



Guide to Laos

*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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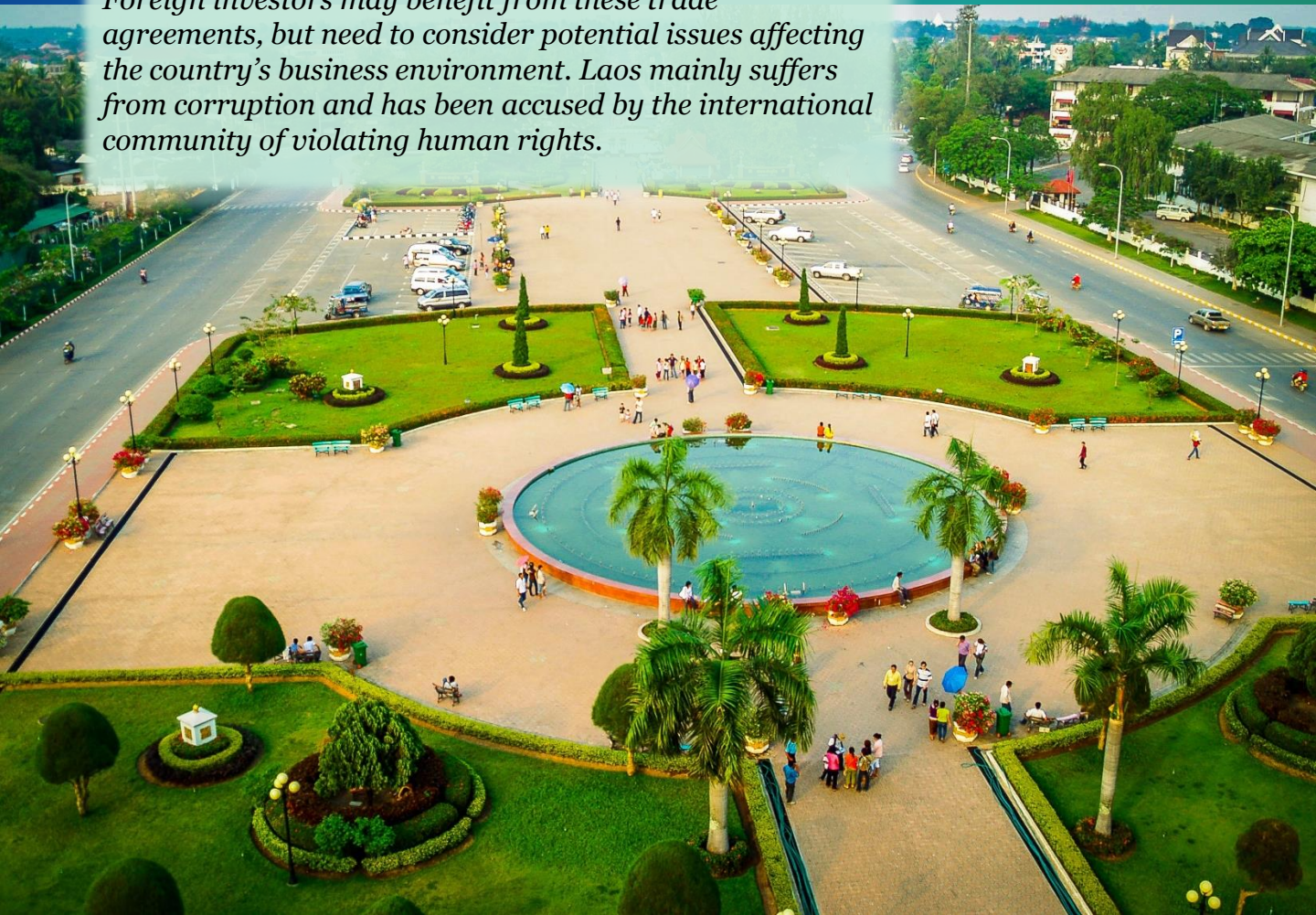
1. Overview of Laos

Executive Summary

The Lao People's Democratic Republic is still considered as one of the least developed countries (LDCs) in the world. However, its fast socio-economic development underlined by strong gross domestic product (GDP) growth over the last decade should enable the country to officially graduate from the LDC list by 2024.

Laos has four signed and effective bilateral trade agreements which usually eliminate import and export tariffs. In addition, the country is a member of the Association of Southeast Asian Nations (ASEAN), and therefore benefits from six multilateral trade agreements with Mainland China, South Korea, Japan, India, Australia and New Zealand.

Foreign investors may benefit from these trade agreements, but need to consider potential issues affecting the country's business environment. Laos mainly suffers from corruption and has been accused by the international community of violating human rights.



1. Overview of Laos

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

Laos is considered as one of the least developed countries (LDCs) in the world. However, over the last decade, the country's economy grew at a rapid pace, with an average gross domestic product (GDP) growth of 7.7% per year. In 2019, it is forecasted that the country will grow at a 8.2% rate. Therefore, if Laos sustains this development pace, it should meet the criteria for removal from the LDC list by 2021 and officially graduate from the list in 2024. The country's economic growth is mainly driven by foreign capital investments in the power generation (especially hydropower), construction and manufacturing sectors. However, some major internal issues such as the small labour force, low domestic demand or poor infrastructure and transport system are keeping foreign investors at bay.



GDP (in USD)

19.9 billion (2019f)

18.4 billion (2018)



GDP Per Capita (in USD)

2,823 (2019f)

2,636 (2018)

Economic Structure

(in terms of GDP composition, 2017)



Agriculture: 20.9%

Industry: 33.2%

Services: 45.9%



External Trade (% of GDP)

Import: 41.5% (2017)

Export: 34.3% (2017)



Population

7.17 million (2019)

World ranking: 105/191



Median Age

23.4 (2018)

World ranking: 170/228 (from oldest to youngest)



Language

Lao (official)

French



English Literacy

Very low proficiency (2018)

World ranking: unknown



Government Structure

Single-party socialist republic



Land Area

230,800 sq km

II. Country Profile on Trade

A. International Trade Agreements and Restrictions^{8,9,10,11,12}

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. Laos joined the ASEAN in 1997 and became a member of the World Trade Organization (WTO) in 2013. The country has therefore a preferential access to Southeast Asian market and is also involved in international trade.

Laos currently has four effective bilateral trade agreements and benefits from the Free Trade Agreements (FTAs) signed between ASEAN and six other countries. In addition, the ASEAN – Hong Kong Free Trade Agreement came into effect in June 2019 (see section below). Furthermore, the country might benefit from the Regional Comprehensive Economic Partnership which is currently under negotiation.

Signed and Effective Bilateral Trade Agreements

	Affected Industry	Agreement (signing date)
	<ul style="list-style-type: none"> All 	Asia Pacific Trade Agreement (1976) <ul style="list-style-type: none"> Preferential tariffs agreement between: Bangladesh, Mainland China, India, Korea, Laos, Sri Lanka and Mongolia. Aimed at promoting intra-regional trade through tariffs concessions between the states.
	<ul style="list-style-type: none"> All 	Laos-Thailand Preferential Trade Agreement (1991) <ul style="list-style-type: none"> Preferential import and export tariffs for goods and services with Laos.
	<ul style="list-style-type: none"> All 	Laos-Vietnam Free Trade Agreement (2015) <ul style="list-style-type: none"> Eliminates tariffs on more than 95% of goods traded between the two countries. More than 9,000 products will benefit from zero tariffs.
	<ul style="list-style-type: none"> All 	US-Laos Trade and Investment Framework Agreement (2016) <ul style="list-style-type: none"> Facilitates bilateral trade between the two countries. Strengthens cooperation on issues related to intellectual property, labour, environment and capacity building.

Signed and Effective Regional Trade Agreements as Member of the ASEAN

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

Regional Comprehensive Economic Partnership (RCEP)

This partnership is being negotiated between ASEAN members and their FTA partners (i.e. Mainland China, South Korea, Japan, India, Australia, and New Zealand). The RCEP is designed to be a mutually beneficial economic partnership that will foster cooperation and integration between the 16 countries. The agreement aims to lower tariffs and other barriers to enhance trade between the partners.

The Association of Southeast Asian Nations (ASEAN)¹²

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.

ASEAN Members



Indonesia



Singapore



Malaysia



Philippines



Thailand



Brunei



Vietnam



Laos



Myanmar



Cambodia

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.

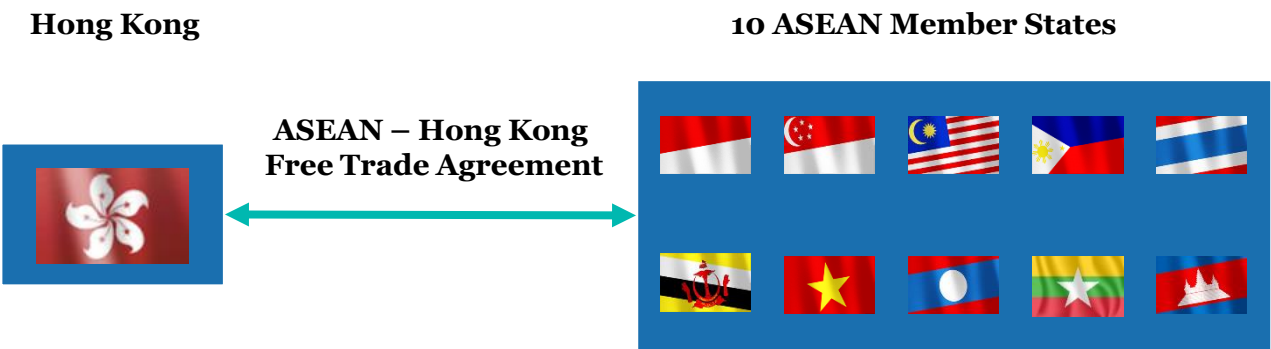
International Trade Agreement between Hong Kong and the ASEAN¹³

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, trade of 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: 11 June 2019

Investment Agreement: 17 June 2019

Both for the parts relating to Hong Kong and Laos, Myanmar, Singapore, Thailand, and Vietnam. The dates of entry for the remaining five countries have not been announced yet.

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

B. Government Structure^{14,15,16}

The Lao People's Democratic Republic is a single-party socialist republic led by the Laotian People's Revolutionary Party (LPRP). The state powers are divided between three branches: executive power, legislative power and judiciary power .

The executive power is held by the President who is elected by the National Assembly every five years. The President is also the General Secretary of the LPRP. Once elected, the President appoints the Prime Minister and the Council of Ministers (government) which assist him during his tenure.

The legislative power is held by the National Assembly which is in charge of: electing the President, approving the appointed Prime Minister and Council of Ministers, and preparing, adopting and amending the Constitution (and the laws). The National Assembly consists of 149 representatives elected by the people every five years (the last election took place in 2016). As there is only one legal party in Laos, 144 out of the 149 representative are members of the LPRP.

The judiciary power is held by the Supreme Court and other subordinate courts. The Supreme Court's president is recommended by the President and appointed by the National Assembly.

C. Political Uncertainties and Historical Coup Records^{17,18,19}

As Laos has been ruled by the same party (the LPRP is the only legal party in the country) since 1975, it is considered as a fairly politically stable country. Laos ranked 67th out of 195 countries in the World Banks Political Stability Index (with an above average value of 0.43 in 2017).

Under the ruling of the LPRP, there were limited political coups attempts in the country. Furthermore, the government has dismissed and denied opposition movements, such as a 2003 revolution led by the Lao Citizen Movement for Democracy (LCMD). The latest coup attempt recorded dates back to 2007 when several former Lao Army Generals tried to obtain heavy weapons in order to possibly overthrow the communist government.

The main sources of political uncertainties rest upon in the country's unresolved issues surrounding corruption and money laundering. In addition, Laos' poor human rights record hinders bilateral relations with other nations.

Source:

¹ *The World Bank in Laos, The World Bank, 2019*

² *Laos 10-Year Forecast, Fitch Solutions, 2019*

³ *The World Factbook, Central Intelligence Agency*

⁴ *Imports of Goods and Services (% of GDP), Exports of Goods and Services (% of GDP), The World Bank*

⁵ *Laos Population, Worldometers, 2019*

⁶ *EF English Proficiency Index, EF Education First, 2018*

⁷ *Geography Statistics of Laos, Worldatlas*

⁸ *Free Trade Agreements, Asia Regional Integration Centre*

⁹ *Asia Pacific Trade Agreement, United Nations*

¹⁰ *United States and Laos Sign Trade and Investment Framework Agreement, US Trade Representative*

¹¹ *Laos, Vietnam Expand Free Trade Agreement, Tax News, 2015*

¹² *ASEAN official website*

¹³ *The Government of Hong Kong Special Administrative Region – Trade and Industry Department, Press Release, May 2019*

¹⁴ *Laos government, Global Edge*

¹⁵ *The National Assembly of Lao PDR homepage*

¹⁶ *Lao PDR, Inter-parliamentary Union*

¹⁷ *Political Stability Index, The World Bank, 2017*

¹⁸ *Laos profile timeline, BBC News, 2018*

¹⁹ *Laos' Political Reforms To Remain Slow Despite Increased International Scrutiny, Fitch Solutions, 2019*

2. Legal Environment and Competition Law

Executive Summary

Laos amended its main law towards foreign investments (the Law on Investment Promotion) in 2017 in order to create a better business climate in the country. However, sectors listed under the controlled business list or concession investment list are still regulated by the government.

Mainland China and Hong Kong companies can choose to operate in Laos as a Limited Liability Company (LLC), a branch office or a representative office. All these different types of entities can be 100% foreign-owned. Companies can also choose to set up operations in Laos via three other options: a joint venture (with a domestic or another foreign investor), a business contract by cooperation, or a public private partnership (PPP).



2. Legal Environment and Competition Law

Laos is aiming to attract an increasing volume of foreign investments in the near future. To do so, the government amended the Law on Investment Promotion in 2017 in order to create a better business climate, by, for example facilitating companies' incorporation process.

However, some activities are regulated by the Lao government and require local or foreign investors to contact relevant ministries in order to obtain a business licence. With the amended Law, the government clearly listed out which activities are under the controlled business list and which are categorised under concession investments. In addition, the government listed out the agencies that Mainland China and Hong Kong companies would need to contact, and which law they would need to comply with.

In Laos, Investments are Divided in Two Different Types: General Investments and Concession Investments^{1,2,3}

General Investments

General investments are categorised into two lists:

- Business activities under the controlled business list: These are activities defined as having an impact on the “stability of national security, public order, national fine tradition and environment, society, and nature”. Investments in these sectors are regulated by specific ministries and investment licenses are granted on a case by case basis. This list is periodically updated by the government. In 2019, the list includes activities such as:
 - Mining and mineral processing;
 - Production of chemicals and pharmaceuticals;
 - Transport services such as air freight or postal services.
- Business activities not under the controlled business list: these are business activities that are opened for general investments. Companies wishing to carry out these activities can apply for a business license according to the usual processes described in the Enterprise Law and other relevant regulations.

Concessions Investments

Companies need to seek the government approval in order to benefit from a concession. This specific type of investment applies to companies wishing to:

- Operate on concession land;
- Develop special economic zones;
- Operate in industrial processing zones dedicated to exports;
- Engage in mining, electric energy development, aviation and telecommunications.

Generally, the Lao government drafts every year a list of concession-based businesses.

For additional information, please refer to section 8 of this report.

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

According to the Lao Enterprise Law and the Law on Investment Promotion, there are various types of entities that Mainland China and Hong Kong companies can set up in order to expand their manufacturing footprint in the country. The three types presented below are entities that can be wholly foreign-owned. Therefore, they are the most favoured business types by foreign investors:

1. Limited Liability Company (LLC)
2. Branch Office
3. Representative Office

Limited Liability Company (LLC)

The requirements to meet in order to establish an LLC are clearly defined by law. Therefore, it is the most common business type for foreign investors in Laos. To set up an LLC, a company needs at least two shareholders and one director. In this structure, the shareholders' liability is limited to their capital contribution. With an LLC, Mainland China and Hong Kong companies can conduct commercial activities, generate revenues and profits. If during the course of its activities, an LLC only counts one single shareholder, it will be required to change its legal status to a sole limited liability company.

There is no minimum paid-up capital required for setting up an LLC (i.e. it is only USD 1). However, depending on the nature of the investment and the sector in which the company is investing in, a paid-up capital of at least USD 125,000 could be required. Generally for an LLC, the registration process takes seven weeks.

Branch Office

Investors from Mainland China and Hong Kong also have the possibility to establish a branch office in Laos. This entity is considered as an extension of the parent company, therefore its scope of operations is defined by the latter. A branch office can engage in revenue generating activities. In Laos, this entity is required to have a management team independent from the parent company, as well as a local Lao corporate bank account. In the country, branch office can usually only be set up to conduct activities in some specific sectors: airline business, financial institutions, banking and insurance.

Generally, it takes around 10 weeks to open a branch office in Laos.

Representative Office

The scope of activities that can be carried out by a representative office is limited. This type of company is not allowed to conduct business activities (such as manufacturing) or revenue generating activities. Therefore, it can only be used to collect market information (e.g. perform market researches or surveys) in order to prepare for future manufacturing investments in Laos.

Nevertheless, it is very attractive to establish a representative office as the minimum paid-up capital required to obtain a business licence is very low (USD 50,000). In addition, the registration process is quite straightforward even if it generally takes around 10 weeks. In Laos, a representative office cannot operate for more than three years. In fact, the business licence is granted for a one-year period, and can only be renewed twice.

Apart from wholly foreign-owned companies, Mainland China and Hong Kong investors can choose to expand their manufacturing footprint in Laos via three other options: joint venture (with a domestic or another foreign investor), business contract by cooperation, and a public private partnership (PPP).

II. Overview on Other Business Laws and Regulations⁵

A. Legal and Administrative Framework on Competition Law⁶

The National Assembly approved the Business Competition Law No. 60/NA in January 2015, and the Law came into force in December 2015. In addition, a new regulation formalising the creation of the Business Competition Commission (BCC) was passed in 2018. The BCC is supposed to act as the regulatory entity in charge of administering the Business Competition Law. However, the BCC is still in the establishment process (i.e. is not yet created), and therefore, the Law is currently unenforceable. Mainland China and Hong Kong companies considering to expand their manufacturing footprint in Laos are advised to seek legal counsel in order to obtain the latest news concerning the enforcement of the Business Competition Law.

The Business Competition Law applies to any business (whether local or foreign-owned) which carries out activities that aim to reduce, distort or obstruct competition in Laos. The Law lists three main topics under which some actions are prohibited:

1. Anti-competitive agreements;
2. Abuse of market power; and
3. Anti-competitive mergers.

In addition, the Law defines a list of practices which are considered as acts of unfair business competition.

Some common examples listed in the Business Competition Law are listed below. In addition to these examples, the BCC can also prohibit other types of actions that reduce, distort or obstruct competition in Laos. However, the Commission can also grant individual or collective exemptions.

1. Anti-competitive Agreements

The following behaviours are defined as anti-competitive agreements and are therefore prohibited by law:

- Fixing prices of goods and services;
- Allocating market shares or manufacturing volumes;
- Limiting the quality or technological development of goods and services;
- Preventing other businesses from entering the market and forcing some businesses out of the market.

2. Abuse of Market Power

The following actions are considered illegal market control and are therefore forbidden:

- Unfair price fixing on sales or purchases of goods and services;
- Selling goods and services below aggregate cost;
- Refusing to deal with customers/consumers;
- Imposing unfair contract terms (e.g. tied selling).

However, some actions can be tolerated if the company is able to prove that they are beneficial to Laos' socio-economic development.

