



Guide to Singapore

*Opportunities and Limitations
in Manufacturing*

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Disclaimer

This material is prepared and intended for general information and reference purposes only. It does not cover exhaustively the subject it treats, but is intended to answer some of the important broad questions that may arise. When specific issues arise in practice, it will often be necessary to consider the relevant laws and regulations, and to obtain appropriate professional advice. The information contained here is current at the date of publishing and may change over time, and no representation, expressed or implied, is made as to its accuracy, completeness or correctness.

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1. Overview of Singapore

Executive Summary

As a result of successful economic reforms, Singapore has experienced rapid economic growth in the past two decades. The city-state is now a highly developed country and also the fourth largest financial centre in the world.

Singapore has 25 signed and effective bilateral free trade agreements (FTAs) with countries in Asia, Europe, Middle East, as well as North and South America. These agreements eliminate tariffs and incentivise investments in a number of industries. As part of the Association of Southeast Asian Nations (ASEAN), Singapore benefits from six other multilateral trade agreements with Mainland China, South Korea, Japan, India, Australia and New Zealand, in addition to the ASEAN Free Trade Area.

Singapore is an attractive destination for foreign investors due to its open market, strong legislation system and free financial market. However, the high dependence on the service sector exposes the nation to global economic risks and trade disputes.



1. Overview of Singapore

I. Country Profile^{1,2,3,4,5,6,7}

Singapore is an island state in Southeast Asia which has been experiencing significant economic growth since its independence in 1965. The nation is indeed one of the “Four Asian Tigers” (with Hong Kong, South Korea and Taiwan) which together are some of the most developed economies of the region. As one of the major financial centres in the world, the country has witnessed strong growth over the past two decades. Economic performance however is slowing down, as the nation is expected to have a gross domestic product (GDP) growth of only 1.3% between 2018 and 2019. Nevertheless, the government is looking to push for the digital transformation of Singapore, thus placing innovation as one of the country’s major economic drivers.



GDP (in USD)

365.0 billion (2019f)
360.4 billion (2018)



GDP Per Capita (in USD)

52,890 (2019f)
62,590 (2018)

Economic Structure

(in terms of GDP composition, 2017)



Agriculture: 0%
Industry: 24.8%
Services: 75.2%



External Trade (% of GDP)

Import: 149.8% (2018)
Export: 176.4% (2018)



Population

5.80 million (2019)
World ranking: 114/191



Median Age

34.9 (2018)
World ranking: 84/228 (from oldest to youngest)



Official Languages

English
Mandarin
Malay
Tamil



English Literacy

Very high proficiency (2019)
World ranking: 5/100



Government Structure

Unitary multiparty republic



Land Area

709 sq km

II. Country Profile on Trade

A. International Trade Agreements and Restrictions^{8,9}

International trade agreements provide various benefits for participating countries with the aim of enhancing economic growth for all parties. It allows companies located in two or more countries to trade goods with each other at reduced or zero tariffs. Singapore is a founding member of the Association of Southeast Asian Nations (ASEAN) and is a full member of the World Trade Organization (WTO) since 1995. The country has therefore a preferential access to the most developed Southeast Asian economies and is strongly implicated in international exchanges.

Singapore has 25 signed and effective free trade agreements (FTAs), including the ASEAN Free Trade Area. The country has also launched negotiations with five economic partners (including Canada, Egypt, Mexico, Pakistan and Ukraine).

In addition to the FTA with the European Union (EU) that recently entered into effect, Singapore signed in 2019 an agreement with the Eurasian Economic Union (EEU). This FTA reduces tariffs on 90% of the products that Singapore exports to the EEU, including mineral fuels, machinery and mechanical equipment, pharmaceutical and chemical products, or food products.

Signed and Effective Bilateral Trade Agreements (Part 1/3)

	Affected Industry	Agreement (effective date)
	<ul style="list-style-type: none"> All 	<p>New Zealand – Singapore Closer Economic Partnership (2001)</p> <ul style="list-style-type: none"> Eliminated all tariffs on Singapore’s exports to New Zealand. In 2017, New Zealand was Singapore’s 6th largest investor.
	<ul style="list-style-type: none"> All 	<p>Japan – Singapore Economic Partnership Agreement (2002)</p> <ul style="list-style-type: none"> Eliminated tariffs for 92% of Singapore’s exports to Japan. Increased protection for Singapore investments in Japan.
	<ul style="list-style-type: none"> Manufacturing Agriculture 	<p>European Free Trade Association (EFTA) – Singapore Free Trade Agreement (2003)</p> <ul style="list-style-type: none"> Granted free duty for most industrial and agricultural products exported to Singapore. Additionally covered investment protection, government procurement, and intellectual property protection.
	<ul style="list-style-type: none"> All 	<p>Singapore – Australia Free Trade Agreement (2003)</p> <ul style="list-style-type: none"> Eliminated all tariffs for Singapore’s exports to Australia. Facilitated procedures in areas such as customs, government procurement, e-commerce, intellectual property, and business travel to foster a more open business environment.
	<ul style="list-style-type: none"> All 	<p>United States (US) – Singapore Free Trade Agreement (2004)</p> <ul style="list-style-type: none"> Elimination of all tariffs for Singapore’s exports to the US. Highly increased the number of products eligible for preferential tariff treatment. First FTA that the US signed with an Asian country.

Signed and Effective Bilateral Trade Agreements (Part 2/3)

	Affected Industry	Agreement (effective date)
	<ul style="list-style-type: none"> All 	<p>Singapore – Jordan Free Trade Agreement (SJFTA) (2005)</p> <ul style="list-style-type: none"> Eliminated all tariffs for Singapore’s exports to Jordan. The first FTA that Singapore signed with a Middle East country. The first FTA that Jordan signed with a country in Asia.
	<ul style="list-style-type: none"> Electronics Instrumentation Plastics Pharmaceutical 	<p>India – Singapore Comprehensive Economic Cooperation Agreement (2005)</p> <ul style="list-style-type: none"> Tariffs on 82% of Singapore’s exports to India were eliminated or reduced. Additional safeguarded market access to service suppliers.
	<ul style="list-style-type: none"> All 	<p>Trans–Pacific Strategic Economic Partnership (TPSEP) (2006)</p> <ul style="list-style-type: none"> Eliminated all tariffs for goods that Singapore exports to other TPSEP countries. Promoted cross-border economic cooperation.
	<ul style="list-style-type: none"> Electronics Chemistry Biomedical sciences 	<p>Korea – Singapore Free Trade Agreement (2006)</p> <ul style="list-style-type: none"> About 92% of tariffs on Singapore’s exports to Korea were reduced or eliminated. Sectors that most benefited from the FTA include: chemistry, electronic equipment, biomedical sciences.
	<ul style="list-style-type: none"> Electronics Automotive Food and Beverage 	<p>Panama – Singapore Free Trade Agreement (2006)</p> <ul style="list-style-type: none"> Eliminated tariffs on 98% of products traded between the two countries and simplified customs procedures to facilitate flows of goods between the two countries. Key exports that benefited from the FTA include: beer, processed food, refined oil, auto parts, engines and electronics.
	<ul style="list-style-type: none"> All 	<p>Singapore – Peru Free Trade Agreement (2009)</p> <ul style="list-style-type: none"> Reduced or eliminated tariffs for more than 87% of Singapore’s exports to Peru.
	<ul style="list-style-type: none"> All 	<p>Mainland China – Singapore Free Trade Agreement (2009)</p> <ul style="list-style-type: none"> Eliminated 95% of tariffs on Singapore’s exports to China. Allowed third-party invoicing of goods. Enhanced market access in a number of industry segments.
	<ul style="list-style-type: none"> All 	<p>Singapore - Costa Rica Free Trade Agreement (2010)</p> <ul style="list-style-type: none"> Eliminated tariffs for more than 95% of Singapore’s exports to Costa Rica. Allowed a more open market access for both countries’ investors.

Signed and Effective Bilateral Trade Agreements (Part 3/3)

	Affected Industry	Agreement (effective date)
	<ul style="list-style-type: none"> Construction 	<p>Gulf Cooperation Council (GCC) – Singapore Free Trade Agreement (2013)</p> <ul style="list-style-type: none"> The GCC members include: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. Eliminated about 98% of tariffs lines on Singapore’s exports to GCC. Enhanced cooperation between Singapore and GCC countries in construction service, education service, legal service and government procurement.
	<ul style="list-style-type: none"> Manufacturing 	<p>Turkey – Singapore Free Trade Agreement (2017)</p> <ul style="list-style-type: none"> Eliminated tariffs for more than 95% of Singapore’s exports to Turkey. When manufacturing goods for exports, Turkish and Singaporean manufacturers can source raw materials and parts from the EU and ASEAN at preferential tariffs.
	<ul style="list-style-type: none"> All 	<p>Sri Lanka – Singapore Free Trade Agreement (2018)</p> <ul style="list-style-type: none"> Elimination of 80% of all tariff lines through over 15 years. Sri Lanka’s first modern and comprehensive FTA that covers areas such as trade in services, e-commerce, investments and Intellectual Property (IP).
	<ul style="list-style-type: none"> Electronics Financial Services 	<p>European Union (EU) – Singapore Free Trade Agreement (2019)</p> <ul style="list-style-type: none"> Eliminated tariffs on all products that Singapore exports to EU. Removed unnecessary technical barriers to trade for Singapore and EU exporters. Enhanced market access to a series of service sectors including financial services, computer and related services, environmental services, and etc.

In addition to these bilateral FTAs, Singapore is a member of the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP) and benefits from FTAs signed between the ASEAN and other countries.

[The Comprehensive and Progressive Trans-Pacific Partnership \(CPTPP\)](#)

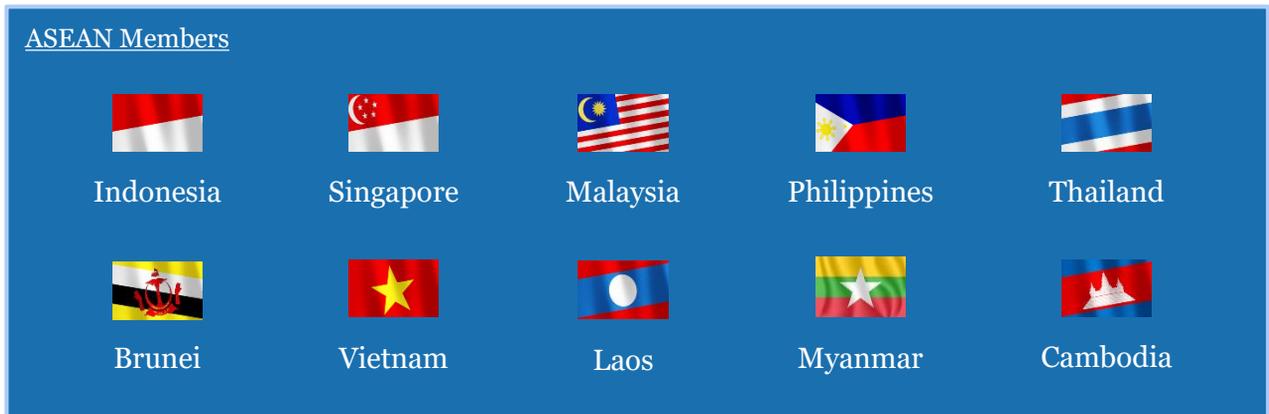
The Trans-Pacific Partnership (TPP) was originally an American initiative, but later the US withdrew from the agreement. After that, the remaining 11 countries decided to sign a new FTA called CPTPP, or TPP11. This agreement is set between Canada and 10 countries in Latin America and Asia-Pacific: Chile, Peru, Mexico, Australia, New-Zealand, Singapore, Brunei, Malaysia, Vietnam and Japan. The CPTPP fully entered into force in January 2019, creating a trading network of 495 million consumers representing an estimated 13.5% of the global GDP with reduced tariffs for agriculture, metals, wood and fishery products.

[Signed and Effective Regional Trade Agreements as Member of The ASEAN](#)

As a member of the ASEAN, Singapore benefits from agreements signed between the association and other countries. Therefore, the country has entered effective FTAs with: Mainland China (2005), South Korea (2007), Japan (2008), India (2010), Australia and New Zealand (2010).

The Association of Southeast Asian Nations (ASEAN)¹⁰

The ASEAN was founded in 1967 and currently has 10 members. The five founding members are Indonesia, Singapore, Malaysia, the Philippines, and Thailand. The remaining five countries joined in subsequent years: Brunei in 1984, Vietnam in 1995, Laos in 1997, Myanmar in 1997, and Cambodia in 1999.



The Association's Three Major Goals:

- Acceleration of economic growth, social progress and cultural development in the region;
- Promotion of regional peace and stability in Southeast Asia; and
- Foster cooperation and mutual assistance in economic, social, cultural, technical, scientific and educational fields.

The ASEAN Free Trade Area (AFTA)

In 1992, ASEAN countries decided to strengthen this comprehensive cooperation by implementing the AFTA. The main objective of the AFTA is to increase the region's economic competitive advantage through trade liberalisation and the elimination of tariffs and non-tariff barriers among the ASEAN members.

The Common Effective Preferential Tariff (CEPT) Agreement for AFTA reduces the tariff rates on a wide range of products within the region to 0-5%. In addition, restrictions on quantity traded and other non-tariff barriers are eliminated.

The CEPT covers all manufactured products, including capital goods and processed agricultural products, and those falling outside the definition of agricultural products. Agricultural products are excluded from the CEPT Scheme (further details on www.asean.org).

There are only three situations where a product can be excluded from the CEPT Scheme:

- General Exceptions: a member may exclude a product considered necessary for the protection of its national security, the protection of public moral, the protection of human, animal or plant life and health, and the protection of articles of artistic, historic or archaeological value;
- Temporary Exclusions: a member which is temporarily not ready to include certain sensitive products (i.e. rice) in the CEPT Scheme may exclude such products on a temporary basis; and
- Unprocessed agricultural goods.

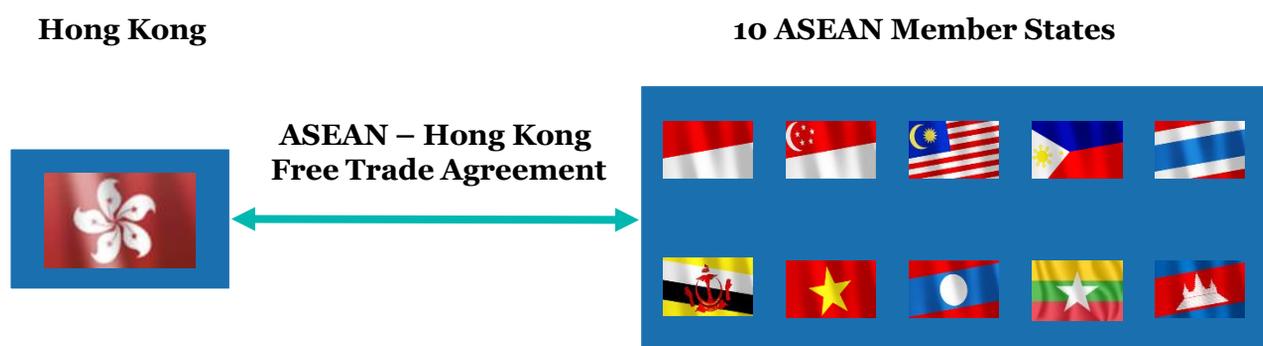
International Trade Agreement between Hong Kong and the ASEAN¹¹

Overview

Trade within the region has been booming since the removal of tariffs between the ASEAN member states in 2015.

Hong Kong and the ASEAN announced the conclusion of negotiations on their Free Trade Agreements in September 2017 and forged agreements on 12 November 2017. Member states agreed to progressively cut down or eliminate custom duties on goods originating from Hong Kong. The agreements are comprehensive in scope and cover trade of goods and services, investments, economic and technical cooperation, dispute settlement, and other relevant areas.

The ASEAN was Hong Kong’s second largest merchandise trade partner in 2018 with a total value of HKD 1.1 trillion (around 12% of the total trade value).



Entry

Free Trade Agreement Effective Date:

- 11 June 2019 - Laos, Myanmar, Singapore, Thailand and Vietnam
- 13 October 2019 – Malaysia

Investment Agreement Effective Date:

- 17 June 2019 – Laos, Myanmar, Singapore, Thailand and Vietnam
- 13 October 2019 – Malaysia

The dates of entry for the remaining four countries have not been announced yet.

<u>Affected Major Industries</u>		<u>Other Affected Industries</u>	
The tariff reduction commitments cover different kinds of major Hong Kong export commodities, such as (non-exhaustive):			
 Jewellery	Watches and Clocks		<ul style="list-style-type: none"> • Food and Beverages • Chemicals • Pharmaceutical • Metals • Plastics & Rubber • Footwear • Machinery and Mechanical Appliances
 Apparel and Clothing Accessories	Toys		

B. Government Structure¹²

Singapore is a unitary parliamentary democracy based on the Westminster model. Since Lee Kuan Yew became the first Prime Minister of Singapore in 1959, the People's Action Party (PAP) has been the only ruling party.

The government comprises three branches: the Executive, Legislative and Judiciary.

- The President of Singapore is directly elected by the people after constitutional changes in 1991. However, its role is mainly limited to representing the nation at state events and abroad. The Prime Minister, appointed by the President, is the effective head of the executive branch. He chairs the Cabinet which is the central decision making body of the state. As chairman, the Prime Minister has the power to approve the agenda, lead the meetings and oversee the government's general policy direction.
- The legislative branch is formed by the President and Parliament which is unicameral. The functions of Parliament include: making laws, taking up a critical role to check on the actions and policies of the government and inspecting the State's finances.
- The judiciary system consists of three levels: the Supreme Court, the State Courts and the Family Justice Courts.

C. Political Uncertainties^{13,14,15}

Singapore is one of the world's most politically stable countries. The country ranked third out of 195 countries in the World Bank's Political Stability Index 2017. In addition, due to strong anti-corruption legislation, effective safeguards and audit controls, Singapore remains one of the world's least corrupt countries. It ranked fourth out of 180 countries in the Corruption Perception Index and is the least corrupt country in Asia.

The People's Action Party (PAP) has been ruling Singapore's government since its independence. However, the dominance of the PAP is increasingly being challenged by opposition parties such as the Progress Singapore Party (PSP) created in August 2019 as the country's 10th opposition party. Tan Cheng Bock, the founder of the PSP and the former member of the PAP, criticised the long-standing ruling party for being more focused on its own interests than those of Singaporeans. Even though only two opposition parties have ever held positions in parliament (the Workers' Party and the Singapore Democratic Party (SDP)), the increasing critics and opposition voices may create political uncertainty in the future.

Source:

¹ *The World Bank, 2019*

² *Fitch Solutions, Singapore Country Risk Report, 2019*

³ *The World Factbook, CIA*

⁴ *Imports of Goods and Services (% of GDP), Exports of Goods and Services (% of GDP), Worldbank*

⁵ *Singapore population, Worldometers, 2019*

⁶ *EF English Proficiency Index, EF Education First*

⁷ *Geography Statistics Of Singapore, Worldatlas*

⁸ *Singapore FTAs, Enterprise Singapore*

⁹ *Free Trade Agreements, Asia Regional Integration Centre*

¹⁰ *ASEAN official website*

¹¹ *The Government of Hong Kong Special Administrative Region – Trade and Industry Department, Press Release, May 2019*

¹² *Singapore Judicial System, Supreme Court Singapore*

¹³ *The Corruption Perceptions Index 2018, Transparency International*

¹⁴ *World Bank Political Stability And Absence Of Violence/Terrorism*

¹⁵ *'I didn't change, the PAP did': Singapore opposition politician Tan Cheng Bock pledges to ask government tough questions, South China Morning Post published on July 26, 2019.*

2. Legal Environment and Competition Law

Executive Summary

Singapore is an open economy, and actively attracts foreign investments. No industries are prohibited for foreign investments, but certain industries will require approval, or have restrictions on foreign shareholding.

Mainland China and Hong Kong investors can choose to set up different types of business entities. It is possible to set up a 100% foreign-owned enterprise such as a Private Limited Company, among other types. In addition, foreign investors can set up a Branch office to expand their business to Singapore and explore opportunities to expand their manufacturing footprint on a short-term basis.

Singapore has a very liberalised import and export regime, with only certain goods requiring licences and approvals to trade. Singapore also has very strong intellectual property protection, and a robust legal system to deal with any business-related cases.



2. Legal Environment and Competition Law

Singapore is very pro-business, and actively attracts foreign direct investment (FDI). There is no specific law governing FDI in Singapore. Instead, investment is covered by general legislation governing businesses such as the Companies Act, and other industry-specific regulations. The Economic Development Board (EDB) was established in 1961 to facilitate both domestic and foreign investments in both the manufacturing and services sectors. The EDB provides assistance in setting up a business in Singapore, with services such as setup cost and cost of living calculators to help investors estimate their needed costs (www.edb.gov.sg/en/setting-up-in-singapore/setup-cost-calculator.html).

Singaporean law only distinguishes between Singaporean and foreign companies and does not outline special laws for Mainland China or Hong Kong companies that consider expanding their manufacturing footprint to Singapore. There are generally no restrictions on FDI, but certain industries have limits on foreign shareholding.

The Principal Industries that are Subject to Restrictions on Foreign Investment Include:^{1,2}

Industries Where Foreign Shareholding is Regulated:



- Industries affecting national security;
- Public utilities;
- Newspaper publishing;
- Broadcasting.

Industries Where Licences and Approvals are Required:



- Professional services, including legal and medical services; and
- Financial services, including:
 - Banking;
 - Insurance; and
 - Other financial services.

For further information, please refer to section 8 of this report or contact the EDB.

I. Types of Legal Business Entities Available for Foreign Investment^{3,4,5}

There are several different main structures available for investors seeking to expand their manufacturing footprint or business from Mainland China or Hong Kong to Singapore. Singapore offers many different types of business entities that foreign investors can choose from. All business entities in Singapore are regulated by the Accounting and Corporate Regulatory Authority (ACRA).

Some main forms of doing business or expanding the manufacturing footprint to Singapore include:

1. Companies
2. Sole Proprietorships and Partnerships
3. Limited Partnerships
4. Limited Liability Partnerships (LLPs)
5. Branch Offices
6. Representative Offices

Companies

All companies in Singapore are governed under the Companies Act. Companies are treated as separate legal entities from the members owning and making up the company, and as a person in law.

Companies must have at least one shareholder, and one director who is a resident of Singapore and at least 18 years old. Foreigners may apply to be the director of a company with the Ministry of Manpower.

Private Companies

Private companies in Singapore can take the form of either a Private Limited Company (PLC), an Exempt PLC, or a Gazetted PLC. PLCs are similar to limited liability companies in other countries, where shareholders of a business cannot be held personally liable beyond their shares in the company. PLCs are limited to 50 shareholders or less. Exempt PLCs are a subtype of PLCs, where there are only 20 shareholders or less, with none of the shareholders being a corporate entity. Exempt PLCs can enjoy certain tax exemptions, but will not be considered exempt if annual revenue exceeds SGD 10 million. Gazetted PLCs are government-owned companies that also enjoy tax exemptions.

PLCs are the most common form of company for entrepreneurs and investors, because of the tax incentives available to them. Companies are taxed at the corporate tax rate of 17%, but can be eligible for tax exemptions of up to 75%.

Public Companies

Public companies can be either limited by shares or limited by guarantee. Companies limited by guarantee are usually for non-profit purposes, such as charities, trade associations, and religious bodies. Companies limited by shares can have more than 50 shareholders, including members of the public through the offering of shares to the public. Public companies must register a prospectus with ACRA before being permitted to make public offers of shares.

Registration Process and Cost

The registration process for all companies is the same. Companies must first be registered with ACRA, which can be done via their online portal, BizFile. If the company name is approved, it will be reserved for 120 days.

Companies must appoint a company secretary within six months, and an auditor within three months of incorporation. A company will also require a local corporate bank account to carry out its operations, and work passes for any foreign employees and investors. For more information about visas and work passes, please refer to section 4 of this report, or the Ministry of Manpower's website (www.mom.gov.sg/passes-and-permits). The setup fee for a company includes SGD 15 for the name application fee, and SGD 300 for the incorporation fee.

Sole Proprietorships and Partnerships

Sole proprietorships and partnerships are similar in Singapore. A sole proprietorship has one owner, while a partnership has between two to 20 partners. A business entity with more than 20 partners must be registered as a company (see above).

