BIOTECHCORP
MALAYSIAN BIOTECHNOLOGY CORPORATION

ENRICHING THE NATION, SECURING THE FUTURE

ANNUAL REPORT 2012

IN THIS REPORT

BiotechCorp drives commercialisation of Malaysia's biotechnology sector

KUALA LUMPUR: Malaysian Biotechnology Corp (BiotechCorp) is spearheading the commercialisation of Malaysia's biotechnology sector through a series of agreements and memorandum of collaborations.

The latest was a clutch of five collaborations between global and local biotechnology partners at the BIO International Convention 2012 in Boston, Massachusetts, which began yesterday.

It included the exchange of a collaboration instrument worth RM1.65 billion between the Terengganu state government, BiotechCorp, the East Coast Economic Region Development Centre (ECERDC) and GEVO Inc to facilitate investment in a Bio Polymer.

Minister of Science, Technology and Innovation Datuk Seri Dr Maximus Ongkili in a statement applauded BiotechCorp for its continued initiatives towards partnerships and collaborations on a global scale.

"This is moreso in the light of the current economic times with its unique challenges and change.

"The valuable support shown by BiotechCorp in continuing to provide for the biotechnology industry in Malaysia, also marks the opportunities that still in the market," he added.

Ongkili, who was leading the Mala delegation to the event, was speaking opening of the Malaysian Pavilion at the day BIO International Convention 201

BiotechCorp's chief executive o Datuk Dr Mohd Nazlee Kamal sai partnerships announced magnify the proposition that Malaysia offered.

"They are especially attrac in nurturing and driving gl entrepreneurship and partnerships foreign companies," he added. — Ber

MALAYSIAN COCOA BOARD

CENTRE	HIGH	LOW	AVE	HIGH	LO
TAWAU	130	130	130	6800	68
TENOM	140	130	135	-	-
S.BERAM	-	-	-	-	-
B.DATOH	140	140	140	-	-
A.TAWAR	-	-	-	-	-
B.PANJAT	-	-	-	-	-
MUAR	-	-	-	-	-
JERANTUT	-	-	-	-	-
RAUB	170	170	170	7250	68

BURSA MALAYSIA DERIVATIVES BERHAD : THE CRUDE PALM OIL FUTURES (FCPO) AS AT 20TH JUNE 2012

(All prices are in Ringgit Malaysia RM / Metric Tonnes)

Contract Month

	(M/T) OPEN	(M/T) HIGH	(M/T) LOW
JUL 2012	3020	3036	2980
AUG 2012	3035	3052	2982
*SEP 2012	3048	3058	2992
OCT 2012	2998	3058	2998
NOV 2012	3010	3060	3010

*Projected Resistance & Support levels to the next trading day

1st Resistance level 3067 — 1st Support level 3003

2nd Resistance level 3096 — 2nd Support level 2964

Disclaimer - The purpose of this commentary is only to provide information

BTP Targets RM3.6 Billion GNI, 16,000 New Jobs By 2020

By Newmond Tibin

KOTA KINABALU, Aug 30 (Bernama) -- The Bioeconomy Transformation Programme (BTP) has set initial targets of Gross National Income (GNI) of RM3.6 billion, RM10 billion in investment and 16,000 new jobs by 2020.

Science, Technology and Innovation Minister Datuk Seri Dr Maximus Ongkili said the BTP is designed to bring long-term results and sustainability to the economy.

Ongkili said since the launch of the National Biotechnology Policy in 2005, some 210 companies have been awarded BioNexus status with total approved investment of over RM2 billion.

"Some of these companies are from Sabah, and we are confident the number will increase," he said in a briefing on Bioeconomy in the Sabah Development Corridor (SDC) here today.

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Ongkili said he w implementation i country's bioecono

"Sabah has all the can leverage on based on biotec

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Speaking to repor benefits to compa

-- BERNAMA

SEDIA, BiotechCorp to update on Bioeconomy Initiative

KOTA KINABALU: The Sabah Economic Development and Investment Authority (SEDIA) and Malaysian Biotechnology Corporation (BiotechCorp) are jointly organising a Bioeconomy updates briefing event this coming Thursday, at a leading resort here.

Chief Minister Datuk Seri Panglima Musa Hj Aman will be officiating at the event which will also be attended by Datuk Seri Panglima Dr Maximus Ongkili, the Minister of Science, Technology and Innovation (MOSTI).

The objectives of the event are to provide an update of the biotech roadmap and programmes in Malaysia in view of the Bioeconomy Initiative Malaysia (BEM) launched last year as well as to highlight biotech opportunities in the Sabah Development Corridor (SDC).

Two papers will be presented during the event, the first paper will be a briefing on Bioeconomy in Malaysia by BiotechCorp Chief Executive Officer Datin' Dr Mohd Nazlee Kamal, followed by a paper which will brief on Biotechnology initiatives in SDC by SEDIA Vice President Mary Sintoh.

Through BEM, the bioeconomy is well-positioned as a "sustainable economy" for Malaysia, encompassing all industries and economic sectors that produce, manage and utilise biological resources, including agriculture, forestry, fisheries, food, wellness, chemicals and renewable energy.

"The BEM offers the opportunity for the country to relook at how it could pool and deploy existing natural resources, enhance private-public partnerships at local as well as international levels, develop strengths in strategic focus areas and enhance current service levels," said Datin' Dr Mohd Nazlee Kamal, CEO of BiotechCorp.

Among the objectives, BEM is to consolidate and converge existing bioeconomic initiatives in various different sectors, in both public and private domains, to maximise participation of the local private industry in high-impact opportunities and ensure continuity and implementation of all related national policies.

"Through the BEM platform, the government and leading industry players will set goals for the application of biotechnology to agriculture production, industry and health, put in place the structural conditions required and develop necessary mechanisms to ensure that policy can flexibly adapt to new opportunities," added Nazlee.

SEDIA has had several prior collaboration with MOSTI (of which BiotechCorp is an agency under its purview), such as research and development activities that have been funded by MOSTI under its Technofund initiatives.

According to the Chief Executive of SEDIA, Datuk Dr Mohd Yaakob, among the flagship projects in SDC that relate to the Bioeconomy is the Sabah Agro-Industrial Precinct (SAIP) in Kimanis, which is a dedicated precinct aimed at spearheading the modernisation of the agriculture industry.

A key goal of SAIP is to develop local agro-entrepreneurs by fostering science-industry linkages.

Other SDC projects related to the Bioeconomy include both of the palm oil industrial clusters (Lahad Datu and Sandakan) and the Keningau Integrated Livestock Centre.

"Under the MOSTI Technofund, we have several initiatives conducted in SAIP such as the Satellite Biotechnology initiative for the project entitled 'Identification and utilisation of naturally-occurring effective micro-organisms on compost for cultivation of herbs' which had started in June 2006 with the registration of two officers for postgraduate studies.

This was to fulfil part of the Satellite Biotechnology initiative requirement that is, among others, to upgrade the human resource capability in agro-biotechnology.

Two proposals were submitted and accepted by the Centre for Postgraduate Studies, Universiti Malaysia Sabah (UMS)," he said.

Novartis mulls investment in Malaysia

KUALA LUMPUR: Malaysia is currently in consideration by Novartis, the world's second largest pharmaceutical company, as a potential site for a healthcare biotechnology investment.

In a statement yesterday, Malaysian Biotechnology Corp (BioTech) said Novartis has continued to highlight its partnership with the Sarawak Biodiversity Centre to develop drug compound leads from microbial natural

would be a timely impetus in structuring potential growth, with bioeconomy being discussed in the BioMalaysia 2012 Conference and Exhibition.

BioMalaysia 2012, one of the core programmes under the World Innovation Forum 2012, is now focusing on building the national healthcare bioeconomy value chain, with key successes including a multi-million ringgit collaboration in drug discovery.

The collaboration also involves a model public-private partnership between Aurigene Discovery Technologies, a BioNexus Drug Discovery Company, and Universiti Malaya on a five-drug discovery programme, as well as

ilding post-graduate

grammes.

-day event from yes-

officiated by Deputy ster Tan Sri Muhyid- — Bernama

RM1 bln lobster project to be signed soon

BOSTON: United States-based Darden Restaurants Inc.'s billion ringgit idvestment plan to set up the world's first fully-integrated lobster aquaculture project in Sabah is expected to be linked soon.

Science, Technology and Innovation Minister Datuk Seri Panglima Dr Maximus Ongkili said the venture, to be carried out in partnership with Yayasan Sabah and another local partner, is expected to involve US$600million (RM1 billion) investment by the Fortune 300 multi-national company.

For this project, Darden Restaurants Inc. has set up two entities - Darden Aquasciences Sdn Bhd and Lobster Aqua Technologies Sdn Bhd.

The aquaculture project will use cutting-edge technology in lobster hatchery to produce spiny lobster fry

Darden Aquasciences will provide sufficient quantities of lobster fry to Lobster Aqua Technologies and its contract farmers to produce market-ready lobsters on a large commercial scale.

"The investment will provide job and business opportunities to local farmers and contract growers," Dr Ongkili said after a meeting with Darden Restaurants Inc. senior vice-president Bill Herzig at the sidelines of the Bio International Convention 2012.

With a US$7.5 billion annual turnover, Darden Restaurants Inc. is the world's largest full-service restaurant company that owns and operates more than 1,900 restaurants in the United States and Canada.

Dr Ongkili however said there were a few matters pertaining to the deal that needed ironing out.

"This business is sealed with the offer of 6,000 hectares of sea space by the Sabah state government while the hatchery component requires further fine-tuning. But I am confident the Sabah state government can conclude matters soonest.

"The Ministry of Science, Technology and Innovation (MOSTI) and the Ministry of International Trade and Investment will give personal attention to the investment initiative," he said.

Darden Aquasciences and Lobster Aqua Technologies were issued the Letter of Offer of BioNexus Status by the Finance Ministry, signifying the investment commitment by Darden.

The letter was handed over to Darden by BiotechCorp CEO Datuk Dr Mohd Nazlee Kamal, witnessed by Dr Ongkili at the opening of the Malaysian Pavilion at the Bio International Convention 2012 held at Boston Convention Centre.

Bill Herzig (fourth from left) receiving a souvenir from Dr Maximus. Also present are MOSTI deputy secretary-general Professor Datin Paduka Dr Khatijah Yusoff, Sarawak Deputy Chief Minister Tan Sri Dr Alfred Jabu Numpang, BiotechCorp CEO Datuk Mohd Nazlee Kamal, MIDA director (life sciences) Jasvant Singh and BiotechCorp senior vice-president (agriculture) Dr Kodi Suparn Kandasamy.

BIOTECH COMMERCIALISATION: BiotechCorp is spearheading the commercialisation of Malaysia's biotechnology sector through a series of agreements and memorandum of collaborations.

Five collaborations worth over RM3 billion sealed at BIO Boston

BOSTON: Five collaborations and partnerships between Malaysian and international biotechnology firms with investments worth over RM3 billion were sealed

One of collaboration agreements was between Terengganu state government, Malaysian Biotechnology Corp (BiotechCorp), East Coast Economic Region Development Centre and GEVO Inc to set up plant in Kertih to produce arbohydrates and isobutanol om woody biomass with an stimated investment of RM1.65 illion.

Another involved a joint clinical rial and licence and distribution greement between Chemical o of Malaysia Bhd's unit, uopharma (M) Sdn Bhd, with outh Korea's PanGen Biotech nc to pioneer clinical trial of rythropoietin (EPO) to reat end-stage renal failure atients.

EPO's role was to increase red lood cells.

The clinical trial, which ould take a year, would ventually see the Duopharma btaining commercialisation ights for product marketing nd distribution in alaysia, Singapore and runei.

Ongkili said apart from that, oreign companies involved in he lobster aquaculture in Sabah ith investment of between RM1 billion and RM2 billion were given BioNexus status.

Meanwhile, BiotechCorp chief executive officer, Datuk Dr Mohd Nazlee Kamal, said with economic corridors onboard, the agency planned to build innovation park or biotechnology park in every corridor as its future strategy to woo more foreign investors.

"Apart from these economic corridors having their own infrastructure in place, the agency would also assist them in recognising their own niche and strengths to woo these investors," he said, citing the Bio Polymer Park in Kertih, Terengganu as an example.

"We will also focus on BioXCell this year. We have been talking with a few companies in biopharmaceuticals and there's a possibility to attract them into investing in BioXCell. Our target is RM3 billion for this year and next year," Nazlee said.

BioXCell, a biotech park in the 22.37-hectare Southern Industrial and Logistics Clusters, is being developed by Malaysian BioXCell Sdn Bhd.

UEM Land Holdings Bhd holds 49 per cent equity in Malaysian BioXCell and BiotechCorp 60 per cent. — Bernama

BiotechCorp aims to secure FDIS worth RM4 billion in 2012, 2013

KUALA LUMPUR: The Malaysian Biotechnology Corporation (BiotechCorp), in collaboration with other government agencies, is targeting to secure RM4 billion foreign direct investments (FDIs) in the industrial biotechnology sector within 2012 and 2013.

BiotechCorp chief executive officer Datuk Dr Mohd Nazlee Kamal said BiotechCorp would work closely with some agencies to...

...include the East-...conomic Region ...uncil, Malaysia ...ency (AIDA), Ma... ...nd Development ...), Northern Cor... ...ridor Authority ...Terengganu state ...and its, his presen... ...ded Engineering ...n of Industrial ...Drive Malaysia's ...the Second Bio- ...a in Bangkok.

Among specific areas targeted for the FDIs are production of biobased materials and chemicals derived from biomass.

Mohd Nazlee said Asia was becoming a "hotspot" for biobased materials and chemicals and the growth presented viable opportunities for investments, partnerships and collaborations.

"We are anticipating to produce around 760,000 bone dry tonnes of biomass, mainly from wood chips to produce 500,000 tonnes of carbohydrates that will be converted into various forms of bio-based chemicals," he said.

Mohd Nazlee said the bio-based chemical market was expected to grow at over 20 per cent a year and exceed US$500 billion until 2017 with over 15 per cent of the US$3 trillion global chemical sales to be derived from bio-derived sources by 2025.

He said the opportunities for Asian companies were abundant as they were able to capitalise on their existing ties to feedstock, financing, government and the market.

"Aside from an abundant feedstock supply, Malaysia

Turn to Page 82, Col 5

Datuk Dr Mohd Nazlee Kamal

frastructure, as well as attractive fiscal and non-fiscal incentives for investors, including Gevo at the Park. As of to date, BiotechCorp and ECERDC have successfully secured a RM2 billion investment from a joint-venture between Korea's CJ Cheil Jedang and France's Arkema to develop the world's first bio-methionine facility in Kertih BioPolymer Park.

aims to secure FDIS worth RM4 bil in 2012, 2013

UR: The chnology tchCorp), with other ies, is tar- M4 billion vestments ustrial bio- within 2012

ief execu- Dr Mohd Biotech- losely with realise the

clude the Economic ent Coun- cil, Malaysia Innovation Agency (AIM), Malaysian Investment Development Authority (Mida), Northern Corridor Implementation Authority (NCIA) and the Terengganu state government, he said in his presentation paper entitled 'Engineering the Value Chain of Industrial Biotechnology to Drive Malaysia's Bioeconomy' at the Second Bio-Based Chem Asia in Bangkok.

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tion of biobased materials and chemicals derived from biomass.

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He said the opportunities for Asian companies were abundant as they were able to capitalise on their existing ties to feedstock, financing, government and the market.

"Aside from an abundant feedstock supply, Malaysia has an advantage in terms of market access and overall sound business environment, which among other factors, has the respect for private property and Intellectual Property rights.

"Combined with governments support and policies, this will certainly be a contributing factor towards driving Malaysia's bioeconomy agenda and achieving its target to become the regional biorefinery hub by 2013," he said.

Bioeconomy, which encompasses application of biotechnology to primary industries, is slated to become one of the National Key Economic Areas (NKEAs) for Malaysia following in the footsteps of mature countries such as the US, China, Japan, the Netherlands, Germany and France.

Bioeconomy, particularly through industrial biotechnology, will be a paradigm shift to inject new approach to existing industries in Malaysia such as the commodities and petrochemicals to harness Malaysia's biodiversity in a sustainable manner. — Bernama

Datuk Seri Dr Maximus Ongkili

BECOMING A VIBRANT AND SUCCESSFUL BIOECONOMY

2012 HIGHLIGHTS

KEY INDICATORS FOR THE BIOTECHNOLOGY INDUSTRY AS AT 31 DECEMBER 2012

Indicators	Targets				Phase II Achievements as of 2012
	Phase I (2005 – 2010)	Phase II (2011 – 2015)	Phase III (2016 – 2020)	Total (2005 – 2020)	
Private Investment	RM6 billion	RM9 billion	RM15 billion	RM30 billion	RM10.6 billion
Number of BioNexus Companies	25	25	50	100	217
Employment	40,000	80,000	160,000	280,000	64,753
Annual Revenue	RM20 billion	RM80 billion	RM170 billion	RM270 billion	RM1.7 billion*

Note:
** Based on OSS reporting by BioNexus companies.*

KEY INVESTMENTS FOR THE BIOTECH INDUSTRY AS AT 31 DECEMBER 2012

Company	Investments
Ranbaxy Malaysia Sdn Bhd	Ranbaxy Malaysia, a wholly owned subsidiary of the Japan based Daiichi Sankyo Group is setting up a RM135 million 'Greenfield Manufacturing Facility' which will become one of its eight Global Manufacturing Hubs for production of generic pharmaceutical products. The facility will cater to consumers in Malaysia and to markets in ASEAN, Middle East, Europe, Sri Lanka, China and other selected countries. With BiotechCorp's support and facilitation, the company's project has been conferred an EPP status under the Economic Transformation Programme (ETP).
Darden Aquasciences Sdn Bhd and Lobster Technology Solutions Sdn Bhd	United States based Darden Restaurants Inc (DRI) has invested RM1.92 billion for the commercialisation and production of lobster juveniles and their grow-out technology. The company has been successfully awarded the BioNexus status. BiotechCorp worked together with Malaysian Investment Development Authority (MIDA) and Invest KL for the realisation of the project with an overall total committed investment of USD 1 billion which includes the setting up of a Regional Management Centre. This high impact project has been established in Semporna, Sabah over an area of 6000ha of seaspace for the creation of an Integrated Lobster Aquaculture Park (iLAP). DRI has been actively engaged in the developing the hatchery for the cultivation of *Panulirus ornatus* (Spiny Lobster) over a period of eight years. The research has resulted in the successful commercialisation of spiny lobster breeding from larval production and cultivation to broodstock management. DRI is the world's largest full-service restaurant company that owns and operates more than 1900 restaurants in the USA and Canada.
GEVO Inc	United States based GEVO Inc announced an investment valued at RM 1.96 billion to build the world's first bio-isobutanol plant using biomass in the Kertih Biopolymer Park in Terengganu.

FACTS AND FIGURES: BIONEXUS COMPANIES

Approved Investment By Industry

Industry Sector	Total 2011 (RM' Million)	Total 2012 (RM' Million)	Total (2005 – 2012) (RM' Million)
Agriculture	86.8	783.6	1,629.6
Healthcare	10.0	28.3	488.1
Industrial	88.1	39.4	524.5
Total	**184.9 million**	**851.3 million**	**2,642.2 million**

Employee by Industry

Industry Sector	Total 2011	Total 2012	% Growth (2005 – 2012)
Agriculture	1,292	1,416	10%
Healthcare	903	898	(1%)
Industrial	629	643	2%
Total	**2,824**	**2,957**	**5%**

Realised Investment by Industry

Industry Sector	Total 2011 (RM' Million)	Total 2012 (RM' Million)	% Growth (2011 – 2012)
Agriculture	890.0	1028.9	16%
Healthcare	447.3	524.4	17%
Industrial	844.3	936.5	11%
Total	**2,181.6**	**2,489.8**	**14%**

Knowledge Worker by Industry

Industry Sector	Total 2011	Total 2012	% Growth (2005 – 2012)
Agriculture	531	577	9%
Healthcare	511	548	7%
Industrial	216	245	13%
Total	**1,258**	**1,370**	**9%**

R&D Expenses by Industry

Industry Sector	Total 2011 (RM' Million)	Total 2012 (RM' Million)	% Growth (2011 – 2012)
Agriculture	24.5	35.9	47%
Healthcare	42.5	54.1	27%
Industrial	11.6	7.0	(40%)
Total	**78.6**	**97.0**	**23%**

Revenue by Industry

Industry Sector	Total 2011 (RM' Million)	Total 2012 (RM' Million)	% Growth (2011 – 2012)
Agriculture	280.6	324.4	16%
Healthcare	176.7	218.9	24%
Industrial	263.8	476.0	80%
Total	**721.1**	**1,019.3**	**41%**

BIOTECHNOLOGY IN MALAYSIA

ABOUT BIOTECHNOLOGY

Tracing the growth of the Malaysian biotechnology industry

Biotechnology refers to the use of living systems and organisms to develop or make useful products, or more specifically, according to the United Nations Convention on Biological Diversity, "Any technological application that uses biological systems, living organisms or derivatives thereof, to make or modify products or processes for specific use."

Malaysia, a country which has a strong track record in the agricultural sector and blessed with bountiful biodiversity embarked on an endeavour to grow the domestic biotechnology industry in 2005. Having recognised the industry's importance to the economy, there was a crucial need to facilitate growth by shifting from traditional methods towards high tech practices in order to harness its full potential.

With aspirations to become a competent biotechnology industry player capable of competing on the global arena, the Government launched the National Biotechnology Policy (NBP) in 2005 based on the Biotechnology Masterplan (2005-2020). The Malaysian Biotechnology Corporation Sdn Bhd (BiotechCorp) was set up to implement the policy.

The first phase of the policy was successfully completed between 2005 and 2010 with the core objective of developing capacity within the industry. The ensuing phase has seen the Malaysian biotechnology scene become increasingly robust and vibrant, with many global biotechnology players setting up operations in the country.

The year 2012 saw another milestone for the Malaysian biotechnology growth story as the Bioeconomy Transformation Programme (BTP) was launched by the Government to take the industry to even greater heights. The BTP, which will be spearheaded by BiotechCorp, is a platform for the private sector to channel and maximise commercial opportunities based on biotechnology.

Bioeconomy refers to all economic activity that is derived from the continued commercial application of biotechnology. It encompasses the production of renewable biological resources and their conversion into food, feed, chemicals, energy and healthcare wellness products via innovative and efficient technologies.

In addition to being a key contributor to economic growth, bioeconomy is envisaged to benefit the society and nation through breakthroughs in agricultural productivity, discoveries in healthcare and the adoption of sustainable industrial processes, while helping to meet the most pressing global challenges, such as the increasing global population, depletion of fossil fuel and natural resources, and increasing environmental pressures and climate change.

NATIONAL BIOTECHNOLOGY POLICY

The National Biotechnology Policy (NBP) is a landmark policy encompassing nine thrusts which emphasise Malaysia's intended direction and the Government's commitment towards developing biotechnology for wealth creation and national well-being.

Thrust 1

Agricultural Biotechnology Development

Transform and enhance value creation of the agricultural sector through biotechnology.

Thrust 2

Healthcare Biotechnology Development

Capitalise on the strengths of biodiversity to commercialise discoveries in natural products as well as position Malaysia in the bio-generics market.

Thrust 3

Industrial Biotechnology Development

Ensure growth opportunities in the application of advanced bio-processing and bio-manufacturing technologies.

Thrust 4

R&D and Technology Acquisition

Establish Centres of Excellence, in existing or new institutions, to bring together multidisciplinary research teams in co-ordinated research and commercialisation initiatives. Accelerate technology development via strategic acquisitions.

Thrust 5

Human Capital Development

Build the nation's biotechnology human resource capability in line with market needs through special schemes, programmes and training.

Thrust 6

Financial Infrastructure Development

Apply competitive "lab to market" funding and incentives to promote committed participation by academia, the private sector as well as government-linked companies. Implement sufficient exit mechanisms for investments in biotechnology.

Thrust 8

Strategic Development

Establish a global marketing strategy to build recognition for Malaysian biotechnology and benchmark progress. Establish Malaysia as a centre for Contract Research Organisations and Contract Manufacturing Organisations.

Thrust 7

Framework Development

Create an enabling environment through continuous reviews of the country's regulatory framework and procedures in line with global standards and best practices. Develop a strong intellectual property protection regime to support research and development (R&D) and commercialisation efforts.

Thrust 9

Government Support and Commitment

Establish a dedicated and professional implementation agency overseeing the development of Malaysia's biotechnology industry, under the aegis of the Prime Minister and relevant Government ministries.

BIOTECHNOLOGY MASTER PLAN

PHASE 1: CAPACITY BUILDING (2005-2010)

Setting up the building blocks

1. Adoption of policies, plans and strategies
2. Establishment of advisory and implementation councils
3. Establishment of Malaysian Biotechnology Corporation Sdn Bhd (BiotechCorp)
4. Capacity building in research and development
5. Industrial technology development
6. Develop agricultural, healthcare and industrial biotechnologies
7. Develop legal and intellectual property framework
8. Incentives
9. Business and corporate development through accelerator programmes
10. Bioinformatics
11. Skills development
12. Job creation
13. Regional biotechnology hubs
14. Develop BioNexus Malaysia as a brand

PHASE 2: SCIENCE TO BUSINESS (2011-2015)

Unlocking potential for the industry

1. Develop expertise in drug discovery and development based on biodiversity and natural resources
2. New products development
3. Technology acquisition
4. Promote Foreign Direct Investment (FDI) participation
5. Intensify spin-off companies
6. Strengthen local and global brands
7. Develop capability in technology licensing
8. Job creation

PHASE 3: GLOBAL BUSINESS (2016-2020)

Attaining world class status

1. Consolidate strengths and capabilities in technology development
2. Further develop expertise and strength in drug discovery and development
3. Leading edge technology business
4. Maintain leadership in innovation and technology licensing
5. Create greater value through global Malaysian companies
6. Rebranding of Malaysia as a global biotechnology hub

ABOUT BIOTECHCORP

Malaysian Biotechnology Corporation Sdn Bhd (BiotechCorp) (Company No. 691431-D) was incorporated under provisions of the Companies Act 1965 on 13 May 2005 to identify value propositions in research and development (R&D) and commerce and to support and facilitate these ventures through financial assistance and advisory services.

Structure

BiotechCorp is an agency of the Ministry of Science, Technology and Innovation (MOSTI).

Its issued and fully paid share capital (95,000,002 ordinary shares of RM 1.00 each) is owned by the Ministry of Finance Incorporated (95,000,001 shares) and Federal Lands Commissioner (one share).

It is governed by the Bioeconomy Implementation Council (BIC) (formerly known as Biotechnology Implementation Council) and counselled by the Biotechnology International Advisory Panel (IAP) (both chaired by the honourable Prime Minister of Malaysia).

Key Mandates

- Act as a focal point for all biotechnology initiatives in Malaysia.
- Nurture and accelerate growth of Malaysian biotechnology companies.
- Actively promote foreign direct investments in biotechnology.
- Create a conducive environment for biotechnology in Malaysia.

Vision

To enhance the economic, health and social well being of the nation.

Mission

Lead the development of the biotechnology industry in Malaysia.

Corporate Values

Teamwork : In a relationship based on mutual respect and understanding, we work together with our colleagues, clients and partners to achieve common goals.

Integrity : We conduct our business with uncompromising integrity.

Excellence : We strive to achieve excellence in all that we do.

Accountability : We drive the delivery of results for the organisation and the nation.

Business Information

Registered Office & Principal Place of Business

Level 23, Menara Atlan
161B Jalan Ampang
50450 Kuala Lumpur
Malaysia

Principal Banker

Malayan Banking Berhad

Lot 1.01, Ampang Park
184 Jalan Ampang
50450 Kuala Lumpur
Malaysia

Auditor

Deloitte KassimChan Chartered Accountants

Level 19, Uptown 1
1 Jalan SS21/58
Damansara Uptown
47400 Petaling Jaya
Malaysia

Tax Consultant

Ernst & Young Chartered Accountants

Level 23A, Menara Millenium
Jalan Damanlela
Pusat Bandar Damansara
50490 Kuala Lumpur
Malaysia

CHAIRMAN'S MESSAGE

I am pleased to note that in 2012 BiotechCorp has gained significant strides in furthering the agenda of growth for the bio-based industry. Efforts undertaken by the Government as well as industry players continue to provide the strong impetus needed to prove good results in this second National Biotechnology Policy phase of Commercialisation.

I am pleased to note that all domains of the bio-based industry, be it AgBiotech, BioMedical or BioIndustrial, have shown positive momentum during the year.

The National Biotechnology Policy (NBP) launched in 2005 was targeted to contribute to a Gross Domestic Product (GDP) growth of 2.5% towards the end of 2010 and as at 31 December 2012, collectively, the industry has been able to touch 2.2% in terms of contribution to GDP, meaning that although, we are closing in on the target, there is need to intensify our efforts in bringing the industry up to speed

Nevertheless in 2012, BiotechCorp achieved a cogent growth, surpassing its Investment target for the Commercialisation Phase. Last year, BiotechCorp managed to rake in a healthy level of investments that surpassed the total target for Phase 2 of the NBP, which is RM10.6 billion. The targeted total of investment for Phase 2 is RM9 billion.

In 2012, combined efforts by the Government and BiotechCorp saw the launch of the Bioeconomy Transformation Program (BTP) which is envisaged to significantly impact the Rakyat. The BTP is aligned with the overall goals of the Malaysian Government's Economic Transformation Programme which seeks to lift Malaysia out of the middle income status into high income by the year 2020.

In essence, the BTP is designed to achieve several key goals for the nation's bio-based industry, as follows:

- Significantly impact the economy, productivity, environment, welfare and prosperity of Malaysia
- Foster public-private interactions in developing and exploring high-impact opportunities in biotechnology (including the related value chain in the AgBiotech, BioMedical and BioIndustrial sectors)
- Leverage and realise biotechnology as an engine of economic growth in accordance with the action plan outlined in the NBP

Through the 10 Entry Point Projects (EPPs) identified under the BTP, 20 trigger projects have been designed through a process involving over 300 participants from industry, academia, government ministries, and agencies.

These trigger projects are expected to raise Malaysia's Gross National Income by RM3.6 billion by 2020. With this vision firmly defined, it is envisaged that by 2020, Malaysia's biotechnology industry would attract up to RM10 billion in investment of which 86% will comprise private sector investment. This is expected to create a total of 16,300 new job opportunities for Malaysians.

In ensuring the efficient rollout of the BTP, I am pleased to report that BiotechCorp has initiated a nationwide campaign to stress on importance of bioeconomy as the growth-driver for Malaysia.

Another initiative to note within the Malaysian biotechnology sector is the BioNexus programme established to facilitate the marketing of biotechnology industry. It comprises a group of specialised companies and institutions that can support each other to create centres of excellence, which also result in the companies being incentivised to encourage their participation in the industry.

The BioNexus program has been recognised and acknowledged as amongst the best in class global programs by Frost & Sullivan. As at 31 December 2012, the total number of BioNexus companies stood at 217, carrying a total approved investment of RM 2.6 billion. The development stage of these companies ranges from start-up (45%), small medium enterprise (53%), to mature enterprise (2%) and they comprise of 105 companies in Agbiotech, 71 in BioMedical and 45 are in BioIndustrial.

Given the gentle yet awakening bumps on the journey towards economic growth and success, BiotechCorp has been extremely committed in managing significant potential for growth in the years ahead, and built various winning partnerships and collaborations.

We are bound to face challenges as Malaysia sets sights to become an industry leader in the bio-based segment but this does not deter us. We believe that we are well placed to reach that target and continue to grow closer towards fulfilling that aim.

Along with the boost received from mining activities in the past, Malaysia's ascent towards economic progress was also fueled by agricultural activities before we embraced the industrial revolution. We have a strong agrarian past that has given us a head start in biotechnology in comparison with competitors. Additionally, nature has been kind to us as our forests and lands are blessed with abundant biodiversity.

