Kuching-Serian Road , 94200 Kuching, Sarawak

Public Bank Berhad

384-388, Sentosa Central, Batu 7,
Jalan Penrissen, 93250 Kuching, Sarawak

STATEMENT BY CHAIRMAN AND DEPUTY CHAIRMAN

PENYATA Pengerusi dan Timbalan Pengerusi

Kami, **YB DATUK AMAR JAUL SAMION** dan **DATU KAMERI HAJI AFFANDI** yang merupakan Pengerusi dan Timbalan Pengerusi **MAJLIS KEPELBAGAIAN BIOLOGI SARAWAK** dengan ini menyatakan bahawa, pada pendapat Ahli - Ahli Majlis, Penyata Kewangan yang mengandungi Penyata Kedudukan Kewangan, Penyata Pendapatan Komprehensif, Penyata Perubahan Ekuiti dan Penyata Aliran Tunai yang berikut ini berserta dengan nota-nota kepada Penyata Kewangan di dalamnya, adalah disediakan untuk menunjukkan pandangan yang benar dan saksama berkenaan kedudukan **MAJLIS KEPELBAGAIAN BIOLOGI SARAWAK** pada **31 DISEMBER 2021** dan hasil kendaliannya serta perubahan kedudukan kewangannya bagi tahun yang berakhir pada tarikh tersebut.

Bagi pihak Majlis,



.....
YB DATUK AMAR JAUL SAMION

Bagi pihak Majlis,



.....
DATU KAMERI HAJI AFFANDI

Tarikh: **22 APR 2022**

Kuching

Tarikh: **22 APR 2022**

Kuching

STATUTORY DECLARATION

PENGAKUAN OLEH PEGAWAI UTAMA YANG BERTANGGUNGJAWAB KE ATAS PENGURUSAN KEWANGAN MAJLIS KEPELBAGAIAN BIOLOGI SARAWAK

Saya, **DR YEO TIONG CHIA**, pegawai utama yang bertanggungjawab ke atas pengurusan kewangan dan rekod-rekod perakaunan **MAJLIS KEPELBAGAIAN BIOLOGI SARAWAK**, dengan ikhlasnya mengakui bahawa Penyata Kedudukan Kewangan, Penyata Pendapatan Komprehensif, Penyata Perubahan Ekuiti dan Penyata Aliran Tunai **dalam kedudukan kewangan** yang berikut ini berserta dengan nota-nota kepada Penyata Kewangan di dalamnya, pada pendapat saya, adalah betul dan saya membuat ikrar ini dengan sebenarnya mempercayai bahawa ianya adalah benar dan atas kehendak-kehendak Akta Akuan Berkanun, 1960.


Sebenar dan sesungguhnya)
diakui oleh penama di atas)
di KUCHING, SARAWAK)
pada 22 haribulan April)
2022 .


.....

DR YEO TIONG CHIA
(K.P. NO.: 660420-13-5379)

Di hadapan saya

SURAIJAH BINTI ZAINOL
2nd Class Magistrate
Kuching District Office
State Of Sarawak


.....

MAGISTRATE





**SIJIL KETUA AUDIT NEGARA
MENGENAI PENYATA KEWANGAN
MAJLIS KEPELBAGAIAN BIOLOGI SARAWAK
BAGI TAHUN BERAKHIR 31 DISEMBER 2021**

Sijil Mengenai Pengauditan Penyata Kewangan

Pendapat

Saya telah memberikan kuasa kepada firma audit swasta di bawah Subseksyen 7(3) Akta Audit 1957 [Akta 62] untuk mengaudit Penyata Kewangan Majlis Kepelebagaian Biologi Sarawak. Penyata Kewangan tersebut merangkumi Penyata Kedudukan Kewangan pada 31 Disember 2021 Majlis Kepelebagaian Biologi Sarawak dan Penyata Pendapatan Komprehensif, Penyata Perubahan Ekuiti serta Penyata Aliran Tunai bagi tahun berakhir pada tarikh tersebut dan nota kepada penyata kewangan termasuklah ringkasan polisi perakaunan yang signifikan seperti dinyatakan pada muka surat 9 hingga 27.

Pada pendapat saya, penyata kewangan ini memberikan gambaran yang benar dan saksama mengenai kedudukan kewangan Majlis Kepelebagaian Biologi Sarawak pada 31 Disember 2021 dan prestasi kewangan serta aliran tunai bagi tahun berakhir pada tarikh tersebut selaras dengan Piawaian Pelaporan Entiti Persendirian Malaysia (MPERS), The Statutory Bodies (Financial and Accounting Procedure) Ordinance, 1995 dan keperluan The Sarawak Biodiversity Centre Ordinance, 1997.