3. Anti-competitive Mergers

The Business Competition Law prohibits mergers that would result in:

- A company with a market share over a certain level (this level has not yet been defined);
- Limited market access for other companies or limiting technological development of goods;
- Any impact on consumers, other businesses and on Laos' socio-economic development.

These restrictions apply to various types of mergers, including enterprise mergers, business acquisitions and joint ventures.

In addition, the Law defines actions which are considered unfair business competition: misleading conduct, violation of business secrets, coercion in business operations, discrediting other business operators, false advertising, unfair sales promotion, discrimination by business association, and other practices.

Please refer to the official Law on Business Competition document for additional information (www.laoservicesportal.gov.la/index.php?r=site%2Fdisplaylegal&id=42#1).

B. Intellectual Property Protection Law on Trademarks⁷

A trademark is a visible sign for distinguishing the goods or services of an enterprise and shall include a stamped or marked container of goods. Trademarks are protected in Laos since 2011, along with the publication of the Intellectual Property Law, among other regulations and decrees. The country also signed major international intellectual property (IP) treaties such as the Paris Convention or the Convention Establishing the World Intellectual Property, which set guidelines for trademarks protection.

Companies must register their trademarks with the Department of Intellectual Property (DIP) in order to be protected. To be able to register with the DIP, the trademark must be sufficiently distinctive, different from existing trademarks, clear, and must not create confusion to consumers. In addition, it must not be a threat to national security. Generally, the registration procedure with the DIP takes between six and eight months. Once registered, the trademark protection is valid for a period of 10 years. The protection can be renewed indefinitely.

In May 2018, the country published the new Law on Intellectual Property ("New IP Law") which extended the definition of trademarks to include non-traditional marks. A new opposition procedure has also been introduced in the New IP Law.

C. Import/Export Regulations and Licenses^{8,9}

In Laos, imports and exports are regulated in the 2011 Customs Law which is enforced by the Department of Customs (operating under the Ministry of Finance). To import/export goods in Laos, Mainland China and Hong Kong companies will need to be registered in Laos. In addition, depending on the types of goods, it might be necessary to obtain an Export/Import Licence. This licence can be granted automatically under certain conditions or can be subject to the Department of Import/Export's (DIMEX) approval. This licence has no expiration date and is therefore valid for the companies' entire lifespan.

Import

Mainland China and Hong Kong companies wishing to import goods into Laos need to present the following documents: invoice, packing list, transport documents, bill of landing, customs clearance report, and additional licences or permits delivered by specific ministries.

Export

When applying for an export declaration, companies should have the following documentation: application for export declaration, invoice of goods, packing list, country of origin certificate, specific certifications such as the industrial products certification.

D. Jurisdiction System on Business Related Matters^{10,11,12}

The court system in Laos consists of the People's Court (composed of the Supreme Court, Court of Appeal, provincial, city, district, and municipal level courts) and the Military Court.

The country does not have dedicated courts dealing with specific subjects. Therefore, the People's Court deals with all different types of cases including commercial disputes. However, there are two arbitration bodies in Laos operating at state and provincial level: the Centre of Economic Dispute Resolution (CEDR) and the Office of Economic Dispute Resolution (OEDR). These two bodies are valid alternatives to the court system as they resolve commercial disputes through mediation or arbitration. The CEDR and the OEDR operate according to the Law on Economic Dispute Resolution (which has been amended in 2019).

Source:

¹ *Decree on Controlled Concession List in Laos, Lao PDR, 2019*

² *Law on Investment Promotion, Lao PDR, 2017*

³ *Investment under the Lao PDR Amended Law on Investment Promotion, Arion Legal, 2017*

⁴ *Business Entities in Laos, Healy Consultants Group*

⁵ *Laos Practical Law, Thomson Reuters, 2018*

⁶ *Law on Business Competition, Lao Services Portal homepage*

⁷ *New Law Reforms Lao Intellectual Property Regime, Tilleke & Gibbins, 2018*

⁸ *Import/Export Procedures of Laos, HKTDC, 2018*

⁹ *Laos - Import Requirements and Documentation, Export.gov*

¹⁰ *Demystifying Laos' International Arbitration Scene, Lexology, 2018*

¹¹ *Lao legal system, Council of ASEAN Chief Justice*

¹² *The Amended Law On Economic Dispute Resolution, Conventus Law, 2019*

3. Taxation, Transfer Pricing, Banking and Currency Control

Executive Summary

The main forms of taxation in Laos are personal and corporate income tax (CIT), and value added tax (VAT).

Laos generally welcomes and needs foreign direct investment (FDI). Most sectors are open for investments, but certain sectors have restrictions detailed in the controlled business list. Investors can also benefit from tax incentives detailed in the Law on Investment Promotion.

Officially, the Lao kip (LAK) is required to be used in all transactions in Laos, but the USD, THB, and RMB are also commonly used in practice. The LAK is a controlled currency, and cannot be freely exchanged into foreign currencies.



3. Taxation, Transfer Pricing, Banking and Currency Control

I. Taxation Practice

The principal tax law in Laos is the Tax Law, which was first enacted in 2005, and amended in 2016. Laos has no definition of tax residency in its tax law. Therefore, all companies that are registered in Laos, or are doing business in Laos, are subject to corporate income tax (CIT).

There are two main tax registration systems in Laos. Businesses with an annual revenue of at least LAK 400 million (around USD 46,000) must register under the value added tax (VAT) system. Small and medium-sized enterprises (SMEs) with annual revenue of less than LAK 400 million can choose to either register under the VAT system, or register under the lump-sum tax system. The tax system that a new enterprise is required to register under will depend on criteria such as business plan, expected size of activities, and registered capital, among others.

In general, a company registered under Laos law will be taxed on worldwide income, while a foreign company will be taxed only on income from Laos.

A. Corporate Income Tax (CIT)^{1,2}

Tax Calculation

Taxable income is calculated from accounting profits, plus non-deductible expenses, minus any other authorised deductions.

Applicable Tax Rate

The standard CIT rate in Laos is 24%. SMEs with an annual revenue of LAK 12 million or less are exempt.

Industry	Tax Rate
Standard	24%
For the first 4 years after registering on the Lao Stock Exchange	19%
Producing, importing, or exporting tobacco	26%
SMEs under the lump-sum system	3 - 7% (Note)

Note: The tax rate will depend on the revenue and activities of the business.

Deductions

In general, expenses are tax deductible if they are related to business operations, and are not specifically classified as non-deductible. Examples of non-deductible expenses include:

- Travel expenses over 0.6% of annual revenue;
- Donations and advertisement expenses over 0.3% of annual revenue;
- VAT for the purchase of fixed assets used in business operations;
- Depreciation of fixed assets not registered with the business; and
- Salaries paid by a partnership to partners that are not managers or employees.

3. Taxation, Transfer Pricing, Banking and Currency Control

Dividend Income

Dividends paid will be subject to an income tax. The tax rate of 10% will be applied on the gross dividend amount received. Taxes paid on dividend income is not eligible for tax credits. There are also no tax exemptions for dividend income tax.

Losses and Consolidation

In Laos, any business losses can be set off against future income for three years. Businesses must first obtain approval from tax authorities to be able to carry forward these losses. Businesses that do not follow an accounting system are also not eligible to carry forward losses. Carryback of losses is not permitted.

There are no consolidated filing or group loss relief provisions in Laos.

Tax Return and Payment

The tax year in Laos is the calendar year, unless the business has ceased operations, or been sold. Tax returns must be filed by 1 March following the end of the tax year. Tax returns must be filed in the Lao language, and be prepared in LAK.

CIT is paid in advance quarterly in Laos, based on self-assessment. The payment due dates for each quarter are as follows:

- 1st quarter: before 10 April
- 2nd quarter: before 10 July
- 3rd quarter: before 10 October
- 4th quarter: before 10 January of the following year, and must include any outstanding unpaid tax from the year.

SMEs under the lump-sum tax system may be eligible for monthly, quarterly, semiannual, or annual payments, depending on the agreement with the tax authorities.

Tax Governance

In Laos, the Tax Department of the Ministry of Finance is responsible for formulating and implementing the tax law, and collecting tax from businesses and individuals. For more information on the Tax Department, please refer to their official website (www.taxservice.mof.gov.la/websquare/websquare.do).

Double Tax Agreement (DTA) with Hong Kong³

Laos has entered into DTAs with 11 countries. Hong Kong and Laos have not signed a DTA. Hong Kong and Laos signed an Air Services Income Agreement on 9 September 2009, but it is still pending ratification.

B. Value Added Tax (VAT)^{1,2,4,5}

VAT is applicable to all goods and services provided in Laos, and on any imported goods and services. The current VAT was implemented in January 2010 to replace the old Business Turnover Tax (BTT), and the VAT Law was recently amended in June 2018.

Applicable Tax Rate

In Laos, the VAT that must be paid is calculated as the output VAT minus the input VAT. The output VAT is paid by the customers, and is calculated by multiplying the taxable value with the applicable VAT rate. Input VAT is paid upon purchase of goods and services, and taxpayers can claim input VAT credits. To claim input VAT credits, a business must obtain a VAT invoice from the supplier. Input VAT can be carried over for up to three months.

The standard VAT rate is 10%, which is applied to all imported and domestic goods and services that are not specifically exempt or subject to 0% VAT. Goods that are to be exported are subject to 0% VAT. Goods subject to 0% VAT are exempt for output VAT, but may still be eligible for input VAT credits.

Goods Exempted

Certain goods are specifically exempt from VAT, including:

- Raw materials, equipment, and machinery used in agriculture;
- Materials and equipment used in production of goods for export;
- Tax and postal stamps;
- Equipment that cannot be produced or supplied in Laos;
- Traditional medicine, and other medical tools;
- Educational materials such as textbooks; and
- Goods to be used in government projects either abroad or domestically in Laos, among others.

For more information on exempt goods, please refer to the VAT section of the Tax Department's website (www.taxservice.mof.gov.la/websquare/websquare.do).

VAT Filing and Payment

VAT returns must be filed every month, and be paid by the 15th of the following month. Businesses that purchase services from non-residents or businesses/persons not registered in the VAT system must withhold VAT and pay withholding VAT by the 15th of the following month. VAT on imported goods and services should be paid upon importation.

Tax Incentives⁶

Tax incentives in Laos are provided under the Law on Investment Promotion. The main incentives include CIT exemptions, import and export duty exemptions, and land lease permissions. Foreign investors can also benefit from certain investment incentives if they invest in promoted industries. For more information regarding tax incentives, please refer to section 9 of this report.

C. Transfer Pricing Provisions^{1,2}

Laos currently has no transfer pricing provisions in place.

D. Statutory Auditing Requirements and Accounting Standards^{1,2}

Audit Requirements

Any businesses that have total assets of over LAK 50 billion (around USD 6.25 million), must be subject to an audit. Businesses must also use locally licensed accounting software for CIT submission, the most common of which is Advance Programming and Information System Consultancy (APIS) and Intercom. Accounting records must also be maintained for a minimum of 10 years. If the accounting records are associated with a contract, those documents should be kept for 10 years after contract completion.

Financial Statements

Financial statements in Laos must include at least a balance sheet, an income statement, and any explanatory notes to the financial statements. Financial statements must be prepared in LAK. The fiscal year used in Laos is the calendar year, with 31 December as the year end date. The financial statements should be filed to the Tax Department of the Ministry of Finance (MoF) by 1 March of the following calendar year, upon notification by the MoF.

Financial Reporting Framework

The MoF is responsible for issuing accounting standards and financial reporting requirements. All financial statements must be prepared under the Lao Generally Accepted Accounting Principles (GAAP). Lao Financial Reporting Standards (LFRS) based on the International Financial Reporting Standards (IFRS) have been approved by the MoF, but are yet to be distributed or implemented.

II. Banking and Currency Control

A. Bank Account Setup Requirements and Restrictions for Foreign Direct Investment (FDI)^{6,7}

Bank Account Setup Requirements

In Laos, the requirements for setting up bank accounts are generally the same for both residents and foreigners. Instead, the Instruction on Implementation of the Executive Decree on Management of Foreign Exchange and Precious Metals distinguishes between opening foreign currency and LAK bank accounts. Both residents and non-residents are permitted to open LAK accounts, use money within the accounts in business operations, and exchange LAK in the account to a foreign currency to bring to a foreign country.

Opening a foreign bank account will require more documentation, including at least an identification card, an application for opening a foreign currency account, and an investment license from the Ministry of Plan and Investment. Each bank may have additional required documentation, such as a tax registration certificate.

FDI Restrictions

Laos generally welcomes FDI, as foreign investments are heavily needed to meet the considerable spending needs in infrastructure, healthcare, education, and other areas of the country. However, in the Law on Investment Promotion that governs all investments in Laos, certain sectors have been designated as restricted for investment in the controlled business list. This list will be periodically updated by the government, and foreign investors that wish to invest in these industries must apply for approval from the central or provincial investment service offices.

For further information regarding FDI restrictions, please refer to section 8 of this report.

B. Restrictions on Inbound and Outbound Funding in Foreign Currency and Local Currency^{8,9}

There are many restrictions on foreign exchange and the use of foreign currency in Laos. Foreign exchange control is governed under the Law on Management of Foreign Currency, the Executive Decree governing the Management of Foreign Exchange and Precious Metals, and the Instruction on Implementation of the Executive Decree on Management of Foreign Exchange and Precious Metals.

Local Currency

By law, LAK is required to be used for payments of goods and services within Laos. Debts should be paid in LAK, unless the Bank of the Lao PDR has specifically approved the transaction. LAK can be exchanged at any commercial banks or foreign exchanges licensed by the Bank of the Lao PDR.

Under Lao law, foreign businesses are permitted to repatriate profits, initial investment capital, interest, any wages and salaries, and certain other remittances from LAK to a foreign currency, upon approval from the Lao government. Foreign individuals are also allowed to repatriate any earnings, provided that they work for a foreign business.

Foreign Currency

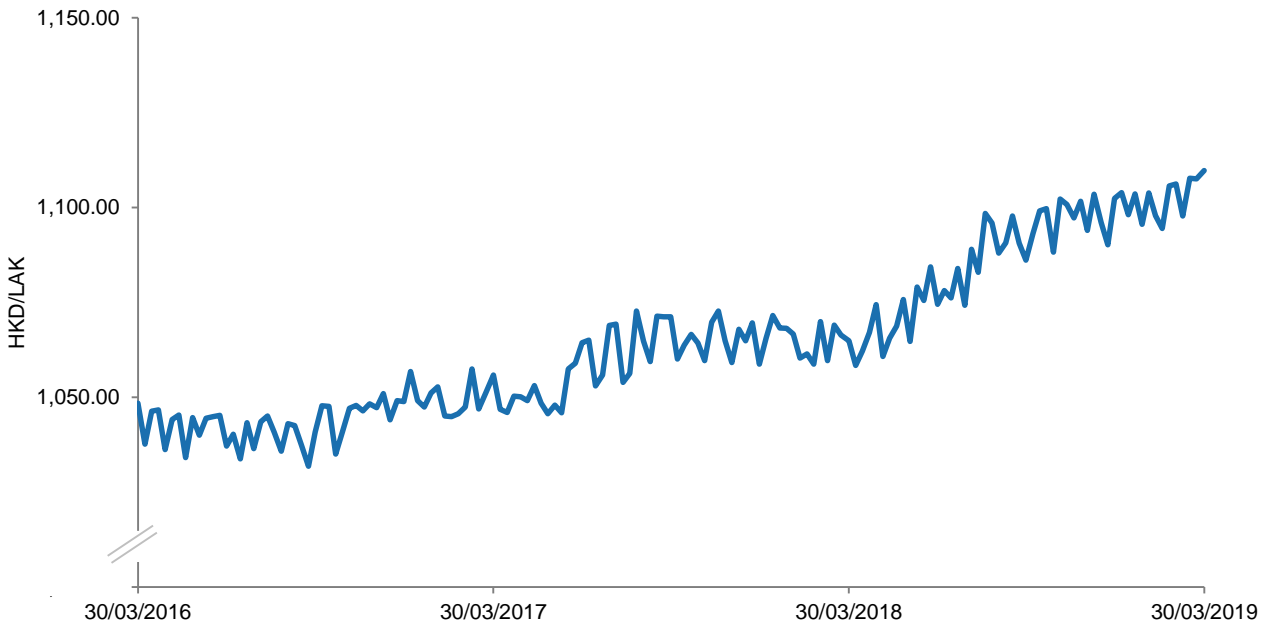
The use of foreign currency is common in Laos. Even though LAK is officially required to be used for transactions in Laos, in practice, USD and THB are also common foreign currencies used in everyday transactions. RMB is also commonly used in the northern parts of Laos. Foreign currency is commonly used by businesses that operate or deal internationally, as well as in private transactions involving imported goods.

Foreign currencies used in transactions must be deposited into commercial bank accounts (domestic or foreign) in Laos.

C. Policy on Foreign Exchange Rate and Three-year Historic Trend¹⁰

Laos’ official currency is the Lao Kip (LAK), and has been the official currency since 1952. The kip has gone through a few versions since its first introduction. The current Lao PDR Kip has been used since 1979. The banknotes range from LAK 200 to 100,000 notes. Coins are not currently in circulation in Laos, and have not been in use since the fall of the Soviet Union, due to inflation. The LAK is currently controlled by the Bank of Lao PDR, and the exchange rate between the LAK and USD is currently at around 8,500.

Three-year Exchange Rate Trend for HKD to LAK






















Date	HKD/LAK Rate
30/03/2016	1,047.03
30/03/2017	1,056.50
30/03/2018	1,058.69
30/03/2019	1,095.64

3. Taxation, Transfer Pricing, Banking and Currency Control

D. List of Banks from Foreign Investments¹¹

According to the Bank of Lao PDR, there are currently 19 foreign commercial bank branches in Laos.

Foreign Commercial Bank Branches in Laos

#	Names of Foreign Commercial Bank Branches	
1		Australia and New Zealand Banking Group Limited, Lao Branch
2		Bangkok Bank PCL Vientiane Branch
3		Bangkok Bank PCL, Pakse Branch
4		Bank of Ayudhya PCL., Savannakhet Branch
5		Bank of Ayudhya PCL., Vientiane Branch
6		Bank of China Limited, Vientiane Branch
7		Cathay United Bank - Vientiane Branch
8		CIMB Thai Bank Public Company Limited - Vientiane Branch
9		First Commercial Bank Ltd, Vientiane Branch
10		Industrial and Commercial Bank of China Limited Vientiane Branch
11		Krung Thai Bank Limited Vientiane Branch
12		Malayan Banking Berhad Nongduang Branch
13		Malayan Banking Berhad Lao Branch
14		Military Commercial Joint Stock Bank - Lao Branch
15		Public Bank Berhad
16		Public Bank, Pakse Branch
17		Public Berhad Bank Ltd, Savannakhet Branch
18		Siam Commerce Bank Ltd Vientiane Branch
19		TMB Bank Public Company Limited

3. Taxation, Transfer Pricing, Banking and Currency Control

Source:

¹ *Laos Tax Profile, KPMG, Aug 2018*

² *Laos Highlights 2019, Deloitte, May 2019*

³ *Comprehensive Double Taxation Agreements concluded, Inland Revenue Department*

⁴ *A guide to VAT/GST in Asia Pacific 2019, PricewaterhouseCoopers, May 2019*

⁵ *Value-added Tax Law, Tax Department*

⁶ *Law on Investment Promotion, National Assembly, Nov 2016*

⁷ *Instruction on Implementation of Decree Law on Management of Foreign Currency and Precious Metals, Bank of the Lao PDR*

⁸ *Foreign Exchange Controls – Laos, JLL*

⁹ *Laos – Foreign Exchange Controls, Export.gov, Jul 2019*

¹⁰ *Bloomberg*

¹¹ *Banks in Laos, Bank of the Lao PDR*

4. Labour, Compensation Rule and Labour Supply Situation

Executive Summary

In Laos, the Labour Law provides guidelines on matters such as maximum working hours, minimum wages, and employees' welfare protection.

