GBR
Global Business Reports

SCIC
SINGAPORE CHEMICAL INDUSTRY COUNCIL

Singapore Chemicals 2016

PRE-RELEASE EDITION

about the Singapore Chemical Industry Council

MISSION STATEMENT

The Singapore Chemical Industry Council is committed to playing its part in providing the people of Singapore with a quality of life that is second to none. To achieve this mission, the Singapore Chemical Industry Council will be:

- The body to promote the Chemical Industry into a major pillar of Singapore's economy for the benefit of its members
- The partner in progress with the Government of Singapore in its effort to enhance growth for the Chemical Industry for investors, safety in the workplace for the workers and an environmentally friendly Singapore for all the residents, and
- The body to represent the Chemical Industry domestically, regionally and internationally with the aim of enhancing trade and attracting foreign investments into Singapore for continued growth and prosperity for its people

HISTORY

The Singapore Chemical Industry Council (SCIC) is the official body representing the Chemical Industry of Singapore in the private sector.

SCIC is also the national administrator of the Responsible Care initiative, endorsed by the International Council of Chemical Associations, to promote the spirit, principles and practices of Responsible Care to the Singapore Chemical Industry. Through advocating Responsible Care, the chemical industry in Singapore can make a valuable contribution to the sustainable development and improvement of lives and the environment.

SCIC
SINGAPORE CHEMICAL INDUSTRY COUNCIL

For more information, please visit:
http://www.scic.sg

Dear Readers,

The Singapore chemical industry contributed 29% to the Singapore manufacturing sector in 2015, a 5% dip as compared with 2014. Low crude and financial volatility are major factors contributing to the lower output. Nevertheless, the Singapore Chemical Industry Council (SCIC) together with our industry members and the Singapore Government, continue our efforts to sustain the business of chemistry in Singapore. The national direction to further enhance the competitiveness of our chemical hub is progressing through the Jurong Island version 2 initiatives. The Jurong Island version 2 has strong focus on energy efficiency, emissions management, process safety, alternative feedstocks, connectivity, water sustainability and security. Liquefied Natural Gas is also expected to take on an increasingly important role in the industry.

SCIC has been working with the chemical industry to improve productivity in the process, construction and maintenance industries. This work was given a major boost in the middle of 2015 with the formation of the PCMMC (Process, Construction and Maintenance Management Committee)'s Productivity Council, involving the Economic Development Board (EDB), SCIC and the Association of Process Industry (ASPRI) and key companies in the industry. This important 3-year national program is expected to help the process industry improve productivity through the introduction of certification and training, sharing of best practices, mechanization and benchmarking studies.

Recognizing the needs and benefits for an effective Process Safety (PS) regulatory framework, a tripartite study mission on the management of Major Hazard Installations (MHI) led by the Singapore Government agencies with SCIC, was organized to evaluate the suitability of a Safety Case regime for Singapore in May 2013. A PS framework was developed in end 2014 by SCIC which was represented by a team of Industry Managers and senior Process Safety and Risk Management Experts. The proposal included the support of the Safety Case regime implementation in Singapore and the formation of a Government-Industry Joint Work group to develop the Safety Case Technical and Assessment Guidance documents for the MHI regulatory requirements. We have also started industry capability building programmes to help equip installations affected by the new MHI regulation with adequate knowledge to commence planning and securing needed implementation resources for Safety Case implementation.

The Responsible Care programme, advocacy and industry capability building remain key activities for SCIC. At a time where the global market has softened, we strongly believe that we should continue to uphold our efforts in protecting human health and the environment. It is also important to note that chemicals we produce are building blocks of almost everything around us. With the world population forecasted to reach 9.7 billion people by 2050, the industry seeks to play a very vital role in sustaining this growth, creating products that go into practically everything we need in our daily lives; buildings, transportation, energy, food, water, medical, clothing, lifestyle and so forth.

The chemical industry continues to be a highly innovative industry, developing solutions to global issues as our world evolves. SCIC is committed to work with the industry to make the world a better, safer and sustainable place to live in.

Terence Koh

Executive Director
Singapore Chemical Industry Council (SCIC)

Table of Contents

5. The Little Red Dot Shines Brightly Singapore Remains a Global Chemical Pillar

10. Interview with **Gan Seow Kee**, Chairman and Managing Director, **ExxonMobil Asia Pacific**

11. Regulations Adoption of a New Safety Case Regime to Strengthen Singapore's Chemical Ecosystem

13. Interview with **Satvinder Singh**, Assistant Chief Executive Officer, **International Enterprise (IE) Singapore**

14. Interview with **Stephen Fowler**, Member of the Board of Directors, **SCIC**; General Manager, **Shell Jurong** Island

15. Manufacturing Singapore's Heavyweights Continue Lifting

19. Logistics Movers and Shakers: Singapore's Logistics Firms Gear Up for Expansion

21. Interview with **Chantal Quek**, General Manager, **Association of Process Industry (ASPRI)**

GBR
GLOBAL BUSINESS REPORTS

Singapore Chemicals 2016 Pre-Release

Project Director: Irina Negoita
Journalist: Neha Ghanshamdas

Regional Director, EMEA: Katya Koryakovtseva

Editor: Mungo Smith
Graphic Designer: Inanc Duman

Cover Image: ExxonMobil Asia Pacific

A Global Business Reports Publication
For updated industry news from our on-the-ground teams around the world, please visit our website at gbreports.com, subscribe to our newsletter by signing up to our VIP list through our website, or follow us on Twitter: @GBReports.

www.gbreports.com

The Little Red Dot Shines Brightly

Singapore Remains a Global Chemical Pillar

Comfortably situated on Jurong Island, Singapore's chemical sector serves as a pillar of the global chemical industry. In 2015, grossing over $80 billion and employing more than 25,000 people, the sector accounted for 28.6% of Singapore's total manufacturing output, according to the Ministry of Trade and Industry. The city-state continues to perpetuate its "home for business" motto, impressing the world with its world-class facilities, regulatory transparency, and innovative policies. Yet even though it is positioned among high growth markets such as Indonesia, Malaysia and India, Singapore is well aware that it must reinvent itself to stay afloat and, more importantly, ahead. This will be especially important in the midst of a current global economic downturn that has muted demand and slowed the advent of new projects. Today, a new set of dynamics is at play, keeping Singapore and its chemical industry on its toes. The first factor on everyone's mind is oil. The disconcertingly low price of crude is weighing on many players and fostering a muted outlook across jurisdictions and industries. Singapore is no exception to this trend, as its total merchandise trade dipped 9.5% to $884.1 billion in 2015, largely due to the contraction of oil trade by 36%. A broader economic malaise is beginning to set in, as new plant projects have been put on hold, majors such as Teijin Limited have left the island altogether, and others like Jurong Aromatics Corp. have yet to start up again. Other challenges such as rising business costs and difficulties associated with labor continue to pose obstacles for multinational corporations (MNCs) and small and medium sized enterprises (SMEs) alike. "Rising costs of labor and land, coupled with a shrinking manufacturing base, are pushing Singapore's SMEs through the cracks," said managing director of Unilite Chemicals, Nicholas Lim.