Sole proprietorships and partnerships are not considered separate legal entities from their owners/partners. The owners and partners of both sole proprietorships and partnerships have unlimited liability, meaning they can be personally liable for the debts and losses of the business, and can be personally sued in their own names. Owners/partners must be aged 18 years or above, and be a Singapore citizen, permanent resident, or EntrePass holder. If the owner/partner is not ordinarily resident in Singapore, he/she must appoint a representative who is ordinarily resident in Singapore.

Profits of both sole proprietorships and partnerships belong to the owners/partners, and are taxed at their personal income tax rates. Therefore, a sole proprietorship or partnership is not eligible for tax incentives. As sole proprietorships and partnerships are not considered separate legal entities, they are not required to file annual accounts.

A sole proprietorship or partnership can be registered for either one year or three years. Upon expiry of the business name registration, the business can be renewed for one or three years. The setup fee for a sole proprietorship or partnership includes SGD 15 for the name application fee, and either SGD 100 for a one-year registration or SGD 160 for a three-year registration.

Limited Partnerships

Limited partnerships consist of at least two partners: at least one general partner (GP), and one limited partner (LP). There is no restriction on the maximum number of partners. The GPs and LPs of limited partnerships can be either individuals or corporations (companies or LLPs). GPs have unlimited liability, meaning they can be personally liable for all debts and losses of the partnership, while LPs have limited liability, meaning they can only be liable for the debts and losses up to the amount of their agreed contribution. If all GPs are not ordinarily resident in Singapore, they must appoint a local manager who is ordinarily resident in Singapore.

Profits will be taxed according to either the personal or corporate income tax rate, depending on if the partner is an individual or corporation respectively.

Like sole proprietorships and partnerships, limited partnerships can be registered for either one year or three years. Upon expiry of the business name registration, the business can be renewed for one or three years. The setup fee for a limited partnership includes SGD 15 for the name application fee, and either SGD 100 for a one-year registration or SGD 160 for a three-year registration.

Limited Liability Partnerships (LLPs)

LLPs must have at least two partners, who may be individuals or corporations, with no restriction on the maximum number of partners. LLPs are similar to companies in that the business entity is considered a separate legal entity from the partners, meaning partners have limited liability and therefore are not personally liable for the debts and losses of the LLP, including any debts and losses incurred by the other partners. At least one partner must be ordinarily resident in Singapore, and be 18 years of age or older.

Profits will be taxed according to either the personal or corporate income tax rate, depending on if the partner is an individual or corporation respectively. One of the main disadvantages of LLPs compared to companies is that they are not eligible for tax exemptions. LLPs must file an annual declaration of solvency, stating whether the LLP will be able to pay its debts during the normal course of business.

Unlike sole proprietorships, partnerships, and limited partnerships, LLPs do not have to be renewed, and have perpetual succession until wound up or struck off. The setup fee for an LLP includes SGD 15 for the name application fee, and SGD 100 for the registration fee.

Branch Offices

Mainland China and Hong Kong companies that want to expand their operations to Singapore for the short-term may choose to set up a branch office. Branch offices are mainly used to facilitate operations of a foreign parent company in Singapore. As branch offices are considered non-residents for tax purposes, they are not eligible for any tax incentives. Branch offices must have the same entity name as the parent company, must engage in the same activities as the parent company, and are considered extensions of the parent company. Therefore, liabilities of the branch office will also be extended to the parent company.

Branch offices must be registered with ACRA, and the application process will usually take one to two days. The parent company must own 100% of the branch office, and have at least one agent who is ordinarily resident in Singapore. There is no limit on the number of agents that branch offices may have. Branch offices are required to file both its own accounts and the parent company's accounts.

Representative Offices

Representative offices are not permitted to undertake any commercial activities in Singapore, and may only conduct market testing and/or research activities. This is usually set up for the purposes of collecting information and data on investment opportunities, and conducting research and development activities to prepare for later investment into Singapore. Representative offices cannot generate income, and therefore are not required to file accounts. Representative offices are not permitted to have more than five employees, at least one of whom must be a staff member from the parent company.

A representative office must be opened and registered with the Monetary Authority of Singapore (for banking, finance, and insurance businesses), the Legal Services Regulatory Authority (for legal services businesses), or Enterprise Singapore (for all other industries not specified above). The registration process will normally take between three to five days. The representative office is initially registered for one year, and can be renewed annually, for a maximum of a total of three years.

II. Overview on Other Business Laws and Regulations

A. Legal and Administrative Framework on Competition Law¹

The main competition law in Singapore is the Competition Act, which was enacted in 2004. It governs all restrictive agreements and practices, and is enforced by the Competition & Consumer Commission of Singapore (CCCS). The Competition Act prohibits any undertakings and agreements that prevent, restrict, or distort competition in Singapore.

Anti-competitive Agreements or Practices

Examples of prohibited agreements and practices include:

- Fixing, directly or indirectly, a purchase or selling price or any other trading conditions;
- Sharing markets or sources of supply;
- Limiting or controlling i) production, ii) market outlets or market access, iii) technical or technological development, or iv) investment;
- Placing other trading parties at a competitive disadvantage by applying dissimilar conditions to similar transactions; and
- Subjecting the conclusion of contracts to supplementary obligations by other parties that have no connection with the subject of the contract.

Exceptions to the Competition Act

Certain activities are specifically excluded from the scope of the Competition Act. These include, but are not limited to, the following activities:

- Agreements or practices that can be shown to have a net economic benefit;
- Vertical agreements;
- Agreements related to specific prescribed activities, such as water supply and rail services; and
- Agreements between entities that form a single economic unit.

Abuse of Dominant Market Position

The Competition Act also prohibits enterprises from abusing their dominant market position. A market position is considered dominant if one or more enterprises possess such significant power in a market to adjust prices, outputs or trading terms, without effective constraint from competitors or potential competitors. The Act also prohibits activities based abroad that may fall into the definition of “dominant position” in that country or territory.

The Act does not apply for activities where:

- The activity relates to services of general economic interest;
- The activity is performed in order to avoid conflict with international obligations or to comply with other legal requirements;
- The activity is required for exceptional reasons of public policy; or
- Another regulatory authority has jurisdiction over the activity based on existing framework in place regarding the relevant competition.

B. Intellectual Property Protection Law on Trademarks^{1,6}

A trademark is defined as a device, brand, heading, label, ticket, name, signature, word, letter, numeral or any combination thereof, which indicates that a certain good or service belongs to the owner of the trademark. Singapore's overarching Intellectual Property (IP) regulation, including those related to trademark, is rated as strong (ranked 10th out of 50).

Trademark protection is regulated mainly under the Trademarks Act in Singapore's legislation as well as in the common law. The law outlines general regulations and does not specify particular rules for Mainland China or Hong Kong companies.

Trademarks in Singapore can be registered with the Intellectual Property Office of Singapore (IPOS). If a trademark is not registered, it can still be used and protected by the common law, and the user can rely on the common law against potential infringers. A trademark can be registered if it is distinctive, can be represented graphically, and easily distinguishes a trader's goods and services from another trader's goods and services.

C. Import/Export Regulations and Licences^{7,8}

Singapore actively encourages importing and exporting activities. While most activities are not subject to any restrictions or requirements, certain goods are still subject to additional regulations and licences for importation. These are known as controlled goods, and are overseen, and will require authorisation from the corresponding Competent Authorities (CAs) in order to be imported. The controlled goods include, but are not limited to:

- Non-medicinal chewing gum;
- Endangered animals and products of such animals, and rhinoceros horns;
- Certain telecommunications equipment;
- Fire crackers;
- Drugs; and
- Tobacco and cigarette products.

For a detailed list of controlled goods for import in Singapore and their corresponding CAs, please refer to the Singapore Customs website (www.customs.gov.sg/businesses/importing-goods/controlled-and-prohibited-goods-for-import).

Rhinoceros horns, and other items regulated by the Strategic Goods (Control) Act, are controlled goods for export, and will require authorisation from the relevant CAs. For a detailed list of controlled goods for export in Singapore and their corresponding CAs, please refer to the Singapore Customs website (www.customs.gov.sg/businesses/exporting-goods/controlled-and-prohibited-goods-for-export).

For both importing and exporting, businesses will generally require the following documents:

- Invoice;
- Bill of lading or air waybill;
- Packing list;
- Customs Import or Export Permit; and
- Any other specific authorisation for controlled goods.

Singapore uses the Harmonised System (HS) for the classification of goods; all imported or exported goods must be categorised based on the Singapore Customs tariff numbers. For more details on the customs process, please refer to section 6 of this report, or the Singapore Customs website (www.customs.gov.sg).

D. Jurisdiction System on Business Related Matters⁹

As a former British colony, the Singaporean legal system is built upon the British legal system and the principles of common law. There are generally two types of trials: civil and criminal. The Judiciary in Singapore is headed by the Chief Justice, and are made up of the Supreme Court and the Subordinate Courts:

- The Supreme Court hears both civil and criminal cases, and is made up of the High Court and the Court of Appeal. The High Court is comprised of the Chief Justice and the Judges of the High Court. They hear both criminal and civil cases, appeals from the decisions of the Subordinate Courts, and has supervisory and revisionary jurisdiction over the Subordinate Courts. The Court of Appeal hears appeals from the decisions of the High Court in both civil and criminal matters. The Court of Appeal is usually comprised of three judges: the Chief Justice and two Judges of Appeal, but can occasionally have more or less than three judges.
- The Subordinate Courts are made up of the District Courts, Magistrates' Courts, Juvenile Courts, Coroners' Courts, and Small Claims Tribunals. The Family, Night, Community, Syariah, and Traffic Courts have also been recently added to the Subordinate Courts system.

Business-related cases will generally be tried under civil law. For disputes and claims under SGD 10,000 (or SGD 20,000 upon approval by both parties), the case will be dealt with by the Small Claims Tribunal. Cases will be dealt with by the Magistrates' Court if the amount does not exceed SGD 60,000, by the District Court for amounts under SGD 250,000, and by the High Court if the amount of the claim exceeds SGD 250,000. Other specialised courts such as the Copyright Tribunal and the Labour Court also deal with specific business-related cases.

Due to the expensive costs and time consuming process for going to court, business disputes can also be dealt with through other methods such as mediation or arbitration. The Singapore Mediation Centre is a non-profit entity in Singapore that provides mediators to help parties reach an acceptable solution. Other mediation entities also exist to resolve specific types of disputes and disputes in specific industries, such as the Labour Relations Department of the Ministry of Manpower for employer-employee disputes, the Consumers Association of Singapore for disputes between consumers and business, and others.

While mediation is not a legally binding solution, arbitration is legally binding. In arbitration, the arbitrator will hear both parties, before arriving at a decision themselves. The Singapore International Arbitration Centre (SIAC) handles arbitration cases in Singapore, and deals with civil cases, but not criminal or family law cases.

2. Legal Environment and Competition Law

Source:

¹ *Doing Business in Singapore - Practical Law, Thomson Reuters, 2019*

² *Investment Laws of ASEAN Countries: A comparative review, International Institute for Sustainable Development, Dec 2017*

³ *Comparisons of Business Entities, Accounting and Corporate Regulatory Authority, Jan 2019*

⁴ *Types of Business & Companies in Singapore, PB Corporate Services*

⁵ *Singapore Branch vs Subsidiary vs Representative Office, GuideMeSingapore*

⁶ *U.S. Chamber International IP Index, GIPC, 2019*

⁷ *Controlled & Prohibited Goods for Import, Singapore Customs*

⁸ *Controlled & Prohibited Goods for Export, Singapore Customs*

⁹ *Introduction to Singapore's Legal System, GuideMeSingapore*

3. Taxation, Transfer Pricing, Banking and Currency Control

Executive Summary

Singapore has three main taxes for businesses: corporate income tax (CIT), property tax, and goods and service tax (GST). Singapore is one of the countries that run a single-tiered, flat-rate corporate tax system. The effective tax rate in Singapore is competitively low comparing to other countries. In addition, CIT will only be charged on the income generated in Singapore. The simple and competitive tax system makes the country attractive to foreign companies and investors.

The Monetary Authority of Singapore (MAS) is the central agency that issues currency, oversees the financial market, and governs the country's monetary policy.

Foreign investments have no restrictions in most industries. Moreover, there is no foreign exchange controls, allowing free movement of capital in and out of the city.



3. Taxation, Transfer Pricing, Banking and Currency Control

I. Taxation Practice^{1,2}

Singapore's corporate tax system has three distinctive characteristics. First, companies, whether registered in Singapore or overseas, are charged at corporate tax for two types of income: income generated in Singapore, and foreign income that is remitted to Singapore. Second, the corporate tax in Singapore is charged at a flat-rate of 17%, and some companies are exempted or partially exempted from paying tax if they fulfil certain criteria. Third, the country currently runs a single-tier corporate tax system. In other words, corporate taxes paid by companies are the only tax, and dividend income received are exempted from tax. The single-tiered, flat-rate, and territorial-based corporate tax system makes Singapore an attractive destination for investors and businesses and contributes to the country's rapid economic growth in the past decades.

A. Corporate Income Tax (CIT)

Applicable Tax Rate and Tax Exemption³

Singapore's standard CIT rate is a flat-rate of 17%.

Companies' first SGD 290,000 of chargeable income is eligible for partial tax exemption. In addition, startup companies, except property development and investment holding companies, can enjoy partial or full tax exemption in their first three year of operation. Detailed tax exemption information is provided in the tables below.

Partial Tax Exemption for Chargeable CIT

Year of Assessment 2019		
Chargeable Income (SGD)	Tax Exemption	Income Exemption (SGD)
First 10,000	75%	7,500
10,000 to 290,000	50%	145,000
Total		152,000
Year of Assessment 2020 and Onwards		
Chargeable Income (SGD)	Tax Exemption	Income Exemption (SGD)
First 10,000	75%	7,500
From 10,000 to 190,000	50%	95,000
Total		102,500

Tax Exemption for Startups

Year of Assessment 2019		
Chargeable Income (SGD)	Tax Exemption	Income Exemption (SGD)
First 100,000	100%	100,000
From 100,000 to 200,000	50%	100,000
Total		200,000
Year of Assessment 2020 and Onwards		
Chargeable Income (SGD)	Tax Exemption	Income Exemption (SGD)
First 10,000	75%	75,000
From 10,000 to 190,000	50%	50,000
Total		125,000

Note: 20% CIT rebate, capped at SGD 10,000, is available for the year of assessment 2019.

Dividend Income¹

Singapore runs a single-tiered corporate tax system, so dividends paid out by Singapore resident companies to their owners and shareholders are not taxed. In addition, no income tax will be charged on capital gains including, but not limited to, the sale of assets, regardless tangible or intangible, and gains on foreign transactions.

Unutilised Items^{4,5}

Unutilised items such as losses, capital allowances, and donations can be carried forward to decrease future tax payables. Losses and capital allowances can be carried forward infinitely, but donations can only be carried forward for up to five years.

Companies need to fulfil the Shareholding Test first in order to use unutilised items for future tax reduction purpose. The Shareholding Test is satisfied if 50% or more of a company's shares are held by same owners or shareholders. Companies that fail the Shareholding Test may still be eligible to use unutilised items if the significant change of ownership/shareholders is not for tax-avoidance purposes.

For more information related to tax reduction of unutilised items, please visit the Inland Revenue Authority of Singapore (IRAS) website (www.iras.gov.sg/irashome/Businesses/Companies/Working-out-Corporate-Income-Taxes/Unutilised-Items--Losses--Capital-Allowances-and-Donations-/).

3. Taxation, Transfer Pricing, Banking and Currency Control

Withholding Taxes⁶

Withholding taxes are charged to Singapore-resident companies for certain types of payments to non-resident companies. Typical payments applicable to withholding taxes in Singapore include interests, royalties and rentals from movable properties.

Payments Applicable to Withholding Taxes

Type of Payment	Withholding Tax Rate
Interest or any loan-related payments	15%
Royalty payments	10%
Rentals from movable property	15%
Technical service and related fees	17%

The withholding taxes paid are only applicable to non-resident companies that meet the following criteria:

- Do not have any business in Singapore;
- Do not have any permanent establishment in Singapore (PE); or
- Have business operating in Singapore through a PE in Singapore, but the funds used by its owners to acquire the assets of PE are not from its business.

Tax Filing

Most Singapore companies are required to submit an Estimated Chargeable Income (ECI) form to the IRAS within the three months of their financial year end. The ECI form is a form that states the company's taxable income for the year of assessment. Generally, the taxable income shown in the ECI form should refer to the company's audited financial statements prepared in accordance with Singapore Financial Reporting Standards (SFRS), except for the companies that are exempted from auditing requirements. For the detailed auditing requirements, please refer to part D of this section.

Companies are required to submit their hardcopy tax filing on or before 30 November, or e-tax filing on or before 15 December of each year.

For detailed information related to CIT filing, please visit the IRAS website (www.iras.gov.sg/irashome/CorporateTax2019/).

Tax Governance

Taxation and relevant affairs in Singapore are governed under the Income Tax Act of Singapore by the IRAS. IRAS is the central governmental agency that collects taxes and administrates efficient taxation practice; it also plays a key role in the formulation and implementation of tax policy in the country.

For details on tax governance, please visit the IRAS website (www.iras.gov.sg/irashome/default.aspx).

3. Taxation, Transfer Pricing, Banking and Currency Control

Double Taxation Agreement (DTA) with Hong Kong

DTAs aim to eliminate income or profit being taxed in two or more jurisdictions at the same time. Eliminating double taxation allows both foreign investors investing in Singapore and Singapore investors looking to invest abroad to benefit. DTAs usually affect withholding tax rates on dividends, royalties, interest, and technical fees.

Singapore and Hong Kong have not signed a DTA. However, the two governments have signed an “Agreement between Singapore and Hong Kong SAR for Avoidance of Double Taxation on Income of an Enterprise Operating Ships or Aircraft in International Traffic”, effective since 1 January 2005. The agreement applies to income generated from the operation of international ship and air transport in either of the two territories.

B. Value Added Tax (VAT)^{7,8}

VAT in Singapore is called the Goods & Services Tax (GST). GST is a consumption tax that is charged on all imported goods and most services.

The current standard GST rate is 7%.

Types of Taxable Goods and Services

	Taxable Goods and Services	
	7% GST	0% GST
Goods	Most goods sold in Singapore	Goods that are exported to other countries
Services	Most services provided in Singapore	International services (<i>Note</i>)

Note: More descriptions about international services can be found in Section 21(3) of the GST Act.

Types of Non-taxable Goods and Services

	Non-taxable Goods and Services	
	Exempt (<i>Note</i>)	Out-of-Scope
Goods	<ul style="list-style-type: none">Sales and rental of residential propertyImportant and local supply of investment precious metals (IPM)	<ul style="list-style-type: none">Goods delivered from one foreign country to another foreign country
Services	<ul style="list-style-type: none">Financial services	<ul style="list-style-type: none">Private transactions

Note: The supply of digital payment tokens are exempted from GST starting from 1 January 2020.

GST Registration Policy

Companies must register for GST if they satisfy one of the following criteria:

- The company had revenue over SGD 1,000,000 in the past 12 months; or
- The company is expected to have revenue over SGD 1,000,000 in the next 12 months.

C. Transfer Pricing Provisions^{9,10}

Transfer pricing (TP) is related to rules and methods used to price transactions between two parties. TP rules in Singapore is stipulated under the Income Tax Act (Transfer Pricing Documentation) Rules 2018. The IRAS also published the Transfer Pricing Guidelines (Fifth Edition) that provides detailed information on the application of the rules, such as transfer pricing principles and fundamentals, and transfer pricing administration and compliance.

The main points of the Transfer Pricing Guidelines (Fifth Edition) include:

- The arm's length principle applies as the standard to guide transfer pricing in Singapore.
- Taxpayers should have records prepared and kept that show the pricing of the transactions with related parties adheres to the arm's length principle.
- If taxpayers fails to adhere to the arm's length principle and understates their profits, their profits will be adjusted by the IRAS in accordance to the Income Tax Act.
- A contemporaneous basis should be applied when preparing TP documentation.

The arm's length principle is the concept that two parties of a transaction is independent. It requires that transactions between a company and a related party should be made under similar conditions and circumstances as transactions between a company and an unrelated party.

Three Steps to Apply Arm's Length Principle¹⁰

Step	Description
1. Conduct comparability analysis	<ul style="list-style-type: none"> • Test the comparability of transactions in the following 4 areas: contract terms, characteristics of properties involved, functional analysis, and relevant economic and commercial conditions; and • Make adjustments for material differences.
2. Identify the tested party and the appropriate method for transfer pricing	<ul style="list-style-type: none"> • Identify the method that provides the most reliable outcomes; and • Determine the tested party
3. Determine the arm's length results	<ul style="list-style-type: none"> • Apply the method identified in Step 2 on the transfer pricing transactions.

The Income Tax Act (Transfer Pricing Documentation) Rules 2018¹¹

The new transfer pricing rules have the following key amendments:

- Increased penalties for not preparing contemporaneous TP documentation to SGD 10,000;
- Introduced requirement for preparing contemporaneous TP documentation from Year of Assessment 2019 for Singapore taxpayers whose annual revenue is over SGD 10 million;
- 5% surcharge on the amount of TP adjustments is automatically applicable unless it is waived by the IRAS.

D. Statutory Auditing Requirements and Accounting Standards^{12,13}

Audit Requirements

Companies in Singapore, regardless of whether they are public or private, are required by the Singapore Company Act to have their financial statements audited. However, private companies that are a subsidiary of a group company are exempted from audit requirement if they satisfy two of the following requirements:

- Annual revenue of the company is no more than SGD 10 million;
- The total number of full-time employees of the company is no more than 50; or
- The value of total assets of the company at the end of that financial year is no more than SGD 10 million.

If a private company belongs to a group company, it is also eligible for audit requirement if the group company (parent) satisfy two of the three requirements above.

Accounting Standards

Singapore companies are required to prepare financial statements in accordance with SFRS. SFRS is based on International Financial Reporting Standards (IFRS), and it is formulated and governed by the Accounting Standards Council (ASC). The current Singapore accounting standards is converged with IFRS.

Due to limited company resources, small companies may have difficulties when preparing their financial statements in accordance with SFRS. Therefore, ASC developed Singapore Financial Reporting Standards for Small Entities (SFRS for SE) in 2010 to help them resolve this issue.

II. Banking & Currency Control

A. Bank Account Setup Requirements and Restrictions for Foreign Direct Investment (FDI)¹⁴

Bank Account Setup Requirements

The Monetary Authority of Singapore (MAS) is the central agency in Singapore that supervises the banking industry, issues currency, and conducts monetary policy.

Both locally and foreign incorporated companies can open corporate bank accounts in Singapore, and there are no limitations on the types of corporate accounts that foreign companies can open. However, the process, requirements and strictness for a company to open a bank account vary between different banks, and even between branches of the same bank.

Most banks in Singapore require the physical presence of companies' executive director(s) and authorised signatory when opening their corporate bank accounts.

3. Taxation, Transfer Pricing, Banking and Currency Control

General Requirements for Opening a Corporate Bank Account

The documents described below are for reference only as general requirements vary between commercial banks. It is advised to check with the desired commercial bank on the exact documents required.

#	General Documents Required for Opening a Corporate Bank Account in Singapore
1	Copy of certificate of incorporation
2	Residential address proof and signatures of directors and owners
3	Valid and certified copy of travel documents of all the company's directors
4	Completed corporate bank account application forms
5	A certified copy of the company's business profile from Accounting and Corporate Regulatory Authority (ACRA)
6	A resolution by the company's board of directors
7	Copy of the company's Memorandum and Articles of Association (MAA)

Foreign Direct Investment (FDI) Restrictions¹⁵

There are no restrictions on FDI for most industries in Singapore. However, some restrictions on foreign investors' ownership exist for certain industries such as broadcasting and domestic news media. In addition, licences and government approvals are required for certain activities conducted by foreign investors.

B. Restrictions on Inbound and Outbound Funding in Foreign Currency and Local Currency^{16,17}

Local Currency

The Singaporean Dollar (SGD) is the official currency of Singapore, issued and managed by the MAS. It is freely exchangeable, with no restrictions on importing or exporting SGD. Non-residents, including overseas Singaporeans, are also allowed to open SGD accounts with banks in Singapore. SGD deposited into these bank accounts can be used for any purpose, including for exchange into foreign currency.

