# ASEAN Green Finance
## State of the market
## 2018


Data as of 30 November 2018

Climate Bonds INITIATIVE

ClimateWorks FOUNDATION


Prepared by the Climate Bonds Initiative

Sponsored by ClimateWorks Foundation

# Introduction

**ASEAN cumulative issuance: USD5bn; Indonesia leading, followed by Singapore**
**2018 ASEAN issuance (Jan-Nov): USD3.4bn, 2.6x higher than 2017 (USD1.3bn)**
**Green bond growth expected from Buildings and Energy sectors; sukuk and loans**

## Asia-Pacific green bond issuance is rising – the ten ASEAN countries have significant growth potential

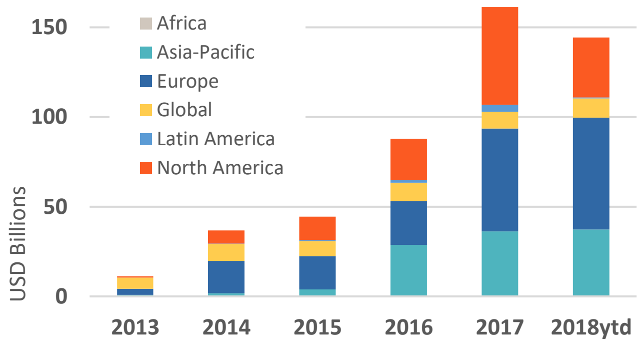
Global green bond issuance started with multi-lateral development banks raising funding for climate-related projects in 2007/08. Issuers from Asia-Pacific entered the market in 2013 and have contributed 22% of global green bond issuance to date.

The Association of Southeast Asian Nations (ASEAN) comprises 10 countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam. With an estimated combined GDP of USD2.57tn in 2016, the ten members taken together represent the sixth largest economy globally. Green bond issuance from ASEAN issuers has picked up pace significantly in 2018. This has further helped market development.

Transitioning to a green, climate resilient economy is paramount to ensure that the region can reduce its GHG emissions, better hedge against climate change risks and thrive in the long-run.

**This report uncovers the progress which has been made and the opportunities lying ahead for ASEAN countries. It looks at regional themes in green bond issuance and issuance from companies, which operate in climate-aligned sectors such as rail transport. It also provides country-level overviews for Indonesia, Singapore, Malaysia, the Philippines, Thailand and Vietnam.**

## Asia-Pacific issuance represents 22% of global total




***Note:*** *Total global issuance (2007 - Nov 2018): USD497bn*
*Asia-Pacific issuance since first issue in 2013: USD108bn*

| Region | Green bond markets | Issuers | Issued (USD) |
|---|---|---|---|
| ASEAN | 6 | 19 | 5bn |
| Asia-Pacific (APAC) | 17 | 206 | 108bn |
| ASEAN share of APAC | 35% | 9% | 5% |
| ASEAN share of global | 11% | 3% | 1% |

***Source:*** *Climate Bonds Initiative. All data and graphs as of 30 Nov 2018.*

## Understanding green bonds

### Green bonds

Green bonds are issued in order to raise finance for climate change solutions. They can be issued by governments, banks, municipalities or corporations.

The green bond label can be applied to any debt format, including private placement, securitisation, covered bond, and sukuk. Labelled green loans are an option if they comply with the Green Bond Principles or the Green Loan Principles. The key is for the proceeds to go to "green" assets.

### Green definitions

The Climate Bonds Initiative uses the Climate Bonds Taxonomy, which features eight sectors: energy, buildings, transport, water, waste, land use, industry and ICT.[1]

CBI also develops sector criteria with expert input from the international science community and industry professionals.[2] Issuers can certify their green issuance under the Climate Bonds Standard and Sector Criteria.[3] Independent approved verifiers provide a third party assessment that the use of proceeds complies with the objective of capping global warming at 2$^{0}$C.

### Inclusion in the CBI green bond database

Only bonds with at least 95% proceeds dedicated to green assets and projects that are aligned with the Climate Bonds Taxonomy are included in our green bond database and figures. If there is insufficient information on allocations, a bond may be excluded.

## Other terminology used in this report

**Fully-aligned climate issuers**: Bond issuers that derive >95% of revenues from climate-aligned assets and green business lines.

These are also referred to as 'fully-aligned' issuers.

**Strongly-aligned climate issuers:** Bond issuers where 75%-95% of revenues are derived from climate-aligned assets and green business lines.

For bonds from strongly-aligned issuers, we analysed a pro rata amount corresponding to green revenue rather than the full outstanding value.

**Climate-aligned bond universe**: the term is used to describe the full universe of aligned outstanding bonds - i.e. from fully-aligned issuers, strongly-aligned issuers and green bond issuers.

The term **aligned outstanding bonds** underscores the fact that this report does not analyse the full outstanding volume of bonds from strongly-aligned issuers (see definition of strongly-aligned climate issuers). For simplicity, 'aligned outstanding' bonds is always implied throughout the report although the term is not always used in full.

# ASEAN green bond markets


**Climate Bonds Initiative.** Cumulative issuance up to 30 November 2018

### The ASEAN green bond market is diverse

In February 2016, AP Renewables became the first green bond issuer of the region with a PHP10.7bn (USD226m) green bond, Certified under the Geothermal Criteria of the Climate Bonds Standard.[4,5] The Asian Development Bank provided credit enhancement by guaranteeing 75% of the bond. AP Renewables won a Green Bonds Award in the category First Country Issuances in recognition of their achievement.[6]

Two Vietnamese local government entities – Ho Chi Minh City and People's Committee of Ba Ria Vung Tau Province – followed in their footsteps by issuing the first VND-denominated green bonds and listed them on Hanoi Stock Exchange.[7,8]

2017 was a busy year, with Singaporean and Malaysian issuers joining the market with 2 and 3 deals, respectively. Indonesian issuers debuted in Q1 2018, the first Thai issuer – in Q2 2018.

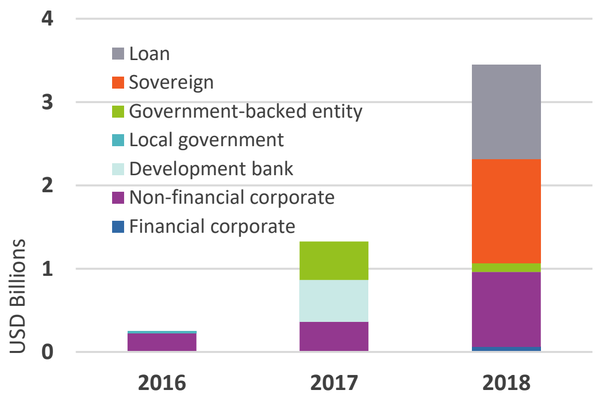
The USD1.25bn green sukuk from the Republic of Indonesia issued in March 2018 made the country the 5th nation globally to have placed a green sovereign issue.[9, 10] It contributed 25% of total ASEAN issuance as of 30 November 2018 (the cut-off date).

**Non-financial corporates are the largest category of green bond issuers as of the cut-off date, representing 30% of the total amount issued in the region.** Non-financial corporate issuance is the most diverse with deals from issuers in 4 of the 6 ASEAN countries with a green bond market.

**Green loans are a strong feature of the ASEAN market**, with USD1.1bn issued, or 22.5% of the ASEAN total. Green loans are most popular amongst Singapore property issuers.

**In terms of countries, Indonesia represents the largest source of green bonds at 39% of total ASEAN issuance.** Singapore comes second at 35%, and Malaysia third (19%). The Philippines, Thailand and Vietnam share the rest of the market. *Brunei, Cambodia, Laos and Myanmar have yet to record a green bond issuance.*

### Sovereign sukuk and loans fuelling 2018 ASEAN green bond market growth




**Note**: *All 2018 data as of 30 November 2018*

### ASEAN boasts 19 green bond issuers

The **largest Southeast Asian issuer** is the Republic of Indonesia, contributing USD1.25bn to the country's total of nearly USD2bn. It was also the first Asian country to issue a green sovereign.

Sindicatum Renewable Energy (Singapore) is the only repeat issuer from the region, with 2 bonds issued in 2018. Malaysia has the largest number of issuers in the region: 6.[11]

The **world's first green sukuk** came from Malaysia's Tadau Energy (Edra Power). The July 2017 issuance worth MYR250m (USD58m) financed a solar park.[12]

In 2016, AP Power (Philippines) was the **first issuer globally** to issue a Certified Climate Bond under the **Geothermal Criteria**.

TLFF I (Indonesia) is one of only a couple of issuers globally in the **sustainable agriculture** sector. It raised proceeds to finance a sustainable rubber plantation and afforestation in early 2018.