Diversity in Malaysia does not merely refer to our flora and fauna alone as our country is home to people from various races, giving us access to a rich and diverse gene pool which I see as being advantageous as we pursue breakthroughs in biomedical science and technology through our biotechnology focus. Additionally, being a country with majority Muslim population holds tremendous potential for Malaysia to be a Global Halal Hub not only in agricultural sectors but also in the pharmaceutical segment.

Furthermore, as the world's largest exporter of palm oil, biomass has been listed on the agenda as a powerful waste-to-wealth agent, in light of the oil crises and sustainable resources. Malaysia contributes almost half of the regional output for palm oil, with a total of 5 million hectares of plantation and 420 mills. The local palm oil industry today contributes about 8% of the country's Gross National Income. Currently 80 million dry tons of biomass is generated and by 2020, the amount will reach an estimated 100 million dry tons.

It is my firm belief that we should push ahead with robust efforts to pull in foreign direct investments (FDIs) in this last stretch of the Commercialisation phase, seeking every possible international cooperation to push for funds, bioeconomic growth, and global competitiveness to increase our GNI contribution.

Current accomplishments are a result of perseverance of internal and external spirits, and initiatives are translated into tangibles from innovative ideas and creations, but we must continue to work towards the achievement of the other targets for this Commercialisation phase and to spur greater innovation.

I am proud to be a part of BiotechCorp, and this bio-based industry that bears the Nation's future in fuel, strength, and potentials, as well as part of the community that brings about catalytic improvements in our daily lives.

I would like to thank and express our sincere appreciation to the Government of Malaysia, our valued stakeholders, industry players, clients, and business associates for their continuous support in helping BiotechCorp blaze the trail in achieving a position of prominence in the global bio-based industry space.

For your dedicated service, contribution, and loyalty, I thank the Board of Directors, Management team, and staff.

Thank you.

Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid
Chairman

CEO'S REPORT

The Malaysian economy remained buoyant despite challenges especially with the fragile economic conditions in key markets such as the Eurozone and the United States (US). For 2012, Malaysia recorded a 5.6% growth in Gross Domestic Product (GDP) surpassing the Asia Pacific consensus of 3.8%. This strong growth was driven by a healthy investment pipeline and expansion in domestic consumption during the year.

In line with the favourable economic environment, the Malaysian biotechnology industry continued to register encouraging growth in terms of investment as well as momentum of projects in 2012.

As the Malaysian Biotechnology Corporation Sdn Bhd (BiotechCorp) successfully completes its eight year, I am pleased to present the highlights of our organisation's achievements during the year 2012.

This year, much focus was placed in mobilising the industry players from the Capacity Building phase from 2005 to 2010 under the National Biotechnology Policy (NBP) into the Commercialisation phase which involves monetising science. Under this second phase, BiotechCorp has until 2015 to achieve 4% contribution from the biotechnology industry to the overall Malaysian GDP, RM50 billion revenue to be generated and to create 80,000 employment opportunities.

We are on the right track

In terms of investment, we recorded extremely favourable results as BiotechCorp surpassed its total Phase 2 target of RM 9 billion to attract a cumulative RM10.6 billion for 2011 and 2012. Some of the notable investments that we have recorded for 2012 include:

i. Darden Aquasciences Sdn Bhd, a subsidiary of Darden Restaurants Inc, the world's largest full-service restaurant group with an investment totaling over RM1.8 billion to develop the world's first integrated lobster aquaculture park (iLAP), in Sabah.

ii. GEVO Inc, a US based company that will facilitate investment in Kertih Bio Polymer Park. GEVO plans to set-up a commercial plant in Kertih to produce carbohydrates and isobutanol from woody biomass with an estimated investment of RM1.65 billion.

iii. Ranbaxy Malaysia Sdn Bhd, a subsidiary of Daiichi-Sankyo, has been endorsed as an Entry Point Project (EPP) under the Government's Economic Transformation Programme. Ranbaxy Malaysia Sdn Bhd has been allocated a site in Kulim, Kedah, to set up its RM114 million greenfield manufacturing facility under EPP 3: Malaysian Pharmaceuticals - Increasing Local Generic Manufacturing for Exports.

Meanwhile, in 2012, a total revenue of RM1.02 billion was generated from the 217 BioNexus Status (BNX) companies.

By 2015, revenue from these BNX companies are expected to increase fourfold to RM4 billion due to an active number of projects or products in the pipeline to be commercialised within the next one to five years.

Moving these companies to the next level as successful commercial ventures remains our most important agenda. These companies are still in need of support to evolve from being start-ups and small and medium enterprises (SMEs) into commercially viable ventures to achieve these revenue targets.

Accelerating industry growth with the Bioeconomy Transformation Programme

Recognising the significant growth potential of bioeconomy globally, Malaysia has introduced the Bioeconomy Transformation Programme (BTP) as one of the implementation strategies under the nation's Economic Transformation Programme (ETP). It is our belief that with the BTP in place, we are well-poised to ensure that the Malaysian biotechnology industry's growth continues to be on an uptrend.

Designed as a Transformation Programme based on the potential envisaged for bioeconomy, the initiative will cut across various industries. The BTP's vision is to develop Malaysia as a global high income bioeconomy by 2020 and is a continuation of the implementation strategies outlined in the NBP. At the same time, the BTP will function as a catalyst that will enhance and complement the existing ETP being spearheaded by the Malaysian government.

The BTP will encompass new and existing biotechnology projects, existing National Key Economic Areas (NKEA) EPPs and participation of industry players and peripheral companies that support the development of the local biotechnology industry.

Through the BTP, bioeconomy will benefit the society and nation through breakthroughs in agricultural productivity, discoveries in healthcare and the adoption of sustainable industrial processes, having the effect of both enriching our society and nation through wealth creation besides securing our future.

The BTP is focused on industries and economic sectors that produce, manage and utilise biological resources, including agriculture, forestry, fisheries, healthcare, food, wellness, chemicals and renewable energy.

The five outcomes of the BTP are envisaged to be as follows:

i. Increasing Malaysia's Gross National Income (GNI) and attraction of investments by year 2020,

ii. Creating high quality job opportunities for Malaysians,

iii. Improving the income of the Rakyat through implementation of projects and programmes with high inclusiveness,

iv. Promoting a "Green" Economy contributing to long term economic and environmental sustainability; and

v. Improving the health and well-being of the Rakyat through reduced healthcare treatment costs, early disease detection and cost effective, accessible medicines.

Nurturing competitive biotechnology sectors

In Malaysia, the biotechnology industry is categorised into three main segments which include BioMedical, AgBiotech and BioIndustrial.

- BioMedical

  As one of the most competitive biotechnology hubs in Asia, Malaysia is well-positioned to be a global hub for this sector especially now that we can leverage on the bioeconomy initiative to provide the necessary impetus. Malaysia offers industry investors solid infrastructure, proven track record in medical devices and diagnostics manufacturing, well regulated pharmaceutical industry and availability of GMP certified manufacturing facilities.

  In addition, Malaysia is one of three countries in South East Asia that are members of the Pharmaceutical Inspection Co-operation Scheme (PIC/S), ensuring global acceptance of biotechnology products produced in Malaysia. Our country is also second* in the ASEAN region for Intellectual Property Protection and fourth in the world for Biotechnology Enterprise Support.

  (IMD World Competitiveness Index Yearbook 2012)*

  Malaysia's BioMedical industry and its robust applications to bio-based sectors of agriculture, health, chemical and energy sectors has spurred RM10.6 billion in investments as at 2012, proving its capabilities as a sound and attractive investment destination to many companies globally.

- AgBiotech

  The AgBiotech industry focuses on livestock, marine and aquaculture, natural products and contract research, among others. Having been an agriculture based economy in the past with continued focus in encouraging excellence in this sector through modern agricultural practices, Malaysia is in a sweet spot in terms of developing AgBiotech capabilities.

  Furthermore, as one of the 12 mega-diverse countries in the world, our forests are host to an estimated 15,000 flowering plant species and 185,000 animal species, accounting for 9% of the world's total respectively. This unique biodiversity and access to abundant natural resources put us in the position to make new discoveries and step up research and development activities to improve Malaysian living quality and create new economic opportunities.

  Since 2010, this sector is the largest revenue contributor with the highest number of companies accorded with the BioNexus status.

- BioIndustrial

  With the Bioeconomy initiative in place, the BioIndustrial sector is poised to be another high growth area, especially because of the availability of an immediate market.

  As one of the world's largest exporters of palm oil, Malaysia's palm oil waste alone holds tremendous potential for the creation of high value industrial applications ranging from biofuels to bioplastics that can be generated from its biomass. As a result, we have aligned strategies to tap on biomass which has been listed on the agenda as a powerful waste-to-wealth agent.

  The launch of the National Biomass Strategy emphasised Malaysia's aspiration to be the world leader in new, innovative and sustainable industries. This strategy will see the creation of new high value industries and 70,000 jobs of which 40,000 will be high-skilled. It is expected that by 2020, the Biomass Strategy will generate RM30 billion in new income for Malaysia.

  Another major breakthrough within the BioIndustrial sector is the development of the biorefinery complex located at Kertih Biopolymer Park (KBP) in Terengganu. With anticipated FDI's totaling RM 6.8 billion, the 1,000 hectares complex, slated to be fully operational by 2014 is expected to be occupied by eight global industrial biotechnology players by 2015 including the world's first integrated bio-methionine and thiochemicals plant worth RM2 billion by CJ and Arkema.

  KBP will be the first bio-refinery complex in Malaysia to utilise renewable energy from biomass to produce bioderivatives such as advanced carbohydrates, biochemicals, biomaterials, biofertilisers and active feed ingredients instead of using natural gas.

  To ensure uninterrupted downstream operations, 30,000 hectares of land has been dedicated for feedstock plantations that will produce 10.5 million tonnes of wood chips annually from Acacia Mangium and Leucaena Leucocephala or locally known as "Petai Belalang".

  The project will also create spill-over economic effects, such as the plantation of biomass plants comprising Acacia Mangium and Petai Belalang. The Petai Belalang plantation project is expected to benefit some 3,000 local smallholders, who have the potential of earning an additional monthly income of about RM2,500 each.

  The total project is expected to generate a cumulative GNI of RM 20.4 billion by 2020 and produce 2,500 green-jobs for Malaysia.

Establishing conducive funding mechanisms

To ensure the successful commercialisation of biotechnology companies, access to private sector investment and funding is crucial. Lessons and experiences from the developed economies, like US and Europe, that have matured biotechnology industry, have shown that for the industry to develop to a more advance level, the involvement of private funding and investment is one of the key success factors.

The Biotechnology Commercialisation Fund (BCF) amounting to RM61.5 million has been made available in the form of hybrid soft loans to eligible BioNexus companies to undertake biotechnology commercialisation activities that are in tandem with Phase 2 of the NBP: Science to Business. As at 31 December 2012, a total of nine funding applications amounting to RM24.9 million were reviewed.

BiotechCorp, in collaboration with Malaysian Debt Ventures (MDV) has also implemented a pilot project known as 'My2GEN', which offers a soft loan scheme to qualified palm oil millers for the creation of infrastructure aimed at converting palm oil biomass into high-end second generation raw material (feedstock) through collaboration with selected technology providers. The first phase of MY2GEN involved the participation of 20 oil palm millers for the production of 200,000 metric tons of second generation cellulosic sugar. A total of RM200 million has been allocated under this pilot project.

Through a strategic collaboration between the oil palm millers, technology suppliers, downstream chemical players and financers, MY2GEN is expected to create a high value and growth opportunities for the industrial biotechnology sector thus attracting more entities with suitable bio-waste resources to participate in the production of second generation cellulosic sugar.

Our Vision – Enriching the Nation, Securing The Future

With the establishment of the BTP, we are in a strong position to create socio-economic benefits at unprecedented levels. Whilst the biotechnology industry's development is ramped up to increase GNI and create more jobs, it will also uplift the quality of lives and standards of well being for Malaysians. We will be able to benefit not only directly from the creation of more economic opportunities but also from new discoveries and scientific breakthroughs that solve real world problems.

Moving forward, as the agency tasked with spearheading development for the biotechnology industry, BiotechCorp will also focus on realising approved investments. There is more than RM11 billion of approved investments to be realised from big global names such as GEVO, Biocon, Darden, CJ Bio, 1Caviar and a few others.

We are working synergistically with the regional corridor authorities as part of our strategic initiatives to enhance business performance and encourage investments into the industry.

As part of the roll-out strategy of the BTP, we are developing high impact cluster investments in the following key areas:

- The Northern Corridor Investment Authority (NCIA) will oversee the development of a Biotech Incubation Centre in Bukit Minyak, Penang for agriculture and aquaculture activities.
- The East Coast Economic Region (ECER) will house the Kuantan-Gebeng Biopark and the Cameron Highlands Agri Biotech Centre of Excellence.
- Iskandar Region Development Authority (IRDA) will facilitate the development of Bio-XCell – a dedicated biotechnology park and ecosystem that is already operational having attracted a number of global biotechnology industry players to locate their facilities here.

- Sarawak Corridor of Renewable Energy (SCORE) will house the development of the Tanjung Manis Halal hub and Mukah Smart City. This initiative is towards the development of Mukah as a centre for industrial biotechnology activities based on local biomass such as sago and oil palm.
- The Sabah Development Corridor will see the development of an integrated green-tech complex in POIC Lahad Datu for biorefinery.

The biotechnology industry in Malaysia has grown from strength to strength since its early days and is poised for a much more exciting journey ahead. I would like to take this opportunity to express my gratitude to all parties that have contributed to our various successes.

Much of the robustness of the biotechnology industry and milestones achieved are a result of excellent work from my team at BiotechCorp. I would like to extend my most sincere appreciation for their commitment and dedication which has brought us thus far.

Apart from the team, I am indebted to the Board of Directors, under the stewardship of YBhg Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid for their valuable insight and guidance in ensuring we stay the course and carry out our mandate in the best possible ways.

I would also like to take this opportunity to thank all our stakeholders including the Ministries, Government agencies as well as private sector industry players without whom we would not have a biotechnology industry to be proud of today. My appreciation also goes to the Rakyat for the continuous support whether directly or indirectly towards the development of the nation's bio-based industry.

I am confident that with the various initiatives in place, along with the BTP providing the impetus for greater things to come, we are standing on the edge of a sea of opportunities. I look forward to continued strategic collaborations with all our stakeholders as we build a successful and sustainable bioeconomy in Malaysia as a platform for enriching the nation and securing the future.

Dato' Dr Mohd Nazlee Kamal
Chief Executive Officer

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TALENT BEHIND THE TRANSFORMATION

BOARD OF DIRECTORS

1 **YBhg Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid**
(Chairman)

2 **YBhg Dato' Dr Mohd Nazlee Kamal**
(Chief Executive Officer)

3 **YBhg Tan Sri Dato' Dr Jegathesan a/l N.M. Vasagam @ Manikavasagam**
(Director)

4 **YBhg Dato' Dr Madinah Mohamad**
(Director)

5 **YBhg Datuk Wan Ahmad Shihab Ismail W Ismail**

(Director)

YBhg Dato' Sri Dr Hasan Abdul Rahman **6**

(Director)

7 **Professor Dr Zainul Fadziruddin Zainuddin**

(Director)

Puan Norsimah Ab Wahab **8**

(Director)

9 **Tuan Haji Mohd. Radzi Hussein**
(Director)

Dr Radzuan A. Rahman **10**
(Director)

11 **Fares Zahir**
(Director)

1 YBhg Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid

Chairman

YBhg Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid, a Malaysian, aged 65, was appointed by the Prime Minister of Malaysia as Chairman of BiotechCorp on 15 August 2012.

YBhg Professor Emeritus Dato' Sri Dr Zakri is the Science Advisor to the Prime Minister of Malaysia. He is respectively Chairman of the following bodies: National Science and Research Council and National Professors Council. He is Joint-Chairman to the Malaysian Industry-Government Group for High Technology (MIGHT) and the Aerospace Manufacturing Innovation Centre (AMIC). In January 2013, he made history by being elected as the founding Chairman of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES).

YBhg Professor Emeritus Dato' Sri Dr Zakri has extensive experience in science governance at the national and international levels. He was the Founding President of the Genetics Society of Malaysia and was the Chair of the National Taskforce to formulate the 'National Policy on Biological Diversity' launched by the Government in 1998. From 2001 to 2008, he was the Director of the Institute of Advanced Studies at the United Nations University in Japan. He co-chaired the UN-sponsored "Millennium Ecosystem Assessment" (2001–2005). He was the Chair of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) for the Convention on Biological Diversity from 1997 to 1999. He was the Co-Chair of the UNEP High-level International Advisory Committee of the World Congress on Justice, Governance and Law on Environmental Sustainability held in Rio de Janeiro in June 2012 and a member of the CBD High-level Panel on the Aichi Biodiversity Targets.

YBhg Professor Emeritus Dato' Sri Dr Zakri also sits on the President's Council of the New York Academy of Sciences and was the first Malaysian to be appointed as a council member of the prestigious STS forum in Kyoto.

YBhg Professor Emeritus Dato' Sri Dr Zakri's academic interests lie in genetics, biodiversity and bio-diplomacy. He is a recipient of the Langkawi Award and is a fellow of several learned bodies: the Academy of Sciences Malaysia; the Academy of Sciences of the Developing World; the Islamic World Academy of Sciences; and the World Academy of Art and Science. YBhg Professor Emeritus Dato' Sri Dr Zakri is a former Fulbright Scholar. Three species were scientifically-named after him: a beetle (*Paleosepharia zakrii*); a cicada (*Pomponia zakrii*) and a nepenthes plant (*Nepenthes zakriana*).

2 YBhg Dato' Dr Mohd Nazlee Kamal

Chief Executive Officer

YBhg Dato' Dr Mohd Nazlee Kamal, a Malaysian, aged 50, was appointed to the Board on 18 July 2011.

He holds a PhD in Chemical Engineering (Bioprocess) from the University of Queensland (Australia), a Masters of Applied Science in Biotechnology from the University of New South Wales (Australia) and a Bachelor of Science in Chemical Engineering from Oregon State University (US).

An academician, scientist and innovator with business and entrepreneurship acumen, he brings a wealth of marketing and technical expertise to BiotechCorp. He is well-recognised for his wide industrial leadership and has played a pivotal role in the formulation of the National Biotechnology Policy.

YBhg Dato' Dr Mohd Nazlee began his career as an academician at Universiti Teknologi Malaysia (UTM), where he was involved in the development and establishment of the Bioprocess Engineering programme under the Faculty of Chemical and Natural Resources Engineering. One of his other key achievements during his 10 years tenure was the invention of the "External Spinfilter", which is now marketed by Sartorius BBI Systems (Patent No. PI9701436MY-131798-A).

He entered the corporate sector in 1997, joining B. Braun Medical Malaysia. In 2001, he was the Business Development Manager in Sartorius (M) Sdn Bhd where he made significant contribution to the company's sales and marketing effort for bioreactors in Malaysia. He subsequently served Amersham Biosciences as the ASEAN Business Area Manager (Separation) where he led the sales and marketing effort for the Separations product range in the region.

YBhg Dato' Dr Mohd Nazlee was instrumental in the establishment of Inno Biologics Sdn Bhd, the first contract manufacturing organisation for biopharmaceuticals in Malaysia and continued at the helm of the Company as Chief Executive Officer (CEO) for 10 years. He was also the Group Managing Director of Inno Bio Ventures Sdn Bhd, the holding company of Inno Bio Group of Companies.

He is a member of the International Society of Pharmaceutical Engineering (ISPE), the Malaysian Society for Molecular Biology and Biotechnology (MSMBB) and the Institution of Chemical Engineers (IChemE). He also sits on the Advisory Panel of the Northern Corridor Implementation Authority (NCIA) for Plant Science and Tissue Culture Node (PSTCN). His involvement as a Council member for the National Innovation Council (NIC), Global Science and Innovation Advisory Council (GSIAC) as well as the Steering Committee for National Biomass Strategy, is imminent in the effort of integrating the Government initiatives with industry players in biotechnology.

YBhg Dato' Dr Mohd Nazlee is currently the Chairman of Malaysian Bio-XCell Sdn Bhd and also Member of the Boards of BiotechCorp Investment Holdings Sdn Bhd, BiotechCorp Technology Management Sdn Bhd and Malaysian Forestry Research and Development Board.

3 YBhg Tan Sri Dato' Dr Jegathesan a/l N.M. Vasagam @ Manikavasagam

Director

YBhg Tan Sri Dato' Dr Jegathesan a/l N.M. Vasagam @ Manikavasagam, a Malaysian, aged 70, was appointed to the Board on 17 October 2011.

He graduated with a Bachelor of Medicine and Bachelor of Surgery (MBBS) from the University of Singapore (Singapore) in 1967. He also holds a Diploma in Tropical Medicine and Hygiene from Mahidol University (Thailand) and Diploma in Clinical Pathology from the University of London (UK).

He is a Fellow of the Royal College of Pathologists (UK), College of American Pathologists (US), Royal College of Pathologists of Australasia (Australia) and Academy of Medicine (Malaysia). He is also a Senior Fellow and Academician of the Academy of Sciences (Malaysia).

Having served a full term in an illustrious career with the Ministry of Health, YBhg Tan Sri Dato' Dr Jegathesan has held notable posts such as Director of the Institute of Medical Research and Deputy Director General (Research and Technical Support) of the Ministry of Health. He has served as adviser to international agencies such as the World Health Organisation and the United Nations Development Programme (UNDP) - affiliated Council for Health Research and Development in Geneva. From 2000 to 2003, he was the Chief Executive Officer of Sistem Hospital Awasan Taraf Sdn Bhd (SIHAT), a health facilities consulting company.

YBhg Tan Sri Dato' Dr Jegathesan currently holds positions as Pro-Chancellor of Universiti Sains Malaysia and Consultant Microbiologist in the private sector.

In addition to his distinguished career in the medical profession, YBhg Tan Sri Dato' Dr Jegathesan was Malaysia's first Sportsman of the Year in 1966. He represented Malaysia in three Olympic Games and two Asian Games where he broke records and won medals, earning him the moniker of "Fastest man in Asia". He was also the joint winner of the National Science Award and the Rotary Club of KL Research Award in 1995.

He currently also sits on the Board of CCM Duopharma Biotech Berhad.

4 YBhg Datuk Dr Madinah Mohamad

Director

YBhg Datuk Dr Madinah Mohamad, a Malaysian, aged 56, joined the Board on 12 June 2009.

She holds a Master's degree in Human Resource Development and PhD in Human Resource, both from Universiti Putra Malaysia. She graduated with a Bachelor's degree in Social Science (Political Science) from Universiti Sains Malaysia.

YBhg Datuk Dr Madinah is currently the Secretary General of the Ministry of Science, Technology and Innovation, Malaysia (MOSTI), a position she has held since 22 April 2009. As the Secretary General, she oversees the development of policies and implementation of the science, technology and innovation agenda in Malaysia and operations of MOSTI.

She began her civil service career as an Administrative and Diplomatic Officer in 1981 with the Ministry of Foreign Affairs. She also served various Government agencies such as the Public Service Department, the Ministry of National and Rural Development, the Ministry of Works and the National Unity and Integration Department, Prime Minister's Department.

She was awarded the Darjah Kebesaran Sri Indera Mahkota Pahang (SIMP) by His Royal Highness, Sultan of Pahang in 2009.

YBhg Datuk Dr Madinah currently also sits on the Boards of Malaysian Technology Development Corporation Sdn Bhd, Malaysian Industry-Government Group for High Technology, Multimedia Development Corporation Sdn Bhd, Technology Park Malaysia Corporation Sdn Bhd, CyberSecurity Malaysia, Malaysian Foundation for Innovation, .my Domain Registry, Malaysian Communications and Multimedia Commission, Securities Commission Malaysia, Malaysia Nuclear Power Corporation and National Science and Research Council.

5 YBhg Datuk Wan Ahmad Shihab Ismail W Ismail

Director

YBhg Datuk Wan Ahmad Shihab Ismail W Ismail, a Malaysian, was appointed to the Board on 30 April 2012.

He holds LLB (Hons) degree from the International Islamic University, Malaysia and was a Chevening Fellow at the University of Birmingham, United Kingdom.

YBhg Datuk Wan Ahmad Shihab Ismail began his career in the cellular division of Telekom Malaysia Berhad. He later joined KUB Malaysia Berhad (KUB) as Special Officer to the Chairman and Chief Executive Officer, handling among other things, corporate communications, corporate social responsibility and special functions. He left KUB in 2002 to join the National Economic Action Council as a Consultant in the Globalization Division, handling matters relating to bilateral and multilateral trade agreements.

He was later appointed as Special Officer to YAB Dato' Sri Mohd Najib Tun Hj Abdul Razak in 2004, who was the then Deputy Prime Minister. YBhg Datuk Wan Ahmad Shihab Ismail currently serves as Special Officer to the Prime Minister and Divisional Director at the Prime Minister's Office overseeing and monitoring various areas which include science and technology, telecommunications, transport, tourism, energy and works.

YBhg Datuk Wan Ahmad Shihab Ismail is currently a Commission Member of the Land Public Transport Comission (SPAD). He also sits on the Boards of Multimedia Development Corporation (MDeC), Powertek Energy Sdn Bhd and 1Malaysia Energy (Langat) Sdn Bhd. Additionally, he is a member of the Board of Trustees of Yayasan Rakyat 1Malaysia.

6 YBhg Dato' Sri Dr Hasan Abdul Rahman

Director

YBhg Dato' Sri Dr Hasan Abdul Rahman, a Malaysian, aged 57, was appointed to the Board on 18 July 2012.

He graduated with a Bachelor of Medicine (MD) from the National University of Malaysia (UKM) in 1981.

YBhg Dato' Sri Hasan, who is currently the Senior Consultant for Public Health, Diseases Control Division, Ministry of Health, started his career as a Medical Officer in Queen Elizabeth Hospital, Kota Kinabalu after completing his housemanship in April 1982.

In 1986, he was awarded a Master's degree in Public Health by University of Malaya, Kuala Lumpur. He continued to serve various position and location in the Health Ministry such as District Health Officer (1982-1989), District Hospital Director (1989-1990), Senior State Health Officer (1991-1997), Deputy State Health Director (1997-1999), Deputy Director of Disease Control (2000-2003), State Health Director (2003-2006), Director of Disease Control (2007-2009) and Deputy Director-General of Health (2009-2011).

YBhg Dato' Sri Hasan was promoted as Director-General of Health, Malaysia in March 2011 and held office until November 2012.

He has also successfully published various papers in international medical journals, particularly on infectious and parasitic diseases.

YBhg Dato' Sri Hasan is a life member of Malaysian Medical Association and Malaysia Public Health Specialist Association.

7 Professor Dr Zainul Fadziruddin Zainuddin

Director

Professor Dr Zainul Fadziruddin Zainuddin, a Malaysian, aged 52, was appointed to the Board on 4 September 2009.

He holds a PhD in Molecular Biology from the University of Surrey (UK) and a Bachelor of Science in Microbiology from the University of East Anglia (UK).

Professor Dr Zainul Fadziruddin started his career in 1988 as a lecturer at the School of Medical Sciences, Universiti Sains Malaysia (USM), Pulau Pinang. He has held various positions in the said university including the position of Head of Department of Medical Microbiology & Parasitology, School of Medical Sciences, Founding Dean of the School of Health Sciences and Director of the Innovations Office, Research and Innovation Division.

Currently, he is on secondment at the Malaysian Technology Development Corporation Sdn Bhd as the Director for Advisory, Incubation and Nurturing.

Professor Dr Zainul Fadziruddin currently also sits on the Boards of Xeraya Capital Sdn Bhd. and the Malaysian Biotechnology Corporation Sdn Bhd.

8 Puan Norsimah Ab Wahab

Director

Puan Norsimah Ab Wahab, a Malaysian, aged 57, was appointed to the Board on 1 August 2011.

She holds a Bachelor of Science (Hons) in Biology from Universiti Sains Malaysia and a Diploma in Administration from the National Institute of Public Administration of Malaysia.

Puan Norsimah is currently the Deputy Secretary (Operation) II of the Government Procurement Division, Ministry of Finance.

She was awarded the Kesatria Mangku Negara (K.M.N) in the year 2010.

Puan Norsimah Ab Wahab currently also sits on the Board of Universiti Pendidikan Sultan Idris (UPSI).

9 Tuan Haji Mohd. Radzi Hussein

Director

Tuan Haji Mohd. Radzi Hussein, a Malaysian, aged 60, is a member of the Board since 21 May 2008.

He holds a Master's degree in Business Administration from the University of Wales, Aberystwyth (UK) and a Bachelor of Accounting (Hons) from University of Malaya. He is a member of the Malaysian Institute of Accountants.

Tuan Haji Mohd. Radzi joined the Government in 1982 as Treasury Accountant in the Ministry of International Trade and Industry. From 1984 to 1993, he served as a Senior Treasury Accountant in the Accountant General's Department, Kuala Lumpur.

In 1993, he was seconded to Universiti Utara Malaysia as the Deputy Bursar, a position he held until 1997. From 1997 to 2001, he served as the State Treasurer for Kedah State Government. He was then again seconded to Kedah Akuakultur Sdn Bhd as Finance Manager for a period of one year.

Tuan Haji Mohd. Radzi was promoted and transferred in 2002 to take up the position of Chief Accountant in the Ministry of Home Affairs in Putrajaya.

In 2004, he was appointed as the Deputy Director, Information Technology Management Division of the Accountant General's Department. He was then promoted and served as the Director of the said Division from 2008 until his retirement in 2011.

Tuan Haji Mohd. Radzi Hussein currently also sits on the Board of Pengurusan Aset Air Berhad.

10 Dr Radzuan A. Rahman

Director

Dr Radzuan A. Rahman, a Malaysian, aged 70, was appointed to the Board on 16 December 2011.

He holds a Master's and PhD in Resource Economics from Cornell University, New York (US) and a Bachelor in Agricultural Science from Universiti Malaya.

Dr Radzuan has an outstanding career in both the academic and corporate sectors. He was an academician for 11 years where he rose to become the Dean of the Resource and Agribusiness Faculty, Universiti Putra Malaysia. Subsequently, he joined Sime Darby Plantations as the Regional Director for Melaka, Negeri Sembilan and Johor regions, where he was later promoted to Director of the Development Division.

In 1984, he joined Golden Hope Plantations as the Director of Corporate Planning. He was later elevated to Group Director-Plantations, where he served the company for a further 6 years. Since his retirement from Golden Hope Plantations, he has served as Managing Director to several corporations, namely, Austral Enterprises Berhad, Island & Peninsular Berhad and Tradewinds Plantation Berhad.

Dr Radzuan currently also sits on the Boards of Kulim (Malaysia) Berhad, Idaman Unggul Berhad, Inch Kenneth Kajang Rubber Public Limited Company, Marditech Corporation Sdn Bhd, MAEPS Management Sdn Bhd, Green Capital Sdn Bhd and Kenangan Cergas (M) Sdn Bhd.

11 Fares Zahir

Director

Fares Zahir, a Malaysian, aged 46, was appointed to the Board on 16 December 2011.