Foreign Currency

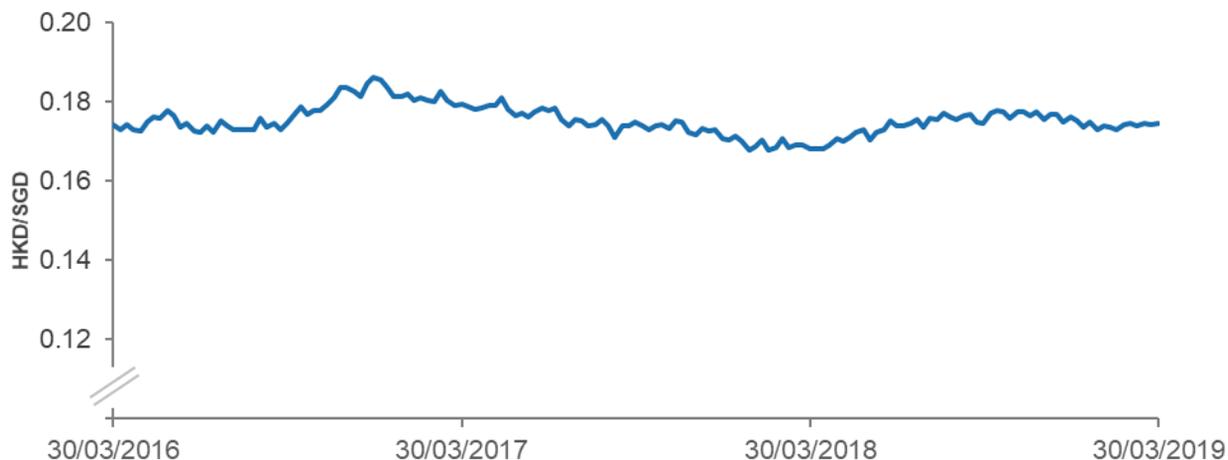
There is no control on foreign currency in Singapore. However, people who enter or leave Singapore with SGD or foreign currency with a total value of SGD 20,000 or more will need to submit the Physical Currency and Bearer Negotiable Instruments Report (Traveller) form at checkpoints.

C. Policy on Foreign Exchange Rate and Three-year Historic Trend

Policy on Foreign Exchange Rate

There is no foreign exchange rate control in Singapore. Earnings and capital can be reinvested and repatriated out of the country without restriction. In addition, no limit is placed on remittances, foreign exchange transactions and capital flows.

Three-year Exchange Rate Trend for HKD to SGD¹⁸



Date	HKD/SGD Rate
30/03/2016	0.1769
30/03/2017	0.1798
30/03/2018	0.1671
30/03/2019	0.1728

3. Taxation, Transfer Pricing, Banking and Currency Control

D. List of Banks from Foreign Investments⁴⁹

Financial institutions who wish to operate in Singapore must attain licenses from the MAS. As of 3 December 2019, the MAS has issued 3,136 licenses to various financial institutions, including 223 licenses in banking industry. Many of Singapore's local banks also have a presence in the rest of Asia, including Hong Kong. Currently, Singapore has four local banks, nine qualifying full banks, 20 full banks and 39 representative offices (banking).

List of Licenced Banks in Singapore (Part 1/2)

Type	Name of Bank (Notes)
Local Bank	Bank of Singapore Limited
	DBS Bank Ltd
	Oversea-Chinese Banking Corporation Limited
	United Overseas Bank Limited
Qualifying Full Bank	Bank of China Limited
	BNP Paribas
	Citibank Singapore Limited
	HSBC Bank (Singapore) Limited
	ICICI Bank Limited
	Industrial and Commercial Bank of China Limited
	Maybank Singapore Limited
	Standard Chartered Bank (Singapore) Limited
	State Bank of India
Full Bank	Bangkok Bank Public Company Limited
	Bank of America, National Association
	Bank of India
	CIMB Bank Berhad
	Citibank N.A.
	Credit Agricole Corporate and Investment Bank
	HL Bank
	Indian Bank
	Indian Overseas Bank

3. Taxation, Transfer Pricing, Banking and Currency Control

List of Licenced Banks in Singapore (Part 2/2)

Type	Name of Bank
Full Bank	JPMorgan Chase Bank, N.A.
	Malayan Banking Berhad
	Mizuho Bank Limited
	MUFG Bank, Ltd.
	PT Bank Negara Indonesia (Persero) TBK
	RHB Bank Berhad
	Standard Chartered Bank
	Sumitomo Mitsui Banking Corporation
	The Bank of East Asia Ltd
	The Hongkong and Shanghai Banking Corporation Limited
	UCO Bank

As a financial institution may hold multiple licences, the same financial institution may appear in more than one list. The above list of banks in Singapore is occasionally updated and may change from time to time. For detailed lists of other financial institutions, please visit the website of the MAS (eservices.mas.gov.sg/fid).

3. Taxation, Transfer Pricing, Banking and Currency Control

Source:

- ¹ *Taxation & Accounting Guides, GuideMeSingapore*
- ² *The Singapore Tax System, Tax in Singapore, Inland Revenue Authority of Singapore*
- ³ *Corporate – Tax on corporate income: Singapore, PwC*
- ⁴ *International Tax Singapore Highlights 2019, Deloitte, Feb 2019*
- ⁵ *Utilizing Unabsorbed Capital Allowances, Trade Losses and Donations, IRAS e-Tax Guide, Inland Revenue Authority of Singapore*
- ⁶ *Withholding Tax Rates, Inland Revenue Authority of Singapore*
- ⁷ *International Business Guides Singapore, HSBC*
- ⁸ *Goods and Services Tax (GST), Inland Revenue Authority of Singapore*
- ⁹ *Introduction to Transfer Pricing, Inland Revenue Authority of Singapore*
- ¹⁰ *Transfer Pricing Guidelines (Fifth Edition), Inland Revenue Authority of Singapore*
- ¹¹ *Singapore introduces new transfer pricing rules and guidelines, PwC, Mar 2018*
- ¹² *Financial Reporting Standards, Institute of Singapore Chartered Accountants*
- ¹³ *Audit Exemption in Singapore, Singapore, Corporate Services*
- ¹⁴ *Banking, Funding & Finances, GuideMeSingapore*
- ¹⁵ *Doing Business in Singapore: overview, Thomson Reuters Practical Law*
- ¹⁶ *Singapore – Foreign Exchange Controls, Singapore Country Commercial Guide, export.gov*
- ¹⁷ *Taking Cash In and Out of Singapore, Immigration & Checkpoints Authority*
- ¹⁸ *Bloomberg*
- ¹⁹ *Financial Institutions Directory, Monetary Authority of Singapore*

4. Labour, Compensation Rule and Labour Supply Situation

Executive Summary

Singapore has established labour laws providing guidance on matters such as minimum working age, retirement age minimum wages, maximum working hours and welfare to protect employees.

The Singaporean government offers various training programmes that are intended to improve workforce quality and build infrastructure enabling employees to improve their skills throughout their careers.

Foreign workers are required to obtain a work permit for legal employment in Singapore. The requirements to obtain work permits and passes vary based on the employment type and job nature.



4. Labour, Compensation Rule and Labour Supply Situation

I. Overview on Laws and Regulations over Local Labour Employment

A. Contracts and Protection Towards Employees^{1,2}

The Employment Act is Singapore's major labour law. All employees, no matter local or foreign, full-time or part-time, are covered under the Act. Employees are defined as workers who have a service contract with their employers. Part IV (Rest Days, Hours of Work and Other Conditions of Service) of the Employment Act provides additional protection to workmen earning basic monthly salary of not more than SGD 4,500 or employees who are covered under the Act but earned a basic monthly salary of not more than SGD 2,600.

Foreign employees are also covered by the Employment of Foreign Manpower Act, which stipulates the responsibilities and obligations for employers hiring foreign employees. However, the Employment Act does not cover seafarers, domestic workers and statutory board employees or civil servants.

Minimum Legal Working Age

The minimum legal working age in Singapore is 17 years old.

Children and young persons aged 13 to 16 are protected under the Employment Act. They may be allowed to perform certain works specified in the Act, including light works in a non-industry setting. No one under 17 years old is allowed to perform work prejudicial to their health, morals or safety.

Labour Contract

A contract of service is an agreement that employees agree with their employers, and it can be in either written or verbal form, or both. The contract of service must include terms and conditions that are covered and stipulated under the Employment Act. Otherwise, it is considered illegal, null, or void.

Termination of Employment

Terms and conditions for termination of employment are covered in the Employment Act. Both employees or employers can notify the other party of his or her intention to terminate the contract of service. The notification to terminate the contract of service should be given to employees in accordance with the Act. The longer an employee has been working for the employer, the longer the notification should be, as shown below:

Period of Employment	Notice Period (Minimum)
Less than 26 weeks	1 day
More than 26 weeks but less than 2 years	1 week
More than 2 years but less than 5 years	2 weeks
More than 5 years	4 weeks

4. Labour, Compensation Rule and Labour Supply Situation

The Employment Act also gives both the employee or employer the right to terminate the contract of service without notice if the other party intentionally breaches a condition of the service contract.

When an employee's position is likely to or does become redundant, the employer may terminate his or her contract of service. However, a notice of retrenchment must be given in advance. For employees whose employment period is or above three years, benefits should also be given. The Employment Act does not stipulate terms for the nature and amount of retrenchment benefits, but they should be agreed upon by the two parties.

B. Minimum Wage Level³

Singapore does not have a specified minimum wage level. However, there are two exceptions: the minimum monthly wages for cleaners and security guards are SGD 1,000 and SGD 1,100 respectively.

The minimum wage rate will be updated occasionally by the Singaporean government.

C. Maximum Working Hours and Days⁴

The maximum number of working hours is eight hours per day, or 44 hours per week.

The Employment Act also stipulates that employees are not allowed to work consecutively for six hours without taking a break.

Overtime

For work performed in excess of the maximum number of hours, fixed either by regulations or by specific agreement (whichever is lower), employees must be compensated with overtime pay not less than 1.5 times their normal wage rate. The maximum number of overtime hours is 72 hours per month.

D. Mandatory Welfare

Centre Provident Fund (CPF)^{5,6,7}

The CPF Act stipulates that employees and employers are required to make monthly contribution to the CPF, which aims to ensure employees' financial security after retirement. Foreign employees are exempt from CPF contributions.

CPF is comprised of three basic accounts:

- Ordinary Account (OA): funds used for housing, investment, insurance and education;
- Special Account (SA): funds used for investing in financial products related to retirement; and
- MediSave Account (MA): funds used for future medical-related expenses, such as healthcare insurance and hospitalisation.

In addition, a Retirement Account (RA) is created when the CPF owner is 55 years old. The savings in the OA and SA will be transferred to the RA, where the CPF owner can then withdraw savings from if needed. The RA balance will depend on the balance of OA and SA.

As of 2019, the CPF contribution rate for employees aged 55 and below with a monthly wage of SGD 750 or more is 17% for employer and 20% for employee. CPF contribution rate for employees aged 55 to 60 with a monthly wage of SGD 750 or more is 13% by employer and 13% by employee. For more details about CPF contribution, please refer to the CPF Board website (www.cpf.gov.sg/Employers/).

4. Labour, Compensation Rule and Labour Supply Situation

Skills Development Levy (SDL)⁸

SDL is a levy that all employers are required to pay for each employee working in Singapore. SDL will be collected by the CPF Board as a Skills Development Fund (SDF), which will be used to provide trainings for employees.

SDL is charged at 0.25% up to the first SGD 4,500 of employee's monthly remuneration. The minimum monthly SDL charged is SGD 2, and the maximum monthly SDL charged is SGD 11.25.

Notes: 1) Employees include full-time, casual, part-time, temporary and foreign employees rendering services wholly or partly in Singapore. 2) Remuneration is any wage, salary, commission, bonus, leave pay, overtime pay, allowance and other payments in cash.

Fair Employment Practice

Fair Employment Practice highlights employers' obligations to ensure that all job candidates, regardless of race, gender, religion, age, disability, marital status or family responsibilities, should be equally treated and selected only based on merit. In addition, when advertising a job, employers should not use words that may be perceived as discriminatory.

More guidelines about fair employment practices are provided in the Tripartite Guidelines on Fair Employment Practice (www.tal.sg/tafep#).

Other Benefits and Rights^{1,3}

In addition to these provisions, workers in Singapore are entitled to various rights, as described below.

- **Public holidays:** employees working in Singapore are entitled to have paid holiday on public holidays. Singapore public holidays include Chinese New Year, New Year's Day, Good Friday, Labour Day, Vesak Day, National Day, Hari Raya Puasa, Deepavali, Hari Raya Haji, and Christmas Day.
- **Annual leave:** employees who have worked continuously for one full year are entitled to seven days of annual leaves in the first year and additional one day of annual leave for every 12 months of consecutive employment (maximum 14 days annual leave in total).
- **Sick leave:** employees whose employment period over six months are entitled 14 days sick leave per year if no hospitalisation is required. If hospitalisation is required, annual sick leaves would be the lesser of 60 days or the sum of 14 days and hospitalisation period.

Apart from the above mentioned legal provisions, Singapore employers are required by law to provide safe working conditions and acceptable accommodation for employees and are responsible for the cost of medical treatment in case of accident. The required extent of such facilities depends on the nature of the business and the number of employees.

4. Labour, Compensation Rule and Labour Supply Situation

E. Labour Law Governing Authorities, Enforcements, and Restrictions

Governing Authorities

The Ministry of Manpower is the official government body responsible for the enforcement of the Employment Act, which stipulates regulations and laws in all aspects of employment in order to promote high standard work environment in Singapore.

Employment of Foreign Manpower Act (EFMA)⁹

The Employment of Foreign Manpower Act (EFMA) regulates the employment of foreign employees including the presumptions of employment, work permit requirements and application process, and penalty for offences. The EFMA covers foreigners who hold a work permit or pass issued by the Ministry of Manpower.

For more information on the EFMA, please refer to the website: (sso.agc.gov.sg/Act/EFMA1990).

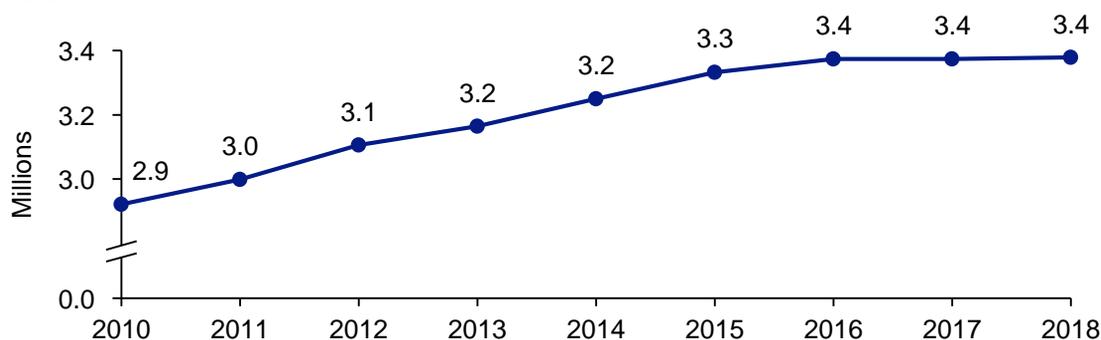
Relevant penalties for offences related to foreign labour employment are as below:

Offence	Penalty
Employing a foreign employee who does not have a valid work permit or pass	<ul style="list-style-type: none">• A fine between SGD 5,000 and SGD 30,000; and/or• Imprisonment for up to 1 year; or• A mandatory imprisonment and a fine between SGD 10,000 and SGD 30,000 if offenders have subsequent convictions.
Violating any condition stipulated in a work permit or pass	<ul style="list-style-type: none">• A fine up to SGD 10,000; and/or• Imprisonment for up to 1 year.
Providing false documents and making false statements in the application or renewal of work permit or pass	<ul style="list-style-type: none">• A fine up to SGD 20,000; and/or• Imprisonment for up to 2 years.
Receiving money in connection with an employment of a foreign employee	<ul style="list-style-type: none">• A fine up to SGD 30,000; and/or• Imprisonment for up to 2 years.
Obtaining a work permit or pass for a foreign employee for a business that is <ul style="list-style-type: none">• Nonexistent;• Not operational; or• Has no need to hire foreign employees.	<ul style="list-style-type: none">• An imprisonment term of 6 months; and• A fine not exceeding SGD 6,000.• Offenders may also be subject to caning.

II. Local Labour Supply Market Condition

A. Supply Situation for Total Labour Force

Singapore Total Labour Force (2010 – 2018)¹⁰



The estimated total labour force in Singapore was around 3.4 million in 2018. The supply of labour has been quite stable over the past three years.

Singapore Industry Labour Productivity (value added per worker) (Note) (2010 – 2018)¹¹

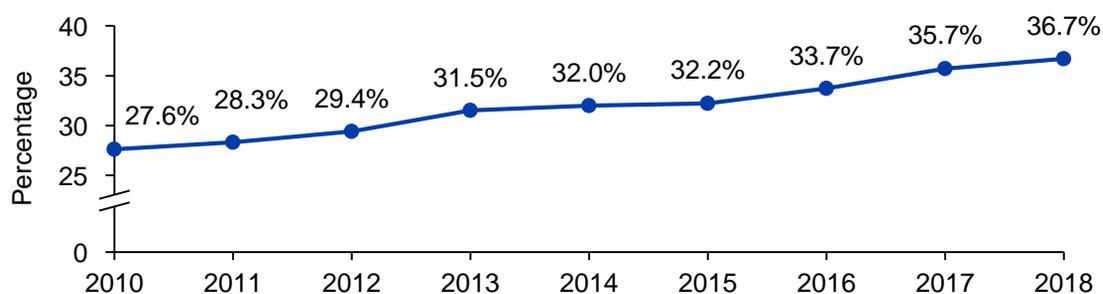


Singapore's labour productivity grew at a lower rate (around 4.5%) than Mainland China's (around 6.7%) between 2010-2018. However, Singapore's industry labour productivity was 6.5 times greater than Mainland China's in 2018. Singapore has second highest productivity among ASEAN countries.

Note: Industry labour productivity measures the value added per worker in manufacturing, construction, mining and quarrying as well as public utility sectors.

B. Supply on Educated Employees

Singapore Percentage of Labour Force with Degree (2010 – 2018)¹²



The educational composition of Singapore labour force is concentrated on higher education. The estimated percentage of labour force with degree was around 36.7% in 2018.

4. Labour, Compensation Rule and Labour Supply Situation

C. Government Support on Employee Training²

The Singaporean government provides several training programmes for employers and employees aimed at improving the competitiveness of Singapore's workforce. These programmes are detailed below.

SkillsFuture Singapore (SSG)^{13,14}

SSG is governed by the Ministry of Education. It is established to promote the national SkillsFuture movement, enhance the education and quality of training, and establish a comprehensive training system where Singaporeans can improve their professional skills throughout their life.

SSG enhances the adult training system and improves the quality of adult educators in terms of their capabilities and professionalism. In addition, SSG helps private education institutions and adult training centers attain higher teaching quality by working closely with the tutors and professors. Students and working adults, as a result, will have more access to high-quality and industry-driven training courses throughout life. SSG also promotes the integration and collaboration between different employment and pre-employment training institutions so that students and working adults can continuously acquire knowledge and skills to meet the ever-changing demands in different industry segments.

The SSG focuses on the following four key areas:

- Helping Singaporeans make better decision regarding career, employment, and education;
- Developing a comprehensive, high-quality education and training system to meet changing industry needs;
- Enhancing Singaporeans' career development by increasing employer's recognition of their skills; and
- Encouraging learning throughout Singaporeans' lives.

For more information about SSG, please visit its official website (www.skillsfuture.sg/).

Continuing Education & Training (CET)¹⁵

Employers and employees have various opportunities to learn professional skills relevant to their jobs and improve their competitiveness through the CET.

The CET Masterplan was initialised by the Ministry of Manpower in 2008 in order to improve Singaporean workers' competitiveness, adapt to the ever-changing industry landscape, and enhance the country's competitive advantages. It provides working adults with opportunities that they can learn and enhance their skills at every stage of their career. The refreshed CET Masterplan focuses on three major areas:

- Encouraging more workers to focus on skills learning and career development;
- Helping Singaporeans make better decisions about their careers by offering relevant trainings and guidance; and
- Building a CET system that provides comprehensive opportunities.

4. Labour, Compensation Rule and Labour Supply Situation

Singapore Workforce Skills Qualifications (WSQ)¹⁶

The Singapore Workforce Skills Qualifications (WSQ) is a national credentialing system that trains, develops, assesses and recognises individuals to help equip them with the skills and knowledge required for their work. The WSQ system is designed to be practical, convenient, and affordable, giving every employee control over their careers. Employers can also use the system to strengthen their competitive advantages and develop their businesses by accessing a large candidate pool and maintaining a skilled and competitive workforce.

WSQ Benefits

Individuals	Employers
Enhance competitive advantages in job market and career development by building and enhancing skills	Improve workforce quality and gain some guidance related to employee training and development
Obtain professional qualifications and certificates that recognise their values	Learn and build efficient performance management system
Improve employability and competitiveness	Enhance training efficiency
Gain some insights related to work standards	Enhance workforce competency by attracting candidates who have relevant qualifications and certifications and are equipped with the required skills.

Human Resource (HR) Programmes¹⁷

The SgIS-HR CET Grant is available for Singapore Industry Scholarship (SgIS) scholars pursuing HR studies in university. SgIS is the a scholarship supported by the Singaporean government. The maximum scholarship is SGD10,000 per scholar. It allows SgIS scholars to further enhance their HR skills and knowledge in their careers.

D. Labour Unionisation and Related Government Regulations¹⁸

Trade Union is defined as any association organised by workers or employers in order to manage relations between employers and workers for the following purposes:

- Encourage a harmonious relationship between employers and employees.
- Enhance the working environment and social recognition of workers
- Improve workers' productivity to benefit workmen, employers and the economy of Singapore.

Trade Unions in Singapore are registered and regulated by the Registry of Trade Unions. The Trade Unions Act is the main legislation that regulates trade unions. The list of trade unions can be found in the trade union directory by visiting the website below (www.mom.gov.sg/employment-practices/trade-unions/trade-union-directory#/).

4. Labour, Compensation Rule and Labour Supply Situation

In Singapore, there are multiple laws governing labour unions. A few examples are described in the table below.

Law	Description
Trade Unions Act (Cap 333), Trade Unions Regulations	The Trade Unions Act and its Regulations is the major legislation in Singapore that regulates all trade unions related affairs, including registration of trade unions, rights and liabilities of trade unions, funding and accounts management, and property management.
Trade Disputes Act (Cap 331)	The Trade Disputes Act regulates the affairs related to industrial actions and lock-outs.
Singapore Labour Foundation Act (Cap 302)	The Singapore Labour Foundation Act was established to promote the improvement of the welfare of trade union members and their families.
Part III of the Criminal Law (Temporary Provisions) Act (Cap 67)	This section of the Criminal Law Act regulates activities related to strikes and lock-outs including restrictions, illegal activities, and penalty for illegal strikes and lock-outs.

E. Work Permits^{3,19}

Foreigners intending to work in Singapore must hold a valid work permit or pass before they start employment. There are several types of work permit or pass available. Each work permit or pass is designated for different foreign employees based on the type of job and the nature of work. Foreigners should check their eligibility before they submit application.

Employment Pass

The Employment Pass is the general work permit required for foreign professionals, managers, and executives. Employers or appointed employment agents need to apply for an Employment Pass on behalf of the applicants. The duration of the pass is two years for first-time applicant. The Pass can be renewed after expiration, and the renewal duration will be up to three years. Eligibility for Employment Pass includes:

- A job offer in Singapore is required;
- The job type is specialised, either managerial or executive;
- Fixed salary must be at least SGD 3,600 per month; and
- Relevant qualifications (professional or academic) are required.

4. Labour, Compensation Rule and Labour Supply Situation

S Pass

The S Pass is the work permit for mid-level foreign employees. The duration of S Pass is up to two years. Eligibility for S Pass includes:

Applicant should have relevant work experience;

- Fixed salary must be at least SGD2,300 per month (fixed salary must be at least SGD2,400 starting from January 1, 2020);
- Holding a one year or above relevant diploma or degree from accredited institutions.

Employment Pass and S Pass holders who earn at least SGD6,000 per month can also apply pass for their family members if they meet certain criteria. In addition, medical insurance must be provided by an S Pass holder's employer.

Training Employment Pass

The Training Employment pass is the work permit for foreign students and trainees who intend to work in Singapore for practical training purpose. The duration of the Pass is up to three months and is not renewable. A foreign student is eligible for applying Training Employment Pass if he or she fulfils the following requirements:

- The training must be related to the field of study;
- The student must study in an institute that is recognised by the Ministry of Manpower or must earn a fixed monthly wage at least SGD3,000;
- Sponsorship by a Singapore-registered company must be provided.

A foreign trainee is eligible for applying Training Employment Pass if he or she fulfils the following requirements:

- The trainee must earn a fixed monthly wage at least SGD3,000;
- Sponsorship by a Singapore-registered company must be provided.