## ASEAN's increasing appeal to investors

Several foreign entities have issued green local ASEAN currency bonds demonstrating interest in these domestic markets. International financial institutions can act as market facilitators, which is beneficial to increasing liquidity and issuance in local economies.[13] For example, the IFC issued a green bond in June 2018 in Philippine peso (a Mabuhay bond) and one in Indonesian rupiah (a Komodo bond) in October 2018.[14, 15] The European Bank for Reconstruction and Development (EBRD) has issued numerous Indonesian rupiah denominated green bonds.

This trend is not limited to development banks. Credit Agricole has issued several IDR green notes, and Manulife, one of the world's largest life insurers, closed its debut SGD green bond in November 2017. Other green bond issuers such as BNP Paribas, Société Générale, Bank of America and NAB have issued vanilla bonds in at least one of the local ASEAN currencies.

Issuance in local currency allows foreign issuers to tap domestic investors for capital. In the case of development banks, the deals also act as demonstration issuance to spur market growth and can showcase how climate solutions can be funded with green bonds.

## USD-denominated issuance prevails

Interestingly, green bond deals from ASEAN issuers are denominated primarily in USD. Six issuers to date have chosen to appeal to a wider range of investors by issuing in foreign hard currencies: Republic of Indonesia with issuance in USD, Star Energy Geothermal – Wayang Windu (USD, Indonesia), DBS Group (USD, Singapore), Ho Bee Land (GBP, Singapore), TLFF I Pte Ltd (USD, Indonesia) and TMB Bank (USD, Thailand).

## Sukuk dominates but more bond types appearing

Sukuk remains the focus of green issuance regionally and represented 42% of the ASEAN green bond market by amount issued as of 30 November 2018. However, there are corporate bonds, a bond programme, private placements and loans, too.

### Green Sukuk

Six entities have used the Islamic financial instrument to finance climate projects in a range of sectors. Sukuk provide an excellent avenue for growth in this context. With the Securities Commission Malaysia revising its Islamic Securities Guidelines in 2014 to provide standards for socially responsible investment (SRI), the standards provided the basis for the first green sukuk and have promoted the uptake of green investment since.

Multilateral development banks such as the IFC and the IBRD also carry out vanilla (non-green) Islamic finance transactions to support the growth of the industry beyond its traditional borders.

### Green MTN

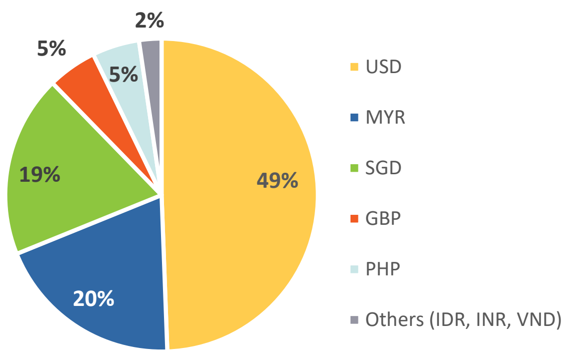
In 2018, the green bond market saw the issuance of the first ASEAN Green Medium-Term Note (MTN) Facility by Malaysian JV Segi Astana. MTN structures are a valuable tool to expand the green bond market as they can be deployed by repeat issuers to facilitate access to the market and lower issue costs. They can be structured to allow for a variety of currency denominations and debt formats to increase their flexibility.

## International financial institutions haves started issuing green local ASEAN currency bonds

| | | IFC | EBRD | IBRD | ADB | EIB |
|---|---|---|---|---|---|---|
| IDR | Green bond | ✔ | ✔ | | | |
| | Vanilla bond | ✔ | ✔ | ✔ | ✔ | ✔ |
| SGD | Green bond | | | | | |
| | Vanilla bond | ✔ | ✔ | ✔ | ✔ | |
| PHP | Green bond | ✔ | | | | |
| | Vanilla bond | ✔ | ✔ | ✔ | ✔ | ✔ |
| MYR | Green bond | | | ✔ | | |
| | Vanilla bond | ✔ | ✔ | ✔ | ✔ | |
| THB | Green bond | | | | | |
| | Vanilla bond | | | ✔ | ✔ | |

***Source**: Climate Bonds Initiative from Thomson Reuters data*

## 54% of ASEAN green bond are in hard currency




## ASEAN Green Bond Standards

In November 2017, the ASEAN Capital Markets Forum – a forum comprising market regulators from the 10 ASEAN countries - released the ASEAN Green Bond Standards, a set of voluntary guidelines based on the international Green Bond Principles, to create a green asset class for the ASEAN region.

The ASEAN Green Bond Standards seek to enhance transparency, consistency and uniformity to help reduce issuance and investment costs. Key elements include:

- The issuer or issuance of the green bond must have a geographical or economic connection to the region;
- Fossil fuel power generation projects are excluded;
- Information on the process for project selection and the use of proceeds, as well as external review reports must be made publicly available on a designated website;
- Recommendation to obtain an external review for the green bond framework, and is particularly recommended for the management of proceeds and annual reports;
- Recommendation for the external review providers must disclose their relevant credentials and expertise and the scope of the review conducted.

## Green loans and private placements

Green loans are getting more traction from ASEAN issuers. Two Singapore property companies – Fraser Property Limited and Ho Bee Land – took out green loans in 2018, a regional first.

Private placements (PP) are also becoming increasingly visible and participate in supporting local banks, as the case of Thai TMB Bank's green PP in June 2018 illustrates.[16]

However, as PP and loans are private deals, they are more likely to have limited public disclosure – e.g. no green bond framework or external review – which can hinder market transparency.

## Median deal size is USD83m; average – USD251m

20% of ASEAN green deals by number are of benchmark size, i.e. at least USD500m. These were issued by one development bank, one sovereign and non-financial entities. Benchmark deals create liquidity, i.e. provide investors room to trade in the secondary market, and this, in turn, can attract more investors.

However, ASEAN deals are generally smaller demonstrating that entities with lower funding requirements and/or those issuing green bonds for the first time can also get access to capital markets funding. More information on support mechanisms and risk sharing, which can help smaller issuers come to market, is provided in our *ASEAN Green Financial Instruments Guide*.

## Most deals have external reviews

The use of external reviews is a notable feature of the ASEAN green bond market. 81% of deals, by volume, benefit from either a second party opinion (72%), Certification under the Climate Bonds Standard (6% of total issuance), or a green rating (3%).

CICERO is the leading regional provider of second party opinion (by number and amount), followed by Sustainalytics.

Malaysian ratings agency RAM Holdings, the leading and largest credit rating agency in Malaysia and South-East Asia, started providing environmental benefit ratings to green bonds in January 2018, responding to the demand for such services in the region.

51% of deals by volume – or 40% by number of bonds – explicitly state in their framework or external review that they are compliant with the ASEAN Green Bond Standards.

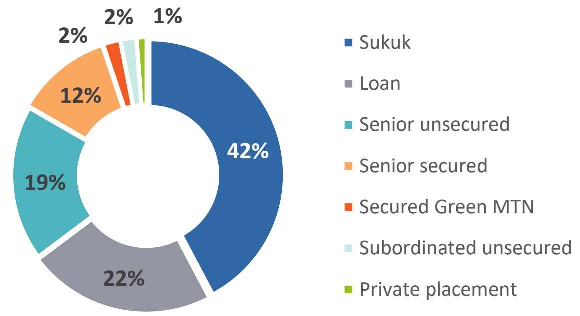
## Underwriting of ASEAN green bonds is fairly evenly spread among the top 5 underwriters

CIMB Group Holdings Bhd has the largest amount of underwritten green bond deals, but HSBC is a close second. CIMB, HSBC, DBS and Malayan Banking have all participated in multiple deals.

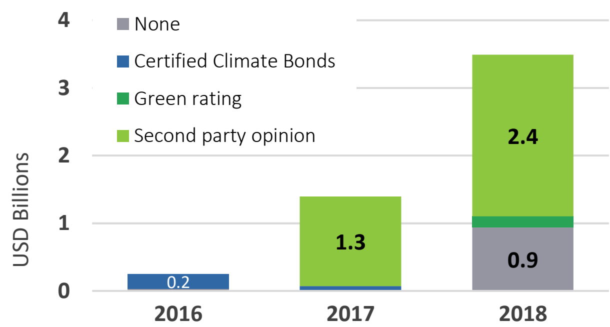
Other ASEAN underwriters in the top 25 include Bank of Philippine Islands, Malaysian Industrial Development Finance Bhd (MIDF), Vietinbank Securities, AMMB Holdings Bhd, Affin Holdings Bhd as well as United Overseas Bank Ltd.