Foreign employment is subject to limitations in the country. Apart from case-by-case exceptions, foreign workers are only permitted to work for five years in Laos, with permissions renewed annually.

Foreign workers are required to obtain a work permit and a visa for legal employment in Laos, which are approved by the relevant government departments on a discretionary basis.



4. Labour, Compensation Rule and Labour Supply Situation

I. Overview on Laws and Regulations over Local Labour Employment^{1,2,3}

A. Contracts and Protection Towards Employees

The Labour Law, among other related laws, governs the labour employment in Laos. It was enacted in 2013 to repeal the 2006 version. These laws apply to all employers and employees, whether or not they are registered, foreign employees working in Laos, or Lao employees working for foreign organisations.

Minimum Legal Working Age

The minimum employment age is 14. Nevertheless, children of 12 years old or above can be employed for light work. The positive list of light work is provided by the Department of Labour and Social Welfare.

Children under 18 years of age are prohibited from working overtime. They are not allowed to perform work which is “unsafe, dangerous to the health of the body, psychology or mind”. The negative list of hazardous work is provided by the Department of Labour and Social Welfare.

Labour Contract

The Labour Law governs the agreement between employers and employees. An employment contract, either oral or written, is concluded for all categories of employment arrangements recognised by the labour law. If both parties are legal entities or organisations, the contract must be in written form. Otherwise, if it is between two individuals, the contract can be verbal.

In Laos, there are two main types of contracts: fixed-term contracts or indefinite-term employment contracts.

Termination of Employment

Employment termination clauses vary according to the type of contract:

- Indefinite-term employment contracts: either party may cancel the contract at any time. Parties are required to give at least 30-day notice (for physical labour) or 45-day notice (for mental labour).
- Fixed-term employment contracts: can be terminated upon mutual agreement between the two parties or if one party violates the contract. Usually, the violating party must compensate for any damages caused.

Some of the main termination scenarios where employers have to compensate employees are:

- If an employee shows a lack of specialised skills or if his health no longer permits him to stay in his position, an employer must reallocate him to a more suitable position. The employer is allowed to terminate the contract if the employee is still unable to work.
- An employer can reduce the number of employees if he considers it to be necessary for the improvement of work after consulting the relevant labour union and reporting to the Labour Administration Agency.
- An employee is allowed to terminate the contract and receive compensation if he has raised his dissatisfaction with his employer multiple times regarding issues such as contract terms, workplace relocation, or any form of molestation or harassment.

4. Labour, Compensation Rule and Labour Supply Situation

B. Minimum Wage Level

Laos monthly minimum wage has been raised from LAK 900,000 to LAK 1.1 million (around USD 126) in May 2018. This increase applies to all businesses (including manufacturing) operating in Laos. Previously the monthly minimum wage was raised to LAK 626,000 (from LAK 348,000) in 2012, and to LAK 900,000 in 2015.

The minimum wage rate is therefore regularly updated by the government.

C. Maximum Working Hours and Days

In Laos, the maximum number of working hours is eight hours per day, or 48 hours per week. Special dispositions apply to hazardous work: hours of work must not exceed six hours per day or 36 hours per week. By law, employees must be given at least one day of rest per week, or four days per month.

Overtime

Employers should obtain the consent of the relevant unions or of the majority of employees prior to requesting employees to work overtime if necessary. Overtime must not exceed three hours per day or 45 hours per month. For overtime work on a working day before 10 pm, employees shall receive 150% of their normal hourly wages and 200% after 10 pm.

For details on overtime pay calculation, please refer to the official Lao Labour Law document (www.ilo.org/dyn/natlex/natlex4.detail?p_lang=en&p_isn=96369).

D. Mandatory Welfare

National Social Security Fund

The Ministry of Labour and Social Welfare published guidelines on the implementation of the Law on Social Security. The National Social Security Fund is the pooled funds provided by the government, employers, and employees to finance social security benefits. Benefits cover the following areas: healthcare, childbirth, abortion, employment injury, loss-of-work, pension, and death. For the exhaustive list, please refer to the Law on Social Security.

Employees must be insured and are required to contribute to the National Social Security Fund in order to receive the benefits as stated in the Law on Social Security. The government and employers are also required to make payments to the Fund for workers' social benefits. Employers of work units are required to contribute 6% of the monthly wages of each worker per month, whereas the employees themselves shall pay 5.5%. Self-employed persons should pay 9% of the minimum wage or the maximum insured monthly salary ceiling.

Other Benefits and Rights

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

- Annual leave: employees who have worked continuously for one full year are entitled to at least 15 days of annual leave. Employers working in hazardous conditions are entitled to 18 days per year.
- Maternity leave benefits: full pay during maternity leave of at least 105 days, with at least 42 days taken after giving birth. In case of a miscarriage, the female employee is entitled to paid leave for a certain period determined by a physician.
- Personal leave: for marriages, births or funerals, employees are entitled to personal leaves while maintaining the same wage.
- Sick leave: employees are entitled to not more than 30 days per year.

E. Labour Law Governing Authorities, Enforcements, and Restrictions

Governing Authorities

The Ministry of Labour and Social Welfare is the official government body responsible for overseeing the labour administration and protection, social policy, and the promotion of employment in Laos.

Labour Law Enforcements

The Labour Administration Agency and its appointed labour inspectors are responsible for overseeing compliance with general working conditions, occupation safety and health, labour welfare, and labour relations. The Administration is also in charge of implementing policies and strategic plans; planning projects for scientific research on labour affairs; and special inspection in accordance with orders from a higher authorities.

Employment Restrictions

Limitation on Foreign Employment

Foreign workers in Laos are permitted to remain in the country for no more than 12 months. Multiple one-year extensions can be requested, however, the total working period must not exceed five years. Requests for exemptions for foreigners at management level and experts are considered on a case-by-case basis.

Prohibition against Discrimination

Employers are prohibited from terminating employment contracts or obstructing employment due to the employee's marital status, gender, or health status. Direct or indirect discrimination is prohibited, including all biased actions to hinder or limit promotion opportunities, or undermine confidence of employees.

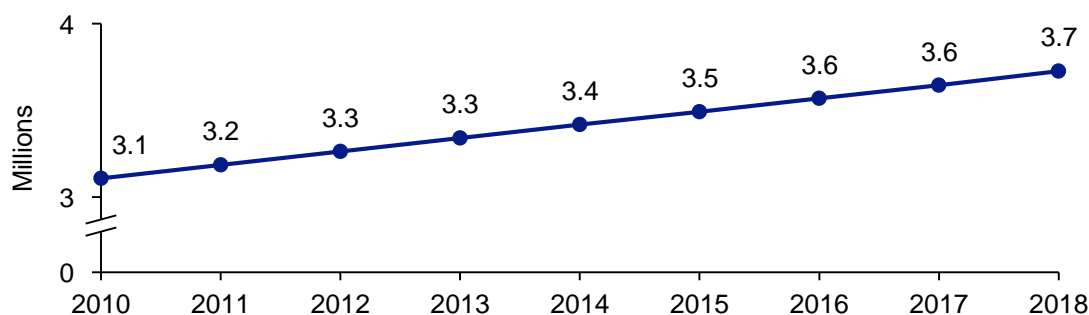
Other Prohibitions

Employers are not allowed to deploy employees for two shifts on the same day, conceal accidents or labour disputes, and/or relocate foreign labour to locations not subject to their labour unit without authorisation from the Labour Administration Agency.

II. Local Labour Supply Market Condition

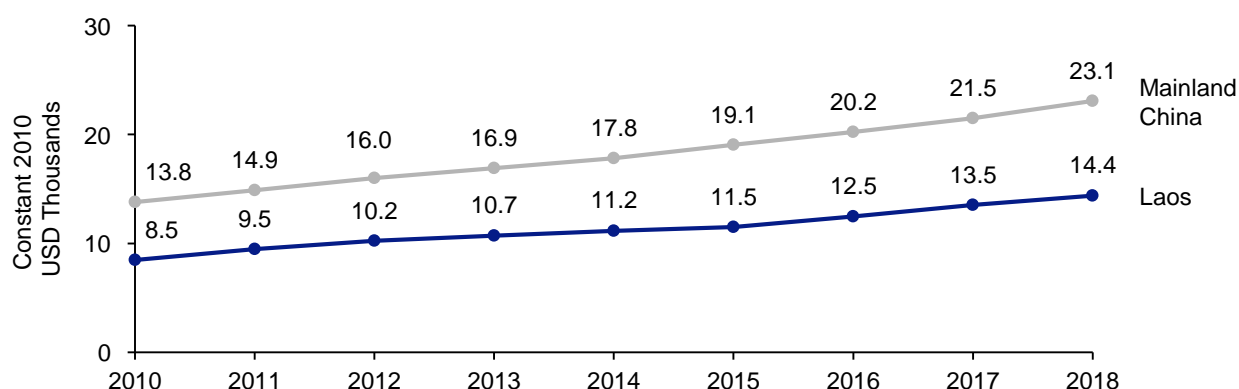
A. Supply Situation for Total Labour Force^{4,5,6}

Laos' Total Labour Force (2010 – 2018)



The estimated total labour force was around 3.7 million in 2018. The supply of labour for the past nine years has shown an overall upward trend. Approximately 73% of the labour force was engaged in the agriculture sector, 21% in the service industry and 6% in manufacturing industry.

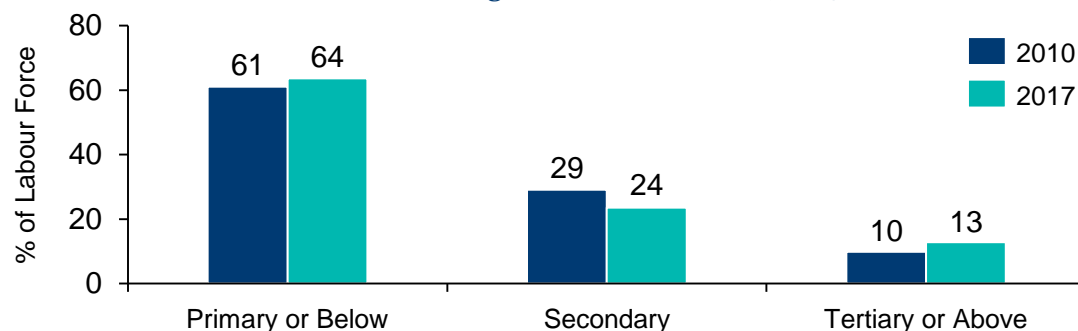
Laos' Labour Productivity (GDP per worker) (2010 – 2018)



Laos' labour productivity is around 38% lower than Mainland China's in 2018. Nevertheless, Laos' productivity is growing at a similar rate (around 6.8%) than that of Mainland China (around 6.7%) between 2010-2018. Laos' productivity is ranked sixth among the 10 ASEAN countries.

B. Supply on Educated Employees

Laos' Estimated Labour Force with Higher Education (2010, 2017)



The Lao government has conducted two Labour Force Surveys, one in 2010, and another more recently in 2017. Approximately 37% of the labour force, or around 1.4 million people in Laos attained higher education (defined as a level of education beyond secondary school) in 2017, a drop of 2% compared to the labour force in 2010.

4. Labour, Compensation Rule and Labour Supply Situation

C. Government Support on Employee Training

Section 2 of the Labour Law outlines the labour skills development system which aims to increase the competitiveness of Laos' workforce. The Ministry of Labour and Social Welfare is in charge of labour skills competition which promotes and improves the labour standards in the country.

Employers are required to provide trainings to their employees to improve production quality and competitiveness. Annually, 1% of the annual salary reserve fund of employees should be used to finance labour skills trainings.

D. Labour Unionisation and Related Government Regulations

Protection of Rights of Unionisation

Trade unions can be established within labour units, at the central, provincial, municipal or district level. Trade unions are responsible for educating and encouraging employees to comply with laws and other labour-related obligations; contributing to the revisions of labour-related laws; participating in collective bargaining; and encouraging employees to become members.

Labour units with 10 or more employees must have a trade union or employee representative; with 50 or more employees requiring two representatives; and one extra representative for every further 100 employees.

Labour Dispute Settlement

Section 13 of the Labour Law provides methods for the resolution of labour disputes. These include compromises, administrative solutions, resolutions by the committee for labour dispute resolution, court rulings, and resolutions consistent with international protocols. For details, please refer to the Labour Law.

Employees in a labour dispute must still continue to work as per usual and the employer must provide them with access to the workplace. Except in extreme cases where a tripartite organisation permits work stoppage in order to minimise damages or risks.

E. Work Permits and Visas⁷

Work Permits

There are two main permits for foreigners in Laos: the Work Permit and the Stay Permit (SP). The employer must sponsor and file the application for the foreign applicant worker within one month of receiving authorisation from the Lao Ministry of Foreign Affairs (MFA). Documents that are required for the application include: an approval to import foreign workers; a copy of the applicant's passport and Labour Visa (see below); a copy of the employer's registration certificate; and a proposal form from the employer's company. Work Permits are issued by the Ministry of Labour and Social Welfare, while SPs are issued by the Immigration Department of the Ministry of Public Security.

Foreign workers in Laos must be over 20 years old, possess the skills required for his/her position, be in good health, and fulfil "other conditions as deemed necessary" as stated in the Labour Law.

4. Labour, Compensation Rule and Labour Supply Situation

Visas

- Labour Visa (LA-B2 visa) : the most common visa for foreigners living and working in Laos. The LA-B2 visa must be applied for before entering or arriving in Laos, and cannot be applied for while in Laos. The applicant needs to have secured employment in Laos with a locally-licensed entity, and obtain a sponsorship letter from the employer. The employer will need to seek approval from the MFA and present a financial guarantee for the foreign applicant. The LA-B2 visa can be valid for three, six, or 12 months.
- Investor Visa (NI-B2 visa): for foreigners investing in a locally-registered enterprise. Investors, stockholders, technical officers, and company directors can apply for this visa at the Ministry of Planning and Investment. Applicants will need to provide an investment license or enterprise registration certificate as proof when applying for the NI-B2 visa. Investors that have both the NI-B2 visa and an SP can apply for a multiple entry Investor Visa, which is valid for three, six, or 12 months.

Travelling to Laos

Hong Kong citizens are permitted to stay in Laos for 30 days visa-free.

F. Religious and Cultural Concerns or Considerations^{8,9}

Religion

Freedom of religion is protected by the Constitution but the government supervises religious affairs. The largest religion in Laos is Buddhism, practised by 65% of the population. Christianity is practiced by approximately 2% of the population. Traditional indigenous religions and other religions make up the remainder.

Culture

Business relations are heavily influenced by personal relationships, and employers often hire their family members or close friends. Hierarchy also plays a significant part in the running of a business, and therefore the decision-making process can sometimes be inefficient.

4. Labour, Compensation Rule and Labour Supply Situation

Source:

¹ *Labour Law, Lao PDR, 2013*

² *Laos Increases Minimum Monthly Wage for the Third Time in Eight Years, ASEAN Briefing, 2018*

³ *Law on Social Security, Lao PDR, 2013*

⁴ *Total Labour Force (Laos), The World Bank*

⁵ *Industry (including construction), value added per worker (constant 2010 USD), The World Bank*

⁶ *Lao PDR Labour Force Survey 2017, Ministry of Planning and Investment and Lao Statistics Bureau*

⁷ *The Guide to Employment Permits for Foreign Workers in Laos, ASEAN Briefing, 2017*

⁸ *The Religious Beliefs in Laos, World Atlas, 2018*

⁹ *Lao Culture, Cultural Atlas, 2019*

5. Research and Development Environment

Executive Summary

Laos is trying to develop an entire Science Technology and Innovation (STI) ecosystem by implementing the Science and Technology Development Strategy (STDS). The country's objective is to build infrastructure, train the workforce, promote knowledge transfer and change the management structure in order to enhance Laos' STI capabilities and level up with the neighbouring countries.

Despite efforts to foster science and technology (S&T) collaboration with other countries, and establish new intellectual property laws, the country's capabilities are still very limited. Laos lacks specialised infrastructure, universities, and human resources. The private sector also doesn't have an impact on the regional scene. In addition, there is a lack of appropriate funding for domestic and foreign investors to facilitate their efficient development.



5. Research and Development Environment

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

Over the 2016-2020 period, Laos is implementing the 8th National Socio-Economic Development Plan (NSEDP). The main objective is to implement strategies paving the way to meet the Vision2030: transforming Laos from one of the least developed countries to an upper-middle income country. In the NSDEP, S&T has been identified as one of the eight main implementing measures to realise the vision.

A. Policy and Trends in S&T

The Science and Technology Development Strategy 2013-2020 (STDS)¹

With this strategy published by the Ministry of Science and Technology (MOST), Laos aims to develop an efficient science, technology and innovation (STI) ecosystem, which is able to drive the country's socioeconomic development and promote a sustainable national growth. The main target for 2030 is for Laos' STI capabilities to reach that of the neighbouring countries.

According to the government, STI is a key lever to be used in order to meet Laos' needs in terms of industrialisation, modernisation and sustainable development. The country is therefore focusing on developing a comprehensive STI ecosystem by:

- Establishing scientific and social science education programmes to train a skilled workforce;
- Building the necessary infrastructure for the development of S&T activities;
- Promoting knowledge transfer domestically and internationally; and
- Modernising the STI management system.

In order to evaluate the progress of the STDS' implementation, the MOST has set intermediate and long-term targets. For 2020, the objectives are as follows:

- Research and development (R&D) expenditures should represent between 0.45% and 1% of the national GDP;
- The private sector should account for 15% of total S&T spending in the country;
- Reach a researcher ratio of between seven and eleven researchers per 10,000 people; and
- The value-added output of STI activities should account for 8% of the national GDP.

Outlook²

Despite the government's efforts, Laos' S&T capabilities are minimal. According to the Global Competitiveness Report 2018, the country ranked 117th out of 140 countries in the "Innovation Capability" category, behind every other ASEAN country (other than Myanmar, which was not ranked in this report). The country's lowest scores were in the categories of trademark applications (124th), scientific publications (115th) and quality of research institutions (112th). In addition, Laos was not even ranked in the R&D expenditure criteria as the percentage of the country's GDP spent on R&D activities is unknown. However, Laos had average rankings in buyer sophistication (52nd), and multi-stakeholder collaboration (52nd).

B. S&T Related Organisations¹

The Ministry of Science and Technology (MOST)

The MOST is in charge of all the STI-related activities in the country including intellectual property (IP) standards and measurements. Its main objective is to develop a strong STI ecosystem which should enable the country to achieve a sustainable and inclusive growth, and fight against poverty. The main missions of the MOST are:

- Drafting and implementing S&T supporting policies, plans, programmes and laws;
- Supporting companies with their R&D activities with tests, validations, certifications or IP related services and increase the R&D applications;
- Fostering the access to S&T education by encouraging S&T trainings, developing trainings materials and supporting academics; and
- Investigating the development of STI infrastructure and coordinating with all stakeholders.

In order to carry out its missions, the MOST relies on its Departments and Institutes, which all have very specific goals, such as:

- Department of Planning and Cooperation: acts as a liaison with the Ministry of Planning, and also researches, compiles, and formulates short and long-term programmes and strategies;
- Department of Science: mainly focuses on nuclear security in the country and coordinates with regional authorities to monitor and manage scientific activities;
- Department of Technology and Innovation: interacts with research institutes, educational institutes, and the private sector in order to promote knowledge transfer; and
- Institute of Management Science and Technology: promotes and upsills S&T staff (i.e researchers and technicians) in order to enhance the effectiveness of S&T activities in the country.