The year 2016 will call for caution and good business acumen across all segments of the chemical industry. "Attracting and retaining talent is a lingering concern in Singapore's oil and gas and petrochemical sectors. This, coupled with an expected 20% to 30% decrease in demand from 2015, means that our company needs to bring a very competitive, value-added proposition to our clients in all our services so that we can navigate the current turbulent waters safely until the business

The global specialty chemicals market will grow at about 5.4% per annum from 2015 to 2025, with Asia Pacific growing at 6.35% and contributing 45% of the global market share. Specialty chemicals companies have to maintain a strategic presence in Asia to capture these growth opportunities. While Singapore is a small market, Singapore has a dense ecosystem of specialty chemical companies' end customers, many of who are looking beyond Singapore. Over the last five years, we have seen specialty chemical companies leverage Singapore's strengths, such as our strong research capabilities and IP protection, availability of manufacturing infrastructure, to set up their strategic hubs here. The co-location of commercial, innovation and manufacturing activities in Singapore have a strong reinforcing effect and make these companies more nimble in meeting customers' needs.

**Cindy Koh,
Director, Energy & Chemicals, Economic Development Board (EDB) Singapore**

cycle improves," said general manager of local maintenance company Ad-Meth Mech-Field, Shaun Pang.

Well aware of current hurdles, Singapore's stakeholders are taking active measures to galvanize the industry. With regards to a shortage of labor, industry wide initiatives have been put in place to increase productivity among existing workers. As an example, the Association of Process Industry (ASPRI) is collaborating with Centurion Corporation to set up the island nation's first integrated development, comprising both a workers accommodation and training center to cater to the needs of workers from the process, construction and maintenance industry. "Labor management is an issue on everyone's minds. Our new workers accommodation is a 12-minute express lane bus ride to the Jurong Island Checkpoint, and designed to enhance the wellbeing and productivity of foreign workers. Together with ASPRI, the facility will make a palpable difference in helping to alleviate some of the chemical industry's labor challenges," said group chief executive officer at Centurion, Kong Chee Min.

On a wider scale, the industry is working towards the production of high value-added derivatives in order to ensure the long-term competitiveness of the nation's chemical cluster. Characterized by wider margins and increasing demand, the specialty chemicals market is at the top of everyone's agenda. Japanese chemical heavyweight Mitsui Chemicals Asia Pacific (MCAP), for example, is turning towards healthcare and packaging. "Diversification is key for Mitsui Chemicals Group and placing Singapore at the forefront as one of the regional headquarters, MCAP integrates various regional strategies to meet market needs. With shifting market conditions, MCAP is diversifying its products from base petrochemicals to specialty chemicals areas, as the increasingly sophisticated consumer base is linchpin to our business. We are also collaborating with institutions such as A*STAR and its institutes to develop new technologies for innovation, "said managing director and CEO, Shigeharu Matsuzaka.

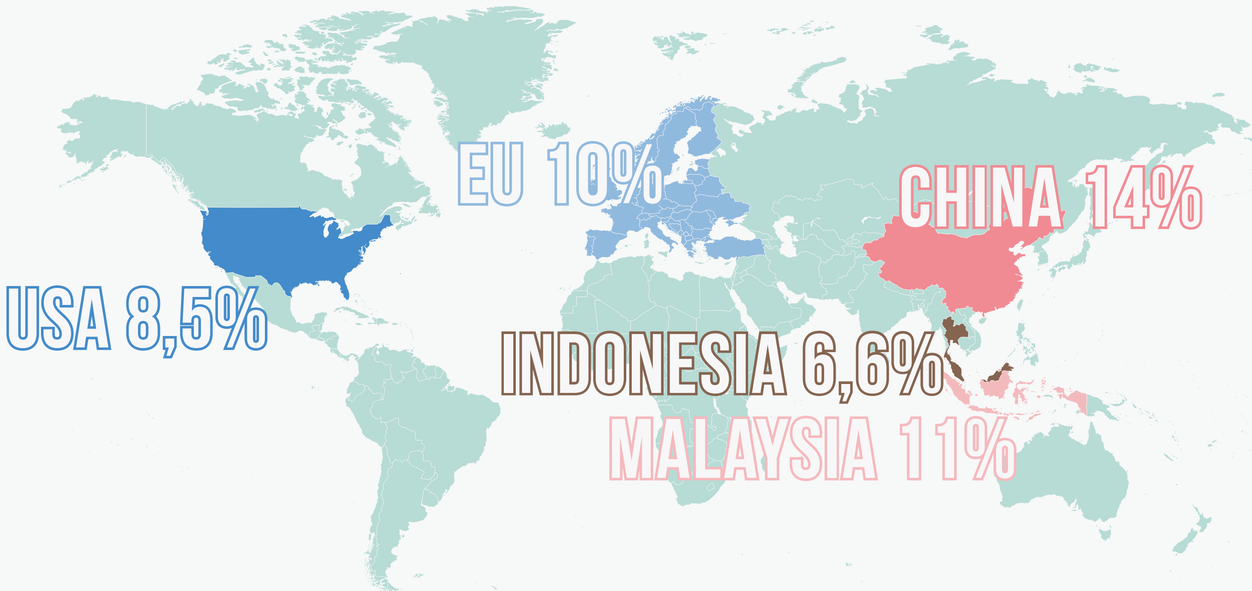
Policymakers are also actively promoting research and development (R&D) in Singapore in order to draw more companies to the island's shores. Earlier this year, the government announced a Research Innovation Enterprise 2020 Plan (RIE2020) through which $19 billion will support R&D efforts over the course of the next five years. This is the city-state's largest R&D budget to date, and is an 18% increase from RIE2015's $16.1 billion commitment. R&D will enhance the city-state's role not only as a manufacturing hub but as a center for innovation and technology. Thus far, Mitsui Chemicals, Syngenta, BASF and many more have all set up research facilities in Singapore.