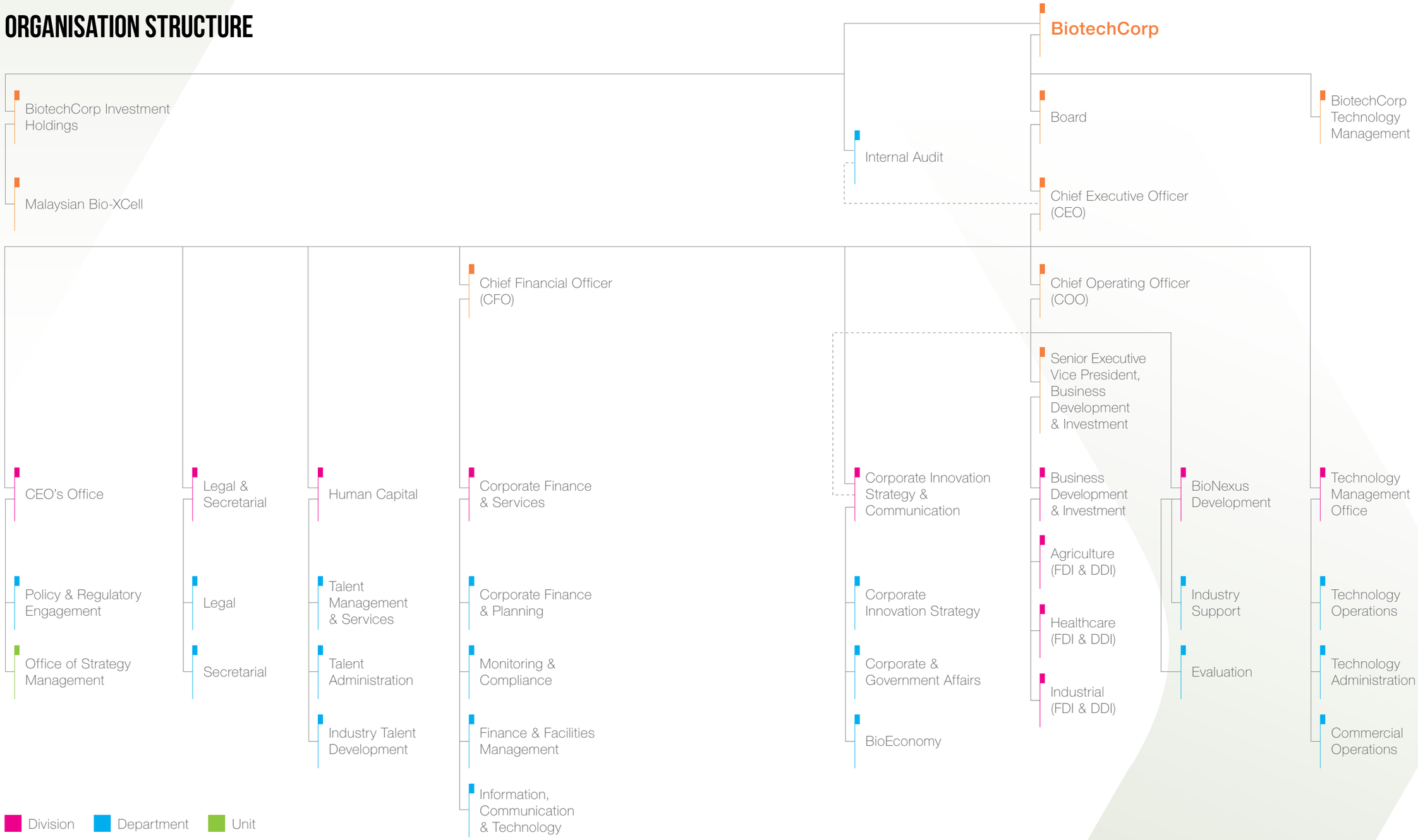
He has 20 years of experience in the field of investments in public and private equities. Fares was previously with Khazanah Nasional Bhd, where he headed the Life Sciences Unit that formulates investment strategies and undertakes and monitors the organization's Life Science investments and also headed Khazanah's Research Unit that undertakes research work in the areas of financial capital markets, industrial organization and economics.

Fares is a co-founder of Xeraya Capital and was appointed CEO in January 2012. He is Co-Chairman of the Malaysian Life Sciences Capital Fund (MLSCF), a fund that is globally recognized in the biogreentech space. He is also a Board member of the Malaysian Technology Development Corporation (MTDC) and Spring Hill Bioventures. In addition, he sits on the Board of investee companies in the US and in Malaysia.

Fares was a Director, Investment Research at UBS Investment Bank where he was a key member of their top rated Malaysian equity research team. Prior to that, he was Fund Manager with the Schroder Group (also a JV company of the PNB Group) where he managed the Schroder Group's institutional clients' portfolios after serving as an investment analyst making investment recommendations to the Schroder Group's portfolio managers worldwide. Fares started his career in the actuarial department of American International Assurance Co. Ltd. in Kuala Lumpur.

Fares holds a Bachelor of Economics degree in Actuarial Studies from Macquarie University in Australia and a Master of Applied Science in Operations Research from University Technology Sydney. He is also a Chartered Financial Analyst (CFA) and an Associate of the Society of Actuaries (ASA) of North America.

ORGANISATION STRUCTURE



THE MANAGEMENT TEAM

YBhg Dato' Dr Mohd Nazlee Kamal
Chief Executive Officer

Tuan Syed Agil Syed Hashim
Chief Financial Officer

Mr Selvam Ramaraj
Chief Investment Officer

Encik Razwin Sulairee Hasnan Termizi
Chief Operating Officer &
Senior Executive Vice President

Dr Abdul Manaf Mohamad Radzi
Senior Vice President, Special Project,
CEO's Office

Puan Sharifah Hanifah Syed Abdul Aziz
Senior Vice President, Legal &
Secretarial

Encik Mohamad Fozi Mohd Noor

Senior Vice President,
Human Capital

Mr Jay Christopher George Padasian

Senior Vice President, Business Development & Investment - BioMedical

Dr Kodi Isparan Kandasamy

Senior Vice President,
Business Development &
Investment - AgBiotech

Encik Zainal Azman Hj Abu Kasim

Senior Vice President,
Business Development &
Investment - BioIndustrial

Encik Adrian Abdul Ghani

Senior Vice President, BioNexus Development

Not in the Picture:

Encik Ainol Akbar Dato' Hj Mohd Yasin

Senior Vice President,
Technology Management Office

BiotechCorp aims to secure FDIs worth RM4b in 2012, 2013

Bio-Borneo 2012 is part of National Science and Innovation programme

BiotechCorp spearheading commercialisation of Malaysia's biotech sector

BTP targets RM3.6bil GNI and 16,000 new jobs by 2020

BiotechCorp, Quintiles team up to steer Msia's biotech industry to greater heights

Kertih gets RM2b bio-tech factory

French chemicals producer's new Kertih plant to contribute substantially

Ready for bio-economy

Four firms to build RM500m pharmaceutical park in Malacca

DRIVING THE BIOECONOMY TRANSFORMATION PROGRAMME

CALENDAR OF EVENTS

Bio-Borneo 2012

Themed "Accelerating Innovation of the Borneo Bioeconomy", this first biotechnology conference and exhibition held in Kuching, Sarawak was organised by the Ministry of Science, Technology and Innovation (MOSTI). Bio-Borneo 2012 is part of the Science and Innovation Movement 2012 initiative in collaboration with the Sarawak Biodiversity Corporation (SBC), BiotechCorp, Malaysian Genome Institute (MGI) and Malaysian Biotechnology Information Centre (MABIC). The opening ceremony was officiated by the Chief Minister of Sarawak Pehin Sri Abdul Taib Mahmud who launched a regulatory guidebook entitled 'EU and US Pharmaceutical Regulations: A Guide for Malaysian Companies'.

Signing Ceremony of a Strategic Collaboration Agreement between Singapore's Quintiles East Asia Pte Ltd and Malaysian Biotechnology Corporation (BiotechCorp)

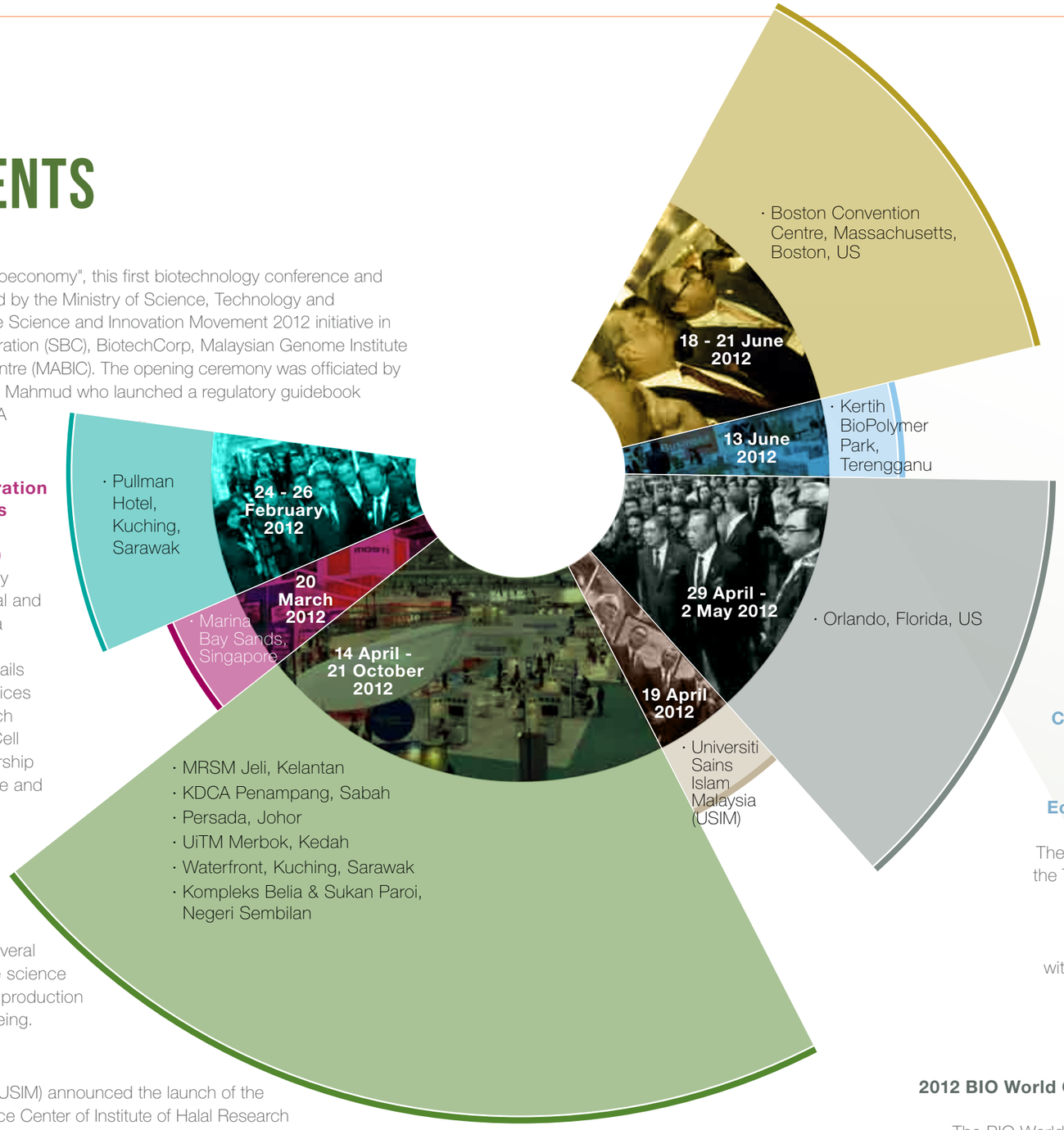
The Memorandum of Collaboration was signed by BiotechCorp's CEO, Dato' Dr Mohd Nazlee Kamal and Quintiles' Senior Vice President and Head of Asia Markets, Dr Anand Tharmaratnam at the Fifth BioPharma Asia Convention. The partnership entails collaboration interest in the areas of Shared Services Central Laboratory and Biobank, Clinical Research Graduate/Internship Training Programme, Stem Cell Research and National Vaccine Hub. The partnership will see mutual support and utilisation of expertise and knowledge from both BiotechCorp and Quintiles.

Science and Innovation Carnival

The year 2012 has been declared as the year of National Innovation Movement 2012 by Ministry of Science, Technology and Innovation (MOSTI). A series of events were organised in several states around the country to boost and inculcate science and innovation amongst Malaysians towards the production of wealth, knowledge creation, and social well-being.

BNP Networking Session

BiotechCorp and Universiti Sains Islam Malaysia (USIM) announced the launch of the Halal Analysis Lab in Malaysia in USIM's Intelligence Center of Institute of Halal Research and Management (IHRAM), in conjunction with the BioNexus Partners (BNP) Program on April 19th 2012. This first BNP session for 2012 introduced the Services and Training Unit, which emphasize on the general Halal training and practical training on Halal food. The event was officiated by YBhg Professor Emeritus Tan Sri Dato' Dr Abdul Shukor Haji Husin, the Chairman of USIM Board of Directors at Universiti Sains Islam Malaysia (USIM).



BIO Boston 2012

BIO is the world's largest biotechnology organisation, providing advocacy, business development and communications services for more than 1,100 members worldwide. BIO members are involved in the research and development of innovative healthcare, agricultural, industrial and environmental biotechnology products. BIO Boston 2012 drew 16,500 industry leaders from 49 states and 65 countries, over 2,000 exhibitors from 34 countries and 26 state pavilions, a record breaking 25,291 partnering meetings between 2,900 companies and 190 company presentations. This event offers a strong platform for Malaysia to showcase its bioeconomy potential and strengths to a large and specific target audience.

Signing Ceremony of a Strategic Collaboration between the Terengganu State Government, Malaysian Biotechnology Corporation (BiotechCorp) and the East Coast Economic Region Development Council (ECERDC)

The signing of a strategic collaboration between the Terengganu State Government, BiotechCorp and the East Coast Economic Region Development Council (ECERDC) to develop Asia's largest biorefinery complex was witnessed by the Chief Minister of Terengganu, YAB Dato' Seri Ahmad Said.

2012 BIO World Congress on Industrial Biotechnology and Bioprocessing

The BIO World Congress on Industrial Biotechnology is the world's largest industrial biotechnology event for business leaders, investors, and policy makers in biofuels, bio-based products, and renewable chemicals. Participation in this event provides an opportunity to profile Malaysia's edge and capabilities within the industrial bio-based sphere.

The Power Networking Lunch with Foreign Diplomatic Corps

BiotechCorp hosted a Power Networking Lunch Session with the foreign diplomatic corps to provide them with the latest highlights pertaining to Malaysian bio-based industry, simultaneously providing opportunities for both parties to explore the scope for collaboration and project opportunities that are available in Malaysia and their home countries. The event was attended by foreign Ambassadors, diplomats, as well as members of the foreign trade and commercial attache from various countries such as USA, Canada, Italy, Netherlands, Saudi Arabia, Venezuela, Azerbaijan, South Africa, Uruguay, Swaziland, China, and Philippines.

A Charter Signing Ceremony between International Society for Pharmaceutical Engineering (ISPE) International and ISPE Malaysia.

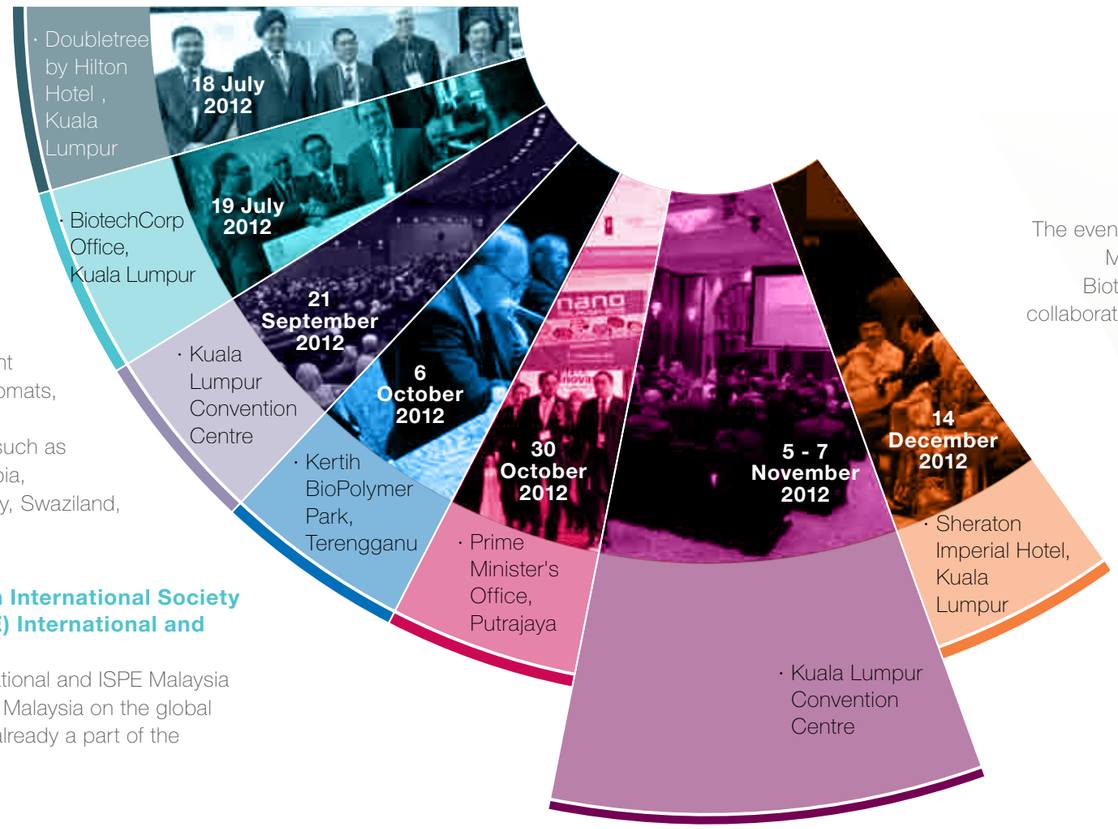
The signing ceremony between ISPE International and ISPE Malaysia has significantly and strategically positioned Malaysia on the global platform, amongst major countries that are already a part of the International ISPE network.

BioMalaysia 2012 Kick-Off Press Conference

The purpose of the kick-off press conference was to provide comprehensive overview on BioMalaysia 2012. The opening speech was delivered by BiotechCorp CEO Dato' Dr. Mohd Nazlee Kamal, followed by Malaysia Debt Ventures Berhad (MDV)'s Managing Director & CEO Datuk Md Zubir Ansori and Novartis Malaysia's CEO & Country President Avinash Potnis. At the event, PROTEMP Exhibitions Sdn Bhd's group project director Denise Ang delivered a presentation about BioMalaysia 2012.

Groundbreaking of World's First Green Bio L-Methionine Plant in Kertih BioPolymer Park

Situated within Kertih Biopolymer Park, the CJ Arkema biorefinery complex will use renewable energy from biomass as opposed to natural gas. The total project is expected to generate a cumulative GNI of RM20.4 billion by 2020 and produce 2,500 green-jobs for Malaysia. The groundbreaking ceremony was executed by the Prime Minister of Malaysia, YAB Dato' Sri Mohd Najib Tun Haji Abdul Razak



Biomedical Partnership for the Bioeconomy in Malaysia

The event was graced by Minister of Health YB Dato' Sri Liow Tiong Lai, Chief Minister of Melaka YAB Datuk Seri Hj Mohd Ali bin Mohd Rustam, and BiotechCorp CEO YBhg Dato' Dr. Mohd Nazlee Kamal. Several strategic collaborations with various parties were announced in BiotechCorp's efforts to further drive the Bioeconomy Transformation Programme (BTP).

BioMalaysia 2012

BioMalaysia 2012 was privileged to be one of the core components of the World Innovation Forum, Kuala Lumpur. It was jointly organised by MOSTI and Malaysian Innovation Foundation [YIM]), running concurrently with NanoMalaysia Summit and Expo 2012, KL Innovation Forum 2012 and the National Innovation Conference and Exhibition [NICE] 2012. The Bioeconomy pavilion was launched by the Deputy Prime Minister of Malaysia YAB Tan Sri Muhyiddin bin Yassin. The event attracted total of 11,869 visitors, 191 exhibitors and 288 conference delegations.

Launching of Bioeconomy Transformation Programme (BTP)

The Bioeconomy Transformation Programme (BTP) was launched by the Prime Minister of Malaysia, YAB Dato' Sri Mohd Najib Tun Haji Abdul Razak during the Biotechnology Implementation Council Meeting (ICM) which was chaired by the Prime Minister himself. Under the programme which is aimed at moving the industry up the value chain, ten Entry Point Projects (EPPs) which cover three main areas, namely Agbiotech, BioIndustrial, and Biomedical were announced in conjunction with the BTP.

2012 OPERATIONAL REVIEW

POLICY AND REGULATORY ENGAGEMENT

In tandem with the strategies under the Bioeconomy Transformation Programme (BTP), BiotechCorp continues to actively support the formulation of a progressive regulatory agenda for the biotechnology sector in accordance with Thrust 7 of the National Biotechnology Policy (NBP) which emphasises the importance of establishing a solid, balanced and supportive regulatory framework for the development of biotechnology in Malaysia.

Focus areas:

- Biosafety
- Access & Benefit Sharing
- Intellectual Property
- Pharmaceutical Regulations
- International Accreditation

Initiatives

	Results
Biosafety Framework	• BiotechCorp continues to work closely with the Department of Biosafety, Ministry of Natural Resources & Environment (MONRE) in the operationalisation of the Biosafety Act and its Regulations, by facilitating biosafety submissions from BioNexus Status (BNX) companies and potential investors. • BiotechCorp was selected to participate in an Evaluation Report for the United Nations Development Programme (UNDP) regarding capacity building initiatives undertaken by MONRE / Department of Biosafety during the national implementation of the Cartagena Protocol on Biosafety. The Evaluation Report also serves as a guidance document for the policy makers to plan and implement future capacity building projects on biosafety. • A proposal submitted by BiotechCorp to the Asia Pacific Economic Cooperation (APEC) Secretariat to co-organise a regional event "Workshop on Biotechnology Commercialisation and Trade in APEC Economies - A Biosafety Regulatory Perspective" received the APEC Secretariat's approval in December 2012. The Workshop will see BiotechCorp working closely with the Department of Biosafety to organise this event in 2013. The objective of the Workshop is to facilitate experience sharing among biosafety experts from national and international organisations and discuss best practices in biosafety compliance and promote commercialisation of biotechnology.
Access & Benefit Sharing (ABS)	• The Conference of the Parties to the Convention on Biological Diversity (CBD) in 2010 saw the finalisation and adoption of the "Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation to the Convention on Biological Diversity". The Nagoya Protocol is an international agreement which aims at sharing the benefits arising from the utilisation of genetic resources in a fair and equitable way, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding, thereby contributing to the conservation of biological diversity and the sustainable use of its components. • Consistent with Malaysia's commitment and obligations as a member of the CBD, under the Nagoya Protocol, a comprehensive national regulatory framework on Access and Benefit Sharing (ABS) needs to be in place. The draft bill for the domestic ABS laws is currently in circulation for consultation. The following business sectors with diverse interests in genetic resources and related traditional knowledge and their sustainable commercial uses will be impacted by the international regime on ABS: - Agricultural biotechnology - Animal breeding - Cosmetics - Farming - Flavours and fragrances - Forestry - Herbal medicines and supplements - Industrial biotechnology - Pets - Pharmaceutical and bio-pharmaceutical products - Plant breeding • BiotechCorp resumes regulatory engagements with MONRE in the consultation process for the domestic ABS laws and will continue to provide input on behalf of the industry. Upon its promulgation, a formal domestic ABS framework should provide a balanced means to ensure that Malaysia will be able to combat biopiracy while providing an effective means for Malaysia to leverage on its rich and diverse genetic resources, in line with Malaysia's objective to promote biotechnology development as an engine of growth.

	Results
Intellectual Property (IP)	**Intellectual Property Financing** • The Intellectual Property Corporation of Malaysia (MyIPO) made headway to establish an Intellectual Property (IP) valuation framework to enable owners of IP rights to value their IPs and ultimately use their IPs as collateral to obtain financing from financial institutions • Being a knowledge-driven industry, BiotechCorp fully supports this initiative and worked closely with MyIPO as a member of the IP Financing Committee to discuss and put forward recommendations to the Ministry of Finance (MoF) to move this initiative forward • This led to the announcement of the following initiatives during the tabling of Budget 2013 on 28 September 2012: a) The establishment of an Intellectual Property Financing Fund scheme amounting to RM200 million. The scheme will be offered through Malaysia Debt Ventures Berhad. The Government will provide a 2% interest rate subsidy and guarantee of 50% through Credit Guarantee Corporation Malaysia Berhad b) An allocation of RM19 million for training programmes for local IP valuers to be organised by MyIPO as well as to create an IP market platform. • This bold move by the Government augurs well with the biotech industry as not only will it have the impact of allowing companies with IP to further expand and develop their business but it will also encourage innovation and commercialisation, as more local companies will enhance initiatives towards developing their own IP due to the value recognition given. • **Amendments to the Patents Act 1983** BiotechCorp continues its engagement with MyIPO with regards to amendments to the Patents Act 1983 particularly in relation to provisions on biotechnology inventions as they are being drafted. A stakeholders' consultation was held in the middle of 2012 and the amendments are currently waiting to be tabled in Parliament. • **Awareness Sessions** Various initiatives were carried throughout the year including workshops and regulatory updates for internal and external customers to raise awareness on new developments in the IP field.

	Results
Pharma Regulations	The Control of Drugs and Cosmetics Regulations (CDCR) 1984 were promulgated under the Sale of Drugs Act 1952. The Authority (known as Drug Control Authority, DCA) established under these Regulations, is tasked with ensuring the quality, safety and efficacy of medicinal products through registration, including quality control, inspection & licensing and post-registration activities. The National Pharmaceutical Control Bureau (NPCB) acts as the secretariat to the Authority which empowers the implementation of product registration in accordance to phases :- Phase 1 : Prescription Drugs (Scheduled poisons/NCE/Biotechnology/Biologics); Phase 2 : Over-the-Counter, OTC (Non-scheduled poisons); Phase 3 : Traditional Medicines and Health Supplement Phase 4 : Cosmetics (Registration of cosmetics was replaced by the Notification Procedure with effect from 1 January 2008.) Phase 5 : Veterinary Products Phase 6 : Active Pharmaceutical Ingredient (API) The Drug Registration Guidance Document (DRGD), revised January 2013, serves as a dynamic and comprehensive guidance document for medicinal product registration. In 2012, the following directives / guidelines were issued and/or revised : • Drug Registration Guidance Document (DRGD) (January 2013) • Summary of Medical Device-Drug-Cosmetic Interface (MDDCI) Product Classification Decision (October 2012) • Regulatory Control of Active Pharmaceutical Ingredient (April 2011) • ASEAN Guidelines on Conduct of Bioavailability and Bioequivalence Studies (June 2011) • Classification of Decision Tree (November 2011) • ASEAN Labelling Requirements (14 April 2011) Throughout 2012, Malaysia continued to play an active role in harmonisation efforts through the ASEAN Consultative Committee for Standards and Quality (ACCSQ) Pharmaceutical Product Working Group (PPWG), the Traditional Medicines and Health Supplements Product Working Group (TMHS PWG) as well as the Medical Devices Product Working Group (MDPWG).

	Results
Pharma Regulations	In 2012, BiotechCorp participated in the Technical Working Group (TWG) for pharmaceutical, traditional medicines & health supplements and medical devices and provided industry input for the harmonisation of regulations in the three sectors in ASEAN. Through the ASEAN Consultative Committee in Safety and Quality (ACCSQ) Product Working Group (PWG) participation, BiotechCorp was able to keep track of the work programme progress and the time frame targeted in harmonising standards and reducing technical barriers towards a single market by 2015.
International Accreditation Good Laboratory Practice (GLP)	In relation to Good Lab Practice (GLP) , Malaysia's efforts to gain full adherence to the Organisation for Economic Co-operation and Development (OECD) Mutual Acceptance of Data (MAD) system looks promising. By way of background, Malaysia was made a provisional adherent to the Organisation for Economic Co-operation and Development (OECD) Mutual Acceptance of Data (MAD) system in 2008. The year 2010 saw the continued implementation of the OECD GLP framework, which is applicable to non-clinical health and environment safety studies. The Government then designated the National Pharmaceutical Control Bureau (NPCB) and Department of Standards Malaysia (Standards Malaysia) as the Compliance Monitoring Authority (CMAs) for Malaysia. BiotechCorp worked closely with the CMAs by organising programmes and capacity building initiatives for the CMAs and the industry in order to ensure that Malaysia was ready for the On Site Evaluation and Mutual Joint Visit by the OECD inspectors in order to achieve full adherent status to the OECD MAD system. The Mutual Joint Visit (MJV) Inspection by the OECD team of inspectors was conducted on 14 - 19 November 2011. They were led by Dr. Andrew Gray (Medicines & Healthcare products Regulatory Agency, United Kingdom) with two other inspectors namely Dr. Christoph Moor (Federal Office for the Environment, Switzerland) and Dr. Hitoshi Someya (the Pharmaceutical & Medical Device Regulatory Agency, Japan) and Ms. Wakako Horiki an observer from Environment Health and Safety Division, Environment Directorate, OECD, Paris. The CMAs were invited to the OECD headquarters in Paris on 28 - 30 May 2012 to accept the inspection report and defend the findings obtained during the MJV. Based on all the initiatives carried out in support of the CMAs, BiotechCorp remains optimistic and hopeful that Malaysia will achieve its aim to become a full-adherent to the OECD MAD system in 2013.

Next steps for Policy and Regulatory Engagement :

As the Malaysian biotechnology industry gains further momentum in the 2nd Phase of the NBP, future work in areas of focus include:

1. Biosafety and ABS

- Continue engagements with the Biosafety Department, in its efforts to advocate the development of a set of balanced and industry-centric regulations to ensure compliance and facilitate the growth of the biotechnology sector.

- Resume participation in the consultative process towards the promulgation of the ABS law with MONRE and provide awareness to the industry regarding developments on the national ABS law.

2. Intellectual Property

- Initiate work towards realising the proposed Intellectual Property Financing Fund scheme introduced by the Government and work closely with MyIPO and Malaysia Debt Ventures to encourage and guide Bionexus status companies to avail themselves to this opportunity.

- Leverage on the IP valuation training programme announced to enable our experts to assist financiers in valuing biotechnology IPs which can be put up as collateral for the purposes of obtaining loans from financial institutions.

3. Pharma Regulations

- BiotechCorp will continue to participate and contribute in the development of pharmaceutical regulations including harmonisation of regulatory framework for the ASEAN region by providing continuous and constructive inputs from the industry perspective as part of initiatives to drive the healthcare biotechnology development.

4. International Accreditation

- Expectantly, when Malaysia is made a provisional adherent member to the OECD Mutual Acceptance of Data (MAD) system by the end of 2012, BiotechCorp shall continuously support all initiatives in encouraging test facilities from BioNexus status companies to be OECD certified for easy access to the international market without going through duplicative testing thus saving cost, time and resources as well reducing trade barriers.

HUMAN CAPITAL DEVELOPMENT

Since the commencement of Phase II of National Biotechnology Policy (NBP), BiotechCorp has intensified efforts to develop human capital in biotechnology. As the industry is growing, more talent with specialised technical competencies are required.

Thrust 5 of National Biotechnology Policy (NBP) focusing on human capital development is in line with the Thrust 5 of the Strategic Thrust of Ministry of Human Resources (MOHR); which entails the development of skilled and competent human resources. BiotechCorp has been appointed as Industry Lead Body (ILB) for biotechnology industry in 2011 by Department of Skills Development of MOHR.

BiotechCorp's main responsibilities include implementing industry job analysis and developing National Occupational Skills Standards (NOSS) and Course of Study (CoS). An ILB also acts as a coordinator for providing standard training curriculum to produce knowledgeable and highly skilled workers within the industry and layout the strategies to fulfil the needs of skilled workers in the biotechnology sector.

BiotechCorp together with Department of Skills Development and the industry players have developed eight NOSS and CoS for biotechnology industry in the past years. The development of NOSS is a crucial element in providing the required knowledge and skill needed for biotech sector.

Focus areas:

- Developing skilled, knowledge and competent human capital to ensure adequate supply of human capital for the biotechnology ecosystem.
- Enhancing the competencies of human capital through the development of NOSS and CoS as well as skills and technical training.

