



ASEAN Webinar Series

Financing Options for Sustainable Transport Infrastructure in Cities

Wednesday 27th May 16:00 SG (09: 00 BST)



Surayut Thavikulwat
BTS Group Holdings
PCL

Cedric Rimaud, CFA
Climate Bonds
Initiative

Dr. Helena Wright
WWF Singapore

Anthony Watanabe
Bombardier
Transportation

Seth Tan
InfraAsia



Asia Sustainable Finance Initiative

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IBF The Institute of
Banking & Finance
Singapore

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Challenge and need to finance sustainable transport in cities



- Road congestion costs Asian economies ~2%–5% of GDP every year due to lost time and higher transport costs
- Asia's cities suffer the highest air pollution levels in the world with 80% attributable to transport.

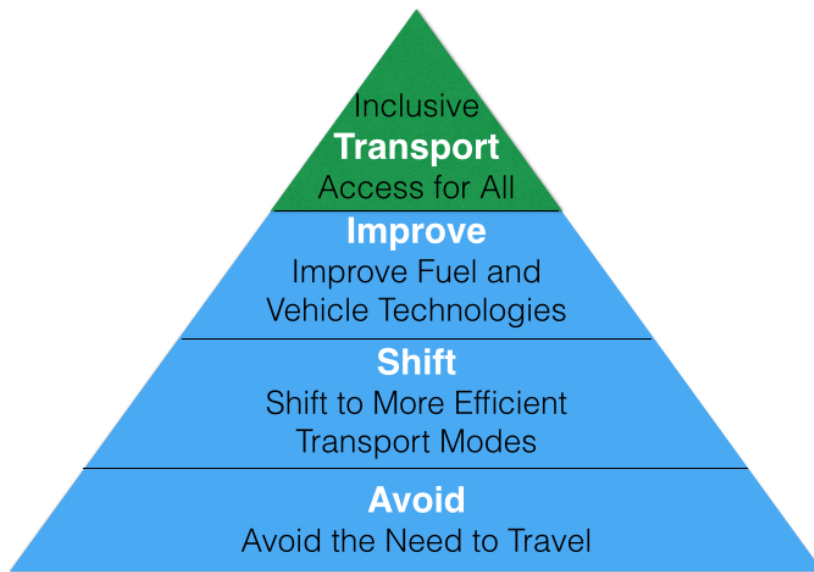
Source: ADB, 2020

Source: WWF, 2015
*Financing the Transition,
Sustainable Infrastructure in
Cities*



Considerations for financing sustainable transport

'Avoid-Shift-Improve Approach':



Source: SLOCAT Partnership

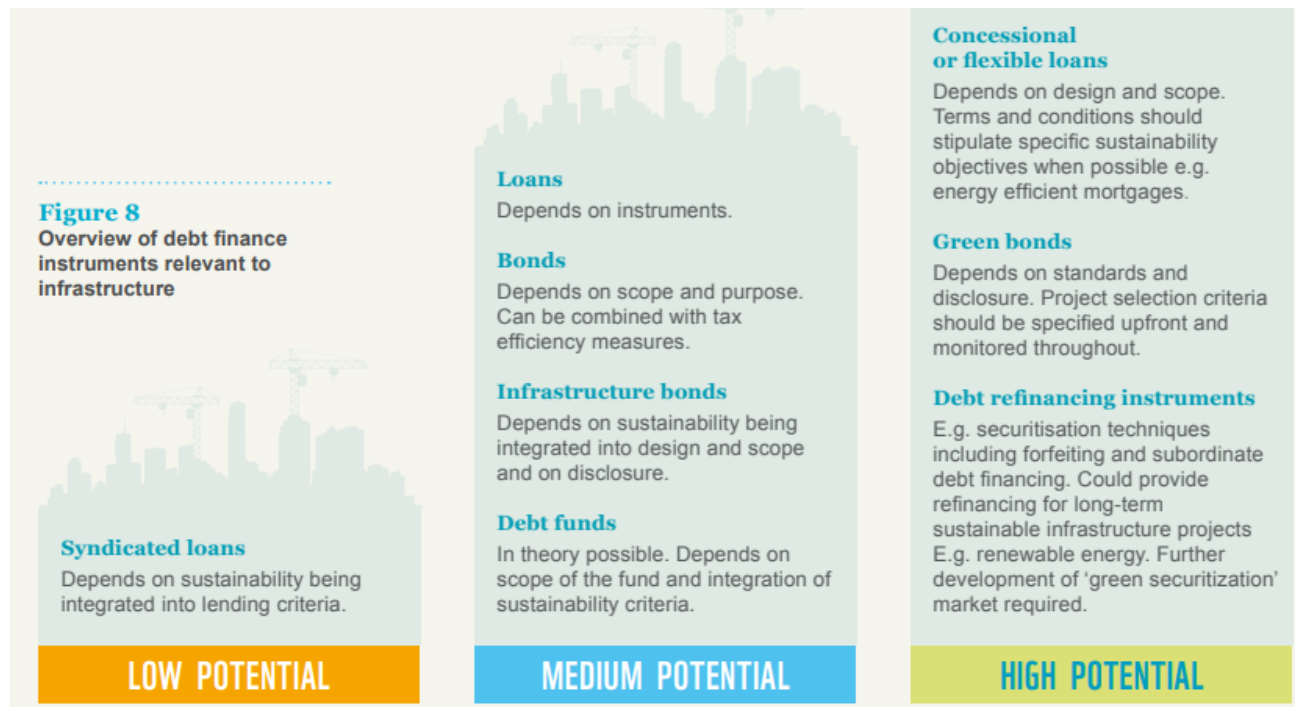
Public Finance Instruments e.g.

- **Land value capture (LVC) instruments** capture increases in real estate values (WWF, 2015). Need functioning tax regime & property markets
- **User charges & Fees;** E.g. congestion charges, variable parking fees and taxes, can reduce car traffic and lead to lower air pollution

Equity Finance: E.g. special purpose vehicles (SPVs) and joint ventures (JVs) are commonly including for transport infrastructure.