Asas Kepada Pendapat

Pengauditan telah dilaksanakan berdasarkan Akta Audit 1957 dan International Standards of Supreme Audit Institutions. Tanggungjawab saya diuraikan selanjutnya di perenggan Tanggungjawab Juruaudit Terhadap Pengauditan Penyata Kewangan dalam sijil ini. Saya percaya bahawa bukti audit yang diperoleh adalah mencukupi dan bersesuaian untuk dijadikan asas kepada pendapat saya.

Kebebasan dan Tanggungjawab Etika Lain

Saya adalah bebas daripada Majlis Kepelbagaian Biologi Sarawak dan telah memenuhi tanggungjawab etika lain berdasarkan International Standards of Supreme Audit Institutions.

Maklumat Lain Selain Daripada Penyata Kewangan dan Sijil Juruaudit Mengenainya

Lembaga Pengarah Majlis Kepelbagaian Biologi Sarawak bertanggungjawab terhadap maklumat lain dalam Laporan Tahunan. Pendapat saya terhadap Penyata Kewangan Majlis Kepelbagaian Biologi Sarawak tidak meliputi maklumat lain selain daripada Penyata Kewangan dan Sijil Juruaudit mengenainya dan saya tidak menyatakan sebarang bentuk kesimpulan jaminan mengenainya.

Tanggungjawab Lembaga Pengarah Terhadap Penyata Kewangan

Lembaga Pengarah bertanggungjawab terhadap penyediaan Penyata Kewangan Majlis Kepelbagaian Biologi Sarawak yang memberi gambaran benar dan saksama selaras dengan Piawaian Pelaporan Entiti Persendirian Malaysia (MPERS), The Statutory Bodies (Financial and Accounting Procedure) Ordinance, 1995 dan The Sarawak Biodiversity Centre Ordinance, 1997. Lembaga Pengarah juga bertanggungjawab terhadap penetapan kawalan dalaman yang perlu bagi membolehkan penyediaan Penyata Kewangan Majlis Kepelbagaian Biologi Sarawak yang bebas daripada salah nyata yang ketara, sama ada disebabkan fraud atau kesilapan.

Semasa penyediaan Penyata Kewangan Majlis Kepelbagaian Biologi Sarawak, Lembaga Pengarah bertanggungjawab untuk menilai keupayaan Majlis Kepelbagaian Biologi Sarawak untuk beroperasi sebagai satu usaha berterusan, mendedahkannya jika berkaitan serta menggunakannya sebagai asas perakaunan.

Tanggungjawab Juruaudit Terhadap Pengauditan Penyata Kewangan

Objektif saya adalah untuk memperoleh keyakinan yang munasabah sama ada Penyata Kewangan Majlis Kepelbagaian Biologi Sarawak secara keseluruhannya adalah bebas daripada salah nyata yang ketara, sama ada disebabkan fraud atau kesilapan, dan mengeluarkan Sijil Juruaudit yang merangkumi pendapat saya. Jaminan yang munasabah adalah satu tahap jaminan yang tinggi, tetapi bukan satu jaminan bahawa audit yang dijalankan mengikut International Standards of Supreme Audit Institutions akan sentiasa mengesan salah nyata yang ketara apabila ia wujud. Salah nyata boleh wujud daripada fraud atau kesilapan dan dianggap ketara sama ada secara individu atau agregat sekiranya

AUDITORS' REPORT

boleh dijangkakan dengan munasabah untuk mempengaruhi keputusan ekonomi yang dibuat oleh pengguna berdasarkan penyata kewangan ini.

Sebagai sebahagian daripada pengauditan mengikut International Standards of Supreme Audit Institutions, saya menggunakan pertimbangan profesional dan mengekalkan keraguan profesional sepanjang pengauditan. Saya juga:

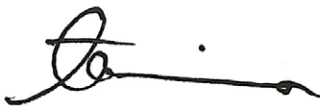
- a. mengenal pasti dan menilai risiko salah nyata ketara dalam Penyata Kewangan Majlis Keperbagaian Biologi Sarawak, sama ada disebabkan fraud atau kesilapan, merangka dan melaksanakan prosedur audit yang responsif terhadap risiko berkenaan serta mendapatkan bukti audit yang mencukupi dan bersesuaian untuk memberikan asas kepada pendapat saya. Risiko untuk tidak mengesan salah nyata ketara akibat daripada fraud adalah lebih tinggi daripada kesilapan kerana fraud mungkin melibatkan pakatan, pemalsuan, ketinggalan yang disengajakan, representasi yang salah, atau mengatasi kawalan dalaman;
- b. memahami kawalan dalaman yang relevan untuk merangka prosedur audit yang bersesuaian tetapi bukan untuk menyatakan pendapat mengenai keberkesanan kawalan dalaman Majlis Keperbagaian Biologi Sarawak;
- c. menilai kesesuaian dasar perakaunan yang diguna pakai, kemunasabahan anggaran perakaunan dan pendedahan yang berkaitan oleh Lembaga Pengarah;
- d. membuat kesimpulan terhadap kesesuaian penggunaan asas perakaunan untuk usaha berterusan oleh Lembaga Pengarah dan berdasarkan bukti audit yang diperolehi, sama ada wujudnya ketidakpastian ketara yang berkaitan dengan peristiwa atau keadaan yang mungkin menimbulkan keraguan yang signifikan terhadap keupayaan Majlis Keperbagaian Biologi Sarawak sebagai satu usaha berterusan. Jika saya membuat kesimpulan bahawa ketidakpastian ketara wujud, saya perlu melaporkan dalam Sijil Juruaudit terhadap pendedahan yang berkaitan dalam Penyata Kewangan Majlis Keperbagaian Biologi Sarawak atau, jika pendedahan tersebut tidak mencukupi, pendapat saya akan diubah. Kesimpulan saya dibuat berdasarkan bukti audit yang diperolehi sehingga tarikh Sijil Juruaudit. Bagaimanapun, peristiwa atau keadaan pada masa hadapan berkemungkinan menyebabkan Majlis Keperbagaian Biologi Sarawak tidak lagi berupaya meneruskan operasi secara usaha berterusan; dan
- e. menilai persembahan secara keseluruhan, struktur dan kandungan Penyata Kewangan Majlis Keperbagaian Biologi Sarawak, termasuk pendedahannya, dan sama ada Penyata Kewangan tersebut telah melaporkan asas-asas urusniaga dan peristiwa-peristiwa yang memberikan gambaran saksama.

AUDITORS' REPORT

Lembaga Pengarah telah dimaklumkan, antaranya mengenai skop dan tempoh pengauditan yang dirancang serta penemuan audit yang signifikan termasuk kelemahan kawalan dalaman yang dikenal pasti semasa pengauditan.

Hal-hal Lain

Sijil ini dibuat untuk Lembaga Pengarah, Majlis Kepelbagaian Biologi Sarawak berdasarkan keperluan The Statutory Bodies (Financial and Accounting Procedure) Ordinance, 1995 serta The Sarawak Biodiversity Centre Ordinance, 1997 dan bukan untuk tujuan lain. Saya tidak bertanggungjawab terhadap pihak lain bagi kandungan sijil ini.



(THOMAS ANAK PAUL BILUN)
b.p. KETUA AUDIT NEGARA

KUCHING, SARAWAK
TARIKH: **19 JUL 2022**



STATEMENT OF FINANCIAL POSITION

AS AT 31 DECEMBER 2021

	Note	2021 RM	2020 RM
NON-CURRENT ASSETS			
Property, plant and equipment	4	26,592,478	26,239,816
CURRENT ASSETS			
Trade and other receivables	5	763,448	494,165
Tax refundable	11	106,794	32,102
Cash and cash equivalents	6	4,181,214	1,568,501
Fixed deposits	7	16,990,220	21,016,691
Total current assets		22,041,676	23,111,459
TOTAL ASSETS		48,634,154	49,351,275
EQUITY			
Retained surplus		36,880,423	36,894,957
NON-CURRENT LIABILITY			
Provision for retirement benefits	8	108,833	98,532
CURRENT LIABILITIES			
Development grants	9	11,158,362	11,210,924
Other payables and accruals	10	478,461	1,130,203
Provision for retirement benefits	8	8,075	16,659
Total current liabilities		11,644,898	12,357,786
TOTAL LIABILITIES		11,753,731	12,456,318
TOTAL EQUITY AND LIABILITIES		48,634,154	49,351,275

The accompanying notes on pages 79 to 92 form an integral part of the financial statements.

STATEMENT OF COMPREHENSIVE INCOME

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

	Note	2021 RM	2020 RM
Revenue	12	554,153	922,550
Government grants	13	14,850,032	17,987,380
		<u>15,404,185</u>	<u>18,909,930</u>
Staff costs	14	(8,822,179)	(8,589,453)
Depreciation of property, plant and equipment	4	(4,019,031)	(3,546,684)
Other operating expenses	15	(2,472,201)	(2,225,162)
Surplus before taxation		90,774	4,548,631
Taxation	11	(105,308)	(167,922)
(Deficit)/Surplus for the financial year		<u>(14,534)</u>	<u>4,380,709</u>

The accompanying notes on pages 79 to 92 form an integral part of the financial statements.

