

GLOBAL BUSINESS REPORTS

INDUSTRY EXPLORATIONS



MALAYSIA CHEMICALS 2014



*Economy | Petrochemicals | Oleochemicals | Industrial and Specialty
Chemicals | Distribution and Logistics*

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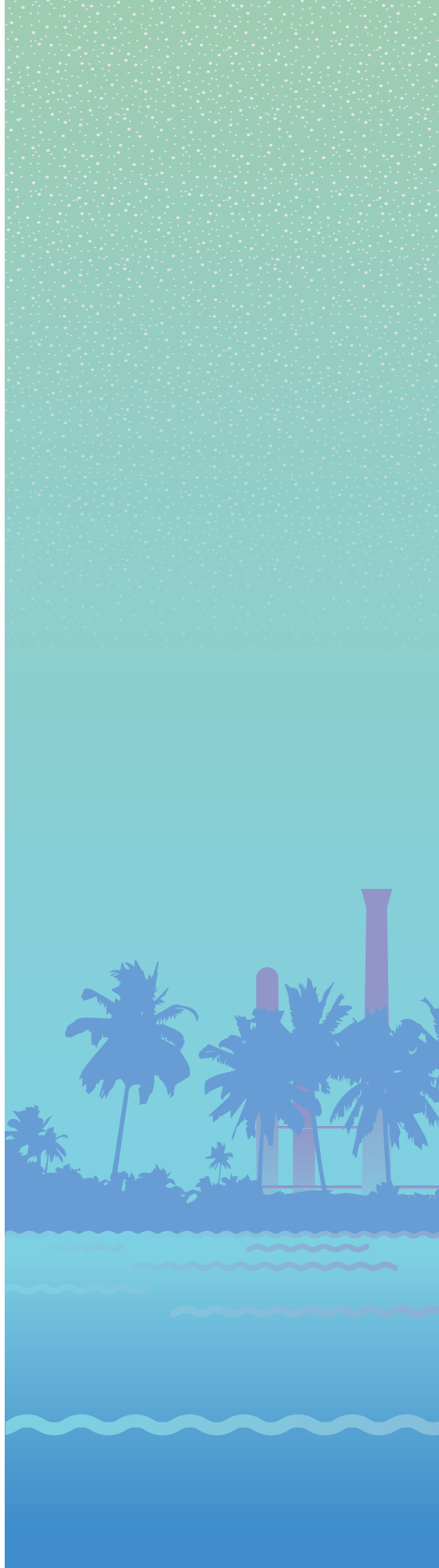
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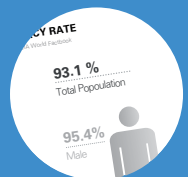
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An Introduction to Malaysia

A brief overview of the country and economy



On the 26th April 2014 United States President Barack Obama visited Malaysia, the first visit by a US head of state in 48 years. Economics were a focal point of his discussions with Malaysian Prime Minister Najib Razak. Yet although the two countries agreed to upgrade their bilateral relations, Obama failed to secure clear support from Razak for his proposed Trans-Pacific Partnership.

The idea that Malaysia would not pander to American requests would have been surprising not too long ago. The US is, after all, the largest source of foreign capital to Malaysia, investing \$1.9 billion in 2013 and with bilateral trade reaching \$35 billion annually. Today's Malaysia, however, can afford to pick and choose its agreements and its partners: on the 17th of April it signed a free trade agreement with Turkey. The demand that Malaysia finds itself in is a telling indication of both its current economic strength and its growing potential. As a middle-income economy, with a

population of over 30 million and a GDP per capita of \$17,500, it represents an attractive market. Its GDP growth – 4.7% in 2013 with an average of above 5% over the past decade – ranks among the best in the already-impressive Southeast Asia. Pro-business policies and an improving infrastructure have seen investments pour in from around the world: capitalizing on its Islamic heritage and expertise in Sharia-compliant banking and finance services has made it one of the favorite destinations of Gulf country investments. The transformation of Malaysia from an agricultural to a diversified and knowledge-based economy – started in the 1980s but arguably coming to fruition now – has made it a role model for many developing countries. After gaining independence from British rule in 1963, the contribution of agriculture to GDP has dropped from 28.8% in the 1970s to 11.2% in 2013. Malaysia continues to show a remarkable industrial production growth rate, reaching

7.5% in 2012, with industry the lead contributor to GDP at 41%. This has driven solid GDP growth since the country recovered from the Asian financial crisis of 1997/98 and the local business community often praises the government for seeking to promote investment and international trade. In an attempt to further Malaysia on its path to become a high-income, developed country by the year 2020, the Malaysian government is committed to stimulate growth in the manufacturing sector through the Economic Transformation Plan (ETP).