Key Results

Activity	Results
Occupational Analysis	Completed in 2011 and documented as a reference point.
NOSS / COS workshop development together with industry expert and MOHR	8 NOSS and 6 COS documents (Natural Herbal Extraction & Production, Bioprocess, Seed Breeding, etc) have been developed and accepted by the MOHR.
Carrying out HCD's role as an ILB	In 2012, the Human Capital Development Division was involved in the following endeavours as an ILB: NOSS Development • Four NOSS have been developed under this initiative as follows: - BioProcess (Level 1-5) - Herbal Extraction (Level 1-5) - Tissue Culture (Level 1-5) - Multicrop Seed Breeding (1-5) CoS development • Three CoS have been developed under this initiative as follows: - BioProcess - Herbal Extraction - Tissue Culture

Next Steps for Human Capital Development

BiotechCorp will continuously develop the industry driven NOSS in collaboration with DSD thorugh MOHR. BiotechCorp has received the approval from the MOHR to developed the following NOSS for 2013 & 2014:

NO	NOSS/COS	Level	Year
1	BioConversion	1 - 5	2013
2	Lobster Breeding	1 - 5	2013
3	General Biotechnology Laboratory	1 - 5	2013
4	BioPolymer	1 - 5	2014
5	BioAlgae Production & Breeding	1 - 5	2014

CORPORATE INNOVATION STRATEGY AND COMMUNICATION

BIOECONOMY

The Bioeconomy Transformation Programme (BTP) is a platform provided by the Government for the private sector to channel and maximise commercial opportunities based on biotechnology and life sciences. The BTP will enable both the society and nation to benefit through breakthroughs in agricultural productivity, discoveries in healthcare and the adoption of sustainable industrial processes, having the effect of both enriching our society and nation through wealth creation besides securing our future.

The BTP has been endorsed by Malaysia's Biotechnology Implementation Council and was launched by the Prime Minister of Malaysia YAB Dato' Sri Mohd Najib Tun Haji Abdul Razak during Biotechnology Implementation Council meeting on 30 October 2012. The lead ministry for the BTP is the Ministry of Science, Technology and Innovation (MOSTI) whilst the Malaysian Biotechnology Corporation Sdn Bhd (BiotechCorp) has been appointed as the implementation agency.

Focus Areas:

At present, BTP has shortlisted 10 Entry Point Projects (EPPs), under which 20 Trigger Projects have been identified, focusing on the following three areas as follows:

- **AgBiotech**
  - bio-based farm inputs
  - high value bioingredients
  - high value food varieties

- **BioIndustrial:**
  - industrial bio inputs
  - bio-based chemicals
  - bio-based materials

- **BioMedical:**
  - biosimilars
  - drug discovery and pre-clinical services
  - molecular screening and diagnostics
  - stem cells and regenerative medicine

Table 1.0: The BTP's Contribution to Malaysia's Gross National Income (GNI)

Sector	Entry Point Project (EPP)	Trigger Project	Investment by 2020	Employment by 2020	Gross National Income (GNI) in 2020
AgBiotech	Bio-based farm inputs	• Biofertilizers • Biofeed for livestock industry	RM2,553 mil	4,510	RM570 mil
	High value bioingredients	• Stevia • Mangosteen	RM213 mil	698	RM332 mil
	High value food varieties	• Hybrid paddy rice • Mushroom	RM185 mil	1,798	RM650 mil
BioIndustrial	Industrial bio inputs	• Feedstock plantation • Syngas • Compressed Biogas	RM850 mil	521	RM324 mil
	Bio-based chemicals	• Isobutanol • Bioethanol and biomethanol • Cellulosic sugars	RM3,544 mil	5,136	RM697 mil
	Bio-based materials	• Polyhydroxy butyrate hexanoate (PHBH) • Bioplastic resin • Biopolyols for biopolyurethane • Biodegradable packaging	RM1,872 mil	1,605	RM394 mil
BioMedical	Biosimilars	• Biosimilars	RM405 mil	299	RM144 mil
	Drug discovery and pre-clinical services	• Drug discovery	RM159 mil	531	RM264 mil
	Molecular screening and diagnostics	• Molecular screening	RM58 mil	939	RM184 mil
	Stem cells and regenerative medicine	• Stem cell	RM126 mil	260	RM63 mil
		Total	RM10 billion	16,300	RM3.6 billion

The EPPs and Trigger Projects under the BTP are expected to increase as new bio-based projects are identified.

In addition to the biotechnology industry, the BTP also focuses on other industries and economic sectors that produce, manage and utilise biological resources, including agriculture, forestry, fisheries, food production, healthcare, chemicals and renewable energy.

Key Results

Activity	Results
Bioeconomy Initiative Malaysia (BIM) Workshop	• The BIM Workshop was conducted from 5 to 7 March 2012 at the Putrajaya International Convention Centre (PICC). The BIM Workshop was meant to identify and prioritise Entry Point Projects (EPPs) for BIM Lab Sessions. Nearly 300 participants from ministries and agencies, industry associations, private sectors, academicians and researchers were involved in the workshop. As a result, 35 EPPs have been identified for further evaluation during the BIM Lab Sessions.
Bioeconomy Initiative Malaysia (BIM) Lab Session	• BIM Lab Sessions were held from 19 March to 27 April 2012. The BIM Lab Sessions were held to validate and construct a detailed action plan for EPPs shortlisted during the BIM Workshop. Nearly 100 representatives from Government ministries and agencies, private sector and industry, institutions of higher learning and research institutes were involved. At the end of the workshop, a total of 10 EPPs and 20 Trigger Projects had been shortlisted. The final BIM report was submitted to Performance Management Delivery Unit (PEMANDU) on 20 June 2012.
Establishment of the Technical Working Committee (TWC) for the BTP	• The Committee is responsible for the review, evaluation, assess and providing recommendation for the BTP Steering Committee on matters relating to the following: - Implementation readiness of BTP Entry Point Projects (EPPs) and the relevant Trigger Projects - Inclusion of suitable new Trigger Projects as components of the respective EPPs under the BTP - Reporting and updating project status under BTP • The first Technical Working Committee meeting was held on 29 August 2012, attended by representatives from MOSTI and BiotechCorp.
Establishment of Steering Committee for BTP	• The BTP Steering Committee was established to study, assess and decide on matters related to programme, as recommended by the BTP Technical Working Committee and Funding Working Committee. • The Steering Committee is chaired by the Minister of MOSTI and comprises relevant ministries, agencies, corridors and other related agencies. • The first meeting of the BTP Steering Committee was held on 10 September 2012.

Activity	Results
Endorsement of Bioeconomy Transformation Programme by Malaysia's Biotechnology Implementation Council	• On 30 October 2012, the outcomes of the BIM Workshop and Lab Sessions were presented during the Biotechnology Implementation Council meeting, chaired by Prime Minister of Malaysia, YAB Dato' Sri Mohd Najib Tun Haji Abdul Razak. The Council acknowledged BIM as a transformation programme that is critical to the development of the country and endorsed the BTP as one of the implementation strategies under the Economic Transformation Programme (ETP). Consequently, the BIM was launched as the BTP. • In recognising the significance growth and potential of Bioeconomy to the nation, the Biotechnology Implementation Council has been renamed as the National Bioeconomy Council.
Launch of Bioeconomy Transformation Programme and Trigger Project announcement	• The BTP was launched by the Prime Minister of Malaysia YAB Dato' Sri Mohd Najib Tun Haji Abdul Razak on 30 October 2012, following the endorsement by the Biotechnology Implementation Council. The programme was launched during the Bio Malaysia 2012 Conference and Exhibition, held on 5 to 7 November 2012. With the tagline "Enriching the Nation, Securing the Future", the BTP vision is to develop Malaysia as a global high income bioeconomy by 2020. • The BTP was designed as a Transformation Programme based on the potential for biotechnology to cut across various different industries. Through the BTP, the Malaysian government and leading industry players will work in tandem to set national goals for the application of biotechnology in agriculture production, industrial manufacturing and human health, put in place the structural conditions required and develop necessary mechanisms to ensure that policy can flexibly adapt to new opportunities. • The five outcomes of the BTP are: - To achieve an increase in Malaysia's Gross National Income (GNI) by RM3.6 billion in 2020, and attraction of additional RM10.0 billion in investments by year 2020 - The creation of 16,300 new quality job opportunities for Malaysians - Improving the income of the Rakyat through implementation of projects and programmes with high inclusiveness factor - Promotion of a "Green" Economy contributing to long term economic and environmental sustainability - Improve Health and Well-Being of the Rakyat • In 2012, a total of three BTP Trigger Projects have been announced: - Under the Bio-based Chemicals EPP, the production of Isobutanol from cellulosic feedstocks (wood chips) led by Gevo Inc. from the United States

Activity	Results
Launch of Bioeconomy Transformation Programme and Trigger Project announcement	- Under the Bio-based Farm Input EPP, the production of bio-fertilisers through integrated waste treatment plants to convert agri-waste to bio-fertilisers led by Inno-Integrasi Sdn Bhd. from Malaysia - Under High Value Bioingredients EPP, the development sustainable collection, extraction and commercialisation of Mangosteen led by Furley Bioextracts Sdn Bhd from Malaysia
Bioeconomy Investor Showcase	• The Bioeconomy Investor Showcase was held on 5 November 2012 with the purpose of showcasing the potential and investment opportunities of the Trigger Projects under BTP. The Bioeconomy Investor Showcase was attended by various financial institutions, including venture capitals, private equity professionals, investment and corporate banks, corporate finance advisers and government linked companies (GLCs).

Next Steps for Bioeconomy

Through the BTP, BiotechCorp will continue to further strengthen the growth and development of a sustainable Bioeconomy to drive the country's socioeconomic status to greater heights. In 2013, the following activities will be undertaken:

- BTP workshops and lab sessions will be conducted in Sabah, Sarawak, Northern Region and Cameron Highlands to identify private sector-driven bio-based projects that can be incorporated under the BTP.
- The number of new BTP Trigger Projects will be increased, whilst existing Trigger Projects under programme continue to be facilitated to enable them to meet the targeted milestones and timelines.
- There will be continuous communication, awareness and promotion campaign on the BTP targeting the private sector, ministries, financial institutions, researchers and academicians, media as well as the general public.
- BiotechCorp will participate in major biotechnology international conventions such as BioChicago 2013, World Congress on Industrial Biotechnology 2013, the European Forum for Industrial Biotechnology and the Biobased Economy (EFIB) to promote the BTP at the international level.
- A Funding Committee for BTP will be established, chaired by Secretary General of MOSTI for the review, evaluation, assessment and to make appropriate recommendations relating to the application, use and distribution of grants, loans or any other form of financial assistance will be given to the Trigger Projects under Bioeconomy Transformation Programme.
- The Bioeconomy Investor Forum will be organised to further showcase the economic potential and investment opportunities of the Trigger Projects under the BTP.

KNOWLEDGE MANAGEMENT

Brief description

Knowledge Management is a unit under Corporate Innovation Strategy Department of BiotechCorp which is responsible for ensuring a supportive information network for the biotechnology industry in Malaysia. In managing the BiotechCorp Resource Centre (BRC), the unit's role is to ensure continuous improvement of knowledge management and knowledge sharing to support the business activities of BiotechCorp and biotechnology industry players in Malaysia.

BRC's vision is to be an authoritative and recognised entity in the area of knowledge management, knowledge dissemination and resource discovery on topics of global biotechnology and life sciences industries. In anticipation of the industry needs, BRC provides timely and relevant materials to the stakeholders and general public with emphasis on promoting life-long learning, with the aspiration to promote biotechnology sector in Malaysia.

Focus Areas:

The BRC's mission is as follows :

- To develop and maintain knowledge gathering initiatives to support the organisation's activities and this includes hardcopy (books, magazines, journals, reports, etc.) and digitised sources (internal knowledge assets/ bases, audiovisual materials, softcopy materials, online databases, subscribed information sources, e-newsletters, etc
- To provide relevant, timely and trusted information services to be disseminated across the corporation and to be shared to external users
- To provide a conducive environment for research, reading and learning
- To contribute effectively in the development of BiotechCorp knowledge infrastructure - in accordance to the organisation's mission
- To promote awareness to the corporation employees and the general public of new instructional and valuable resources

2.0 Key Results:

Activity	Results
Activities with Consortium Libraries	• BRC had agreed to work with consortium libraries under a collaboration programme. In line with this, BRC arranged visits to the Petroleum Resource Centre (PRC) on 5 December 2012 and Bursa Malaysia's Knowledge Centre@Bursa on 20 December 2012. The purpose of these visits was to enable BiotechCorp staff to get clear idea on the collections and services provided by consortium libraries members.
Launch of Resource Centre (RC) website	• RC's website was launched on 31 December to share reports on Agriculture, Healthcare and Industrial Biotechnology. Highlights of books and other materials available in the BRC can also be viewed. The information is strictly for BiotechCorp's personnel only.

Activity	Results
Bookfair@RC	• On 1 to 2 August 2012, BRC organosed a 2 day Bookfair@RC showcasing a wide range of subjects from fiction, non-fiction, children's, history, hobbies and lifestyle, education and revision and more. The aim of this programme was to provide a platform for internal and external members to select items for BRC's collection and also for the members to expand their own personal book collections.

Next Steps for Knowledge Management

Moving into 2013, the BRC will focus on the following areas:

- BRC has approached the Resource Library, Palm Information Centre under Malaysian Palm Oil Board (MPOB) and Malaysian Investment Development Authority (MIDA) Resource Centre to be collaboration partners in 2012. Both libraries have been approached based on their comprehensive collections on palm oil and trade & business. Discussions will be finalised this year (2013).
- In 2013, BRC has planned to conduct a book exchange and research workshop with collaborating partners to be attended by internal and external members of BRC and other consortium libraries.
- BRC will also focus on the implementation of knowledge management, infrastructure and activities for the benefit of stakeholders and in accordance with the corporation's objectives and mission. Among others those activities include the creation, acquisition, use, sharing and transferring, analysis, updating and renewal and retention of knowledge and information.
- BRC will identify how to retain crucial information and data within the corporation, to acquire information on a more timely basis and repackage information and data for the benefit of stakeholders.

BUSINESS DEVELOPMENT AND INVESTMENT

AGBIOTECH

Global demand for Agriculture produce is expanding rapidly with increasing population and reducing arable land availability. The Food and Agriculture Organisation (FAO) estimates that to feed a population of 9.3 billion people in 2050, food production will need to increase by 70% of which 90% will need to occur through intensification on existing arable land. Where, a major portion of this has to happen in the developing world. Furthermore, food security is no more the only factor affecting nations and policies around the world, but also food safety and the need to ensure sustainability, both in food production as well as ensuring environmentally safe production methods.

Therefore, the need for biotech tools in every aspect of Agriculture from the production of superior seeds, seedlings, and genetic materials (both crops and animals) to maximising yield and eventually value added downstream processes such as food processing and natural product development are imperative to ensure sustainability towards achieving food security.

To achieve this goal which is also in line with the Agricultural Biotechnology Framework based on the National Food Policy, BiotechCorp's Business Development & Investment - AgBiotech (BDI - AgBiotech) has continued to facilitate the development of this sector, through the BioNexus, NKEA (Agriculture) and Bioeconomy platforms, focusing on several key areas.

Focus Areas:

1. **Natural Product Biotechnology:** This sector includes extraction, standardisation, product development and validation (including pre-clinical) studies for neutraceuticals, cosmeceuticals, food ingredients, functional food, (potential) pharmaceuticals/botanical drugs and dietary supplements.

   In addition to the above, the commercialisation of bird's nest processing continues to be promoted using enzymatic based cleaning technology where a Malaysian-China Joint Venture company has been awarded the Bionexus Status.

2. **Crop Biotechnology:** This sector includes the development and production of high quality planting material (tissue culture, hybrid seeds, etc.) whereby existing (BioNexus Status) companies are given the facilitation and support for market expansion locally and globally. Good quality planting materials are a pre-requisite for farmers & agriculture companies to ensure maximum yield & economic returns on investment. In addition to planting material production for crop species, tissue culture technology has also been promoted in mushroom cultivation to ensure self-sustainability throughout the entire value chain in mushroom cultivation and product development.

   To ensure sustainable production of safe food, it is vital to incorporate the development and utilisation of both safe and environmentally friendly farm inputs, including bio-fertilisers, bio-pesticides and other bio-control products. Several BioNexus Status companies in the business of producing biofertiliser, soil enhancers, biopesticide, and other bio-control products have been very successful in expanding their market share, both locally & globally. Bio-fertilisers for growth and bio-pesticides for crop protection will ensure the reduction of our reliance on chemicals, thus directly influencing food safety and environmental friendly production systems.

3. **Livestock Biotechnology:** This sector focuses on the food and feed industries which include the breeding of ruminants such as goats and cattle for meat and milk utilising biotechnology tools e.g. artificial insemination, embryo transfer, embryo sexing, etc. With regards to feed, industries in the feed additive sector which uses fermentation processes for better bioavailability as well the production and application of pre and probiotics for better animal health and production are also supported.

4. **Aquaculture Biotechnology:** This sector encompasses the breeding of both marine and freshwater species for better quality fry and fingerling production, to meet the demands of the large grow-out industry in the country. In addition, integrated aquaculture projects encompassing the whole value chain from hatchery, to nursery, through to grow-out either in sea cages or ponds, including the use of Advanced Recirculation Aquaculture Systems, to ensure traceability and quality are also emphasised and supported.

   This sector includes the production of marine fishes such as groupers (including hybrids), seabass and snappers among the most popular species to be cultured as well as freshwater varieties such as the all-male (mono-sex) tilapia, GIFT tilapia, Jade Perch, Empurau, Kelah, etc. Others, includes breeding and production of molluscs such as oysters and scallops, crustaceans such as shrimps & lobsters using biotechnology tools for better broodstock selection and productivity.

Key Results

Activity	Results
Total Capital Investments	In 2012, BDI AgBiotech has successfully attracted a total of 8 approved projects with capital investment amounting to RM2.05 billion, where the biggest share of investment came from the United States of America in aquaculture biotechnology, followed by key local investments also in the aquaculture biotechnology sector. The second largest investment was in the crop biotechnology sector followed by natural products biotechnology sector.
Secured Investments	In terms of realised investment, since the start of NBP, a total of RM1.03 billion has been invested in the AgBiotech Sector with 60% of the investments coming from the crop biotechnology sector, and followed by the Natural products biotechnology sector.
NKEA Initiatives	In 2012, the most notable was the appointment of Lobster Aqua Technologies Sdn Bhd, a subsidiary of the US-based Darden Restaurants Inc., as an anchor company under EPP 4 (Integrated Cage Farming) to develop the world's first integrated lobster aquaculture park in Sabah bringing in an investment of about RM2.03 billion. In addition, the Natural Products biotechnology industry had also made great strides in contributing to the growth of this sector through –EPP 1 (Unlocking value from Malaysia's biodiversity through herbal products), where BioNexus status companies like Aning Resources Sdn Bhd and Natural Wellness Sdn Bhd were appointed as anchor companies to conduct pre-clinical trials to determine the efficacy and safety of their natural product formulations.
Job Creation	The total approved projects and their respective investments has resulted in the creation of employment for 186 knowledge workers in 2012, and the actual hiring of 577 Knowledge workers up to since the launch of the NBP.
Key Agreements	Several key agreements were both exchanged and executed during the 2012 BioMalaysia event. 1. JHR Aquaculture with Department of Fisheries : Transfer and utilisation of DOF's hatchery and other aquaculture infrastructure facilities at Langkawi for their marine aquaculture business. 2. Inno Fisheries (subsidiary of Yayasan Sabah) with Darvel Bay Hybrid: Darvel has committed to supply hybrid grouper fingerlings to Inno Fisheries for its social contract seaweed farming. This is expected to create 440 contract-farming jobs, with some RM20 million in income generated. 3. Inno Fisheries with Sunlight Seafood: The YS subsidiary has entered into a joint venture agreement with Sunlight to undertake large-scale farming of shrimp in Pitas at an estimated investment of RM1 billion. These agreements will see greater research and development to spur aquaculture's importance as an engine of growth for Malaysia.

2012 Project Highlights

Projects carried out in 2012 includes the following companies which were successfully nurtured and awarded the BioNexus Status.

No	Company	Origin (FDI / DDI)	Activity & Achievements
1	JHR Aquaculture Sdn Bhd	DDI	This integrated marine aquaculture company has successfully commenced their hatchery and grow-out activity in Langkawi for the production of the much sought after tiger groupers, sea bass and snappers. As a key player in the aquaculture industry utilising biotechnology tools for breeding, the company has successfully signed a Memorandum of Agreement (MoA) for the use of hatchery facility and other key equipments from the Department of Fisheries (DOF), Malaysia.
2	Seaharvest Aquamarine Sdn Bhd	DDI	This Penang based company has been awarded the BioNexus Status after successfully completing the Technofund project on Oysters breeding using Triploid technology, in collaboration with Universiti Sains Malaysia.
3	Ligno Biotech Sdn Bhd	DDI	Another successful Technofund project in collaboration with MARDI, Ligno Biotech Sdn Bhd is involved in the production and commercialisation of Tiger's Milk Mushroom cultivated via mushroom tissue culture technology. Tiger's Milk Mushroom is used as an active ingredient in functional foods and health supplements, especially in combating common cold.
4	Fuciphagus Agritech Sdn Bhd	DDI	In collaboration with Chinese partners who are in the bird's nest business, this company has successfully developed an enzyme based processing method for its bird's nest products. This technology will ensure that Malaysia is in the forefront of sustainable and safe bird's nest production for the lucrative local and export market.
5	Microwell Sdn Bhd	DDI	A related company of the Kulim Plantations Bhd group, involved in the production and commercialisation of biofertilisers, soil remediation products and plant growth enhancers, based on beneficial microbes.
6	Win Men Biotech Sdn Bhd	DDI	This Penang based feed biotechnology company in collaboration with Taiwanese experts, is involved in the production and commercialisation of probiotic based feed ingredients and additives for the aqua, poultry and porcine industry.

Next steps for AgBiotech

Moving forward, as food and feed security become the key objectives of the developing and developed nations, research, development, and commercialisation of the best agriculture technologies and practises will focus on more than just producing food efficiently but also in a safe and sustainable manner. It would also have minimal adverse environmental impact and at the same time be able to meet the demands of the growing world-wide population.

- **Crop Biotechnology:** One of the key strategies for this segment entails the setting up and the implementation of a Centre of Excellence (CoE) for the production of temperate crops in the highlands of Malaysia. This CoE will introduce the best agricultural practices to highland farmers through the utilisation of biotechnology tools & products such as biofertilisers, soil and crop enhancers as well as biopesticides and bio controls to produce safe food that is agro-chemical and pesticide free.

  This initiative will also encompass the setting up of home grown AgBiotech companies that have strong technology partnerships with renowned global AgBiotech companies to ensure continuous research and development for CoE as well as continuous improvement in food production technologies. In addition, the CoE will also become the centre for reference by all farmers, for information, technical support (including extension service), technology reference, and marketing & branding information.

  Similar strategies will also be established for lowland agriculture crops in line with the Third National Agriculture Policy (NAP3) and the current National Food Policy, such as the 'Program Taman Kekal Pengeluaran Makanan (Permanent Food Production Park).

- **Aquaculture Biotechnology:** Similarly, continuous emphasis and support will be given to aquaculture projects that are not only sustainable but also focus on an integrated model. This is to ensure that Malaysian aquaculture industry players continue to expand their aquaculture activities and also close the gaps in the supply chain to produce quality fingerlings that are disease free as most fry and fingerling are currently being imported from neighbouring countries.

  In addition, strategies for investments in aquaculture using Indoor Recirculation Aquaculture Systems for the production of high valued fish species will be pursued where biotechnology will be utilised in the various aspects of cultivation value chain.

  Collaboration with the Economic Corridors (ECERDC/NCIA) will continue for various aquacultures related downstream activities such as fish processing as well as conversion of processing waste to produce value added products like collagen and chitosan.

- **Livestock Biotechnology:** Due to the higher risks involved in this sector, an integrated project based approach will be taken to provide continuous support in terms of market avenues for companies in this sector. Therefore, a nucleus livestock company will also have their own multipliers for commercial supply and continuous services to farmers.

  As in the aquaculture sector, a strategy towards downstream activities such as processing of milk for yogurt and cheese which use biotechnology applications will also be pursued. In addition, a strategy towards upstream activities such as semen collection, processing, and supply centre which uses biotechnology tools will also be pursued to ensure continuous supply of high quality genetics for livestock breeding programmes.

- **Natural Product Biotechnology:** A focus on key Foreign Direct Investments for this sector will be the main strategy. This is due to the interests by companies and universities overseas to expand into the regional market through Malaysia as a gateway and at the same time carry out research and development in traditional medicinal applications. Malaysia's biodiversity both in its natural ecosystem as well as its (demographic) population will be a key strength for the multi-billion Ringgit wellness and traditional medicine industry.

- **Waste to Wealth:** Last but not least, a common strategy cutting across all sectors is the strategy for waste to wealth. Massive amounts of organic by-products and wastes which are costly to manage which creates environmental imbalance are generated across the globe every day. Today we are sitting on a mine of nutrients considered as a burden when these could be turned into valuable feedstuff and biofertiliser using biotechnology based bioconversion processes, contributing to GNI growth, employment creation and raw material self-sufficiency. One such project which Agbiotech will pursue is the insect based bioconversion technology where insect larva will convert organic by-products, which otherwise ends up in landfills, into biofertilisers and the larva itself processed into animal feed ingredients that are high in valuable protein (replacement for fishmeal), fat (oil for feed and cosmetics) and other valuable substances.

BIOMEDICAL

Within the BioMedical (formerly known as Healthcare Biotechnology) Industry in Malaysia, BiotechCorp's scope covers Biopharmaceuticals, Pharmaceuticals, Medical Devices & In-Vitro Diagnostics, and Contract Research sectors as well as high impact & emerging Life Sciences sectors. The Biopharmaceuticals sector has further sub categories: Biologics, Biosimilars, Vaccines, and Cellular & Genetic Therapy Products. These BioMedical sectors and sub sectors have been identified by BiotechCorp due to their significant growth potential.

Amongst the various BioMedical sectors, the Medical Device sector has the most developed ecosystem, for which there is significant capacity of capabilities across its value chain. As the lead Biotechnology Industry development agency, it is BiotechCorp's intent to further develop the other BioMedical sectors by emulating the progress seen in the Medical Device sector as well as further strengthen the ecosystem of Medical Device sector.

A key part of the ecosystem development is to complete the value chain of each BioMedical sub sector, whereby BiotechCorp ensures that there are projects from Basic Research to Developmental Research as well as Manufacturing, Commercialisation & Care Delivery. Moreover, there is a focus to enhance the activities across the value chain of these sub sectors to strategically and effectively increase investments in the BioMedical Industry.

Due to BiotechCorp's active involvement in the country's Economic Transformation Programme (ETP) and the Bioeconomy Transformation Programme (BTP), the company has been able to contribute in enhancing the conduciveness of the business environment, thus, encouraging more industry players' presence in Malaysia.

BiotechCorp's core role of identifying and securing BioMedical investment projects of significant socioeconomic impact has successfully led to a total Committed Investment of approximately RM 850 million and creation of 583 knowledge-based job opportunities for year 2012. Moreover, our facilitation in the on-going implementation of the projects committed since 2008 was paid off with a total Realised Investment of RM 552 million in 2012.

Focus areas:

- Biopharmaceuticals
- Pharmaceuticals
- Medical Devices and In-Vitro Diagnostics
- Contract Research Organisations

Key Results

Activity	Results
Securing Investment Commitments (i.e. Approved Investment) & Creation of Knowledge-based Jobs	Identifying and securing BioMedical investment projects of significant socioeconomic impact has been BiotechCorp's core role. This role has become increasingly important in the Science to Business Phase (i.e. Phase II, from year 2011 to 2015) of the National Biotechnology Policy. As a result of these efforts, BiotechCorp recorded a total investment commitment of close to RM 850 million from the BioMedical sector in 2012. The commitments represent both new and on-going existing projects. Additionally, new projects from the sub sectors of Medical Devices and In-Vitro Diagnostics, Pharmaceutical, Biopharmaceuticals, and (Stem) Cell-Based Therapies created a total of 583 knowledge-based job opportunities. An interesting positive trend was observed: there is a significant growth in domestic direct investment facilitated by BiotechCorp. The majority of these projects were development and production of highly advanced Medical Devices, indicating that Malaysia has in place unique and competent capabilities in this area due to the well-established Medical Device cluster in the northern region.
Implementation of Investment Projects (i.e. Realised Investment)	BiotechCorp facilitation goes beyond the point of BioMedical investment projects being confirmed locating in Malaysia. It has always been BiotechCorp's focus to ensure these projects are successfully and smoothly implemented, hence, facilitation extends through the project execution phase, in close collaboration with Project Owners. Areas of facilitation include Regulatory Approval, Local Authorities Approval, Talent Resource, Immigration Matters, Market Access, among others. BiotechCorp's facilitation of the on-going implementation of BioMedical investment projects secured in the period from 2008 to 2012 led to a total Realised Investment of RM 552 million in 2012.
Economic Transformation Programme (ETP)	BiotechCorp has been actively involved in the facilitation of the Entry Point Projects (EPPs) under the National Key Economic Area (NKEA) Healthcare including: • EPP 2: Creating Supportive Ecosystem to Grow Clinical Research • EPP 3: Malaysian Pharmaceuticals • EPP 7 to 13: Medical Devices and In-Vitro Diagnostics As a member of ETP's NKEA Healthcare Steering Committee, BiotechCorp meets regularly with the other committee members: • Evaluate and decide on new Entry Point Projects / Business Opportunities proposals • Track and monitor progress of EPPs • Provide ideas and solutions to alleviate roadblocks in implementation As a result, five new BioMedical investment projects facilitated by BiotechCorp in 2012 were approved under the ETP. These projects with a total investment commitment of RM 325 million, will contribute RM 499 million to the Gross National Income (GNI) and create 918 jobs by 2020.

Activity	Results
Bioeconomy Transformation Programme	Malaysia has the potential to develop a sustainable competitive advantage in the sectors of Biopharmaceuticals and Contract Research. A key step is to establish a community of industry players. One of the ways to attract these Industry Players is via the Bioeconomy Transformation Programme (BTP). To date, there are four proposed BioMedical EPPs under the BTP: 1) Biosimilars 2) Drug Discovery & Preclinical Services 3) Molecular Screening 4) Stem Cells & Regenerative Medicine The BTP is a complementary initiative to support the ETP. It is targeted to ensure high-impact projects across the value chain of each BioMedical sub sectors received the Government's attention and support. Hence, the formation of a viable cluster for each BioMedical sub sectors can be accelerated.

Notable Projects Carried Out in 2012

Securing Investments & Creation of Knowledge-based Jobs			
No	**Company**	**Origin (FDI / DDI)**	**Activity & Achievements**
1	Vigilenz Medical Devices Sdn Bhd	DDI (Malaysia)	Vigilenz undertakes research, development, and production to expand current and introduce new Medical Devices into its portfolio of products. Current product range consists of sutures for cardiovascular, ophthalmic, and hernia while the new portfolio are interventional cardiovascular products, wound management materials, and biomaterial in tissue reconstruction. Vigilenz's project which was facilitated by BiotechCorp, has been conferred EPP status under the ETP.
2	Straits Orthopaedics (Mfg) Sdn Bhd	DDI (Malaysia)	Straits Orthopaedics is expanding its capacity for Contract Manufacturing of Orthopaedic Medical Devices. Spinal implants and joints replacement products will be included in the company's current product portfolio of orthopaedic devices for trauma, reconstructive, and wound care. The company's project facilitated by BiotechCorp was identified as an EPP under the ETP.
3	Medical Devices Corporation Sdn Bhd	DDI (Malaysia)	Medical Devices Corporation will be establishing a Regional Contract Manufacturing Hub for Medical Devices & Pharmaceuticals. Items produced are DEHP Free Medical PVC Granule, Medical Tubing's & Sheet, IV Administrative Set & Haemodialysis Blood Lines, Peritoneal Dialysis (CAPD & CCPD) and Blood & Plasma Collection Bags. With the facilitation from BiotechCorp, the company's project has been conferred an EPP status under the ETP.
4	Medical Innovation Ventures Sdn Bhd (Mediven)	DDI (Malaysia)	Mediven undertakes discovery of new technologies, manufacturing, and commercialising of preventive and investigative In Vitro Diagnostics products focusing on tropical infectious diseases. The company's project which has been accorded EPP status under the ETP, is facilitated by BiotechCorp.
5	Leonix Sdn Bhd	DDI (Malaysia)	Leonix develops, manufactures, and commercialises Orthopaedic Medical Device Implants for trauma. The company was awarded BioNexus Status.
6	Accobiotech Sdn Bhd	DDI (Malaysia)	Accobiotech is set to develop, produce, and commercialise In-Vitro Diagnostics kits for Infectious Diseases, Cardiology, Oncology, Drug Abuse Testings & Women's Health.