STATEMENT OF CHANGES IN EQUITY

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

	Retained Surplus RM
Balance as at 1 January 2020	32,514,248
Surplus for the financial year	4,380,709
Balance as at 31 December 2020 and 1 January 2021	36,894,957
Deficit for the financial year	(14,534)
Balance as at 31 December 2021	36,880,423

The accompanying notes on pages 79 to 92 form an integral part of the financial statements.

STATEMENT OF CASH FLOWS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

	Note	2021 RM	2020 RM
CASH FLOW FROM OPERATING ACTIVITIES			
Surplus before taxation		90,774	4,548,631
Adjustments for the items not involving the movements of cash and cash equivalents			
Amortisation of development grant	13	(4,300,032)	(9,987,380)
Depreciation of property, plant and equipment	4	4,019,031	3,546,684
Fixed deposit interest income	12	(438,785)	(699,575)
Provision for retirement benefits	8	20,195	20,887
Gain on disposals of property, plant and equipment		-	(1,564)
Operating deficit before changes in working capital		(608,817)	(2,572,317)
(Increase)/decrease in trade and other receivables		(282,211)	92,523
(Decrease)/Increase in other payables and accruals		(651,742)	113,926
Cash used in operations		(1,542,770)	(2,365,868)
Retirement benefits paid	8	(18,478)	-
Income tax paid	11	(180,000)	(230,350)
Net cash used in operating activities		(1,741,248)	(2,596,218)
CASH FLOW FROM INVESTING ACTIVITIES			
Purchases of property, plant and equipment		(4,371,693)	(10,123,139)
Proceed from disposals of property, plant and equipment		-	1,610
Development grant received	9	9,723,401	14,131,757
Research and development expenditure	9	(5,629,253)	(6,909,373)
Fixed deposit interest income received		605,035	965,950
Withdrawal of fixed deposits with maturity terms more than 3 months	7	4,026,471	2,513,809
Net cash generated from investing activities		4,353,961	580,614
Net increase/(decrease) in cash and cash equivalents		2,612,713	(2,015,604)
Cash and cash equivalents at beginning of the year		1,568,501	3,584,105
Cash and cash equivalents at end of the year	6	4,181,214	1,568,501

The accompanying notes on pages 79 to 92 form an integral part of the financial statements.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

1. GENERAL INFORMATION

The registered address and principal place of business for Sarawak Biodiversity Council (Council) is Lot 724 Block 3, Sentah-Segu Land District, KM20 Jalan Borneo Heights, Semengoh, Locked Bag No. 3032, 93990 Kuching, Sarawak.

The Council which is a body incorporated in accordance with the Sarawak Biodiversity Centre Ordinance, 1997 (Chapter 24, Laws of Sarawak), is a Sarawak State Government - owned statutory body and its vision is “Enriching lives with breakthrough innovations in Biodiversity”.

Since then, two amendments; i.e. Sarawak Biodiversity Centre (Amendment) Ordinance, 2003 [Chapter A106, Laws of Sarawak] and the Sarawak Biodiversity Centre (Amendment) Ordinance, 2014 [Chapter A163, Laws of Sarawak] came into force on 1 April 2004 and 1 June 2015 respectively. SBC is now entrusted with the following statutory functions:

- conduct bioprospecting/R&D Programme on the biodiversity of the State and maintain a library of extract for R&D;
- implement the Traditional Knowledge Documentation Programme among the traditional communities in the State;
- provide facilities for research and development;
- establish linkages and partnerships to undertake research and development;
- to promote education and knowledge of biodiversity of the State;
- establish and maintain a database on information related to the biological resources of the State;
- implement Prior Informed Consent (PIC) to ensure benefit sharing with the ethnic communities of Sarawak when traditional knowledge associated with a biological resource is accessed and benefits are shared through mutually agreed terms.

The functional currency of the Council is Ringgit Malaysia (RM). The financial statements of the Council were authorised for issue by the Council Members during the meeting held on 22 April 2022.

2. SIGNIFICANT ACCOUNTING POLICIES

The financial statements of the Council have been prepared in accordance with the Malaysian Private Entities Reporting Standard (“MPERS”), Statutory Bodies (Financial and Accounting Procedure) Ordinance, 1995 and Treasury Instructions.