In addition, the MOST manages three specialised research institutions which mostly focus on:



Biotechnology



Ecology



New Materials




Renewable Energy

II. *The Infrastructure of Science and Technology*





A. Government R&D Institutes and/or Funding Agencies³

In Laos, there are only a few R&D centres. Most of them are managed by different government ministries. Below is an overview of the country’s major R&D centres.

Government R&D Institutes (Part 1/2)

Ministry	Institute	R&D
Ministry of Science and Technology	Institute of Computer and Electronics Technology	 <div>Focused on electronics technologies:<ul style="list-style-type: none">• Software, hardware, internet of things, artificial intelligence, cyber security, etc.</div>

Government R&D Institutes (Part 2/2)

Ministry	Institute	R&D
Ministry of Science and Technology	Institute of Ecology and Biotechnology	 <p>Focused on ecological and biological technologies:</p> <ul style="list-style-type: none"> • Chemical, genetic, biomedical, and agricultural technologies, etc.
	Renewable Energy and Materials Institute	 <p>Renewable Energy Research Centre:</p> <ul style="list-style-type: none"> • Alternative energies, bio-energies, and mechanical engineering, etc.
Ministry of Agriculture and Forestry	National Agriculture and Forestry Research Institute	 <ul style="list-style-type: none"> • Carries out applied research in agriculture, forestry and fisheries; • Assists in formulating strategies related to these topics; and • Develops methods, tools, and information packages.
Ministry of Health	Pasteur Institute of Laos	 <p>Comprised of 4 laboratories focusing on research in:</p> <ul style="list-style-type: none"> • Emerging viral, infectious, parasitic, and vector-borne diseases.

B. University-based R&D Institutes^{4,5}

None of Laos' universities are ranked in the 2019 QS Asia University Rankings. The ranking comprises around 500 institutes that are evaluated based on criteria such as academic reputation and citation per faculty. Consequently, the few R&D activities carried out in Laos' universities make nearly no impact on the regional or international scene.

The research focus of the two main universities in the country is provided in the table below.

University	Research Fields in the University
National University of Laos	<p>The latest official scientific articles published were related to:</p> <ul style="list-style-type: none"> • Information and Communications Technology; • Mathematics; and • Renewable Energy (hydropower, wind and solar power). <p>In addition, the institution published articles related to economics and international relations.</p>
Souphanouvong University	<p>The university conducts academic research aimed at improving the socio-economic development of the country. It also cooperates with local and international agencies to foster its research capabilities.</p>

C. Private Business Firms (Research Centres)^{6,7,8}

Private sector participation in the Laos' R&D activities is still limited. However, to offset the lack of private initiatives, the government is trying to create strong S&T-related links with its neighbouring countries. Below are three examples of Laos's cooperation with other countries:






- Laos and Vietnam: the two countries cooperated on a project called "Strengthening Capacity of Scientific Research and Technology Deployment for the Laos National Academy of Science (LNAS)". Vietnam is bound to invest USD 2.8 million in order to help the country create the LNAS, invest in scientific equipment and train a sufficient competent workforce;
- Laos and Thailand: the two countries created the Laos-Thai Committee of Cooperation on Science, Technology and Innovation. This committee aims to identify possible co-projects to implement in fields such as water management, bio-energy, food security and safety or health;
- Laos and Mainland China: the two countries signed an agreement to set up a joint S&T commission which will focus on fostering international cooperation in the identified priority fields. A few examples of actions are: sending scientists and researchers to Laos for knowledge transfer purposes, organising seminars and technical trainings, or carrying out joint research projects.

D. Infrastructure Availability for Foreign Investments^{9,10}

There is no specific R&D infrastructure available for foreign investments highlighted by the various ministries. However, Laos is keen on attracting foreign investors in order to meet the STDS objective (they should account for 15% of the country's total R&D spending by 2020). Therefore, the country is leveraging its relationship with neighbouring countries to create business opportunities for private investors. For example, the Laos-China Park of Science & Technology in Modern Agriculture, which focuses on biotechnologies was established in 2013 with the help of the Shenzhen BGI Genomics. In addition in 2018, Mainland China's Yunnan Normal University cooperated with the MOST to create a renewable energy lab. Therefore, it seems that foreign investors can cooperate with Lao government to create their own S&T infrastructure.

III. Priority Areas in Laos (major exports)^{11,12}

Laos' export and economy strongly rely on natural resources. In 2018, Laos' top five exports were:

Top Five Exports		% of Total Exports (in 2018)
	Mineral Fuels (including oil)	25.7%
	Electrical Machinery (equipment and parts)	13.7%
	Ores, Slag and Ash	11.3%
	Copper and Related Products	9.0%
	Other Commodities	7.2%

According to the latest data available, Laos managed to upgrade its exports and produce hi-tech products. In 2018, hi-tech products (e.g. products with high R&D intensity, such as in aerospace, computers or pharmaceuticals), represented around 34% of total manufactured exports, which is higher than Vietnam or Malaysia.

IV. Funding for S&T R&D^{13,14,15}

The lack of governmental funding directed at S&T or R&D activities is one of the main issues in Laos. Currently, most of the research activities are funded by foreign investors which focus on topics such as agriculture, health or the environment. Therefore, the local Laos industry does not receive sufficient R&D funding to upgrade its production and contribute to the country's competitiveness increase. Below are two examples of foreign institutions funding R&D activities:

- The European Union collaborates with the National Institute of Public Health and the University of Health Sciences in Laos to fund the LEARN programme. It aims to enhance local public health institutes capabilities. However, the funding is very minimal as the maximum grant for each project is around USD 45,000.
- The Canadian International Development Research Centre (IDRC) has been funding research projects in the country for more than 30 years. Since 1987, the IDRC funded 53 projects related to poverty alleviation, sustainable use of natural resources or Internet access development, worth a total amount of USD 10.2 million.

Foreign manufacturing investors looking to expand their footprint to Laos might also seek funding from the MOST. Through its multiple agencies (e.g. Department of Technology and Innovation, Institute of Management Science and Technology), the ministry supports R&D and S&T activities in the country. However, the MOST's total budget or its total amount dedicated to funding activities is unknown.

V. Human Resources for S&T^{16,17}

Laos's S&T labour force is very scarce. According to the latest data available which is from 2002, the ratio of researchers in R&D was 16 per 1 million people. At a country level, this adds up to just over 100 full time researchers only. Laos is not ranked in the INSEAD's 2019 Global Innovation Index.

However, in line with the STDS' goal to train a skilled workforce, the government opened the country's first official S&T human resources training centre in Vientiane in 2018. The centre, which will train around 600 and 800 "scientific managers" per year, cost around USD 4.2 million and was mostly financed by the Vietnamese government.

VI. Support in Testing and Certification⁸

In Laos, support in testing and verification can be obtained from the MOST, and more specifically, the Standardisation and Measurement Department (SMD) which operates under it. Indeed, one of the missions of the MOST is to support companies with their R&D activities (e.g. tests, validations, certifications or IP related services) and the related services provided by the SMD include, industrial testing support, measuring equipment's calibration, products quality verification, prototypes or documentation verification etc. In addition, the SMD participates in international studies on measurements standards and their implementation.

VII. Intellectual Property Policy^{19,20}

Laos is not ranked in the 2019 IP Index published by the Global Innovation Policy Center (GIPC), which compares IP protection frameworks in 50 different countries.

In May 2018, the country published the new Law on Intellectual Property (“New IP Law”), which replaced the IP Law enacted in 2011. This new framework, which covers trademarks, industrial designs, patents and copyrights, is a way for the government to support the country’s participation in international trade by attracting and protecting domestic and foreign investors.

Trademarks

The scope of registrable trademarks has been extended to include 3D and animated images. The new laws introduced an opposition procedure which allows third party to contest a trademark within 60 days preceding the publication (previously, the cancellation procedure could span over a few years). In addition, trademarks are now protected for 10 years starting from filing date (against the registration date before). The 10-year protection periods are renewable.

Industrial Designs

No major updates except for the setting of an opposition procedure. Designs are protected for an initial period of five years (from filing date) and can be renewed every five years up to a maximum of 15 years.

Patents

The new law states that patents which could pose a threat (e.g. to public health or the environment), will now be automatically rejected. In addition, third parties will also have the opportunity to oppose the registration of a patent within 90 days preceding the registration. Patents are protected for 20 years.

Copyright

No major framework updates in the New IP Law. Copyright protection can vary from 25 to 50 years according to the nature of the work.

Source:

¹ *Ministry of Science and Technology Homepage*

² *The Global Competitiveness Report 2018, World Economic Forum*

³ *Related Ministries and Institutes homepages*

⁴ *QS World University Rankings, QS Asia University Rankings 2019*

⁵ *National University of Laos homepage*

⁶ *Laos, Vietnam strengthen science, technology cooperation, Asia News Network, 2018*

⁷ *Laos, Thailand extend science and technology cooperation, Asia News Network, 2017*

⁸ *China-Laos Science and Technology Cooperation Agreement Signed in Vientiane, MOST China*

⁹ *BGI Laos homepage*

¹⁰ *China, Laos inaugurate joint lab for renewable energy study, XinhuaNet, 2018*

¹¹ *Trade Map, International Trade Centre*

¹² *High-technology exports, The World Bank*

¹³ *Mapping Research and Innovation in Laos, UNESCO, 2018*

¹⁴ *IDRC Laos homepage*

¹⁵ *Open Call for Research Grants, Lao Tropical and Public Health Institute*

¹⁶ *Researchers in R&D (per million people), The World Bank*

¹⁷ *Vietnamese, Lao PMs attend training centre's inaugural ceremony, Customs News, 2018*

¹⁸ *Standardization and Measurement Department homepage*

¹⁹ *Intellectual Property Protection in Laos, HKTDC, 2018*

²⁰ *New Law Reforms Lao Intellectual Property Regime, Tilleke & Gibbins, 2018*

6. Supply Chain Environment

Executive Summary

Laos' economy is still heavily dependent on the agricultural sector. Most of its population works in agriculture and related industries, with many suffering in poverty. Through Vision2030, the Lao government aims to transform Laos from a low-income country to a middle-income one, by developing industries such as agriculture and energy.

As the only landlocked nation in Southeast Asia, Laos has limited trade routes passing through the country. Poor infrastructure and logistics facilities have only further exacerbated this problem. However, the Lao government, with assistance from foreign countries such as Mainland China, aims to transform the country from “landlocked” to “land-linked”, and become a major transportation channel in the region.



6. Supply Chain Environment

I. Industry Profiles in Laos

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

Laos’ major sectors by gross domestic product (GDP) in 2017 were services (45.9%), industry (33.2%) and agriculture (20.9%).

In Laos, the service sector mainly includes tourism, distribution, telecommunications, and finance. The major industries are mining and textiles. The primary products dominating the agricultural industry are rice, coffee, rubber, and corn.

In 2018, Laos’ total global shipments amounted to USD 5.6 billion of which over 80% were contributed by its top 10 exports.

Product Groups (Note)	Value in 2018	% of Total Exports
1. Mineral fuels including oil	USD 1,428 million	25.7%
2. Electrical machinery, equipment, and parts	USD 761 million	13.7%
3. Ores, slag, and ash	USD 632 million	11.3%
4. Copper and related products	USD 502 million	9.0%
5. Other commodities	USD 400 million	7.2%
6. Wood and related products	USD 266 million	4.8%
7. Apparel and clothing, not knitted or crocheted	USD 182 million	3.3%
8. Rubber and related products	USD 170 million	3.1%
9. Wood pulp and recovered paper	USD 128 million	2.3%
10. Fertilisers	USD 126 million	2.3%

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 the following link: www.censtatd.gov.hk/trader/hscode/index.jsp

Agriculture is one of the main industries in Laos. In 2017, the country was the second largest exporter of rough wood in Asia, the sixth largest exporter of rubber in Asia, and the sixth largest exporter of coffee in Asia.

Laos is also one of the countries richest in natural minerals in Asia. As such, mining is a major industry in the country. The country was the sixth largest exporter of copper ore in Asia in 2017. It also exports gold, iron, zinc, and tin.

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

The Vision2030 plan prepared by the Lao government aims to turn Laos from a low-income economy into a middle-income one. It includes extensive reforms and improvements in many aspects of the country, covering poverty, hunger, healthcare and education, water and energy, and infrastructure, among others. The plan also specifies a list of industries which are strategically important for Laos' development. Two of the main industries in Vision2030 are the agriculture and energy sectors.

A. Supply Chain Policy for Key Supported Industries and Local Supply Situations



Agriculture

Agriculture is a major industry in Laos. In 2017, agriculture accounted for 21% of Laos' GDP with 73% of the country's total labour force being involved in the agricultural, forestry, or fishery industries. However, due to low agricultural productivity, Laos is not a major player in the global market in any of its main agricultural crops (e.g. rice, coffee, rubber, and corn).

This low agricultural productivity can be explained by four main factors: low quality seeds, limited technical skills, limited infrastructure, and limited resistance to climate variations. In particular, the country is especially vulnerable to floods and droughts. For example, the many rivers of the Mekong River system in Laos can cause floods during the raining season. In 2018 alone, around 300,000 tonnes of rice were lost due to flooding in the wet season, with about 101,000 hectares (ha) planted area of rice being affected. In the future, improved irrigation systems and infrastructure will help the country minimise the impact of climate change on its agricultural sector.



Energy

The energy industry is critical for the future success of Laos' economy. Not only is the country rich in fossil fuels such as oil and gas, but the Mekong River system running in the country also provides Laos with an extensive source of hydropower. According to the Ministry of Energy and Mines, there are 61 operational hydropower plants in Laos, and the government is aiming to have a total of 100 plants by 2020. This additional dams are expected to help the country double its 2018 power generation. Using this sustainable source of energy, Laos aims to be the regional power source by 2025, and sell around 15,000 megawatt of electricity annually to neighbouring Southeast Asian nations.

However, hydropower causes some political and environmental issues. All the dams across the Mekong River and its tributaries could negatively affect the flora and fauna downriver, and disrupt the ecosystems. Additionally, countries such as Cambodia and Vietnam who are located downstream from the dams will also be affected, as they rely on the Mekong River for fishing, agriculture or transport.

Other than the ecological impacts, some recent events are raising concerns about dam safety. In July 2018, a dam collapse caused 40 death and hundreds missing, and led to the displacement of over 6,000 people living in the surrounding region.

III. Key Raw Materials Sourcing Platforms/Channels⁷

The Department of Import and Exports (DIMEX) and the Lao National Chamber of Commerce and Industry (LNCCI) jointly created Plaosme.com. The website aims to support Laos' small and medium-sized enterprises (SMEs) in their e-commerce and exports activities, both within ASEAN and around the world. Plaosme.com also helps businesses connect with suppliers of raw materials across multiple industries.

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

A. Hurdles or Problems Encountered

The two main issues facing Laos are the high logistics costs and the unknown potential of the country's natural resources:

- The country's poor transportation infrastructure induce high transportation time and logistics costs. Due to the development gap between Laos and its neighbouring countries, many trucks returning to Laos are not fully loaded, or even empty. This leads to even higher logistics costs.
- Laos has many unexplored and unexploited natural resources, ranging from undeveloped rivers for hydropower and fishing, to land for mineral resources. However, the government has not conducted any basic surveys regarding the country's mineral resources. Therefore, there is no information on the quantities of precious minerals and metals that can be used in Laos, leading to many resources remaining untapped.

Through Vision2030, the Lao government is aiming to improve the above-mentioned issues, among others. In 2018, the government found that both the control of natural resources and the development of infrastructure in Laos have seen large improvements since the start of Vision2030 in 2016.

According to a 2019 report by the World Bank, Laos is ranked 154th in the world in Ease of Doing Business, and is ranked ninth out of the ASEAN countries (Hong Kong is ranked fourth in the world in the same report). Laos ranks comparatively well in getting credit (73rd), trading across borders (76th), and registering property (85th), but performs poorly in enforcing contracts (162nd) and resolving insolvency (168th).

B. Efficiency of Customs and Clearance Process^{8,9}

Laos applies two systems of tariffs classification. The 8-digit ASEAN Harmonised Tariff Nomenclature (AHTN) is used for trade transactions between Laos and the other ASEAN countries, whilst the 6-digit Harmonised Commodity Description & Coding System (commonly known as the HS Code) applies for trade with non-ASEAN countries. All imported and exported goods into/from the country must be categorised using the HS Code.

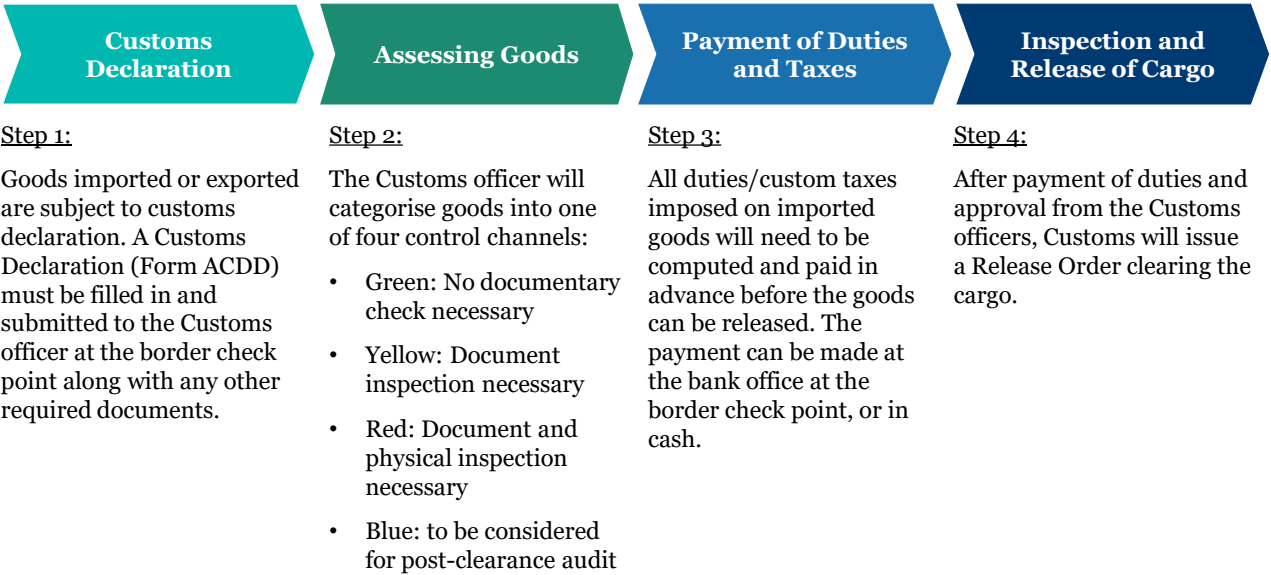
All the goods imported are liable for customs duty, and value added tax. Certain goods will also be subject to excise tax. Any goods arriving from other ASEAN countries may benefit from preferential rates according to the ASEAN Free Trade Agreement. Goods exported generally are not subject to export duties. However, certain items such as precious stones, gas, oil, and timber, are subject to export duties.

All businesses wishing to import or export goods must register with the Department of Enterprise Registration and Management under the Ministry of Industry and Commerce. Certain goods will also require an import/export license, which can be acquired from the DIMEX. DIMEX separates goods into three categories: 1) not requiring license, 2) requiring automatic license, and 3) requiring non-automatic license. Goods in the automatic license category only need to satisfy basic statutory requirements, but goods in the non-automatic license category will need approval from DIMEX for import/export, and may also require approval from certain ministries. For a list of goods requiring specific permits and licenses, please refer to the official website of the Lao PDR Trade Portal

(www.laotradeportal.gov.la/index.php?r=site/index)

Laos uses the Automated System on Customs Data (ASYCUDA) at 11 border check points, including at Wattay International Airport.