The measures have laid the foundation for a bright economic future in Malaysia. GDP growth in 2014 is expected to be 5.15%, followed by 5.5% in 2015. Long the underdeveloped cousin of its neighboring – and one-time federal partner – Singapore, Malaysia now poses a competitive threat: a manufacturing location that can offer comparable quality at a cheaper cost and with a far larger domestic market.

MALAYSIA AT A GLANCE

Source: CIA World Factbook

Population: 30,073,353 (July 2014 estimate)
Capital: Kuala Lumpur
Head of Government: Prime Minister Mohamed Najib bin Abdul Najib Razak
Currency: Ringgit (MYR)
GDP: \$312.4 billion (2013 estimate)
Growth Rate: 4.7% (2013 estimate)
GDP per Capita: \$17,500 (2013 estimate)
Economic sector breakdown: agriculture: 11.2%, industry: 40.6%, services: 48.1% (2013 estimate)
Exports: \$230.7 billion (2013): electronic equipment, palm oil, petroleum and LNG, wood and wood products, palm oil, rubber, textiles, chemicals, solar panels
Imports: \$192.9 billion (2013): electronics, machinery, petroleum products, plastics, vehicles, iron and steel products, chemicals
Major Trade Partners: China, Singapore, Japan, USA

South China Sea



\$312.4
billion

GDP
(current US dollars) 2013

Source: CIA World Factbook

POPULATION AND WORKFORCE INFORMATION

Source: CIA World Factbook

Population 2014
30,073,353



Labor Force 2013: **13,190,000**

Unemployment 2014: **3.1%**

Poverty Line 2007: **3.8%**

Employment in Manufacturing and Construction 2013: **37%**

This bright outlook is not without its dark spots. Infrastructure still remains inadequate in many parts of the country. Though the regulatory framework is constantly improving, companies still list the implementation of that framework – carried out through inefficient government bureaucracy – as a major hurdle for doing business. Corruption is also frequently cited as a challenge, with the country ranking at a respectable but room-for-improvement 53rd in Transparency International’s 2013 Corruption Perceptions Index. Inequality remains high, with the World Bank putting the Gini Coefficient – a measure of inequality – at a relatively high 46.2 in 2009. Nonetheless, the story of Malaysia remains a story of growth and improvement, powered by a dynamic private sector and sensible government policies. One of the greatest examples of these attributes is in the chemical sector: an industry that has grown from a side note to Asia’s major chemical hubs to a major player. •

“ Malaysia’s economy has historically been healthy and is expected to deliver a growth rate of between 4% and 5% for 2013. When considering the country’s growth potential one is really looking at a stable political situation, educated labor force with an efficient infrastructure. There is little to no geographical threat like floods and earthquakes and the availability of feedstock is very high. Most importantly, the Malaysian government provides various government incentives to facilitate doing business here, lending a strong competitive edge to those who invest in Malaysia.

- Nazmi Sallehudin, Director, Chemicals Division, CCM Chemicals



Datuk Phang Ah Tong & Yee Nai Tuck

DPAT: Deputy CEO

YNT: Director, Technology and Business Division

MALAYSIAN INVESTMENT DEVELOPMENT AUTHORITY (MIDA)



DPAT

Can you highlight MIDA's role in the Malaysian chemicals industry and the greater economy?

DPAT: MIDA was established more than 35 years ago in 1967, when it was still one of only three investment agencies in the world. It is the first point of entry for any company wishing to set up operations in Malaysia. Its role has recently increased from promoting and coordinating only industrial development in the country, to also include the services sector, excluding the financial, construction and telecommunication industries. MIDA is your not run-of-the-mill investment development authority in that it does not only market and promote economic activity in Malaysia, but also facilitates and assists companies in obtaining the right documentation and benefitting from the numerous incentives that are available. Under the Economic Transformation Plan that was launched in 2010 chemical production is a promoted activity having been identified as a National Key Economic Area (NKEA) and the biggest investment-generating sector in the country. Historically, Malaysia has been strong in the oil and gas sector as a net exporter of crude oil and natural gas

since 1974. However, Malaysia strategy has changed significantly, shifting the focus away from non-renewable depleting activities to becoming increasingly strong in downstream chemical production. Malaysia would like to sustain the usage of its reserves through building partnerships between local and foreign companies that aim to produce higher value added products.