(a) Basis of preparation

The financial statements are prepared using cost bases and fair value bases.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

2. SIGNIFICANT ACCOUNTING POLICIES (continued)

(b) Property, plant and equipment

The cost of an item of property, plant and equipment is recognised as an asset when it is probable that future economic benefits associated with the item will flow to the Council and the cost of the item can be measured reliably. After recognition as an asset, all items of property, plant and equipment are measured at cost less any accumulated depreciation and any accumulated impairment losses. Depreciation is provided on a straight-line method so as to write off the depreciable amount of the following assets over their estimated useful lives. The rates of depreciation are as follows: -

• Leasehold land	1.67% p.a.
• Buildings	5% p.a.
• Office equipment	15% p.a.
• Furniture, fixtures and fittings	10% p.a.
• Computers and accessories	20% p.a.
• Office renovations	10% p.a.
• Motor vehicles	20% p.a.
• Specialised equipment (equipment)	15% p.a.
• Specialised equipment (computer)	20% p.a.
• Specialised equipment (software)	20% p.a.
• Temporary office	10% p.a.
• Nursery sheds	10% p.a.
• Lab specialised equipment	15% p.a.
• Lab furniture and fittings	10% p.a.

Depreciation of an asset begins when it is ready for its intended use. Fully depreciated assets are retained in the financial statements until they are no longer in use. Leasehold land is amortised over leasehold term of 60 years.

The gain or loss arising from the disposal or retirement of an item of property, plant and equipment is determined as the difference between the sale proceeds and the carrying amount of the asset and is recognised in profit or loss.

If there is an indication that there has been a significant change since the last annual reporting date in the pattern by which the Council expects to consume an asset future economic benefits, the Council would review its present depreciation method and if current expectations' differ, the Council would amend the residual value, depreciation method or useful life to reflect the new pattern.

(c) Operating grant

Grant received from the State Government for the operation or maintenance of the Council's activities is credited to statement of comprehensive income.

Grants that compensate the Council for operating expenses incurred are recognised as income over the periods necessary to match the grants on a systematic basis to the costs that they are intended to compensate.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

2. SIGNIFICANT ACCOUNTING POLICIES (continued)

(d) Development grant

The Council receives development grants from the State Government in order to finance activities and projects related to biodiversity research and development protection. This is in line with the functions and powers of the Council, as provided by the Sarawak Biodiversity Centre Ordinance, 1997. The grants received are credited to the development grants and offset against future costs when incurred.

Government grants that do not impose specified future performance conditions are measured at the fair value of the assets received or receivable and recognised in income when the grant proceeds are receivable.

Government grants that impose specified future performance conditions are recognised at their fair value in income only when the performance conditions are met.

Government grants received before the revenue recognition criteria are satisfied are recognised as a liability.

(e) Impairment of property, plant and equipment

Property, plant and equipment are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable. Whenever the carrying amount of an asset exceeds its recoverable amount, an impairment loss is recognised in profit and loss for items property, plant and equipment carried at cost. The recoverable amount is the higher of an asset's net selling price and value in use. The net selling price is the amount obtainable from the sale of an asset in an arm's length transaction.

Value in use is the present value of estimated future cash flows expected to arise from the continuing use of an asset and from its disposal at the end of its useful life. Recoverable amounts are estimated for individual assets or, if it is not possible, for the cash-generating unit.

Reversal of an impairment loss recognised in prior years is recorded when there is an indication that the impairment loss recognised for an asset no longer exists or has decreased. The reversal is recorded in profit or loss.

(f) Employee benefits

i) Short-term benefits

Wages, salaries, bonuses and social security contributions are recognised as expenses in the year in which employees of the Council render the associated services. Short-term accumulating compensated absences, such as paid annual leave are recognised when services rendered by employees that increase their entitlement to future compensated absences; and short-term non-accumulating compensated absences, such as sick leave are recognised when the absences occur.

(ii) Long-term benefits

Long-term benefits recognised as accruals is for the Gantian Cuti Rehat (GCR) that is based on the accumulated leave for an employee until it reaches a maximum of 150 days before compulsory retirement. The present value of the future estimated basic salary at a discount factor of 3.3% has been applied for the calculation of the liability.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

2. SIGNIFICANT ACCOUNTING POLICIES (continued)

(f) Employee benefits

(iii) Defined contribution plan

The Council's contribution to defined contribution plans is charged to the statement of comprehensive income in the period in which it relates. Once the contributions have been paid, the Council has no further payment obligations.

As required by law, the Council makes contributions to the Employee Provident Fund (EPF). Such contributions are recognised as an expense in the statement of comprehensive income as incurred.

(g) Financial assets and liabilities

Financial assets and liabilities are recognised in the statement of financial position when the Council has become a party to the contractual provisions of the instrument. The particular recognition methods are dissolved below:-

(i) Other receivables

Other receivables are carried at amortised cost. Bad debts are written off when identified. An estimate is made for doubtful debts based on review of all outstanding accounts as at the reporting date.