Cities can leverage **economies of scale** across municipalities and regions.

Overview of debt finance instruments relevant to infrastructure

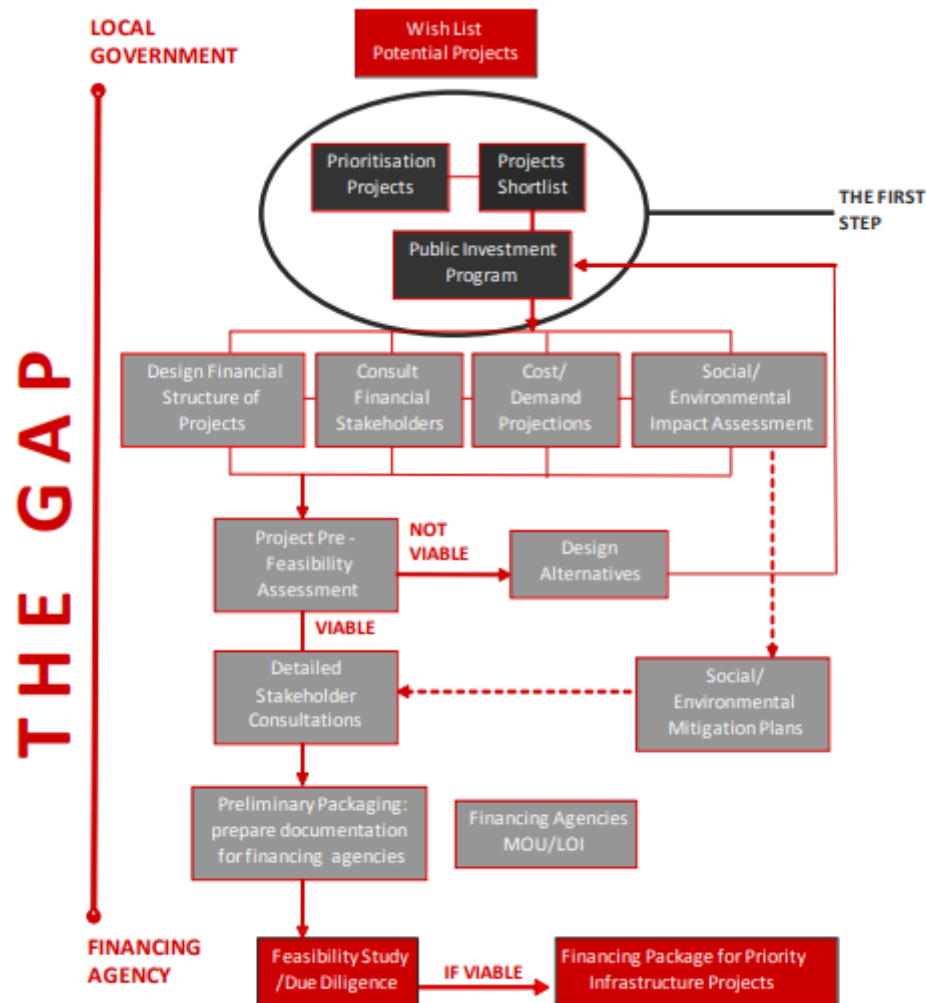


Green bonds can be issued at city, country, FI (e.g. MDB), corporate or project level.

- Climate Bonds Standard – low carbon transport criteria
- International Capital Market Association (ICMA)'s Green Bond Principles
- ASEAN Green Bond Standards
- European Green Bond Standard includes 'do-no-significant harm' criteria (DNSH) for biodiversity

Source: WWF, 2015, *Financing the Transition, Sustainable Infrastructure in Cities*