Note: a person cannot apply the Training Employment Pass twice for the same type of training.

For other types of work permits and more information related to work permit requirements, please visit the website of Ministry of Manpower (www.mom.gov.sg/passes-and-permits).

Travelling to Singapore²⁰

Hong Kong passport holders are permitted to stay up to 30 days in Singapore without a visa. However, a valid visa is required for Hong Kong Document of Identity holders.

F. Religious Concerns or Considerations²¹

Religion²¹

Singaporeans have the freedom to decide and choose religion. Around 80% of Singaporeans have a religion affiliation. Buddhism and Taoism are very popular in Singapore. The General Household Survey 2015 shows around 43% of the residents over 15 years old follow Buddhism or Taoism. Christianity and Islam are the third and fourth largest religions in the country, followed by 18.8% and 14% of the population respectively. Older Singaporeans have higher percentage of religious affiliation than younger Singaporeans.

4. Labour, Compensation Rule and Labour Supply Situation

Source:

- ¹ *Employment Act, Employment Practices, Ministry of Manpower*
- ² *Employment of Foreign Manpower Act, Singapore Ministry of Manpower*
- ³ *Guide to Hiring Employees in Singapore, GuideMeSingapore Hawksford*
- ⁴ *Employment Act, Singapore Statures Online*
- ⁵ *CPF Overview, Central Provident Fund Board*
- ⁶ *Centre Provident Fund Act (Chapter 36), Singapore Statures Online*
- ⁷ *CPF Contribution and Allocation Rates, Centre Provident Fund Board*
- ⁸ *Skills Development Levy (SDL), Centre Provident Fund Board*
- ⁹ *Employment of Foreign Manpower Act, Singapore Ministry of Manpower*
- ¹⁰ *Total labour force, The World Bank*
- ¹¹ *Industry (including construction), value added per worker (constant 2010 US\$), The World Bank*
- ¹² *Summary Table: Labour Force, Labour Market Statistical Information, Ministry of Manpower*
- ¹³ *Available Training Programmes for Employers & Workers, The SME Portal*
- ¹⁴ *SkillsFuture Singapore Introduction, SkillsFuture SG*
- ¹⁵ *Refreshed Continuing Education and Training (CET) Masterplan, Singapore Ministry of Manpower*
- ¹⁶ *About the Singapore Workforce Skills Qualifications (WSQ), SkillsFuture SG*
- ¹⁷ *Singapore-Industry Scholarship (SgIS)-HR Continuing Education Training (CET) Grant, National HR Capability, Singapore Ministry of Manpower*
- ¹⁸ *About trade unions, Singapore Ministry of Manpower*
- ¹⁹ *A Guide to Doing Business in Singapore, RSM International*
- ²⁰ *Apply for Visa to Singapore in Hong Kong, VFS. Global*
- ²¹ *General Household Survey 2015, Singapore Department of Statistics*

5. Research and Development Environment

Executive Summary

Singapore can be considered as the most advanced country in Southeast Asia in the research and development (R&D) field. For more than 25 years, the Singaporean government has focused on R&D and science, technology and innovation (STI) in order to boost the country's economic competitiveness. Currently, Singapore is implementing its sixth five-year plan, the Research, Innovation and Enterprise 2020 (RIE2020) which aims to transform the nation into a knowledge-based society and economy.

Overall, Singapore has strong R&D assets which help the nation fulfil the objectives of the RIE2020: high government spending and funding, numerous top of the class infrastructure, knowledgeable and abundant STI workforce and a strong enforcement of intellectual property (IP) framework.

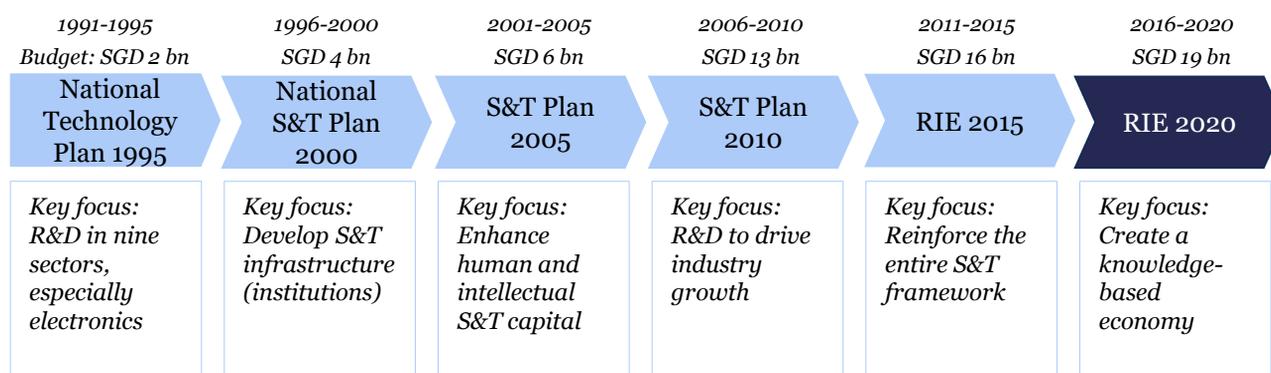


5. Research and Development Environment

I. The Science and Technology (S&T) in Singapore¹

For more than 25 years, Singapore has focused on science, technology and innovation (STI) to drive economic growth. Since the first masterplan, enacted over the 1991-1995 period, the government developed a total of six five-year masterplans targeted at enhancing the country's research and development (R&D) ecosystem. With the Research, Innovation and Enterprise 2020 (RIE2020), Singapore is now striving to develop an innovation-driven economy and society.

Timeline of Singapore's Six S&T Masterplans



A. Policies and Trends in S&T^{2,3,4}

Research, Innovation and Enterprise 2020 (RIE2020)

The RIE2020 is the sixth S&T plan developed by Singapore, which is effective over the 2016-2020 period. For this plan, the government has committed SGD 19 billion (around USD 14 billion) to support the country's R&D activities. These funds are currently allocated to four strategic technology domains which should help Singapore gain a competitive advantage:



Advanced Manufacturing and Engineering



Health and Biomedical Sciences



Urban Solutions and Sustainability



Services and Digital Economy

In addition, the plan focuses on developing the entire STI ecosystem by:

- Supporting academic research leading to industrial applications to sustain Singapore's growth;
- Enhancing R&D manpower by building a strong R&D community;
- Fostering "innovation and enterprises" by supporting innovative companies that can create value for the country.

Outlook

Overall, Singapore's STI ecosystem is the most advanced of the Southeast Asian region. The country ranked 14th out of 140 countries in the "Innovation Capability" criteria of the 2018 Global Competitiveness Index and ranked first among the ASEAN countries. Singapore especially ranked high in diversity of the workforce (second), international co-inventions (seventh) and buyer sophistication (11th). Comparatively to its overall ranking, Singapore had low scores in scientific publications (24th), trademark applications (22nd), and quality of research institutions (21st).

Nevertheless, a lack of transparency in R&D expenditure data has been highlighted. The latest available data dates back to 2016; that year the R&D expenditure reached 2.22% of the GDP. Even though this figure is not the most updated, the percentage is still the highest among ASEAN countries.

B. S&T Related Organisations^{5,6}

Even though Singapore does not have a Ministry of Science and Technology, the government still plays a key role in strategic plans formulation and policies enforcement. Currently, there are two main organisations handling S&T related matters, and both report directly to the Prime Minister or to the Minister of Trade and Industry.

The Research, Innovation and Enterprise Council (RIEC)

Created in 2006, the RIEC is chaired by the Prime Minister and composed of S&T industry experts from the public and private sectors. The Council's main mission is to set the strategic direction for Singapore's R&D. To fulfil this mission, the RIEC:

- Drives Singapore's transformation to a knowledge-based society by advising the government on research and innovation policies and strategies;
- Drafts Singapore's five-year R&D strategy (i.e. the RIE2020); and
- Identifies new levers of long term economic growth by leading national efforts in STI.

To efficiently carry out this mission, two other organisations support the RIEC:

- The National Research Foundation: focusing specifically on the development and coordination of national policies; and
- The Scientific Advisory Board: assisting in R&D management by reviewing policies, identifying new research areas and highlighting emerging global trends and risks.

The Agency for Science, Technology and Research (A*STAR)

A*STAR is an agency operating under the Ministry of Trade and Industry. It's vision is to become a global leader in STI and help convert research results into outputs benefiting the economy and society. The agency's main missions are:

- Carrying out R&D in two main fields (biomedical, and science and engineering) by managing around 25 research centres throughout the country;
- Accelerating the research output commercialisation process and enhancing technology transfer between the private and public sectors; and
- Developing a strong STI manpower through the A*STAR Graduate Academy.

II. The Infrastructure of Science and Technology

A. Government R&D Institutes and/or Funding Agencies^{6,7,8}

In Singapore, the government plays a key role in the development of R&D activities. Most of the public R&D centres are managed by two main agencies: the A*STAR and The Campus for Research Excellence and Technological Enterprise (CREATE). In addition, the Singapore Science Park serves as a prestigious campus regrouping startups, technology companies, public or private research institutions and national agencies.

The Agency for Science, Technology and Research (A*STAR)

The agency manages around 25 R&D centres which carry out research in eight main domains:



Chemicals and
Materials



Electronics



Engineering



Food, Nutrition &
Consumer Care



Pharmaceuticals &
Biologics



Energy



Information and
Communications
Technology



Media Technology

For additional information please visit A*STAR's official website (www.a-star.edu.sg/Research/Research-Entities-Capabilities).

The Campus for Research Excellence and Technological Enterprise (CREATE)

CREATE is an international collaboration campus that hosts R&D centres from local and foreign universities. Currently, there are around 15 joint research programmes between local and foreign universities, which have produced more than 2,000 scientific publications, and collaborated with over 100 international companies. Some examples of universities working at CREATE are: the Massachusetts Institute of Technology (MIT), University of California (Berkeley), and Cambridge University.

Singapore Science Park

The Singapore Science Park is considered one of the best locations in Asia for setting up an R&D centre. It hosts more than 300 international companies, including a community of 10,000 startups, local companies, national research institutions, etc. Entities located in the park are mostly focused on the hi-tech and electronics industries. Some of the main research areas are: information technologies (IT) & IT-enabled services (ITES), bioinformatics, software development, telecommunications, electronics, and other hi-tech industries.

For additional information, please visit Singapore Science Park's official website (www.sciencepark.com.sg/en/).

B. University-based R&D Institutes^{9,10}

Apart from the government, universities are also important players in the R&D field. According to the 2019 QS Asia University Rankings, Singapore has only three universities ranked in the top 300. The QS Institute ranks the top universities in Asia according to six criteria, among which the most important are academic reputation (assessing teaching and research quality) and citation per faculty (assessing importance of research outputs). Even though Singapore has only three ranked universities, all of them are in the top 100; with two of them among the top three Asian universities. This ranking therefore indicates a very high research and teaching quality, and implies that Singapore has a strong impact on the international S&T scene.

University (ranking)	Description and Research Focus
<p>National University of Singapore (NUS) (1st)</p>	<p>NUS hosts more than 30 research centres which carry out research in eight main topics, including:</p> <ul style="list-style-type: none"> • Biomedical sciences and translational medicine (e.g. new drugs, diagnostic devices, specific treatment devices); • Integrative sustainability solutions (e.g. clean energy materials, environmental surveillance, waste-to-energy conversion); • Material sciences (e.g. membrane technologies used in environmental systems or hybrid magnetic sensors used in consumer electronics); and • Smart Nation (e.g. data sciences, artificial intelligence, cyber security).
<p>Nanyang Technological University (NTU) (3rd)</p>	<p>NTU research is focused on sciences, social science, arts and humanities, accounting and business management, etc. Among the STI related topics, the university focuses on:</p> <ul style="list-style-type: none"> • Engineering and technology (e.g. aerospace, computer sciences, electronics, nanotechnology); • Life sciences and biomedicine (e.g. biology, engineering, biomedical sciences); and • Natural sciences (e.g. energy, mathematics, physics, water and sustainability).
<p>Singapore Management University (SMU) (78th)</p>	<p>SMU hosts multiple research centres carrying out studies in economies and financial markets, social fabric and quality of life, boundaries and borders, sustainability, and innovation and technology. Among the last two topics, some research centres focus on:</p> <ul style="list-style-type: none"> • Management of innovation; • Automated intelligence and augmented intelligence; • Smart, safe and secure cities; and • Sustainable resource management.

C. Private Business Firms (Research Centres)¹¹

Following one of the RIE2020's objectives, Singapore has been successful at attracting foreign investors to the city. Indeed, many multinational companies have set up R&D centres in the country. As a result, Singapore is now considered as one of the top 10 locations for innovation centres in the world. The table below describes some of the main private R&D centres located in Singapore.

Selected Major R&D Centres in Singapore

Investor	Research Focus	Description ^{15,16,17,18}
Nestle	Food and Beverages	Nestle's R&D centre is responsible for: <ul style="list-style-type: none"> • Global product development for the Nescafé and Milo lines; • Innovation services for the Asia and Oceania businesses; and • Quality controls.
Mondelez	Food and Beverages	The hub is designed to improve speed, efficiency and effectiveness of the Group by quickly addressing changing consumer needs. It carries out research in: <ul style="list-style-type: none"> • New product development (including packaging research); and • Technological improvements (including production efficiency research).
Panasonic	Technology	Defined as a core technology R&D centre, the hub focuses on applying technologies to real-life use. The centre mainly focuses on two technologies: <ul style="list-style-type: none"> • Image recognition; and • 3D technology.
Dyson	Home appliances	The company, which is known for creating vacuum cleaners and bladeless fans, opened this R&D centre focusing on: <ul style="list-style-type: none"> • Artificial intelligence; • Machine learning; • Robotics; • Fluid dynamics; and • Vision systems.
Grab	Automotive	The car-hailing company opened this R&D centre in order to investigate two new growth opportunities: <ul style="list-style-type: none"> • Support startups engaged in the fresh groceries supply chain sector; and • Trial partnership with Indonesia e-commerce firm Kudo.
Zuellig Pharma	Healthcare	This is the company's only R&D centre. It focuses on digital technologies and big data to: <ul style="list-style-type: none"> • Help doctors develop efficient treatment plans; and • Support patients throughout their journey (from disease detection to service payment).

D. Infrastructure Availability for Foreign Investments⁵

As part of the RIE2020, Singapore aims to attract numerous cutting-edge companies to bring value to the nation. Therefore, the country welcomes foreign investments and aims to offer the best infrastructure and partnership opportunities. The main destination for companies wishing to set up their Asian headquarters or R&D centre in Singapore is the Singapore Science Park, with more than 300 innovative multinational companies already established there. In addition, companies can approach the A*STAR to establish joint laboratories. A*STAR is already involved in multiple projects across multiple industries: semiconductor laboratories with Dai Nippon Printing, pharmaceutical research with Novartis, and the creation of a new food, nutrition and consumer care innovation cluster attracting companies such as Nestle and Danone. Foreign investors have therefore many options to establish R&D facilities in Singapore.

III. Priority Areas in Singapore (major exports)^{12,13}

Singapore is not rich in raw natural resources. Instead, the country's main exports are manufactured value added products. In 2018, Singapore's top five exports were:

Top 5 Exports	% of Total Exports (in 2018)
 Electrical Machinery and Equipment	31.3%
 Machinery and Mechanical Appliances	14.3%
 Mineral Fuels	13.1%
 Other Commodities	6.4%
 Optical, Technical, Medical Apparatus	4.7%

As an innovation-focused country, Singapore mainly focuses on exporting high value added products. According to the World Bank, in 2018, 52% of the country's manufactured exports were labelled as hi-tech products (e.g. products with high R&D intensity, such as in the computers, aerospace, pharmaceuticals industries). This percentage is one of the highest among the ASEAN countries, but lower than that of the Philippines (61%) and Malaysia (53%).

IV. Funding for S&T and R&D⁵

In Singapore, companies have access to multiple funding options, especially if they operate in one of the technology areas encouraged by the RIE2020.

Key Funding Schemes in the Advanced Manufacturing and Engineering (AME) Sector

Fund	Description	Requirements	Conditions
Individual Research Grants	<ul style="list-style-type: none"> Grant for research ideas supporting capabilities related to advanced manufacturing and engineering. 	<ul style="list-style-type: none"> Open to all public research performers. 	<ul style="list-style-type: none"> Awarded through open grant calls.
Programmatic Grants	<ul style="list-style-type: none"> Grant supporting thematic programmes that deliver long term trainings. 	<ul style="list-style-type: none"> Open to all public research performers. 	<ul style="list-style-type: none"> Awarded through open grant calls.
Industry Alignment Fund	<ul style="list-style-type: none"> Grant for forward-looking programmes that train manpower in emerging industries. 	<ul style="list-style-type: none"> Open to all public research performers. Projects require support from both A*STAR and the Economic Development Board. 	<ul style="list-style-type: none"> Awarded through open grant calls.

Key Funding Schemes in the Health and Biomedical Sciences (HBMS) Sector

Fund	Description	Requirements	Conditions
HBMS Open Fund Large Collaborative Grant	<ul style="list-style-type: none"> Grant supporting public institutions research in advanced human health and wellness. 	<ul style="list-style-type: none"> Research team must operate in a public institution. 	<ul style="list-style-type: none"> Maximum funding of SGD 25 million (USD 18 million) for a maximum of 5 years.
HBMS Open Fund Individual Research Grant	<ul style="list-style-type: none"> Grant for clinical research looking into cause, consequence and treatment of human diseases. 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Maximum funding of SGD 1.5 million (USD 1.1 million) for a maximum of 5 years.
Singapore Translational Research Investigator Award	<ul style="list-style-type: none"> Award supporting clinical researchers undertaking forward-looking translational research. 	<ul style="list-style-type: none"> Proposed research must be conducted in Singapore. 	<ul style="list-style-type: none"> Award up to SGD 8 million (USD 5.9 million) over 5 years.

5. Research and Development Environment

Key Funding Schemes in the Urban Solution and Sustainability (USS) Sector

Fund	Description	Requirements	Conditions
Capability Building Programmes	<ul style="list-style-type: none"> Support training of local STI talents to conduct research in the USS field. 	<ul style="list-style-type: none"> Train local manpower. 	<ul style="list-style-type: none"> N/A
Industry Alignment Fund	<ul style="list-style-type: none"> Fund collaborative research with companies to build USS capability. 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
USS Competitive Research Programmes for Energy	<ul style="list-style-type: none"> Target cutting-edge research in the USS field. 	<ul style="list-style-type: none"> Open to S&T areas related to USS. 	<ul style="list-style-type: none"> Examples of possible fields: solar, power system, green building, waste management.

Key Funding Schemes in the Services and Digital Economy (SDE) Sector

Fund	Description	Requirements	Conditions
Smart Systems SRP Emergent Areas Research Projects	<ul style="list-style-type: none"> Support R&D research in new or emerging areas. 	<ul style="list-style-type: none"> Project must be at seed stage. 	<ul style="list-style-type: none"> N/A
Industry Alignment Fund	<ul style="list-style-type: none"> Grant for forward-looking research projects. 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
Smart Systems SRP Strategic Capabilities Research Centres	<ul style="list-style-type: none"> Funds SDE R&D projects linked to deep capability building. 	<ul style="list-style-type: none"> Project carried in a Singaporean research institute or university. 	<ul style="list-style-type: none"> Funding method: dollar matching for industry co-funding.

For additional details regarding S&T funding, please visit the section “Growing a vibrant national innovation system” in the official RIE2020 document ([www.nrf.gov.sg/docs/default-source/default-document-library/rie2020-publication-\(final-web\).pdf](http://www.nrf.gov.sg/docs/default-source/default-document-library/rie2020-publication-(final-web).pdf)).

V. Human Resources for S&T¹⁴

Singapore benefits from an established S&T workforce. In the 2019 Global Innovation Index, Singapore ranked fifth out of 126 countries in the criteria “Researchers, FTE/million population”. The country ranked first among the ASEAN countries, with a ratio of 6,730 researchers per one million people.

In addition, Singapore can leverage its strong base of S&T educated people. The country ranked fifth worldwide in the criteria “% of graduates in science and engineering”, with around 35% of the total number of tertiary graduates graduating in science and engineering (*Note*).

Note: The figure represents the share of all tertiary-level graduates in natural sciences, mathematics, statistics, information and technology, manufacturing, engineering, and construction as a percentage of all tertiary-level graduates.

VI. Supports in Testing and Verification⁶

As one of the main R&D players in Singapore, A*STAR provides a full range of services to companies. The agency tailors to both startups and mature companies. Startups can benefit from the A*ccelerate programme or the A*Start Central which help them overcome common hurdles (e.g. high failure risk, high capital needs) by offering facilities (e.g. prototyping laboratories) and services (e.g. licensing). More established companies can benefit from the A*Star R&D or the A*Star Patent programmes enabling them to easily and efficiently license and patent their innovations.

VII. Intellectual Property (IP) Policy¹⁵

IP rights are an important factor to consider when entering a country. Some nations have trouble implementing a strong framework to protect IP rights which can lead to serious damages to the companies. Each year the Global Innovation Policy Center (GIPC) publishes a worldwide ranking which analyses eight IP protection related categories: patents, copyrights, trademarks, trade secrets, commercialisation of IP assets, enforcement, systemic efficiency, as well as membership and ratification of international treaties. According to the 2019 IP Index published by the GIPC, Singapore’s IP Protection is strong. Globally, the country ranked 10th out of 50 analysed countries. Regionally its performance is above Asian countries’ average. Overall Singapore scored 82% compared with 52% for the Asian average (as a reference the top five world economies averaged 92% on the index).

The report underlines areas where Singapore’s IP protection is strong:

- The country’s IP framework is seen as advanced;
- The nation is leading the online copyright protection (i.e. strong laws); and
- Patent prosecution is one of Singapore’s top priorities.

However, some areas of improvements are also noted:

- Online piracy rate of 27% is considered high for a developed country, despite the country’s proficiency in copyright protection; and
- Lack of transparency at an international level on seizure of goods found to be infringing IP laws.

Source:

- ¹ *Singapore: 50 Years of Science and Technology*, National University of Singapore, 2018
- ² *The RIE2020 Plan*, National Research Foundation, 2016
- ³ *The Global Competitiveness Report 2019*, World Economic Forum
- ⁴ *Research and development expenditure (% of GDP)*, The World Bank
- ⁵ *The Research, Innovation and Enterprise Council homepage*
- ⁶ *The Agency for Science, Technology and Research homepage*
- ⁷ *CREATE*, The National Research Foundation
- ⁸ *Singapore Science Park homepage*
- ⁹ *QS Asia University Rankings 2019*, QS World University Rankings
- ¹⁰ *Universities official homepages*
- ⁹ *Office of Science Advisor, MIGHT*, 2019
- ¹⁰ *Focus Area*, MIMOS
- ¹¹ *Singapore a hot spot for global R&D centres*, The New Paper, 2017
- ¹² *Trade Map*, International Trade Centre
- ¹³ *High-technology exports (%of manufactured exports)*, The World Bank
- ¹⁴ *Global Innovation Index 2019*, INSEAD
- ¹⁵ *GIPC IP Index*, Global IP centre, 2019

6. Supply Chain Environment

Executive Summary

Singapore's economy is heavily dependent on services and manufacturing, with virtually no agriculture in the country's economy. In 2016, the Singaporean government introduced 23 Industry Transformation Maps (ITMs) to further improve the country's competitive advantage in 23 key industries, including electronics, precision engineering, and healthcare, among others.

Singapore boasts some of the best infrastructure in the world, consistently ranking high in various global rankings. Both Singapore Changi Airport and the Port of Singapore are major Asian logistics and trade hubs, and efficiently handle millions of tonnes of cargo annually. With the implementation of the Logistics ITM, Singapore's logistics infrastructure will continue to improve and maintain its status as one of the world's most logistically advanced countries.



6. Supply Chain Environment

I. Industry Profiles in Singapore

Breakdown of 2018's Top 10 Exports^{1,2,3}

Singapore's major sectors by gross domestic product (GDP) in 2017 were services (75.2%), industry (24.8%) and agriculture (0%).

In Singapore, the services sector mainly includes financial services, telecommunications, and shipping. The major industries are electronics, chemicals, biomedical and scientific instruments, food and beverage, and oil and petroleum. There is virtually no agriculture in Singapore.

In 2018, Singapore's total global shipments amounted to USD 411.7 billion of which over 85% were contributed by its top 10 exports.