(ii) Cash and cash equivalents

Cash and cash equivalents in the statement of cash flows comprise cash and bank balances which are readily convertible to cash and which are subjected to an insignificant risk of changes in value.

(iii) Fixed Deposits

Fixed deposits comprise long-term bank deposits with original maturity periods of more than three (3) months.

(iv) Other payables and accruals

Other payables are stated at amortised cost, which is fair value of the consideration paid in the future for goods and services received.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

2. SIGNIFICANT ACCOUNTING POLICIES (continued)

(h) Revenue recognition

- Revenue from sales of products is measured at the fair value of the consideration received or receivable, net of any trade discounts and indirect taxes applicable to the revenue. Revenue is recognised in profit or loss when it is probable that the economic benefits associated with transaction will flow to the Council and the amount of the revenue can be measured reliably.
- Fixed deposit interest income is recognised as it accrues using the effective interest method.
- Other income is recognised at the point of receipt or sales by the Council.

(i) Research and development

Research and development expenditure comprise deferred direct project costs and related overheads incurred for projects ranging from 2 to 30 years. These research and development expenditures are recognised as project costs when the research and development are completed and offset against development grant received.

(j) Provisions

Provisions are recognised when there is a present obligation, legal or constructive, as a result of a past event, when it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. Provisions are reviewed at each reporting date and adjusted to reflect the current best estimate.

(k) Taxation

Income tax on the profit or loss for the financial year comprises current tax. Current tax is the expected amount of income tax payable or receivable in respect of the taxable profit or loss for the financial year and is measured using the tax rates that have been enacted or substantially enacted at the reporting date and any tax adjustment payable in respect of previous financial years.

3. CRITICAL ACCOUNTING JUDGEMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY

(a) Critical judgments in applying the accounting policies

The judgments, apart from those involving estimations described below, that the management has made in the process of applying the accounting policies and that have the most significant effect on the amounts recognised in the financial statements are as follows:

(i) Fair value of financial assets and liabilities

The fair value for financial assets and financial liabilities are obtained from the quoted price in an active market, if quoted prices are unavailable, the price of a recent transaction for an identical financial assets or liabilities provides evidence of fair value as long as there has not been a significant change in economic circumstances or a significant lapse of the time since the transaction took place.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

3. CRITICAL ACCOUNTING JUDGEMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY

(b) Key sources of estimation uncertainty

The key assumptions concerning the future, and other key sources of estimation uncertainty at the reporting date, that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are as follows:

(i) Change of estimated useful lives for property, plant and equipment

The Council reviews the estimated useful lives of property, plant and equipment annually.

(ii) Impairment loss of property, plant and equipment

The Council's property, plant and equipment comprise a significant portion of the Council's total assets.

Changes in technology or industry conditions may cause the estimated period of use or the value of these assets to change. Long-lived assets are reviewed for impairment at least annually or whenever events or changes in circumstances have indicated that their carrying amounts may not be recoverable. If any such indication exists, the recoverable amount is estimated.

The recoverable amount of an asset is the greater of its fair value less costs to sell and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pretax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset, which requires significant judgment relating to level of revenue and amount of operating costs. The Council uses all readily available information in determining an amount that is a reasonable approximation of the value in use, including estimates based on reasonable and supportable assumptions and projections of revenue and operating costs. Changes in these estimates could have a significant impact on the carrying value of the assets and could result in additional impairment charge or reversal of impairment in future periods.

(iii) Provision for retirement benefits

Long-terms benefits recognised as accruals is for the Gantian Cuti Rehat (GCR) that is based on the accumulated leave for an employee until it reaches a maximum of 150 days before compulsory retirement. The present value of the future estimated basic salary at a discount factor of 3.3% has been applied for the calculation of the provision.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

4. PROPERTY, PLANT AND EQUIPMENT

2021

	Buildings RM	Leasehold land RM	Office equipment RM	Furniture, fixtures and fittings RM	Computers and accessories RM	Office renovations RM	Motor vehicles RM	Specialised equipment RM	Temporary office RM	Nursery sheds RM	Lab specialised equipment RM	Lab furniture and fittings RM	Total RM
Cost													
At 1 January 2021	17,288,691	6,616,000	982,858	1,046,393	2,382,691	584,209	1,358,198	106,530	372,473	94,068	23,193,837	648,240	54,674,188
Additions	-	-	100,124	157,888	92,561	-	-	-	-	-	4,021,120	-	4,371,693
At 31 December 2021	17,288,691	6,616,000	1,082,982	1,204,281	2,475,252	584,209	1,358,198	106,530	372,473	94,068	27,214,967	648,240	59,045,881
Accumulated Depreciation													
At 1 January 2021	7,181,710	27,622	806,265	712,366	1,811,572	547,282	949,045	106,494	372,472	94,063	15,231,531	593,950	28,434,372
Chargers	864,435	110,487	67,987	70,020	258,081	8,099	152,070	-	-	-	2,473,090	14,762	4,019,031
At 31 December 2021	8,046,145	138,109	874,252	782,386	2,069,653	555,381	1,101,115	106,494	372,472	94,063	17,704,621	608,712	32,453,403
Carrying amounts	9,242,546	6,477,891	208,730	421,895	405,599	28,828	257,083	36	1	5	9,510,336	39,528	26,592,478