Customs Clearance Process¹⁰



The following table shows the supplementary documents needed for customs declaration:

	Import and Export Goods
1	Invoice
2	Packing list
3	Tax registration
4	Business license
5	Bill of lading/carriers report
6	Import/export customs declaration
7	Import/export license (if necessary)
8	Any other product specific required documents

V. Logistics Support

A. Infrastructure Conditions (e.g. major airports/ports/highways)^{11,12,13,14,15}

Laos has traditionally suffered from being a landlocked country (without access to the sea) as it is cut off from major international trade routes. Poor logistics and transportation infrastructure, as well as economic inequality with neighbouring countries, have further limited trade between Laos and the other countries in the region. The strategy under Vision2030 is to take advantage of the country’s position between the major Southeast Asian economies of Vietnam, Thailand, Cambodia, Myanmar, and Mainland China in order to become the regional “land-link” between them.



Airports

Laos has five international airports: Wattay International Airport (VTE) in Vientiane, Luang Prabang International Airport (LPQ), Pakse International Airport (PKZ) in Champasak, Savannakhet International Airport (ZVK), and Attapeu Province International Airport (AOU). Tourism is an important industry in Laos. In 2017, around 3.9 million tourists visited the country. It is estimated that 16% of them came from Mainland China as the country is one of Laos’ major sources of tourists.

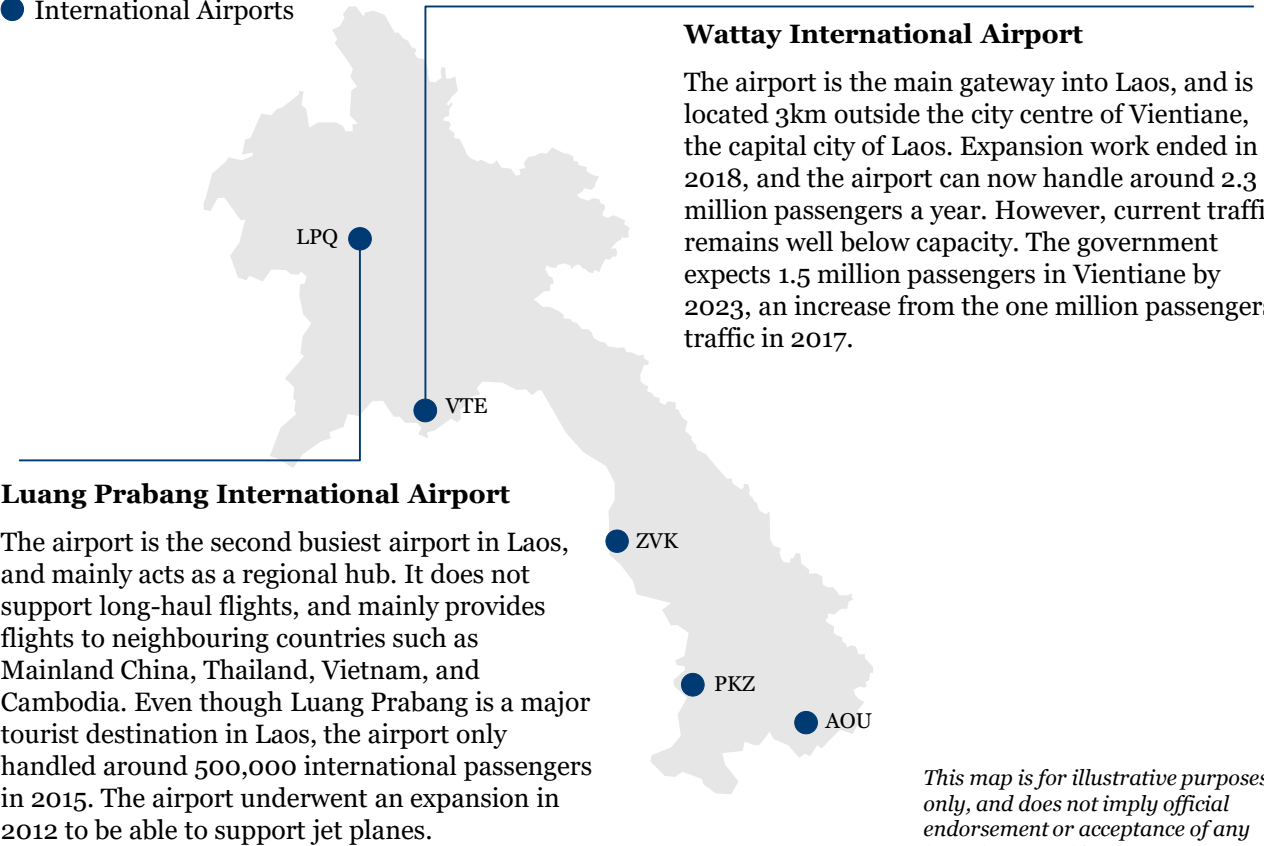


Seaports

As a landlocked country, Laos does not have any seaports. The main river in Laos is the Mekong River, but rapids, waterfalls, and seasonal variation in the river make navigation difficult. Therefore, the Mekong River is not a major method for freight transport in Laos.

Location of Major Airports

● International Airports





Highways

Laos' road network is 60,000 km long, with eight Asian Highways (AHs), totaling 2,816 km, connecting the country with bordering countries. However, only two of the eight AHs have a road bearing capacity of 50 tonnes. As of 2017, only 9,251 km of the country's roads (around 15%) were paved. Despite this, nearly 90% of passengers and 80% of freight use road transport.

The Lao government has invested in developing the country's transportation infrastructure, and around 85% of the rural population now has all-weather road access. In addition, Laos has built "friendship bridges" with two neighbouring countries in order to facilitate trade and transportation across the Mekong River system. There are currently four bridges built with Thailand (and the fifth bridge agreed), and one bridge with Myanmar.



Railways

The rail network in Laos was originally built by the French during the colonial period, but is no longer in use. The only current railway in Laos is the railway from Thailand that stops in the border town of Thanaleng.

Under Mainland China's Belt and Road Initiative (BRI), a USD 7 billion railway line between Kunming in Yunnan Province and the Lao capital of Vientiane is being built. The project is mainly paid for by the Chinese government and loans from Chinese financial institutions. The line has been half completed as of March 2019, and is expected to open for service in December 2021. The railway will eventually extend to Bangkok, then down through Malaysia to Singapore.

B. Key Logistics Hubs¹³

Laos currently has weak logistics infrastructure, and weak domestic logistics capabilities. Improving the logistics infrastructure is a major part of Vision2030, the major policy guiding the country towards becoming a middle-income economy. One of the major goals of Vision2030 is to develop three international logistics parks in Vientiane, Luang Namtha, and Savannakhet, as well as six more regional logistics parks in the regions bordering Vietnam and Thailand. The first of the logistics parks, Vientiane Logistics Park, will be jointly developed by Singapore's Pacific Logistics Group and Laos' Sitthi Logistics, with the Hong Kong logistics company Kerry Logistics also constructing a dry port in the park.

Through the development of logistics and transportation infrastructure, the Lao government aims to turn the main country's weakness (being landlocked) into a strength. Laos should become the connecting regional logistics hub between Mainland China and the surrounding Southeast Asian countries. Laos envisions itself to become the "land-link" or "land-bridge" for the region.

C. Logistics Information Tractability and Transparency¹⁶

Laos has a poor logistics performance as compared to other ASEAN countries. In the 2018 World Bank's Logistics Performance Index (LPI), Laos was ranked 82nd out of 160 countries for the overall LPI, a large improvement from the 2016 result (ranked 152nd out of 160). Laos ranked eighth amongst 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. Laos ranked relatively well in Customs (74th) and Tracking and tracing (69th), but performed poorly in Infrastructure (91st) and Timeliness (117th).

Source:

- ¹ *Trade Map, International Trade Centre*
- ² *The World Factbook: Laos, Central Intelligence Agency*
- ³ *Cambodia, Observatory of Economic Complexity*
- ⁴ *Voluntary National Review on the Implementation of the 2030 Agenda for Sustainable Development, Government of the Lao People's Democratic Republic, Jul 2018*
- ⁵ *Laos seeks to become regional hub for electricity transmission by 2025, Xinhua, Feb 2019*
- ⁶ *Moon orders dispatch of emergency relief team to Laos, Korea Herald, Jul 2018*
- ⁷ *Plaosme official website*
- ⁸ *Import and Export Procedures in Laos – Best Practices, Dezan Shira & Associates, Mar 2018*
- ⁹ *Import/Export Procedures of Laos, HKTDC, Feb 2018*
- ¹⁰ *Customs Clearance for Imports (Asycuda), Lao PDR Trade Portal*
- ¹¹ *Vientiane Airport: international expansion as China tourism booms, CAPA – Centre for Aviation, Sep 2018*
- ¹² *Luang Prabang Airport: Laos resort to grow rapidly in 2016 as AirAsia, HK Express, SilkAir enter, Feb 2016*
- ¹³ *Strategy on Freight Transport and Logistics Development in Lao PDR, Ministry of Public Works and Transport, Oct 2018*
- ¹⁴ *Thailand, Laos sign agreement on 5th friendship bridge across Mekong River, Xinhua, Jun 2019*
- ¹⁵ *China's US\$7 billion railway link to Laos is almost half done, on schedule to begin service in 2021, SCMP, Mar 2019*
- ¹⁶ *Logistics Performance Index (LPI), The World Bank, 2018*

7. Infrastructure

Executive Summary

Laos' infrastructure and industrial estates ecosystem are developing with the assistance of and funding from foreign investors.

There are currently five industrial estates in the country located inside the Special Economic Zones (SEZs). Laos also has two additional SEZs which mainly host and cater to manufacturing companies. The industrial estates and SEZs are mainly concentrated around three strategic locations: Vientiane (Laos' capital), the Thai border, and the Lao border with Mainland China.

Laos is a landlocked country with low quality infrastructure. However, the country's infrastructure pipeline is very healthy as Laos benefits from the heavy investments provided by Mainland China in the context of the Belt and Road Initiative (BRI). Additional investments from Thailand or Hong Kong are expected to help Laos transform into a land-linked country.



7. Infrastructure

I. List of Major Industrial Estates and Geographical Locations⁴

A. Availability of Infrastructure, Associated Cost of Usage, and Options for the Major Industrial Estates

The development of Laos' major industrial estates is linked with the establishment of Special Economic Zones (SEZs) in the country. Generally, these zones are designed to attract local and foreign manufacturing investors, in strategic locations such as in Vientiane, or on the borders with Thailand and Mainland China. To reach this objective, the government jointly developed both SEZs and industrial estates.

Mainland China and Hong Kong companies looking to expand their manufacturing footprint in Laos can choose to establish their operations in five industrial estates, which are located in the following SEZs: Savan-Seno, Vientiane Industrial Trade Area (VITA), Saysetha, Phoukhyo and Pakse-Japan SME (Pakse). These industrial estates were developed by various parties such as the Lao government, Lao private investors or foreign private investors (e.g from Mainland China or Japan).

In addition to the above SEZs with industrial estates, there are six other SEZs in Laos. Two of them (Golden Triangle and Boten Beautiful) host companies engaged in manufacturing activities, whereas the other four only provide distribution facilities or are mainly residential zones.

Support and Incentives

When considering establishing in Laos' industrial estates and/or SEZs, it is important to consider the existing utilities, the transportation infrastructure available, and the incentives provided by the government.

Utilities

The industrial estates are generally equipped with water supply stations, wastewater treatment plants and a reliable electricity supply. In addition, they offer investors access to housing, shopping, education, and leisure facilities.

Transportation

The country's main industrial estates are located near Vientiane (where the most developed transportation infrastructure is available), or near strategic locations such as the Lao-Thai Friendship Bridges (which are roads/bridges connecting the two countries).

Government Incentives

Investors choosing to locate their manufacturing operations in Laos' industrial estates or SEZs will be mainly granted fiscal incentives. These incentives vary according to the sector in which the investor is engaged. However the two main types of fiscal incentives are:

- Profit tax exemption for between three to 10 years;
- Reduced corporate income tax rate after the end of the profit tax exemption period.

For further details regarding incentives, please refer to section 9 of this report or the Invest Laos official homepage (www.investlaos.gov.la/index.php/where-to-invest/special-economic-zone?start=1)

Location of Industrial Estates and SEZs

● SEZs with Industrial Estates ● Other SEZs

Golden Triangle

- Total Investment: USD 87 million
- Developer: Lao government and Mainland Chinese private investors
- Area: 3,000 hectares (ha)
- Industries: Hosts multiple manufacturing companies, warehouses and transportation facilities

Boten Beautiful

- Total Investment: USD 500 million
- Developer: Mainland Chinese private investors
- Area: 1,640 ha
- Industries: Hosts multiple manufacturing companies, warehouses and distribution facilities

Saysetha

- Total Investment: USD 128 million
- Developer: Lao government, Mainland Chinese and Lao private investors
- Area: 1,000 ha
- Industries: Hosts companies manufacturing agricultural and woods products, electric appliances, machinery; and companies engaged in light industry or new energy

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

VITA

- Total Investment: USD 43 million
- Developer: Lao government and Taiwanese private investors
- Area: 110 ha
- Industries: Hosts companies manufacturing apparel and footwear, bicycle or electronics parts; and warehouses and distribution facilities

Phoukhyo

- Total Investment: USD 708 million
- Developer: Lao private investors
- Area: 4,850 ha
- Industries: Hosts goods manufacturing companies, spare parts assembly factories, air/road transportation networks and shipping services

Pakse

- Total Investment: USD 63 million
- Developer: Lao government, Lao and Japanese private investors
- Area: 195 ha
- Industries: Hosts multiple manufacturing companies

Savan-Seno

- Total Investment: USD 74 million
- Developer: Lao government
- Area: 954 ha
- Industries: Hosts companies manufacturing electrical wires, apparel and clothing, footwear; and automobile and electronic parts assembly lines

Not all SEZs are shown on this map. The four excluded SEZs are: Thakhek and Dongphosy (which only host warehouses and distribution facilities), and ThatLuang Lake and Longthanh (which are mostly residential or service focused zones).

Foreign Direct Investment (FDI)²

Despite introducing a new law that favours investments, in 2018, Laos only received around USD 1.3 billion in FDI, a 13% decrease compared with USD 1.5 billion in 2017. In 2018, the country's main investors were its neighbouring countries: Mainland China, Vietnam and Thailand. When considering the country's accumulated FDI over the last 10 years, 80% are concentrated in projects related to hydropower production and mining exploitation. In addition, new projects around transportation infrastructure or agro-forestry are also attracting an increased amount of foreign capital.

Cost of Usage

Companies choosing to locate their manufacturing operations in Laos' industrial estates or SEZs are usually charged with three main types of fees: 1) land leasing, 2) maintenance fee, and 3) water and electricity fees.

According to the Ministry of Planning and Investment, when considering land leasing cost, VITA, followed by Savan-Seno are the most expensive locations. However, when considering utilities such as electricity or water fee, other industrial estates (e.g. Phoukhyo) come out on top.

For more details on specific costs, please refer to Appendix 1.

Outlook^{3,4}

In Laos, the SEZ ecosystem (which harbours industrial estates) is still developing. As of 2018, there are 11 operational SEZs in the country. Nevertheless, 38 more projects are planned and should therefore provide foreign companies additional investment opportunities or venues to locate their manufacturing operations. In addition, Laos is a key country in Mainland China's Belt and Road Initiative (BRI), which is designed to establish numerous infrastructure in multiple countries across Asia and Europe. Therefore, some foreign companies are thinking about investing in Laos in order to benefit from the BRI. For example, Amata (a major Thai industrial estate developer) is considering to develop industrial estates in Laos as it expects that a rising number of Mainland Chinese factories will settle in the country due to the BRI.

B. Land or Building for the Major Industrial Estates

Availability for Foreign Ownership and Terms⁵

According to Lao laws, the government owns the land and only Lao citizens can lease land directly from the government. Therefore, foreign investors are only left with two options: lease land from a Lao citizen or receive a land concession from the government. Based on certain criteria, the maximum allowed lease duration vary from 20 to 50 years, but this may be extended provided that the relevant authorities approve it.

Application Procedures for Business Operations in Laos

Investors wishing to receive a land concession for carrying out manufacturing activities need to submit their request via the Ministry of Planning and Investment's One Stop Service Office. This office will communicate with all necessary authorities (e.g. Committee for Planning and Investment, Provincial Authorities) in order to seek the concession licence approval. The entire procedure should take around 25 days. The investor is required to submit multiple documents (e.g. an economic-technical analysis) to obtain its land concession. For additional details about the procedure, please refer to the Invest In Laos homepage (www.investlaos.gov.la/index.php/start-up/concession-tactical-activities/industrial-services-and-others).

II. Potential Infrastructure Shortfall^{6,7}

In the World Economic Forum's 2018 Competitiveness Report, Laos ranked 99th out of 140 countries for the quality of its infrastructure, which is below every other ASEAN country except Cambodia (and Myanmar, which is not ranked in this report). The country's major infrastructural problems are:

- Very poor road connectivity (130th) and poor road quality (107th);
- Inefficient port services (115th) and train services (105th);
- Comparatively low electrification rate (97th), with only 91.4% of population having access to electricity; and
- Exposure to unsafe drinking water (100th).

In addition, Laos is a landlocked country as it does not have a direct access to the sea. Therefore, the country relies mainly on roads for internal and external trade, however, only a fraction of them are paved. Additionally, infrastructure such as roads, bridges and other ongoing public works are usually impassable or severely damages during the rainy season. The country is subsequently forced to heavily invest in repair work every year. For example, in 2019, the government approved a special budget of LAK 500 billion (around USD 57 million) in order to repair the infrastructure damaged by the floods.

III. Latest and Upcoming Major Local Infrastructure Projects and Spending⁸

Laos' total infrastructure needs and current investment trends are not analysed in the G20 Global Infrastructure Outlook Report.

The Lao government is eager to escape from the status of "Least Developed Country" by 2020. To achieve this objective, the country has identified the construction of new infrastructure and upgrade of existing ones as one of the main strategies. The vision is to transform Laos from a landlocked country into a land-linked country, thus becoming a major connection and logistics hub between Southeast Asian nations (e.g. Thailand or Vietnam) and Mainland China. In order to achieve its vision, Laos is embracing the BRI. Indeed, Mainland China has planned numerous infrastructure projects running through Southeast Asia, most of which are passing through Laos. The country is therefore benefitting from the heavy road and rail investments by Mainland China. Below is an overview of some of the major ongoing infrastructure developments in Laos.

Transportation



Roads^{9,10}

In order to become a land-linked country, the Lao government plans to invest around USD 9.2 billion to build a total of 1,700km of roads. This overall project, which includes the construction of expressways and motorways, is expected to link the country with Vietnam and Mainland China.

- The Mainland China-Laos expressway is a 460 km project connecting Vientiane and Boten, a town near the Chinese border. The country's first expressway is being developed by a Public Private Partnership (PPP) between the Yunnan Construction and Investment Holding Group from Mainland China and the Lao government. Part of this project is the USD 1.3 billion expressway linking Vientiane and Vang Vieng, which is expected to be completed by 2021.



Rail^{11,12}

Laos is an important country in the BRI. The country therefore benefits from Mainland China's plan to connect Singapore to Mainland China's Kunming (Yunnan's capital) via the Pan-Asia Railway Network:

- The China-Laos railway is a 925km project connecting the city of Kunming to Vientiane. The USD 7 billion railway line will be 70% financed by Mainland China and 30% by Laos (through loans from Mainland Chinese financial institutions). The Lao section of the railway is expected to be completed by 2021 and should cut travel time between Boten and the country's capital from three days to three hours. The project's next phase will be focused on connecting this railway line to existing lines in Thailand and Vietnam.