Additionally, a number of strategic advances have been made to optimize Singapore's chemical infrastructure. In September of 2014, Prime Minister Lee Hsien Loong officially opened phase one of Southeast Asia's first underground oil storage facility, Jurong Rock Caverns. Located beneath Jurong Island, the caverns provide additional capacity for the storage of crude oil, condensate, naphtha, and gas oil. Given the island's limited land space, Jurong Rock Caverns support petrochemical giants' operations by providing them with 60 hectares of additional space.

Jurong Island, image courtesy of ExxonMobil Asia Pacific

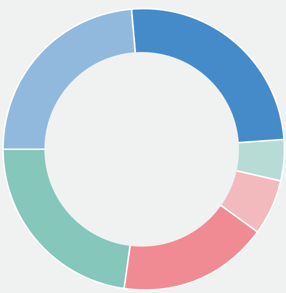
FOREIGN TRADE

Top 5 Trading Partners and Share of Total Merchandise Trade in 2015



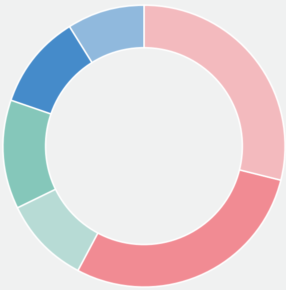
A BREAKDOWN OF SINGAPORE'S MANUFACTURING INDUSTRY BY SECTOR

Employment (Number of People)*



	Number of People	%
General Manufacturing	95,287	23.8%
Transport Engineering	101,129	25.3%
Biomedical Manufacturing	18,927	4.7%
Chemicals	25,304	6.3%
Electronics	69,082	17.3%
Precision Engineering	90,444	22.6%

Total Output ($ M)*



	$ M	%
General Manufacturing	24,847	8.8%
Transport Engineering	30,265	10.7%
Biomedical Manufacturing	28,009	9.9%
Chemicals	81,043	28.6%
Electronics	81,104	29.7%
Precision Engineering	34,708	12.3%

* Preliminary 2015 Figures

Source: Ministry of Trade and Industry – Economic Survey of Singapore 2015

Speaking of space, Singapore's most advanced Pasir Panjang Terminal is experiencing an $3.5 billion expansion that is slated for completion by 2017. The development known as Phase 3 and 4 will increase container-handling capacity by upwards of 40%. On the other side of the island, officials are cooking up plans for a new terminal in Tuas with the hopes of consolidating PSA's entire portfolio by the year 2040. Such investments demonstrate the government's commitment to Singapore's industry, and will further the local chemical sector's competitive advantage in the long term.

To further boost capacity on land, European tank storage firm Vopak Terminals Singapore recently unveiled Southeast Asia's first liquefied petroleum gas (LPG) facility on Jurong Island. The new import and storage terminal will help the industry diversify its feedstock and increase competitiveness. Depressed feedstock prices are already bolstering global petrochemical manufacturers' margins, and Vopak's investment will hopefully serve an additional boost.

While hesitations over depressed fuel prices and China's slowing growth abound, Singapore's key players are confident in the underlying mega trends that will drive the industry forward long into the future. Southeast Asia remains an attractive growth market, given its rising middle class and consequently increasing purchasing power. But more importantly, Singapore's innovative policymakers are always one step ahead, working to ensure the future prosperity of their small but mighty island. For these reasons and more, multinationals will continue to see reason to set up shop in the city-state. "Singaporeans do not rest on their achievements and are constantly looking ahead. The country's astounding development over the last fifty years has proven that its policymakers had indeed crafted a good master plan. The Economic Development Board (EDB) is attentive towards the industries and companies coming to Singapore that can contribute to the further development of the country's industry and possibly other industries, which is a unique and effective strategy," said managing director of Helm Asia, Andreas Woschek.

Here we find ourselves in an ever-evolving landscape, engaged in thought-provoking conversations with some of the country's leading business minds. While Singapore's poet Edwin Thumboo once called Singapore a "quiet island with a name," beneath the calm and order of a well-running society, the industry's cogs and wheels are perpetually in motion. The year 2016 may bring economic uncertainty, but Singapore is rising to the challenge.•

The chemical industry is a capital intensive and, in many cases technology intensive, industry. Hence, predictability with regards to government policies, rule of law and IP protection make Singapore a trusted and secure environment for sensitive and large investments. However, we cannot simply rest on our laurels. In today's environment—whether it be commodity markets, business growth, or political developments around the world—there is a great deal of uncertainty. Consequently, being able to provide some degree of resilience, or flexibility to respond to changes, becomes increasingly important. Accordingly, we are beginning to work on improving Singapore's energy and chemical companies' resilience. The Jurong Island v2.0 initiative will be of paramount importance to this, and we are beginning to see the fruits of this labour.

Damian Chan,
Executive Director, Energy & Chemicals,
Economic Development Board (EDB)
Singapore

Jurong Island, image courtesy of EDB

Gan Seow Kee

Chairman and Managing Director,

ExxonMobil Asia Pacific

Singapore boasts over 120 years of history with ExxonMobil and is home to the company's largest integrated petrochemical plant in the world. What role does Singapore play in ExxonMobil's greater global and regional strategy today?

Singapore is a very important strategic location for ExxonMobil, as the company's largest integrated manufacturing complex in the world is located here. ExxonMobil supplies markets throughout the Asia Pacific region and beyond from Singapore, which is also the regional hub for our downstream and chemicals businesses. Over the years, we have invested more than US$15 billion here and we continue to see the island as a very important strategic location for us. Singapore is a good location to conduct business given its sound stable government, policies, excellent infrastructure and great trade connectivity throughout the region and beyond. What is also important is that ExxonMobil continues to receive good support from the Singapore government and its agencies, such as the Economic Development Board (EDB) and JTC Corporation (JTC), to facilitate the company's growth in Singapore and with Singapore.