Product Groups	Value in 2018	% of Total Exports
1. Electrical machinery and equipment	USD 128.7 billion	31.3%
2. Machinery	USD 58.7 billion	14.3%
3. Mineral fuels including oil	USD 54.0 billion	13.1%
4. Other commodities	USD 26.4 billion	6.4%
5. Optical, technical, medical apparatus	USD 19.2 billion	4.7%
6. Precious metals and stones	USD 17.0 billion	4.1%
7. Organic chemicals	USD 16.9 billion	4.1%
8. Plastic and related products	USD 15.9 billion	3.9%
9. Cosmetics, perfumes, and oils	USD 8.4 billion	2.0%
10. Pharmaceutical products	USD 8.4 billion	2.0%

Note: The above categories are grouped based on the Harmonized Commodity Description and Coding System (HS Code). For specific items within each category, please refer to www.censtatd.gov.hk/trader/hscodex/index.jsp.

Singapore's exports are heavily dominated by electronics and machinery. Singapore was the world's largest exporter of integrated circuits in 2017 with around USD 115 billion. Singapore was also the second largest exporter of computers in Asia with around USD 7.4 billion.

Other major exports of Singapore in 2017 include refined petroleum (third largest in the world with around USD 43 billion) and gold (fourth largest in Asia with around USD 10 billion).

II. The Key Supported Industries in Singapore^{4,5,6}

Singapore is one of the largest economies in Asia, and a major international trading and shipping hub. The strong economy enables Singapore to attract and support many industries. In 2016, the Singaporean government developed 23 Industry Transformation Maps (ITMs), predicted to cost a total of around SGD 4.5 billion, to develop strategies and improve productivity and innovation for each industry. Each industry has a lead government agency responsible for implementing the ITM. Some of the main supported industries in Singapore include electronics, medical and biotechnology, and precision engineering.

A. Supply Chain Policy for Key Supported Industries and Local Supply Situations^{6,7,8}



Electronics

The electronics industry is a major contributor to the Singapore economy, with electronics manufacturing alone contributing to around 4.4% of GDP. The electronics industry in Singapore is currently mainly focused on the manufacturing of high-value components, especially semiconductor integrated circuits.

The Electronics ITM is overseen by the Singapore Economic Development Board (EDB). The main objectives of the ITM include boosting productivity through encouraging automation, and promoting innovation in local companies. As new possible applications for integrated circuits emerge, such as in autonomous vehicles, artificial intelligence, and healthcare, the possibility of growth for the electronics industry also increases. The ITM aims to leverage this potential, and assist companies in innovating and diversifying into these new fields. The Singaporean government will create multi-party platforms to facilitate collaboration and development, bringing together multinational corporations (MNCs), small and medium-sized enterprises (SMEs), and startups to cooperate. New facilities such as the JTC nanoSpace will also provide the space necessary for semiconductor manufacturers.



Healthcare

The biomedical industry in Singapore is quickly growing to become an important pillar of the country's manufacturing economy. In 2016, the Singaporean government committed SGD 4 billion to research in health and biomedical sciences. The ageing population will continue to increase the demand for healthcare products and services.

Private Singaporean healthcare companies, such as Alliance Healthcare and Raffles Medical Group are already major players in Asia, along with a strong public healthcare system. The Healthcare ITM aims to further improve this competitive advantage through encouraging innovation and the use of advanced technologies to improve access to healthcare services for its citizens, and improve private and public healthcare cooperation. The well-established local integrated circuits manufacturing industry will also provide a strong foundation for the growth of the healthcare and biomedical industries, and the necessary components for more advanced medical devices.



Precision Engineering

The precision engineering (PE) industry is a major pillar of Singapore's manufacturing economy. The PE industry is crucial in providing components and support for the development and growth of other manufacturing industries in Singapore, including the semiconductor, aerospace, and medical technology industries, among others.

The PE ITM aims to shift the local PE industry towards higher value-added activities, providing the foundation for the development of other manufacturing industries such as semiconductors, laser and optics, robotics, additive manufacturing, advanced materials, and sensors. This will be done mainly through developing the robotics and digital supporting industries.

III. Key Raw Materials Sourcing Platforms/Channels^{7,8,9}

Singapore is home to many B2B e-Procurement platforms, with two of the largest being Eezee and Zeemart focusing on industrial hardware, and food and beverage respectively, in addition to many other local B2B platforms. The Singaporean government is also developing a National Digital Identity (NDI) project for government procurement projects. The NDI project will allow businesses to provide secure authentication and digital signing certificates, providing more security and assurance for businesses.

In addition to procurement platforms, many trade fairs are also hosted in Singapore annually, for industries including food and beverage, maritime, healthcare, and information and communications technology, etc. These trade fairs will usually require registration from professional visitors, and are typically hosted at the Sands Expo & Convention Centre.

IV. Procurement Situation (local and overseas) of Raw Materials

A. Hurdles or Problems Encountered^{10,11}

Singapore is one of the most important trading hubs in Asia, with millions of tonnes of cargo passing through the country annually. Re-exporting plays a major role in the Singapore trade environment, mainly including importing raw materials, providing value added services, and re-exporting higher value products.

Due to the land scarcity, Singapore always needs to incorporate innovation and technology to maintain logistics quality and efficiency. In line with the Logistics ITM 2020, Singapore's logistics firms are continually incorporating the most advanced technologies in their operations, such as automated forklifts and pallet movers on warehouse floors, telematics and real-time visibility systems for road truck fleets, and even experimenting with exoskeleton outfits to complement ageing workforce.

According to the 2019 report by the World Bank, Singapore ranked second in the world in terms of ease of doing business, and ranked first out of the ASEAN countries (Hong Kong ranked fourth globally in the same report). Singapore ranks well in the Enforcing Contracts (first), Starting a Business (third), and Protecting Minority Investments (seventh) criteria, but relatively worse in the Getting Credit (32nd) and Trading Across Borders (45th) criteria.

B. Efficiency of Customs and Clearance Process^{12,13,14}

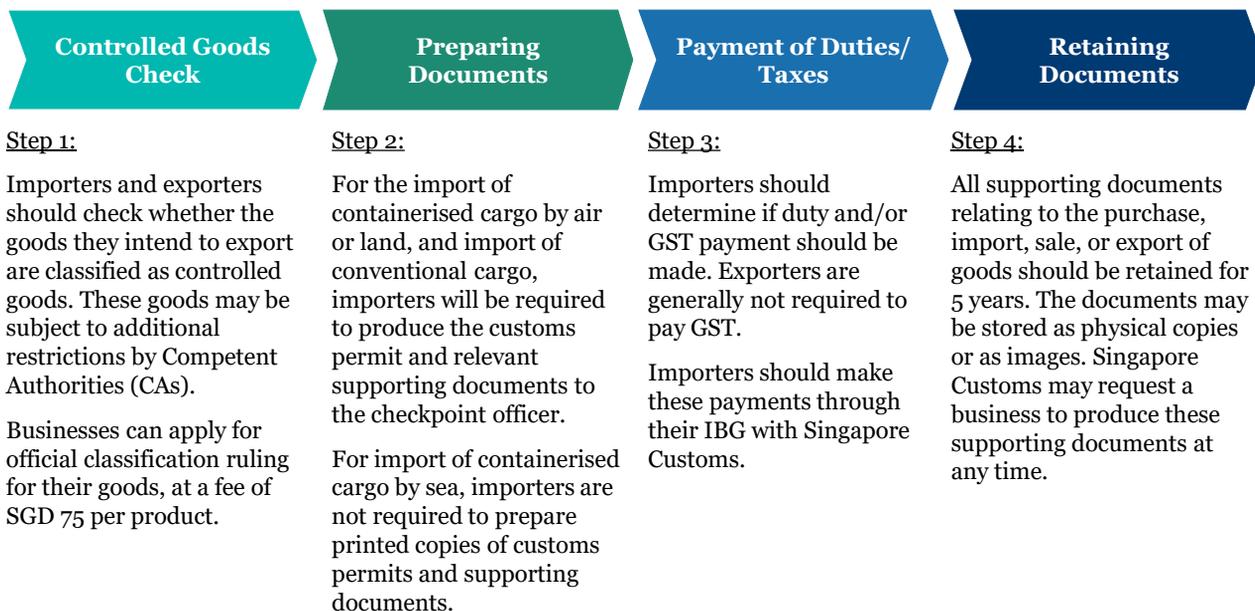
Singapore applies two systems of tariff classification. The 8-digit ASEAN Harmonised Tariff Nomenclature (AHTN) is used for trade transactions between Singapore and the other ASEAN countries. The AHTN is based on the 6-digit Harmonized Commodity Description and Coding System (commonly called the HS Code), which applies for trade with non-ASEAN countries. For more information regarding tariff classification in Singapore, please refer to the Singapore Trade Classification, Customs & Excise Duties (STCCED) (www.customs.gov.sg/-/media/cus/files/business/harmonized-system-classification-of-goods/resources/stcced/stcced-2018-march-2019-version/index.html).

Imports and exports are overseen by Singapore Customs under the Customs Act, the Regulation of Imports and Exports Act, the Strategic Goods (Control) Act, and other relevant legislation. Businesses that wish to import into or export out of Singapore must Register with the Accounting and Corporate Regulatory Authority (ACRA) or the relevant Unique Entity Number (UEN) agency to get a UEN. Importers will also need a customs permit, and an Inter-Bank GIRO (IBG) with Singapore Customs for payment of duties, taxes, fees, penalties, and other charges.

Goods and Services Tax (GST) is payable for most imported goods, but exported goods are exempt from GST. Importers are responsible for determining if duties and/or GST should be paid for their imported goods.

For more information on registering to import or export in Singapore, please refer to the Singapore Customs website (www.customs.gov.sg/businesses/importing-goods/quick-guide-for-importers) or (www.customs.gov.sg/businesses/exporting-goods/quick-guide-for-exporters).

Customs Clearance Process



The following table shows the documents needed for customs declaration:

#	Import and Export Goods
1	Invoice
2	Bill of lading or air waybill
3	Packing list
4	Customs Import/Export Permit, if necessary
5	Inter-Bank GIRO (IBG)
6	Certificate of Origin, if necessary
7	Any other specific authorisation for controlled goods

For more details regarding importing, exporting, and transshipments procedures in Singapore, please refer to the Singapore Customs website, and relevant legislation (www.customs.gov.sg/businesses/compliance/overview).

V. Logistic Support

A. Infrastructure Conditions (e.g. major airports/ports/highways)^{15,16,17,18}

Singapore benefits from an advantageous geographical location in the Strait of Malacca, and one of the most developed infrastructures in the world. Singapore is a major trading hub in Asia, with most of the Southeast Asian trade passing through the country.



Airports

Singapore Changi Airport (SIN) is one of the largest airport hubs in Asia. It was voted the World's Best Airport in 2019 for the seventh consecutive year by Skytrax. Changi Airport is also one of the best connected airports in the world, with connections to over 380 cities in over 100 countries and territories. The airport is also one of the busiest passenger and cargo hubs in the world, handling over 66.3 million passengers and 2.14 million tonnes of cargo in 2018.

Changi Airport officially opened the Jewel Changi complex on 18 October 2019, which is an entertainment and retail facility to help improve Changi Airport's status and attractions. Terminal 4 was also recently opened in 2017, bringing the airport's total annual handling capacity to 80 million passengers.



Seaports

The Port of Singapore is one of the major trading hubs in Asia, with strong business and cultural links to the other Asian markets, connecting to over 600 ports in over 120 countries. The Port of Singapore is the second largest port in the world, handling over 36 million TEUs (twenty-foot equivalent units) in 2018. The port is well-equipped with modern, reliable, and efficient equipment and infrastructure, capable of servicing the largest vessels in the world.



Highways

The road network in Singapore is 3,500 km in length, and is managed by the Land Transport Authority (LTA). The roads in Singapore are all paved, and are separated into four categories: expressway, arterial road, collector road, and local road.

Singapore has 10 expressways, with the 11th (the North-South Corridor) scheduled to be completed in 2026. The Singaporean expressway network is also connected to the Malaysian expressway network.



Railways

The main railway systems in Singapore are the Mass Rapid Transit (MRT) and Light Rail Transit (LRT). The MRT and LRT systems are connected, with the MRT being the main system and the LRT connecting to the MRT. The MRT network is currently around 200 km long. The LTA has plans to upgrade the MRT network to about 360 km long, allowing eight in 10 households access to a station within 10 minutes.

The Singaporean and Malaysian governments currently have plans to develop a Rapid Transit System Link between the two countries. The project will cost around USD 760 million, and is projected to be able to carry up to 10,000 passengers per hour each way.

B. Key Logistics Hubs¹⁹

Singapore has some of the best logistics infrastructures in the world. With its advantageous location and strong infrastructure, Singapore is one of the main shipping and trading hubs in Southeast Asia. The Singaporean government aims to further strengthen their strong position in international trade with the Logistics ITM 2020. This ITM aims to improve the domestic logistics system to optimise long-term use, develop Singaporean talent, and encourage innovation and internationalisation of Singaporean logistics enterprises. The goals for the logistics industry set for 2020 under the ITM include:

- Reach a value-add of SGD 8.3 billion; and
- Create 2,000 new professional, managerial, executive, and technical jobs.

C. Logistics Information Tractability and Transparency²⁰

Singapore has a very strong logistics performance as compared to the other ASEAN countries. In the 2018 World Bank's Logistics Performance Index (LPI), Singapore ranked seventh out of 160 countries for the overall LPI, a slight drop from the 2016 result (ranked fifth out of 160). Singapore ranked first among the ASEAN countries.

On a granular level, the LPI score is made up of six elements: (1) Customs; (2) Infrastructure; (3) International shipments; (4) Logistics competence; (5) Tracking and tracing, and (6) Timeliness. Singapore ranked relatively better in Logistics competence (third), but scored relatively poorly in International shipments (15th).

Source:

- ¹ *Trade Map, International Trade Centre*
- ² *The World Factbook: Singapore, Central Intelligence Agency*
- ³ *Singapore, Observatory of Economic Complexity*
- ⁴ *Electronics Industry Transformation Map – Media Release, EDB Singapore, Sep 2017*
- ⁵ *Precision Engineering Industry Transformation Map – Media Release, EDB Singapore, Oct 2016*
- ⁶ *Healthcare ITM for a Future-ready Healthcare System – Press Release, Nov 2017*
- ⁷ *Singapore is Changing the B2B Market, Sourcesage, Jul 2019*
- ⁸ *Singapore reveals 2020 GovTech procurement plans, GovInsider, May 2019*
- ⁹ *Trade Fairs Singapore, TradeFairDates*
- ¹⁰ *Future of logistics in Singapore ‘cannot be more exciting’, sgsmc.sg, Jun 2018*
- ¹¹ *Doing Business 2019, The World Bank*
- ¹² *Harmonised System (HS) Classification of Goods, Singapore Customs*
- ¹³ *Quick Guide for Importers, Singapore Customs*
- ¹⁴ *Quick Guide for Exporters, Singapore Customs*
- ¹⁵ *Annual Report 2018/19, Changi Airport Group*
- ¹⁶ *Introduction to Maritime Singapore, Maritime and Port Authority of Singapore*
- ¹⁷ *ASEAN Statistics, ASEAN Secretariat*
- ¹⁸ *Upcoming Projects, Land Transport Authority*
- ¹⁹ *Logistics ITM to Strengthen Singapore’s Position as a Globally Leading Logistics Hub – Media Release, EDB Singapore, Nov 2016*
- ²⁰ *Logistics Performance Index (LPI), The World Bank, 2018*

7. Infrastructure

Executive Summary

Singapore has a fair number of industrial parks and highly established transportation infrastructure.

Domestic and foreign investors can choose to locate their manufacturing operations in one of the 16 specialised industrial parks (SIPs) and business parks (BPs). In Singapore, most of the SIPs cater to specific manufacturing industries e.g chemicals, oil and gas or aerospace whereas the BPs target innovative enterprises that can help the country transform into a knowledge-based society.

Singapore's transportation infrastructures are among the best worldwide. The high quality of existing facilities is mainly due to continuous government investments and public-private partnerships. In addition, the country's infrastructure outlook is positive as it is expected that nearly 100% of the country's investment need will be met by 2040.



7. Infrastructure

I. List of Major Industrial Parks or Zones and Geographical Locations

A. Availability of Infrastructure, Associated Cost of Usage, and Options for the Major Industrial Parks or Zones^{1,2}

While Singapore's economy is mainly services-based, the country has nevertheless developed two different parks to cater for manufacturers' needs: specialised industrial parks (SIPs) and business parks (BPs). SIPs target enterprises carrying out light manufacturing activities, whereas BPs are tailored for companies engaged in more knowledge-based activities (e.g. research and development). Currently there are eight SIPs and eight BPs in Singapore.

Locations of the Major SIPs and BPs in Singapore⁴

- Specialised Industrial Parks
- Business Parks

This map is for illustrative purposes only, and does not imply official endorsement or acceptance of any boundaries and/or names.

Woodlands North Coast

Business and industrial park for clean and light manufacturing companies and SMEs

MedTech Park

Medical technology hub dedicated to medtech manufacturers, product owners and service providers

Clean Tech Park

Site for forward-looking companies working on environmental sustainability

1) Tuas Biomedical Park and 2) Offshore Marine Centre

- 1) Manufacturing hub for pharmaceutical, biotechnology and medical technology companies
- 2) Centre for companies engaged in manufacturing of marine, oil and gas equipment or structures; and transportation of raw or finished products

Seletar Aerospace Park

Designed to transform Singapore into a global aviation hub, it hosts over 60 aerospace enterprises

Punggol Digital District

Focuses on fields such as cyber security or digital technology

Airport Logistics Park

First logistics park with Free Trade Zone Status in Singapore

Changi Business Park

Hosts hi-tech or data and software enterprises, R&D division of knowledge-intensive companies

International Business Park

Singapore's first business park, dedicated to knowledge-based activities

1) Mediapolis and 2) One North

- 1) Information and communications technology and media companies
- 2) Centre for R&D, innovation and testing activities

Jurong Island

Designed for the energy and chemical industries, it hosts 100+ petroleum, and chemical companies

Foreign Direct Investment (FDI)

Singapore is attractive to foreign investors due to its simple regulatory system, low tax rates, high quality infrastructures and political stability. Therefore, Singapore is among the top five largest FDI inflow recipients worldwide. In 2018, the country recorded net inflows of around USD 77.7 billion, a 2.6% increase from USD 75.7 billion in 2017. The main investors in the country were the United States, British Virgin Islands, Cayman Islands and the Netherlands. Most of their investments are directed at services, specifically financial and insurance activities.

Cost of Usage

The price of land (for both rent and sale) in industrial estates varies from one site to another depending on factors such as location, provision of utilities, transportation links as well as proximity and access to raw materials. For more details on the cost of industrial land, please refer to Appendix 1.

As Singapore offers industry-specific parks, companies need to consider the best fit before investing in the country. For example, parks such as the Medtech Park, the Aerospace Park or the Offshore Marine Centre offer facilities and equipment tailored for the medical, aerospace, and oil and gas industries respectively. These parks are therefore likely to charge a premium compared to non-specialised parks, for the availability of specific equipment.

In addition to the land cost and facilities rent cost, industrial parks generally charge various fees. Investors can expect to pay domestic waste fees, maintenance fees and general fees.

Outlook

In Singapore, most of the industrial and business parks are developed by the JTC Corporation. From 1968 to 2018, JTC developed more than 7,000 hectares of industrial land and 4 million m² of ready-built facilities in order to meet companies' evolving needs along their industrialisation journey (the SIPs and BPs described previously were all developed by JTC). Singapore's industrial parks' outlook is quite positive, as JTC has already planned additional investments to further develop the current infrastructure. Some of the main ongoing projects are:

- Jurong Rock Caverns: a project looking into subterranean depths to optimise land use;
- Tukang Innovation Park: designed to support innovative companies and facilitate the growth of new industry clusters; and
- Jurong Island Version 2.0: an initiative to enhance the competitiveness of the current chemicals hub.

B. Land or Building for the Major Industrial Parks or Zones³

As most of the industrial and business parks in Singapore are managed by the JTC, investors can visit their Customer Service Portal in order to perform any business-related transactions. The portal is designed to shorten business turnaround time by providing a one-stop service. For additional information, please visit the JTC portal (www.jtc.gov.sg/customer-services/pages/default.aspx#pageheader).

Examples of Services Available on the Portal

<p>Search and Apply for Properties</p>	<p>Perform Lease-related Transactions</p>	<p>Manage Investments</p>	<p>Pay</p>
<p>Companies can invest in: flatted or ramp-up or standard factories, business space or lands</p>	<p>Renew lease, sublet space, register for a property, transfer or terminate tenancy, etc.</p>	<p>View property details, applications status, statement of account, etc.</p>	<p>Online payment available for: rent or administration fees, etc.</p>

II. Potential Infrastructure Shortfall⁴

Overall, Singapore has well-established infrastructure. In the World Economic Forum's 2019 Global Competitiveness Report, Singapore ranked first out of 140 countries. The country has therefore the most established infrastructure worldwide. However, on some criteria, Singapore had relatively low scores, indicating that there is room for improvements:

- Moderate airport connectivity: Singapore ranked 23rd; and
- Population is moderately exposed to unsafe drinking water: Singapore ranked 25th.

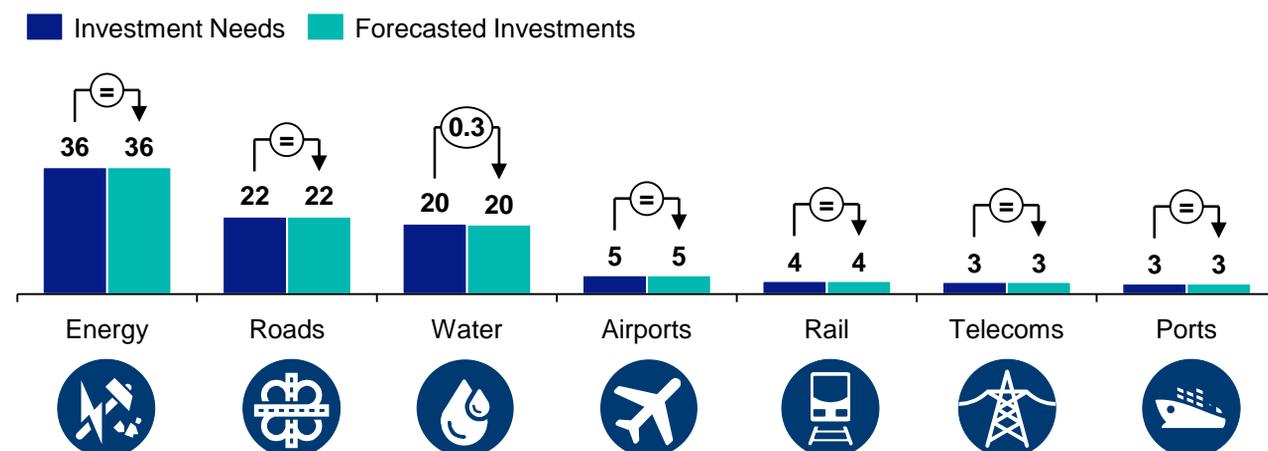
III. Latest and Upcoming Major Local Infrastructure Projects and Spending^{5,6}

The government's continued support to national infrastructure development in Singapore has led to a quality of infrastructure among the highest in the world. Over the years, the Singaporean government has continuously invested money through national projects or public-private partnerships and is projected to pour USD 10 billion per year in 2020 and 2021. Some of Singapore's major infrastructure development projects are described below.

- **Railway:** the government aims to create a railway network of 360 km in 2030 (from 230 km in 2018). This project focuses on strongly increasing the number of household covered by the Mass Rapid Transit system (i.e. Singapore's subway).
- **Airport:** the government is providing 70% of the funding for a USD 10 billion project to build a new terminal in Changi Airport. The new terminal is expected to be open in 2030 and should increase the airport's passenger handling capacity by 50 million per year (i.e. from 85 million in 2018 to 135 in 2030).
- **Water:** Singapore is investing in a USD 4.8 billion sewer project. The Deep Tunnel Sewerage System (Phase II) should create an comprehensive sewer network linked to a new water reclamation plant by 2025.

From 2016 to 2040, around USD 94 billion will be needed to upgrade or develop new infrastructure in Singapore (see chart below for breakdown by sector). Over the period it is forecasted that the country's public and private sectors will invest more than USD 93 billion, therefore covering nearly 100% of the country's needs. The total investment gap is estimated to be USD 0.3 billion which can be attributed to lower investment in the water sector.