Ports¹³

As a landlocked country, Laos does not have any seaports. However, the country is aiming to develop dry ports to facilitate cross border transport of goods between neighbouring countries:

- The Vientiane Logistic Park will include a dry port co-developed through a joint venture between the Hong Kong company Kerry Logistics, and Sithi Logistics from Laos. The 35 ha-dry port will create a strong logistics hub in Vientiane connecting rail and road infrastructure between Thailand and Mainland China. The new port will mainly be used to transfer cargo between different transportation modes and facilitate distribution of goods in the Greater Mekong Area.



Airports^{14,15,16}

Multiple airport expansion projects being carried out or completed in Laos are the result of various cooperation between the Lao government and other Asian nations:

- Vientiane's airport extension, supported by Japan, was completed in August 2018. The airport can now handle around 2.3 million travellers a year (around nine times its previous capacity).
- The improvement of the Pakse International Airport, costing USD 6 billion, is being financed by Thai government-approved loans.
- The construction of Nong Khang Airport, worth USD 74 million, is being carried out by the Vietnamese Hoang Anh Gia Lai Joint Stock Company.

Utilities



Water¹⁷

With the aim of reducing natural waterways pollution, Laos is considering a major wastewater treatment project in Vientiane. This USD 100 million project would help the city better filter wastewater (e.g. remove chemicals) from households and factories before reinjecting it into rivers. This water treatment project would include the construction of new sewers and the upgrade of existing water and wastewater treatment facilities. This project aims to double Vientiane's water treatment daily capacity.



Energy¹⁸

Laos' electricity production heavily relies on hydropower dams. The current government's plan aims to have 100 operational plants by 2020 with a capacity of 28,000 megawatts, doubling its 2018 capacity. In addition, the country is looking to modernise its entire power sector in order to boost its power export capacity. Hydropower is one of Laos' main sources of revenue, as it is estimated that the country exports around two-thirds of its total production (mainly to neighbouring countries such as Thailand and Vietnam).

Telecommunications¹⁹



The Lao government acknowledges the importance of information and communications technology (ICT) for the country's future economic growth. Some of the main objectives identified by the Ministry of Post and Telecommunications are: increasing internet accessibility, improving internet speed and quality while maintaining low costs. However, despite having set these goals, no official projects are being carried out to reach them.

IV. Availability of Natural Resources^{20,21,22,23,24,25,26}

Natural Resource	Details
Natural Vegetation, Forests and Timber	<ul style="list-style-type: none"> • More than 50% of Laos is covered by forest. • Tropical rainforests are found in the north of the country and monsoon forests are found in the south. • Forest governance is poor in Laos, therefore leading to high rates of illegal logging.
Agriculture	<ul style="list-style-type: none"> • Agriculture accounts for more than 20% of Laos' GDP and employs the majority of the country's workforce (around 75% in 2017). • Rice is the country's major crop as many farmers still practice subsistence agriculture. • Other products include: sweet potatoes, sugarcane, corn, other vegetables and fruits.
Fishing/ Aquaculture	<ul style="list-style-type: none"> • Laos fishing only relies on its inland water resources composed of rivers and streams. • Aquaculture has been rapidly growing in the country over the past years. • The usual fish farms include tilapia and various types of carps.
Livestock	<ul style="list-style-type: none"> • Laos' ruminant production is non-industrial and dominated by small-scale producers who adopt traditional practices. • The Lao government is currently promoting new production techniques in order to increase efficiency and meet the new meat demand.
Water Resources	<ul style="list-style-type: none"> • About 90% of the Lao territory is located within the Mekong River basin. • The country is considered rich in water resources. It is estimated that Laos has per capita water resources of 55,000m³ per year. • The country's major challenge is improving its water resources management.
Minerals	<ul style="list-style-type: none"> • The Lao mining industry has witnessed declining productivity over the last few years resulting in a decreased contribution to the country's economy from the sector. • The Sepon mine (one of the largest gold mines in Laos) is expected to stop operations in 2020 due to resource exhaustion. • The main minerals found in Laos are: gold, copper, zinc or lead.
Coal, Oil and Fossil Fuels	<ul style="list-style-type: none"> • According to the latest data available (2015), electricity produced with coal only represented 14% of the country's total production. • In 2015, Laos inaugurated its largest coal-fired power plant: the Hongase Power Plant, which is composed of three 626-megawatt generators. The electricity produced by the plant is used for internal consumption and is also exported to Thailand.
Renewable Energy	<ul style="list-style-type: none"> • Hydropower is the country's most important power producing resource. • The Lao government plans to have 100 operational hydropower plants by 2020. It is estimated that there are 61 operational hydropower plants in 2018. • In the future, the country will need to diversify its energy production facilities to create a more resilient power system.

Source:

¹ Invest Laos, Ministry of Planning and Investment

² Laos Foreign Investment, Santander

³ Laos' Investment Outlook for 2019, ASEAN Briefing, 2019

⁴ Thai industrial park developer eyes investment opportunity in Laos, Asia News Network, 2018

⁵ Ownership Of Land And Property In Laos, Conventus Law, 2018

⁶ The Global Competitiveness Report 2018, World Economic Forum

⁷ Laos to spend nearly 59 million USD for repairing infrastructure, Vietnam+, 2019

⁸ Laos infrastructure, Open development, 2018

⁹ Laos highway projects to boost ASEAN travel, Bangkok Post, 2019

¹⁰ Lao gov't, Chinese firm ink pact for 1st expressway in Laos, XinhuaNet, 2018

¹¹ China's US\$7 billion railway link to Laos is almost half done, on schedule to begin service in 2021, South China Morning Post, 2019

¹² The great rail dilemma, Bangkok Post, 2018

¹³ Kerry Logistics Signs MoU with Sitthi Logistcs to develop dry port in Laos, Kerry homepage, 2019

¹⁴ Laos airport can now handle 820% more foreign travellers, Nikkei Asian Review, 2018

¹⁵ Parkse International Airport Laos, Airport Technology

¹⁶ Vietnamese company resumes construction of northern Lao airport, XinhuaNet, 2018

¹⁷ Wastewater treatment plant slated for Vientiane, Asia News Network, 2019

¹⁸ Laos hydroelectric power ambitions under scrutiny, BBC, 2018

¹⁹ Lao deputy PM advises on ICT development, Asia News Network, 2019

²⁰ Encyclopaedia Britannica Laos

²¹ Current situation and future prospects for beef production in Lao, AJAS, 2018

²² Overview of IWRM in Laos, ASEAN homepage

²³ Mining sector to contribute less to Lao economy: report, XinhuaNet, 2018

²⁴ Laos Inaugurates Largest Coal-Fired Power Plant Constructed By China, XinhuaNet, 2015

²⁵ Lao PDR Energy Statistics 2018, Ministry of Energy and Mines

²⁶ Identifying Renewable Energy Opportunities for the Laos, NREL, 2018

8. Types of Industries Encouraged by the Local Government

Executive Summary

With the Law on Investment Promotion, Laos defines a list of nine promoted sectors, including the hi-tech, infrastructure, agriculture, and healthcare industries. Mainland China and Hong Kong companies investing in these sectors will generally be granted attractive incentives.

Laos is generally open to foreign investors, and does not prohibit them from investing in any activities. However, foreign companies may need approval from multiple authorities, or may need to comply with specific conditions, in order to carry out activities under the controlled business list or engage in concession-based activities.



8. Types of Industries Encouraged by the Local Government

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

Promoted Sectors under the Law on Investment Promotion

Foreign and domestic investments in Laos are regulated by the Law on Investment Promotion. This Law was amended in 2017 to create a more attractive business environment in the country by providing companies with simplified processes for business applications, licensing and government approvals. The amended law provides a clear list of nine promoted sectors which are eligible for investments incentives. Foreign investors engaging in the nine sectors described below will therefore be eligible for government incentives.



Hi-tech

(e.g. R&D, innovation, and businesses using modern technologies)



Agro-processing Industry

(e.g. eco-friendly agro industry and handicrafts industry)



Agriculture

(e.g. clean agriculture, animal breeding, and biodiversity protection)



Infrastructure

(e.g. development of transportation infrastructure, international linkage services)



Commercial Centres

(e.g. development of exhibition centres and fairs for domestic industrials products)



Healthcare

(e.g. development of hospitals, and pharmaceutical and medical equipment factories)



Finance

(e.g. microfinance institutions)



Education

(e.g. vocational training, skill development projects, and human resources development)



Culture and Tourism

(e.g. eco-tourism, cultural and historical tourism industry)

In addition, the Law on Investment Promotion defines incentives by zones of activities. Companies carrying out activities in sectors not listed above can still be granted incentives if they operate in Zone 1 (poor and remote areas with socio-economic infrastructure unfavourable to investment), Zone 2 (areas with socio-economic infrastructure favourable to investment), or Zone 3 (Special Economic Zones).

For additional information please consult the official Law on Investment Promotion document (www.investlaos.gov.la/images/IP_Law_2016_PDF/Final_IPL_No.14.NA_17Nov2016_Eng_30_Oct_2018.pdf).

II. List of Business Activities that Foreign Participation may be Prohibited or Restricted from^{2,3}

No activities are prohibited from foreign participation in Laos. However, foreign investors may need to obtain multiple approvals from various government authorities in order to carry out activities in the controlled business list or engage in concession-based activities.

Controlled Business List

The Law on Investment Promotion defines two different types of general investments: business activities under the controlled business list, and business activities not under the controlled business list. Activities under the controlled business list are defined as having an impact on the “stability of national security, public order, national fine tradition and environment, society, and nature”. Investors wishing to invest in these activities need to submit an application to the investment one-stop service office. The office will then coordinate with relevant authorities (e.g. local or national administration) and the committee for investment promotion and management in order to review the application. If approved, the office shall issue the company an investment licence and an enterprise registration certificate.

The controlled business list is regularly updated by the government. In 2019, the list includes 44 activities across 14 sectors. Some manufacturing-related examples are described below.

Sector	Activity	Relevant Authority
Processing Industry	<ul style="list-style-type: none"> • Production of oil products • Production of chemicals • Pharmaceuticals manufacturing 	Mine and Energy Authority
Mining and Mineral Processing	<ul style="list-style-type: none"> • Mineral search and exploration • Mineral support services 	Industry and Health Authority
Transport and Warehouse	<ul style="list-style-type: none"> • Air freight transport • Movement of postal services 	Works and Transport Authority

Concession

In addition, some activities in Laos are concession-based. Companies wishing to invest in these sectors need to seek approval from the government, which will then set the concession conditions according to the investment features (e.g. type, size, total value). Generally, a concession cannot exceed 50 years.

The concession-based activities list is regularly updated by the government. In 2019, the list includes 23 activities across seven sectors. Some manufacturing-related examples are described below.

Sector	Activity	Approval Condition
Mining and Processing	<ul style="list-style-type: none"> • Mining of metallic minerals • Mining and processing activities 	<ul style="list-style-type: none"> • Total production must exceed 100,000m³ per year
Public-private Partnership	<ul style="list-style-type: none"> • New projects or infrastructure improvements projects 	<ul style="list-style-type: none"> • Company must have stable and sound financials
Special Economic Zones	<ul style="list-style-type: none"> • Manufacturing, processing or export-focused industry settling in SEZs 	<ul style="list-style-type: none"> • Company must prove to be experienced and successful

For the full list of control and concession-based activities, please refer to the official Law (www.investlaos.gov.la/images/IP_Law_2016_PDF/Final_IPL_No.14.NA_17Nov2016_Eng_30_Oct_2018.pdf)

8. Types of Industries Encouraged by the Local Government

Source:

¹ *New Law on Investment Promotion in Laos, Tilleke & Gibbins, 2017*

² *Law on Investment Promotion, Lao PDR, 2017*

³ *Decree on Controlled and Concession List, Lao PDR, 2019*

9. Key Government Incentives

Executive Summary

Companies investing in the promoted sectors listed in the Law on Investment Promotion are, under certain conditions, eligible for fiscal and non-fiscal incentives. These incentives vary according to the zone in which the companies wish to carry out business, as the Lao government is eager to attract investments in remote areas with low socioeconomic development.

Mainland China and Hong Kong companies looking to expand their manufacturing footprint in Laos can also settle in one of the 11 operating Special Economic Zones (SEZs). However, only seven SEZs are suitable for manufacturing activities. Numerous financial incentives are available for investors carrying out business in Lao SEZs.



9. Key Government Incentives

I. Eligibility on Incentive Programmes for Foreign Investments'

In Laos, investment incentives are granted to companies investing in the promoted sectors defined in the Law on Investment Promotion. Therefore, investments in activities on the controlled business list or in concession-based activities can also benefit from government incentives.

Incentive Eligibility Criteria

In order to be eligible for incentives, the investment must be realised in one of the nine promoted sectors described in the Law on Investment Promotion (please refer to section 8). In addition, the investment must comply with one of the following conditions:

- The company plans to invest a minimum capital of LAK 1.2 billion (around USD 140,000); or
- The company employs at least 30 Lao technical staff; or
- The company uses 50 or more Lao workers with an employment contract of at least one year.

Small and medium-sized enterprises (SMEs) that cannot comply with one of the above-mentioned conditions can still be granted incentives listed in the relevant laws and regulations.

Incentive Card Application

Investments incentives are mainly granted to general investments not included in the controlled business list. For more information on the controlled business list, please refer to section 8. In order to be granted incentives, investors need to first obtain an enterprise registration certificate and an incentive card.

According to the Law on Investment Promotion, foreign companies investing in general investments not included in the controlled business list need to submit an enterprise registration application to the industry and commerce sector authority. Obtaining the enterprise registration certificate should take around 10 days.

Once the enterprise registration certificate is received, the company investing in a promoted sector can submit a request to the investment one-stop service office in order to receive an incentive card.

Incentives

As described in the Law, incentive levels depend on the zone that the investment is placed in. In Laos, there are three different zones:

- Zone 1: Poor and remote areas with socio-economic infrastructure unfavourable to investment;
- Zone 2: Areas with socio-economic infrastructure favourable to investment; and
- Zone 3: Special Economic Zones

Generally, companies investing in Zone 1 will receive more incentives than the ones investing in Zone 2. Business investing in Zone 3 will usually be granted incentives specified in other regulations than the Law on Investment Promotion.

The main investment incentives available for companies investing in promoted sectors are detailed in the table below. For additional information, please refer to the official Law on Investment Promotion document (www.investlaos.gov.la/images/IP_Law_2016_PDF/Final_IPL_No.14.NA_17Nov2016_Eng_30_Oct_2018.pdf)

Selected Financial Incentives per Zones

Incentive Category	Zone 1	Zone 2	Zone 3
Profit Tax Exemption (Note 1; Note 2)	10 year exemption and additional 5 years for specific sectors	4 year exemption and additional 3 years for specific sectors	Defined in other specific regulations
Custom Duty Exemption	Exemption on import of materials and equipment used for production	Exemption on import of raw materials, equipment and parts used for production	None
0% Value Added Tax (VAT)	0% VAT on materials and equipment used for production	0% VAT on raw materials, equipment and parts used for production	0% VAT on domestic raw materials used
Rental Fee Exemption (Note 2)	10 year exemption and additional 5 years for specific sectors	5 year exemption and additional 3 years for specific sectors	Defined in other specific regulations

Note 1: The exemption period shall be counted from the year the investing enterprises start to generate business revenues. Upon expiration of the exemption period, the enterprises shall follow the Taxation Law.

Note 2: The selected sectors are Agriculture, Agro-processing Industry, Education, Healthcare

Additional financial incentives include, among others:

- Simplified access to financing with institutions operating in Laos;
- Ability to carry forward losses over three years to be deducted against future profits; and
- Facilitated land use rights for investors in concession investments.

Non-financial Incentives

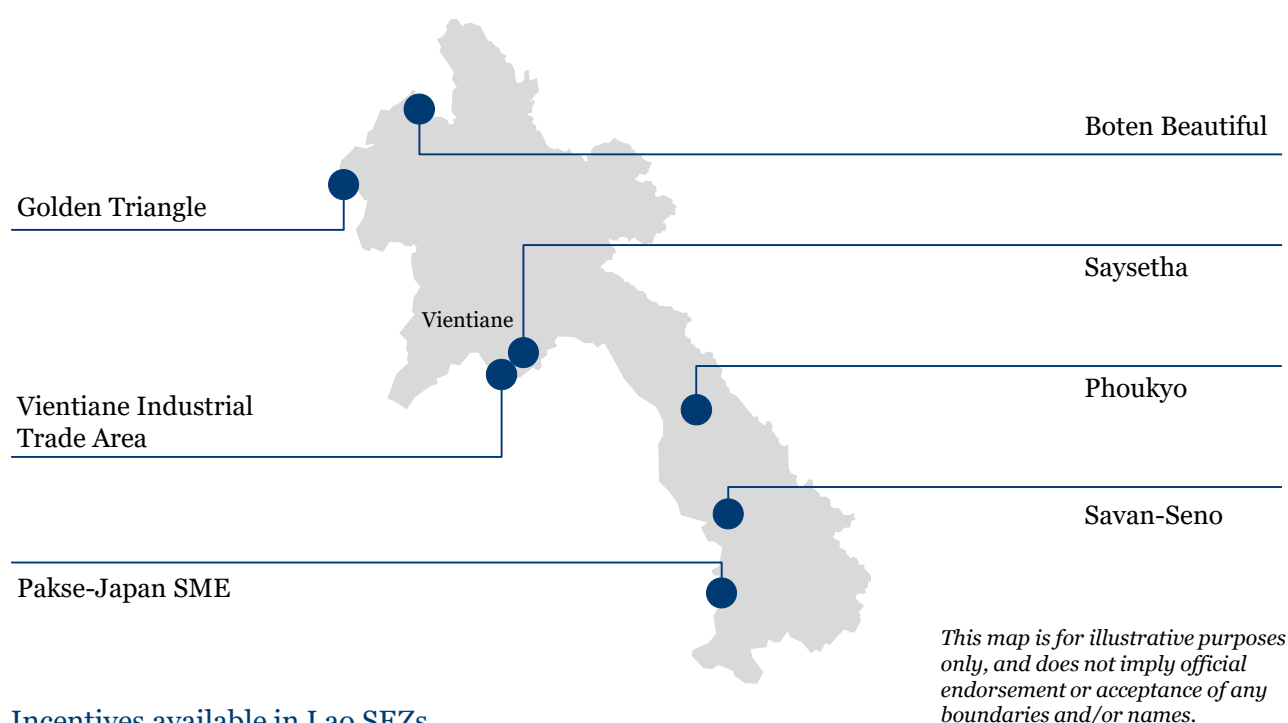
Companies investing in supported sectors can also be granted the following non-financial incentives (non-exhaustive):

- Access to one-stop service offices for collecting and compiling relevant information on investments (e.g. guidebooks, newsletters, brochures);
- Simplified and facilitated processes to obtain residence permits and multi-entry business visas for foreign investors;
- Facilitated process for entering and exiting Laos for investors and their families; and
- Investors can claim additional government incentives from the relevant authorities.

II. Scope of Special Economic Zones Schemes and Geographical Location^{2,3,4}

There are currently 11 operating Special Economic Zones (SEZs) in Laos, however, only seven zones host manufacturing activities. The four other SEZs only offer logistic facilities (and no production activities) or are mainly residential and services-based. Therefore, Mainland China and Hong Kong companies should mainly focus their investments in the seven SEZs presented below. These SEZs may be developed by the government, the private sector (domestic or foreign) or by public private partnerships. In Laos, the SEZs are strategically located near the country's borders with Thailand, Myanmar and Mainland China.