Step by step – Infrastructure project prioritization and preparation

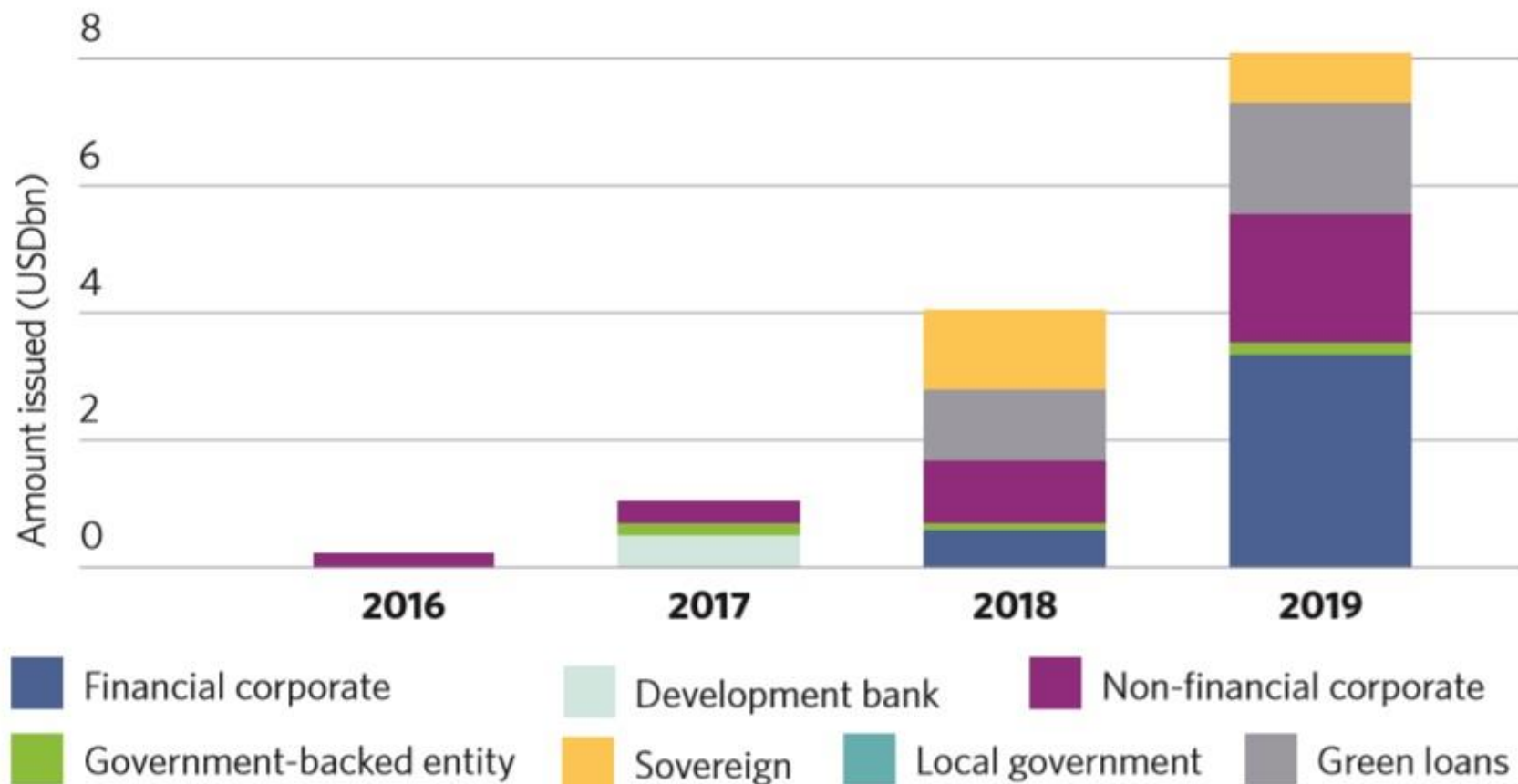


Source: Long Finance and WWF, 2015

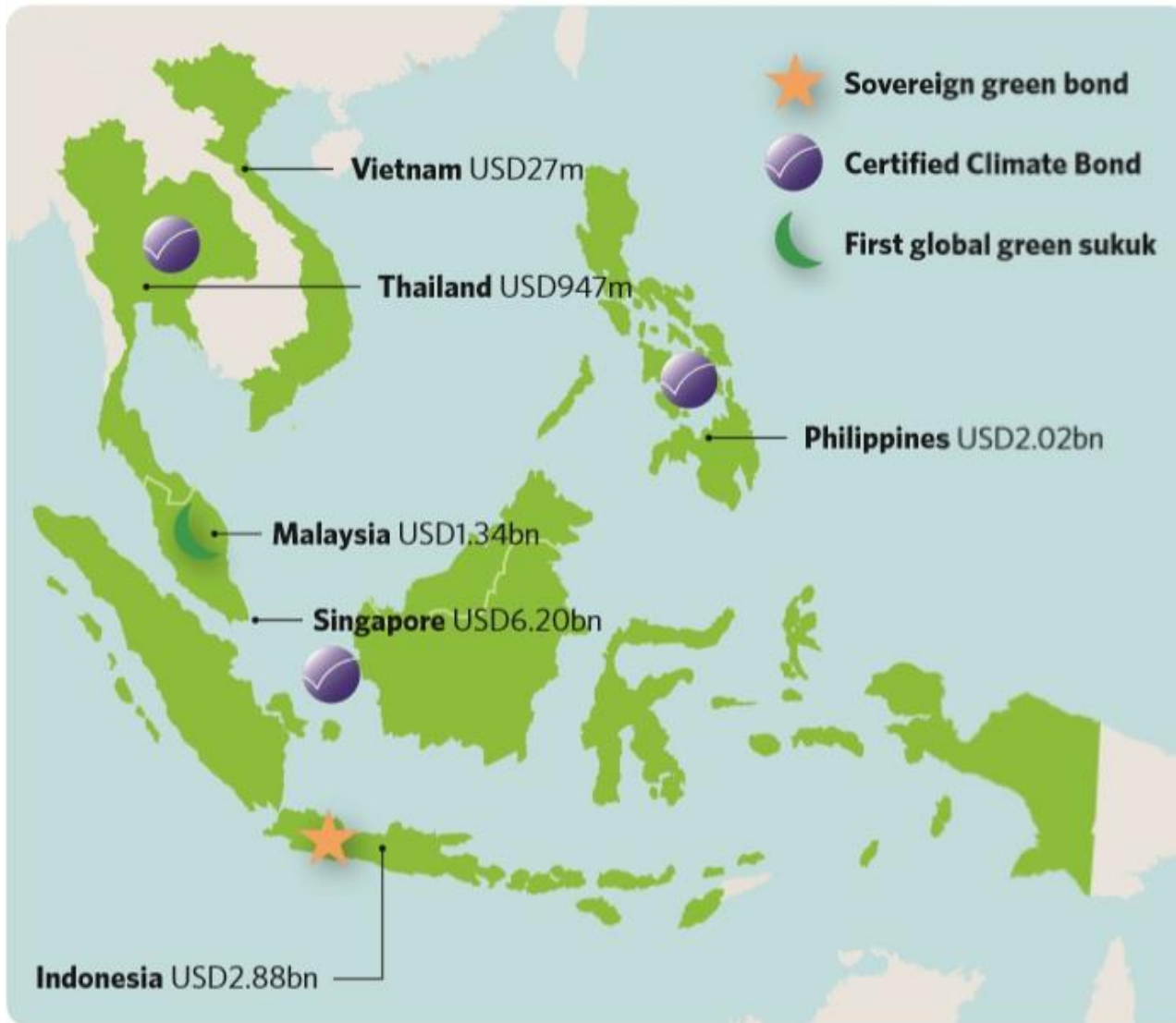
[Source: CDIA, 2010: 1]



ASEAN Green Bonds: strong growth dominated by financial and non-financial issuers