ASEAN stock exchanges are yet to create dedicated green bond segments. Several green bonds have already been listed on the Singapore, Indonesia and Hanoi stock exchanges. Singapore Stock Exchange is the most active, with 34 listed green deals which total USD15bn.[17]

### 42% of ASEAN green bonds are in sukuk format

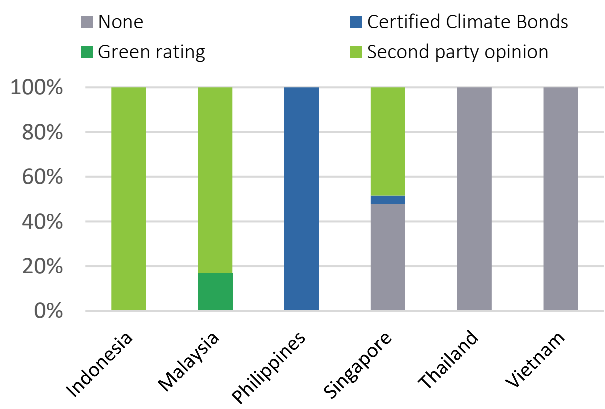



### 81% of ASEAN issuance has external review




***Note***: *All 2018 data as of 30 November 2018.*

### Philippines and Singapore as regional pioneers of Climate Bond Certified issuance

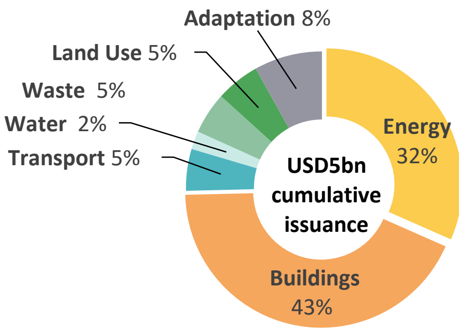



### Top 5 underwriters of ASEAN green bonds

| Rank | Underwriter | Country | Deals | Amount USD |
|---|---|---|---|---|
| 1 | CIMB Group | Malaysia | 2 | 368m |
| 2 | HSBC | UK/HK | 2 | 321m |
| 3 | DBS Group | Singapore | 3 | 288m |
| 4 | Malayan Banking | Malaysia | 3 | 268m |
| 5 | Abu Dhabi Islamic Bank | UAE | 1 | 250m |
| | Dubai Islamic Bank | UAE | 1 | 250m |
| | Citi | USA | 1 | 250m |

***Source***: *Thomson Reuters*

## Low-carbon buildings are the predominant category for allocations from green bond proceeds

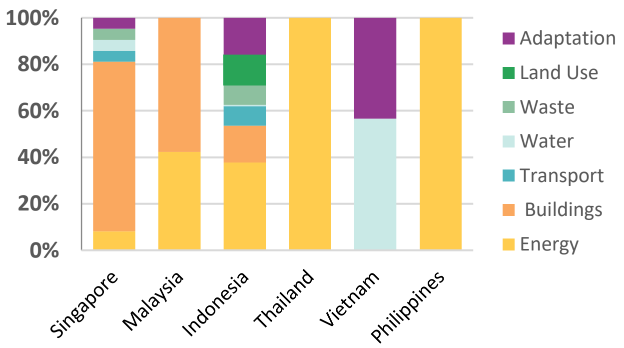



**Over 40% of ASEAN green bonds' proceeds target low carbon buildings.** The 2017 and 2018 share are quite similar. Energy represents the second largest sector, with solar and geothermal being the two most common energy types financed. The two local government issuers from Vietnam have the highest allocation of bonds proceeds going to water management and adaptation.

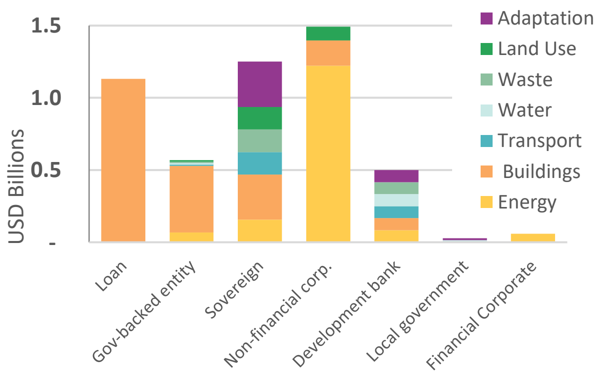
Singapore issuers are financing, for the most part, low carbon buildings via green loans. Non-financial corporates tend to use green bonds' proceeds for renewable energy projects or assets.

Deals from development banks are cross-sectoral. The Republic of Indonesia's green bond and green sukuk framework also lists as eligible categories, among others, renewable energy, energy efficiency in buildings, adaptation, sustainable transport, waste management and sustainable agriculture.

## Singaporean green bonds mainly finance buildings




## Green bonds from ASEAN non-financial corporates focus more on renewable energy




## CASE STUDY: green bond for low carbon buildings

Singapore's **CDL Properties** issued a SGD100m green bond in April 2017, the first green and the first Certified Climate Bond by a Singapore company.[18] The bond was Certified under the Low Carbon Buildings (Commercial) Criteria of the Climate Bonds Standard.[19] The issuer also obtained a second party opinion from Sustainalytics for its green bond framework.[20]

Proceeds refinanced Republic Plaza, one of Singapore's tallest skyscrapers in the heart of Singapore's Central Business District. The combined impact of the retrofit and upgrades is an estimated 33% reductions in emissions.

## CASE STUDY: green bond financing clean energy and repurposing a brownfield site

In April 2018, **UiTM Solar Power Sdn Bhd** issued a MYR22m (USD57m) green SRI sukuk to finance the construction of a 50MW solar power plant in Gambang, Pahang, Malaysia.[21] It is the first university worldwide to issue a green sukuk. CICERO provided the second party opinion on the issuer's green SRI sukuk framework.[22]

**Land conservation aspect**

The issuer included clear environmental considerations in the site selection and assessment process. The site had to be located more than 5km from any forest reserve area and shoreline.

**Repurposing degraded land**

A significant part of the land selected was an abandoned tin mine that stopped operation in the 1970s. As a result, about 50% of the land is barren and tin mine lakes comprise 15% of the land, with 10% secondary forest, 5% palm oil plantation and the rest is shrubs. So while the project funds the construction of a solar power generation plant, it also demonstrates sustainable land use by repurposing a brownfield site.

## CASE STUDY: green bond financing land use

Indonesia's **TLFF I Pte Ltd**, a financing vehicle for the Tropical Landscapes Finance Facility, closed a USD95m multi-tranche sustainability bond in February 2018 as part of a USD350m project.[23] The notes received an external review from Vigeo Eiris and benefit from a USAID guarantee.[24] TLFF is a joint venture between France's Michelin and Indonesia's Barito Pacific Group.

Proceeds will finance a sustainable rubber plantation on heavily degraded land in the Jambi and East Kalimantan provinces of Indonesia. The plantation will cover 34,000ha out of 88,000ha. The remaining land will be used for rainforest conservation, aquaculture, land restoration and smallholder plantations, including bamboo, cocoa, coconut, coffee, palm and rubber.

# The wider labelled bond market in ASEAN

## Some labelled green bonds are not aligned with Climate Bonds Taxonomy

Climate Bonds Initiative focuses on climate solutions, and the bonds included in the CBI green bond database are those labelled green bonds, where 95% or more of the proceeds are expected to go to climate change mitigation, adaptation or resilience projects.

| Issuer | Amount | Issuer type | Date | Country | Comments |
|---|---|---|---|---|---|
| **Quantum Pacific Shipping** | USD40m | Non-financial corporate | Nov 2018 | Singapore | Not included in Climate Bonds' green bonds database as the climate benefits of the financed SOx scrubbers are not ambitious enough to be aligned with the Climate Bonds Taxonomy. The vessels are fuelled with and will transport fossil fuels. |
| **Bank OCBC NISP** | USD150m | Financial corporate | Aug 2018 | Indonesia | Not included in Climate Bonds' green bonds database due to insufficient information on use of proceeds to determine alignment to the Climate Bonds Taxonomy.[25] |
| **BDO Unibank** | USD150m | Financial corporate | Dec 2017 | Philippines | Not included in Climate Bonds' green bonds database due to insufficient information on energy efficient projects and whether they include fossil-fuel improvements.[26] |
| **Bangchak Petroleum Plc** | THB3bn | Non-financial corporate | Feb 2015 | Thailand | Not included in Climate Bonds' green bonds database due to insufficient information on use of proceeds to determine alignment to the Climate Bonds Taxonomy.[27] |

## Singaporean entities dominate rising sustainability and social debt issuance

Not only green bonds, but social, sustainable and Sustainable Development Goals (SDG) bonds too have been issued in ASEAN countries. Social & responsible investment debt instruments emerged in the regional market in mid-2017. Most deals have come from Singapore-based issuers (in the case of bonds) and borrowers (in the case of loans). Thailand's KASIKORNBANK has specifically included green asset categories under its sustainability bond framework.