Singapore's Infrastructure Investment Needs 2016-2040 per Sector (USD billion)



IV. Availability of Natural Resources^{7,8,9,10,11,12}

Natural Resources	Details
Natural Vegetation, Forests and Timber	<ul style="list-style-type: none"> • Vegetation covers more than 50% of Singapore’s territory. • Around half of the country’s vegetation is “managed” which is to say that it takes the form of parks, gardens, lawns, etc. • Singapore’s vegetation is mostly tropical rainforest.
Agriculture	<ul style="list-style-type: none"> • The agriculture sector is estimated to represent 0% of Singapore’s GDP. • According to Singapore Food Agency, there are six agrotechnology parks in the country which offer 600 hectares allocated to 200 farms.
Fishing/ Aquaculture	<ul style="list-style-type: none"> • Fishing is a negligible activity in Singapore. • The few Singaporean fish-farming practitioners partner with international companies (e.g. Oceanus Group) to create tech-driven operations.
Livestock	<ul style="list-style-type: none"> • Singapore’s livestock production is very limited. • Most of the nation’s animal protein needs are met by importing from neighbouring countries (e.g. Thailand).
Water Resources	<ul style="list-style-type: none"> • Singapore has 4 different water sources: local catchment water, imported water, NEWater and desalinated water. • Imported water from Johor River supplies 60% of the country’s needs. • NEWater plant treats and purifies used water with membrane and ultra-violet technologies. It can meet 30% of the country’s water needs. • Desalination plants meet the rest of the country’s needs.
Minerals	<ul style="list-style-type: none"> • Singapore’s mining activity is nearly nonexistent as it does not have coal mines or precious stones mines. • However, the country is located near mining regions (e.g. Indonesia, Mainland China) and could become important in the regional supply chain.
Coal, Oil and Fossil Fuels	<ul style="list-style-type: none"> • 95% of electricity generated in Singapore is produced by burning natural gas, the rest is produced by coal, oil and municipal waste. • Most of the fuels used in Singapore are imported.
Renewable Energy	<ul style="list-style-type: none"> • Singapore has a limited renewable energy generation potential due to the lack of available space for renewable energy development. • Nevertheless, the government has committed to increasing capacity of solar energy from 71 megawatts in 2016 to 350 megawatts in 2020.

Source:

¹ *All Properties, JTC*

² *Singapore Foreign Investment, Santander Trade Markets*

³ *Customer Service Portal, JTC*

⁴ *2019 Competitiveness Report, World Economic Forum*

⁵ *Singapore infrastructure spending set to exceed USD 10 bn per year, Design Build, 2019*

⁶ *Forecasting infrastructure investment needs and gaps, G-20, 2017*

⁷ *The vegetation of Singapore, CABI*

⁸ *Farming in Singapore, Singapore Food Agency*

⁹ *Singapore's farming revival: 'Tech is the only way to go', Today, 2019*

¹⁰ *Singapore's water supply: Where does it come from?, Straits Times, 2015*

¹¹ *Singapore has potential to become key hub for mining, Today, 2014*

¹² *Singapore International Analysis, Eia Beta*

8. Types of Industries Encouraged by the Local Government

Executive Summary

Singapore's national strategy is to develop a knowledge-based and innovation-driven economy, and it focuses on three key areas: research, innovation and enterprise.

In Singapore, there are no foreign direct investment (FDI) restrictions for most industries. However, some restrictions on foreign ownership exist in broadcasting and domestic news media sector. In addition, licences and government approvals are required for certain activities conducted by foreign investors.



8. Types of Industries Encouraged by the Local Government

I. List of Government Programmes Encouraging Specific Industries^{1,2}

Industry development remains a major focus area for the Singaporean government. According to the Singapore Ministry of Finance and Industry, the country's national strategy is to develop a knowledge-based and innovation-driven economy, by focusing on three key areas: research, innovation and enterprise. Over the 2016-2020 period, the government is therefore planning to invest SGD 19 billion (USD 14 billion) in order to meet the objective set in the Research, Innovation and Enterprise 2020 plan (RIE2020). These amount will be mainly invested for three major business functions where the Economic Development Board (EDB) considers that Singapore has a competitive advantage in: Headquarters, Advanced Manufacturing and Innovation.

Headquarters

Given its geographic position, well-developed financial system and infrastructure, Singapore is an ideal headquarters location for companies operating or planning to expand in the region.

Advanced Manufacturing

With the challenges of increasing labour cost and competition, Singapore defends its leading industrial position by moving up to the top of value chain and embracing Industry 4.0 (i.e. the fourth industrial revolution).

Innovation

As one of the most innovative cities in the world, Singapore hosts a thriving ecosystem of companies that are experimenting new ways of solving challenging problems. To support this ecosystem, the Singaporean government encourages investments in a number of industries through the EDB:



Aerospace



Consumer
Businesses



Creative
Industries



Electronics



Chemicals



Information &
Communications
Technology



Logistics &
Supply Chain
Management



Oil & Gas
Equipment and
Services



Medical
Technology



Natural
Resources



Pharmaceuticals
& Biotechnology



Precision
Engineering



Professional
Services



Urban Solutions
& Sustainability

II. List of Business Activities that Foreign Participation may be Prohibited or Restricted from³

For most industries, Singapore does not impose any FDI restriction. However, in sectors such as broadcasting and domestic news media, foreign ownership is restricted. In addition, licences and government approvals are required for certain activities conducted by foreign investors.

Lists of Industries Subject to Authorities Approvals

Industry	Authority	Restrictions
Financial services	Monetary Authority of Singapore (MAS)	<ul style="list-style-type: none"> • MAS approval required for: merger and acquisition of a local bank and financial institutions (including shares purchasing). • Foreign banks must obtain a licence of “qualifying full bank” from the MAS before they access some customer services (e.g. ATM network).
Professional services	Multiple authorities	<ul style="list-style-type: none"> • Licences from the Legal Service Regulatory Authority required before practicing Singapore law. • Foreign law firms can be restricted to practice law in some areas (e.g family law, criminal law). • Foreign lawyers can own a maximum of 30% of a Singaporean law firm. • All medical professionals must be registered with the Singapore Medical Council.
Broadcasting and Media	Info-communications Media Development Authority (IMDA)	<ul style="list-style-type: none"> • Foreign newspaper-related activities are controlled by the Singaporean government through regulations and licensing by IMDA.
Real estate	Land Dealings Approval Unit (LDAU)	<ul style="list-style-type: none"> • Foreign acquisition of residential land or property is regulated by the LDAU. • Foreign acquisition of commercial and industrial properties is not restricted.

8. Types of Industries Encouraged by the Local Government

Source:

¹ *Industries & Key Activities, Economic Development Board of Singapore*

² *Research, Innovation and Enterprise (RIE) 2020, Ministry of Trade and Industry*

³ *Investing in Singapore, Thomson Reuters Practical Law*

9. Key Government Incentives

Executive Summary

The Economic and Development Board (EDB) is the government body in charge of planning and executing investment strategies designed to strengthen Singapore's position as an international business centre.

Local and foreign companies can apply for one of the multiple incentive programmes of the EDB. These programmes target different industries and are envisioned to support companies in multiple aspects. The schemes are divided into three main segments aligned with Singapore's five-year plan: 1) growing industries; 2) innovation, research and development (R&D) and capability development; and 3) productivity.

There are no specific investment incentives or schemes available for companies investing in Singapore's industrial and business parks.



9. Key Government Incentives

I. Eligibility of Incentive Programmes for Foreign Investments¹

The Economic and Development Board (EDB) is the government body that plans and executes investment strategies with the aim of enhancing Singapore's position as an international business centre. The EDB has several incentive programmes, available to both local and foreign companies, to foster the development of certain industries. These incentive programmes are designed for companies engaged in three main economic activities: 1) growing industries (e.g. help companies expand their capabilities); 2) innovation, research and development (R&D) and capability development (e.g. support digital companies in the recruitment process; and 3) productivity (e.g. assist companies investing in land or buildings). The major programmes in each category are described below. For more information please visit the EDB homepage (www.edb.gov.sg/en/how-we-help/incentives-and-schemes.html).

Incentive Programmes: Growing Industries

Scheme	Description	Eligibility Criteria	Incentive
Pioneer Certificate Incentive & Development and Expansion Incentive	<ul style="list-style-type: none"> Aims to encourage companies to expand their activities and grow their capabilities. Companies with headquarters in Singapore can apply to the programme. 	<ul style="list-style-type: none"> Commitment to grow the capabilities in Singapore. Commitment for manufacturing companies to make fixed asset investments. Company should introduce advanced technology, skills and expertise in Singapore. 	<ul style="list-style-type: none"> Corporate tax exemption or concessionary tax rate of 5% or 10%. Incentive period limited to 5 years with possible extension.
Finance & Treasury Centre Incentive	<ul style="list-style-type: none"> Aims to encourage companies to choose Singapore as their preferred location to carry out strategic finance and treasure management activities. 	<ul style="list-style-type: none"> Company must perform strategic activities in Singapore: e.g. cash and liquidity management, provision of corporate finance advisory services, management of interest rate. Company must have at least 10 staff, and generate SGD 3.5 million in total company expenses. 	<ul style="list-style-type: none"> Reduced corporate tax rate to 8%. Withholding tax exemption on interest payments. Incentive period limited to 5 years with possible extensions.

Incentive Programmes: Innovation, R&D and Capability Development

Scheme	Description	Eligibility Criteria	Incentive
Tech@SG Programme	<ul style="list-style-type: none"> Helps digital companies find the talents (employees) matching their needs. Facilitates immigration processes. 	<ul style="list-style-type: none"> Company's core business product or service must be digital/technology-related. Company secured at least a USD 10 million funding in the past 36 months. 	<ul style="list-style-type: none"> Endorsement by the Ministry of Manpower enabling company to receive 10 Employment Passes over two years. Employment Pass renewal fee will be covered.
Intellectual Property Development Incentive	<ul style="list-style-type: none"> Helps companies to commercialise and apply the results of their R&D activities. 	<ul style="list-style-type: none"> Companies must be prepared to make significant investment in Singapore: i.e. minimum SGD 6 million. Company must create at least 15 skilled jobs. 	<ul style="list-style-type: none"> Reduced corporate tax rate of 5% or 10%. Reduced corporate tax rate will increase by 0.5% every 5 years. Incentive period limited to 10 years with possible extensions.
Research Incentive Scheme for Companies	<ul style="list-style-type: none"> Supports companies' research and development projects related to science and technology. 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A
Training Grant for Company	<ul style="list-style-type: none"> Helps companies to develop their manpower capabilities through training programmes. 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A

Incentive Programmes: Productivity

Scheme	Description	Eligibility Criteria	Incentive
Land Intensification Allowance	<ul style="list-style-type: none"> Promotes a land-efficient and high value-added use of industrial lands. 	<ul style="list-style-type: none"> Multiple criteria linked to zoning, business nature, occupancy rate, relationship between user and owner of the building/land. 	<ul style="list-style-type: none"> Company is granted an allowance of a value equal to 25% of expenditure incurred on the construction or renovation, extension of an approved building.
Resource Efficiency Grant for Energy	<ul style="list-style-type: none"> Encourages manufacturing companies to be more energy efficient, reduce carbon emissions and improve competitiveness. 	<p>Eligible companies (including SMEs) must be:</p> <ul style="list-style-type: none"> Engaged in the manufacturing sector with a Singapore-registered owner; or Power generation companies. 	<ul style="list-style-type: none"> Funding support up to 50% of qualifying costs.

II. Scope of Special Economic Zone Scheme and Geographical Location

Singapore's main industrial and business parks are described in section 7 of this report. There are no specific incentives for companies wanting to locate their activities in the parks. However, investors are entitled to all the incentives programmes listed previously if they meet the eligibility criteria.

Source:

¹*Incentives and Schemes, Economic Development Board*

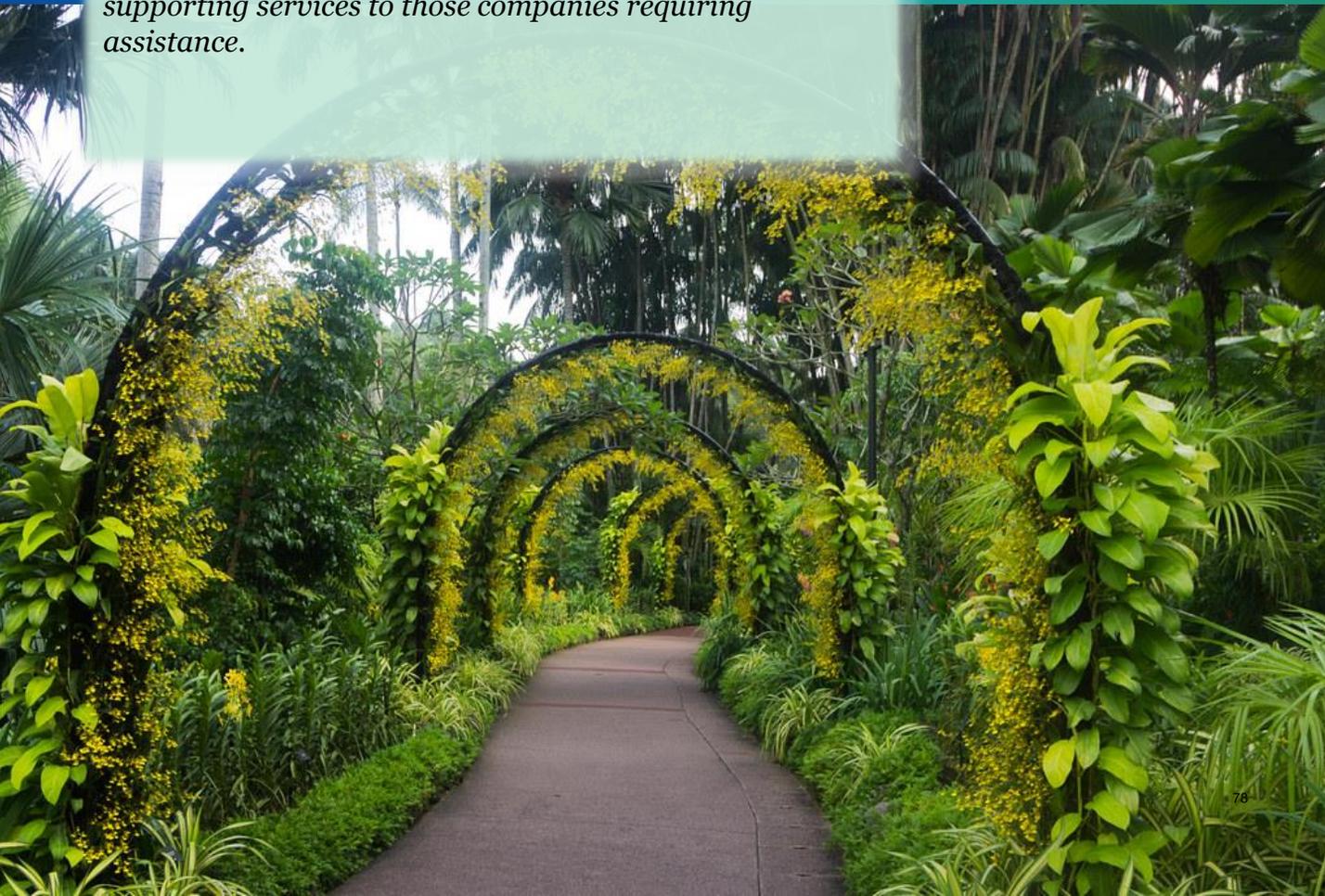
10. Environmental Requirements

Executive Summary

In Singapore, Ministry of the Environment and Water Resources (MEWR) is the primary regulatory body responsible for management and administration of environmental policy and standards, as well as the enforcement of law. Environmental Protection and Management Act (EPMA) is the fundamental law in relation to environmental management in Singapore. Any foreign businesses wishing to invest or do business in Singapore must abide by the law.

Factories in Singapore may encounter environmental hurdles or problems, such as historical pollution and licence requirements.

There are environmental organisations and agencies in Singapore that can provide relevant environmental supporting services to those companies requiring assistance.



10. Environmental Requirements

I. *Environmental Laws and Regulations in Singapore*¹

The Ministry of the Environment and Water Resources (MEWR) is committed to providing Singaporeans with a clean and sustainable environment, and resilient supplies of safe food and water.

The MEWR consists of three statutory boards – the National Environment Agency (NEA), Public Utilities Board (PUB), and the Singapore Food Agency (SFA), which all work together to ensure a clean, sustainable environment, as well as supply of safe food and water for Singapore.

The Environmental Protection Law was established in 1999, and last revised in 2012. The Environmental Protection Law defines principles, regulations and measures relating to the management, monitoring, protection, control, preservation and rehabilitation of both natural environment and social environment.

A. **The Main Environmental Protection Administrations in Singapore**^{1,2,3}

Ministry of the Environment and Water Resources (MEWR)

MEWR takes responsibilities to ensure a sustainable, resource-efficient and climate-resilient Singapore. The Ministry was renamed from the Ministry of Environment (ENV) in 2004, to better reflect its expanded role in managing Singapore's water resources.

The three strategic directions of the MEWR are economic resilience, resource resilience and climate resilience. Under its permanent Secretary, MEWR has seven divisions on regular management. Some of them have direct impacts on enterprises' environmental behaviors in Singapore. Environmental Policy Division formulates, reviews and implements sustainable environment strategies in Singapore. Communications and 3P Partnership Division supports the implementation of environmental and water policies and programmes. Water Food Policy Division works on policies to provide a reliable water and food supply, and regulate performance and demand management through tariff and cost control.

National Environment Agency (NEA)

NEA is one of the key players for ensuring a clean and green environment, as well as the sustainable development of Singapore, under the supervision of the MEWR. NEA develops and spearheads environmental initiatives and programmes including high public health standards and services, pollution control measures, energy efficiency promotion and conservation.

NEA safeguards the public, workers, and the environment against the harmful effects of pollution, and is responsible for licence-related matters covering different areas such as radiation protection, pollution control, waste management, public cleansing, vector control and fumigation (under the authority of Director-General of Public Health).

Public Utilities Board (PUB)

PUB is the national water agency that manages Singapore's water supply, water catchment and used water in an integrated way, which is also a statutory board under the MEWR.

Responsible for the collection, production, distribution and reclamation of water in Singapore, PUB built the Deep Tunnel Sewerage System to channel used water to a centralised water reclamation plant for treatment.

B. The Main Environmental Legislation in Singapore ⁴

Environmental Protection and Management Act (EPMA)

EPMA was enacted originally in 1999, and last revised in December 2002. This is an Act to consolidate the laws relating to environmental pollution control, to provide protection and management for the environment and resource conservation, and for purposes connected therewith.

The Act and its subsidiary legislations authorise NEA to control water, air, soil and noise pollution and manage environmentally hazardous substances, as well as grant discretion of the Director-General to any licence. According to Part Nine of Licences and Industrial Plant Works, where a person is required by the Act to obtain more than one licence, he/she may apply to the Director-General for a single licence to carry out the activities specified in his/her application and the Director-General may, if he/she thinks fit, grant or refuse to grant the single licence.

Penalties

EPMA specifies penalties on various non-compliance with the sections. In particular, violation related to effluent and hazardous substance control could be serious.

- Any person who fails to comply with the subsection on treatment of trade effluent shall be guilty of an offence and shall be liable –
 - (a) on the first conviction to a fine not exceeding SGD 20,000 or to imprisonment for a term not exceeding three months or to both and, in the case of a continuing offence, to a further fine not exceeding SGD 1,000 for every day or part thereof during which the offence continues after conviction; and
 - (b) on a second or subsequent conviction to a fine not exceeding SGD 50,000 or to imprisonment for a term not exceeding three months or to both and, in the case of a continuing offence, to a further fine not exceeding SGD 2,000 for every day or part thereof during which the offence continues after conviction.
- Any person who discharges or causes or permits to discharge any toxic substance or hazardous substance into any inland water so as to be likely to cause pollution of the environment shall be guilty of an offence and shall –
 - (a) be liable on the first conviction to a fine not exceeding SGD 50,000 or to imprisonment for a term not exceeding 12 months or to both; and
 - (b) be punished on a second or subsequent conviction with both imprisonment for a term of not less than one month and not more than 12 months and a fine not exceeding SGD 100,000.

Environmental Public Health Act (EPHA)⁵

EPHA consolidates the law relating to environmental public health and provides for matters connected therewith. The Act was amended on 1 April 2014 to enable the mandatory reporting of waste data and submission of waste reduction plans by any owner, occupier or lessee of a work place, upon their receipt of a written Notice.

Currently, commercial premises that have been served a written Notice include hotels with more than 200 rooms and shopping malls with over 4,600 m² of net lettable area. From 2020, factories with more than 20,000 m² of gross floor area (GFA), warehouses with more than 50,000 m² of GFA, and convention/exhibition centres with more than 8,000 m² of GFA, will also be included.

Other Environmental Laws and Regulations

Singapore has issued other environmental-related laws, such as Radiation Protection Act (revised in 2008), Hazardous Waste (Control of Export, Import and Transit) Act (amended in 2019), etc. Disposal of industrial waste, stable refuse, radioactive waste, etc., sanitary measures regarding operations, and radiation levels in the working environment are all regulated according to provisions. Any violation of such laws and regulations could be punished.

A detailed list of environmental laws and regulations in Singapore can be found in Appendix 2.

C. Main Environment-related Joint Announcements and Statements Which HK and Mainland China Have Issued with Singapore

The Chinese Ministry of Foreign Affairs issued a joint statement between the People's Republic of China and the Republic of Singapore in 2018, to further strengthen China and Singapore's comprehensive strategic partnership. The statement encourages cooperation in the environment-related fields.

In addition, there are also a series of statements and plans to further enhance the environmental cooperation between China and the ASEAN that will affect Singapore.

Main Environment-related Joint Announcements and Statements^{6,7,8}

Statements	Impact	Clause
Joint Statement between the Government of the People's Republic of China and the Government of the Republic of Singapore	Encourage cooperation in ecological civilisation, circular economy, environmental research and development as well as environmental governance, and promote China-ASEAN cooperation in environmental protection. Deepen collaboration in urban governance to create new knowledge, insights and innovative solutions to address the current and future urban challenges, and also support the creation of highly liveable cities that are economically competitive and environmentally sustainable with a high quality of life.	Clauses 9 & 10
Joint Statement of China and ASEAN Leaders on Sustainable Development	Encourage cooperation in conservation of biodiversity and the environment, in clean production, and in environmental awareness.	Clauses 6 & 8
China-ASEAN Environmental Protection Cooperation Strategy 2016-2020	Establish the China-ASEAN Environmental Protection Cooperation Centre to enhance environmental cooperation. It also improves the sharing of knowledge and experiences, and encourages factories to comply with the environmental laws and regulations.	Clauses 45, 47, 53, 54

D. The Main Environmental Permits in Singapore

Singapore has enacted laws and announced numerous environmental regulations that specify which environmental permits are required.

Pollution Control Study (PCS)

Singapore has issued the Guidelines for Pollution Control Study (PCS), which was revised in January 2019. The guideline states that anyone intending to carry out any activity, which could cause substantial pollution of the environment or increase the level of such pollution, may be required to conduct a PCS. This is provided for under Article 36 of the EPMA.

The PCS should identify the sources of emission of air pollutants, discharge of trade effluent, generation of wastes and emission of noise; quantify and evaluate the impact of such pollution emissions, and finally based on the results of the environmental impact assessment, recommend the measures to be incorporated in the design and operation of the plant to reduce the pollutive emissions to acceptable levels that would not pose nuisance or harm to the people and the environment.

When a factory obtains a land lease permit for a building permit application, it must submit an Industrial Allocation Form (IA Form) to the National Environment Agency (NEA), including the development site, pollution prediction, etc. NEA's Development Control and Licensing Department (DCLD) will evaluate whether the factory will have a significant impact on the environment. If the DCLD deems that the factory may have a significant impact, the business will need to conduct a PCS.

Effluent Discharge Permit

According to Article 15 of the EPMA, factories that intend to discharge any trade effluent, oil, chemical, sewage or other polluting matters into any drain or land must apply for a written permission from NEA.

II. Environmental Situations in Singapore

A. Hurdles or Problems Encountered and Resolutions

Before Land Acquisition	Pre-construction Period		Operation Period
Historical Pollution Issues	Licence Requirements		Environmental Pollution Issues
Environmental Due Diligence (EDD) checks for existing soil and groundwater pollution, which can help investors avoid liability for historical pollution	PCS	Effluent Discharge Permit	Each industry has different characteristics of pollutants, and will require appropriate monitoring and environmental protection equipment

Before Land Acquisition: Historical Pollution Issues

Soil and groundwater of the targeted land may have been polluted by previous land users. Companies may be liable for historical pollution, or be negatively impacted in the future, if such issues are not identified or the responsibilities are not clarified.