ASEAN green finance markets are at a different stage of growth



Transport Criteria

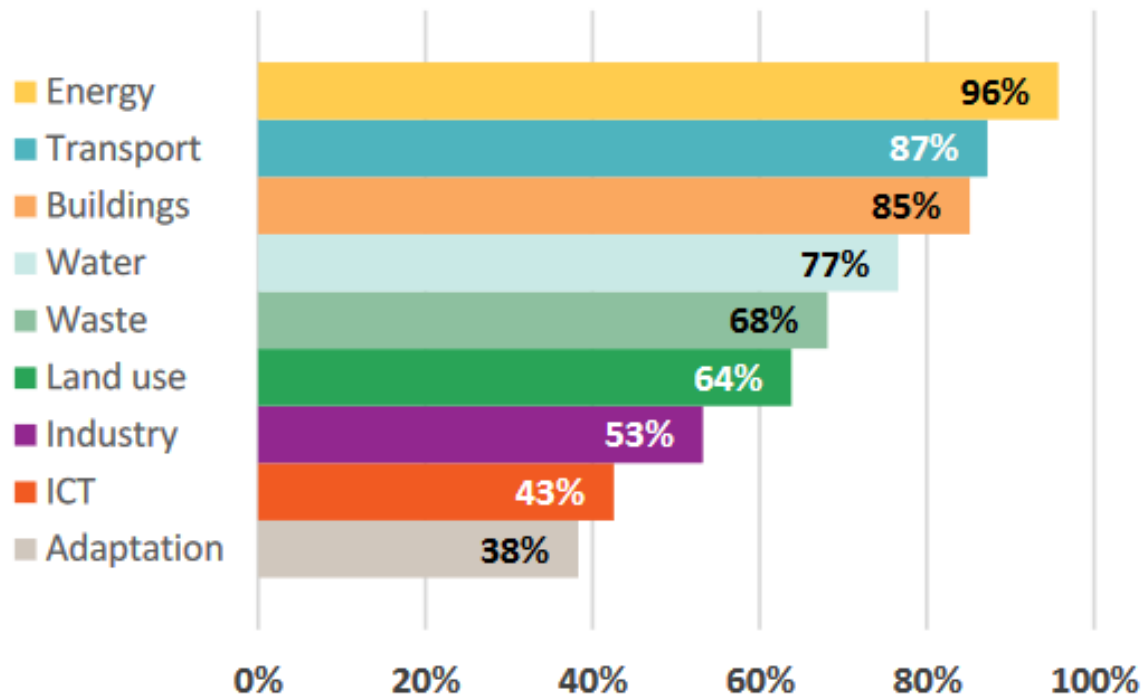


Eligibility	Criteria
Private light-duty and heavy goods vehicles	<ul style="list-style-type: none">• Per p-km or per t-km emissions of the vehicles lower than appropriate threshold• Full electric and hybrid vehicles automatically qualify
Public passenger transport	<ul style="list-style-type: none">• All infrastructure, infrastructure upgrades, rolling stock and vehicles for electrified public transport automatically qualify, including electrified rail, and trams• For fossil fuel or hybrid vehicles or rolling stock, the project qualify if per p-km emissions are below appropriate threshold (depends on load factor)
Dedicated freight railway lines	<ul style="list-style-type: none">• All infrastructure, infrastructure upgrades and rolling stock for electrified freight rail lines automatically qualify• Non-electrified projects, products or supporting infrastructure qualify if per t-km emissions are below appropriate threshold• Dedicated freight lines for fossil fuel transport excluded
Supporting Infrastructure	<ul style="list-style-type: none">• All supporting infrastructure qualifies if it contributes to achieving the emissions threshold

Preferred use of proceeds by sector

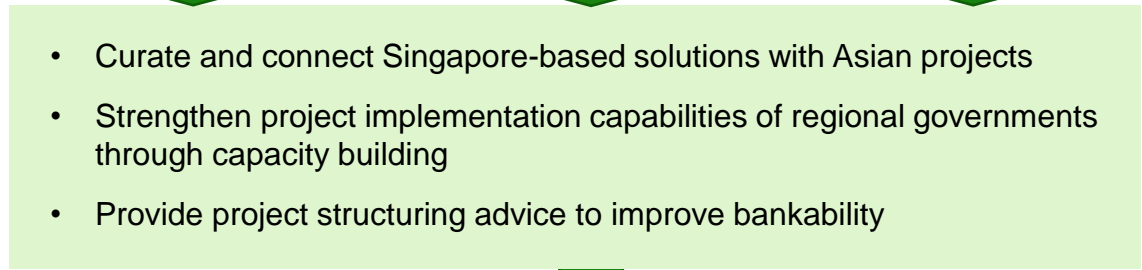
Respondents were asked to disclose the use of proceeds of their current investments, and which UoP categories they would like to finance. The UoP sectors are categorised according to the Climate Bonds Taxonomy.¹

Majority of respondents show interest in most UoP categories



Infrastructure Asia is a one-stop platform to facilitate regional infrastructure collaboration.

Leveraging our strong partnership network to catalyse projects



Bringing new project opportunities into market by facilitating financing, enabling policy & structure in regional infrastructure



Official launch of Infrastructure Asia at the 8th Asia-Singapore Infrastructure Roundtable on 23 October 2018

Burgeoning need for sustainable urban infrastructure in Asia: Singapore's shared context

Singapore continues to share many similarities with the urban growth that cities in the region are facing.

Infrastructure of the future cannot be the infrastructure of the past.

For Asia, the need is even larger (over half of Asia's 4.5 billion residents will live in cities by 2026).

Today, there are positive trends that to help cities better prepare for residents' work, live and play needs, in a sustainable manner:

- Technologies and innovation are available at ever lower cost
- Higher concentration of financiers and investors within the same region & openness to engage in infrastructure.