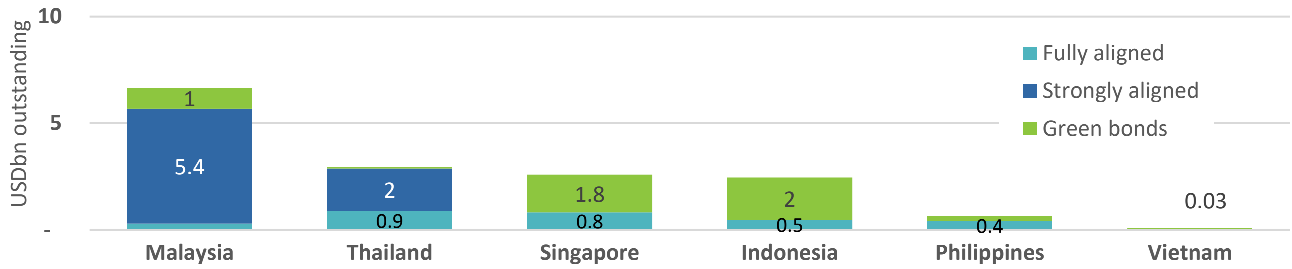
| Issuer | Amount | Issuer type | Date | Country | Comments |
|---|---|---|---|---|---|
| **KASIKORNBANK** | USD100m | Financial corporate | Oct 2018 | Thailand | Sustainalytics provided the second party opinion for KBank's **sustainability bond**. The eligible categories for the use of proceeds are renewable energy, energy efficiency, green buildings, clean transport, access to essential services, affordable housing, employment generation, socioeconomic advancement and empowerment. Green categories align with the ASEAN Green Bond Standards, opined Sustainalytics.[28] |
| **Olam International** | USD500m | Non-financial corporate (food sector) | Mar 2018 | Singapore | The three-year **sustainability-linked revolving credit facility** is Asia's first sustainability-linked *club* loan – one that has multiple banks issuing the loan together and in collaboration with the borrower. Pre-defined environmental, social and governance metrics are tested on an annual basis and if the pre-set improvement targets are achieved, the interest rate on the facility will be subsequently reduced. Sustainalytics assessed the improvement targets of ESG indicators.[29] |
| **Wilmar International** | USD200m | Non-financial corporate (food sector) | Nov 2017 | Singapore | Dutch-based bank ING provided its first Asian **sustainability performance-linked loan** to Wilmar, a palm oil producer. Sustainalytics will track annually improvement of targets based on ESG metrics. If the performance milestones are met, the interest rate for part of the loan will be reduced for the following year.[30] |
| **WLB Asset Pte Ltd (Impact Investment Exchange)** | USD8m | Financial corporate | Jul 2017 | Singapore | Women's Livelihood Bond, a **social bond** listed on the Singapore Stock Exchange, is set to increase credit access, improve market linkages and enhance goods and services for 385,000 women in Cambodia, Vietnam and the Philippines.[31] |

# Climate-aligned bonds across ASEAN markets

## A USD15bn outstanding climate-aligned universe from ASEAN countries

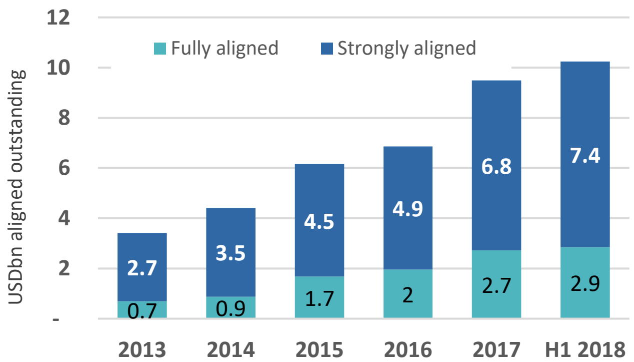
Labelled green bonds are part of what Climate Bonds Initiative calls the climate-aligned bond universe. The term "climate-aligned bond universe" includes bonds from fully- and strongly-aligned issuers and green bonds. About half of the ASEAN climate-aligned universe (48%) comprises outstanding bonds from strongly-aligned issuers, i.e. companies which generate 75-95% of their revenues from climate-aligned sectors. Outstanding bonds from fully-aligned issuers, i.e. pureplay companies, account for about a fifth (19%). Green bonds represent a third. *For more information on the terminology, please see the definitions on p.1.*

### ASEAN climate-aligned bond markets have different strenghts




In the rest of this section, green bonds have not been accounted for. We focused instead on the outstanding bonds from fully- and strongly-aligned issuers. These issuers can bring more visibility to their bonds by labelling them green. Ongoing reporting on allocation of proceeds and impact metrics can provide transparency, which is pivotal to international bond issuance.

### Outstanding bonds from ASEAN fully and strongly-aligned issuers constitute a USD10bn market




***Note**: All data for outstanding bond figures from fully and strongly-aligned issuers in this report, excluding green bonds, is as of end of H1 2018*

**Strongly-aligned issuers are by far the largest category.** The largest issuer is **Prasarana Malaysia Berhad**, a provider of public transport infrastructure owned by the Government of Malaysia. It has USD5.4bn of outstanding climate-aligned bonds. The second largest is the **State Railway of Thailand**, a state-owned rail operator, with USD2bn outstanding.

**5% of outstanding fully- or strongly-aligned bonds have been rated investment grade by an international rating agency.** The ratings range from AA to A. The corresponding issuing entities are from the water or the energy sector and are all fully-aligned. There is one issuer from Singapore (**Sindicatum Renewable Energy**) and four from Thailand (**Eastern Water Resources Development and Management, Energy Absolute, SPCG** and **TTW**).

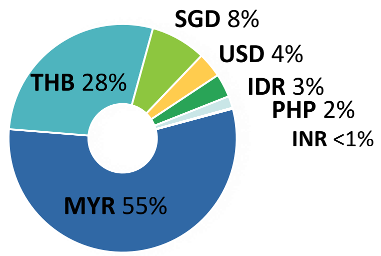
The remaining outstanding fully and strongly-aligned bonds have not been attributed any rating by international rating agencies. The majority of non-rated bonds are private placements.

### Malaysia has the highest volume and number of outstanding climate-aligned bonds, followed by Thailand

| Country | Amount (USD) | ASEAN share | Deals | Issuers | Sectors |
|---|---|---|---|---|---|
| Malaysia | 5.7bn | 55% | 87 | 3 | Energy, Transport |
| Thailand | 2.9bn | 28% | 75 | 7 | Energy, Transport, Water |
| Singapore | 819m | 8% | 5 | 2 | Energy, Waste |
| Indonesia | 470m | 5% | 11 | 2 | Land use |
| Philippines | 405m | 4% | 3 | 1 | Energy |
| Total | **10.2bn** | | **181** | **15** | |

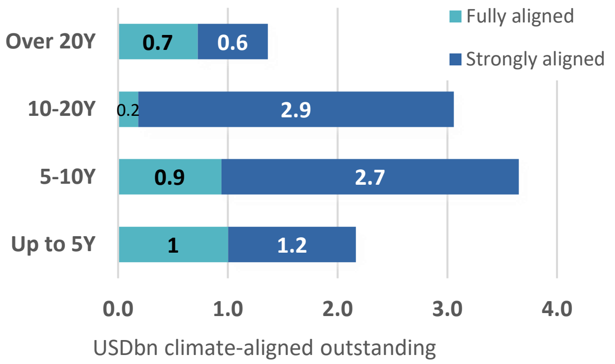
It was not possible to retrieve outstanding climate-aligned bond data from Thomson Reuters EIKON nor Bloomberg for five of the ten ASEAN countries: Brunei, Cambodia, Laos, Myanmar and Vietnam. Whilst these nations may have fully- or strongly climate-aligned entities, the fact that none has been picked up through our screening process could indicate that these are less visible, have not yet issued bonds or that their bonds have matured.

### Over 80% of ASEAN climate-aligned outstanding bonds are denominated in Malaysian Ringgit or Thai Baht




**Most bonds have been issued in local currency.** Over half (55%) of the total outstanding climate-aligned volume is denominated in Malaysian Ringgit, and 28% in Thai Baht. Four bonds issued in Indonesia and one in the Philippines are USD-denominated and account for the 4% of outstanding bonds in hard currency.