Resolutions

EDD can help by systematically identifying the environmental risks and responsibilities before investment or expansion of the site. An EDD will typically take around two months to complete, but may not be required for every project. The Processes are as below:



Environmental Due Diligence (EDD)

- Supporting agency selection: There are no licence requirements from local environmental departments on third party agencies providing EDD services. Companies may hire a capable third party service to conduct an EDD where necessary;
- Phase I Environmental Site Assessment: The EDD provider will conduct a limited environmental, health and safety compliance assessment supporting the due diligence for the industrial transaction;
- Phase II Environmental Site Assessment: Based on the results from Phase I, the EDD provider will conduct the actual sampling, monitoring or testing of the soil, air, groundwater, and building materials, in order to evaluate the potential presence of contaminants in the scope;
- Results: The EDD provider will identify significant potential environmental risks in a report.

EDD Case

The DNV.GL consultant company was appointed to perform EDD services for a hi-tech project in Singapore.

As part of the due diligence process, the services included overview of hidden environmental liabilities, information on the demands of the authorities, and other environmental-related compliance risk assessments. As a result, the investor of the project successfully invested after the EDD evaluation, with the hi-tech product project proceeded smoothly.

For a list of organisations/agencies providing EDD services in Singapore, please refer to Section 10.III.A.

Pre-construction Period: Pollution Control Study (PCS)

The local environmental laws stipulate that any person intended to conduct any activity that may cause substantial pollution of the environment or increase the level of such pollution must carry out a PCS, based on evaluation by the NEA's DCLD.

Resolutions



PCS

According to the Guidelines for Pollution Control Study, PCS reports must be prepared by the consulting company registered with the NEA.

PCS Processes:

- Supporting agency selection: Hiring a registered consulting company to prepare the PCS report;
- Report: The PCS report should include quantitative assessment of air pollutants, wastewater, waste and noise generated by operations, and related mitigation measures; and
- Submission and approval: Submitting the PCS report to the NEA for review, usually the NEA will take two to four months for review and approval.

For a list of organisations/agencies providing PCS services in Singapore, please refer to Section 10.III.B.

Pre-construction Period: Effluent Discharge Permit

The factories that discharge any trade effluent, oil, chemical, sewage or other polluting matters into any drain or land must apply for a written permission from NEA.

Resolutions



Effluent Discharge
Permit

- Related Organisation: NEA.
- The businesses could submit the declaration form online in the official website of NEA.
- In the declaration form, the applicants should specify the peak discharge rate and pre-treatment information etc.

Operation Period: Environmental Pollution Problems

During the operation period, companies may face environmental pollution problems resulting from non-compliant environmental management or equipment failure:

- Wastewater: Excessive pollutants in wastewater causing soil or groundwater pollution;
- Air emissions: Industrial exhaust emissions that are not in compliance, causing air pollution;
- Hazardous waste disposal: Non-compliant disposal of hazardous wastes leads to soil or groundwater contamination, resulting in subsequent penalties; and
- Noise pollution: Noise pollution caused by the operation of machinery and equipment.

Resolutions



Environmental
Monitoring

The NEA is mainly responsible for the control of environmental pollution problems. In the case of such problems, the following measures can be taken:

- Hiring third party service providers to conduct regular monitoring or to help with disposal of hazardous wastes;
- Enhancing environmental awareness of related workers;
- Improving relevant equipment in use; and
- Optimising the manufacturing process.

Environmental Pollution Case

A printing company in Singapore has been fined by the Singaporean government due to pollution caused. The factory had been caught four times for polluting Singapore's sewers with toxic industrial wastewater that are copper-tainted. According to Sewerage and Drainage (Trade Effluent) Regulations in Singapore, the recalcitrant offender was fined SGD 12,000 for its most recent breach of the law.

For the list of organisations/agencies providing monitoring services and other related services in Singapore, please refer to Section 10.III.C.

B. Study on Key Manufacturing Industries in which HK/Mainland China Companies Have Invested in Singapore

Potential Environmental Issues ^a	Electronics	Garment & Clothing	Watches & Jewellery	Toys & Games	Hi-tech ^b
Historical Soil Pollution or Groundwater Pollution	✓	✓	✓	✓	✓
Lack of Relevant Environment-related Licenses	✓	✓	✓	✓	✓
Wastewater Causing Soil or Groundwater Pollution	✓	✓	✓	✓	✓
Industrial Exhaust Emissions Causing Air Pollution	✓	✓	✓	—	—
Disposal of Hazardous Wastes Leading to Soil or Groundwater Contamination	✓	✓	—	✓	—
Noise Pollution Caused by the Operation of Machinery and Equipment	✓	✓	✓	✓	—

✓ indicates that the factory may face the environmental issues in the industry.

"—" indicates that the factory is less likely to face the environmental issues in the industry.

Note:

- "Environmental issue" indicates any environment-related problems factories may have faced during the pre-approval period, construction period and operation period.
- Hi-tech in this table mainly includes industries producing electronic components, and components and accessories used for new power generators and renewable generators, etc.

C. Comparison of Industrial Effluent/Emission Standard between Singapore and Mainland China

Please refer below legend for the symbols list out in the comparison tables within this section.

In Singapore, all wastewater must be discharged into the public sewerage system. The discharge of wastewater into open drains, canals and rivers is regulated by the EPMA. Besides, industrial wastewater must be treated to meet specified standards before being discharged into a sewer or watercourse if a public sewer is not available.

For the Mainland China and Singapore standards, values in brackets refer to the limit of effluent discharged into public sewers.

For the Mainland China standards (except for electronic industry and textile industry) and Singapore standards, the values outside the brackets refer to the limit of effluent discharged into watercourse other than a controlled watercourse, which refers to non-potable water source. For the electronic and textile industry in Mainland China, values outside the brackets refer to the limitation of effluent discharged into environment directly.

"↓" indicates the requirement of Mainland China is stricter than Singapore.

"↑" indicates the requirement of Singapore is stricter than Mainland China.

"=" indicates the requirement of Mainland China is the same as Singapore.

"-" indicates there is no requirement in the standard.

"N/A" indicates that there is no comparison available due to the lack of a standard from one country.

The following tables list out the common pollutants in various industries. And except for the substances listed in the table below, Singapore standards clearly listed the substances that shall not be contained in the trade effluent discharged. For a complete list, please refer to the Notes section below each table for relevant standards.

If two or more of the metals (cadmium, chromium (trivalent and hexavalent), copper, lead, mercury, nickel, selenium, silver and zinc) are present in the trade effluent, the concentration of the metals shall not be more than 1 mg/L where the trade effluent is discharged into a watercourse other than a controlled watercourse, and not be more than 10 mg/L where the trade effluent is discharged into public sewers.

All standards listed below are applicable to factories in industrial areas. There are no official specialised requirements/standards for non-industrial areas in Singapore at the moment, i.e. residential areas. If there are plans to build or operate factories in such areas, a business should confirm with local environmental department whether specific regional requirements exist.

Electronics (Part 1/6)

Water and air pollutants are the main pollutants in the electronics industry. The following table compares the effluent and emission standards of Singapore and Mainland China:

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Singapore ^a	Mainland China ^b	
Electronics	Water Pollutants mg/L (Except pH)	pH	6.0-9.0 (6.0-9.0)	6.0-9.0 (6.0-9.0)	= (=)
		Total suspended solids	50 (400)	50 (250)	= (↓)
		COD	100 (600)	80 (300)	↓ (↓)
		BOD	50 (400)	-	N/A
		Mercury	0.05 (0.5)	-	N/A
		Ammonia as NH ₃ -N	Special electronic materials	-	10/20 ^c (25/45 ^c)

Electronics (Part 2/6)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison	
				Singapore ^a	Mainland China ^b		
Electronics	Water Pollutants mg/L (Except pH)	Ammonia as NH ₃ -N	Electrical units	-	5 (25)	N/A	
			Printed circuit boards		20 (45)	N/A	
			Semiconductor devices		10 (40)	N/A	
			Display device and photoelectron components		5 (25)	N/A	
			Electron terminals products		5 (25)	N/A	
		Total nitrogen	Special electronic materials	-	20/30 ^c (40/60 ^c)	N/A	
			Electrical units		15 (40)	N/A	
			Printed circuit boards		30 (60)	N/A	
			Semiconductor devices		15 (60)	N/A	
			Display device and photoelectron components		15 (40)	N/A	
		Total phosphorus	Electron terminals products	-	15 (40)	N/A	
			Special electronic materials		0.5/1.0 ^c (6.0)	N/A	
			Electrical units		0.5 (6.0)	N/A	
			Printed circuit boards		1.0 (6.0)	N/A	
			Semiconductor devices		1.0 (6.0)	N/A	
		Sulphide	Display device and photoelectron components	0.2 (1.0)	0.5 (6.0)	N/A	
			Electron terminals products		0.5 (6.0)	N/A	
			Phosphates		5.0 (-)	-	N/A
			Special electronic materials		0.2 (1.0)	-	N/A
			Electrical units			-	N/A
		Printed circuit boards	1.0 (1.0)	↑ (=)			
		Semiconductor devices	1.0 (1.0)	↑ (=)			
		Display device and photoelectron components	-	N/A			
		Copper	Electron terminals products	0.1 (5.0)	-	N/A	
			Special electronic materials		0.5 (0.5)	↑ (↓)	

Electronics (Part 3/6)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison	
				Singapore ^a	Mainland China ^b		
Electronics	Water Pollutants mg/L (Except pH)	Copper	Electrical units	0.1 (5.0)	0.5 (0.5)	↑ (↓)	
			Printed circuit boards		0.5 (1.0)	↑ (↓)	
			Semiconductor devices		0.5 (1.0)	↑ (↓)	
			Display device and photoelectron components		0.5 (0.5)	↑ (↓)	
			Electron terminals products		-	N/A	
		Zinc	Special electronic materials	1.0 (10)	1.5 (1.5)	↑ (↓)	
			Electrical units		-	N/A	
			Printed circuit boards		-	N/A	
			Semiconductor devices		1.5 (1.5)	↑ (↓)	
			Display device and photoelectron component		1.5 (1.5)	↑ (↓)	
		Cadmium	Electron terminals products	0.1 (1.0)	-	N/A	
			Special electronic materials		0.05 (0.05)	↓ (↓)	
			Electrical units		-	N/A	
			Printed circuit boards		-	N/A	
			Semiconductor devices		0.05 (0.05)	↓ (↓)	
		Chromium (trivalent and hexavalent)	Display device and photoelectron components	1.0 (5.0)	-	N/A	
			Electron terminals products		-	N/A	
			Special electronic materials		1.0 (1.0)	= (↓)	
			Electrical units		-	N/A	
			Printed circuit boards		-	N/A	
			Semiconductor devices		0.5 (0.5)	= (↓)	
		Hexavalent chromium	Display device and photoelectron components	-	-	N/A	
			Electron terminals products		-	N/A	
				Special electronic materials		0.2 (0.2)	N/A
				Electrical units		-	N/A

Electronics (Part 4/6)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Singapore ^a	Mainland China ^b	
Electronics	Water Pollutants mg/L (Except pH)	Hexavalent chromium	Printed circuit boards	-	-	N/A
			Semiconductor devices		0.1 (0.1)	N/A
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A
		Arsenic	Special electronic materials	0.1 (5.0)	0.3 (0.3)	↑ (↓)
			Electrical units		0.3 (0.3)	↑ (↓)
			Printed circuit boards		-	N/A
			Semiconductor devices		0.2 (0.2)	↑ (↓)
			Display device and photoelectron components		0.2 (0.2)	↑ (↓)
			Electron terminals products		-	N/A
		Lead	Special electronic materials	0.1 (5.0)	0.2 (0.2)	↑ (↓)
			Electrical units		0.1 (0.1)	= (↓)
			Printed circuit boards		-	N/A
			Semiconductor devices		0.2 (0.2)	↑ (↓)
			Display device and photoelectron components		0.2 (0.2)	↑ (↓)
			Electron terminals products		-	N/A
		Nickel	Special electronic materials	1.0 (10)	0.5 (0.5)	↓ (↓)
			Electrical units		0.5 (0.5)	↓ (↓)
			Printed circuit boards		0.5 (0.5)	↓ (↓)
			Semiconductor devices		0.5 (0.5)	↓ (↓)
			Display device and photoelectron components		0.5 (0.5)	↓ (↓)
			Electron terminals products		-	N/A

Electronics (Part 5/6)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Singapore ^a	Mainland China ^b	
Electronics	Water Pollutants mg/L (Except pH)	Cyanide	Special electronic materials	0.1 (2.0)	0.2 (0.4)	↑ (↓)
			Electrical units		0.2 (0.4)	↑ (↓)
			Printed circuit boards		0.2 (0.4)	↑ (↓)
			Semiconductor devices		0.2 (0.4)	↑ (↓)
			Display device and photoelectron components		0.2 (0.4)	↑ (↓)
			Electron terminals products		-	N/A
		Silver	Special electronic materials	0.1 (5.0)	0.3 (0.3)	↑ (↓)
			Electrical units		0.3 (0.3)	↑ (↓)
			Printed circuit boards		0.3 (0.3)	↑ (↓)
			Semiconductor devices		0.3 (0.3)	↑ (↓)
			Display device and photoelectron components		0.3 (0.3)	↑ (↓)
			Electron terminals products		-	N/A
		Manganese		5.0 (10)	-	N/A
		Fluoride	Special electronic materials	-	10 (20)	N/A (↑)
			Electrical units		10 (20)	N/A (↑)
			Printed circuit boards		10 (20)	N/A (↑)
			Semiconductor devices		10 (20)	N/A (↑)
			Display device and photoelectron components		10 (20)	N/A (↑)
			Electron terminals products		-	N/A

Electronics (Part 6/6)

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Singapore ^a	Mainland China ^b	
Electronics	Water Pollutants mg/L (Except pH)	Petroleum ^d	Not detectable	3.0 (8.0)	↑ (↑)
		Oil and grease ^e	10/10 (60/100)	-	N/A
		Selenium	0.5 (10)	-	N/A
		Boron	5.0 (5.0)	-	N/A
		Iron	10 (50)	-	N/A
		Barium	2.0 (10)	-	N/A
		Tin	5.0 (10)	-	N/A
		Phenolic compounds	0.2 (0.5)	-	N/A
		Detergents	15 (30)	3.0 (6.0)	↓ (↓)
		Colour ^f	7.0 (-)	-	N/A
	Free chlorine	1.0 (-)	-	N/A	
	Air Pollutants mg/m ³	TVOC	-	150	N/A
		NMHC	-	100	N/A
	Noise Emission dB (A)	Noise limits for boundary of industrial enterprise	-	Daytime 65 Night 55	N/A
		Noise limits for factory premises	Day (7 a.m-7 p.m) 75 Evening (7 p.m-11 p.m) 70 Night (11 p.m-7 a.m) 65	-	N/A
Hazardous Waste	Hazardous wastes are required to be disposed by a qualified third party. For more hazardous waste information, please refer to II.A of this section.				

Note:

- Singapore Standards: Environmental Protection And Management (Trade Effluent) Regulations¹⁰, Regulations for Discharge of Trade Effluent in to the Public Sewers¹¹, Environmental Protection and Management (Air Impurities) Regulations¹² and Environmental Protection and Management (Boundary Noise Limits for Factory Premises) Regulations¹³.
- Mainland China Standards: Emission Standard of Pollutants for Electrical Industry¹⁴, and Emission Standard for Industrial Enterprises Noise at Boundary¹⁵.
- The value suitable for enterprises producing electrode foil of aluminum electrolytic capacitor.
- Petroleum in Singapore refers to petroleum or other inflammable solvent while in Mainland China it refers to petroleum hydrocarbons which scope is smaller. As a result, the comparison result is marked as ↑ (↑).
- The concentration of both Oil and Grease(Total) and Oil and Grease(Hydrocarbons) should not exceed 10mg/L while trade effluent discharged into watercourse other than a controlled watercourse. 60 refers to the limit of oil and grease (Hydrocarbon) discharged into public sewage while 100 refers to the limit of oil and grease (Non-hydrocarbon) discharged into public sewage.
- In Mainland China, the method of measuring colour is the dilution method, while in Singapore, and method of analysis is in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater". The measuring method applied in the standards of two countries are different, therefore the comparison result is marked as N/A.

Garment & Clothing (Part 1/2)

Water and air pollutants are the main pollutants from wool scouring, printing and dyeing, degumming and washing processes in the garment & clothing industry. The following table compares the effluent and emission standards between Singapore and Mainland China:

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Singapore ^a	Mainland China ^b	
Garment & Clothing	Water Pollutants mg/L (Except pH, temperature and colour)	pH	6.0-9.0 (6.0-9.0)	6.0-9.0 (6.0-9.0)	= (=)
		Total suspended solids	50 (400)	50 (100)	= (↓)
		COD	100 (600)	80 (200)	↓ (↓)
		BOD	50 (400)	20 (50)	↓ (↓)
		Colour ^c	7.0 (-)	50 (80)	N/A
		Temperature ^d	45 (45)	-	N/A
		Detergents	15 (30)	-	N/A
		Ammonia as NH ₃ -N	-	10 (20)	N/A
		Total nitrogen	-	15 (30)	N/A
		Total phosphorus	-	0.5 (1.5)	N/A
		Phosphates	5.0 (-)	-	N/A
		Chlorine dioxide	-	0.5 (0.5)	N/A
		Free chlorine	1.0 (-)	-	N/A
		AOX	-	12 (12)	N/A
		Sulphide	0.2 (1.0)	0.5 (0.5)	↑ (↓)
		Aniline	-	Not detectable	NA
		Hexavalent chromium	-	Not detectable	NA
		Chromium (trivalent and hexavalent)	1.0 (5.0)	-	N/A
		Phenolic compounds	0.2 (0.5)	-	N/A
		Oil and grease ^e	10 /10(60/100)	-	N/A
Cyanide	0.1 (2.0)	-	N/A		

Garment & Clothing (Part 2/2)

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Singapore ^a	Mainland China ^b	
Garment & Clothing	Air Pollutants mg/m ³	NMHC	-	120	N/A
	Noise Emission dB (A)	Noise limits for boundary of industrial enterprise	-	Daytime 65 Night 55	N/A
		Noise limits for factory premises	Day (7 a.m-7 p.m) 75 Evening (7 p.m-11 p.m) 70 Night (11 p.m-7 a.m) 65	-	N/A
		Hazardous Waste	Hazardous wastes are required to be disposed by a qualified third party. For more hazardous waste information, please refer to II.A of this section.		

Note:

- Singapore Standards: *Environmental Protection And Management (Trade Effluent) Regulations¹⁰, Regulations for Discharge of Trade Effluent in to the Public Sewers¹¹, Environmental Protection and Management (Air Impurities) Regulations¹² and Environmental Protection and Management (Boundary Noise Limits for Factory Premises) Regulations¹³.*
- Mainland China Standards: *Discharge Standard for Water Pollutants in Textile Dyeing and Finishing Industry¹⁶, Integrated Emission Standard of Air Pollutants¹⁷, and Emission Standard for Industrial Enterprises Noise at Boundary¹⁵.*
- In Mainland China, the method of measuring colour is dilution method, while in Singapore, and method of analysis is in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater". The measuring method applied in the standards of two countries are different, therefore the comparison result is marked as N/A.*
- The unit of temperature is °C.*
- The concentration of both Oil and Grease(Total) and Oil and Grease(Hydrocarbons) should not exceed 10mg/L while trade effluent discharged into watercourse other than a controlled watercourse. 60 refers to the limit of oil and grease (Hydrocarbon) discharged into public sewage while 100 refers to the limit of oil and grease (Non-hydrocarbon) discharged into public sewage.*

Watches & Jewellery

Water pollutants from washing process and air pollutants from polishing process are the main pollutants in the watches & jewellery industry. The following table compares the effluent and emission standards between Singapore and Mainland China:

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Singapore ^a	Mainland China ^b	
Watches & Jewellery	Water Pollutants mg/L (Except pH)	pH	6.0-9.0 (6.0-9.0)	6.0-9.0 (6.0-9.0)	= (=)
		Total suspended solids	50 (400)	150 (400)	↑ (=)
		COD	100 (600)	150 (500)	↑ (↓)
		BOD	50 (400)	30 (300)	↓ (↓)
		Colour ^c	7.0 (-)	80 (-)	N/A
		Ammonia as NH ₃ -N	-	25 (-)	N/A
		Cyanide	0.1 (2.0)	0.5 (1.0)	↑ (↓)
		Hexavalent chromium	-	0.5 (0.5)	N/A
		Chromium (trivalent and hexavalent)	1.0 (5.0)	1.5 (1.5)	↑ (↓)
		Petroleum ^d	Not detectable	10 (20)	↑ (↑)
	Oil and grease ^e	10/10 (60/100)	15 (100)	↑/↑ (↑/=)	
	Air Pollutants mg/m ³	NMHC	-	120	N/A
	Noise Emission dB (A)	Noise limits for boundary of industrial enterprise	-	Daytime 65 Night 55	N/A
		Noise limits for factory premises	Day (7 a.m-7 p.m) 75 Evening (7 p.m-11 p.m) 70 Night (11 p.m-7 a.m) 65	-	N/A
Hazardous Waste	Hazardous wastes are required to be disposed by a qualified third party. For more hazardous waste information, please refer to II.A of this section.				

Note:

- Singapore Standards: Environmental Protection And Management (Trade Effluent) Regulations¹⁰, Regulations for Discharge of Trade Effluent in to the Public Sewers¹¹, Environmental Protection and Management (Air Impurities) Regulations¹² and Environmental Protection and Management (Boundary Noise Limits for Factory Premises) Regulations¹³.
- Mainland China Standards: Integrated Wastewater Discharge Standard¹⁸, Integrated Emission Standard of Air Pollutants¹⁷, and Emission Standard for Industrial Enterprises Noise at Boundary¹⁵.
- In Mainland China, the method of measuring colour is the dilution method, while in Singapore, and method of analysis is in accordance with the latest edition of “Standard Methods for the Examination of Water and Wastewater”. The measuring method applied in the standards of two countries are different, therefore the comparison result is marked as N/A.
- Petroleum in Singapore refers to petroleum or other inflammable solvent while in Mainland China it refers to petroleum hydrocarbons which scope is smaller. As a result, the comparison result is marked as ↑ (↑).
- The concentration of both Oil and Grease(Total) and Oil and Grease(Hydrocarbons) should not exceed 10mg/L while trade effluent discharged into watercourse other than a controlled watercourse. 60 refers to the limit of oil and grease (Hydrocarbon) discharged into public sewage while 100 refers to the limit of oil and grease (Non-hydrocarbon) discharged into public sewage.

Toys & Games

Water pollutants from washing process, the air pollutants resulting from production and storage of polymers and the precursors process are the major types of pollution in the toys & games industry. The following table compares the effluent and emission standards between Singapore and Mainland China:

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Singapore ^a	Mainland China ^b	
Toys & Games	Water Pollutants mg/L (Except pH)	pH	6.0-9.0 (6.0-9.0)	6.0-9.0 (6.0-9.0)	= (=)
		Total suspended solids	50 (400)	150 (400)	↑ (=)
		COD	100 (600)	150 (500)	↑ (↓)
		BOD	50 (400)	30 (300)	↓ (↓)
		Colour ^c	7.0 (-)	80 (-)	N/A
		Ammonia as NH ₃ -N	-	25 (-)	N/A
		Sulphide	0.2 (1.0)	1.0 (1.0)	↑ (=)
		Volatile phenols	-	0.5 (2.0)	N/A
		Phenolic compounds ^d	0.2 (0.5)	0.4 (1.0)	↑ (↓)
		Petroleum ^e	Not detectable	10 (20)	↑ (↑)
		Oil and grease ^f	10 /10(60/100)	15 (100)	↑/↑ (↑/=)
	Cyanide	0.1 (2.0)	0.5 (1.0)	↑ (↓)	
	Air Pollutants mg/m ³	NMHC	-	120	N/A
	Noise Emission dB (A)	Noise limits for boundary of industrial enterprise	-	Daytime 65 Night 55	N/A
Noise limits for factory premises		Day (7 a.m-7 p.m) 75 Evening (7 p.m-11 p.m) 70 Night (11 p.m-7 a.m) 65	-	N/A	
Hazardous Waste	Hazardous wastes are required to be disposed by a qualified third party. For more hazardous waste information, please refer to II.A of this section.				