Developing Future-Ready Growth Centres

Punggol Digital District



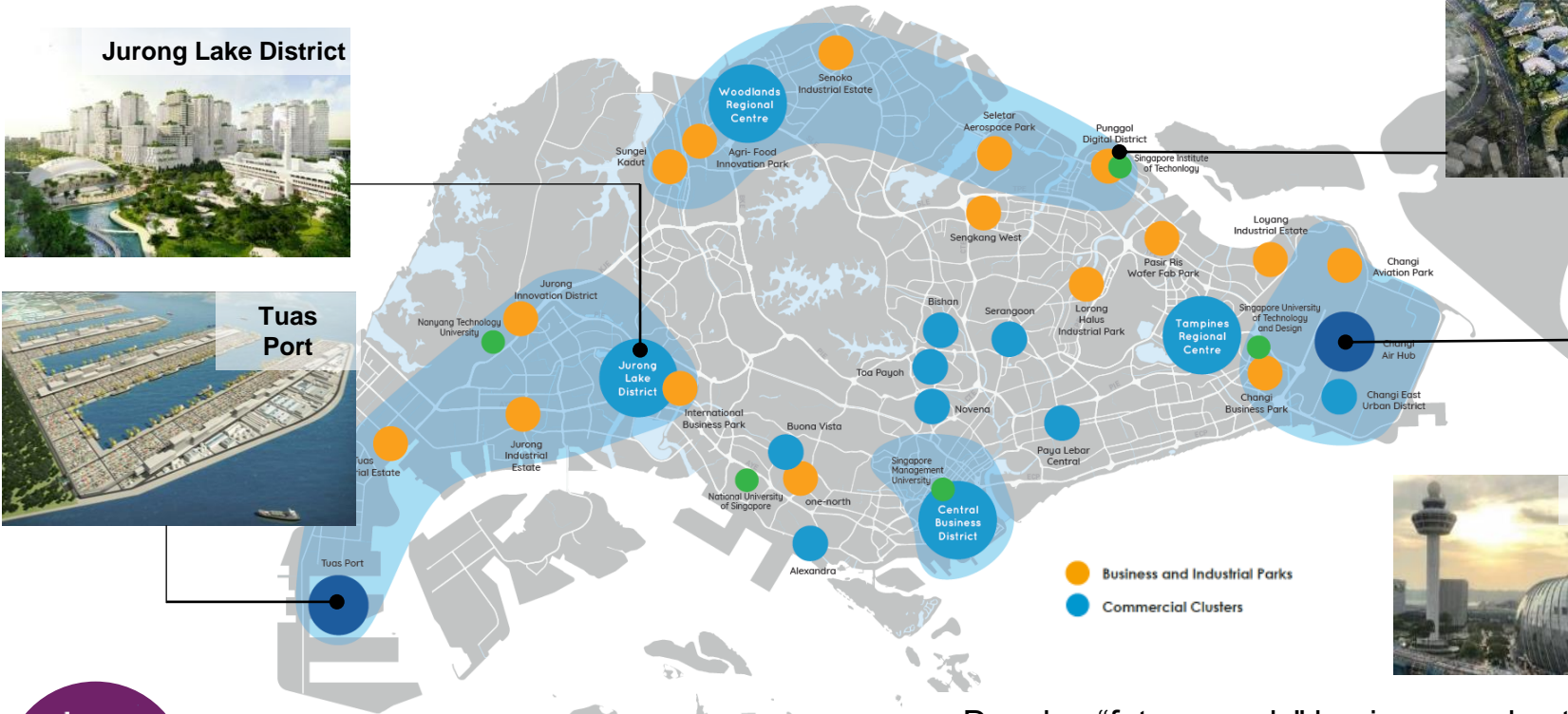
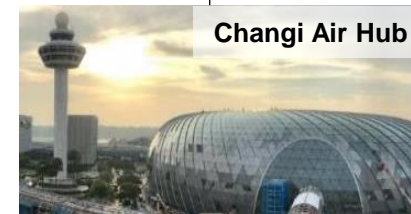
Jurong Lake District



Tuas Port



Changi Air Hub



● Business and Industrial Parks
● Commercial Clusters



- Develop “future-ready” business nodes to capture growth opportunities
- Brings jobs closer to home, reduce commuting times

Financing infrastructure - Singapore's case-study



Singapore worked with multilateral development banks for infrastructure financing.

Huge focus on integrated and holistic master planning (per the sustainability planning model above).

Semi-privatisation of key infrastructure owners and operators.



More private partnerships, especially in Operations & Maintenance.

Leveraged the expertise and resources of the public and private sectors to provide services at best value.

Spurred the development of institutional capacities to structure and evaluate PPP projects.

New ways to monetise asset and access new capital pools, as the city densifies and infrastructure became more energy efficient.

- Use of transit-oriented development to maximise land value within walking distance of stations.
- Energy efficient tech for buildings and savings
- REITs

Sustainability at BTS Group

2019/20 Sustainable Development Recognition



GROWING SUSTAINABILITY

GROWING TOGETHER

MEMBER OF
**Dow Jones
Sustainability Indices**
In Collaboration with RobecoSAM



DJSI in the Emerging Markets 2019
(2nd Rank in the Transportation Sector)

Silver Class Distinction
in The Sustainability Yearbook 2020

Platinum Award
of the Asset ESG Corporate Award 2019

Sustainability Disclosure Recognition 2019
by Thaipat Institute

Thailand Sustainability Investment (THSI) list 2019
from The Stock Exchange of Thailand

Best Green Bond
at The Asset Triple A Sustainable Capital Markets
Regional Awards 2019 by the Asset Magazine

BTS Green Bond Media Coverage



Bangkok's skytrain goes green - IFR News

10-May-2019 15:36:15

• Bonds: BTS to sell first deal under new guidelines for environmentally friendly bonds



The First Thai Green Bond Offering to Institutional & HNW Investors
30 April 2019

TOP NEWS-Fixed Income - Reuters News

24-May-2019 13:28:39

- > JGBs rise on stronger U.S. Treasuries, slowdown worries
- > Italy unlikely to tap retail investors before summer
- > Westpac sees third rate cut in Australia this year
- > Thai 14-day c.bank bond yield 1.76752 pct at auction
- > POLL-Bank of Canada done raising rates, 40% chance of
- > CPF Thailand prices Bt17bn multi-tranche bond
- > German bond yields slide back towards 2-1/2 year lows
- > NLC India eyes Rs20bn from 10yr bonds
- > Huarong bonds plunge in early trading
- > BTS Group sells Bt13bn multi-tranche Green bond
- > U.S. yields plummet on trade war, growth worries
- > Fed's Kaplan says he's 'agnostic' on next Fed rate move
- > Bond investors seek protection from UK inflation on Brexit

AT A GLANCE

TRIS affirms 'A' rating for BTS Group

TRIS Rating has affirmed the company rating for BTS Group Holdings Plc (BTS) and the ratings on BTS's outstanding senior unsecured debentures at "A".