### Outstanding bonds from strongly-aligned issuers are longer-dated

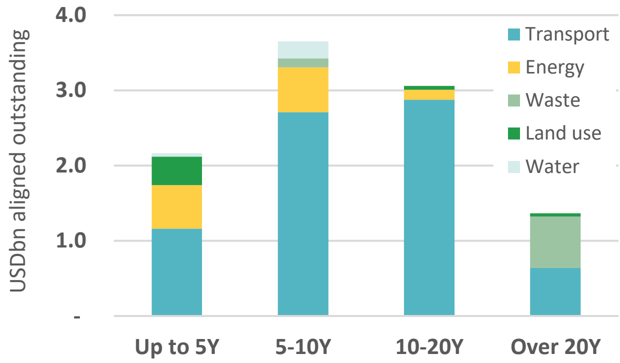



Outstanding bonds from strongly-aligned issuers have, on average, a longer tenor: 11.3 years versus 7.9 for fully-aligned. This is mainly due to issuance from the government-owned public infrastructure entity Prasarana Malaysia Berhad, whose bonds have an average tenor of 13.5 years.

36% of outstanding bonds fall in the 5-10Y tenor bracket, while 10-20Y outstanding bonds account for 30%. Bonds with a maximum tenor of 5 years make up 21% of outstanding volumes.

**Within the next 7 years, nearly 60% of the outstanding climate-aligned bonds will mature**, providing ASEAN entities with an opportunity to refinance by labelling future issuance as green.

### Transport and waste bonds are longer-dated




Transport has, on average, the longest-dated outstanding bonds of all sectors (11.3 years). The waste sector has two outstanding perpetual bonds. The average maturity of outstanding bonds in energy is around 8 years, whilst in water management and sustainable land use it is between 7 and 8 years.

### Transport is the largest sector financed by ASEAN fully- and strongly-aligned outstanding bonds

| Theme | Amount (USD) | Bonds | Issuers | Countries |
|---|---|---|---|---|
| **Low carbon transport** | 7.4bn | 95 | 2 | 1 from Malaysia, 1 from Thailand |
| **Renewable energy** | 1.3bn | 64 | 8 | 4 from Thailand, 2 - Malaysia, 1 - Philippines, 1 - Singapore |
| **Sustainable waste management** | 804m | 11 | 1 | 1 from Singapore |
| **Sustainably land use** | 470m | 7 | 2 | 2 from Indonesia |
| **Sustainable water infrastructure** | 275m | 4 | 2 | 2 from Thailand |
| **Total** | **10.2bn** | **181** | **15** | |

### Transport is the largest theme

**At USD7.4bn outstanding, the transport sector is the largest category in the ASEAN fully and strongly-aligned bond universe.** Two strongly-aligned issuers were identified: state-owned public transport company **Prasarana Malaysia Bhd** (USD5.4bn bonds outstanding as of H1 2018) and **State Railway of Thailand** (USD2bn outstanding). Consequently, 73% of outstanding bonds in transport are MYR-denominated. The second most common currency is the Thai Baht (27%).

Prasarana Malaysia is the owner and operator of Malaysia's urban rail services, which currently include two light rail transit (LRT) networks and the KL Monorail, and also operates the MRT line. Light Rail Transit Line 3 is scheduled for completion in August 2020, and this 37km extension is expected to benefit 74,000 passengers and will improve connectivity in the western part of Greater Kuala Lumpur/Klang Valley.[32]

In March 2018, the Thai cabinet approved a THB225bn (USD7.2bn) high-speed rail project that will link three airports with another airport in the eastern province of Rayong. The route will run for approximately 220km, with trains reaching a maximum speed of 250km/h. The first phase of a Thailand-China cross-border high-speed rail route is expected to be operational in 2021. Beijing considers the line to be part of its much-vaunted Belt and Road initiative. These new connections are part of the government's larger transport infrastructure investment action plan worth THB2.02tn, covering rails, roads, airports and seaports.[33, 34]

**By 2020, these two issuers will have to repay USD1.3bn in outstanding aligned bonds** (and an additional USD2.8bn by 2025). This will be an opportune time for them to refinance their debt by marketing the bonds as green.

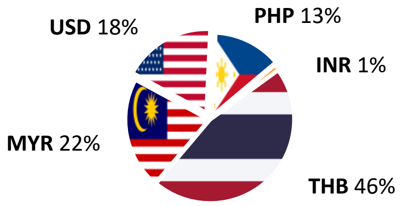
### Energy is the runner-up

**Energy is the second largest theme financed by fully and strongly-aligned bonds from ASEAN, with USD1.3bn outstanding.** Despite being smaller than transport, this theme has the highest number of climate-aligned issuers, all deriving at least 95% of their revenue from climate-aligned activities.

Leading the way is **Energy Development Corporation**, the largest producer of geothermal energy in the Philippines (USD404m bonds outstanding as of June 2018). Thai solar company **SPCG PCL** comes second with USD266m outstanding.

**Quantum Solar Park** and **Tadau Energy** (Malaysia), as well as **Sindicatum Renewable Energy** (Singapore) are already green bond issuers, while Thai companies **Energy Absolute**, **Thai Solar Energy** and **Super Energy Corp** have yet to join their ranks.

### Most outstanding bonds in energy are THB-denominated




By 2025, ca. USD1.1bn of outstanding aligned bonds will mature. It could provide an avenue for issuers to enter the green bond market by labelling their next climate-aligned issuance as green.

### Waste sector ranks third by outstanding volumes

Outstanding bonds in the waste sector account for USD804m. The issuer, **Hyflux Ltd** (Singapore), has expanded from its original focus on desalination and wastewater recycling into energy. Its TuasOne waste-to-energy plant, due for completion in 2019, will process 3,600t of waste per day and generate 120MW of energy.

### Land use is the fourth largest theme

There are USD470m worth of bonds outstanding within this theme from two Indonesian corporates, both part of Asia Pulp & Paper. **Indah Kiat Pulp & Paper Corp Tbk PT** (USD430m outstanding) produces certified pulpwood from 100% sustainable forest management, while the **Pabrik Kertas Tjiwi Kimia Tbk PT** paper mill produces PEFC certified paper products.

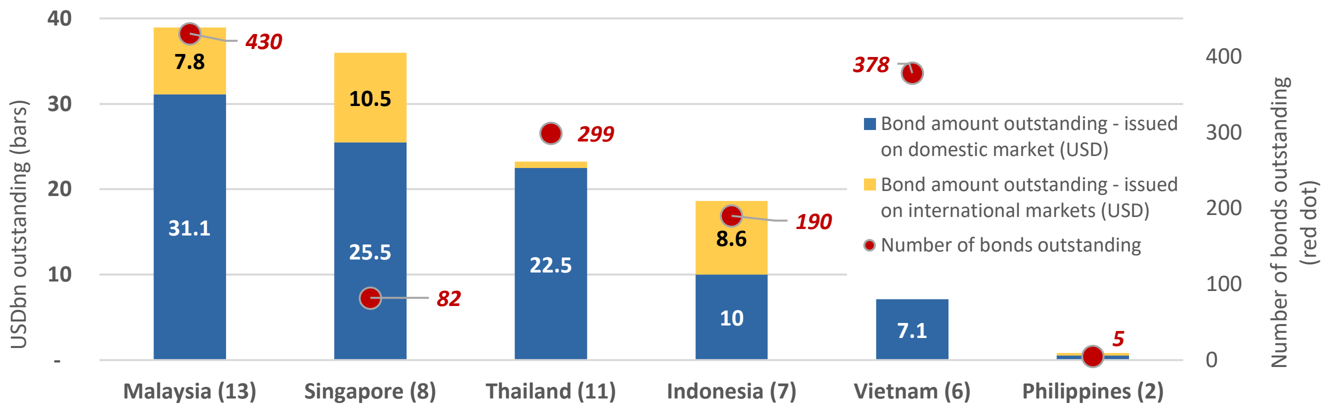
### Water is the fifth theme by size

Two fully-aligned water-sector issuers were identified in Thailand: **TTW PCL** (USD204m outstanding) and **Eastern Water Resources Development and Management PCL** (USD71bn).

TTW PCL is Thailand's largest private producer of tap water. It supplies the Provincial Waterworks Authority and serves the areas west of Bangkok. TTW aims to alleviate the pressures from growing consumer demand and to address environmental concerns such as the depletion of groundwater and saltwater penetration.