- Note:
- Singapore Standards: Environmental Protection And Management (Trade Effluent) Regulations¹⁰, Regulations for Discharge of Trade Effluent in to the Public Sewers¹¹, Environmental Protection and Management (Air Impurities) Regulations¹² and Environmental Protection and Management (Boundary Noise Limits for Factory Premises) Regulations¹³.
 - Mainland China Standards: Integrated Wastewater Discharge Standard¹⁸, Integrated Emission Standard of Air Pollutants¹⁷, and Emission Standard for Industrial Enterprises Noise at Boundary¹⁵.
 - In Mainland China, the method of measuring colour is the dilution method, while in Singapore, and method of analysis is in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater". The measuring method applied in the standards of two countries are different, therefore the comparison result is marked as N/A.
 - Expressed as phenol
 - Petroleum in Singapore refers to petroleum or other inflammable solvent while in Mainland China it refers to petroleum hydrocarbons which scope is smaller. As a result, the comparison result is marked as ↑ (↑).
 - The concentration of both Oil and Grease(Total) and Oil and Grease(Hydrocarbons) should not exceed 10mg/L while trade effluent discharged into watercourse other than a controlled watercourse. 60 refers to the limit of oil and grease (Hydrocarbon) discharged into public sewage while 100 refers to the limit of oil and grease (Non-hydrocarbon) discharged into public sewage.

Hi-tech (Part 1/6)

Water and air pollutants from chemical cleaning process are the major type of pollution in the hi-tech industry. The following table compares the effluent and emission standards of Singapore and Mainland China:

Industry	Major Types of Pollution	Pollutants			Comparison	
			Singapore ^a	Mainland China ^b		
Hi-tech	Water Pollutants mg/L (Except pH)	pH	6.0-9.0 (6.0-9.0)	6.0-9.0 (6.0-9.0)	= (=)	
		Total suspended solids	50 (400)	50 (250)	= (↓)	
		COD	100 (600)	80 (300)	↓ (↓)	
		BOD	50 (400)	-	N/A	
		Mercury	0.05 (0.5)	-	N/A	
		Ammonia as NH ₃ -N	Special electronic materials	-	10/20 ^c (25/45 ^c)	N/A
			Electrical units		5 (25)	N/A
			Printed circuit boards		20 (45)	N/A
			Semiconductor devices		10 (40)	N/A
			Display device and photoelectron components		5 (25)	N/A
			Electron terminals products		5 (25)	N/A
		Total nitrogen	Special electronic materials	-	20/30 ^c (40/60 ^c)	N/A
			Electrical units		15 (40)	N/A
			Printed circuit boards		30 (60)	N/A
			Semiconductor devices		15 (60)	N/A
			Display device and photoelectron components		15 (40)	N/A
			Electron terminals products		15 (40)	N/A
		Total phosphorus ^s	Special electronic materials	-	0.5/1.0 ^h (6.0)	N/A
			Electrical units		0.5 (6.0)	N/A
			Printed circuit boards		1.0 (6.0)	N/A
			Semiconductor devices		1.0 (6.0)	N/A
			Display device and photoelectron components		0.5 (6.0)	N/A
			Electron terminals products		0.5 (6.0)	N/A
		Phosphates		5.0 (-)	-	N/A

Hi-tech (Part 2/6)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Singapore ^a	Mainland China ^b	
Hi-tech	Water Pollutants mg/L (Except pH)	Sulphide	Special electronic materials	0.2 (1.0)	-	N/A
			Electrical units		-	N/A
			Printed circuit boards		1.0 (1.0)	↑ (=)
			Semiconductor devices		1.0 (1.0)	↑ (=)
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A
		Copper	Special electronic materials	0.1 (5.0)	0.5 (0.5)	↑ (↓)
			Electrical units		0.5 (0.5)	↑ (↓)
			Printed circuit boards		0.5 (1.0)	↑ (↓)
			Semiconductor devices		0.5 (1.0)	↑ (↓)
			Display device and photoelectron components		0.5 (0.5)	↑ (↓)
			Electron terminals products		-	N/A
		Zinc	Special electronic materials	1.0 (10)	1.5 (1.5)	↑ (↓)
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		1.5 (1.5)	↑ (↓)
			Display device and photoelectron component		1.5 (1.5)	↑ (↓)
			Electron terminals products		-	N/A
		Cadmium	Special electronic materials	0.1 (1.0)	0.05 (0.05)	↓ (↓)
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		0.05 (0.05)	↓ (↓)
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A

Hi-tech (Part 3/6)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Singapore ^a	Mainland China ^b	
Hi-tech	Water Pollutants mg/L (Except pH)	Chromium (trivalent and hexavalent)	Special electronic materials	1.0 (5.0)	1.0 (1.0)	= (↓)
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		0.5 (0.5)	= (↓)
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A
		Hexavalent chromium	Special electronic materials	-	0.2 (0.2)	N/A
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		0.1 (0.1)	N/A
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A
		Arsenic	Special electronic materials	0.1 (5.0)	0.3 (0.3)	↑ (↓)
			Electrical units		0.3 (0.3)	↑ (↓)
			Printed circuit boards		-	N/A
			Semiconductor devices		0.2 (0.2)	↑ (↓)
			Display device and photoelectron components		0.2 (0.2)	↑ (↓)
			Electron terminals products		-	N/A

Hi-tech (Part 4/6)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Singapore ^a	Mainland China ^b	
Hi-tech	Water Pollutants mg/L (Except pH)	Lead	Special electronic materials	0.1 (5.0)	0.2 (0.2)	↑ (↓)
			Electrical units		0.1 (0.1)	= (↓)
			Printed circuit boards		-	N/A
			Semiconductor devices		0.2 (0.2)	↑ (↓)
			Display device and photoelectron components		0.2 (0.2)	↑ (↓)
			Electron terminals products		-	N/A
		Nickel	Special electronic materials	1.0 (10)	0.5 (0.5)	↓ (↓)
			Electrical units		0.5 (0.5)	↓ (↓)
			Printed circuit boards		0.5 (0.5)	↓ (↓)
			Semiconductor devices		0.5 (0.5)	↓ (↓)
			Display device and photoelectron components		0.5 (0.5)	↓ (↓)
			Electron terminals products		-	N/A
		Cyanide	Special electronic materials	0.1 (2.0)	0.2 (0.4)	↑ (↓)
			Electrical units		0.2 (0.4)	↑ (↓)
			Printed circuit boards		0.2 (0.4)	↑ (↓)
			Semiconductor devices		0.2 (0.4)	↑ (↓)
			Display device and photoelectron components		0.2 (0.4)	↑ (↓)
			Electron terminals products		-	N/A
		Silver	Special electronic materials	0.1 (5.0)	0.3 (0.3)	↑ (↓)
			Electrical units		0.3 (0.3)	↑ (↓)
			Printed circuit boards		0.3 (0.3)	↑ (↓)
			Semiconductor devices		0.3 (0.3)	↑ (↓)
			Display device and photoelectron components		0.3 (0.3)	↑ (↓)
			Electron terminals products		-	N/A

Hi-tech (Part 5/6)

Industry	Major Types of Pollution	Pollutants	Limits		Comparison	
			Singapore ^a	Mainland China ^b		
Hi-tech	Water Pollutants mg/L (Except pH)	Manganese	5.0 (10)	-	N/A	
		Fluoride	Special electronic materials	-	10 (20)	N/A (↑)
			Electrical units		10 (20)	N/A (↑)
			Printed circuit boards		10 (20)	N/A (↑)
			Semiconductor devices		10 (20)	N/A (↑)
			Display device and photoelectron components		10 (20)	N/A (↑)
			Electron terminals products		-	N/A
		Petroleum ^d	Not detectable	3.0 (8.0)	↑ (↑)	
		Oil and grease ^e	10/10 (60/100)	-	N/A	
		Selenium	0.5 (10)	-	N/A	
		Boron	5.0 (5.0)	-	N/A	
		Iron	10 (50)	-	N/A	
		Barium	2.0 (10)	-	N/A	
		Tin	5.0 (10)	-	N/A	
		Phenolic compounds	0.2 (0.5)	-	N/A	
		Calcium and Magnesium	150 (-)	-	N/A	
		Detergents	15 (30)	3.0 (6.0)	↓ (↓)	
	Colour ^f	7.0 (-)	-	N/A		
	Free chlorine	1.0 (-)	-	N/A		
	Air Pollutants mg/m ³	TVOC	-	150	N/A	
		NMHC	-	100	N/A	
	Noise Emission dB (A)	Noise limits for boundary of industrial enterprise	-	Daytime 65 Night 55	N/A	
		Noise limits for factory premises	Day (7 a.m-7 p.m) 75 Evening (7 p.m-11 p.m) 70 Night (11 p.m-7 a.m) 65	-	N/A	
Hazardous Waste	Hazardous wastes are required to be disposed by a qualified third party. For more hazardous waste information, please refer to II.A of this section.					

Hi-tech (Part 6/6)

Note:

- a. *Singapore Standards: Environmental Protection And Management (Trade Effluent) Regulations¹⁰, Regulations for Discharge of Trade Effluent in to the Public Sewers¹¹, Environmental Protection and Management (Air Impurities) Regulations¹² and Environmental Protection and Management (Boundary Noise Limits for Factory Premises) Regulations¹³.*
- b. *Mainland China Standards: Emission Standard of Pollutants for Electrical Industry¹⁴, and Emission Standard for Industrial Enterprises Noise at Boundary¹⁵.*
- c. *The value suitable for enterprises producing electrode foil of aluminum electrolytic capacitor.*
- d. *Petroleum in Singapore refers to petroleum or other inflammable solvent while in Mainland China it refers to petroleum hydrocarbons which scope is smaller. As a result, the comparison result is marked as ↑ (↑).*
- e. *The concentration of both Oil and Grease(Total) and Oil and Grease(Hydrocarbons) should not exceed 10mg/L while trade effluent discharged into watercourse other than a controlled watercourse. 60 refers to the limit of oil and grease (Hydrocarbon) discharged into public sewage while 100 refers to the limit of oil and grease (Non-hydrocarbon) discharged into public sewage.*
- f. *In Mainland China, the method of measuring colour is the dilution method, while in Singapore, and method of analysis is in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater". The measuring method applied in the standards of two countries are different, therefore the comparison result is marked as N/A.*

Food & Beverage, Chemicals & Plastics

Food & beverage industry is one with some obvious characteristic pollutants, such as COD, TSS, and other organic substances in the wastewater. There are special standards in Mainland China focusing on targeted industries such as Discharge Standard of Water Pollutants for Sugar Industry, Discharge Standard of Water Pollutants for Meat Packing Industry, etc. In Singapore, the relevant standards for pollutants are general effluent standards.

Compared with other industries, chemicals & plastics industry typically involves more significant environmental risk. Mainland China has established special standards focusing on industries such as Emission Standards of Pollutants for Inorganic Chemical Industry, Emission Standard of Pollutants for Nitric Acid Industry, Emission Standard of Pollutants for Sulfuric Acid Industry, etc. In Singapore, the chemicals & plastics industry should be in compliance with the general effluent standards.

General Industries (Part 1/2)

General industries refer to those industries which do not produce massive or characteristic pollutants (such as the logistics & transportation industry, furniture industry, etc.). These industries should be in compliance with the general effluent standards available in both countries.

The following table compares the general effluent/emission standards of Singapore and Mainland China:

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Singapore ^a	Mainland China ^b	
General Industries	Water Pollutants mg/L (Except pH)	pH	6.0-9.0 (6.0-9.0)	6.0-9.0 (6.0-9.0)	= (=)
		Total suspended solids	50 (400)	150 (400)	↑ (=)
		COD	100 (600)	150 (500)	↑ (↓)
		BOD	50 (400)	30 (300)	↓ (↓)
		Colour ^c	7.0 (-)	80 (-)	N/A
		Ammonia as NH ₃ -N	-	25 (-)	N/A
		Sulphide	0.2 (1.0)	1.0 (1.0)	↑ (=)
		Copper	0.1 (5.0)	1.0 (2.0)	↑ (↓)
		Iron	10 (50)	-	N/A
		Free chlorine	1.0 (-)	-	N/A
		Petroleum ^d	Not detectable	10 (20)	↑ (↑)
		Oil and grease ^e	10 /10(60/100)	15 (100)	↑/↑ (↑/=)
		Phenolic compounds ^f	0.2 (0.5)	0.4 (1.0)	↑ (↓)
	Cyanide	0.1 (2.0)	0.5 (1.0)	↑ (↓)	
		Phosphates	5.0 (-)	-	N/A
	Air Pollutants mg/m ³	NMHC	-	120	N/A
	Noise Emission dB (A)	Noise limits for boundary of industrial enterprise	-	Daytime 65 Night 55	N/A
		Noise limits for factory premises	Day (7 a.m-7 p.m) 75 Evening (7 p.m-11 p.m) 70 Night (11 p.m-7 a.m) 65	-	N/A
	Hazardous Waste	Hazardous wastes are required to be disposed by a qualified third party. For more hazardous waste information, please refer to I.I.A of this section.			

General Industries (Part 2/2)

Note:

- a. *Singapore Standards: Environmental Protection And Management (Trade Effluent) Regulations¹⁰, Regulations for Discharge of Trade Effluent in to the Public Sewers¹¹, Environmental Protection and Management (Air Impurities) Regulations¹² and Environmental Protection and Management (Boundary Noise Limits for Factory Premises) Regulations¹³.*
- b. *Mainland China Standards: Integrated Wastewater Discharge Standard¹⁸, Integrated Emission Standard of Air Pollutants¹⁷, and Emission Standard for Industrial Enterprises Noise at Boundary¹⁵.*
- c. *In Mainland China, the method of measuring colour is the dilution method, while in Singapore, and method of analysis is in accordance with the latest edition of “Standard Methods for the Examination of Water and Wastewater”. The measuring method applied in the standards of two countries are different, therefore the comparison result is marked as N/A.*
- d. *Petroleum in Singapore refers to petroleum or other inflammable solvent while in Mainland China it refers to petroleum hydrocarbons which scope is smaller. As a result, the comparison result is marked as ↑ (↑).*
- e. *The concentration of both Oil and Grease(Total) and Oil and Grease(Hydrocarbons) should not exceed 10mg/L while trade effluent discharged into watercourse other than a controlled watercourse. 60 refers to the limit of oil and grease (Hydrocarbon) discharged into public sewage while 100 refers to the limit of oil and grease (Non-hydrocarbon) discharged into public sewage.*
- f. *Expressed as phenol*

III. The Main Local Supporting Organisations/Agencies in Singapore

The Singaporean government focuses on source management and environmental legislation. Environmental management ministries such as MEWR and NEA are requiring all construction, manufacturing and other projects to be licensed to comply with environmental laws. Penalties could be serious if the investor fails to comply with environmental laws and regulations in Singapore.

To ensure environmental compliance and maintain a good relationship with the public, the investor should pay attention to the environmental impact assessment, licence application and to meet the local discharge standards in design-build and operation periods.

The following tables list out the main local organisations and agencies providing relevant environment-related support services.

A. EDD Services in Singapore

Agency/ Organisation	Service Coverage	Contact
PwC	<ul style="list-style-type: none"> Environmental Due Diligence; Impact Assessment; Sustainability Policy, Strategy and Risk Management; Supply Chain EHS Audits; and Sustainability Report Assurance, etc. 	+65 9118 2347
ERM	<ul style="list-style-type: none"> Environmental Due Diligence; Independent 3rd Party Conformance Audits; PCS supporting services; and ISO certification, etc. 	+65 6324 9636
CPG	<ul style="list-style-type: none"> Environmental Due Diligence; Remediation of Contaminated Sites; and Green Design, etc. 	+65 6357 4888

B. PCS Supporting Services in Singapore

Agency/ Organisation	Service Coverage	Contact
ERM	<ul style="list-style-type: none"> Environmental Due Diligence; Independent 3rd Party Conformance Audits; PCS supporting services; and ISO certification, etc. 	+65 6324 9636
AECOM	<ul style="list-style-type: none"> EHS Management Consulting and Compliance; Management Information Systems – EHS, Sustainability, Quality; and PCS supporting services, etc. 	+65 6299 2466
Arcadis Consultants	<ul style="list-style-type: none"> Environmental Health & Safety Compliance Audit; Environmental Due Diligence; and PCS supporting services, etc. 	+65 6239 8525

C. Monitoring Services in Singapore

Agency/ Organisation	Service Coverage	Contact
Als Technichem (Singapore) Private Limited	<ul style="list-style-type: none"> • Environmental Testing; • Food Safety and Quality; • Geochemistry Testing; and • Laboratory Design and Build, etc. 	+65 6589 0118
GBAD Services Private Limited	<ul style="list-style-type: none"> • Toxicity Test on Sand and Soil; • Noise Control Monitoring; • Ambient Air Monitoring; • Water Quality Monitoring; and • Geotechnical Services, etc. 	+65 6899 5020
STATS	<ul style="list-style-type: none"> • Industrial Hygiene Testing; • Indoor Air Quality Assessment; and • Inventory of Hazardous Materials, etc. 	+65 6252 6686

D. Waste Management Services in Singapore

Agency/ Organisation	Service Coverage	Contact
ELMS Industrial Private Limited	<ul style="list-style-type: none"> • Electronic Waste Collection; • Precious Metal Scrap Collection; and • IC Trays Recycling, etc. 	+65 6862 8880
Eco Special Waste Management Private Limited	<ul style="list-style-type: none"> • Toxic Industrial Waste Treatment; • Industrial and Commercial Waste Collection; • Bio Hazardous Waste Collection; • Sludge Treatment; and • Destruction Services, etc. 	+65 6517 3653
Veolia Es Singapore Industrial Private Limited	<ul style="list-style-type: none"> • Integrated Waste and Recycling Management; • Tank Cleaning; • Facility Management and Plant Maintenance; and • Designing and Building Treatment Plants, etc. 	+65 6865 3140

For more information about Wastes Management Services in Singapore, please refer to the official webpage (www.nea.gov.sg/our-services/waste-management/waste-collection-systems#collectors).

Source:

- ¹ *The official website of Ministry of the Environment and Water Resources (MEWR)*
- ² *The official website of National Environment Agency (NEA)*
- ³ *The official website of Public Utilities Board (PUB)*
- ⁴ *Environmental Protection and Management Act (EPMA), revised in 2002*
- ⁵ *Environmental Public Health Act (EPHA), latest amended in 2018*
- ⁶ *Joint Statement between the Government of the People's Republic of China and the Government of the Republic of Singapore, 2018*
- ⁷ *Joint Statement of China and ASEAN Leaders on Sustainable Development, 2010*
- ⁸ *China-ASEAN Environmental Protection Cooperation Strategy 2016-2020, 2017*
- ⁹ *Guidelines for Pollution Control (PC) Study, 2019*
- ¹⁰ *Environmental Protection And Management (Trade Effluent) Regulations, 2011*
- ¹¹ *Regulations for Discharge of Trade Effluent in to the Public Sewers, 2016*
- ¹² *Environmental Protection and Management (Air Impurities) Regulations, 2015*
- ¹³ *Environmental Protection and Management (Boundary Noise Limits for Factory Premises) Regulations, 2008*
- ¹⁴ *Emission Standard of Pollutants for Electrical Industry, 2nd Edition for Suggestion*
- ¹⁵ *Emission Standard for Industrial Enterprises Noise at Boundary, 2008*
- ¹⁶ *Discharge Standard for Water Pollutants in Textile Dyeing and Finishing Industry, GB 4287-2012*
- ¹⁷ *Integrated Emission Standard of Air Pollutants, GB 16297-1996*
- ¹⁸ *Integrated Wastewater Discharge Standard, GB 8978-1996*
- ¹⁹ *Radiation Protection Act, 2008*
- ²⁰ *Hazardous Waste (Control of Export, Import and Transit) Act, 1998*
- ²¹ *Hydrogen Cyanide (Fumigation) Act, 2014*
- ²² *Carbon Pricing Act 2018, 2018*
- ²³ *Workplace Safety and Health Act, 2009*
- ²⁴ *Building Control Act, 1999*

Appendix

Appendix 1 Land Rental Cost in Singapore's Major Industrial Parks

Appendix 2 List of the Main Environmental Laws/Regulations and Standards in Singapore

Appendix 1

Land Rental Cost in Singapore's Major Industrial Parks

Location	Land Rent (SGD per m ² per year)	Land Price 30-year lease (SGD per m ²)
International Business Park	51.87 – 82.36	785 – 1,243
Changi Business Park	43.21 – 78.57	575 – 1,153
Offshore Marine Centre	24.06 – 50.32	N/A
LogisPark	16.52 – 44.35	255 – 689
Airport Logistics Park	23.21 – 40.62	351 – 714
Cleantech Park	31.25	550
Seletar Aerospace Park	14.04 – 17.56	219 – 278
Tuas Biomedical Park	11.56 – 15.10	190 – 239

Appendix 2

The Main Environmental Laws/Regulations in Singapore

National Environment Agency		Government	Building and Construction Authority
Environmental Protection and Management Act, 2002 ⁴	Hazardous Waste (Control of Export, Import and Transit) Act, 1998 ²⁰	Workplace Safety and Health Act, 2009 ²³	Building Control Act, 1999 ²⁴
Environmental Public Health Act, amended in 2018 ⁵	Hydrogen Cyanide (Fumigation) Act, 2014 ²¹		
Radiation Protection Act, 2008 ¹⁹	Carbon Pricing Act 2018 ²²		

The Main Environmental Effluent Standards in Singapore

Effluent Standards	1	Environmental Protection And Management (Trade Effluent) Regulations ¹⁰
	2	Regulations for Discharge of Trade Effluent in to the Public Sewers ¹¹
	3	Environmental Protection and Management (Air Impurities) Regulations ¹²
	4	Environmental Protection and Management (Boundary Noise Limits for Factory Premises) Regulations ¹³

Glossary – Section 1 to 9 Operational Requirements

A*STAR	Agency for Science, Technology and Research
ACRA	Accounting and Corporate Regulatory Authority
AHTN	ASEAN Harmonised Tariff Nomenclature
AME	Advanced Manufacturing and Engineering
ASC	Accounting Standards Council
ASEAN	Association of Southeast Asian Nations
BP	Business Parks
CA	Competent Authorities
CET	Continuing Education & Training
CIT	Corporate Income Tax
CPF	Centre Provident Fund
CPTPP	Comprehensive and Progressive Trans-Pacific Partnership
CREATE	Campus for Research Excellence and Technological Enterprise
DTA	Double Taxation Agreement
ECI	Estimated Chargeable Income
EDB	Economic Development Board
EEU	Eurasian Economic Union
EFMA	Employment of Foreign Manpower Act
EU	European Union
FDI	Foreign Direct Investment
FTA	Free Trade Agreements

GDP	Gross Domestic Product
GIPC	Global Innovation Policy Center
GST	Goods and Service Tax
HBMS	Health and Biomedical Sciences
IFRS	International Financial Reporting Standards
IMDA	Info-communications Media Development Authority
IP	Intellectual Property
IRAS	Inland Revenue Authority of Singapore
IT	Information Technologies
ITM	Industry Transformation Maps
LDAU	Land Dealings Approval Unit
LLP	Limited Liability Partnership
LPI	Logistics Performance Index
LRT	Light Rail Transit
LTA	Land Transport Authority
MA	MediSave Account
MAS	Monetary Authority of Singapore
MNC	Multinational Corporations
MRT	Mass Rapid Transit
NDI	National Digital Identity
OA	Ordinary Account
PAP	People's Action Party
PE	Permanent Establishment
PLC	Private Limited Company
PSP	Progress Singapore Party

R&D	Research and Development
RIE2020	Research, Innovation and Enterprise 2020
RIEC	Research and Enterprise Council
SA	Special Account
SDE	Services and Digital Economy
SDL	Skills Development Levy
SFS	SkillsFuture Singapore
SGD	Singapore Dollar
SPI	Specialised Industrial Parks
STI	Science, Technology and Innovation
TP	Transfer Pricing
USD	United States Dollar
USS	Urban Solution and Sustainability
VAT	Value Added Tax
WSQ	Workforce Skills Qualifications

Glossary – Section 10

Environmental Requirements

ASEAN	Association of Southeast Asian Nations
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
DCLD	Development Control and Licensing Department
EDD	Environmental Due Diligence
EIA	Environmental Impact Assessment
EPMA	Environmental Protection and Management Act
EPHA	Environmental Public Health Act
MEWR	Ministry of the Environment and Water Resources
NEA	National Environment Agency
NMHC	Non-methane Hydrocarbon
PEIA	Preliminary Environmental Impact Assessment
TVOC	Total Volatile Organic Compounds
PCS	Pollution Control Study

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