At the same time, TRIS Rating assigned the "A" rating to BTS's proposed issue of up to Bt13 billion in senior unsecured debentures. The new issue rating replaces the issue rating previously assigned on May 15, 2019, following BTS's request to increase the issue size to up to Bt13 billion, from Bt10 billion.

The proceeds from the new debentures will be used to repay existing debt.

The ratings reflect the company's strong business profile based on the high

predictability of the service income from the mass transit train operation, stable dividend income received from its 33.33 per cent investment in the BTS Rail Mass Transit Growth Infrastructure Fund (BTS-GIF), and its entrenched position in the media business.

หุ้นกู้เพื่ออนุรักษ์สิ่งแวดล้อม บิททีเอส กรุ๊ป



แหล่งกรีนบอนด์

'บิททีเอส' ลั่นขอเท้ายาลงทุนรถไฟฟ้ามหานคร

กรุงเทพฯ - บิททีเอส ออกหุ้นบอนด์ 1.3 หมื่นล้านบาท ออกหุ้นกู้วันนี้ หวังลงทุนพัฒนารถไฟฟ้าสายสีเหลือง-ชมพู "ราช กรุ๊ป" จับมือ "บิททีเอส" ออกหุ้นกู้เพื่ออนุรักษ์สิ่งแวดล้อมมูลค่า 5,000 ล้านบาท

บิททีเอส ออกหุ้นกู้เพื่ออนุรักษ์สิ่งแวดล้อมมูลค่า 5,000 ล้านบาท และออกหุ้นกู้ใหม่ 24 พันล้านบาท

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เป็นผู้นำด้านความยั่งยืน... (text continues)

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Bond Issuance

Subscription result : **8.41x** Oversubscribe



Planned Issue Size	Submitted Demand	Bid Coverage Ratio
5,000 MB	42,043 MB	8.41X

Tenor	2Y	3Y	5Y	7Y	10Y	Total
Government Yield	1.82%	1.88%	2.08%	2.27%	2.52%	
Spread	0.69%	0.75%	1.07%	1.30%	1.34%	
Final coupon	2.51%	2.63%	3.15%	3.57%	3.86%	
Final issue size (million THB)	1,000	1,300	3,000	2,700	5,000	13,000

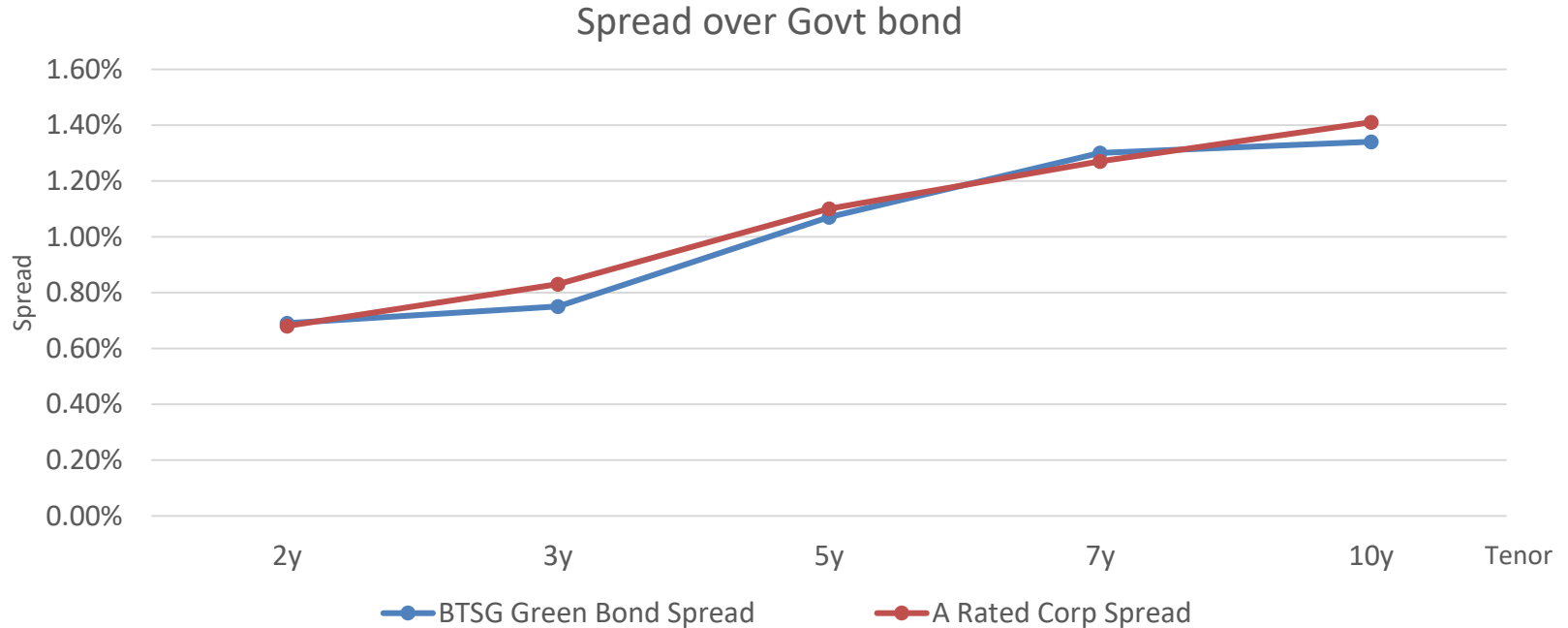
Average tenor	6.91 Yr
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Weighted Average Cost	3.41%
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Company Rating : A / Stable : May 15 2019
Issue Rating : A / Stable : May 23 2019