# Public sector bond issuance across ASEAN

### 47 public sector entities from the ASEAN region identified as potential green bond issuers




In a different scoping exercise, Climate Bonds identified existing bond issuers among local government (cities, municipalities, etc.), municipally- and state-owned companies or funds as well as Local Government Funding Agencies (LGFAs) from the ASEAN region.

**Public sector entities are an important pillar of the green bond market.** Local governments were the first entrants in many domestic green bond markets and remain significant contributors of climate investments in a range of sectors. For instance, Nordic public sector green bond proceeds are being channeled primarily towards renewable energy, low carbon buildings and transport.[35] As of 30 November 2018, development banks, government-backed entities, local governments and sovereigns represented 48% of the global green bond market, thus supporting market development.

47 public sector entities with 1,384 outstanding bonds worth USD125bn were identified in the ASEAN region, and 22% of all outstanding bonds were issued internationally. Only one of these 47 issuers – Ho Chi Minh City – has issued a green bond so far.

**Malaysia**, **Singapore** and **Thailand** from the top 3 in terms of public sector outstanding bond volume. **Singaporean** issuers have the highest volume listed on international markets (USD10.5bn), followed by **Indonesia** (USD8.6bn). **Malaysia** has the highest number of public sector issuers and the highest number of bonds outstanding (430). We only identified 6 issuers from **Vietnam**, but the country ranks second by number of bonds at 378.

The screening exercise returned only 2 nations with bonds from local government. Malaysia's **State of Sabah** has USD239m bonds outstanding, all issued on the domestic market. In Vietnam, **Hai Phong City**, **Da Nang City** and **Ho Chi Minh City Finance and Investment State-owned Company** have outstanding bonds. The latter has the highest amount and number of bonds outstanding (USD567m, 34 bonds) and is a green bond issuer.

Awarded the title of Green City of the Year in 2018 by the WWF's One Planet City Challenge programme, Da Nang unveiled plans for solar power development, biofuel use, Bus Rapid Transit routes and wastewater treatment. The city is one of the major port cities in Vietnam but is very vulnerable to climate change and extreme weather events, such as typhoons and flooding. The issuance of a green bond would notably help to improve the city fund projects and infrastructure that builds up its resilience to climate change.

# Indonesia

## Indonesia has USD2bn green bond market

All four green bonds from Indonesian issuers came to market in 2018. The country now boasts the largest ASEAN green bond market at USD1.98bn.

Indonesia's USD1.25bn green sukuk was the first sovereign debt instrument to come out in the region and the 5th globally. It is not the only benchmark-size deal, however: Star Energy Geothermal issued a USD580m deal for its Wayang Windu plant.

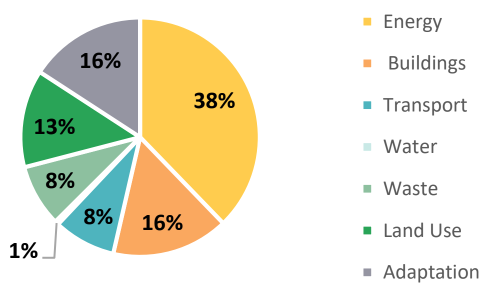
Three of four deals – or 97% by volume – have been issued in USD. Non-financial corporates have issued longer-dated bonds in the 10-20Y range; the two other bonds have tenors up to 5Y.

Indonesia's economic growth has come at the expense of nature – deforestation is a key problem. In its second party opinion of the Indonesian green sovereign sukuk, CICERO specifically highlighted the need for the issuer to avoid deforestation projects. As per Indonesian regulation, it is mandatory to undertake an Environmental Impact Assessment (AMDAL) for all projects that have a boundary overlap with, or may impact on, any of the classifications of protected area including forest area, national parks and reserves.

It is heartening to see that almost 30% of green bond proceeds from Indonesian issuers are earmarked for sustainable land use including sustainable agriculture, afforestation and rainforest conservation, as well as climate change adaptation measures. Investment in renewable energy (the highest sector allocation by issue volume) should also help reduce the need for further rainforest clearing.

Indonesian green bond issuers demonstrate best practice in terms of external review: all deals have received a second party opinion.

### Almost 30% of Indonesian green bond proceeds are allocated to sustainable land use and adaptation




## Potential climate-aligned issuers

Two climate-aligned entities in the certified forestry & paper sector have been identified as potential green bond issuers: **Indah Kiat Pulp & Paper Corp Tbk PT** and **Pabrik Kertas Tjiwi Kimia Tbk PT**. Their outstanding bonds amount to USD470m.

## Potential public sector issuers

The country has seven state-owned enterprises (SOEs) which could be future entrants in the green bond market, if the proceeds of their next issuance are allocated to climate-aligned assets and projects. Also known as Badan Usaha Milik Negara (BUMN), Indonesian SOEs play an important role in the national economy. These entities include **PLN**, the key electricity generation and distribution provider in the country, and financial institutions Indonesia **Eximbank** and **Bank Rakyat Indonesia**.

Nearly half of the SOEs' total outstanding debt (46%) was issued internationally, which could help international green bond placement in combination with a robust green bond framework and adequate pre- and post-issuance disclosure around use of proceeds and impact on CO2 and GHG emissions.

The sovereign green sukuk provides ample examples of appropriate categories: renewable energy, public transport, waste to energy projects, waste management, rehabilitation of landfill areas, habitat and biodiversity conservation, afforestation, developing sustainable agriculture such as organic farming, flood mitigation, drought management. New fossil fuel based electric power generation capacity and large-scale hydropower plants (>30MW capacity) are not eligible, and fossil fuel infrastructure is excluded from eligibility for energy efficiency projects.

## Sector growth and future potential

Jakarta has committed to reduce its emissions by 30% from 2005 levels and to source 30% of its energy from renewable sources by 2030. An IFC report has identified close to USD30bn investment opportunity for the capital city, particularly in green buildings, electric vehicles, and renewable energy.[36]

Our *Green Infrastructure Investment Opportunities (GIIO) Indonesia* report provides an in-depth coverage of additional green investment opportunities across the country.[37] It features reference case studies for low-carbon transport, clean energy, water and waste management and low-carbon buildings, as well as a list of projects in planning and in development to highlight the type of green infrastructure investment opportunities that would align with the Climate Bonds Taxonomy of climate-friendly sectors.

### Indonesian green bond issuers to date

| Issuer Name | Issued USD | Issue date | Issuer type | Use of proceeds |
|---|---|---|---|---|
| TLFF I Pte Ltd | 95m | Feb 2018 | Non-financial corporate | Land Use |
| Republic of Indonesia | 1.25bn | Mar 2018 | Sovereign | Energy, Buildings, Transport, Waste, Land Use, Adaptation |
| Star Energy Geothermal (Wayang Windu) | 580m | Apr 2018 | Non-financial corporate | Energy |
| PT Sarana Multi Infrastruktur | 50m | Jul 2018 | Government-backed entity | Energy, Transport, Water, Waste, Land Use |

***Note****: Issued amount is converted to USD regardless of currency of issue.*

# Singapore

## Singapore's USD2.6bn outstanding climate-aligned universe is dominated by green bond issuance

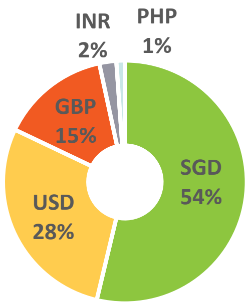
The city-state is the second largest green bond market in ASEAN at USD1.76bn. Green bonds have been issued in five different currencies and there is one repeat green bond issuer.

Singapore's green bond market is diverse and developing at a steady pace. Green loans account for 64% of the green bond market in Singapore: 2 out of 6 deals are green loans.

DBS Bank and Fraser Property have issued debt in the USD500m-1bn range, and together account for 78% of the market. The benchmark deal from DBS was raised for a variety of asset types, while Fraser Property became the third issuer in the low-carbon buildings sector in September 2018 with its SGD1.2bn loan which refinances Frasers Tower. The building received the Singapore Building and Construction Authority Green Mark Platinum Award.

Green bonds from Singapore entities tend to be shorter-dated. In fact, 82% of the bonds by amount are in the 'up to 5Y' category, and 3% are between 5-10Y.

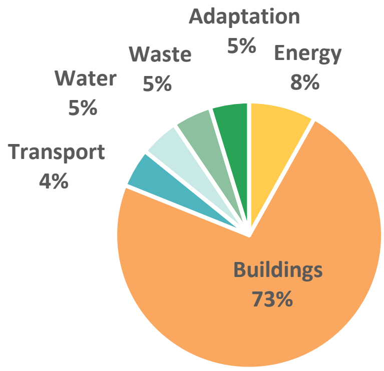
## 6 Singaporean deals denominated in 5 different currencies




43% of green bonds issued in hard currency, and the six deals to date boast 5 different currencies. This reflects Singapore's international pedigree. For instance, Ho Bee Land's loan is in pound sterling, as it was raised to finance its GBP650m acquisition of Ropemaker Place, a prime office property in London's City.