ExxonMobil is working its way to becoming self-sufficient in terms of energy and electricity consumption and so has begun construction of another co-generation facility. What is the status of this facility and how else are you working towards promoting sustainability in Singapore?

ExxonMobil is building an 84-megawatt co-generation facility that is progressing on schedule, and it is expected to come on line next year. This third co-generation facility is an important step for ExxonMobil, as the unit alone will improve the energy efficiency of our Singapore Refinery by 4 to 5% and reduce carbon dioxide emissions equivalent to taking about 45,000 cars off the road. When completed, the facility will bring our generation capacity to 440 megawatts, so that we will be self-sufficient for our electricity needs.

In addition to co-generation, ExxonMobil has continually been investing in improving energy efficiency through programs such as our Global Energy Management System, and technology. Our expanded petrochemical plant in Singapore is equipped with the latest state-of-the-art technology, incorporating more than 40 new proprietary technologies, and stands as the most energy efficient plant we have in the ExxonMobil circuit worldwide. In addition to helping the plant consume less energy and reduce emissions, these advanced technologies enable us to make leading-edge products efficiently and with reduced environmental impact. For example, we produce advanced plastics for packaging or car parts that are more durable and use less material, which help our consumers also minimize their environmental impact.

Aside from its advantages, there are some challenges associated with operating in Singapore, such as a tightening labor market. How is ExxonMobil circumventing these issues?

ExxonMobil employs more than 3,300 people in Singapore, of which about 90 percent are Singaporeans and permanent residents. Labor tightness affects our company mostly through vendor companies and contractors that support us in our major investments or maintenance projects. While they are not our direct employees, we have been striving to improve the productivity of our contractor workers through cross-industry initiatives such as the Process, Construction and Maintenance Management Committee (PCMMC), a joint effort led by the EDB, Singapore Chemical Industry Council (SCIC) and the Association of Process Industry (ASPRI). We hope that our efforts will spur a virtuous cycle to enhance overall productivity. Raising productivity will support Singapore's larger goals of better jobs for Singaporeans, less dependency on immigrant labor and increased innovation by businesses and industry.

What is the ratio of ExxonMobil's production of specialty vs. commodity products? How will the ratio change with the new rubber and resin plants scheduled to go on line next year?

ExxonMobil has been on this journey towards specialty production for a number of years. Demand for commodity products is growing at a slower rate than GDP growth, while growth in demand for select specialty chemical and lubricant products is taking place at a faster rate than GDP growth. Hence, over time, we want to upgrade our molecules and add capacity to be able to convert commodity fuels into products such as lubricants, chemicals and specialty chemicals. For example, ExxonMobil already has facilities in place to produce specialty grades of elastomers and polyethylene. Our halo-butyl rubber and hydrogenated hydrocarbon resin plant (to produce adhesives) will be a continuation of our investments here to meet long-term demand for specialty products.

As a forward-looking company, what are some of ExxonMobil's longer-term goals?

We are optimistic about the medium and longer-term prospects for our business here in Singapore, as well as our view of Singapore's role in the production and supply of oil and gas and petrochemical products throughout the region. The fundamentals of our business remain unchanged whether oil is $100 or $30 per barrel. On a day-to-day basis, we continue to focus on operating safely and reliably in the most cost effective and sustainable manner and maximizing the value of every molecule across the value chain. We are committed to continue working closely with the government and other industry stakeholders here on long-term sustainability and competitiveness of our business. We continue to invest in providing good careers and developing our employees to their fullest potential, as well as being a good corporate citizen, making a positive impact on the community around us. •

Regulations

Adoption of a New Safety Case Regime to Strengthen Singapore's Chemical Ecosystem

Singapore has maintained its stature as one of the most sophisticated hubs in the world for petroleum refining and chemical manufacturing for decades. But as a number of global incidents have illustrated, the chemical trade remains an inherently risky business. Inspired by an impetus to continually evolve, Singapore's industry stakeholders are taking concerted actions to ensure the longevity of its precious industry. In a population-dense city-state, this calls for staunch attention to workplace safety and health in order to protect the industry and its surrounding communities, as well as to ensure its competitiveness. Thus far, Singapore's chemical industry is fortunate to boast a stellar safety record and serves as the country's leading industry in terms of health and safety. However, while Singapore's current workplace safety and health management system is stringent, its regulators are working to introduce a new framework to even better manage risk, prevent major accidents and limit their potentially grave consequences.

Accordingly, in March 2014, the Ministry of Manpower (MOM) set up an inter-agency taskforce to review and enhance Singapore's existing regulatory framework for major hazard installations (MHIs) with the goal of being in line with international best practices. MHIs include petroleum refining and manufacturing facilities, chemical facilities, chemical processing plants and facilities where large quantities of toxic and flammable substances are stored or used—accounting for thousands of companies across the oil and gas, chemicals and process sectors. MOM, along with the Ministry of the Environment and Water Resources (MEWR), the Ministry of Home Affairs (MHA), the Ministry of Trade and Industry (MTI), Singapore Civil Defense Force (SCDF) National Environment Agency (NEA), the Economic Development Board (EDB), JTC Corporation (JTC) have been working alongside the industry to implement Safety Case regime.

The Heart of the Matter

Safety Case regime is not new to the chemical industry, but has only recently made its way into the local regulatory framework. Singapore's avid regulators have travelled across Europe to study the ways in which other jurisdictions, such as the United Kingdom, Germany and the Netherlands, manage their MHIs, returning to the homeland inspired by a more flexible and comprehensive approach to safety.

A Safety Case regime will allow MHIs greater flexibility to tailor risk-mitigating measures to best suit their own needs, moving away from a prescriptive one-size-fits-all regulatory approach. This means that MHIs will assume greater responsibilities to identify and manage safety, health and environment (SHE) risks, and demonstrate that they are safe. Essentially, Safety Case will call for the integration of all SHE protocols onsite as well as a formal demonstration to regulators that all MHI risks have been reduced to as low as reasonably practicable. MHIs will have to make a case to convince regulators that their unique strategy for managing safety is satisfactory. Adoption of a Safety Case regime will lead to the improved understanding of hazards and risks, an enhanced knowledge of technical and managerial controls, and better oversight in general.