Location of Lao SEZs Hosting Manufacturing Activities



Incentives available in Lao SEZs

Incentives granted to companies investing in Lao SEZs vary from one zone to another. The incentives listed below are the most common ones granted in Pakse and Savan-Seno:

- Long-term corporate income tax (CIT) holidays (maximum of 10 years);
- Reduced CIT rate of 8% (compared to the standard rate of 24%);
- Personal income tax rate of 5%;
- Dividend tax rate of 5% (vs. 10% originally);
- Import duty exemption on machinery and equipment used for production; and
- Land concession up to 50 years.

For additional information about Lao SEZs, please refer to section 7 of this report or Invest Laos homepage (<http://www.investlaos.gov.la/index.php/where-to-invest/special-economic-zone?limitstart=0>)

Source:

¹ *Law On Investment Promotion, Lao PDR, 2017*

² *Invest Laos, Ministry of Planning and Investment*

³ *Pakse-Japan SME homepage*

⁴ *Savan Park homepage*

10. Environmental Requirements

Executive Summary

In Laos, the Ministry of Natural Resources and Environment (MONRE) is the primary regulatory body responsible for management and administration of environmental policy and standards, as well as the enforcement of law. Environmental Protection Law is the fundamental law regarding environmental management in Laos. Any foreign businesses wishing to invest or do business in Laos must abide by the Law.

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

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



10. Environmental Requirements

I. Environmental Laws and Regulations in Laos¹

The Ministry of Natural Resources and Environment (MONRE) of Laos has a mandate as a secretariat and key regulator for direct management of land, forest, water, air, biodiversity and minerals throughout the country. The MONRE was established in 2011 combining departments and divisions related to natural resources and environment.

The Environmental Protection Law was established in 1999, and latest 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 Laos

Ministry of Natural Resources and Environment (MONRE)^{2,3,4}

The MONRE takes direct responsibilities and leading roles in coordinating with line sectors and local authorities to study and identify policies, strategies, regulations, methods and measures of environmental protection.

The ministry is comprised of the Department of Environmental and Social Impact Assessment, the Pollution Control Department, the Department of Land Allocation and Development, the Department of Land Management, the Department of Water Resources, the Department of Nature Resources and Environmental Research, the Department of Environmental Quality Promotion, the Department of Meteorology and Hydrology, and the Department of Disaster Management and Climate Change as major units.

Primary mandate for pollution control lies on the Pollution Control Department of MONRE. Also, the Ministry of Industry and Commerce, the Ministry of Agriculture and Forestry Department of Agriculture and the Ministry of Public Works and Transport are partly undertaking the authority for industrial pollution and regulation, depending on the type of industry. Improvement is underway to address the confusion brought by interrelated duties among the government departments.

B. The Main Environmental Legislation in Laos

Law on Environmental Protection No.29/NA, 2012²

The Environmental Protection Law dated 2012 declares that every person has commitments to protect the environment which generally consist of the followings: (i) the commitment to prevent environment against any natural or man-made events; (ii) the commitment to control pollution of not violating the national pollution and environmental quality standards; and (iii) the commitment to control and dispose toxic chemical and waste properly.

In particular, in terms of the commitment to prevent the natural environment and social environment, it is required that the Integrated Spatial Planning, the Strategic Environmental Assessment, Initial Environmental Examination, Environmental and Social Impact Assessment or the Environmental Management of Household Business shall be conducted, prepared and submitted to the Ministry of Natural Resources and Environment for their comment and, in certain circumstances, approval in the form of certificate.

Penalties

Persons, legal entities and organisations violating the Law on Environmental Protection shall be subject to re-education, warning, disciplinary sanctions, fines or civil remedies or criminal penalties based on the seriousness degree of each case in accordance with regulations.

Other Environmental Laws and Regulations (air, water, wastes, etc.)

Laos has also issued environmental laws such as Law on Water Resources (revised in 2013), Forestry Law, etc. Emissions and disposal of air pollutant, water pollutant, wastes and hazardous materials are regulated by the relevant laws, regulations, and standards. Any violation of such laws and regulations could be punished.

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

C. Main Environmental Related Joint Announcements and Statements Which HK and Mainland China Have Issued with Laos

The Chinese Ministry of Foreign Affairs has issued a joint statement between the People’s Republic of China and the Lao People's Democratic Republic, to further strengthen China and Laos’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 Laos.

Main Environmental-related Joint Announcements and Statements^{5,6,7}

Statements	Impact	Clause
Memorandum of Understanding on Environmental Protection Cooperation between the Ministry of Environmental Protection of the People's Republic of China and the Ministry of Natural Resources and Environment of the Lao People's Democratic Republic	Encourage priority cooperation in the following areas: <ul style="list-style-type: none">• Biodiversity conservation;• Environmental regulations and policies;• Urban and rural environmental management;• Solid waste management;• Environmental protection industry and technology;• Environmental education and public awareness;• Environmental management capacity building; and• Other areas of cooperation agreed by both.	Clause 1 to 7
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.	Clause 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.	Clause 45, 47, 53, 54

D. The Main Environmental Permits in Laos^{8,9}

Laos has enacted laws and announced numerous environmental regulations, specifying which environmental permits are required.

Environment Impact Assessment (EIA)

According to the Decree on Environmental Impact Assessment in 2019, the investment projects and activities in Laos are divided into two groups:

- Group 1: The investment projects and activities that are believed to cause less or not-severe impacts on social and natural environment will have to conduct Preliminary Environmental Impact Assessment (PEIA).
- Group 2: The investment projects and activities that are believed to cause huge or severe impacts on social and natural environment will have to conduct Comprehensive Environmental Impact Assessment (CEIA).

For the projects and activities which are neither in Group 1 nor Group 2, the MONRE or provincial Department of Natural Resources and Environment (DONRE) will conduct the screening process to consider whether or not the EIA is necessary.

For the Grouping List of Investment Projects and Activities Subject to EIA, please refer to Appendix 3.

Wastewater Discharge Permit

The 2017 amended Law on Water Resources has added the regulations about Wastewater Discharge Permit. Wastewater discharges to various water sources must comply with the conditions of a Wastewater Discharge Permit or the regulations on the exemption.

Each wastewater discharge permit contains conditions that specify the necessary treatment process, relevant wastewater discharge standards, and the measurement of wastewater quality.

II. Environmental Situations in Laos

A. Hurdles or Problems Encountered and Resolutions^{8,9}

Before Land Acquisition	Pre-construction Period			Operation Period
Historical Pollution Issues	License Requirements			Environmental Pollution Issues
Environmental Due Diligence (EDD) checks for existing soil and groundwater pollution, which can help investors avoid liability from historical pollution	PEIA/EIA	Wastewater Discharge Permit (subject to project characteristic)	Hazardous Waste Generator Registration (subject to project characteristic)	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 follows:



Environmental Due Diligence (EDD)

- Supporting agency selection: There are no license 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 potential significant environmental risks in a report.

EDD Case

The WSP consultant company was appointed to perform EDD services of a 1,070 MW Hydroelectric Project in Laos.

As part of the due diligence process, the services included studying the environmental and social impacts of the hydropower plant and associated infrastructure, as well as the relocation of 16 villages. The services also included overseeing activities during the village relocation and project construction process. As a result, the aid agencies and project sponsors signed off on the project following the successful completion of the due diligence process, and since then, the hydropower plant has been in full commercial operation.

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

Pre-construction Period: Preliminary Environmental Impact Assessment (PEIA)

According to the Decree on Environmental Impact Assessment, the projects in Group 1 are required to conduct a Preliminary Environmental Impact Assessment (PEIA).

Resolutions



PEIA

According to the Decree on Environmental Impact Assessment, PEIA must be conducted only by a consultancy firm or by a consultant registered at the MONRE.

PEIA Processes:

Supporting agency selection: Hiring a registered consultancy firm or individual consultants to conduct PEIA.

- Submission: Submitting 10 hardcopies of the PEIA report, with its softcopy to the DONRE of where the project is located;
- Approval: The DONRE will organise a provincial team of specialists to review the report, make a final approval and issue an environmental certificate. The review process will be within 40 working days, excluding the periods in which the project owner revises the documents.

Pre-construction Period: Comprehensive Environmental Impact Assessment (CEIA)

According to the Decree on Environmental Impact Assessment, the projects in Group 2 are required to conduct a Comprehensive Environmental Impact Assessment (CEIA). The project owner must prepare a scope of assessment and work for the MONRE to review before conducting CEIA.

Resolutions



CEIA

According to the Decree on Environmental Impact Assessment, CEIA must be conducted only by a consultancy firm or by a consultant registered at the MONRE.

CEIA Processes:

- Supporting agency selection: Hiring a registered consultancy firm or individual consultants to conduct CEIA;
- Submission: Submitting 10 hardcopies of the CEIA report, with its softcopy to the MONRE;
- Approval: The MONRE will organise a central-level team of specialists to review the report, make a final approval and issue an environmental certificate. The review process will be within 90 working days, excluding the periods in which the project owner revises the documents.

For the Grouping List of Investment Projects and Activities Subject to EIA, please refer to Appendix 3.

EIA Case

According to the Decree on Environmental Impact Assessment in Laos, 1,000 hectare plantation scheme (the project) located in Southern Laos was required to conduct a CEIA. SLP Environmental Consultants (Laos) was appointed to provide CEIA services for the project.

The services include: i) assessing the potential environmental and socio-economic impacts of the planned project activities on the natural environment, as well as its effects on people and communities, and ii) formulating and implementing environmental and social action plans to mitigate the effects of any identified adverse impacts and enhance the positive impacts. The CEIA was approved by the MONRE and the project was issued with an environmental certificate.

For a list of organisations/agencies providing EIA supporting services in Laos, please refer to Section 10.III.B.

Pre-construction Period: Wastewater Discharge Permit

According to the 2017 amended Law on Water Resources, wastewater discharges to various water sources must apply for a Wastewater Discharge Permit or comply with the regulations on the exemption.

Resolutions



Wastewater
Discharge Permit

- The company can either apply themselves or hire a third party to help with obtaining the permit;
- The MONRE is responsible for approval and check of Wastewater Discharge Permit;
- The Permit shall be issued for one year and may be renewed annually.

Operation Period: Environmental Pollution Problems

During the operation period, company 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 MONRE 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 waste;
- Enhancing environmental awareness of related workers;
- Improving relevant equipment in use; and
- Optimising the manufacturing process.

Environmental Pollution Case

A brewery factory in the capital Vientiane has been shut down by the Lao government due to pollution. The factory recycled 80 tons of spent beer malt per day. However, its owners failed to control pollution from the process, causing pollution of the local river. According to the penalty regulation, the Law on Environmental Protection in Laos, the offender shall be subject to suspension, withdrawal of license, or termination of operation, etc.

For a list of organisations/agencies providing waste disposal service and other related services in Laos, please refer to Section 10.III.C.

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

Potential Environmental Issues ^a	Electronics	Garment & Clothing	Watches & Jewellery	Toys & Games	Hi-tech ^b
Historical Soil Pollution or Groundwater Pollution	✓	✓	✓	✓	✓
Lack of Relevant Environmental 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:

- a. "Environmental issue" indicates any environment related problems factories may have faced during the pre-approval period, construction period and operation period.
- b. 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 Standards Between Laos and Mainland China

Please refer to the below legend for the understanding of all the comparison tables in this section.

For the Laos standards, values are the limitation of industrial wastewater passing the treatment process and dilution discharged to public water source.

For the Mainland China standards, values in brackets indicate the parameters of industrial wastewater when it is discharged into the water sources serving tap water, and the values not in brackets indicate the parameters of effluent discharged into environment directly (except for electronic industry and textile industry).

For the Mainland China standards in the electronic and textile industry, values are the limitation of effluent discharged into environment directly.

“↓” indicates the requirement of Mainland China is stricter than Laos.

“↑” indicates the requirement of Laos is stricter than Mainland China.

“=” indicates the requirement of Mainland China is the same as Laos.

“-” 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. For a complete list, please refer to the Notes section below each table for relevant standards.

All standards listed below are applicable to factories both in industrial area and non industrial area.

Electronics (Part 1/5)

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

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Laos ^a	Mainland China ^b	
Electronics	Water Pollutants mg/L (Except pH and temperature)	pH	6-8.5	6.0-9.0	↑
		Total suspended solids	50	50	=
		Total dissolved solids	2500	-	N/A
		Temperature ^c	50	-	N/A
		COD	120	80	↓
		TKN	100	-	N/A
		Ammonia nitrogen	-	10/20 ^d	N/A
				5	N/A
				20	N/A
				10	N/A
				5	N/A
				5	N/A
		Total nitrogen	-	20/30 ^d	N/A
				15	N/A
				30	N/A
				15	N/A
				15	N/A
				15	N/A

Electronics (Part 2/5)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Laos ^a	Mainland China ^b	
Electronics	Water Pollutants mg/L (Except pH and temperature)	Total phosphorus	Special electronic materials	-	0.5/1.0 ^d	N/A
			Electrical units		0.5	N/A
			Printed circuit boards		1.0	N/A
			Semiconductor devices		1.0	N/A
			Display device and photoelectron components		0.5	N/A
			Electron terminals products		0.5	N/A
		Sulfide	Special electronic materials	-	-	N/A
			Electrical units		-	N/A
			Printed circuit boards		1.0	N/A
			Semiconductor devices		1.0	N/A
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A
		Hydrogen sulfide		1.0	-	N/A
		Copper	Special electronic materials	2.0	0.5	↓
			Electrical units		0.5	↓
			Printed circuit boards		0.5	↓
			Semiconductor devices		0.5	↓
			Display device and photoelectron components		0.5	↓
			Electron terminals products		-	N/A

Electronics (Part 3/5)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Laos ^a	Mainland China ^b	
Electronics	Water Pollutants mg/L (Except pH and temperature)	Zinc	Special electronic materials	5.0	1.5	↓
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		1.5	↓
			Display device and photoelectron component		1.5	↓
			Electron terminals products		-	N/A
		Cadmium	Special electronic materials	0.03	0.05	↑
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		0.05	↑
			Display device and photoelectron component		-	N/A
			Electron terminals products		-	N/A
		Total chromium	Special electronic materials	-	1.0	N/A
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		0.5	N/A
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A
		Hexavalent chromium	Special electronic materials	0.25	0.2	↓
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		0.1	↓
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A
		Trivalent chromium		0.75	-	N/A

Electronics (Part 4/5)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Laos ^a	Mainland China ^b	
Electronics	Water Pollutants mg/L (Except pH, and temperature)	Arsenic	Special electronic materials	0.25	0.3	↑
			Electrical units		0.3	↑
			Printed circuit boards		-	N/A
			Semiconductor devices		0.2	↓
			Display device and photoelectron component		0.2	↓
			Electron terminals products		-	N/A
		Lead	Special electronic materials	0.2	0.2	=
			Electrical units		0.1	↓
			Printed circuit boards		-	N/A
			Semiconductor devices		0.2	=
			Display device and photoelectron component		0.2	=
			Electron terminals products		-	N/A
		Nickel	Special electronic materials	1.0	0.5	↓
			Electrical units		0.5	↓
			Printed circuit boards		0.5	↓
			Semiconductor devices		0.5	↓
			Display device and photoelectron components		0.5	↓
			Electron terminals products		-	N/A
		Cyanide	Special electronic materials	0.2	0.2	=
			Electrical units		0.2	=
			Printed circuit boards		0.2	=
			Semiconductor devices		0.2	=
			Display device and photoelectron components		0.2	=
			Electron terminals products		-	N/A

Electronics (Part 5/5)

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Laos ^a	Mainland China ^b	
Electronics	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 emission limits from production	70 ^e	-	N/A
	Hazardous Waste	Hazardous waste are required to be disposed by a qualified third. For more hazardous waste information, please refer to II.A of this section.			

Note:

a. Laos Standards: Water pollution control Standard from general industries¹⁰, Air pollution control standard from industries in general¹⁰ and Ambient noise standards¹⁰.

b. Mainland China Standards: Emission standard of pollutants for electrical industry¹¹, and Emission Standard for Industrial Enterprises Noise at Boundary¹².

c. The unit for temperature is °C.

d. The value suitable for enterprises producing electrode foil of aluminum electrolytic capacitor.

e. 24 hours average volume (Leq24) not exceed 70 dB (A).

Garment & Clothing

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 Laos and Mainland China:

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Laos ^a	Mainland China ^b	
Garment & Clothing	Water Pollutants mg/L (Except pH, temperature, and colour)	pH	6-8.5	6.0-9.0	↑
		Total suspended solids	50	50	=
		Total dissolved solids	2500	-	N/A
		COD	120	80	↓
		BOD ₅	30	20	↓
		Colour and odour	Not be detected	-	N/A
		Colour	-	50 ^c	N/A
		Temperature ^d	40	-	N/A
		TKN	100	-	N/A
		Ammonia nitrogen	-	10	N/A
		Total nitrogen	-	15	N/A
		Total phosphorus	-	0.5	N/A
		Chlorine	1.0	-	N/A
		Chlorine dioxide	-	0.5	N/A
		AOX	-	12	N/A
		Hydrogen sulphide	1.0	-	N/A
		Sulphide	-	0.5	N/A
		Aniline	-	Not be detected	N/A
		Hexavalent chromium	0.25	Not be detected	↓
		Cyanide	0.2	-	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 emission limits from production	70 ^e	-	N/A
	Hazardous Waste	Hazardous waste are required to be disposed by a qualified third party . For more hazardous waste information, please refer to II.A of this section.			

Note:

- Laos Standards: Water pollution control Standard from general industries¹⁰, Air pollution control standard from industries in general¹⁰ and Ambient noise standards¹⁰.
- Mainland China Standards: Discharge Standard for Water Pollutants in Textile Dyeing and Finishing Industry¹³, Integrated emission standard of air pollutants¹⁴, and Emission Standard for Industrial Enterprises Noise at Boundary¹².
- The method of measuring Colour in China is dilution method, and the value refers to the dilution factor.
- The unit for temperature is °C.
- 24 hours average volume (Leq24) not exceed 70 dB (A).

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 Laos and Mainland China:

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Laos ^a	Mainland China ^b	
Watches & Jewellery	Water Pollutants mg/L (Except pH)	pH	6-8.5	6.0-9.0 (6.0-9.0)	↑ (↑)
		Total suspended solids	50	150 (70)	↑ (↑)
		Total dissolved solids	2500	-	N/A
		COD	120	150 (100)	↑ (↓)
		BOD ₅	30	30 (20)	= (↓)
		Temperature ^c	40	-	N/A
		TKN	100	-	N/A
		Ammonia nitrogen	-	25 (15)	N/A
		Cyanide	0.2	0.5 (0.5)	↑ (↑)
		Fat, oil and grease	5.0	15 (10)	↑ (↑)
		Petroleum	-	10 (5)	N/A
		Hexavalent chromium	0.25	0.5 (0.5)	↑ (↑)
	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 emission limits from production	70 ^d	-	N/A
	Hazardous Waste	Hazardous waste are required to be disposed by a qualified third party. For more hazardous waste information, please refer to II.A of this section.			

Note:

- Laos Standards: Water pollution control Standard from general industries¹⁰, Air pollution control standard from industries in general¹⁰ and Ambient noise standards¹⁰.
- Mainland China Standards: Integrated wastewater discharge standard¹⁵, Integrated emission standard of air pollutants¹⁴, and Emission Standard for Industrial Enterprises Noise at Boundary¹².
- The unit for temperature is °C.
- 24 hours average volume (Leq24) not exceed 70 dB (A).