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

4. PROPERTY, PLANT AND EQUIPMENT (continued)

2020

Cost	Furniture, fixtures and fittings													Total RM
	Buildings RM	Leasehold land RM	Office equipment RM	Computers and accessories RM	Office renovations RM	Motor vehicles RM	Specialised equipment RM	Temporary office RM	Nursery sheds RM	Lab specialised equipment RM	Lab furniture and fittings RM			
At 1 January 2020	17,279,431	-	1,016,429	1,049,623	2,376,045	584,209	1,268,198	106,530	372,473	94,068	20,409,471	721,490	45,277,967	
Additions	9,260	6,616,000	23,448	-	59,945	-	90,000	-	-	-	3,324,486	-	10,123,139	
Disposals	-	-	(57,019)	(3,230)	(53,299)	-	-	-	-	-	(540,120)	(73,250)	(726,918)	
At 31 December 2020	17,288,691	6,616,000	982,858	1,046,393	2,382,691	584,209	1,358,198	106,530	372,473	94,068	23,193,837	648,240	54,674,188	
Accumulated Depreciation														
At 1 January 2020	6,317,584	-	784,897	634,584	1,610,375	539,184	791,314	106,494	372,472	87,369	13,717,849	652,438	25,614,560	
Chargers	864,126	27,622	78,381	81,007	254,474	8,098	157,731	-	-	6,694	2,053,789	14,762	3,546,684	
Disposals	-	-	(57,013)	(3,225)	(53,277)	-	-	-	-	-	(540,107)	(73,250)	(726,872)	
At 31 December 2020	7,181,710	27,622	806,265	712,366	1,811,572	547,282	949,045	106,494	372,472	94,063	15,231,531	593,950	28,434,372	
Carrying amounts	10,106,981	6,588,378	176,593	334,027	571,119	36,927	409,153	36	1	5	7,962,306	54,290	26,239,816	

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

5. Trade and other receivables

	2021 RM	2020 RM
Trade receivables	16,806	4,645
Other receivables	175,722	19,200
Prepayments	326,950	60,100
Interest receivables	243,970	410,220
	<u>763,448</u>	<u>494,165</u>

Other receivables includes reimbursements receivable for research and development expenditure at RM153,322.

6. Cash and cash equivalents

	2021 RM	2020 RM
Cash and bank balances	<u>4,181,214</u>	<u>1,568,501</u>

7. Fixed deposits

	2021 RM	2020 RM
Fixed deposits	<u>16,990,220</u>	<u>21,016,691</u>

Fixed deposits with licensed banks of the Council at the end of the reporting period and having maturity periods of twelve (12) months bore effective interest rates ranging from 2.10% to 2.2% (2020: 2.50%-3.55%).

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

8. Provision for retirement benefits

	2021 RM	2020 RM
Balance as at 1 January	115,191	94,304
Payment for the year	(18,478)	-
Provision for retirement benefits during the year	20,195	20,887
Balance as at 31 December	<u>116,908</u>	<u>115,191</u>

	2021 RM	2020 RM
Current provision for retirement benefits	8,075	16,659
Non-current provision for retirement benefits	108,833	98,532
	<u>116,908</u>	<u>115,191</u>

9. Development grants

	2021 RM	2020 RM
Balance as at 1 January	11,210,924	13,975,920
Received during the year	9,723,401	14,131,757
Amortised during the year	(4,300,032)	(9,987,380)
Offset against research and development expenses	(5,629,253)	(6,909,373)
Balance as at 31 December	<u>11,005,040</u>	<u>11,210,924</u>
Add: Reclassification as Other receivables	153,322	-
	<u>11,158,362</u>	<u>11,210,924</u>

Development grants comprise grants received from the Sarawak Government and collaborators for the purpose of research and development. At 31 December 2021, reimbursements receivable for research and development expenditure at RM153,322 was reclassified as Other Receivables.