Securing Investments & Creation of Knowledge-based Jobs

No	Company	Origin (FDI / DDI)	Activity & Achievements
7	Hygiea Sdn Bhd	DDI (Malaysia)	Hygiea provides services on isolation, processing, and expansion of autologous and allogenic dental pulp mesenchymal stem cells (DP-MSC). In addition, The company does expansion of the allogenic DP-MSC for sale to research institutions to be used for R&D purposes. Hygiea was awarded BioNexus Status.

Progress of Investment Projects

No	Company	Origin (FDI / DDI)	Activity & Achievements
1	Biocon Sdn Bhd	FDI (India)	Biocon's Biopharmaceutical Development and Manufacturing Facility project was identified as an EPP under the ETP. After the groundbreaking ceremony on 10 September 2011, the construction of Biocon's facility in Bio-XCell, Johor has commenced. Site infrastructure, earthworks, and piling are nearly completed. Throughout 2012, BiotechCorp has been actively facilitating the project implementation in areas of incentives application, immigration matters for their international employees, facility accreditation, regulatory approval application, and commercial partnership. In mid-Dec 2012, Biocon and CCM Pharmaceuticals Sdn Bhd (CCM) signed a Distribution Agreement. CCM will register and commercialise two of Biocon's Insulin Products in Malaysia and Brunei. These products, which are in the form of vials and cartridges, will cater to the retail and hospital segments in these countries.
2	Natureceuticals Sdn Bhd	DDI (Malaysia)	In late November 2011, Natureceuticals has been identified as one of the eight Anchor Companies to spearhead NKEA Agriculture's Entry Point Project 1: Unlocking value from Malaysia's biodiversity through herbal products.

Progress of Investment Projects

No	Company	Origin (FDI / DDI)	Activity & Achievements
			In this Entry Point Project, designated Anchor Companies will move herbal products from the lower end (products in the mass market with no clinical claims or scientific proof) of the value chain into the high value segment (nutraceuticals with pre-clinical / clinical claims or botanical drugs) Natureceutical is set to conduct clinical trials on its botanical drug as well as pre-clinical trials to determine the efficacy and safety of their natural-based products. To date, the company has commenced both the clinical trial and pre-clinical trial.
3	Aurigene Discovery Technologies (M) Sdn Bhd (A BioNexus Status Company)	FDI (India)	Aurigene and University of Malaya (UM) entered into a Research Collaboration Agreement in early 2011. The agreement facilitated by BiotechCorp, states that both parties will collaborate on three drug discovery programmes in therapeutic areas including infectious tropical diseases. In the span of one and a half years, the collaboration has seen significant success. These programmes are currently on-going and progressing according to the targeted milestones. One of the three programmes even led to monetisation of the discovery efforts. By end of 2012, a total of 44 local scientists from UM and other tertiary education institutions in Malaysia have been trained by Aurigene. The partnership has led to both parties agreeing in April 2012, to collaborate in two additional projects funded by pharmaceutical companies in Europe.
4	Accobiotech Sdn Bhd	DDI (Malaysia)	Accobiotech is locating its development and production facility in Masai Industrial Park, Johor. The construction of the facility was 80% completed by end of 2012. BiotechCorp facilitated the company in identifying and applying the optimum incentive package and obtaining local authority approval on its site.

Progress of Investment Projects			
No	**Company**	**Origin (FDI / DDI)**	**Activity & Achievements**
5	ADT Biotech Sdn Bhd (A BioNexus Status Company)	FDI (Germany)	In early July 2012, ADT Biotech officially launched its office and production facility in Petaling Jaya. Their office serves as the Regional Hub for its parent company in the Asia Pacific region. The company is targeting more market share in infectious disease testing in the region.
6	Nova Laboratories Sdn Bhd (A BioNexus Status Company)	DDI (Malaysia)	Nova Laboratories, one of the high-growth BioNexus BioMedical companies, is also one of the Anchor Companies in the NKEA Agriculture's Entry Point Project 1 (Kindly refer to Natureceuticals.) The company plans to research, develop, and commercialise three high value herbal products. The Ministry of Agriculture has allocated a sum of up to RM14.29 million in an R&D grant to Nova Laboratories to conduct pre-clinical and clinical trials to establish the safety and efficacy of these three products. To date, the company has commenced clinical trial on one of its products. In terms of commercialisation, Nova Laboratories has established three retail outlets in IOI Mall Puchong: The Mines, and Subang Parade.

Next Steps for the BioMedical Industry

BiotechCorp's primary effort is to improve Malaysia's competitiveness as a preferred location for investment in the BioMedical Industry. It is BiotechCorp's intent to develop a comprehensive and conducive ecosystem for the targeted sub sectors in the BioMedical Industry in the following areas:

- **Developing high impact clusters:** A more active participation of BioMedical firms in the country requires an ecosystem consisting of an infrastructure that meets international standards, a highly educated & skilled workforce, and attractive incentives amongst others. BiotechCorp plans to develop this ecosystem through collaboration with both public and private stakeholders to develop high impact clusters where local and global companies can flourish.

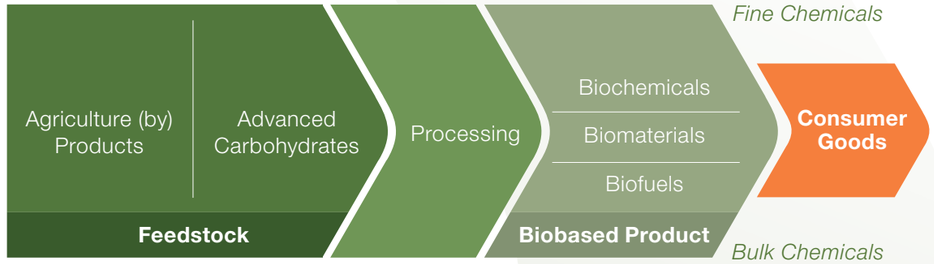
- **Increasing clinical trial activities and capabilities:** BiotechCorp will be working closely with the private sector and Clinical Research Malaysia (CRM) to promote Malaysia as a regional clinical trial hub, increasing the clinical trial activities and capabilities in Malaysia. CRM has a target of 1,000 clinical trials to be conducted in the country by 2020.

- **Initiation of the Malaysian Vaccine Programme:** Malaysia is currently relying on external sources for vaccine, through importation of products from global and regional vaccine manufacturers. Sole reliance on imported vaccines may be detrimental to the nation due to delay in the vaccine delivery or insufficient vaccine supply should pandemic occur. Hence, it is critical for Malaysia to develop the capacity for internal development and production to ensure vaccine security. BiotechCorp would play a central coordinating role for the establishment of the necessary building blocks for a Malaysian Vaccine Development and Production Ecosystem.

- **Enhancing market accessibility:** Market access is one of the key areas that would determine the competitiveness of the BioMedical Industry in Malaysia. BiotechCorp will be intensifying efforts to enhance the access into local, regional, and other targeted markets by working with the various stakeholders involved in the areas of Policy, Regulatory, Procurement, and Trade.

BIOINDUSTRIAL

With Malaysia's strong position in the commodities and petrochemical sector, Industrial Biotechnology continues to be a high value growth area that Business Development & Investment - BioIndustrial (BDI - BioIndustrial) has identified to spur further. As an enabler to the increasingly growing biotechnology sector, BDI - BioIndustrial established clustering strategy based on biorefinery concept that integrate the linkage between the upstream and downstream players. Through the facilitation of investments in Malaysia, BDI - BioIndustrial aggressively promotes technology players to fill the gaps in the value chain.



The Industrial Biotechnology Value Chain

BDI - BioIndustrial strategic partnerships with the Malaysian Economic Corridors, i.e. East Coast Economic Region Development Council ensures that issues related to sources of feedstock to the complete construction of facilities will be further facilitated.

Focus areas:

1. Fine, Bulk and Specialty Chemicals
2. Biofuels
3. Biomaterials/Biopolymers/Bioplastics
4. Bioremediation
5. Biocatalysts.

Key Results

Strategy	Results
Positioning Malaysia as the Asian Hub for Industrial Biotechnology	• To enhance Malaysia's presence in the international sphere as an important location for industrial biotechnology, BDI - BioIndustrial participated in various international events/conferences to demonstrate Malaysia's commitment to spur the sector. BiotechCorp has participated as the highest sponsor i.e. Diamond Sponsor for some of these conferences; giving Malaysia the publicity to Industrial Biotechnology players. • The events and conferences in 2012 include: - 3rd CLIB International Conference, Dusseldorf, Germany (23-24 April 2012) - 2nd Biobased Chemical Asia 2012, Bangkok, Thailand (22-23 May 2012) - 9th Annual World Congress on Industrial Biotechnology, Florida, USA (29 April – 2 May 2012) - BIO International Convention 2012, Massachusetts, USA (18-21 June 2012) - BIOGAS Asia Pacific Forum, Bangkok, Thailand (18-20 July 2012) - Bio Taiwan 2012, Taipei, Taiwan (26– 29 July 2012) - 9th China–ASEAN EXPO (CAEXPO), Nanning, China (21-25 September 2012) - EFIB 2012, Dusseldorf, Germany (16-18 October 2012)
Strategic International Partnership to Increase Malaysia's Industrial Biotechnology Global Presence	• In April 2012, Germany's cluster for industrial biotechnology (CLIB2021) opened its South East Asia office hosted by BiotechCorp in Kuala Lumpur. With these linkages, BDI - BioIndustrial will be able to gain access into Germany and other European industrial biotechnology players and academia to actively share ideas and promote technologies that will position Malaysia as an economic powerhouse in the South East Asia region. • BiotechCorp entered into a mutual partnership with Bioindustrial Innovation Centre (BIC), Canada to expand facilitation in research and business opportunities between Malaysian and Canadian bio-industrial businesses. The partnership was made following the unveiling of the BioEconomy Transformation Programme and the identification of 10 Entry Point Projects (EPPs) specifically to boost the national biotechnology sector.

Strategy	Results
Strategic Domestic Partnerships to Enhance Malaysia's Biotechnology Ecosystem	**East Coast Economic Region Development Council (ECERDC)** • BiotechCorp has signed a strategic collaboration agreement with the East Coast Economic Region Development Council (ECERDC) and the Terengganu State Government to develop Kertih Biopolymer Park (KBP) as Asia's largest biorefinery complex in June 2012. • The 1,000 hectares complex is envisaged to house technologies that will integrate biotechnology, thermo-chemical and supported by dedicated plantation into a complete supply chain ecosystem. • The complex will utilise renewable and sustainable feedstock which will be converted into a wide spectrum of biobased products which is expected to contribute a total GNI of RM 20.4 billion by 2020. • To ensure uninterrupted operation at KBP, the Terengganu State Government has earmarked 30,000 hectares of land to be developed into dedicated plantations for lignocellulosic feedstock. **Agensi Innovasi Malaysia and Malaysian Industry-Government Group for High Technology** • Understanding the significance of Malaysia's biomass and its importance in the application for Industrial Biotechnology players, BiotechCorp has actively engaged with Government agencies tasked to strategise the effective use of oil palm waste - Agensi Innovasi Malaysia (AIM) and Malaysia Industry-Government Group for High Technology (MIGHT); to ensure required focus for the Industrial Biotechnology sector. • BiotechCorp's meetings and engagements with both AIM and MIGHT are as follows: - National Biomass Strategy Lab – Biogas EPP organised by AIM, Kuala Lumpur (4 January 2012) - National Biomass Strategy Lab – Oil Palm Biomass Cluster EPP organized by AIM, Sandakan (11-12 January 2012) - National Biomass Strategy Lab – Oleochemicals & Bio-based Chemicals EPP organised by AIM, Kuala Lumpur (16 January 2012) - Malaysian Biomass Initiative Meeting organised by MIGHT, Kuala Lumpur (29 February 2012) - Launch of 1Malaysia Biomass Alternative Strategy (1MBAS) organised by AIM, Kuala Lumpur (23 March 2012) - 2nd Global Science and Innovations Advisory Council (GSIAC) organised by MIGHT, New York, USA (16 May 2012)

Strategy	Results
Strategic Domestic Partnerships to Enhance Malaysia's Biotechnology Ecosystem	- In conjunction with EFIB 2012, BiotechCorp together with AIM and MIGHT embarked a roadshow to several countries in Europe to promote Malaysia's proposition in regards to biomass utilisation for bio-based products production. Apart from the above, BiotechCorp has entered into strategic collaborations with other partners to develop the industry as follows: • Facilitation of the strategic collaboration agreement between Bee Forty One Agrotech Sdn Bhd and the Sarawak Bumiputra Chamber of Commerce (DUBS), Samarahan Branch to plant, cultivate and market cassava either for industrial use or for livestock industry. • BiotechCorp signed a Strategic Collaboration Agreement with CRAUN Research Sdn Bhd on the development of sago palm as a strategic crop for Sarawak. • BiotechCorp had signed a Memorandum of Understanding with the East Coast Economic Region Development Council (ECERDC) and Gelnas Sdn Bhd (PASDEC Holdings Bhd's unit) to develop a gelatine plant in the Gambang Halal Park in Gambang, Pahang.
Securing New Funding	BiotechCorp has secured RM200 million funding for the Malaysian 2nd Generation Industrial Biotechnology Feedstock Initiative (MY2GEN). • The fund is eligible to Oil Palm millers to establish bio-infrastructure aimed to turn biomass from oil palm waste to high value second generation feedstock with the cooperation of selected technology providers. • BiotechCorp is collaborating with Malaysia Debt Ventures Bhd (MDV) for the Malaysian 2nd Generation Industrial Biotechnology Feedstock Initiative (MY2GEN). • Under the initiative, Malaysian Debt Ventures Bhd as a technology financier will provide financing assistance by offering loans/Islamic financing to palm oil millers who meet MY2GEN requirements.
Securing Foreign Direct Investments (FDIs)	BiotechCorp has secured RM1.96 billion industrial biotechnology investment in the East Coast Economic Region (ECER). • The RM1.96 billion was from GEVO Inc, a US-based bio-based chemical company to build the world's first bio-isobutanol plant using biomass at the Kertih Bioploymer Park (KBP), Kertih Terengganu within ECER.

Strategy	Results
Securing FDIs (cont'd)	• Iso-butanol is an important platform chemical which can be converted to products such as solvents and coatings, bioplastics, bio-fibre and bio-fuels. • Gevo's investment in KBP signifies the return of investment for the Malaysia Government as one of the Malaysian Life Sciences Capital Fund (MLSCF) portfolio companies. • The plant which is expected to be completed in 2015 with a production capacity of 60,000 MT will be Gevo's first expansion outside USA.
Facilitation of FDIs	• After several years of planning and studies, the construction of the first Bio-Methionine plant in the world by Korea's CJ Chiel-Jedang and Thiochemicals Platform in Asia by France's Arkema officially started. The ground breaking ceremony of the RM 2 billion investment was officiated by the Honourable Prime Minister of Malaysia in October 2012 at KBP.
Securing Domestic Direct Investments (DDIs)	• Kenaf Bio Solutions Sdn Bhd is involved in the commercialisation of kenaf fibers derived from bio-retting process. • Natural Specialty Ingredients Sdn Bhd in Southern Malaysia is expected to commence operation in 2013 for the production of glucose syrup and maltodextrin powder via enzymatic based technology. The products are mainly sold as ingredients to companies in the food and beverage industry.
International Commercialisation of Local Biotechnology Players	Industrial BioNexus companies have successfully penetrated the overseas markets over the past few years and have shown resilient growth in revenue. Among the companies are as follows:- • Pure Circle is a listed company in the London Stock Exchange which produces Stevia-based sweeteners. Stevia is the world's only all natural herbal sweetener with zero calories, zero carbohydrate and zero glycemix index. The company supplies products to mainly global food and beverage (F&B) manufacturers i.e. Pepsi, Danone, Nestle, Schweppes, McCormick Food etc. • Konzen Clean Energy Sdn Bhd is a local grown bioremediation company with projects in Vietnam, Thailand and Indonesia.

Strategy	Results
Dissemination of New Developments in the Industrial Biotechnology Sector	BDI - BioIndustrial has introduced a series of initiatives as part of its strategy to disseminate latest development in the Biotechnology industry in Malaysia. These initiatives are as follows:- • The Lecture Series in Industrial Biotechnology known as Industrial Biotechnology Lecture Series (I-BLESS 2012). A one-day event, I-BLESS is a platform for discourse between the industry's stakeholders, key industry players, regulators, academicians, researchers as well as representatives from financial institutions. I-BLESS also acts as a catalyst for potential collaboration between foreign and domestic technology players. During the year 2012, BDI - BioIndustrial organised four I-BLESS sessions with four expert foreign speakers in their respective areas. The lectures cover areas in commercialisation of Bio-based chemicals and cellulosic sugar as well as updates on biogas and algae technology. • The networking lunch with foreign diplomatic corps based in Kuala Lumpur provided them with the latest highlights pertaining to the biotechnology industry. The event was attended by foreign ambassadors, diplomats as well as members of the foreign trade from various countries. The meeting provided opportunities for both parties to explore collaboration opportunities available in Malaysia and their home countries. The networking lunch was an ideal platform for BiotechCorp to promote FDIs in biotechnology, create market access for local biotech products and services, particularly for BioNexus Status companies as well as strengthen networking between BiotechCorp and Foreign Diplomatic Corps. BDI - BioIndustrial has also facilitated the Minister of Science, Technology and Innovation's working visits to foreign countries as part of business intelligence information gathering. • A due diligence visit to Thailand to view the feasibility of *Leucaena leucocephala* or "Petai Belalang" plantation as potential crop for IB feedstocks. • A working visit to France to view the Biorefinery Cluster facility to scale up biotechnology processes as well as explore potential collaboration with French biotechnology companies.

Projects Secured in 2012

No	Company	Origin (FDI / DDI)	Activity & Achievements
1	Kenaf Bio Solution Sdn Bhd	DDI	Commercialisation and production of insulating fibre felts for various applications: soundproofing systems, thermal insulation, floors and roofs, automotive parts, and ecological building from kenaf. The company was awarded a BioNexus Status on 8 October 2012. Investment value is RM3 million.
2	Natural Specialty Ingredients Sdn Bhd	DDI	Commercialisation of glucose syrup, malto-dextrin and derivatives from cassava starch using enzymatic technology. The company was awarded a BioNexus Status on 3 December 2012. Investment value is RM40 million.
3	Gevo, Inc	FDI	Production and commercialisation of bio-isobutanol, cellulosic carbohydrates and lignin from renewable feedstocks. The project was approved by the Economic Council on 24 September 2012. Investment value is RM1.96 billion.
4	Kertih Biopolymer Park (KBP)	DDI	Federal Government of Malaysia allocated funds to further develop and expand KBP to house new investors.
5	My2Gen Initiatives	DDI	A soft loan scheme was made available to eligible oil palm millers to establish bio-infrastructure aimed to turn biomass from oil palm waste to high value second generation feedstock with the cooperation of selected technology providers. The total funding value is RM230 million.

Next Steps for BioIndustrial

Moving forward into 2013, efforts will be focused on the following areas:

- Enhancing strategic collaborations with the Economic Corridors to promote BioIndustrial Clusters in the respective Corridors.
- Identification and creation of Bioindustrial clusters based on the availability of feedstock clusters in the particular areas.
- Attracting more FDI to use Malaysia as a hub for their industrial biotechnology activities, particularly multi-national corporations (MNCs).
- Working with local feedstock producers to increase renewable feedstock supply for the development of industrial biotechnology.
- Improving regional competitiveness through incentives and better infrastructure.
- Initiating opportunities for local IB companies to go global.

BIONEXUS DEVELOPMENT

INDUSTRY SUPPORT

The Industry Support Department consists of four units - Processing/Client Engagement Unit, Regulatory Services Unit, Intellectual Property Services Unit and Shared Facilities Unit.

Focus areas:

- The Processing/Client Engagement Unit provides engagement and facilitation services to BioNexus companies. Facilitation provided among others, include market access and funding. The unit also processes pre-application of the BioNexus status
- The Regulatory Services Unit provides advisory and facilitation services in regulatory affairs. The unit also organises training for BioNexus companies on regulatory and product registration
- The Intellectual Property Services Unit provides advisory and facilitation services to BioNexus companies on intellectual property (IP) related matters. The unit also provides customised trainings to BioNexus companies on IP related subject matters for awareness and capacity building purposes
- The Shared Facilities Unit is the custodian of the BioNexus Partners (BNP) Program. The BioNexus Partners Program was established to support the life sciences industry's research, development and commercialisation (R&D&C) needs by providing access to high-end research facilities, infrastructure and services, and pool of ready expertise to accelerate commercialisation via public private partnership

Key Results

Processing/ Client Engagement Unit

Activity	Results
Cluster meetings to identify the main issues faced by BioNexus companies	• 15 cluster meetings were organised and 7 cluster champions have been appointed to spearhead the clusters
Market access facilitation for BioNexus companies	• 73 engagements for market access • 46 participations by BioNexus companies in 7 international exhibitions / events • Potential value deal from the facilitation for market access is USD 28.3 million • 55% increase in export market revenue from all BNX companies in 2012 as compared to 2011
Funding assistance for BioNexus companies	• 49 engagements for funding with various financial institutions • Total approved financial facilities facilitated in 2012 are approximately RM 30 million

Next Steps for Processing/Client Engagement Unit

In 2013, this unit will focus on the following areas:

- Intensifying facilitation/ engagement with BioNexus companies
- Collaboration with other agencies in developing/growing the BioNexus companies (i.e. Cradle Fund Sdn Bhd, SME Corp, Malaysian Technology Development Corporation (MTDC), Unit Peneraju Agenda Bumiputera (Teraju), etc)
- Collaboration with Malaysia External Trade Development Corporation (MATRADE) on market access initiative
- Collaboration with Bank Negara, government funding agencies, local Developmental Financial Institutions (DFIs) and Financial Institutions (FI) on funding initiatives

Regulatory Services Unit

Activity	Results
Engagement with Medical Device Control Division, Ministry of Health	• Facilitating Voluntary Registration for Medical Devices Establishments (MEDVER registration) • Provided introduction on Medical Device Act 2012 (Act 737) • Provided understanding on the Transition Plan for Implementation of the Act 737 • Creating awareness on the ASEAN Medical Device Directive (AMDD version 11)
Engagement with Disease Control Division, Ministry of Health	• Facilitation in obtaining import and export permit of human cells, tissue and part thereof
Advisory and facilitation in regulatory matters and product registration	• More than 70% of BioNexus status companies have fulfilled the required approval necessary for them to do their business activity. The balance is in the midst of obtaining the necessary approval

Next Steps for Regulatory Services Unit

In 2013, the unit will focus on the following areas:

- Strengthening the advisory and facilitation services to BioNexus companies
- To organise more trainings and programmes to increase awareness and capacity building

IP Services Unit

Activity	Results
IP Skill Enhancement Programmes	A series of skills development programmes were held in 2012 as part of BiotechCorp's efforts to create more skilled talent in the area of IP. The programmes held were as follows: • Workshop entitled "Trade Marks: Tools for Creating Value for Your Business" on 28 March 2012 • Workshop entitled "Patent Drafting in the Biotechnology & Life Sciences Industry ~ A Guide for Beginners" on 25 April 2012 • Workshop entitled "Patent Drafting in the Biotechnology & Life Sciences Industry ~ An Advanced Workshop" on 23 May 2012 • Workshop entitled "ÏP Licensing ~ Getting the Fundamentals Right" on 5 September 2012 • Seminar entitled "Initiatives in Promoting IP Based Financing" on 18 December 2012
Engagements with the Intellectual Property Corporation of Malaysia (MyIPO)	• Facilitation in IP filings and prosecution for BioNexus companies
Engagements with institutions of higher learning	• Creating awareness on IP and commercialisation related matters

Next Steps for IP Services Unit

Moving into 2013, the unit will be focused on the following areas:

- Continuing to provide advisory and facilitation services to BioNexus companies
- Conducting customised trainings for awareness and capacity building purposes as part of our efforts to nurture and accelerate growth of BioNexus companies through greater IP management

Shared Facilities Unit

Activity	Results
Commercialisation via Public private partnership	Commercialisation of OP-CB biosensor pesticide detection kit for early detection of Organophosphate & Carbarnate Residues in vegetables. • The product is a result of collaboration between One Point HealthLab Sdn Bhd (OPHL) and the Biosensor Laboratory of the Malaysian Agriculture Development Institute (MARDI) • OPHL took MARDI's cutting edge technology via licensing to produce the product which will help faster detection at a cheaper cost. Previously it took 3-5 days for detection at a cost of RM 500 but with the new product, it can be done in 15-30 minutes at a cost of RM30 per test
Commercialisation via Public private partnership	• The product was launched in November 2012 and introduced to every state government agency, attracting also interest from other ASEAN countries All Cosmos Industries Sdn Bhd (All Cosmos) is in a long term strategic partnership with the Institute of Bioproduct Development (IBD), Universiti Teknologi Malaysia for the development of a new generation of fertilisers • In the partnership, IBD is the technology developer, incubator and pre-industrialisation site for All Cosmos • Both organisations are presently involved with the Bioprocess Engineering Lab on high cell mass production of *Azotobacter vinelandii* for biofertiliser application and optimisation of *Rhizobium trifolii* high cell mass production in a semi industrial scale. It is also involved with the Biofertiliser Services Lab for the production of sustainable pelletised biofertiliser. • All Cosmos and Universiti Teknologi Malaysia (UTM) have co-published their research findings on high cell mass production of *Azotobacter vinelandii* for biofertiliser application
Networking sessions between the industry players	**Participation in BioBorneo 2012 in Kuching, Sarawak from 24 to 25 February 2012** BioBorneo 2012 was co-organised by the Ministry of Science, Technology and Innovation (MOSTI), the Sarawak Biodiversity Centre (SBC), Malaysian Genome Institute (MGI), Malaysian Biotechnology Information Centre (MABIC) and BiotechCorp as an initiative to accelerate innovation of the Borneo bioeconomy Three BNP laboratories and units from Universiti Malaysia Sabah (UMS) participated in BioBorneo's Bio-Industry Expo and Business Matching sessions to promote their R&D&C facilites and services to the industry particularly in Sabah and Sarawak. The BNP laboratories and units involved are: • Genomics and Microbial Laboratory of the Biotechnology Research Institute (BRI) which offers molecular biology services including gene expression using microarray, DNA sequencing and microbial identification. The laboratory has a large culture collection of bacterial and fungal species obtained from Sabah and Antartica • Natural Product Chemistry Laboratory of the Institute for Tropical Biology and Conservation which offers analysis of potential bioactive compounds derived from natural resources and matching of these compounds with a global database • Morphological Characterisation Laboratory of the Insitute for Tropical Biology and Conservation which specialises in identification and morphological characterisation of plants, insects and animals and also consultancy on biodiversity studies of natural resources as prospective candidates for valuable natural products

Activity	Results
Networking sessions & partnering opportunities between the industry players	**BNP Networking Session and Launching of the Halal Analysis Laboratory at the Institute of Halal Research and Management (IHRAM) at Universiti Sains Islam Malaysia (USIM) on 19 April 2012** The BNP Networking Session in USIM was officiated by YBhg Professor Emeritus Tan Sri Dato' Dr Abdul Shukor Hj Hussin, the Chairman of USIM Board of Directors in conjunction with the launching of the Halal Analysis Facility in IHRAM. The event was co-organised with the Halal Services and Training Unit, a BNP status laboratory which provides services and expertise on analysis and consultancy for development of halal products and other biotechnology products, as well as training to enhance awareness on the concept of halal to the industry such as: • General Trainings on Halal Food - Islamic Practice in Production of Halal Food: From Farm to Consumer - Introduction to Halal Food from Shariah Principles - Tracebility in Halal Food Chain - Halal Food: Integration of Islamic Law and Science Perspectives • Practical Training on Halal Food - Practical in Thobiyyah Aspect of Food: Food Microbiology, Food Analysis - Halal Food Analysis: Detection of Porcine Subtances in Food by Polymerase Chain Reaction (PCR) and Detection of Lard Adulteration by using FTIR During the event, consultancy and business matching sessions were held between IHRAM and the BioNexus Status companies, entrepreneurs and other life sciences companies interested in developing halal products for local and international market. **BNP Annual Meeting 2012 & Networking Session at The Royale Chulan Hotel, Kuala Lumpur on 13 August 2012** • The BNP Annual Meeting 2012 & Networking Session which was launched by BiotechCorp CEO YBhg Dato' Dr Mohd Nazlee Kamal is an annual gathering held between BiotechCorp with all BNP organisations to meet and discuss on the current progress and way forward in supporting the biotechnology industry • A training session on Entreprenership, Sales and Marketing by Mr Tom Abbott, a Singaporean-based Canadian sales trainer, coach and author was also conducted to enhance exposure to the business or entrepreneurial potential among the researchers as service providers to the industry. During the event, a Networking Session and Majlis Berbuka Puasa session was held as a platform for the BNP researchers and BioNexus status companies to interact and discuss on opportunities for future collaboration in product development

Activity	Results
Networking sessions between the industry players	**Participation in BioMalaysia 2012 at the KL Convention Centre from 5 to 7 November 2012** BioMalaysia 2012 was a platform for the BNP laboratories and units to showcase their capability and capacity to support the industry's research, development and commercialisation (R&D&C) needs. In conjunction with the event, two Memorandums of Understanding (MoUs) exchanges took place between: • Airestec Innovations Sdn Bhd and TPM Biotech Sdn Bhd on a collaboration to produce halal microbial based multi enzymes for various application in the cleaning industry • Return to Green Sdn Bhd and Wastewater Treatment Facilities of Universiti Teknologi Malaysia (UTM) on a collaboration to produce bio-ink for product packaging made of bagasse During the event, business matching sessions and presentations by BNP researchers on eminent topics were also conducted: • Standardise Extracts and Raw Material Quality for Export of Herbal Products by Encik Mohd Shahidan Mohd Arshad of FRIM • The Biomedical Device Experience by Prof Dr Ahmad Hafiz Zulkifly of International Islamic University Malaysia (IIUM) • The Potential of Marine Biotechnology by Encik Thirukanthan Chandara Segaran of Universiti Malaysia Terengganu (UMT) • The Halal Market Industry by Prof Dr Jamilah Bakar of Universiti Putra Malaysia (UPM) • Toxicity Evaluation for Regulatory Requirement by Assoc Prof Dr Anuar Osman of Universiti Kebangsaan Malaysia (UKM) • Biodiversity Prospecting by Dr Kenneth Francis Rodrigues of Universiti Malaysia Sabah (UMS)

Next Steps for Shared Facilities Unit

Moving into 2013, the unit will focus on the following areas:

- Moving towards Phase 2 of the NBP – "Science to Business", the synergistic public private partnership via the BNP programme needs to be intensified to ensure successful translation of R&D to business via mutually beneficial collaborations
- More initiatives on building linkages with other local and international industry players need to be formed to accelerate commercialisation of biotechnology products via public private partnerships

EVALUATION

The BioNexus Evaluation is responsible for processing and evaluating applications for BioNexus Status, funding assistance and also various income tax exemptions from biotechnology companies. As at 31 December 2012, there were 217 BioNexus Status companies carrying total approved investment of RM 2.6 billion. The development stage of these companies ranges from start-up (45%), small medium enterprise (53%), to mature enterprise (2%).