Toys & Games

Water pollutants from washing process and 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 Laos and Mainland China:

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Laos ^a	Mainland China ^b	
Toys & Games	Water Pollutants mg/L (Except pH, and temperature)	pH	6-8.5	6.0-9.0 (6.0-9.0)	↑ (↑)
		Total suspended solids	50	150 (70)	↑ (↑)
		Total dissolved solids	2500	-	N/A
		COD	120	150 (100)	↑ (↓)
		BOD ₅	30	30 (20)	= (↓)
		TKN	100	-	N/A
		Temperature ^c	40	-	N/A
		Ammonia nitrogen	-	25 (15)	N/A
		Sulphide	-	1.0 (1.0)	N/A
		Hydrogen sulphide	1.0	-	N/A
		Cyanide	0.2	0.5 (0.5)	↑ (↑)
		Hexavalent chromium	0.25	0.5 (0.5)	↑ (↑)
		Fat, oil and grease	5.0	15 (10)	↑ (↑)
		Petroleum	-	10 (5)	N/A
		Phenols	1.0	-	N/A
		Volatile Phenols	-	0.5 (0.5)	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 emission limits from production	70 ^d	-	N/A
	Hazardous Waste	Hazardous waste are required to be disposed by a qualified third party. For more hazardous waste information, please refer to II.A of this section.			

Note:

- Laos Standards: Water pollution control Standard from general industries¹⁰, Air pollution control standard from industries in general¹⁰ and Ambient noise standards¹⁰.
- Mainland China Standards: Integrated wastewater discharge standard¹⁵, Integrated emission standard of air pollutants¹⁴, and Emission Standard for Industrial Enterprises Noise at Boundary¹².
- The unit for temperature is °C.
- 24 hours average volume (Leq24) not exceed 70 dB (A).

Hi-tech (Part 1/4)

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

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Laos ^a	Mainland China ^b	
Hi-tech	Water Pollutants mg/L (Except pH and temperature)	pH		6-8.5	6.0-9.0	↑
		Total suspended solids		50	50	=
		Total dissolved solids		2500	-	N/A
		COD		120	80	↓
		TKN		100	-	N/A
		Temperature ^e		40	-	N/A
		Ammonia nitrogen	Special electronic materials	-	10/20 ^c	N/A
			Electrical units		5	N/A
			Printed circuit boards		20	N/A
			Semiconductor devices		10	N/A
			Display device and photoelectron components		5	N/A
			Electron terminals products		5	N/A
		Total nitrogen	Special electronic materials	-	20/30 ^c	N/A
			Electrical units		15	N/A
			Printed circuit boards		30	N/A
			Semiconductor devices		15	N/A
			Display device and photoelectron components		15	N/A
			Electron terminals products		15	N/A
		Total phosphorus	Special electronic materials	-	0.5/1.0 ^c	N/A
			Electrical units		0.5	N/A
			Printed circuit boards		1.0	N/A
			Semiconductor devices		1.0	N/A
			Display device and photoelectron components		0.5	N/A
			Electron terminals products		0.5	N/A
		Sulfide	Special electronic materials	-	-	N/A
			Electrical units		-	N/A
			Printed circuit boards		1.0	N/A
			Semiconductor devices		1.0	N/A
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A

Hi-tech (Part 2/4)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Laos ^a	Mainland China ^b	
Hi-tech	Water Pollutants mg/L (Except pH and temperature)	Hydrogen sulfide		1.0	-	N/A
		Copper	Special electronic materials	2.0	0.5	↓
			Electrical units		0.5	↓
			Printed circuit boards		0.5	↓
			Semiconductor devices		0.5	↓
			Display device and photoelectron components		0.5	↓
			Electron terminals products		-	N/A
		Zinc	Special electronic materials	5.0	1.5	↓
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		1.5	↓
			Display device and photoelectron component		1.5	↓
			Electron terminals products		-	N/A
		Cadmium	Special electronic materials	0.03	0.05	↑
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		0.05	↑
			Display device and photoelectron component		-	N/A
			Electron terminals products		-	N/A
		Total chromium	Special electronic materials	-	1.0	N/A
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		0.5	N/A
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A

Hi-tech (Part 3/4)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Laos ^a	Mainland China ^b	
Hi-tech	Water Pollutants mg/L (Except pH and temperature)	Hexavalent chromium	Special electronic materials	0.25	0.2	↓
			Electrical units		-	N/A
			Printed circuit boards		-	N/A
			Semiconductor devices		0.1	↓
			Display device and photoelectron components		-	N/A
			Electron terminals products		-	N/A
		Trivalent chromium		0.75	-	N/A
		Arsenic	Special electronic materials	0.25	0.3	↑
			Electrical units		0.3	↑
			Printed circuit boards		-	N/A
			Semiconductor devices		0.2	↓
			Display device and photoelectron component		0.2	↓
			Electron terminals products		-	N/A
		Lead	Special electronic materials	0.2	0.2	=
			Electrical units		0.1	↓
			Printed circuit boards		-	N/A
			Semiconductor devices		0.2	=
			Display device and photoelectron component		0.2	=
			Electron terminals products		-	N/A
		Nickel	Special electronic materials	1.0	0.5	↓
			Electrical units		0.5	↓
			Printed circuit boards		0.5	↓
			Semiconductor devices		0.5	↓
			Display device and photoelectron components		0.5	↓
			Electron terminals products		-	N/A

Hi-tech (Part 4/4)

Industry	Major Types of Pollution	Pollutants		Limits		Comparison
				Laos ^a	Mainland China ^b	
Hi-tech	Water Pollutants mg/L (Except pH and temperature)	Cyanide	Special electronic materials	0.2	0.2	=
			Electrical units		0.2	=
			Printed circuit boards		0.2	=
			Semiconductor devices		0.2	=
			Display device and photoelectron components		0.2	=
			Electron terminals products		-	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 emission limits from production		70 ^d	-	N/A
	Hazardous Waste	Hazardous waste are required to be disposed by a qualified third. For more hazardous waste information, please refer to II.A of this section.				

Note:

a. Laos Standards: Water pollution control Standard from general industries¹⁰, Air pollution control standard from industries in general¹⁰ and Ambient noise standards¹⁰.

b. Mainland China Standards: Emission standard of pollutants for electrical industry¹¹, and Emission Standard for Industrial Enterprises Noise at Boundary¹².

c. The value suitable for enterprises producing electrode foil of aluminum electrolytic capacitor.

d. 24 hours average volume (Leq24) not exceed 70 dB (A).

e. The unit for temperature is °C.

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 Laos, the relevant standards for pollutants are general effluent and emission standards.

Compared with other industries, chemicals & plastics industry involves more significant potential 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 Laos, the chemicals & plastics industry should be in compliance with the general environmental standards.

General Industries

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

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

Industry	Major Types of Pollution	Pollutants	Limits		Comparison
			Laos ^a	Mainland China ^b	
General Industries	Water Pollutants mg/L (Except pH)	pH	6-8.5	6.0-9.0 (6.0-9.0)	↑ (↑)
		Total suspended solids	50	150 (70)	↑ (↑)
		Total dissolved solids	2500	-	N/A
		COD	120	150 (100)	↑ (↓)
		BOD ₅	30	30 (20)	= (↓)
		TKN	100	-	N/A
		Temperature ^c	40	-	N/A
		Ammonia nitrogen	-	25 (15)	N/A
		Sulphide	-	1.0 (1.0)	N/A
		Phosphate	-	1.0 (0.5)	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 emission limits from production	70 ^d	-	N/A
	Hazardous Waste	Hazardous waste are required to be disposed by a qualified third party. For more hazardous waste information, please refer to II.A of this section.			

Note:

- Laos Standards: Water pollution control Standard from general industries¹⁰, Air pollution control standard from industries in general¹⁰ and Ambient noise standards¹⁰.
- Mainland China Standards: Integrated wastewater discharge standard¹⁵, Integrated emission standard of air pollutants¹⁴, and Emission Standard for Industrial Enterprises Noise at Boundary¹².
- The unit for temperature is °C.
- 24 hours average volume (Leq24) not exceed 70 dB (A).

III. The Main Local Supporting Organisations/Agencies in Laos

The Laos environment is changing rapidly as a result of economic development. The new environment ministry has developed aggressive goals in “MONRE Vision toward 2030”, which include “reducing water and air pollution for industries and services by 30%”, “reducing the waste generation in the municipal areas across the country by 30%”, etc. Environmental management could be stricter in the near future.

To ensure environmental compliance and to maintain a good relationship with the public, the investor should pay attention to the environment survey, license 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 environmental related support services.

A. EDD Services in Laos

Agency/ Organisation	Service Coverage	Contact
PwC	<ul style="list-style-type: none"> • Environmental Due Diligence; • Environmental and Social Risk Management; • Environmental and Health and Safety (EHS); • Regulatory Compliance Assessments; and • Independent Assurance, etc. 	+856 (21) 222 718-9
SLP Environmental	<ul style="list-style-type: none"> • Environmental Due Diligence; • Technical Assistance & Advisory Services; and • Environmental & Social Impact Assessment, etc. 	+ 66 (0) 2168 7016 (ASEAN headquarter in Thailand)
WSP	<ul style="list-style-type: none"> • Environmental Due Diligence; • Contaminated Land and Soil Remediation; and • Environmental and Social Impact Assessment and Planning, etc. 	+66 (0) 2343 8866 (Thailand Office)

B. EIA Supporting Services in Laos

Agency/ Organisation	Service Coverage	Contact
Environment-Sustainability-Livelihood	<ul style="list-style-type: none"> • Environmental and Social Impact Assessment; • Environmental Monitoring; • Waste Management; and • Water Resource Management, etc. 	+856 (21) 413 723
LEM Consultants Company Limited	<ul style="list-style-type: none"> • Environmental and Social Impact Assessment; • Environmental and Social Monitoring and Management; • Environmental Monitoring; and • Sustainable Natural Resource Management, etc. 	+856 (21) 461 978
LAO-UAE Laboratory and Environment Services Company Limited	<ul style="list-style-type: none"> • Environmental and Social Impact Assessment; • Laboratory Testing Services; and • Training and Coaching Services, etc. 	+856 (20) 550 4825

C. Monitoring Services and Wastes Management Services in Laos

Agency/ Organisation	Service Coverage	Contact
Environment-Sustainability-Livelihood	<ul style="list-style-type: none"> • Environmental and Social Impact Assessment; • Environmental Monitoring; • Waste Management; and • Water Resource Management, etc. 	+856 (21) 413 723
Geo-Sys (Lao) Company Limited	<ul style="list-style-type: none"> • Hydrological and Water Quality Monitoring, Analysis and Modelling; • Water, Air and Soil Pollution Monitoring and Remedy Techniques Design; • Ecology and Biological Conservation; and • GIS and Cartography, etc. 	+856 (21) 315 818
LEM Consultants Company Limited	<ul style="list-style-type: none"> • Environmental and Social Impact Assessment; • Environmental and Social Monitoring and Management; • Environmental Monitoring; and • Sustainable Natural Resource Management, etc. 	+856 (21) 461 978
Waste Pro Collection Sole Company Limited	<ul style="list-style-type: none"> • Garbage Collection; • Waste Exportation; • Spent Grain Drying Factory; and • Recycling Center, etc. 	+856 (30) 977 9777

Source:

¹ *MONRE Vision toward 2030, Ministry of Natural Resources and Environment (MONRE), 2015*

² *Law on Environmental Protection No. 02-99/NA, 1999*

³ *Decree on Establishment and Activities of the Ministry of Natural Resources and Environment, MONRE, 2012*

⁴ *National Pollution Control Strategy and Action Plan 2018-2025, with Vision to 2030, 2017*

⁵ *Memorandum of Understanding on Environmental Protection Cooperation between the Ministry of Environmental Protection of the People's Republic of China and the Ministry of Natural Resources and Environment of the Lao People's Democratic Republic, 2013*

⁶ *Joint Statement of China and ASEAN Leaders on Sustainable Development, 2010*

⁷ *China-ASEAN Environmental Protection Cooperation Strategy 2016-2020, 2017*

⁸ *Decree on Environmental Impact Assessment No. 21/GOL, 2019*

⁹ *Law on Water Resources (Revised Version), 2017*

¹⁰ *Lao PDR National Environmental Standards, 2017*

¹¹ *Emission Standard of Pollutants for Electrical Industry, 2nd Edition for Suggestion*

¹² *Emission Standard for Industrial Enterprises Noise at Boundary, 2008*

¹³ *Discharge Standards of Water Pollutants for Dyeing and Finishing of Textile Industry, GB 4287-2012*

¹⁴ *Integrated Emission Standard of Air Pollutants, GB 16297-1996*

¹⁵ *Integrated Wastewater Discharge Standard, GB 8978-1996*

¹⁶ *Environmental Impact Assessment Guidelines, 2011*

¹⁷ *Law on Land No. 01/97 NA (Revised Version), 2003*

¹⁸ *Law on the Chemicals No.07/NA, 2016*

¹⁹ *Law on Industrial Processing No. 01/99/NA (Revised Version), 2013*

²⁰ *Labour Law(Amended) No. 43/NA, 2013*

Appendix

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| <i>Appendix 1</i> | <i>Land Leasing Cost and Utility Fees in the Main SEZs</i> |
| <i>Appendix 2</i> | <i>List of the Main Environmental Laws/Regulations and Standards in Laos</i> |
| <i>Appendix 3</i> | <i>Grouping List of Investment Projects and Activities Subject to EIA</i> |

Appendix 1

Land Leasing Cost and Utility Fees in the Main SEZs

SEZ	Land Leasing (USD/m ² /year)	Electricity Fee (USD/KWh)	Water Fee (USD/m ³)
VITA	USD 0.03 – 0.06	USD 0.06 – 0.07	USD 0.3 – 0.4
Savan-Seno	USD 0.3	USD 0.09	USD 0.7
Thakhek	USD 0.2	USD 0.06 – 0.07	USD 0.05
Phoukhyo	N/A	USD 0.07 – 0.08	USD 0.06 – 0.08
Pakse	Subject to Negotiation	N/A	USD 0.7

Appendix 2

The Main Environmental Laws/Regulations in Laos

Ministry of Natural Resources and Environment	Ministry of Industry and Commerce	Ministry of Labor and Social Welfare
Law on Environmental Protection, 2012 ²	Law on the Chemicals, 2016 ¹⁸	Labour Law, 2013 ²⁰
Law on Water and Water Resources, 1996 (amended in 2017) ⁹		
Law on Land, 1997 (amended in 2003) ¹⁷	Law on Industrial Processing, 1999 (amended in 2013) ¹⁹	

The Main Environmental Ambient Standards in Laos

Ambient Standards	1	Ambient Air Quality Standard, 2017
	2	Soil Pollution Control Standard for Other Application Purpose, 2017
	3	Surface Water Quality Standard, 2017
	4	Quality Standards for Groundwater, 2017
	5	Drinking Water Quality Standard, 2017
	6	Ambient Noise Standards, 2017

The Main Environmental Effluent Standards in Laos

Effluent Standards	1	Air Pollution Control Standard from Industries in General, 2017 ^a
	2	Air Pollution Control Standard from Vehicles, 2017
	3	Air Pollution Control Standard from Incinerators, 2017
	4	Soil Quality Standard for Housing and Agricultural Production, 2017
	5	Soil Pollution Control Standard for Other Application Purpose, 2017
	6	Water Pollution Control Standard from General Industries, 2017 ^a
	7	Water Pollution Control Standards from Building, 2017
	8	Water Pollution Control Standard for Housing Estate, 2017
	9	Interference Noise Control Standard, 2017 ^a

Note:

a. Corresponding effluent/emission standards are the main standards utilised in Section 10.II.C.

Appendix 3

Grouping List of Investment Projects and Activities Subject to EIA (Issued with Environmental Impact Assessment Guidelines (2011)) (Part 1/2)

Industries	Type of Investment Projects and Activities	Group 1 (PEIA)	Group 2 (CEIA)
Food & Beverage	Production, processing and storage of foods (Meats, fish, fruits, cooking oils, animals and animal feeds)	≤ 1 ton/day	> 1 ton/day
	Milk processing factory	≤ 40 tons/day	> 40 tons/day
	Tapioca and tapioca products processing factory	40 - 80 tons/day	> 80 tons/day
	Sugar processing factory	≤ 30 tons/day	> 30 tons/day
	Alcohol processing factory	≤ 500,000 little/day	> 500,000 little/day
	Drinking water processing factory	All	-
	Tobacco production factory	All	-
Garment & Clothing	Textile, fabric and clothes making and dyeing factory	All	-
	Leather soaking and tanning factory	All	-
	Leather processing factory	≤ 1 million pieces/year	> 1 million pieces/year
Chemicals & Plastics	Petroleum and hydrocarbon factory	-	All
	Chemical products production factory	-	All
	Medical equipment and pharmaceutical product factory using chemical reaction and bio-chemicals	-	All
	Cleaning products, polishing and making up equipment factory	≤ 10 tons/day	> 10 tons/day
	Rubber processing factory	50 - 200 tons/year	> 200 tons/year
	Plastic product production factory	< 400 tons/year	> 400 tons/year

Appendix 3

Grouping List of Investment Projects and Activities Subject to EIA (Issued with Environmental Impact Assessment Guidelines (2011)) (Part 2/2)

Industries	Type of Investment Projects and Activities	Group 1 (PEIA)	Group 2 (CEIA)
Electronics	Home appliances, office equipment, and electrical tools processing factory	All	-
	Automotive battery and alkaline battery factory	≤ 70 tons/year	> 70 tons/year
	Spare parts, automobile parts and related machines factory	≤ 1,000 tons/year	> 1,000 tons/year
	Home appliances production factory	≤ 10,000 units/year	> 10,000 units/year

Glossary – Section 1 to 9

Operational Requirements

AFTA	ASEAN Free Trade Area
AH	Asian Highways
ASEAN	Association of Southeast Asian Nations
BCC	Business Competition Commission
BRI	Belt and Road Initiative
CEDR	Centre of Economic Dispute Resolution
CIT	Corporate Income Tax
DIMEX	Department of Import and Exports
DIP	Department of Intellectual Property
DTA	Double Taxation Agreement
FDI	Foreign Direct Investment
FTA	Free Trade Agreement
GDP	Gross Domestic Product
HS Code	Harmonised Commodity Description & Coding System
IDRC	International Development Research Centre
IP	Intellectual Property
LAK	Lao Kip
LDC	Least Developed Country
LLC	Limited Liability Company
LNAS	Laos National Academy of Science
LPI	Logistics Performance Index

LPRP	Laotian People's Revolutionary Party
MoF	Ministry of Finance
MOST	Ministry of Science and Technology
NSDEP	National Socio-Economic Development Plan
OEDR	Office of Economic Dispute Resolution
PPP	Public-private Partnership
R&D	Research and Development
RCEP	Regional Comprehensive Economic Partnership
RMB	Renminbi
S&T	Science and Technology
SEZ	Special Economic Zones
SMD	Standardisation and Measurement Department
SME	Small and Medium-sized Enterprises
STDS	Science and Technology Development Strategy
STI	Science Technology and Innovation
THB	Thai Baht
USD	United States Dollar
VAT	Value Added Tax
VITA	Vientiane Industrial Trade Area
WTO	World Trade Organization

Glossary – Section 10

Environmental Requirements

ASEAN	Association of Southeast Asian Nations
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
CEIA	Comprehensive Environmental Impact Assessment
DONRE	Department of Natural Resources and Environment
EDD	Environmental Due Diligence
EIA	Environmental Impact Assessment
MONRE	Ministry of Natural Resources and Environment
NMHC	Non-methane Hydrocarbon
PEIA	Preliminary Environmental Impact Assessment
TVOC	Total Volatile Organic Compounds

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