Can you highlight some of the trends and new developments in the industry that are emerging with the higher quality projects that you mention?

YNT: Although they remain the backbone of the chemical industry, there tends to be decreased focus on commodity chemicals as the industry evolves. RAPID is probably going to be one of the last big projects that will be very commodity driven, but on the other hand, will supply many of the products that are needed for further downstream chemical production. Malaysia is also very strong in oleochemical production, however it is growing increasingly difficult to obtain a license for basic oleochemical production, as it appears it has reached its satiation point. In this segment too, the trend is towards the manufacturing of further downstream products. There is a whole range of biochemical product manufacturing that Malaysia is also aiming to attract. In the inorganic segment, the polysilicon sector will be an interesting area to watch. In the Sarawak corridor we are expecting to see an increased drive for renewable energy as we look at energy intensive industries to power with hydro electricity, creating a more sustainable and certifiable way to produce chemicals in this area such as polysilicon.

How can Malaysia succeed in attracting investments over its strong neighbors such as Singapore?

YNT: While Malaysia is blessed with some valuable reserves, these are not world-renowned or highly exceptional. What sets Malaysia apart in the region, is its strategic location and the fact that the country still has an abundance of land and energy. The world's biggest market is China and the Middle East and Malaysia is at the center of these two growth points.

DPAT: Notwithstanding Malaysia's reserves and resources that provide a competitive advantage, another differentiating factor is the ease of doing business in Malaysia. Investors will find it hard to find another country in the region that offers the same type of stability that Malaysia can in terms of policy, continuity, consistency and predictability. Malaysia has a proven track record and many foreign companies are opening up even more branches and operations in the country as their confidence in the regulatory framework continues to grow. The World Bank now ranks Malaysia 12th out of 187 countries in terms of the ease of doing business. In the world competitiveness report using the four parameters of economic efficiency, business efficiency, government delivery and infrastructure, to determine competitiveness, Malaysia was ranked 15th out of 58 countries. Malaysia cannot necessarily compete in terms of efficiency with Singapore that is ranked at number one, but though it is a very efficient city-state, it is also very expensive and has an evident space constraint. Malaysia is set to gain from this as investors look to Malaysia to overcome these constraints and as MIDA, we are being very selective in terms of selecting and developing very particular industries to complete the value chain that we envision.

Can you give us your outlook on MY chemicals industry for the next five years?

YNT: As always the outlook of the chemical sector is very dependent on the price of the raw materials. Another factor that impacts the sector is the discovery of alternative energies such as shale gas. For Malaysia, the most important question is how we can sustain our reserves. This does not mean that it is the end of the line for our oil wells; we are just extending their life. We are also looking into developing our renewable and bio-materials production and utilization and leveraging on our palm-oil advantage. Further more we will be focusing on downstream activities and are also trying to develop our automotive and aerospace industries that will be able to use the products supplied by downstream chemicals manufacturers. •

Dr. A Hapiz Abdullah

Chairman
**CHEMICAL INDUSTRIES
COUNCIL OF MALAYSIA
(CICM)**



Can you tell us more about the CICM's role and evolution in Malaysian chemical industry?

The CICM was established and incorporated in Malaysia in 1982 with the key objectives of promoting development and co-operation within the Malaysian chemical industry. We aim to serve as a channel of communication between the industry and the government and to promote Health, Safety and Environment (HSE) excellence and sustainable development. CICM's thrust over the recent years has been on the Responsible Care initiative, with our new vision centering on the word 'sustainable', which is pivotal if we still want a vibrant chemical industry in 20 years. In our new vision, we also call ourselves a 'champion' that is by taking the lead and pushing our members to incorporate sustainable business models. This is to be crafted around our Responsible Care initiative. Running chemical plants is risky and trying to run it without any disruptions is extremely difficult and requires a collectively focused effort.

Multinationals seem to be very aware of international environmental sustainability standards, but compliance

from local companies appears to be lagging. Why is this the case and how will this be addressed?