In line with National Biotechnology Policy Phase II, BiotechCorp in 2012 introduced Biotechnology Commercialisation Fund (BCF) which is aimed to further strengthen development of science to business initiatives. Positioned under the Tenth Malaysian Plan (10MP), BCF is offered to eligible BioNexus Status companies with maximum funding amounting RM 3 million per company.

Focus areas:

1. Increasing in number of BioNexus Status companies
2. Implementation of funding scheme under the 10MP
3. Provision of tax advisory & services.

Key Results

Activity	Results
BioNexus Status	• A total of 44 applications for BioNexus Status were received by BiotechCorp in 2012. For the year, the following 13 companies were awarded with BioNexus Status: 1. JHR Aquaculture Sdn Bhd 2. Seaharvest Aquamarine (M) Sdn Bhd 3. Darden Aqua Sciences Sdn Bhd 4. Lobster Aqua Technologies Sdn Bhd 5. Ligno Biotech Sdn Bhd 6. Hygieia Innovation Sdn Bhd 7. B-Crobes Laboratory Sdn Bhd 8. Fuciphagus Agritech Sdn Bhd 9. Kenaf Bio Solution Sdn Bhd 10. 1 Caviar Malaysia Sdn Bhd 11. Natural Specialty Ingredients Sdn Bhd 12. Win Men Biotech Sdn Bhd 13. Microwell Bio Solutions Sdn Bhd
Biotechnology Commercialisation Fund (BCF)	• Biotechnology Commercialisation Fund (BCF) is a program under the Tenth Malaysian Plan (10MP), managed by BiotechCorp as part of overall incentives for BioNexus companies. • The BCF is a funding scheme that combines term loan and grant with a maximum funding of RM 3 million per BioNexus Status company.
Biotechnology Commercialisation Fund (BCF)	• The objective of the BCF is to facilitate on-going commercialisation of biotechnology products and services and/or expansion of existing biotechnology business. • The general eligibility criteria for the BCF are: a. a BioNexus status company b. majority owned by Malaysians (i.e. at least 51% of the issued and paid up capital of the company is held by Malaysians) c. minimum paid-up capital is RM250,000. • Biolina Corporation Sdn Bhd a company involved in commercialisation of spirulina based products is the first BioNexus Status company approved for BCF. The approval was granted in December 2012 involving a total financing amount of RM 3 million.
Tax Advisory & Services	• Tax Advisory & Services processes and evaluates applications for income tax exemptions for BioNexus Status companies and other relevant tax incentives for the industry. Apart from the 100% income tax exemption on statutory income incentive granted to BioNexus Status companies, a total of 19 applications for other BioNexus Status tax incentives were received and processed in 2012. The applications received and processed are as follows: 1. IOI Lipid Enzymtech Sdn Bhd 2. Genting Green Tech Sdn Bhd 3. BioAlpha International Sdn Bhd 4. Chua Tongsan Sdn Bhd 5. B-Crobes Laboratory Sdn Bhd 6. Microwell Bio Solutions Sdn Bhd 7. BioFusion Sdn Bhd 8. PureCircle Sdn Bhd 9. Stemlife Berhad 10. Stempeutics Research Malaysia Sdn Bhd 11. Furley BioextractsSdn Bhd 12. Cytopro Malaysia Sdn Bhd 13. JEFI AquaTech Resources Sdn Bhd 14. Bio-Molecular Industries Sdn Bhd 15. Lobster Aqua Technologies Sdn Bhd 16. Arkema Thiochemicals Sdn Bhd 17. RE Millennium Sdn Bhd 18. Olipro Biotechnology Sdn Bhd 19. Biocon Sdn Bhd • In addition, the following four audit/verification exercises were conducted as part of monitoring activities for BioNexus Status tax incentives: 1. YSG Biotech Sdn Bhd 2. QL Agrobio Sdn Bhd 3. JQ Biotech Sdn Bhd 4. Hexagon Green Biotech Sdn Bhd

Activity	Results
Tax Advisory & Services	• A seminar on "Tax Incentives for Biotechnology Industry – Process & Procedures" was conducted in December 2012 for all BioNexus Status companies.

Next Steps for Evaluation:

Moving forward Evaluation Department will focus on the following areas:

- Continuous promotion of BioNexus Status and its incentives
- Promotion of the newly introduced Biotechnology Commercialisation Fund
- Ensure the integrity of BioNexus framework

TECHNOLOGY MANAGEMENT OFFICE

Biotechnology Technology Management Sdn Bhd (BTM) incorporated on 16 March 2011, is a wholly owned subsidiary of the Malaysian Biotechnology Corporation Sdn Bhd (BiotechCorp). BTM in the interim, functions as a division of BiotechCorp also known as the Technology Management Office (TMO). The key responsibilities of TMO are to manage, develop and commercialise the platform technologies acquired by BiotechCorp under the 9th Malaysian Plan Biotechnology Acquisition Programme (BAP).

Following are the technologies being managed by TMO:

i. **Supercritical Fluid Extraction and Particle Formation Platform Technology:** The Supercritical Fluid Extraction (SFE) and Particle Formation Platform Technology (PFPT) uses the unique properties of carbon dioxide (CO2) which at temperatures and pressures exceeding its critical point will be in a high density state with properties of liquid as well as possess high diffusivity, a characteristic similar to gas. This allows for extraction beyond the limitations of traditional extraction methods and the ability to produce high quality standardised extracts. The technology is housed at the Supercritical Fluid Extraction Centre (SFC) which is located at Universiti Putra Malaysia (UPM). In addition to SFE and PFPT, there are also Soxhlet extraction, fractionation and aqueous particle formation equipment, all extraction using carbon dioxide as the mobile fluid.

ii. **Marker Assisted Selection Platform Technology:** The Marker Assisted Selection (MAS) Platform Technology uses DNA markers to identify, link and select desired traits for breeding. The application of this technology significantly accelerates the breeding process of crops from the usual 5 – 6 years in traditional breeding to about 2 years. MAS is particularly useful for traits that are difficult to measure, exhibit low heritability and / or expressed late in development. The technology is housed at the Centre for Marker Discovery and Validation (CMDV) which is located at MARDI. This centre offers high-throughput genotyping platforms (i.e. SSR Platform, SNP Illumina i-Scan Platform, Sequenom MassAray Platform and IMP Platform) for providing services such as marker discovery, validation and selection as well as DNA fingerprinting for varietal / accession identification of plants, livestock, aquaculture and crops. To further strengthen CMDV's capability as a regional centre, identification and validation of molecular markers for crucial traits in rice, goat and watermelon have been initiated.

iii. **DotScan Platform Technology:** The DotScan Platform Technology is an antibody microarray that uses light to detect and measure amounts of target cells in biological samples such as blood and serum that is captured by an array of specific antibodies. This technology is able to diagnose and identify particular diseases based on the pattern that emerges from the arrays by identifying large groups of interactions simultaneously. This high-throughput screening can be applied to biomarker discovery, disease diagnosis and prognosis, drug target discovery, and disease profiling without the need of specific biomarkers based on the unique patterns that emerges from the large group of interactions. Interested parties can sub-license the technology for the development of proof of concept, specific applications or commercialise the clinically validated applications for the diagnosis and identification of specific Leukaemia types.

iv. **Nanotechnology Platform:** The Nanotechnology Platform allows the design and synthesis of multifunctional inorganic nanoparticles of specific sizes for a wide range of applications in fields such as materials, healthcare, cosmeceutical, agriculture as well as industrial and environmental diagnostic kits. The nanoparticles can generate physical or chemical reactions controlled by an external source such as:

- NanoMag – Activation by a magnetic field (e.g. MRI)
- NanoPDT – Activation by a light source (e.g. Laser)
- NanoXRay – Activation by X-Ray

Nanoparticles and nanoparticles conjugated with biomolecules have been developed for gold and iron oxide. These particles can be produced at a commercial scale for interested parties for further product development.

The following are subsidiaries incorporated under BiotechCorp Technology Management Sdn Bhd to spearhead the various technologies:

i. BiotechCorp Supercritical Solutions Sdn Bhd
ii. BiotechCorp Molecular Solutions Sdn Bhd
iii. BiotechCorp Diagnostic Solutions Sdn Bhd
iv. BiotechCorp Nanotech Solutions Sdn Bhd

Issue/Activity	Results
Supercritical Fluid Extraction and Particle Formation Platform Technology	The Supercritical Fluid Extraction Centre (SFC) has been successfully installed at the Faculty of Food Science & Technology in UPM. The facility, which has received the permit for operation ("Certificate of Fitness") from the Department of Occupational Safety and Health (DOSH), and is currently undergoing Site Acceptance Tests upon completion of rectification worksand commissioning by the technology provider. The site acceptance tests are a pre-requisite to the transfer of title and risk of the hardware. In the interim, TMO is actively pursuing business negotiations and opportunities for collaboration, structuring business plans and costing, and standard operating procedures for the facility, reviewing technology transfer documents and manuals, and reviewing the training modules.

Issue/Activity	Results
	In 2012, TMO promoted the platform by: • Participating in Bio-Borneo Conference & Exhibition on 24 - 26 February 2012; Participating in the BioMalaysia Exhibition 2012 on 5 – 7 November 2012 • Participating in Malaysia Agriculture, Horticulture & Agrotourism International Show (MAHA 2012), Technology Showcase on 23 November – 2 December 2012
Marker Assisted Selection Platform Technology	The Centre for Marker Discovery and Validation (CMDV) has been fully set up and commenced its operations in 2011 after a successful launch during BioMalaysia 2011, in the presence of Malaysia's Prime Minister, YAB Dato' Seri Mohd Najib Tun Razak. CMDV is now up and running and ready to offer the best genomics solution and application in the region. TMO increased public awareness on the MAS platform technology by: • Participating in Bio-Borneo 2012 on 24 - 26 February 2012 • Participating in the BioMalaysia 2012 Exhibition • Organising the Centre for Marker Discovery & Validation (CMDV) Networking Reception at BioMalaysia 2012 Conference & Exhibition • Participating in Malaysia Agriculture, Horticulture & Agrotourism International Show (MAHA 2012), Technology Showcase on 23 November – 2 December 2012.
DotScan Platform Technology	The technology transfer for the DotScan Platform Technology has been successful with two technology custodians, the Institute for Medical Research (IMR) and Universiti Putra Malaysia (UPM). Both organisations are currently conducting research towards the development of new applications utilising the DotScan Platform Technology. In addition, this Platform Technology has garnered interest from several researchers as well as from the industry keen to develop applications in line with their research interest as well as to commercialise the available Leukaemia application using DotScan. TMO promoted the DotScan Platform Technology by: • Participating in BioBorneo 2012 Conference & Exhibition • Participating in the 4th Malaysian Tissue Engineering and Regenerative Medicine Scientific Meeting (MTERMS) organised by the Tissue Engineering and Regenerative Medicine Society of Malaysia (TESMA) held in April 2012 • Participating in the BIO Conference and Exhibition in Boston • Organising a DotScan Antibody Microarray Seminar to enhance knowledge of companies and researchers on the platform technology in December 2012.

Issue/Activity	Results
Nanotechnology Platform	The technology transfer on the Nanotechnology Platform has been completed with a year-long training and the establishment of the NanoBiotechnology Research and Innovation Centre (NanoBRI) under the Institute for Research in Molecular Medicine (INFORMM), Universiti Sains Malaysia (USM). The NanoBRI team comprises three principal researchers from multidisciplinary backgrounds with dedicated laboratories and state-of-the-art facilities funded by USM including a nanomaterials synthesis laboratory, a nanomaterials characterisation laboratory, cell culture facilities, inverted fluorescence microscopy facility and a biological laboratory. Research by NanoBRI includes the design and development of nanoparticles, nanocolloids, reagent design, drug and molecule carrier design and development, cellular imaging and diagnostic platforms. It is currently able to produce NanoSilica, NanoMagnetic, NanoGold and Liposome nanoparticles. Other activities in promoting the platform technology involves: • Participating in BioBorneo 2012 Conference & Exhibition • Presenting the Nanotechnology Platform to keen entrepreneurs during the Global Bio-Entrepreneurship Course (GloBE) at the California Institute for Quantitative Biosciences • Participating in the BIO Conference and Exhibition in Boston

Next steps for Technology Management Office:

In 2013, the Technology Management Office will continue to manage and commercialise platform technologies via the following strategies:

- Engagement with targeted industry players and commercial partners to increase awareness and accelerate the adoption of the technologies as well as increasing the client base for the same
- Increasing the technical manpower and training of the backup teams of each technology to ensure the technology custodians are able to efficiently and effectively provide services to their clients
- Developing a strong dedicated team of business management team to bring in business for all the platform technologies
- Developing collaborations to ensure increased utilisation of the platform technologies.
- Developing, standardising and periodically refining the business and standard operating procedures and management of the technology custodians to hasten the transformation of CMDV and SFC to become commercial entities for the purpose of providing efficient services to their clients
- Effective liaison with the technology licensors to ensure that continued support is provided to the technology custodians
- Increasing media coverage/visibility on these four platform technologies

BIO-XCELL MALAYSIA

BIO-XCELL BIOTECHNOLOGY PARK: DEDICATED TO BIOTECHNOLOGY INDUSTRY

Bio-XCell is Malaysia's first dedicated biotechnology park and ecosystem that is being developed by Malaysian Bio-XCell Sdn Bhd, a joint venture company formed between Malaysian Biotechnology Corporation and property developer UEM Sunrise Berhad.

Strategically located in Nusajaya, within the Iskandar region of Johor and close to the 2nd link with Singapore, Bio-XCell provides global connectivity through a network of five seaports and two international airports, all within 59 km. It will provide healthcare and industrial companies with a conducive and commercially attractive environment for biomanufacturing and bioprocessing activities including R&D, production and support services.

October 2013 – The Launch of Bio-XCell Malaysia Biotechnology Park

The Bio-XCell Biotechnology Park spans over 160 acres has an investment of over RM950 million mainly on the infrastructure and construction of the park is scheduled to have its inauguration in November 2013.

The heart of the park is expected to be completed by third quarter (Q3) 2013. It includes four units of ready to use buildings that has 2 floors of office space and a large workshop / factory area with high ceiling, a Central Utilities Facility that produces steam, chilled water and waste water management and the Central Hub. As a managed park, Bio-XCell will provide its clients with a range of value add benefits including comprehensive infrastructure, park maintenance and security, core shared utilities, upcoming lifestyle, business and training facilities. The Central Hub of the park will house a number of lab incubators designed in adherence to the principles Good Lab Practices (GLP), to enable companies to set up their operations and R&D activities in compliance with GLP guidelines with ease. These lab incubators will be supported by adjoining office space and shared core lab facilities such as cold and incubation rooms, media preparation room, sterilization/decontamination and washing room as well as a storage area.

There are also other supporting features of the Central Hub which includes training and conference facilities, an administration centre, plug & play office space, retail/ F&B outlets and other amenities.

On the other hand, the Central Utilities Facility (CUF) will provide steam, chilled water and waste water management as well as cater to specific requirements of its clients. This centralised service will be a value added service that will reduce the capital expenditure for the park's clients.

All these elements will not only create an ecosystem of small, medium and large industry players which support cost effective operations and advancements in innovation and technology transfer.

Bio-XCell Attracts Global Biotech Players

Since its global launch in May 2010, Bio-XCell has secured four clients namely Biocon and Stelis Biopharma (a subsidiary of Strides Arcolab Ltd) - both leading biopharmaceutical companies from India, Metabolic Explorer from France and Glycos Biotechnologies from the United States of America. These are prominent industrial biotechnology players who will use its intellectual property and platform technologies in their bioprocess development and manufacturing activities. The companies will be operational in Bio-XCell by year end 2014.

Bio-XCell continues to attract major players and it envisages that these clients will bring with them significant innovation and intellectual property in biotechnology, providing for transfer of knowledge and development of specialised skills for the local talent pool.

Nurturing biotech growth

On initiatives moving forward, Bio-XCell will focus on further strengthening its client service delivery and building up an ecosystem to enhance the appeal of the park. Besides attracting more foreign direct investment, we believe that collaborations between industry and both private and public institutions will create growth in the biotech industry. Bio-XCell hopes to establish a formal collaborative framework with several universities, research institutes, both public and private, healthcare institutions, government state agencies and BioNexus companies to create a vibrant ecosystem for advancements in industrial and healthcare biotechnology in Malaysia.

In this regard, Bio-XCell is set to be an effective platform for commercialisation in biotechnology, in meeting the objectives of Phase 2 of the National Biotechnology Policy (NBP) – the Science to Business phase. Furthermore, initiatives by Bio-XCell are also working towards fulfilling Phase 3 of the NBP- Building and Establishing Global Businesses in Biotechnology.


Central Utilities Facility


Central Hub


Standard Shell

Biotechcorp to represent M'sia at world's largest industrial event

KUALA LUMPUR: Malaysian Biotechnology Corp Sdn Bhd (BiotechCorp) will represent Malaysia at the world's largest industrial biotechnology event, the 2012 BIO World Congress on Industrial Biotechnology and Bioprocessing.

BiotechCorp would use the opportunity to profile Malaysia's capabilities and edge within the industrial biotechnology sphere.

Chief executive officer Datuk Dr Mohd Nazlee Kamal said the company's participation enabled it to increase visibility and exposure

Biotech commercialisation fund can boost BioNexus-status firms

KUALA LUMPUR: Malaysian Biotechnology Corp Sdn Bhd (BiotechCorp) says the new soft loan programme known as "Biotechnology Commercialisation Fund" will further boost growth of BioNexus-status companies.

Chief Financial Officer Syed Agil Syed Hashim said RM61.5 million has been allocated to eligible BioNexus companies for the period between 2011 and 2013.

He said 10 companies have submitted their applications for this programme and was expecting more companies will come in.

"The fund is the second phase programme done by BiotechCorp in assisting BioNexus-status companies to build up their businesses after the successfulness of Biotechnology Commercialisation Grant programme," he told Bernama.

The Biotechnology Commercialisation Fund is a new funding assistance programme under the 10th Malaysia Plan providing a RM3 million maximum loan for each company to help develop the biotech industry in this country.

He said the fund was a hybrid scheme which combines one-third of the grant and two-thirds of the soft loan to give BioNexus companies easier financial assistance since these industries faced difficulties to get bank loans.

"We give them 1+6 years repayment period. For the first year we will give them a moratorium period and they can start paying the loan in the second year," he said.

Syed Agil said there were 235 BioNexus-status companies, comprising 191 Malaysian companies and the remaining 24 are foreign-owned.

"Five BioNexus companies have been listed in Malaysia, Australia and on the London Stock Exchange," he said.

Syed Agil also said BiotechCorp had revised upwards its 2015 investment target for the biotechnology sector to RM26 billion from RM9 billion backed by tremendous growth rate in Asia.

For this year, BiotechCorp had clinched RM12.7 billion worth of investments, of which 70 per cent were from foreign direct investment (FDI), with the biggest contributor by sector was the industrial biotechnology investments.

"The industry is also expected to increase its contribution to the gross domestic product to four per cent by 2015 from 2.2 per cent in 2010 and balanced the FDI and domestic direct investments ratio from the current 70:30," he added. - Bernama

BiotechCorp, DRB Hicom to set up RM500m pharma park

KUALA LUMPUR: Malaysian Biotechnology Corp Sdn Bhd (BiotechCorp) and DRB HICOM Bhd will collaborate with two other partners to set up a RM500 million pharmaceutical park in

"DRB would invest RM100 million to set up the facilities and attract RM400 million foreign direct investment in the next three years," he told reporters after exchanging

present were of Health Datuk Tiong Lai and Chief Minister Ali Rustam.

said the collaboration ered the development of identifying and potential investors

and facilitation in applicable approvals required from relevant governmental bodies or state authorities in developing the park.

He said the park has already attracted foreign interests and several talks were currently ongoing.

Liow and Ali also witnessed, the signing of a memorandum of understanding between Saudi Arabia conglomerate Al-Jomaih Holding and European multinational company, Sanofi Pasteur, to explore biomedical potentials in Malaysia.

Nazlee said the conglomerate, through its associate company, AJ Pharma Sdn Bhd, will be be investing an initial US$100 million to implement various biomedical projects in the country, including the RM150 million vaccine plant in Malacca Technology Park.

India's Biocon Ltd, through its unit Biocon SA, and CCM Pharmaceutical Sdn Bhd also exchanged documents for the distribution of insulin and insulin products in Malaysia and Brunei. - Bernama

From Page B1

"Combined with government support and policies, this will certainly be a contributing factor towards driving Malaysia's bioeconomy agenda and achieving its target to become the regional biorefinery hub by 2015," he said.

Bioeconomy, which encompasses application of biotechnology to primary industries, is slated to become one of the National Key Economic Areas (NKEAs) for Malaysia following in the footsteps of mature countries such as the US, China, Japan, the Netherlands, Germany and France.

Bioeconomy, particularly through industrial

Quintiles JV al biotech

new a tries in

Kerteh BioPolymer Park to draw RM7b foreign investment by 2015

MARANG: The 1,000-hectare Kerteh BioPolymer Park (KBP) in Kemaman is expected to attract several global biotechnology players with anticipated foreign direct investment worth around RM7 billion by 2015.

East Coast Economic Region (ECER) Development Council Chief Executive Officer Datuk Jebasingam Issace John cited a RM2 billion project by South Korea's CJ CheilJedang Corporation and France's Arkema to produce the world's first green biotechnology based L-methionine.

"Physical works for their plant in KBP have already started and operations are expected to come on-stream by 2014," he told reporters.

Earlier, he attended the planting of 40,000 'petai belalang' (Leucaena leucocephala) seedlings, officiated by Menteri Besar Datuk Seri Ahmad Said, at Merchang here Thursday.

Besides CJ and Arkema, US-based biochemical company Gevo Inc, which develops bio-based alternatives to petroleum-based products, will invest RM1.96 billion to develop a bio-isobutanol plant in KBP.

Jebasingam said ECER, the state government and Biotech Corp are also looking to build a biorefinery complex slated to be operational by 2014.

"The project is expected to generate a cumulative GNI [Gross National Income] of RM20.4 billion by 2020 and produce 2,500 green jobs in Malaysia.

"The implimentation of these project in KBP will help strengthen Malaysia's position as a choice destination for biotech industry development in this region.

" We will use petai belalang to fuel the biotechnology demand in KBP, the trunks can be used to make wood board while the leaves and fruits can be used as biomass-based feedstock," he said. -Bernama

Biotechnology flourishes this ye exceeding RM9b

KUALA LUMPUR: Biotechnology sector has been flourishing this year despite facing various circumstantial "winds and bumps", with the industry surpassing the RM9 million investment target for Phase 2, much earlier than targeted under the country's National Biotechnology Policy.

Malaysian Biotechnology Bhd Executive d Nazlee now in its ase, has ady rate. ost of its transfor- o a stable 2020, he

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nvestment Guat acces tax in

nd 2012, tracted a in invest- chnology ma in an junction 12, which

s market- ent sup- dynamic ent envi- nder the y Policy, ax and fis- cal incentives to biotechnology companies, said Mohd Nazlee.

This was backed by the rich environmental biodiversity and a robust information and communications technology (ICT) infrastructure, enabling the country to be in a position to drive t try's biotechnology age become one of the platf growth, he said.

"In summary, Malays ideal investment destin the biotechnology Location-wise, we are in dle of the rise of Asian and global companies which can optimise our country for businesses set in the Asia-Pacific.

"From the cost perspective, the price of liquefied petroleum gas, petrol, and diesel in Malaysia are among the cheapest in the world.

Utilisation of industrial electricity and water rates are competitive in the Southeast Asia region, he said.

Mohd Nazlee said that through the BioNexus status accorded to biotechnology companies that qualify under the Malaysian Bill of

ment and business matching between local and international participants.

BioMalaysia also provides an

Bioteknologi berkembang maju tahun ini dengan pelaburan lebih RM9b

KUALA LUMPUR: Sektor bioteknologi berkembang maju tahun ini meskipun berhadapan dengan beberapa masalah dengan mencatatkan pelaburan yang melepasi sasaran RM9 juta bagi Fasa 2, jauh lebih awal daripada yang disasarkan di bawah Dasar Bioteknologi Negara Malaysia.

Ketua Pegawai Eksekutif Malaysian Biotechnology Corporation Sdn Bhd (BiotechCorp), Datuk Dr Mohd Nazlee Kamal, berkata industri ini, yang kini berada pada fasa pengkomersialannya, berkembang pada kadar yang teguh.

Ia telah menggerakkan sebahagian besar daripada pelaburan untuk memastikan transformasi negara menjadi sebuah negara berpendapatan tinggi yang stabil menjelang 2020 tercapai, katanya.

" Pelaburan yang disasarkan bagi Fasa 2 ialah RM9 bilion. Bagaimanapun, Saya gembira menyatakan bahawa kita sesungguhnya telah melepasi sasaran pelaburan bagi Fasa 2.

"Bagi 2011 dan 2012 sahaja, kita telah berjaya menarik pelaburan berjumlah RM12.72 bilion bagi industri bioteknologi," katanya kepada Bernama dalam satu wawancara melalui emel sempena BioMalaysia 2012.

Dengan sokongan prokerajaan dan pasaran yang berterusan, Malaysia menawarkan persekitaran pelaburan yang dinamis dan agresif, terutamanya di bawah Dasar Bioteknologi Negara, yang telah menyaksikan insentif-insentif cukai dan fiskal diberikan kepada syarikat bioteknologi, kata Mohd Nazlee.

Ini disokong oleh kepelbagaian bio alam sekitar yang kaya serta prasarana teknologi maklumat dan komunikasi (ICT) yang kukuh, yang meletakkan pegara pada kedudukan yang boleh memacu agenda bioteknologi negara dan menjadi satu daripada platform bagi pertumbuhan, tegasnya. – Bernama

Kompleks penapis bio terbesar di Asia dibina di Kerteh dengan kos RM170j

MALAYSIA akan memiliki kompleks penapis bio terbesar Asia menjelang

yang pertama di Malaysia menggunakan bahan mentah cellulosic untuk menghasil-

ripada pokok akasia dan Leucaena leucocephala atau dikenali tempatan sebagai petai belalang," katanya di Terengganu, baru-baru ini.

Katanya, dengan jangkaan pelaburan langsung asing (FDI) berjumlah RM6.8 bilion, kompleks seluas 1,000 hektar itu akan dihuni lapan peserta bioteknologi perindustrian global pada 2015.

Mohd Nazlee berkata, BiotechCorp bersama dengan ECERDC giat menarik beberapa peserta bioteknologi industri global terutama dari Amerika Syarikat, Eropah dan Jepun untuk menubuhkan kemudahan pembuatan kimia berasaskan bio mereka di Kertih Biopolymer Park. — Bernama

10 syarikat status BioNexus mohon dana

BIOTECHCORP

PROGRAM pinjaman mudah baru yang dikenali sebagai Dana Pengkomersialan Bioteknologi diurus Malaysian Biotechnology Corp Sdn Bhd (BiotechCorp) akan merangsangkan lagi pertumbuhan syarikat berstatus BioNexus.

Ketua Pegawai Kewangannya, Syed Agil Syed Hashim berkata, RM61.5 juta diperuntukkan kepada syarikat BioNexus layak bagi tempoh antara 2011 dan 2013.

Beliau berkata, sebanyak 10 syarikat mengemukakan permohonan mereka bagi program itu dan menjangka lebih banyak syarikat akan berbuat demikian.

"Dana ini adalah program fasa kedua yang dilakukan BiotechCorp dalam membantu syarikat berstatus BioNexus untuk membina pernigaan mereka selepas tercapainya program Geran Pengkomersialan Bioteknologi," katanya.

Dana Pengkomersialan Bioteknologi adalah program bantuan pembayaan baru di bawah Rancangan Malaysia Kesepuluh (RMK-10) menyediakan pinjaman maksimum RM3 juta bagi setiap syarikat untuk membantu membangunkan industri bioteknologi di negara ini.

Katanya, dana itu adalah skim hibrid yang menggabungkan satu pertiga geran dan dua pertiga daripada pinjaman mudah untuk memberi kemudahan bantuan kewangan kepada syarikat BioNexus memandangkan industri itu menghadapi kesukaran untuk mendapatkan pinjaman bank.

"Kami memberikan mereka 1+6 tahun tempoh pembayaran balik. Bagi tahun pertama, kita akan memberikan mereka tempoh moratorium dan mereka boleh mula membayar pinjaman pada tahun kedua," katanya.

Syed Agil berkata, terdapat 235 syarikat berstatus BioNexus yang terdiri daripada 191 syarikat Malaysia dan baki 24 adalah milik asing. - Bernama

STATEMENT ON CORPORATE GOVERNANCE

STATEMENT ON CORPORATE GOVERNANCE

The Board of Directors of BiotechCorp is committed to instilling a corporate culture which emphasises on good corporate governance and the effective application of the principles and best practises as set out in the Malaysian Code on Corporate Governance.

The Board remains fully resolved to ensuring that integrity, transparency, accountability and professionalism are observed in the conduct of the business activities of BiotechCorp as these core values will not only safeguard the interest of its stakeholders but will also maximise the shareholder value.

A. Board of Directors

Composition and Balance

The Board currently comprises eleven (11) members. With the exception of the Chief Executive Officer, all the remaining members are non-executive directors.

A brief profile of each Director is contained in this Annual Report.

To ensure the balance of power and authority, the roles of the Chairman and the Chief Executive Officer of the Company are clearly segregated.

The non-executive directors are independent of Management and are free from any relationship that could materially affect or interfere with the exercise of their independent judgement.

There were several changes in the Board's composition during the financial year 2012. The changes are summarised in the table below:

Name	Remarks
YBhg Tan Sri Datuk Dr Ahmad Zaharudin Idrus *Director and Chairman*	Resigned on 15 May 2012
YBhg Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid *Director and Chairman*	Appointed on 15 August 2012
YBhg Datuk Wan Ahmad Shihab Ismail W Ismail *Director*	Appointed on 30 April 2012
YBhg Dato' Sri Dr Hasan Abdul Rahman *Director*	Appointed on 18 July 2012

Meetings

The Terms of Reference of the Board provides for the Board to meet at least once in every quarter with additional meetings convened as and when required. Meetings for the year are scheduled early in the year. Due notice is given for scheduled meetings and additional meetings are convened on an ad hoc basis for urgent and important matters. Where appropriate, decisions are taken by way of circular resolutions in between scheduled meetings.

The agenda for each Board meeting and papers relating to the agenda items are disseminated to all Directors prior to the meeting, in order to provide sufficient time for the Directors to review the Board papers and seek clarifications, if any.

During the financial year under review, four (4) board meetings were held.

Details of attendance of each individual Director in respect of the meetings held are disclosed below:

Name of Directors	Number of Board Meetings attended/held in 2012 (during the Directors' tenure)	
	Attended	*%*
YBhg Tan Sri Datuk Dr Ahmad Zaharudin Idrus*	2/2	100
YBhg Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid	2/2	100
YBhg Datuk Dr Madinah Mohamad	2/4	50
YBhg Dato' Dr Mohd Nazlee Kamal	4/4	100
YBhg Tan Sri Dato' Dr Jegathesan a/l N.M. Vasagam @ Manikavasagam	4/4	100
Tuan Haji Mohd. Radzi Hussein	3/4	75
Professor Dr Zainul Fadziruddin Zainuddin	3/4	75
Puan Norsimah Ab Wahab	4/4	100
Dr Radzuan A. Rahman	4/4	100
Encik Amirul Fares Wan Zahir	3/4	75
YBhg Datuk Wan Ahmad Shihab Ismail W Ismail	3/3	100
YBhg Dato' Sri Dr Hasan Abdul Rahman	1/2	50

** YBhg Tan Sri Datuk Dr Ahmad Zaharudin Idrus resigned as Chairman of the Board on 15 May 2012 and YBhg Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid was appointed as Chairman of the Board on 15 August 2012.*

Supply of Information to the Board

Board Meetings are structured with pre-set agenda. Relevant documents and papers to be tabled to the meeting are circulated in advance to ensure there is sufficient time for the Directors to obtain further information where necessary and to facilitate informed decision-making process.

All Directors have full and immediate access to information relating to the Company's business and affairs in the discharge of their duties.