Spread Analysis

BTSG Green Bond spread over Gov't price similar to conventional bond



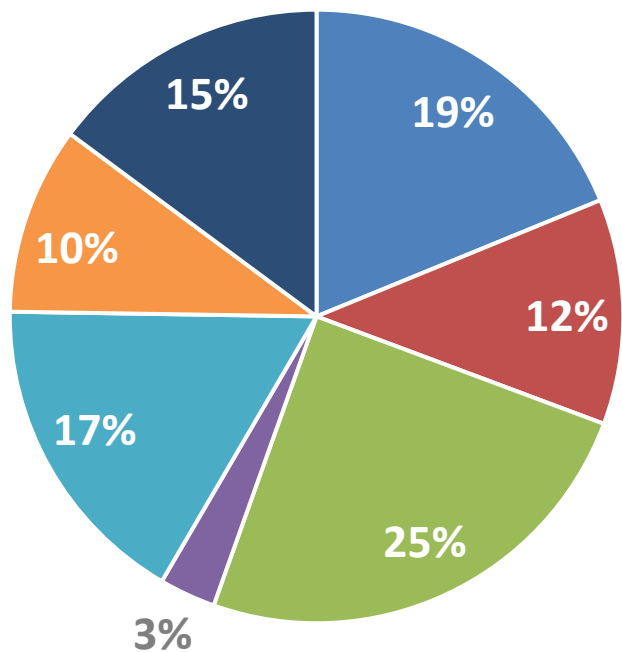
Tenor	2Y	3Y	5Y	7Y	10Y
BTSG Spread	0.69%	0.75%	1.07%	1.30%	1.34%
A Rated Corp Spread	0.68%	0.83%	1.10%	1.27%	1.41%
Issue size (MB)	1,000	1,300	3,000	2,700	5,000

Bond Issuance

Investor by Type – 32.4 % are New Investor

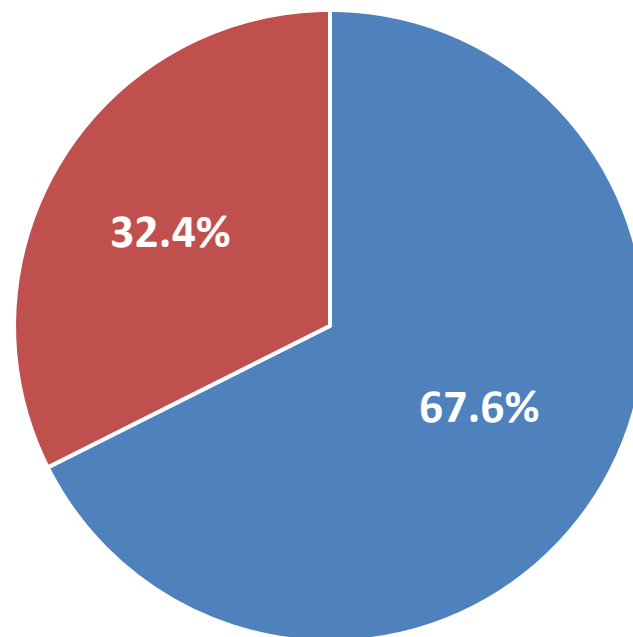


Investor by type



- Asset Mgt
- Bank
- Life Insurance
- Non-Life
- Co-Op
- Others
- HNW

Existing VS New Investor




- Existing
- New

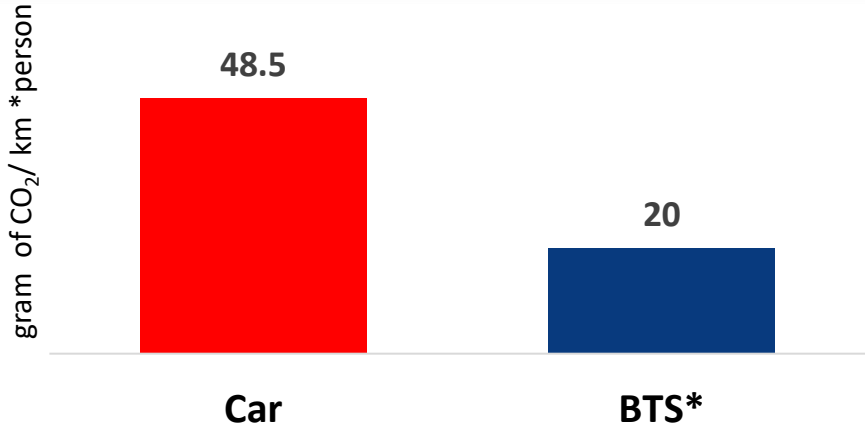
New Pink and Yellow Line Mass Transit Rail Project