Malaysia is implementing standards and regulations through bodies such as Ministry of International Trade and Industry (MITI) and Malaysian Investment Development Authority (MIDA), have been very active in trying to facilitate local compliance with regulations that are up to global standards. REACH is one example of such an initiative. The competency building process takes time and it may seem slow, but all the required legislation will come in due time.

Can you give us an overview of the Malaysian chemical industry and the contributing factors to the strong growth of around 63% in 2012?

Malaysia has a very diverse chemicals industry comprising various sub-sectors - petrochemicals, such as basic industrial chemicals, fertilizers, pesticides; oleochemicals; cosmetics and toiletries; organic chemicals; industrial gases; paints and coatings; as well as chemical traders, distributors and service providers. In 2012, the chemicals industry, including the petrochemicals industry, contributed RM 55.8 billion or 7.4% to Malaysia's GDP. Looking at Malaysia's natural resources and competitive advantages, the available feedstock leads you to the chemicals industry's cornerstones, namely oil and gas and petrochemicals and oleochemicals.

The chemical industry is dependent on regional and global economy and while the European economy is not as healthy as it should be, the US is beginning to pick up. China is probably going to deliver 5% to 6% GDP growth this year, which is comparatively low from its previous double-digit growth, and growth in India has not really lived up to expectations.

Yet, looking at countries such as Indonesia, Vietnam and Myanmar as well as other Southeast Asian countries that are doing relatively well, they balance things out for the petrochemical and natural gas markets. At the moment, the palm oil sector is slow, as it is price driven and depends on the harvest scenario and substitutes. Malaysia's biggest palm-oil export markets continue to be India and China, and when these economies are not growing too well, the demand for

crude palm-oil demand goes down, which is also affecting the down-stream oleochemical sector. Malaysia is currently ranked the world's number two palm-oil producer behind Indonesia and accounts for approximately 20% and 12.5% of the global capacities for fatty acids and fatty alcohols respectively.

Can you elaborate on key projects that will drive growth in Malaysia's chemical sector over the next few years?

The Economic Transformation Programme (ETP) was launched at the end of 2010 with the goal of elevating Malaysia to developed nation status by 2020. Two of the 12 National Key Economic Areas (NKEAs) that have been identified form the most important part of the chemicals industry, namely petrochemicals and oleochemicals.

Two key petrochemical projects are PETRONAS' Refinery and Petrochemical Integrated Development (RAPID) project in Johor at a cost of about RM60 billion and PETRONAS Chemicals Group's Sabah Ammonia Urea (SAMUR) project in Sabah at the cost of about RM4.5 billion.

Can you highlight some of the features that differentiates Malaysia's chemical sector in the region?

Malaysia is a very politically stable country that welcomes multinational companies to partner with local companies. Malaysia is also at the center of Asia Pacific's growth and strategically located to access any of the surrounding markets. What is even more outstanding is that neighboring countries in the Asia Pacific region complement each other rather than compete. Malaysia has a well-entrenched feedstock in terms of gas, crude oil and palm oil. Lastly, Malaysia's chemical industry has shown its ability to progress and has had ahead-start in the region in terms of joint ventures and partnerships with multinational companies, meaning know-how; and the technology level is excellent. There are, however, two sides to this coin, as when our workforce is seen as highly skilled, they become very desirable employees for countries in the Middle East, for example, where there are many petrochemical facilities being built. •

Sector Support

Specialty and Industrial Chemicals

As admirable as the Malaysia's – largely successful – efforts in the petrochemical and oleochemical markets are, they have been assisted by the country's wealth of natural resources. A more telling and impressive sign of the country's ability comes from its industrial and specialty chemical sectors.

These sub-segments of the chemical industry have important linkages to practically every other sector in the economy. As such, they are key to Malaysia's ongoing efforts to diversify their economic base.

Paul Ellis, managing director of Schaefer Kalk in Malaysia, explains the significance of the quicklime and other lime products that the company produces in Malaysia: "Schaefer Kalk sells its product as a chemical that goes into the manufacturing of other products. Malaysia's geographical characteristics allow Schaefer Kalk to produce some of the world's finest quality quicklime and hydrated lime. Schaefer Kalk has managed to develop our product to the extent that we have international oil companies that use our products in the manufacturing of oil additives. With the growing automotive industry in Asia, many American oil additive manufacturing companies are moving to this region. Schaefer Kalk has had the opportunity to develop products for these companies to use here in Asia."