Ring up the Curtain

Along with an introduction of Safety Case regime, the inter-agency taskforce also recommended to establish the Major Hazards Department (MHD), to serve as the single and easily accessible regulatory body overseeing the new safety protocol. The MHD will be responsible for Safety Case assessments, inspections and investigations. The department will be led by MOM, and comprise officers from SCDF and NEA.

New MHI regulations will be introduced under the Workplace Safety and Health Act to put the Safety Case regime into effect. A law will be enacted to require safety case submissions by MHIs in the first half of 2016, followed by the release of a technical guidance document to instruct the industry on how to best prepare for new regulations.

To ease the industry into adoption, there will be a grace period until mid-2017 when the Safety Case regime for MHIs will formally take effect.

Working Hand in Glove

The implementation of new MHI regulations is a result of close cooperation between a number of aforementioned government agencies and the industry in order to tailor the framework to a Singaporean context. In addition to various industry consultations and capability building initiatives led by regulators, Singapore Chemical Industry Council (SCIC) has established an MHI committee for the sole purpose of supporting the enhancement of the new framework. The entire regulatory process is a testament to Singapore's transparent and consultative way of doing business and the widespread belief that collaboration leads to better outcomes. "We work together for the betterment of Singapore, that is why our economy can grow," said executive director of SCIC, Terence Koh.

In fact, agencies are continuing to work closely alongside the industry to co-develop specific guidelines, including technical guidance for the Safety Case regime. Additionally, with the introduction of Safety Case regime, regulators are prepared to further streamline existing SHE regulatory requirements. In sum, all of Singapore's stakeholders—from multinationals to local producers and regulators—are investing time and resources into preserving the city-state's competitiveness. Together they are doing what Singapore does best: taking a long-term view, and working tirelessly for the betterment of their chemical industry.•

Satvinder Singh

Assistant Chief Executive Officer,

International Enterprise (IE) Singapore

International Enterprise Singapore (IE) has a dual mandate to help grow Singapore based companies into globally competitive companies (GCCs) and promote international trade. Please introduce our readers to IE and its role in Singapore today.

IE was formed in 1983 as the Trade Development Board (TDB) under the Ministry of Trade and Industry to promote and grow Singapore's trade. At the time, TDB's primary focus was enabling trade and helping Singaporean companies export their products. In line with Singapore's economic strategies to develop the external economy in the 2000s, the agency's mandate was expanded. TDB was then renamed IE Singapore in 2002, with the added mission to drive the growth of Singapore companies overseas, complementing Singapore's role as a global trade hub. Companies have to internationalize and look beyond Singapore to bigger markets if they want to grow. IE recently celebrated its 30th anniversary in 2013, and today has grown to have a presence in 39 locations across the world.

Given that Singapore's total merchandise trade dropped by 9.5% in 2015, what is your assessment of the current trading environment and its effect on the city-state's economy?

Asian demographics – large population base and its growing middle-class - support Singapore's trade interest. Singapore's trade to GDP ratio is about 3.5 times, being the 14th largest exporting and 16th largest importing nation in the world. In a country of 5.5 million people, our total merchandise trade is valued at approximately USD900 billion, on par with some large OECD countries.

IE Singapore is responsible for growing the wholesale trade sector, which goes beyond imports and exports. Historically, the wholesale trade sector has been one of the largest employers for the services sector in Singapore and will remain one of the most important economic activities in Singapore in the future. Within this sector, there is a significant amount of offshore trade conducted from Singapore, a large portion of which is O&G downstream business.

Singapore has attracted some of the largest companies in the world to establish their marketing, trading, risk management, financing and supply chain management activities in the country. This is due to five factors. Firstly, Singapore is located in an open neutral marketplace and plays host to all key counterparties. Secondly, Singapore has a very competitive financing ecosystem and can provide high liquidity in trade finance. Today, Singapore is undisputedly the largest trade finance hub in Asia, with 25% to 35% of all trade finance volumes coming from the local financial market. Singapore also has large equity and bond markets given the number of investors present. Furthermore Singapore is the third largest financial center, the third largest foreign exchange hub with best USD liquidity in Asia and the largest RMB clearing hub in the world outside of China.

The third contributing factor is Singapore's strong rule of law as well as mediation and arbitration environment. The neutrality that Singapore offers provides equal positioning to counter parties. The fourth factor is a highly skilled workforce that is able to manage operations efficiently. Singapore boasts excellent training programs, and a population that has consistently been voted one of the best workforces in the world. This is due to the fact that we heavily invest in our people; the country's second highest expenditure is education. Lastly, Singapore offers a high quality lifestyle.

IE recently launched an International Trading Programme (ITP) with Nanyang Technological University (NTU) to better prepare graduates for industry. Can you elaborate on this and additional initiatives?

A large portion of our operations is highly influenced by the needs of the private sector. While universities and academic institutions provide young people with required skill sets, there are technical skills that can still be harnessed to make individuals more attractive to employers. We have gauged a high demand within technical industries for young people to possess more in depth and practical knowledge of industry operations.

Consequently, over the last 10 years, IE has been working with various institutions to build programs that will enhance technical training of Singapore's young generation. The ITP program with NTU involves integrating the business school and the engineering school to expose business, engineering and maritime students to all the aspects of the industry, including international trading. Students will then graduate with double degrees, one from their chosen school as well as another international trading specialization.

What is IE's vision for Singapore's commodity trading sector for the next three to five years?

The existence of business hubs such as Singapore is critical in challenging economic spells such as the one we are witnessing today. Companies worldwide must focus on managing risks and being efficient to survive the downturn. Most of the players in the energy sector have not scaled down their activities, but their production volumes have grown through increased efficiency. In a downturn such as this, a significant amount of players continue to come to Singapore as they realize the marketplace is here to stay. There are currently about 50 large petrochemical traders actively trading in Singapore. In the next five to 10 years, I expect the country to attain a leadership position in the other energy clusters such as LNG, LPG and crude.

Do you have a final message for our international readership about Singapore's chemical industry?

Singapore plays a pivotal role in Asia as a chemical hub and energy epicenter, with an increasingly diverse ecosystem and growing trade volumes. We stand as a pillar around which regional and global economies can flourish.•

Stephen Fowler

Member of the Board of Directors,
SCIC,
General Manager,
Shell Jurong Island

On the regulatory front, new Major Hazards Installations (MHI) regulations will be introduced in Singapore, requiring safety case submissions by MHIs sometime during the first half of this year. As Sponsor of SCIC's MHI Committee, what changes will this bring to the industry?