Appointment and Re-election of Directors

During the period under review, the Board had approved the appointments of YBhg Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid, YBhg Datuk Wan Ahmad Shihab Ismail W Ismail and YBhg Dato' Sri Dr Hasan Abdul Rahman as Directors of the Company.

In line with the Memorandum and Articles of Association of the Company, the election of Directors takes place each year, where one-third of the Directors retire from office at each Annual General Meeting (AGM); the Directors are eligible to offer themselves for re-election.

The Articles also provide that Directors appointed in the year by the Board shall hold office until the next following AGM and shall be eligible for re-election thereat.

Board Committees

The Board of Directors had established various Board Committees and delegated certain responsibilities to these Committees including the Audit Committee (AC) and the Nomination and Remuneration Committee (NRC).

These Committees operate within clearly defined terms of reference approved by the Board.

(a) Audit Committee (AC)

The Committee's role is to review the Company's financial reporting and to ensure the effectiveness of the systems of internal control and compliance.

The AC currently comprises the following members:

(i) Tuan Haji Mohd. Radzi Hussein - Chairperson
(ii) Professor Dr Zainul Fadziruddin Zainuddin
(iii) Puan Norsimah Ab Wahab
(iv) Encik Amirul Fares Wan Zahir

The AC met four (4) times during the financial year ended 31 December 2012.

(b) Nomination and Remuneration Committee (NRC)

The Committee is primarily responsible for the following:

a) to review, evaluate and analyse all matters relating to the Company's Human Resource Policies and Procedures;

b) to review, assess and determine the Company's employee remuneration and benefits structure; and

c) to oversee the selection and appointment of Senior Management personnel of the Company.

The NRC currently comprises the following members:

(i) YBhg Professor Emeritus Dato' Sri Dr Zakri Abdul Hamid - Chairperson
(ii) Professor Dr Zainul Fadziruddin Zainuddin
(iii) YBhg Tan Sri Dato' Dr Jegathesan a/l N.M. Vasagam @ Manikavasagam

The NRC met two (2) times during the financial year ended 31 December 2012.

(c) Other Committees established by the Board, include the following:

(i) Tender Board A
(ii) Tender Board B
(iii) Programme Recommendation Committee
(iv) Programme Approval Committee
(v) Commercialisation and Technology Acquisition Grants (CTAG) Technical Committee
(vi) CTAG Approval Committee
(vii) Pre-Disbursement Committee

B. Reports to Shareholders & Investors

BiotechCorp reports the Operating Expenditure (OPEX) and Development Expenditure received from the Ministry of Science, Technology and Innovation and the Ministry of Finance based on approved deliverables and targets set by and between the Government and BiotechCorp.

The Company's website at www.biotechcorp.com.my contains vital information concerning the Group which is updated on a regular basis. Stakeholders are also able to put forth questions to the Company utilising the website.

C. Accountability and Audit

Financial Reporting

In presenting the annual financial statements to the Stakeholders, the Board aims to present a balanced and accurate assessment of BiotechCorp's position and deliverables.

The Audit Committee assists by scrutinising the information to be disclosed, to ensure accuracy and transparency.

Directors' Responsibility Statement

The Directors are required by the Companies Act, 1965 to prepare financial statements for each financial year which have been made out in accordance with the provisions of the Act and applicable approved accounting standards and thus, provide a true and fair view of the state of affairs of the Company at the end of the financial year and of the results and cash flows of the Company for the said financial year.

The Directors are satisfied that in preparing the financial statements of the Company for the financial year ended 31 December 2012, the Company had used the appropriate accounting policies and applied them consistently.

The Directors are also of the view that relevant approved accounting standards were followed in the preparation of these financial statements.

Internal Control

The Board of BiotechCorp recognises the pivotal role of a strong internal control system in keeping the Company on course towards achieving its goals and objectives.

Towards this end, the Board had established the necessary framework for an internal control system which covers the areas of risk management, financial, organisational, operations and compliance with relevant laws and regulations.

- ***Management Established Committees***

  Several committees were established by the Management to deliberate and decide on administrative, operational, corporate risks issues, management reports, KPI achievements and status of projects undertaken by divisions, departments as well as business units within the Company.

  The Committees established by the Management include:

  (i) Management Committee
  (ii) Risk Management Committee
  (iii) Operational Committee
  (iv) Human Capital Committee
  (v) Executive Council Committee

- ***Performance Review***

  The Board receives and reviews regular reports from the Management which are required to be brought to its attention for discussion, thus ensuring that it maintains full and effective supervision and exercise appropriate control.

  The Board approved Corporate Scorecard, Business Plan and Budget are closely monitored by the Management. Variances and critical operational issues are followed up and appropriate actions are undertaken to address the same.

  At the end of the financial year, the Company's performance and financial results are tabled to the Board.

- ***Internal Audit Function***

  The Internal Audit Department (IAD) is independent of the activities and operations of the Company. The duties of the Internal Auditors are performed impartially, proficiently and with professional due care.

  Overall, the IAD is responsible for advising the Company on established policies, guidelines, controls and security procedures in order to minimise risks, prevent losses and promote efficiency and effectiveness in achieving BiotechCorp's mission as entrusted under the National Biotechnology Policy.

- ***Company-wide Continuous Process Improvement Initiatives***

  Quality Management System – ISO 9001:2008

  The QMS initiative aims at providing support, facilitation and advisory services to nurture and develop biotechnology companies in Malaysia through delivery of high quality and customer-oriented services as well as efficient work processes which are continuously reviewed and improved.

  BiotechCorp successfully passed the Recertification Audit conducted by Moody International in July 2012 with no major or minor non-conformances reported.

  Business Continuity Plan and Crisis Simulation Exercise

  The Business Continuity Plan (BCP) serves as a structured framework which sets out the planning methodology to ensure that any disruption to the operations of the business units, as a result of any eventualities, is kept at a minimum therefore building business resiliency. The BCP is intended to prepare the Company to manage recovery operations in the event of any disaster.

  A crisis simulation exercise was conducted on 30 August 2012 to test the established plans. Continual improvement and documentation review of the BCP are carried out to ensure that these plans remain effective and relevant.

  Records Management System based on ISO15489:2001 and Document Management System

  In an effort to mitigate business and operational risks, the Records Management System (RMS) based on ISO15489:2001 Standard was initiated in 2010. RMS is an expansion of the scope of the Quality Management System ISO9001:2008's Control of Records Procedure.

  A Record Management Policy (RM Policy) was established in the first phase of the RMS project. During the implementation stage, Paradigm 3 and Document Management System (DMS) were integrated into the RMS.

  Paradigm 3, an IT integrated system, facilitates the establishment of a centralised corporate document and records system to provide an effective storage management and expeditious retrieval process. For the purpose of Paradigm 3, records were identified and classified into four depending on its security level, namely Highly Confidential, Confidential, Restricted and Public.

  BiotechCorp had engaged NOVO Quality Services Sdn Bhd to conduct an internal audit in October 2012 to ensure continuous compliance of the Record Management System Requirements.

D. Relationship with External Auditors

The Company maintains a transparent and appropriate relationship with the External Auditors.

Where necessary, the External Auditors' advice are sought to ensure that the Company complies with applicable accounting standards and all statutory requirements.

The External Auditors are invited to attend meetings to deliberate on audit plans and annual financial results and to make necessary recommendations for the Board's consideration.

FINANCIAL STATEMENTS

FINANCIAL STATEMENTS

MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.
(Incorporated in Malaysia)

DIRECTORS' REPORT

The directors of MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD. hereby submit their report and the audited financial statements of the Group and of the Company for the year ended 31 December 2012.

PRINCIPAL ACTIVITIES

The Company is principally engaged to act as a dedicated and professional one-stop agency for the government in developing biotechnology industry in the country whilst the principal activities of the subsidiaries are as stated in Note 9 to the Financial Statements. There have been no significant changes in the nature of these principal activities during the year.

RESULTS OF OPERATIONS

The results of operations of the Group and of the Company for the financial year are as follows:

	Group RM	Company RM
Net (loss)/profit for the year	(3,192,294)	3,306,687

In the opinion of the directors, the results of operations of the Group and of the Company during the financial year have not been substantially affected by any item, transaction or event of a material and unusual nature.

DIVIDENDS

No dividend has been paid or declared by the Company since the end of the previous financial year. The directors do not recommend any dividend payment in respect of the current financial year.

RESERVES AND PROVISIONS

There were no material transfers to or from reserves or provisions during the financial year.

ISSUE OF SHARES AND DEBENTURES

The Company has not issued any new shares or debentures during the financial year.

SHARE OPTIONS

No options have been granted by the Company to any parties during the financial year to take up unissued shares of the Company.

OTHER STATUTORY INFORMATION

Before the income statements and balance sheets of the Group and of the Company were made out, the directors took reasonable steps:

(a) to ascertain that proper action had been taken in relation to the writing off of bad debts and the making of allowance for doubtful debts, and had satisfied themselves that there were no known bad debts to be written off and that adequate provision had been made for doubtful debts; and

(b) to ensure that any current assets which were unlikely to realise their book values in the ordinary course of business had been written down to their estimated realisable values.

As of the date of this report, the directors are not aware of any circumstances:

(a) which would require the writing off of bad debts or render the amount of the allowance for doubtful debts in the financial statements of the Group and of the Company inadequate to any substantial extent; or

(b) which would render the values attributed to the current assets in the financial statements of the Group and of the Company misleading; or

(c) which have arisen which render adherence to the existing method of valuation of assets or liabilities of the Group and of the Company misleading or inappropriate; or

(d) not otherwise dealt with in this report or financial statements which would render any amount stated in the financial statements of the Group and of the Company misleading.

At the date of this report, there does not exist:

(a) any charge on the assets of the Group or of the Company that has arisen since the end of the financial year and which secures the liabilities of any other person; or

(b) any contingent liability in respect of the Group or of the Company that has arisen since the end of the financial year.

No contingent liability or other liability of any company in the Group has become enforceable, or is likely to become enforceable within the period of twelve months after the end of the financial year which, in the opinion of the directors, will or may substantially affect the ability of the Group and of the Company to meet their obligations as and when they fall due.

In the opinion of the directors, no item, transaction or event of a material and unusual nature has arisen in the interval between the end of the financial year and the date of this report which is likely to affect substantially the results of operations of the Group and of the Company for the succeeding financial year.

DIRECTORS

The following directors served on the Board of the Company for this year:

Dato' Dr Madinah binti Mohamad
Dato' Dr Mohd Nazlee bin Kamal
Tan Sri Dato' Dr Jegathesan A/L N.M. Vasagam @ Manikavasagam
Prof Dr Zainul Fadziruddin bin Zainuddin
Dr Radzuan bin A. Rahman
Mohd. Radzi bin Hussein
Norsimah binti Ab Wahab
Amirul Fares bin Wan Zahir
Datuk Wan Ahmad Shihab Ismail bin W Ismail
Professor Emeritus Dato' Sri Dr Zakri bin Abdul Hamid (appointed on 15 August 2012)
Dato' Sri Dr Hasan bin Abdul Rahman (appointed on 18 July 2012)
Tan Sri Datuk Dr Ahmad Zaharudin bin Idrus (resigned on 15 May 2012)

DIRECTORS' INTERESTS

None of the directors in office at the end of the financial year held shares or had beneficial interest in the shares of the Company during and at the end of the financial year.

DIRECTORS' BENEFITS

Since the end of the previous financial year, none of the directors of the Company has received or become entitled to receive any benefit (other than the benefit included in the aggregate amount of emoluments received or due and receivable by the directors as shown in the financial statements or the fixed salary of a full time employee of the Company) by reason of a contract made by the Company with the director or with a firm of which he or she is a member, or with a company in which he or she has a substantial financial interest.

During and at the end of the financial year, no arrangement subsisted to which the Company was a party whereby directors of the Company might acquire benefits by means of the acquisition of shares in, or debentures of, the Company or any other body corporate.

HOLDING CORPORATION

The Company is a subsidiary company of Minister of Finance (Incorporated), a body corporate incorporated pursuant to the Minister of Finance (Incorporation) Act, 1957 (Revised 1989).

AUDITORS

The auditors, Messrs. Deloitte KassimChan, have indicated their willingness to continue in office.

Signed on behalf of the Board
in accordance with a resolution of the Directors,

PROFESSOR EMERITUS DATO' SRI DR ZAKRI ABDUL HAMID

DATO' DR MOHD NAZLEE BIN KAMAL

Kuala Lumpur
2 April 2013

INDEPENDENT AUDITORS' REPORT TO THE MEMBERS OF MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.
(Incorporated in Malaysia)

Report on the Financial Statements

We have audited the financial statements of MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD., which comprise the balance sheets of the Group and of the Company as of 31 December 2012 and the income statements, statements of changes in equity and cash flow statements for the year then ended, and a summary of significant accounting policies and other explanatory information, as set out on page 115 to 141.

Directors' Responsibility for the Financial Statements

The directors of the Company are responsible for the preparation of this financial statements so as to give a true and fair view in accordance with Private Entity Reporting Standards and the Companies Act, 1965 in Malaysia. The directors are also responsible for such internal control as the directors determine its necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with approved standards on auditing in Malaysia. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the entity's preparation of financial statements that give a true and fair view in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence that we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements give a true and fair view of the financial positions of the Group and of the Company as of 31 December 2012 and their financial performance and cash flows for the year then ended in accordance with Private Entity Reporting Standards and the requirements of the Company Act, 1965 in Malaysia.

(Forward)

Report on Other Legal and Regulatory Requirements

In accordance with the requirements of the Companies Act, 1965 in Malaysia, we also report that:

(a) in our opinion, the accounting and other records and the registers required by the Act to be kept by the Company and its subsidiaries have been properly kept in accordance with the provisions of the Act;

(b) we are satisfied that the accounts of the subsidiaries that have been consolidated with the financial statements of the Company are in the form and content appropriate and proper for the purposes of the preparation of the financial statements of the Group, and we have received satisfactory information and explanations as required by us for these purposes; and

(c) the auditors' report on the accounts of the subsidiaries were not subject to any qualification and did not include any comment made under of Section 174(3) of the Act.

Other Matters

This report is made solely to the members of the Company, as a body, in accordance with Section 174 of the Companies Act, 1965 in Malaysia and for no other purpose. We do not assume responsibility towards any other person for the contents of this report.

DELOITTE KASSIMCHAN
AF 0080
Chartered Accountants

KAMARUL BAHARIN BIN TENGKU ZAINAL ABIDIN
Partner - 2903/11/13 (J)
Chartered Accountant

2 April 2013

MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.
(Incorporated in Malaysia)
AND ITS SUBSIDIARIES

INCOME STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2012

	Note	Group 2012 RM	Group 2011 RM	Company 2012 RM	Company 2011 RM
Other operating income		47,065,765	49,278,354	48,235,887	48,859,923
Staff costs	4	(29,537,482)	(27,182,055)	(25,174,090)	(22,255,147)
Promotion and corporate communication expenses		(9,382,287)	(7,489,580)	(8,536,669)	(6,498,488)
Administrative expenses		(10,382,507)	(9,680,400)	(8,287,285)	(7,967,880)
Depreciation of property, plant and equipment	7	(1,518,525)	(2,109,959)	(1,396,041)	(2,069,742)
Other operating expenses		(3,748,744)	(3,280,129)	(1,532,863)	(1,969,632)
(Loss)/Profit from operations		(7,503,780)	(463,769)	3,308,939	8,099,034
Interest expense		(2,252)	(6,665)	(2,252)	(6,665)
(Loss)/Profit before tax	5	(7,506,032)	(470,434)	3,306,687	8,092,369
Tax expense	6	-	-	-	-
Net (loss)/profit after tax		(7,506,032)	(470,434)	3,306,687	8,092,369
Minority interests		4,313,738	3,304,066	-	-
Net (loss)/profit for the year		(3,192,294)	2,833,632	3,306,687	8,092,369

The accompanying Notes form an integral part of the Financial Statements.

MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.
(Incorporated in Malaysia)
AND ITS SUBSIDIARIES

BALANCE SHEETS
AS OF 31 DECEMBER 2012

	Note	Group 2012 RM	Group 2011 RM	Company 2012 RM	Company 2011 RM
ASSETS					
Non-Current Assets					
Property, plant and equipment	7	207,419,633	93,428,013	2,227,158	3,106,773
Technology platform assets	8	40,803,919	45,100,285	40,803,919	45,100,285
Investment in subsidiaries	9	-	-	4	4
Total Non-Current Assets		248,223,552	138,528,298	43,031,081	48,207,062
Current Assets					
Other receivables, deposits and prepayments	10	2,720,342	8,973,660	132,820,304	115,983,497
Cash and bank balances	11	127,254,418	209,328,388	122,032,452	155,759,186
Total Current Assets		129,974,760	218,302,048	254,852,756	271,742,683
Total Assets		378,198,312	356,830,346	297,883,837	319,949,745
EQUITY AND LIABILITIES					
Capital and Reserves					
Share capital	12	95,000,002	95,000,002	95,000,002	95,000,002
Accumulated losses		(22,404,880)	(19,212,586)	(10,737,689)	(14,044,376)
		72,595,122	75,787,416	84,262,313	80,955,626
Minority interests		58,131,115	39,736,066	-	-
Total Equity		130,726,237	115,523,482	84,262,313	80,955,626

(Forward)

	Note	Group 2012 RM	Group 2011 RM	Company 2012 RM	Company 2011 RM
Non-Current Liabilities					
Deferred income	13	195,369,817	196,035,996	195,369,817	196,035,996
Hire-purchase payables	14	-	11,083	-	11,083
Total Non-Current Liabilities		195,369,817	196,047,079	195,369,817	196,047,079
Current Liabilities					
Other payables and accruals	15	52,091,175	45,240,785	18,240,624	42,928,040
Hire-purchase payables - current portion	14	11,083	19,000	11,083	19,000
Total Current Liabilities		52,102,258	45,259,785	18,251,707	42,947,040
Total Liabilities		247,472,075	241,306,864	213,621,524	238,994,119
Total Equity and Liabilities		378,198,312	356,830,346	297,883,837	319,949,745

The accompanying Notes form an integral part of the Financial Statements.

MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.
(Incorporated in Malaysia)
AND ITS SUBSIDIARIES

STATEMENTS OF CHANGES IN EQUITY
FOR THE YEAR ENDED 31 DECEMBER 2012

Group	*Attributable to shareholders of the Company* Share Capital RM	Accumulated Losses RM	Total RM	Minority Interest RM	Total Equity RM
At 1 January 2011	95,000,002	(22,046,218)	72,953,784	35,550,132	108,503,916
Subscription of shares by minority shareholder	-	-	-	7,490,000	7,490,000
Net profit/(loss) for the year	-	2,833,632	2,833,632	(3,304,066)	(470,434)
At 31 December 2011/ 1 January 2012	95,000,002	(19,212,586)	75,787,416	39,736,066	115,523,482
Subscription of shares by minority shareholder	-	-	-	22,708,787	22,708,787
Net loss for the year	-	(3,192,294)	(3,192,294)	(4,313,738)	(7,506,032)
At 31 December 2012	95,000,002	(22,404,880)	72,595,122	58,131,115	130,726,237

Company	Share Capital RM	Accumulated Losses RM	Total Equity RM
At 1 January 2011	95,000,002	(22,136,745)	72,863,257
Net profit for the year	-	8,092,369	8,092,369
At 31 December 2011/1 January 2012	95,000,002	(14,044,376)	80,955,626
Net profit for the year	-	3,306,687	3,306,687
At 31 December 2012	95,000,002	(10,737,689)	84,262,313

The accompanying Notes form an integral part of the Financial Statements.

MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.
(Incorporated in Malaysia)
AND ITS SUBSIDIARIES

CASH FLOW STATEMENTS
FOR THE YEAR ENDED 31 DECEMBER 2012

	Group		Company	
	2012 RM	2011 RM	2012 RM	2011 RM
CASH FLOWS FROM OPERATING ACTIVITIES				
Net (loss)/profit after tax	(7,506,032)	(470,434)	3,306,687	8,092,369
Adjustments for:				
Depreciation of property, plant and equipment	1,518,525	2,109,959	1,396,041	2,069,742
Amortisation of technology platform assets	4,864,725	1,763,367	4,864,725	1,763,367
Allowance for doubtful debts	-	177,788	-	177,788
Interest expense	2,252	6,665	2,252	6,665
Bad debts written off	-	4,333	-	4,333
Amortisation of government grants	(49,899,172)	(48,413,134)	(49,899,172)	(48,413,134)
Interest income	(5,149,526)	(13,043,594)	(4,705,055)	(10,484,165)
Interest income on intercompany loan	-	-	(1,616,886)	(2,151,698)
Gain on disposal of property, plant and equipment	(109,865)	-	(109,865)	-
Provision for accumulating compensated absences	(6,708)	(34,617)	(6,708)	(34,617)
Operating loss before working capital changes	(56,285,801)	(57,899,667)	(46,767,981)	(48,969,350)
Changes in working capital:				
Other receivables, deposits and prepayments	(617,788)	13,618,583	(297,204)	13,855,730
Other payables and accruals	30,388,913	(1,195,666)	(1,148,894)	(3,502,410)
Cash Used In Operations	(26,514,676)	(45,476,750)	(48,214,079)	(38,616,030)
Tax paid	-	(32,745)	-	-
Net Cash Used In Operating Activities	(26,514,676)	(45,509,495)	(48,214,079)	(38,616,030)

(Forward)

	Group		Company	
	2012 RM	2011 RM	2012 RM	2011 RM
CASH FLOWS FROM INVESTING ACTIVITIES				
Purchase of property, plant and equipment	(115,510,162)	(51,314,977)	(516,443)	(1,505,360)
Proceeds from disposal of property, plant and equipment	109,882	-	109,882	-
Acquisition of technology licenses and equipment	(568,359)	(13,379,639)	(568,359)	(13,379,639)
Interest received	5,107,923	8,737,238	4,602,981	6,068,089
Acquisition of shares in a subsidiary	-	-	-	(2)
Advances to subsidiaries	-	-	(21,733,351)	(1,336,019)
Net Cash Used In Investing Activities	(110,860,716)	(55,957,378)	(18,105,290)	(10,152,931)
CASH FLOWS FROM FINANCING ACTIVITIES				
Developmental government grants received	10,000,000	5,000,000	10,000,000	5,000,000
Non-developmental government grants received	40,565,708	26,587,292	40,565,708	26,587,292
Developmental grants disbursed	(17,951,821)	(41,712,685)	(17,951,821)	(41,712,685)
Hire-purchase repayments	(19,000)	(43,488)	(19,000)	(43,488)
Interest paid	(2,252)	(6,665)	(2,252)	(6,665)
Subscription of ordinary shares by minority shareholder	8,869,000	7,490,000	-	-
Subscription of Redeemable Convertible Preference Shares ("RCPS") by minority shareholder	13,839,787	-	-	-
Net Cash From/(Used In) Financing Activities	55,301,422	(2,685,546)	32,592,635	(10,175,546)

(Forward)

	Note	Group 2012 RM	Group 2011 RM	Company 2012 RM	Company 2011 RM
NET DECREASE IN CASH AND CASH EQUIVALENTS		(82,073,970)	(104,152,419)	(33,726,734)	(58,944,507)
CASH AND CASH EQUIVALENTS AT BEGINNING OF YEAR		209,328,388	313,480,807	155,759,186	214,703,693
CASH AND CASH EQUIVALENTS AT END OF YEAR	11	127,254,418	209,328,388	122,032,452	155,759,186

The accompanying Notes form an integral part of the Financial Statements.

MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.
(Incorporated in Malaysia)
AND ITS SUBSIDIARIES

NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2012

1. GENERAL INFORMATION

The Company is a private limited liability company, incorporated and domiciled in Malaysia.

The Company is principally engaged to act as a dedicated and professional one-stop agency for the government in developing biotechnology industry in the country whilst the principal activities of the subsidiaries are as stated in Note 9. There have been no significant changes in the nature of these principal activities during the year.

The total number of employees of the Group and of the Company at year end were 207 (2011: 207) and 172 (2011: 172) respectively.

The registered office and principal place of business of the Company is located at Level 23, Menara Atlan, 161B, Jalan Ampang, 50450 Kuala Lumpur.

The financial statements of the Group and of the Company have been authorised by the Board of Directors for issuance on 2 April 2013.

2. BASIS OF PREPARATION OF THE FINANCIAL STATEMENTS

The financial statements of the Group and of the Company have been prepared in accordance with the provisions of the Companies Act, 1965 and Private Entity Reporting Standards in Malaysia.

3. SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

The financial statements of the Group and of the Company have been prepared under the historical cost convention.

Basis of Consolidation

Subsidiaries

Subsidiaries are entities, including unincorporated entities, controlled by the Group. Control exists when the Group has the ability to exercise its power to govern the financial and operating policies of an entity so as to obtain benefits from its activities. In assessing control, potential voting rights that presently are exercisable are taken into account. Subsidiaries are consolidated using the purchase method of accounting.

Under the purchase method of accounting, the financial statements of subsidiaries are included in the consolidated financial statements from the date that control commences until the date that control ceases.

Investments in subsidiaries are stated in the Company's balance sheets at cost less any impairment losses.

Minority interest

Minority interest at the balance sheets date, being the portion of the net identifiable assets (excluding goodwill) of subsidiaries attributable to equity interests that are not owned by the Company, whether directly or indirectly through subsidiaries, are presented in the consolidated balance sheet and statement of changes in equity within equity, separately from equity attributable to the equity shareholders of the Company. Minority interest in the results of the Group are presented on the face of the consolidated income statement as an allocation of the total profit or loss for the year between minority interest and the equity shareholders of the Company.

Where losses applicable to the minority exceed the minority's interest in the equity of a subsidiary, the excess, and any further losses applicable to the minority, are charged against the Group's interest except to the extent that the minority has a binding obligation to, and is able to, make additional investment to cover the losses. If the subsidiary subsequently reports profits, the Group's interest is allocated with all such profits until the minority's share of losses previously absorbed by the Group has been recovered.

Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealised income and expenses arising from intra-group transactions, are eliminated in preparing the consolidated financial statements.

Foreign Currency Conversion

Transactions in foreign currencies are converted into Ringgit Malaysia at the exchange rates prevailing at the transaction dates. Foreign currency assets and liabilities at financial year-end are converted into Ringgit Malaysia at the exchange rates prevailing at the balance sheet date. All foreign exchange gains or losses are taken up in the income statements.

The principal closing rates used in the translation of foreign currency amounts are as follows:

	2012 RM	2011 RM
1 United States Dollar	3.10	3.17
1 Euro	4.10	4.11
1 Canadian Dollar	3.11	3.10

Income Tax

Income tax comprises current and deferred tax. Current tax is the expected amount of income taxes payable in respect of the taxable profit for the year and is measured using the tax rates that have been enacted or substantively enacted by the balance sheet date.

Deferred tax is provided for, using the 'liability' method, on temporary differences at the balance sheet date between the tax bases of assets and liabilities and their carrying amounts in the financial statements. In principle, deferred tax liabilities are recognised for all taxable temporary differences and deferred tax assets are recognised for all deductible temporary differences, unused tax losses and unused tax credits to the extent that it is probable that future taxable profits will be available against which the deductible temporary differences, unused tax losses and unused tax credits can be utilised. Deferred tax is not recognised if the temporary difference arises from goodwill or from the initial recognition of an asset or liability in a transaction which is not a business combination and at the time of the transaction, affects neither the accounting profit nor taxable profit.

The carrying amount of deferred tax assets, if any, is reviewed at each balance sheet date and reduced to the extent that it is no longer probable that sufficient future taxable profit will be available to allow all or part of the asset to be recovered.

Deferred tax is measured at the tax rates that are expected to apply in the year when the asset is realised or the liability settled, based on tax rates that have been enacted or substantively enacted by the balance sheet date. Deferred tax is recognised in the income statements, except when it arises from a transaction which is recognised directly in equity, in which case the deferred tax is also charged or credited directly in equity, or when it arises from a business combination that is an acquisition, in which case the deferred tax is included in the resulting goodwill.

Impairment of Assets

At each balance sheet date, the Group reviews the carrying amounts of its non-current assets to determine whether there is any indication that those assets have suffered an impairment loss. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent of the impairment loss (if any). Where it is not possible to estimate the recoverable amount of an individual asset, the Group estimates the recoverable amount of the cash-generating unit to which the asset belongs.

Recoverable amount is the higher net selling price 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 pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset.

If the recoverable amount of an asset (or cash-generating unit) is estimated to be less than its carrying amount, the carrying amount of the asset (or cash-generating unit) is reduced to its recoverable amount. An impairment loss is recognised immediately in the income statements.

Where an impairment loss subsequently reverses, the carrying amount of the asset (or cash-generating unit) is increased to the revised estimate of its recoverable amount, but the increased carrying amount should not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset (or cash-generating unit) in prior years. A reversal of an impairment loss is recognised immediately in the income statements.

Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation and any impairment losses.

Depreciation of property, plant and equipment, other than freehold land, construction and other work in-progress which are not depreciated, is computed on the straight-line method at the following annual rates based on the estimated useful lives of the various assets:

Office equipment	20%
Computer equipment	33 1/3%
Furniture and fittings	20%
Motor vehicles	20%
Renovation	20%

Properties in the course of construction are carried at cost, less any impairment loss. Cost includes professional fees and any incidental expenditure that is directly attributable to the assets. Freehold land and property, plant and equipment under construction are not depreciated.

The residual value, estimated useful life and depreciation method of property, plant and equipment are reviewed at each balance sheet date and, if expectations differ from previous estimates, the changes will be accounted for as a change in an accounting estimate.

Gain or loss arising from the disposal of an asset is determined as the difference between the net disposal proceeds and the carrying amount of the asset, and is recognised in the income statements.

Assets Acquired Under Hire-Purchase Arrangements

Assets acquired under hire-purchase arrangements are capitalised in the financial statements and the corresponding obligations are treated as liabilities. Finance charges are allocated to the income statements to give a constant periodic rate of interest on the remaining hire-purchase liabilities.

Technology Platform Assets

Patent and licenses

Patent, licenses and other similar purchased rights of technology platform are recognised as intangible assets if it is probable that the future economic benefits that are attributable to such assets will flow to the Company and the cost of such assets can be reliably measured.

Intangible asset is stated at cost less accumulated amortisation and impairment losses.

Subsequent expenditure on capitalised intangible assets is capitalised only when it increases the future economic benefits embodied in the specific asset to which it relates. All other expenditures are expensed as incurred.

Amortisation is charged to the income statements on a straight-line basis over the estimated useful lives of intangible assets unless such lives are indefinite. Intangible assets are amortised from the date that they are available for use. The estimated useful lives of the intangible assets are determined based on the estimated life span of the patent, licences or rights of the technology platform. The estimated useful lives for the current financial year is between 5 to 25 years.

Amortisation methods, useful lives and residual values are reviewed at the balance sheet date and adjusted, if appropriate.

Technology platform equipment

Technology platform equipment are stated at cost less accumulated amortisation and any impairment losses.

Amortisation of technology platform equipment is computed on the straight-line method for a period of 5 years based on the estimated useful lives of the equipment.

Employee Benefits

(i) Short term employee benefits

Wages, salaries, bonuses and social security contributions are recognised as an expense in the year in which the associated services are rendered by employees of the Company. Short term accumulating compensated absences such as paid annual leaves are recognised when services are rendered by employees that increase their entitlement to future compensated absences.

(ii) Defined contribution plan

As required by law, companies in Malaysia make contributions to the Employees Provident Fund ("EPF"). Such contributions are recognised as an expense in the income statements as incurred.

Other receivables, deposits and prepayments

Other receivables, deposits and prepayments are stated at cost net of allowance for doubtful debts.

Liabilities and provision

Other payables and accruals are recognised at the cost of the consideration to be paid for goods and services received.

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

Cash Flow Statements

The Group and the Company adopt the indirect method in the preparation of the cash flow statements.

Cash equivalents are short-term, highly liquid investments that are readily convertible to cash with insignificant risks of changes in value.