Taking the cue from leading international players, the sector continues to attract positive attention. "The Linde Group recognizes Malaysia's long-term growth potential and has, over the past three years, invested around 90 million MYR (\$28.41 million) in the business here," says Wong Siew Yap, managing director of Linde Malaysia. Linde is just one of

Daniel Loh

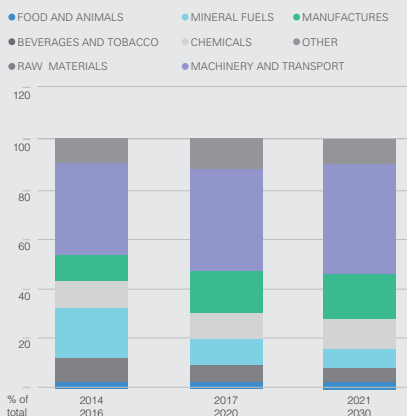
MALAYSIA R&D SPENDING

Source: Battelle

	GDP (PPP, \$ BILLION)	R&D (% OF GDP)	GERD (PPP, \$ BILLION)
2012	507	0.8%	4
2013	531	0.8%	4
2013	557	0.8%	5

MALAYSIA'S EXPORT CONTRIBUTION INCREASE BY SECTOR

Source: Oxford Economics



leading specialty and industrial chemical companies that have facilities in Malaysia and the A-list includes players such as BASF, Evonik, DOW and DuPont. As a highly technical sector, the drive is for international companies to bring research and development facilities to the country to increase innovation in the region holding such a vast market with unique needs. Ellis, from Germany-headquartered Schaefer Kalk, explains the company's position in this regard: "It is certainly time to seriously consider having a technical expertise base in Asia, especially looking at growth markets such as the rubber glove industry that is located here. Malaysian materials have certain characteristics that the European materials cannot have because of the quality characteristics of the limestone here. The process of bringing in more technical expertise to Malaysia is starting and there is a general shift from relocating research and development centers in Europe and the US to Asia." •

Managing Director BASF MALAYSIA



Can you highlight some of BASF most innovative products used in Malaysia and elsewhere in the region?

BASF is very strong in construction chemicals in Malaysia. Our technologies have been used in many highly publicized construction projects such as the Burj Khalifa in Dubai and the construction of the Penang 2nd Bridge in Malaysia. BASF developed the polymer technology that was needed for pumping concrete mixture vertically, without the separation of the cement and aggregates, upward called BASF Smart Dynamic Concrete. Using this technology has also had a positive environmental impact, as it requires less machinery, labor and parts replacement. The product which was initially developed in Germany was further adapted through joint development to suit the local project needs and condi-

tions. In 2013, BASF rebranded over 30 construction brands all under the Master Builders Solutions name so that people can identify the wide range of products with BASF.

Another example of Malaysia specific innovation is the development Clearfield Rice Production system. Malaysia was facing a weedy rice infestation, which threatened the well being of the county as rice is Malaysia's staple diet. The technology was originally developed in the US, for a similar problem they had faced with corn. Working closely together with the Malaysian Agriculture Research and Development Institute (MARDI) when the rice yield dropped tremendously, we were able to develop a crossbreed of rice that is resistant to a specific herbicide. With BASF's Clearfield production system, we were able to increase the yield from three to four mt per ha to eight mt per ha. As per BASF's product stewardship guide and focus on sustainability, we advised that the system should be used for two consecutive seasons, before alternating one season with normal production to ensure that this is a long-term solution, instead of the crossbreed becoming susceptible to a new form of the problem. This shows BASF's commitment to the long-term viability of its solution and not just a 'quick-fix'.

Can you tell us what the main opportunities and challenges are for BASF in Malaysia?

As per Malaysia's Economic Transformation Plan (ETP) there are five key sectors that are identified as National Key Economic Areas (NKEAs) that are highly relevant for BASF and where we see the most opportunities. These are agriculture, electronics and electrical, construction, oil and gas, palm oil and rubber. We have the competitive advantage in the availability of feedstock through our partnership with Petronas. Unfortunately Malaysia has a limited local market and up to 90% of BASF production in Malaysia is exported. BASF is close to its feedstock in Malaysia, but not that close to its customers, which adds to transportation costs. Another challenge for Malaysia's chemical industry is the very significant competitive threat that China poses, especially when we look at the upstream commodity chemicals. •

Ong Ewe Hock

Managing Director
DUPONT MALAYSIA



DuPont has been pioneering new technologies in Malaysia since 1974. Can you highlight some of DuPont's key milestones in last decade?