Singapore ranks amongst the regional leaders in terms of external reviews. The first green bond to come to market in April 2017 was Certified under the Low Carbon Buildings (Upgrades) Criteria of the Climate Bonds Standard. It is only the second green bond to have been Certified in the region. All but one deal issued on the market have obtained an external review.

## Over 70% of proceeds raised by Singaporean green bond issuers go to low carbon buildings




The most recent labelled green bond from Quantum Pacific Shipping is not eligible for inclusion in Climate Bonds' green bond database. The vessels will transport fossil fuels and the climate benefits of financing of SOx scrubbers are not ambitious enough, compared to previous issuance in the LNG shipping sector, which targeted emission reductions in CO2, GHG and other pollutants, both in the design and operational phases of the vessels' life.[38]

## Sector growth and future potential

Along with **Sindicatum Renewable Energy**, **Hyflux Ltd** has been identified as a climate-aligned issuer. The former has already translated its climate commitment into repeat green bond issuance. Hyflux has yet to debut in the market.

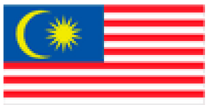
At least eight state-owned enterprises or funds may have suitable assets to become green bond issuers, including several with a significant percentage of outstanding bonds listed on international markets. One of them is property company **CapitaLand**, highlighted in *Bonds and Climate Change: the State of the Market in 2018* for its high ranking across environmental metrics, amongst others.[39]

Other public sector candidates identified as potential green bond issuers are **Singapore Telecommunications** (ICT sector), **Temasek** (sovereign wealth fund), **Housing and Development Board** (housing), **Land Transport Authority** (transport) and **Neptune Orient Lines** (shipping).

## Singaporean green bond issuers to date

| Issuer Name | Issued USD | Issue date | Issuer type | Use of proceeds |
|---|---|---|---|---|
| CDL Properties | 71m | Apr 2017 | Non-financial corporate | Buildings |
| DBS Group | 500m | Jul 2017 | Development bank | Energy, Buildings, Transport, Water, Waste, Adaptation |
| Sindicatum Renewable Energy | 40m<br>20m | Jan 2018<br>Aug 2018 | Non-financial corporate | Energy |
| Ho Bee Land | 256m | Aug 2018 | Loan | Buildings |
| Fraser Property Limited | 876m | Sep 2018 | Loan | Buildings |

***Note**: 1. Issued amount is converted to USD regardless of currency of issue. 2. The USD40m green loan signed in November 2018 by Quantum Pacific Shipping is excluded from the Climate Bonds database as its proceeds fail to demonstrate significant climate mitigation benefits.*



# Malaysia

## Malaysia boasts a USD6.7bn climate-aligned bond universe with almost USD1bn of green bonds

Since July 2017, Malaysia's green bond market has been showing growing appetite for climate-aligned investments. As of the end of November 2018, it was the third largest green bond market in the ASEAN region at USD979m.

Government-backed entities account for 53% of market volume, non-financial corporates for the rest.

Allocations to low carbon buildings represent 58% of proceeds, allocations to energy the rest. The largest issuer in the building sector is Permodalan Nasional Berhad (PNB Merdeka Ventures). The largest energy-sector issuer is Quantum Solar Park (Semenanjung Sdn Bhd).

All deals were issued in domestic currency. Green bond deals in the Malaysian market tend to be longer dated. 5 out of 6 deals (or 89% by volume) fall in the 10-20Y tenor bracket. 82% of the bonds by amount in the USD100-500m size category, which is reasonably large for an emerging market.

Malaysian green bond issuers show regional best practice in terms of external review. All deals received either a green rating or a second party opinion.

## Potential climate-aligned issuers

At of the end of H1 2018, Malaysia had the largest amount of bonds outstanding from strongly-aligned issuers in the region. The energy and transport sectors offer strong potential to grow the green bond market. **Quantum Solar Park Semenanjung Sdn Bhd** and **Tadau Energy Sdn Bhd** (energy) are already green bond issuers, but **Prasarana Malaysia Bhd** is well placed to debut in the green bond market to fund or refinance the expansion of its light rail system.

## Public sector issuers

In order to grow its green bond market, the country can also capitalize on a wide range of SOEs, including several which have already positioned themselves in the international bond market. Large bond issuers from the state-owned sector include financial corporates **Malayan Banking**, **Cagamas**, and **Bank Pemangunan Malaysia, Malaysia's export import bank** and the sovereign wealth fund (**Khazanah Nasional**). Housing companies **LPPSA** and **Pr1ma Corporation** may also have low carbon buildings that could be financed – be it for new development or upgrades to existing housing stock.

Existing bond issuer **State of Sabah** could also consider financing the shift towards a more sustainable energy mix via a green bond.

## Malaysian green bond issuers to date

| Issuer Name | Issued USD | Issue date | Issuer type | Use of proceeds |
|---|---|---|---|---|
| Tadau Energy (Edra Power) | 58m | Jul 2017 | Non-financial corporate | Energy |
| Quantum Solar Park (Semenanjung Sdn Bhd) | 236m | Oct 2017 | Non-financial corporate | Energy |
| Permodalan Nasional Berhad (PNB Merdeka Ventures) | 461m | Dec 2017 | Government-backed entity | Buildings |
| Segi Astana Sdn Bhd | 104m | Jan 2018 | Non-financial corporate | Buildings |
| Mudajaya Group Berhad (Sinar Kamiri) | 63m | Jan 2018 | Non-financial corporate | Energy |
| UiTM Solar Power Sdn Bhd | 57m | Apr 2018 | Government-backed entity | Energy |

***Note**: Issued amount is converted to USD regardless of currency of issue.*

# The Philippines

## The Philippines feature a USD630m climate-aligned universe with USD226m of green bonds

There is currently only one green bond from the Philippines that is aligned to the Climate Bonds Taxonomy. AP Renewables' USD226m deal from early 2016 was the first in ASEAN to be Certified under the Climate Bonds Standard, a sign of best practice in the market in terms of climate ambition. The proceeds finance geothermal power generation.

## Potential climate-aligned issuers

**Energy Development Corporation** has been identified as a climate-aligned issuer which could boost the country's green bond volume since the last issuance in 2016. This issuer has a track record of having issued a bond in hard currency.

## Potential public sector issuers

Two SOEs have the opportunity to give a new impetus to green finance, having tapped both domestic and international markets.

The first is **LANDBANK** which was awarded a Green Leadership award for its Environmental Due Diligence (EDD) system in 2015.[40] Its renewable energy lending program covers a wide range of technologies and eligible borrowers.[41] The bank offers financing support to low carbon building initiatives.[42]

The second is the **Development Bank of the Philippines**. Its Green Financing Program is designed primarily to assist strategic sectors, industries and local government units (LGUs) in adapting environment-friendly processes and technologies and incorporating climate change adaptation, mitigation and disaster risk reduction measures, by providing financing and technical assistance.[43]

# Thailand

## Green bonds represent only a small fraction of the USD2.9bn Thai climate-aligned bond universe

The first green bond from a Thai entity was raised in June 2018 by TMB Bank in a private placement of USD60m. The IFC was the sole investor. The proceeds will be used to finance renewable energy.

After the cut-off date for this report (30 Nov 2018), Thai power company B.Grimm Power PCL announced its maiden green bond issuance, the first in the country to be Certified under the Climate Bonds Standard. The proceeds are earmarked for nine operational solar power plants with a total capacity of 67.7 MW and seven solar plants currently under construction with a combined capacity of 30.8 MW. As part of its commitment to support the scaling up of green finance in ASEAN countries, the Asian Development Bank (ADB) reported to have subscribed to the bond.[44]

Thailand boasts the highest number of fully-aligned issuers in ASEAN, which is promising for green bond market development. There are also a significant number of state-owned enterprises that have a bond issuance track record and could issue a green bond for the climate-aligned assets and projects in their portfolio.

### Potential climate-aligned issuers

The **State Railway of Thailand** offers an avenue for green bond issuance in the low carbon transport sector. It had USD2bn worth of outstanding bonds as of the end of H1 2018.

The second largest climate-aligned sector is energy, where fully-aligned issuers such as **SPCG PCL**, **Energy Absolute PCL**, **Thai Solar Energy PCL** and **Super Energy Corp PCL** had a combined total of USD603m outstanding bonds (end of H1 2018 data).