Cash and cash equivalents

Cash and cash equivalents consist of cash in hand, balances and deposits with licensed financial institutions.

Income

(i) Services

Income from services rendered is recognised net of discounts in the income statements as and when services are performed.

(ii) Interest income

Interest income is recognised in the income statements as and when there is reasonable assurance that it will be received.

Expenses

Operating lease payments

Payments made under operating leases are recognised in the income statements on a straight-line basis over the term of the lease. Lease incentives received are recognised in the income statement as an integral part of the total lease payments made.

Government grants

Government grant is recognised initially as deferred income when there is reasonable assurance that it will be received and that the Company will comply with the conditions associated with the grant. Grants that compensate the Company for expenses incurred are recognised in the income statements over the period necessary to match them with the related costs that they are intended to compensate. Grants that compensate the Company for the cost of an asset are recognised in the income statements on a systematic basis over the useful life of the asset.

4. STAFF COSTS

	Group		Company	
	2012 RM	2011 RM	2012 RM	2011 RM
Directors' remuneration:				
Other emoluments	1,519,017	1,411,125	1,014,398	888,748
Employees Provident Fund	177,710	251,138	104,360	137,925
Salaries and other staff costs	24,395,998	22,407,287	21,081,268	18,581,755
Employees Provident Fund	3,451,465	3,147,122	2,980,772	2,681,336
Provision for accumulating compensated absences	(6,708)	(34,617)	(6,708)	(34,617)
	29,537,482	27,182,055	25,174,090	22,255,147

5. (LOSS)/PROFIT BEFORE TAX

(Loss)/Profit before tax is arrived at after (charging)/crediting the followings:

	Note	Group		Company	
		2012 RM	2011 RM	2012 RM	2011 RM
Audit fee		(34,000)	(31,000)	(20,000)	(20,000)
Rental of premises		(3,560,412)	(3,607,802)	(3,094,769)	(3,148,909)
Amortisation of technology platform assets	8	(4,864,725)	(1,763,367)	(4,864,725)	(1,763,367)
Lease rental		(319,810)	(320,062)	(251,571)	(275,850)
Allowance for doubtful debts		-	(177,778)	-	(177,788)
Interest expense		(2,252)	(6,665)	(2,252)	(6,665)
Bad debts written off		-	(4,333)	-	(4,333)
Interest income on:					
Fixed deposits		5,149,526	13,043,594	4,705,055	10,484,165
Amount due from subsidiary	10	-	-	1,616,886	2,151,698
Gain on disposal of property, plant and equipment		109,865	-	109,865	-

(Forward)

	Note	Group 2012 RM	Group 2011 RM	Company 2012 RM	Company 2011 RM
Amortisation of developmental grants	13	8,571,675	12,836,100	8,571,675	12,836,100
Amortisation of non-developmental grants	13	41,327,497	35,577,034	41,327,497	35,577,034
Realised gain on foreign exchange		-	590,836	-	590,836

6. TAX EXPENSE

	Group 2012 RM	Group 2011 RM	Company 2012 RM	Company 2011 RM
Estimated current year tax payable	-	-	-	-

The total charge for the year can be reconciled to the accounting profit as follows:

	Group 2012 RM	Group 2011 RM	Company 2012 RM	Company 2011 RM
(Loss)/Profit before tax	(7,506,032)	(470,434)	3,306,687	8,092,369
Tax at statutory tax rate of 25%	(1,876,508)	(117,608)	826,672	2,023,092
Tax effects of:				
Expenses not deductible for tax purposes	71,465	29,285	71,465	-
Income not taxable for tax purpose	(1,093,801)	(1,930,662)	(913,758)	(2,006,321)
Realisation of deferred tax previously not recognised	-	-	-	(16,771)
Deferred tax assets not recognised	2,898,844	2,018,985	15,621	-
Tax expense for the year	-	-	-	-

The Company has been granted a tax exemption on its statutory income under subsection 127 (3A) Income Tax Act 1967 (for all sources of income except for dividend income) for the period of 5 years commencing from year of assessment 2006 to 2011. In previous financial year, the Company has been granted an extension for the period of 5 years commencing from year of assessment 2011 to 2015.

No deferred tax assets have been recognised for the following items:

	Group 2012 RM	Group 2011 RM	Company 2012 RM	Company 2011 RM
Temporary differences arising from property, plant and equipment	17,072	(84,351)	17,072	(84,351)
Unutilised tax losses	48,897,913	37,365,018	30,362,673	30,362,673
Unutilised capital allowance	2,718,925	2,757,864	2,718,925	2,757,864
	51,633,910	40,038,531	33,098,670	33,036,186

The unutilised tax losses, unutilised capital allowance and deductible temporary differences do not expire under current tax legislation. Deferred tax assets have not been recognised in respect of these items because it is not probable that future taxable profits will be available against which the Group and the Company can utilise the benefits.

7. PROPERTY, PLANT AND EQUIPMENT

Group

Cost	Freehold Land RM	Office equipment RM	Computer equipment RM	Furniture and fittings RM	Motor vehicles RM	Renovation RM	Construction and other work-in progress RM	Total RM
As of 1 January 2011	36,524,927	1,187,245	9,028,647	2,216,134	813,889	-	9,923,137	59,693,979
Additions	5,469,649	89,677	1,026,179	263,293	-	286,091	44,180,088	51,314,977
Reclassification	-	-	22,000	-	-	-	(22,000)	-
Transfer to Technology Platform Assets (Note 8)	-	-	-	-	-	-	(5,849,684)	(5,849,684)
As of 31 December 2011/ 1 January 2012	41,994,576	1,276,922	10,076,826	2,479,427	813,889	286,091	48,231,541	105,159,272
Additions	15,257,000	31,978	249,877	192,090	296,264	-	99,482,953	115,510,162
Disposals	-	(650)	(86,206)	(20,700)	(556,955)	-	-	(664,511)
As of 31 December 2012	57,251,576	1,308,250	10,240,497	2,650,817	553,198	286,091	147,714,494	220,005,923
Accumulated Depreciation								
As of 1 January 2011	-	778,465	6,963,911	1,255,358	623,566	-	-	9,621,300
Charge for the year	-	154,962	1,532,027	318,198	75,969	28,803	-	2,109,959
As of 31 December 2011/ 1 January 2012	-	933,427	8,495,938	1,573,556	699,535	28,803	-	11,731,259
Charge for the year	-	137,848	952,706	282,428	88,167	57,376	-	1,518,525
Disposals	-	(649)	(86,197)	(20,698)	(556,950)	-	-	(664,494)
As of 31 December 2012	-	1,070,626	9,362,447	1,835,286	230,752	86,179	-	12,585,290
Net Book Value								
As of 31 December 2012	57,251,576	237,624	878,050	815,531	322,446	199,912	147,714,494	207,419,633
As of 31 December 2011	41,994,576	343,495	1,580,888	905,871	114,354	257,288	48,231,541	93,428,013

(Forward)

Company

Cost	Office equipment RM	Computer equipment RM	Furniture and fittings RM	Motor vehicles RM	Work-in progress RM	Total RM
As of 1 January 2011	1,187,245	9,028,647	2,216,134	813,889	5,896,224	19,142,139
Additions	76,773	1,023,804	213,383	-	191,400	1,505,360
Reclassification	-	22,000	-	-	(22,000)	-
Transfer to Technology Platform Assets (Note 8)	-	-	-	-	(5,849,684)	(5,849,684)
As of 31 December 2011/ 1 January 2012	1,264,018	10,074,451	2,429,517	813,889	215,940	14,797,815
Additions	26,070	144,875	190,390	155,108	-	516,443
Disposals	(650)	(86,206)	(20,700)	(556,955)	-	(664,511)
As of 31 December 2012	1,289,438	10,133,120	2,599,207	412,042	215,940	14,649,747
Accumulated Depreciation						
As of 1 January 2011	778,465	6,963,911	1,255,358	623,566	-	9,621,300
Charge for the year	153,926	1,531,540	308,307	75,969	-	2,069,742
As of 31 December 2011/ 1 January 2012	932,391	8,495,451	1,563,665	699,535	-	11,691,042
Charge for the year	134,639	929,070	265,435	66,897	-	1,396,041
Disposals	(649)	(86,197)	(20,698)	(556,950)	-	(664,494)
As of 31 December 2012	1,066,381	9,338,324	1,808,402	209,482	-	12,422,589
Net Book Value						
As of 31 December 2012	223,057	794,796	790,805	202,560	215,940	2,227,158
As of 31 December 2011	331,627	1,579,000	865,852	114,354	215,940	3,106,773

As at 31 December 2012, the net book value of motor vehicles of the Group and of the Company that were acquired by means of hire-purchase arrangements is RM9,191 (2011: RM31,254).

Included in property, plant and equipment of the Group and the Company are fully depreciated assets, which are still in use, with cost amounting to RM9,861,201 (2011: RM8,942,443).

8. TECHNOLOGY PLATFORM ASSETS

	Group and Company	
	2012 RM	2011 RM
(a) Technology patent and licenses		
Technology patent and licenses, at cost	31,228,394	30,660,035
As of 1 January	28,663,959	24,957,281
Additions	568,359	4,912,853
	29,232,318	29,870,134
Less: Amortisation to income statements	(2,635,958)	(1,206,175)
As of 31 December	26,596,360	28,663,959
(b) Technology platform equipment		
Technology platform equipment, at cost	16,993,518	16,993,518
As of 1 January	16,436,326	-
Additions	-	11,143,834
Transfer from property, plant and equipment (Note 7)	-	5,849,684
	16,436,326	16,993,518
Less: Amortisation to income statements	(2,228,767)	(557,192)
As of 31 December	14,207,559	16,436,326
Total Technology Platform Assets	40,803,919	45,100,285

Technology platform assets comprises patent, licenses and equipments acquired under the 9th Malaysia Plan ("RMK-9") program under the Biotechnology Acquisition Program. The completion of the various technologies is based on the fulfillment of specific terms and conditions as stated under the individual agreement. Technology platform assets are amortised on a straight line basis over its estimated useful lives when the asset is available for use.

9. INVESTMENT IN SUBSIDIARIES

	Company	
	2012 RM	2011 RM
Unquoted shares, at cost	4	4

Details of the subsidiary companies are as follows:

Name of Subsidiary	Country of incorporation	Effective equity interest 2012 %	Effective equity interest 2011 %	Principal activity
BiotechCorp Investment Holdings Sdn. Bhd.	Malaysia	100	100	Investment holding
BiotechCorp Technology Management Sdn. Bhd.	Malaysia	100	100	Investment holding
Subsidiary of BiotechCorp Investment Holdings Sdn. Bhd.				
Malaysian Bio-XCell Sdn. Bhd.	Malaysia	60	60	Development and operation of biotechnology park
Subsidiaries of BiotechCorp Technology Management Sdn. Bhd.				
BiotechCorp Nanotech Solutions Sdn. Bhd.	Malaysia	100	100	Commercialisation of Nanotechnology platform in non-cancer applications
BiotechCorp Diagnostic Solutions Sdn. Bhd	Malaysia	100	100	Commercialisation of DotScan™ antibody microarray diagnostic technology platform
BiotechCorp Supercritical Solutions Sdn. Bhd.	Malaysia	100	100	Commercialisation of Supercritical Fluid Extraction technology platform
BiotechCorp Molecular Solutions Sdn. Bhd.	Malaysia	100	100	Commercialisation of Marker Assisted Selection technology platform

All the subsidiaries are audited by Deloitte KassimChan.

10. OTHER RECEIVABLES, DEPOSITS AND PREPAYMENTS

Other receivables, deposits and prepayments consist of:

	Group		Company	
	2012 RM	2011 RM	2012 RM	2011 RM
Other receivables	498,368	7,278,763	258,774	7,245,470
Less: Allowance for doubtful debts	(179,438)	(179,438)	(179,438)	(179,438)
	318,930	7,099,325	79,336	7,066,032
Prepayments	818,055	452,225	753,085	378,491
Sundry deposits	1,167,100	1,047,454	913,933	917,333
Interest receivables	416,258	374,656	414,340	312,266
Amount due from subsidiaries	-	-	130,659,610	107,309,375
	2,720,342	8,973,660	132,820,304	115,983,497

The amount due from subsidiaries are non-trade in nature, unsecured and repayable on demand.

All the amount due from subsidiaries are interest-free except for an amount of RM29,536,979 (2011 : RM41,186,520) that bears interest at 4.5% per annum. Interest income of RM1,616,886 (2011 : RM2,151,698) has been recognised in the income statements of the Company as disclosed in Note 5.

11. CASH AND BANK BALANCES

Cash and cash equivalents included in the cash flow statements comprise the following balance sheets amounts:

	Group		Company	
	2012 RM	2011 RM	2012 RM	2011 RM
Cash and bank balances	2,579,918	12,780,415	2,357,952	9,225,186
Fixed deposits with licensed institutions	124,674,500	196,547,973	119,674,500	146,534,000
	127,254,418	209,328,388	122,032,452	155,759,186

Included under cash and cash equivalents of the Group and of the Company are amounts that represent unutilised disbursement for the purposes of developmental projects amounting to RM63,995,619 (2011 : RM78,058,388).

The average effective interest rates for the abovementioned deposits in the range of 3.13% to 3.55% (2011 : 2.85% to 3.6%) per annum.

12. SHARE CAPITAL

	Group and Company	
	2012 RM	2011 RM
Authorised:		
100,000,000 ordinary shares of RM1 each	100,000,000	100,000,000
Issued and fully paid:		
95,000,002 ordinary shares of RM1 each	95,000,002	95,000,002

13. DEFFERED INCOME

	Group and Company	
	2012 RM	2011 RM
(a) Developmental Grants		
As of 1 January	188,361,499	213,353,998
Received/(reclassed) during the year:		
IP Research and Management Program ("IPRM")	-	(7,000,000)
Biotechnology Park ("Bio-XCell")	-	7,000,000
Biotechnology Commercialisation Fund ("BCF")	10,000,000	5,000,000
	198,361,499	218,353,998
Add: Commercialisation and BNP grants whereby commitments have ceased	8,059,993	-
Less: Commercialisation grants awarded	(2,480,000)	(6,707,832)
BNP grants awarded	-	(5,744,898)
Interest income from deposit placement recognised to income statements	-	(4,703,669)
	203,941,492	201,197,599
Less: Amortisation to income statements	(8,571,675)	(12,836,100)
As of 31 December	195,369,817	188,361,499
(b) Non-developmental Grants		
As of 1 January	7,674,497	9,751,531
Additions during the year	33,653,000	33,500,000
Less: Amortisation to income statements	(41,327,497)	(35,577,034)
As of 31 December	-	7,674,497
Total Deferred Income	195,369,817	196,035,996

The Company was awarded with government grants for the following purposes:

a) Developmental Grants

Intellectual Property Research and Management Program comprises a series of programs that are targeted to enhance the efficiency and effectiveness of intellectual property management and protection in Malaysia.

Biotechnology Acquisition Grant provides funding for the acquisition of enabling and platform technologies within the biotechnology industry.

Biotechnology Commercialisation Program provides funding to facilitate the establishment of biotechnology start-ups. The Biotechnology Commercialisation Grant ("BCG") comprises Seed Funding, R&D Matching Funding and International Business Development Matching Funding. The Biotechnology Commercialisation Fund ("BCF") provides soft loan to qualified biotechnology business.

Biotechnology Entrepreneur Program seeks to develop biotechnology entrepreneurs by providing the necessary skill sets and knowledge to commence, develop and manage new biotechnology ventures.

Biotechnology Entrepreneurship Training Program ("BeST") is an intensive and structured training program for biotechnology graduates to equip themselves with the necessary knowledge and skills with the aim to provide a competent workforce in the industry.

BioNexus Partner Program ("BNP") seeks to promote active collaboration between biotechnology companies and universities, research institutes, technology parks and incubators in the country by leveraging the facilities, infrastructure and capabilities available.

Biotechnology Park project is an initiative approved under the Government's Second Economic Stimulus Package to develop and operate a biotechnology park in Iskandar Malaysia, Johor known as 'Bio-XCell'.

b) Non-developmental Grants

The non-developmental grant received from the government is to finance the Company's day-to-day operating activities.

14. HIRE-PURCHASE PAYABLES

Hire-purchase payables consist of the following:

	Group and Company	
	2012 RM	2011 RM
Total outstanding obligations	12,394	33,646
Less: Interest in suspense	(1,311)	(3,563)
Principal outstanding	11,083	30,083
Less: Amount due for settlement within 12 months (shown under current liabilities)	(11,083)	(19,000)
Non-current portion	-	11,083

The non-current portion is repayable as follows:

	Group and Company	
	2012 RM	2011 RM
Financial years ending 31 December:		
2013	-	11,083

15. OTHER PAYABLES AND ACCRUALS

	Group		Company	
	2012 RM	2011 RM	2012 RM	2011 RM
Developmental grants awarded payables	13,308,082	36,839,896	13,308,082	36,839,896
Other payables	35,939,590	4,796,637	2,113,039	2,867,519
Accruals	2,843,503	3,604,252	2,819,503	3,220,625
	52,091,175	45,240,785	18,240,624	42,928,040

The developmental grants awarded payables cover for periods up to 2 years.

16. LEASE COMMITMENTS

Total future minimum lease payments under non-cancellable operating leases are as follows:

	Group		Company	
	2012 RM	2011 RM	2012 RM	2011 RM
Less than one year	3,931,596	3,434,344	3,449,481	3,121,769
Between one and five Years	812,123	4,334,506	706,046	3,867,879
	4,743,719	7,768,850	4,155,527	6,989,648

The lease payments include rental payable and computer equipment under operating leases. The computer equipment leases run for a period of three years. None of the leases include contingent rentals.

17. RELATED PARTY TRANSACTIONS

During the financial year, significant related party transactions which are determined on a basis as negotiated between the Company and its related parties are as follows:

	Group and Company	
	2012 RM	2011 RM
Interest income on intercompany loans	1,616,886	2,151,698

18. CAPITAL COMMITMENTS

	Group		Company	
	2012 RM	2011 RM	2012 RM	2011 RM
Approved and contracted for:				
Property, plant and equipment	3,655,760	3,663,110	3,655,760	3,663,110
Patent and licenses	3,292,693	5,103,650	3,292,693	5,103,650
Freehold land	22,529,100	37,813,712	-	-
Construction of building	242,285,294	198,919,608	-	-
	271,762,847	245,500,080	6,948,453	8,766,760
Approved but not contracted for:				
Construction of building	67,320,000	-	-	-
	339,082,847	245,500,080	6,948,453	8,766,760

The capital commitments of the Group and of the Company will be recognised in the financial statements when the goods or works are delivered or completed in accordance to the contract it relates to.

MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.
(Incorporated in Malaysia)

STATEMENT BY DIRECTORS

The directors of **MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.**, state that, in their opinion, the accompanying financial statements are drawn up in accordance with Private Entity Reporting Standards and the provisions of the Companies Act, 1965 in Malaysia so as to give a true and fair view of the financial position of the Group and of the Company as of 31 December 2012 and of the financial performance and the cash flows of the Group and of the Company for the year ended on that date.

Signed on behalf of the Board
in accordance with a resolution of the Directors,

PROFESSOR EMERITUS DATO' SRI DR ZAKRI ABDUL HAMID

DATO' DR MOHD NAZLEE BIN KAMAL

Kuala Lumpur
2 April 2013

MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.
(Incorporated in Malaysia)

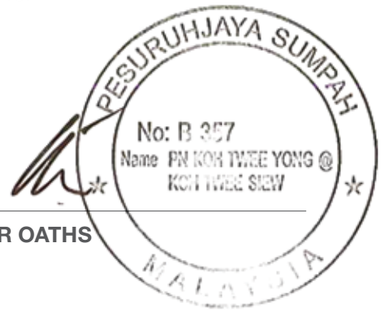
DECLARATION BY THE OFFICER PRIMARILY RESPONSIBLE FOR THE FINANCIAL MANAGEMENT OF THE COMPANY

I, **SYED AGIL BIN SYED HASHIM**, the Officer primarily responsible for the financial management of **MALAYSIAN BIOTECHNOLOGY CORPORATION SDN. BHD.**, do solemnly and sincerely declare that the accompanying financial statements are, in my opinion, correct and I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Statutory Declarations Act, 1960.

SYED AGIL BIN SYED HASHIM

Subscribed and solemnly declared by the abovenamed **SYED AGIL BIN SYED HASHIM** at **PETALING JAYA** this 2nd day of April 2013.

Before me,



COMMISSIONER FOR OATHS

NO: 69A, JALAN SS 21/37
DAMANSARA UTAMA
47400 PETALING JAYA,
SELANGOR DARUL EHSAN.

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Gevo to build RM1.7b bio-isobutanol plant in Kerteh

Kerteh manufacturing facility expected to be fully operational in 2015, says report

by JOSEPH MASILAMANY

GEVO Inc, an American renewable chemicals and biofuels company, has

statement yesterday.

The Terengganu state government was represented by its state secretary, Mazlan Ngah, and BiotechCorp was represented by its chief executive officer, Datuk Dr Mohd Nazlee Kamal, it said.

Besides the Gevo deal, four other collaborations and partnerships worth more than RM2 billion were also sealed between Malaysian and international biotechnology firms.

Among them is a joint clinical trial and licence and distribution agreement between Chemical Company of Malaysia Bhd's unit, Duopharma (M) Sdn Bhd, with South Korea's Pan-Gen Biotech Inc to pioneer clinical

UEM Land Holdings Bhd holds the remaining 40% in

Kerjasama bangun rumbia Sarawak

MALAYSIAN Biotechnology Corporation Sdn Bhd (BiotechCorp) dan CRAUN Research Sdn Bhd bekerjasama untuk memajukan rumbia yang dikenal pasti unsur penting di bawah Inisiatif Biokonomi Malaysia (IBM) sebagai tanaman strategik bagi Sarawak.

Kedua-dua pihak terbabit dalam usaha meningkatkan kemudahan mendapatkan sagu untuk komersial sebagai bahan mentah, selain menggalakkan kerjasama teknikal dalam kalangan badan kerajaan, akademik dan institusi swasta.

BiotechCorp dalam kenyataannya berkata, kerjasama itu mengkaji usaha menaikkan rumbia menjadi tanaman strategik untuk menciptakan kekayaan dan pengupaya bagi ruang bioekonomi di Malaysia.

"Kedua-duanya juga mengenal pasti teknologi platform inovatif bagi penggunaan sagu dan biojisim rumbia dengan cekap sebagai bahan mentah yang menghasilkan pengeluaran nilai tokok yang lebih tinggi bagi produk hiliran.

"Penggunaan bioteknologi industri menjadikan rumbia sebagai tulang belakang ekonomi Sarawak, yang berupaya menjana pendapatan kasar negara RM1 bilion menjelang 2015," katanya sambil menambah ketika ini, Sarawak pengeksport terbesar sagu rumbia di dunia dengan eksport berjumlah 45,000 tan metrik setahun, sebahagian besarnya ke rantau Asia.

IBM dan Strategi Biojisim Negara inisiatif strategik terbaru yang melaluinya bioteknologi industri menetapkan matlamatnya menjadi tulang belakang inovasi itu.

Minister Datuk Seri Dr Maximus Ongkili, BiotechCorp said in a press

BiotechCorp, MIDF offer fund for biotech projects

BCF will be made available as soft loans to eligible BioNexus status companies, says MIDF

ANGELA DAVENDRAN

AS PART of its efforts to spearhead the development of the local biotechnology industry, Malaysian Biotechnology Corp Sdn Bhd (BiotechCorp) is teaming up with Malaysian Industrial Development Finance Bhd (MIDF) for the disbursement of the Biotechnology Commercialisation Fund (BCF) totalling RM81.5 million.

The service agreement with MIDF involved the management of the government-approved fund, BiotechCorp said in a statement yesterday. Following the document exchanging ceremony at the

Many firms are in in working with B

PI Gevo

trial of Erythropoietin to treat end-stage renal failure patients.

The clinical trial, which will

Bio-economy the main agenda at BioMalaysia 2012

By Stephanie Augustin

The 10th BioMalaysia 2012 conference and exhibition was held from Nov 5 to 7 at the Kuala Lumpur Convention Centre, and officiated by Deputy Prime Minister Tan Sri Muhyiddin Yassin.

BioMalaysia, one of the main components of the World Innovation Forum Kuala Lumpur (WIFKL) featured an extensive bio-economy-related agenda that complemented the Bioeconomy Transformation Programme (BTP), announced recently by Prime Minister Datuk Seri Najib Razak during the National Bioeconomy Council meeting.

Themed "Driving Innovation and Wealth Creation through Bioeconomy", BioMalaysia 2012 saw the drive for the nation's Bioeconomy Transformation Programme (BTP) and strategies clearly translated through the various plenary and breakout sessions.

"We could not have been more excited to

Tremendous opportunities for SMEs in bio-economy

Biopeptide, etc.

- Exchange of Document between Inno Fisheries Sdn Bhd and Darvel bay Hybrid Aquaculture Sdn Bhd that signifies Darvel Buy's agreement to supply marine fish fingerlings/frys to Inno Fisheries Sdn Bhd for their social community program to complement seaweed farmer's income.
- Exchange of Document between Inno Fisheries Sdn Bhd and Sunlight Seafood (Sabah) Sdn Bhd to formalize the joint venture of Inno Fisheries Sdn Bhd and Sunlight Seafood (Sabah) Sdn Bhd for the development of the biggest integrated shrimp farm at a cost of about RM1 billion, in Pitas Sabah.
- Exchange of Documents between Department of Fisheries and Amanah Corporation on the lease of D of Fisheries' fishing related and assets in Langkawi to Corporation Sdn Bhd.
- Exchange of Document be awak Biodiversity Council subishi Corporation to initia partnership between Sarawa sity Council and Mitsubishi C focusing on algae from Sa biofuels and a venture into renewable energy.

The conference underline economy initiative, highlighte themes of Innovation and Com tion, and delivered 40 confer and gathered about 35 conferen and more than 250 conference

BioMalaysia 2012 focused on issues: building the value cha of the main sectors (agricultu care, and industrial), market financing, and bio-economy

Also featured in BioMalaysia ference were Novartis represen Reinhard Ambros, Executive Novartis Venture Funds and M Jetzer-Chung, Member Exec Board of Director's, Novartis track sessions 'Novartis Ven track and 'Market Success a ing Biotech'.

Muhyiddin (third from left) and Science, Technology and Innovation Minister Datuk Seri Dr Maximus Ongkili (second from left) looking at the gordan, a traditional musical instrument, when visiting the World Innovation Forum 2012 in Kuala Lumpur yesterday

Both trac largest and ences equity biotech, mec Malaysia is Novartis as biotechnolo

At the sa world's sec company ce nership with to develop drug compound leads from microbial natural products.

As a further boost to Malaysia's healthcare bio-economy scene, Novartis has broadened the range of their support from drug discovery projects to even potential

funding for biomedical companies via their Novartis Venture Funds.

Mohd Nazlee added, "With bio-economy underlining the topics of discussions during BioMalaysia, we are confident the harmony of strategies, innovations, and

Discovery Company (a wholly owned, independent subsidiary of Dr. Reddy's Laboratories), and Uni on a five drug discov well as capacity-buildi training programs.

To underline Malaysi strides in the global b scene, for the second co local chapter of the Int of Pharmaceutical Engi laysia, showcased its la in biopharmaceutical

A Myagri representative speaking to a prospective customer about the company's recycling products

Pelaburan bioteknologi melebihi RM9 bilion

KUALA LUMPUR – Meskipun berhadapan dengan beberapa masalah, sektor bioteknologi negara berkembang maju tahun ini dengan mencatatkan pelaburan yang melepasi sasaran RM9 bilion bagi Fasa Kedua, jauh lebih awal daripada yang disasarkan di bawah Dasar Bioteknologi Negara Malaysia.

Ketua Pegawai Eksekutif Malaysian Biotechnology Corporation Sdn. Bhd. (BiotechCorp), Datuk Dr. Mohd. Nazlee Kamal berkata, industri itu kini berada pada fasa pengkomersialan dan sedang berkembang pada kadar yang kukuh.

"Bagi tahun 2011 dan 2012, kita telah berjaya menarik pelaburan berjumlah RM12.72 bilion bagi industri bioteknologi," katanya kepada *Bernama* dalam satu wawancara melalui e-mel sempena pengarajuran BioMalaysia 2012 yang bermula di sini semalam.

Menurut Mohd. Nazlee, dengan sokongan kerajaan dan pasaran yang berterusan, Malaysia menawarkan persekitaran pelaburan yang dinamis dan agresif, terutamanya di bawah Dasar Bioteknologi Negara, yang telah menyokongan insentif-insentif cukai dan fiskal diberikan kepada syarikat bioteknologi.

"Ini disokong oleh kekayaan alam sekitar dan prasarana teknologi maklumat dan komunikasi yang kukuh, yang melekatkan negara pada kedudukan yang boleh memacu agenda bioteknologi negara," ujar beliau.

Mohd. Nazlee berkata, pada hari ini, syarikat-syarikat Bio-Nexus telah berjaya menarik pelabur antarabangsa dari Hong Kong, China, Taiwan, Jepun, India, Singapura, Thailand, Australia, New Zealand, Jerman, Belgium, Itali, Perancis, United Kingdom dan Amerika Syari-

kat.

"Hingga kini berstatus BioN laburan yang d lah RM5.62 bil pertanian, pen dan bioteknol rikat BioNexu kan di Malaysi Bursa Saham

"Dari segi pa paten telah di 73 dari sektor sektor pertani jagaan kesihat

Beliau men nyak 34 paten setakat ini.

PENYEDIAAN infrastruktur yang lengkap dan kekayaan alam sekitar dan insentif yang menarik adalah antara faktor pengembangan sektor bioteknologi negara.

Higher biotech investmen

KUALA LUMPUR: Malaysian Biotechnology Corp Sdn Bhdhas revised upward its 2015 investment target for the biotechnology sector to RM26 billion from RM9 billion, given the growth rate in Asia. Chief executive officer Datuk Dr Mohd Nazlee Kamal yesterday said the RM9 billion target, comprising both foreign direct investment (FDI) and domestic direct investment (DDI), has been surpassed this year. "For this year, we have clinched RM12.7 billion worth

of inv is FDI contri trial bi This y the agriculture sector in Sabah has managed to secure RM2 billion in investment." He said the company aims to increase the sector's contribution to gross domestic product to 4% by 2015, from 2.2% in 2010, as well as balance the FDI and DDI investment ratio from the current 70:30. – Bernama

BioTechCorp, Quintiles team up to boost local industry

MALAYSIAN Biotechnology Corp Sdn Bhd (BiotechCorp) yesterday signed a strategic collaboration agreement with Singapore's Quintiles East Asia Pte Ltd in a bid to drive Malaysia's biotechnology industry to greater heights.

The memorandum of collaboration (MoC) was signed by BiotechCorp chief executive officer Datuk Dr Mohd Nazlee Kamal and Quintiles' senior vice president and head of Asia markets Dr Anand Tharmaratnam at the ongoing 5th BioPharmaAsia Convention at Marina Bay Sands in Singapore.

Quintiles is the only fully integrated biopharmaceutical services company, offering clinical, commercial, consulting and capital solution worldwide.

Its partnership with BiotechCorp signifies interests in the areas of shared services central laboratory and biobank, clinical research graduate/internship training programme, stem cell research and national vaccine hub.

BiotechCorp, the leading agency for the biotechnology industry in Malaysia, will provide and facilitate the necessary support for the development of the projects stipulated in the agreement.

Dr Mohd Nazlee said: "Overall, the collaboration will be an important step. I see Quintiles as one of the global players in terms of clinical development.

"Our MoC is looking into how Quintiles can play (its role) more in Malaysia in terms of training, development of clinical, bids in terms of clinic trials and development, and others," he told *Bernama*.

The BioPharma Asia Convention is a four-day biopharmaceutical event from March 19 to 21. — *Bernama*

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BiotechCorp is the lead development agency for the biotech industry and acts as a central contact point providing support, facilitation and advisory services for biotech and life sciences companies in Malaysia.

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