I believe the Safety Case regime offers Singapore the opportunity to both efficiently and effectively regulate Major Hazards Installations (MHIs). It presents an overarching framework that is very clear on the why and the how; it puts a lot of emphasis on the operator actively demonstrating they are safe. Process safety incidents continue to happen around the world and kill people and we cannot afford to be complacent. We have to continue to pursue the only acceptable goal of zero process safety incidents in our industry.

In my role as an SCIC Director, I am very happy to be one of the Joint Sponsors from the industry. We are building on the positive experiences of countries that have implemented the Safety Case and have chosen for ourselves the UK model as a starting point. Besides developing the framework itself, the Joint Workgroup is also tasked with supporting the development of the necessary capability to abide by the regulations as intended.

How will the adoption of a safety case regime affect companies' operations in the short and long term?

Many of the components of the Safety Case already exist in our industry today, such as emergency response plans. But there are some new elements. Two new elements for Singapore are the need to demonstrate ALARP ("as low as reasonably practicable") and the inclusion of Human Factors in the Safety Case. ALARP is a fundamental concept in safety management that involves weighing a risk versus the resource to control that risk. It errs on the side of safety, so as best practices evolve, ALARP constantly drives us to improve and demonstrate that we are safe. With human error often a factor in incidents, it is also important that this is actively considered in process safety. What this means is that operators have to demonstrate how they are ensuring that their people are not the weakest link.

What other changes can the industry expect?

Currently, MHIs deal with multiple agencies for licensing and safety. With the Safety Case implementation, we will have a single regulator for MHIs known as the Major Hazards Department. This is expected to lead to some simplification of regulations. This single entity and a simpler overall framework are welcome. Ultimately, the most important part of the Safety Case is that as operators we live it. Rather than seeing it as an administrative effort or just to secure a license, when we truly live it, we will have enhanced our ability to prevent major incidents.

Manufacturing

Singapore's Heavyweights Continue Lifting


IMAGE: Courtesy of Evonik

Singaporeans and foreigners alike are attune to the Lion City's high cost of living and doing business. While the country's delicious hawker fare might cost a hungry tourist just a few dollars, setting up shop here begs a much larger investment. Today, increasingly high costs of doing business on the island are taking center stage, especially in the midst of an economic downturn. In fact, according to the Economic Development Board (EDB), Singapore's manufacturing output contracted by 5.2% in 2015, the first annual decline since 2009. However, while the signs pointing south abound, we have discovered a sense of resilience among Singapore's chemical players that might just prove otherwise.

"Investments made in the last two years were not made with a short-term view, but rather with a 20 to 30 year timeline in mind. It is very clear that Singapore does not offer the lowest costs in terms of manufacturing but boasts advantages in other areas. Hence, Singapore needs to continue to work towards differentiation, which will help companies

Suiniaty Basirun, country manager at Dow Chemical Pacific (Singapore)

Peter Meinshausen, president of Southeast Asia, Australia and New Zealand Region at Evonik (SEA)

like Dow remain competitive," said country manager at Dow Chemical Pacific (Singapore), Suiniaty Basirun.

According to the Ministry of Trade and Industry, the local chemical industry produced $81 billion worth of output in 2015, accounting for 28.6% of the city-state's total manufacturing output that year. That year, all clusters except for the chemicals cluster, recorded a decline in output. And the mighty Island is not due to float away any time soon. Large multinationals that have called Jurong Island home for decades are strengthening their commitment to the region with increased investment in production capacity expansions and new plants.

Evonik (SEA), ExxonMobil Asia Pacific and Lanxess are among the majors that have made significant investments in Singapore of late. Capitalizing on the growing global market for feed additives and amino acids—a large portion of which is stemming from Asian markets—the leading German specialty chemicals company invested in 150,000 tons of DL methionine production capacity in 2014. The chemical company also announced plans to double capacity of its new methionine plant by 2019. "Singapore continues to be an interesting location as a hub serving the ASEAN region—a market of 600 million consumers in a relatively stable economic and political environment. A growing population, wealth and the desire to improve quality of life are driving demand in the region," said Evonik (SEA)'s president of Southeast Asia, Australia and New Zealand Region, Peter Meinshausen.

ExxonMobil, a pillar of Singapore's growth as a nation and member of the club for over 120 years, also continues to make large investments in the country. The integrated giant is currently in the process of adding increased downstream facilities to its complex, including hydrocarbon resins and halobutyl rubber plants that are scheduled to go on line next year. Of these facilities, ExxonMobil's new halobutyl rubber plant will be the largest of its kind in the world. Both large-scale specialty investments are a result of global demand analysis. "Demand for commodity products is growing at a slower rate than GDP growth, while growth in demand for select specialty chemical and lubricant products is occurring at a faster rate than GDP growth. Hence, over time we want to upgrade our molecules and add capacity to be able to convert commodity fuels into products such as lubricants, chemicals and specialty chemicals," explained ExxonMobil Singapore's chairman and managing director, Gan Seow Kee.

Another German chemical manufacturer, Lanxess, made one of its largest investments worldwide in Singapore earlier last year. The firm opened its second plant in Singapore in August 2015; a $318 million neodymium butadiene rubber plant with an annual production capacity of 140,000 metric tons.

Real GDP (year on year growth)

2014 +3.3%

2015 +2.0%

IN 2015, SINGAPORE'S MANUFACTURING SECTOR SHRANK BY 5.2%,

DESPITE THE CHEMICAL CLUSTER BUCKING THE TREND, POSTING 3.9% GROWTH FOR 2015

Lanxess' new production facility strengthens Singapore's growing position as a hub for synthetic rubber production in the region. Other chemical heavyweights such as Sumitomo Chemical and Asahi Kasei have also put dollars towards synthetic rubber production in Singapore, further complementing the city-state's position as the world's largest rubber trading hub.

But what keeps them all coming back for more, during a period of high market volatility and overall uncertainty? Multinationals undoubtedly remain convinced by Singapore's attractive offering as a chemical manufacturing hub. Instead of moving operations to lower-cost locales such as Malaysia or Thailand, the world's chemical giants continue to be wooed by the city-state's attractive tax schemes, top-notch infrastructure and interconnectivity, pro-business government, legal transparency, highly skilled human capital and academic resources. The final point is especially relevant as more and more firms look to streamline their operations and focus on their core businesses: production and R&D.