Estimated to reduce CO2 Emission by > 28,000 Ton/Year

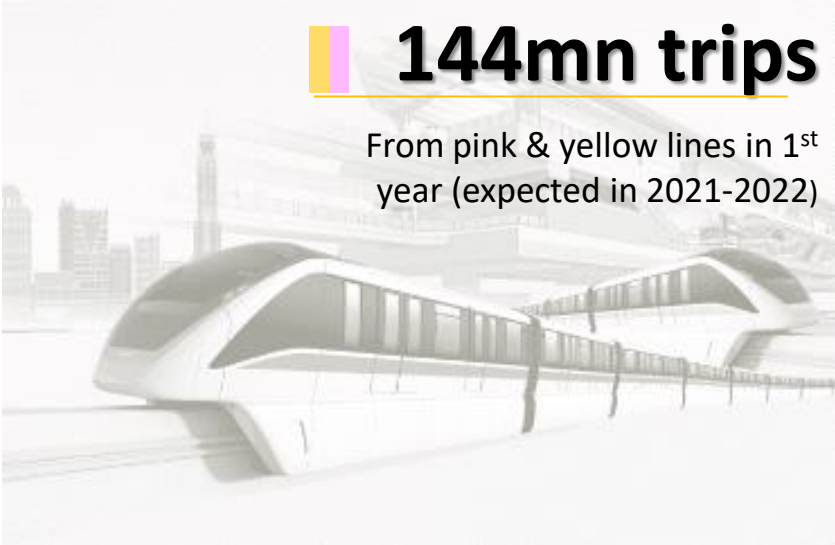


CARBON EMISSION IN DIFFERENT TRANSPORTATION MODE

 **28.5 gram CO₂ reduction**
per person per 1km if switching from car to BTS



EXPECTED 1ST YEAR RIDERSHIP OF PINK & YELLOW



28,728 ton/ year = **A Carbon Reduction if switching from car to BTS**

* From the studies of Engineering department BTSC

Average riding per trip is 7 kms

Bombardier Transportation - global rail technology expert



Partner to
over **200** cities
in the world



Moving **500** million
passengers a day



More than **100,000**
train cars in service on
~70,000 km of track

“Creating reliable,
safe and sustainable
transport that is
available to everyone
in a world of urban
growth and digital
change.”



61 engineering
and production sites
in **27** countries



40,650 employees
from **119** nationalities

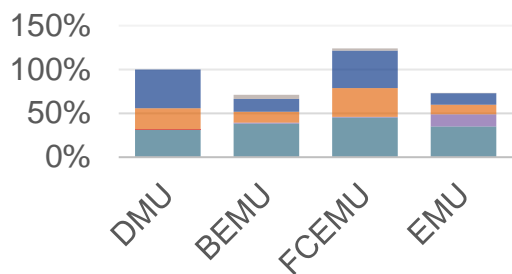


Transportation pioneer
using its entrepreneurial
spirit since **1942**

TALENT 3 battery electric multiple unit (BEMU)

Significantly lower total cost of ownership over the complete asset lifecycle

Best total cost of ownership and 40% lower than fuel cell trains*



Low cost and fast implementation time



Up to 70% lower energy cost compared to diesel and fuel cell*



The TCO of the battery powered TALENT 3 train is best in class and more than 40% lower than a fuel cell train

* Source: Bombardier calculation

Proud @ BT Thailand – Regional Centre of Engineering Excellence

- 2007: **Regional Engineering Centre** launched – first in Asia
- 2017: State-of-the-art **Mass transit Test Centre** opened
- Working over **34 projects** in **20 countries**



1- mass rapid transit / 2 – Bukit Panjang light rail transit



Current major projects

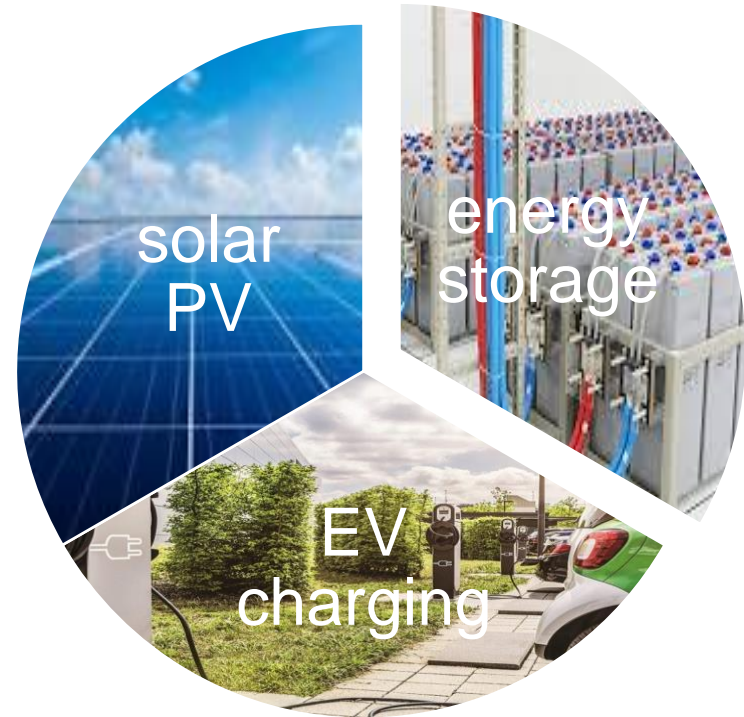
- Thailand
 - Bangkok Monorail Lines
 - SRT Mainline
 - BTS Green Line Extensions
- Australia
 - Melbourne Metro
 - BHP Mining
- China
 - Wuhu Monorail
- Malaysia
 - Klang Valley MRT¹
- Philippines
 - Manila MRT
- Singapore
 - BPLRT²
- Egypt
 - Cairo
- Germany
 - Frankfurt Airport APM



Climate Innovation at Bombardier

Combining renewable energy, electric feeder mobility, energy storage and green finance into a winning formula for our customers

- Customer desires to move into renewables, electric feeder transit, etc.
- Solar electricity a proven business strategy, TH has highest installed capacity in ASEAN
- TH Electric Vehicle Roadmap driving towards 30% domestic production by 2030 =750K EV per year
- Asian Development Bank forecast for 450M e-scooters in APAC by 2030 (Indo plans for 12M e-scooters)





ASEAN Webinar Series

Financing Options for Sustainable Buildings in Cities

Wednesday 3rd June 16:00 SG (09: 00 BST)



Cedric Rimaud,
CFA
Climate Bonds
Initiative

Jenny Calder
WWF

Esther An
City Developments
Limited

Susanto
PT Siemens
Indonesia

**Soumya
Chaturvedula**
ICLEI

Xin Yi Lau
The Carbon Trust