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

10. Other payables and accruals

	2021 RM	2020 RM
Other payables	406,258	1,086,646
Accruals	72,203	43,557
	<u>478,461</u>	<u>1,130,203</u>

11. Provision for taxation/Taxation

In exercising the powers under Section 127(3)(b) of Income Tax Act 1967, YB Menteri Kewangan Malaysia has made a new order: Income Tax (Exemption) (No.22) Order 2006 [P.U. (A) 207 @ 01 June 2006]. This order is applicable to Sarawak Biodiversity Council where the Minister has exempted:

- (a) any person from the payment of income tax in respect of income relating to the allocations given by the Federal or State Government in the form of grant or subsidy; and
- (b) a statutory body from the payment of income tax in respect of income derived from:
 - (i) the income received in respect of an amount chargeable and collectible from any person in accordance with the provisions of the Act regulating the statutory authority; or
 - (ii) any donations or contribution received.

This Order shall have effect from the Year of Assessment 2006. Income Tax (Exemption) (No.17) Order 1995 [P.U. (A) 213/1995] and Income Tax (Exemption) (No.4) Order 2003 [P.U. (A) 33/2003] are revoked from the Year of Assessment 2006.

The provision for taxation is made based on the fixed deposit interest income only.

	2021 RM	2020 RM
Balance at 1 January	-	30,326
Current year provision	105,308	167,922
Tax paid	(180,000)	(230,350)
Tax refunded	-	-
Balance at 31 December	<u>(74,692)</u>	<u>(32,102)</u>
Tax refundable	<u>106,794</u>	<u>32,102</u>

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

12. Revenue

	2021 RM	2020 RM
Fixed deposit interest income	438,785	699,575
Tender document fees	11,600	13,200
Gain on disposal of property, plant and equipment	-	1,564
Sales of products	55,403	42,608
Other income	48,365	165,603
	<u>554,153</u>	<u>922,550</u>

13. Government grants

	2021 RM	2020 RM
Operating grant	10,550,000	8,000,000
Amortisation of development grant	4,300,032	9,987,380
	<u>14,850,032</u>	<u>17,987,380</u>

The operating grant received from State Government is mainly for operating expenditures. The development grant is amortised for the cost of property, plant and equipment capitalised for the year.

14. Staff costs

	2021 RM	2020 RM
Personnel emolument	7,353,332	7,187,534
Provision for retirement benefits	20,195	20,887
Staff incentives	116,049	116,072
EPF	969,122	912,049
SOCSSO	88,145	85,589
Overtime	78,567	62,733
Transport and travelling	55,330	52,909
Medical expenses	100,798	79,059
Staff uniform	40,641	72,621
	<u>8,822,179</u>	<u>8,589,453</u>
Number of staff	<u>123</u>	<u>123</u>

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

15. Other operating expenses

	2021 RM	2020 RM
Advertisement	12,474	22,606
Audit fees	9,646	8,045
Bank charges	1,546	1,850
Computer and accessories	146,677	101,185
Consultancy fees	67,325	44,180
Conference and seminar fees	25,210	32,645
Council Members' allowance and sitting fees	111,600	117,200
Electricity charges	342,789	262,877
Entertainment	24,023	41,204
Fuel and lubricant	16,805	14,696
Human resource development expenses	2,800	-
Lab consumables	98,896	288,489
Lab maintenance	511,116	186,754
Indigenous Knowledge Benefit Sharing	3,964	3,572
Insurance	65,281	63,878
Motor vehicles road tax	1,839	2,062
Newspapers and magazines	23,216	6,198
Office expenses	248,869	163,055
Office maintenance	646,349	753,255
Postage and courier	17,360	16,932
Printing and stationery	23,093	24,479
Repairs and maintenance - motor vehicles	12,452	22,944
Telecommunication and internet charges	31,279	28,305
Water charges	27,592	18,751
	<u>2,472,201</u>	<u>2,225,162</u>

NOTES TO THE FINANCIAL STATEMENTS

FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2021

16. Capital commitments

Approved capital expenditure and contracted for in the financial statements as at 31 December 2021 is RM2.12 million (2020: RM2.33 million).

17. Financial instruments

17.1 Categories of financial instruments

	2021 RM	2020 RM
<u>Financial assets measured at amortised cost</u>		
Trade and other receivables (excluded prepayments)	436,498	434,065
Cash and cash equivalents	4,181,214	1,568,501
Fixed deposits	16,990,220	21,016,691
	<u>21,607,932</u>	<u>23,019,257</u>
<u>Financial liabilities measured at amortised cost</u>		
Other payables	<u>406,258</u>	<u>1,086,646</u>

17.1 Net gains arising from financial instruments

	2021 RM	2020 RM
Net gains arising from financial instruments		
Financial assets measured at amortised cost	<u>438,785</u>	<u>699,575</u>

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