Finally, fully-aligned issuers identified in the water sector include **TTW PCL** and **Eastern Water Resources Development and Management PCL**.

### Potential public sector issuers

At least eleven SOEs active on the vanilla bond market can provide further support and liquidity during the country’s green transition. Financial entities include: **Bank for Agriculture and Agricultural Cooperatives**, **Government Housing Bank**, **Government Savings Bank** and **EXIM Thailand**. **Provincial Electricity Authority**, **Electricity Generating Authority of Thailand**, **Metropolitan Electricity Authority** are examples of utilities and in the transport sector, **Bangkok Mass Transit System** is well placed in this regard.

# Vietnam

## USD27m green bonds have been issued to date in Vietnam but there is further public sector potential

According to German development agency GIZ, Vietnam will need roughly USD31bn by 2020 to move its current carbon-dependent development onto a more sustainable path, and towards its Nationally Determined Contribution (NDC).

Under the Vietnam Green Growth Strategy (VGGS), approved by the government for the 2011-2020 period, the capital market will be key in achieving the country’s targets. It is here that green bonds will be vital – raising funds specifically for green projects and enterprises, creating a platform for green products’ derivatives trading, as well as tapping into private sector investment for sustainable development.[45]

Local government issuers started the green bond market in Vietnam and remain until today the only local government entities to have raised a green bond in the ASEAN market.

### Potential public sector issuers

**Vietnam Development Bank, Vietnam Bank for Social Policies** and **VietinBank** could support the VGGS and boost the nation’s sustainable development by further encouraging green investments. This could be for instance an avenue for green bond issuance.

As one of the most vulnerable cities to coastal flooding, **Hải Phòng** and **Đà Nẵng** could also enter the green bond market to increase their adaptation and resilience to climate change. Other avenues for green growth lie in addressing water and waste management.[46]

### Vietnamese green bond issuers to date

| Issuer Name | Issued USD | Issue date | Issuer type | Use of proceeds |
|---|---|---|---|---|
| People's Committee of Ba Ria Vung Tau Province | 4m | Sep 2016 | Local government | Water |
| Ho Chi Minh City Finance and Investment State-Owned Company | 23m | Oct 2016 | Local government | Water, Adaptation |

***Note****: Issued amount is converted to USD regardless of currency of issue.*

# Conclusions and outlook

USD3tn in green investment is needed between 2016 and 2030, according to *Green Finance Opportunities in ASEAN*, a report produced by financial services group DBS and the UN Environment Inquiry into the Design of a Sustainable Financial System.[47] The scale of the investment requirement clearly demonstrates the huge potential for green finance in ASEAN. We expect to see:

1. **Continued growth in green bond issuance with new issuers and countries joining the market:** Progress to date has laid the groundwork for the opportunities lying ahead. Future development can rely on the current strength of the green bond markets in Indonesia, Singapore and Malaysia, and will benefit from issuers' best practice across the region on the use of external reviews to showcase their green credentials.

   Labelled green bonds from climate-aligned issuers present an opportunity to bring visibility to the wider ASEAN green finance market. A sectoral analysis of existing bond issuers has revealed that Malaysia, Thailand and Singapore have the largest issuance to date. Yet, green infrastructure investment holds potential for any company in a climate-aligned sector.

2. **Green bond issuance from the public sector to finance national development goals under the Paris Agreement:** A spotlight on public sector entities highlighted examples of issuers which could be entrants in the green bond market, if their climate-aligned assets are sizeable enough to be (re)financed via a labelled green debt instrument. The green sovereign sukuk from Indonesia, deals from Vietnamese local government and a green bond from a Malaysian government-backed investor have set the stage for further issuance from the public sector to mobilise funding for green infrastructure.

3. **Development banks leveraging their expertise and financial capability to support local market development:** Multilateral players such as the IFC and Asian Development Bank are expected to continue to facilitate green bond issuance by acting as "anchor investors" for local issuers. This provides a "signalling mechanism" to foreign investors that borrowers are credible.[48] Supranational institutions have implemented some measures such as guarantees and investment funds to spur market growth already. For more on credit enhancement and risk sharing mechanisms available in ASEAN, see our *ASEAN Green Financial Instruments Guide*.

4. **Increased engagement of the wider banking and finance sector in green bond issuance:** Initiatives such as the Sustainable Banking Network and the Network on for Greening the Financial System can disseminate knowledge and provide support to lenders to scale up green lending.

5. **The introduction of further policies, incentives and guidelines around green finance:** The ASEAN Green Bond Standards is a major initiative, but national incentive schemes, sustainability roadmaps and green bond issuance guidelines all contribute to local market evolution. Stock exchanges in Europe and Asia have helped bring visibility, transparency and credibility to green bond markets, and we expect ASEAN stock exchanges to follow suit.

In order to assist public and private entities in the ASEAN region considering green projects and assets, Climate Bonds' new *ASEAN Green Financial Instruments Guide* lays out the main sources of financing available to raise capital and identifies actors that can provide supporting tools such as credit enhancement mechanisms.

## Endnotes


1. The Climate Bonds Taxonomy is available online at https://www.climatebonds.net/standards/taxonomy
2. A list of released criteria and coming soon is available at https://www.climatebonds.net/standard/sector-criteria.
3. Information on the Climate Bonds Standard is available online at https://www.climatebonds.net/standards/about
4. https://www.climatebonds.net/2016/03/green-bond-market-report-korea-hyundai-inaugural-500m-hybrids-evs-china-bank-qingdao-rmb-4bn
5. https://www.climatebonds.net/certification/ap-renewables
6. https://www.climatebonds.net/2017/03/green-bond-pioneer-awards-2017-leadership-green-finance-glittering-event-london%E2%80%99s-guildhall
7. http://vsd.vn:6066/11-p4c23-36942/4240/HCMB16506-Issuance-of-Initial-Securities-Registration-Certificate.htm
8. https://hnx.vn/en-gb/ket-qua-tim-kiem/chi-tiet-tin-231844-0.html
9. https://www.climatebonds.net/2018/03/market-blog-22018-three-new-sovereign-gbs-more-nab-certified-rmbs-green-bond-pioneer-awards
10. The Republic of Seychelles has issued a sovereign blue bond. The decision to include it in the Climate Bonds green bond database was made after the cut-off date. http://documents.worldbank.org/curated/en/394051505478217219/pdf/SEYCHELLES-PAD-09122017.pdf
11. https://www.climatebonds.net/files/files/2018-01%20SG%20Sindicatum%20Renewable%20EnergyPDF.pdf
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# 10 regional and domestic measures across ASEAN in support of green bond issuance

## 2014

Securities Commission **Malaysia** launched the Sustainable & Responsible Investment (SRI) Sukuk framework.

**Indonesia** Financial Services Authority (OJK) launched the Roadmap for Sustainable Finance.

## 2015

The State Bank of **Vietnam** issued Directive on Promoting Green Credit and Managing Environmental and Social Risk in Lending Activities.

## 2017

Monetary Authority of **Singapore** (MAS) Green Bond Grant scheme was launched with the aim to offset the cost of obtaining an external review for green bonds, up to SGD100,000 per issuance.

The scheme applies to green bonds to be issued and listed in Singapore with a minimum size SGD200m and tenor of at least three years.

**ASEAN** Green Bond Standards introduced by the ASEAN Capital Markets Forum. ASEAN GBS are aligned to the Green Bond Principles, but exclude fossil fuel power generation and promote accessibility to information and frequent reporting.

**Malaysia** Financial Services Authority enacted green bond requirements regulation; all ASEAN countries are expected to translate the regional guidelines into domestic regulation.

## 2018

Demonstration issuance of a Sovereign Green Sukuk by the Republic of **Indonesia**.

ASEAN Capital Markets Forum (ACMF) published **ASEAN** Social Bond Standards and the ASEAN Sustainability Bond Standards.

Securities Commission **Malaysia** introduced a tax exemption for recipients under the Green SRI Sukuk Grant Scheme.

A MYR6m (USD1.5m) Green SRI Sukuk Grant Scheme, administered by Capital Markets Malaysia, set up to defray independent expert review costs incurred by sukuk issuers.

Securities and Exchange Commission **Philippines** approved guidelines on the issuance of Green Bonds under the ASEAN Green Bonds Standards.

**Authors:**
Camille Frandon-Martinez
Monica Filkova, CFA

**www.climatebonds.net**



Source data from Thomson Reuters Eikon, climatebonds.net and other parties.
All figures are rounded.

Prepared by the Climate Bonds Initiative

Sponsored by ClimateWorks Foundation