DuPont in Malaysia started off with as representative office in Malaysia in the 1970s with only 30 people and has since grown to employ more than 250 people. One of our key milestones has been establishing our rice field research center in 1997, built on about 14 acres of land in Penang. This facility has been approved by the relevant authorities such as the Pesticide Board and affords DuPont the opportunity to test the active ingredients of its chemicals in a safe and closed space. Another highlight for DuPont in Malaysia has been relocating to the new Kuala Lumpur office that centralizes DuPont's presence in Malaysia. It is necessary to collaborate with the scientific community and with the government. This strategic move means that DuPont is now more connected, both in terms of infrastructure and software. DuPont's move to the city is consistent with DuPont's global collaborative innovation strategy and we are now able to connect to 10,000 scientists and researchers on real-time basis, based on

project need. We have developed our model from just bringing in products to the market to collaborating with the market and offering local solutions, driven by DuPont's integrated science. While DuPont has divested in the coatings area of its business in the second quarter of this year, the company grew through the acquisition of the Danish food ingredient conglomerate, Danisco, more than two years ago. As a part of that acquisition, we also gained the plant in Penang that has more than 160 people and is an important part of DuPont's global operations in Malaysia.

Can you tell us more about the industries that you will be targeting under DuPont's new global strategy?

DuPont is renowned for its advanced materials and these products – such as polymers, specialty chemicals and electronic material – remain a significant part of our product portfolio. Central to our global strategy is the bio-base industry, which is an integral and connecting part of both DuPont's advanced material, nutritional and agricultural solutions. Through the acquisition of Danisco we have enhanced our capabilities in this central industry as Danisco is not only specialized in food ingredients, but had also acquired a Genencor, one of the world's largest fermentation companies producing industrial enzymes. This is a very important segment as DuPont specializes in hybrid or biogenetic seeds and crop protection chemicals as well as specialty food ingredients. Finally, DuPont is focused on sustainability science and sustainable growth and DuPont believes firmly that the growth in available biomass and bio waste that accompanies global population growth can be converted into some of the chemicals such as polymers that we are selling today.

Could you elaborate on the biomass prospects in Malaysia and how it compares with other countries where DuPont is present?

In the last two years, delivering solutions through our integrated system has become very important to DuPont. In Malaysia, such large-scale biomass is available from palm oil. However, due to the geography of the palm-oil plantations, being scattered across the coun-

try and often in remote locations, the logistics for the collection of biomass is complicated. Having a center point for the collection of biomass is key for this sector to function. The Malaysian government is well aware of these challenges and has put many programs in place to facilitate this. The bio-based economy has been identified as one of the key focus areas of the Economic Transformation Plan, which illustrates encouragement from the government to partner with local enterprises to help bring the necessary technologies to Malaysia.

Other countries that are successful in leveraging on biomass have large acreages of corn for example, such as the US and China. While Malaysia does not have this advantage, we firmly believe that we can tap into biomass from palm oil for potential usage, including cellulosic ethanol. DuPont's demonstrating plant in Tennessee hosts visitors from both Malaysia and Indonesia and showcases the technology that DuPont can offer to convert waste into energy or useable material. DuPont continues to work closely with major players in the industry and though technological development is still very much US-centric, we believe the technology can be replicated in Malaysia once we uncover the right partner.

Apart from the complicated logistics of sourcing bio-waste in Malaysian, could you elaborate on other main challenges that need to be overcome for the industry to flourish?

Having environmentally sustainable operations is becoming an increasingly important factor across all industries, including palm oil. There is a drive for less land to be cleared and enhanced productivity from the land at a lower cost to support sustainability. This can be achieved through planting material enhancement. The oil-palm plant has many genetic traits that have not yet been fully mapped. The breeding matter of the oil-palm industry is still very traditional and it takes about 11 years per breeding cycle. Through genetic mapping we believe we can optimize the breeding cycle time, rendering the yield and quality of the material more predictable. It also presents an opportunity to repurpose the technologies that we are using to screen crops and seeds. •