Further down the chemical value chain, for example, firms such as DSM and Croda Singapore are heading portions of their Asia Pacific operations from Singapore, keen to capitalize on the country's attractive innovation resources. "DSM is leveraging Singapore's many research institutions and multicultural environment to conceptualize and co-create within the fields of life sciences and material sciences," explained vice president for human nutrition and health Asia Pacific at DSM, Pieter Nuboer.

Companies like DSM are working to be as close to their customers as possible in order to better cater to the evolving Asian consumer. As the fastest growing region in the world, new demands are stemming from the

Image courtesy of PacificLight Power

region, calling for the creation of differentiated products and tailored applications. According to the EDB, growth of Asian economies has resulted in an increased market demand for energy, refined products, chemicals and consumer goods. This exponential growth is underlined by driving trends in the personal care, packaging, automotive and infrastructure sub market segments.

"The market is evolving and while generally most businesses have approached Asia by deploying developed western technologies, it has become apparent that innovation cannot be parachuted into the territory and still effectively utilized and integrated. Innovation in Asia has to be driven for Asia, and as the fastest growing market in the world, deserves its own attention," emphasized Croda's President of Asia Pacific, Dr. Nick Challoner.

Asia's growing significance as a dynamic and differentiated market implies that Singapore will not only continue to serve as a hub for manufacturing, but increasingly as a hub for R&D and innovation. Today all eyes are on Asia and the evolving Asian consumer, particularly as the rest of the world economy experiences sluggish growth.

Nick Challoner, president, Croda Asia Pacific

Specialty chemicals producer AkzoNobel is also catering to Asia-specific demands from its multi-purpose plant on Jurong Island. "AkzoNobel's surface chemistry products have diversified uses, based on innovations inspired by emerging trends and evolving demands in the region. For example, the need for increased meat consumption in Asia has led us to develop pelletizing acids for increasing feed production yield," said marketing and sales director for Southeast Asia, Korea and ANZ at AkzoNobel, Kok Oon Liew.

While Singapore's chemical industry continues to evolve, petrochemicals still account for the bulk of the island's production, representing 40.2% of total output. Increased competition and lower prices of basic petrochemicals internationally have prompted all stakeholders to recognize the need to continually add value and differentiate their offering. Given the island's sophisticated infrastructure and interconnectedness, there is little debottlenecking to be done. Instead, what manufacturers will have to focus on moving forward include: feedstock security, plant and equipment reliability, and overall flexibility and safety. Ensuring all these factors will help keep Singaporean manufacturers afloat during difficult times. As new investments indicate, no one is giving up on Singapore's Jurong Island as a chemicals hub just yet.•

Logistics

Movers and Shakers: Singapore's Logistics Firms Gear up for Expansion

Looking down from the 57th floor of Singapore's famous Marina Bay Sands Hotel, the island's dark waters are speckled with the glimmering lights of hundreds of ships. According to the Maritime and Port Authority of Singapore (MPA), at any given point there are about 1,000 vessels floating in Singapore's port.

Approximately 30 million containers and 500 million tons of cargo are handled every year by Singapore's terminals. The city-state has long been known for its strategic positioning in the middle of the Malacca Straits, connecting Asia with the West. Hence it is only natural that Singapore has become known as a global logistics hub. "Singapore is well positioned as a key logistics hub, and will play a seminal role in moving material across Asia Pacific," said country manager at Dow Chemical Pacific (Singapore), Suiniaty Basirun.

Logistics and transportation are key functions when it comes to the chemical industry, as raw materials and finished products are shuffled across the world through complex supply chains. These shipments often contain

Image courtesy of Yang Kee Logistics

Image courtesy of HELM Asia

hazardous goods, begging compliance to strict regulations. Chemical logistics is not for the faint hearted, especially in today's volatile market. Faced by economic pressures, manufacturers and chemical heavyweights are streamlining operations, cutting costs and placing emphasis on diversification and R&D to remain competitive. More and more producers are choosing to focus on their core capabilities and leave the rest to the experts. "Chemical companies' core knowledge is production, marketing and R&D. Logistics is not part of this core and hence there are a great deal of inefficiencies in the way logistics is done in Asia. Our customers are becoming aware of that fact," said managing director of Bertschi Singapore, Lieven Vander Elstraeten.

While chemical logistics have long been outsourced in Europe and the United States due to discrepancies in costs, this is not the case in Asia where salaries are largely consistent across the two industries. Nevertheless, Asian firms have started to follow suit, especially in Singapore where manpower is scarce. Facing a number of recruitment difficulties due to a labor shortage, producers are eager to outsource labor-intensive functions, such as logistics. This trend has opened a fresh gap for logistics firms to fill. In response to a burgeoning demand for chemical logistics services, international and local third-party logistics providers (3PLs) alike are stepping up. Singaporean firm Yang Kee Logistics, for example, has recently embarked on an expansion of its chemical logistics capabilities. "We have been offering transportation services to our customers on Jurong Island for over a decade. Along the course of the company's evolution, we gauged a demand for more value added services. This prompted us to expand our offering to include warehousing, freight management and project logistics, which subsequently led to the development of our chemical warehouse in 2014 that today

SINGAPORE'S CHEMICAL CLUSTER GREW BY 5.4%

5.4%

IN THE LAST QUARTER OF 2015 ON THE BACK OF 8.7%

8.7%

EXPANSION IN PRODUCTION OF SPECIALITY CHEMICALS DURING THIS PERIOD.

Chantal Quek

General Manager,

Association of Process Industry (ASPRI)

Can you walk us through ASPRI's evolution since our last meeting in 2013? What is your current mission as a representative body of Singapore's process industry?

ASPRI has been making continuous efforts over the past three years to strengthen our relationships and partnerships with the government, plant owners and ASPRI members in order to most efficiently represent the interests of our members. We have also achieved another milestone, growing our member base to over 500 companies. ASPRI has been conscientiously creating and delivering value-added benefits to our member companies. In 2015 ASPRI began a rebranding campaign and adopted the "Connect – Engage – Grow" logo, mirroring our resolution to fulfill our renewed vision, "To be a credible and visible partner in the process industry".

How is ASPRI collaborating with the Singapore Chemical Industry Council (SCIC) to better support SMEs?

SCIC is another one of our valued industry partners. We are working more closely with SCIC as we sit on the Productivity Council together with some of their members, our members and relevant government agencies to continuously seek productivity improvement, efficient optimization of resources and promote the adoption of improved mechanization.

ASPRI is currently engaged in setting up a dormitory training facility that is scheduled to open in June of this year. Can you elaborate on the training and education initiatives ASPRI is involved with, as well as any other projects?

ASPRI-Westlite Papan is targeted to be completed by mid-2016 and will cater to the accommodation and training needs of workers in the process industry. The facility has the capacity to house 7,900 people, in addition to a 3,000 sq. meters training center. The goal is to improve the skill sets of the workers residing in the dormitory by providing comprehensive training courses for the industry right at their doorstep, The ASPRI Integrated Training Centre (AITC) is the first initiative of its kind, which we are proud to be involved with. The dormitory's value added training and facilities are designed to improve the wellbeing of foreign workers, leading to minimization of fatigue and increased productivity. The facility will also help upskill workers so that they can undertake greater job responsibilities. This will help form a leaner workforce, bring about better skills and higher salaries, ultimately helping Singapore retain its skilled workforce and sustain its competitiveness.

Some SMEs GBR has met with this year have voiced concerns over growing challenges they are facing. What is your assessment of the current business environment?

It is true that some ASPRI members might have experienced a decline in their business as a result of the current economic situation. As oil prices are lower, a significant amount of plants have put their projects on hold and work volumes have declined significantly, resulting in a very competitive market. Associations and the government have responded to this by offering more schemes such as Lean Enterprise Development Scheme (LEDS) and encouraging better synergy within the industry. On the other hand, productivity requires commitment and effort on the part of of all parties. We hope to strengthen the spirit of partnership within the industry to drive productivity collectively and more effectively through innovation and transformation of business models, work processes and methodologies.

What is your outlook for the process industry in Singapore and what goals does ASPRI hope to achieve within the next three to five years?

Despite finding ourselves in uncertain economic times, Singapore remains a growing center for doing business with a stable political climate, reliable rules and regulations, and most importantly a high level of trustworthiness at both the individual and corporate levels. All these factors support the process, construction and maintenance (PCM) industry, which is ready to offer its value added services. ASPRI is currently encouraging its members to collaborate more with one other in an open-minded manner, paving a smoother path towards economic recovery. With South East Asian neighbors presenting investors with lower cost alternatives, Singapore needs to innovate and enhance cost competitiveness with its high quality and efficiency-driven service offering. We should enhance our engineering capabilities, which we need to continue to hone and leverage. ASPRI in 2016 is excited to be working alongside the government and the industry, linking arms in an effort to solidify Singapore's competitive advantages through connecting the right people, engaging industry stakeholders and propelling the growth of the industry by embracing a strong spirit of partnership.

IMAGE: Courtesy of Borouge

stands as a chemical logistics hub," said chief executive officer of Yang Kee Logistics, Jos Raaymakers.

Other logistics firms that have also been in the space for decades are beefing up their suite of technology offerings to stay ahead. Family owned BDP International, celebrating its 50th anniversary later this year, attributes success to its high technology offering. "Our flagship BDP Smart is a highly configurable strategic tool that allows shippers to visualize their logistics process and provides performance measurement reports according to users' requirements via a single-source web portal. Furthermore, customers in the Chemical and Life Sciences verticals enjoy fields that are unique to the industry. The BDP Smart Chemical dashboard is tailored specifically to the practices of the international chemical industry, with extra focus on sensitive shipments of hazardous cargo for instant visibility. Interactive maps provide users with a global view of the top 10 trade lanes along with any alerts that may require immediate attention," said BDP International's South Asia managing director Richard Strollo.

In a technology-driven arena, it will be crucial for logistics companies to continue innovating in order to differentiate themselves and garner trust within the industry. Trust is especially important in the chemicals space and requires time, experience and expertise to build. Leading international intermodal chemical transporter Bertschi has managed to do this over the course of the last 60 years in Europe. Recently however, Bertschi decided to bring its Swiss swagger to Singapore, investing $45 million in the new Bertschi Jurong Island Chemical Cluster (JICC), a state-of-the-art chemical logistics service hub. The family-owned European company quickly wooed Singaporean clients with its new terminal, achieving astounding commercial success within just five months of operation. Bertschi offers its customers a one-stop lean supply chain solution, providing storage for dangerous goods, ISOtanks, a semi-automated warehouse and sizeable drumming and ISOtank heating capacities.

Together, Singapore's logistics companies are working to optimize chemical manufacturers' operations and bring about cost savings, with the goal to build leaner supply chains. All ears are perked for evolving customer demands. Another pillar in the Singaporean market, Integra Petrochemicals, has gone above and beyond its role as a trader by adding logistics to the company's service offering. The company's executive director Gina Fyffe said: "Integra has always been attentive to our customers, for example, by increasing the size of our fleet of ships and staffing to provide us with more flexibility to serve our customers in the region. Integra has integrated logistics into our service offering to consolidate a complex supply chain and reduce risk for our customers."

Companies are just beginning to scratch the surface in Singapore, excited by the prospect of Jurong's heavyweights outsourcing a greater portion of their businesses. While logistics players' critical function is at times overlooked, these movers and shakers form the backbone of all chemical operations. And as Singapore continues to search for new ways to remain competitive, optimizing supply chains will further enhance the country's industrial landscape, making it attractive to all stakeholders. "An efficient and well-managed logistics setup is key to ensuring the safe and smooth movement of goods and services across the industry and to our customers. ExxonMobil takes a whole-value-chain approach in the planning of our projects and operations, which includes logistics considerations. For us, the success of Singapore and Jurong Island is not just in its strategic positioning but also in its accessibility and connectivity," said chairman & managing director of ExxonMobil Asia Pacific , Gan Seow Kee. •

Image courtesy of Bertschi Singapore

GBR

GLOBAL BUSINESS REPORTS

SCIC

SINGAPORE CHEMICAL INDUSTRY COUNCIL

ASPRI

Connect • Engage • Grow