

Webinar

Green Infrastructure Investment Opportunities (GIIO) Vietnam and GIIO Indonesia Update Report Launch

Thursday 30th April 15:00/16:00 GMT+7/+8 (09:00 BST)

Climate Bonds INITIATIVE



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DP

Empowered lives.
Resilient nations.



Le Cong Thinh
Vietnam Academy
of Science and
Technology



Mohammad Ghozie
Indra Dalel PT. Sarana
Multi Infrastruktur
Indonesia



Kristiane Davidson
Climate Bonds
Initiative



ASEAN Webinar Series

Green Infrastructure Investment Opportunities (GIIO)

<< Vietnam report launch and Indonesia report update >>



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Resilient nations.



GIIO Team at Climate Bonds

- Kristiane Davidson
 - *Head of Green Infrastructure*
- Phí Thị Minh Nguyệt
 - *Green Infrastructure Analyst*
- Nabilla Gunawan
 - *Green Infrastructure Analyst*



Green Infrastructure presents huge investment and growth opportunities globally

**USD
3.1tn**

ASEAN infrastructure
investment required
until 2030

**USD
100tn**

Global climate compatible
infrastructure
required by 2030

**USD
92bn**

ASEAN infrastructure
funding gap per year
until 2030

Green Infrastructure Investment Opportunities (GIIO) *Report Series*

Purpose To highlight green infrastructure investment opportunities, with the aim of facilitating engagement on this topic between investors, project owners, and developers.

Audience Domestic and international investors, companies and developers, state-owned enterprise and government ministries.



Agenda

- **Welcome & Introduction:** Kristiane Davidson, Head of Green Infrastructure - Climate Bonds Initiative.
- **Key findings of GIIO Vietnam report** by Kristiane Davidson and Phí Thị Minh Nguyệt, Green Infrastructure Analyst - Climate Bonds Initiative
- **2020 outlook for green energy in Vietnam: Interview** with Mr Le Cong Thinh, Head of Electrical System Department - Institute of Energy Science - Vietnam Academy of Science and Technology
- **Key findings of the GIIO Indonesia Update report 2019** by Kristiane Davidson and Nabilla Gunawan, Green Infrastructure Analyst - Climate Bonds Initiative
- **2020 outlook for green infrastructure investment in Indonesia: Interview** with Mohammad Ghozie Indra Dalel, Director of Operations and Finance - PT Sarana Multi Infrastruktur (SMI), Indonesia
- **Q&As**



Green Infrastructure Investment Opportunities

VIETNAM
2019 REPORT



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GIIO Vietnam REPORT LAUNCH!!!

Joan Manda

*Regional Advisor for Climate Change &
Innovative Finance, Innovative Finance
Lab Jakarta and Bangkok Regional Hub*

United Nations Development Program



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Resilient nations.*



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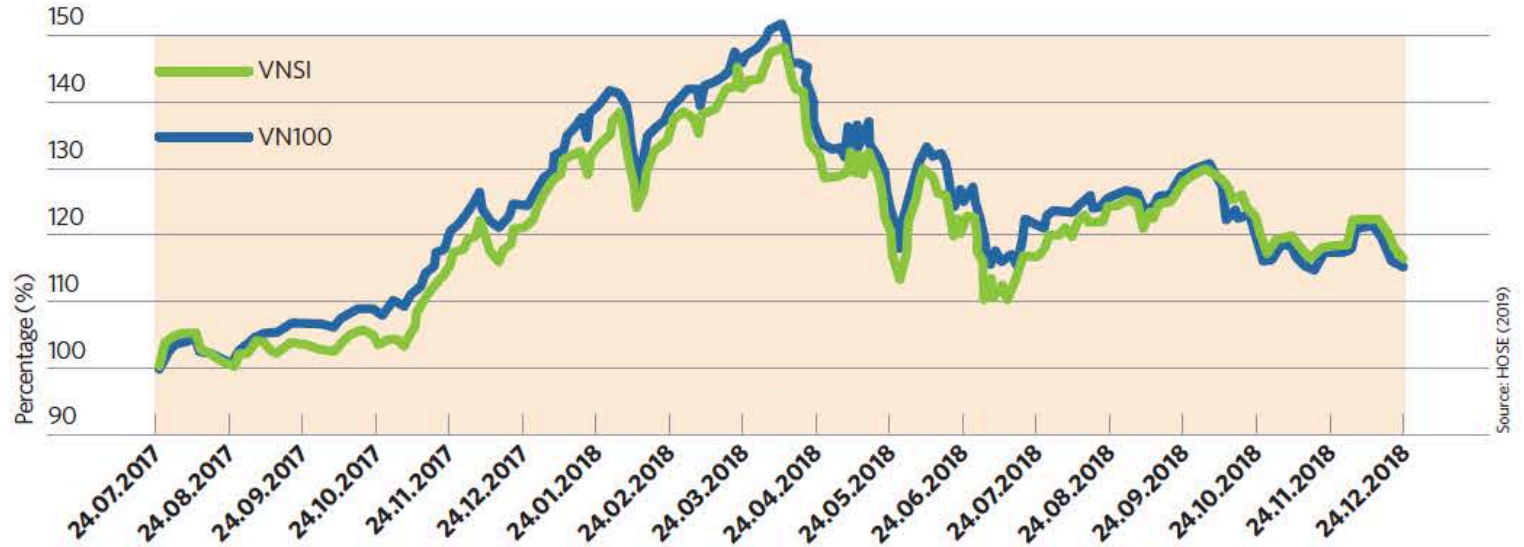
GIIO Vietnam

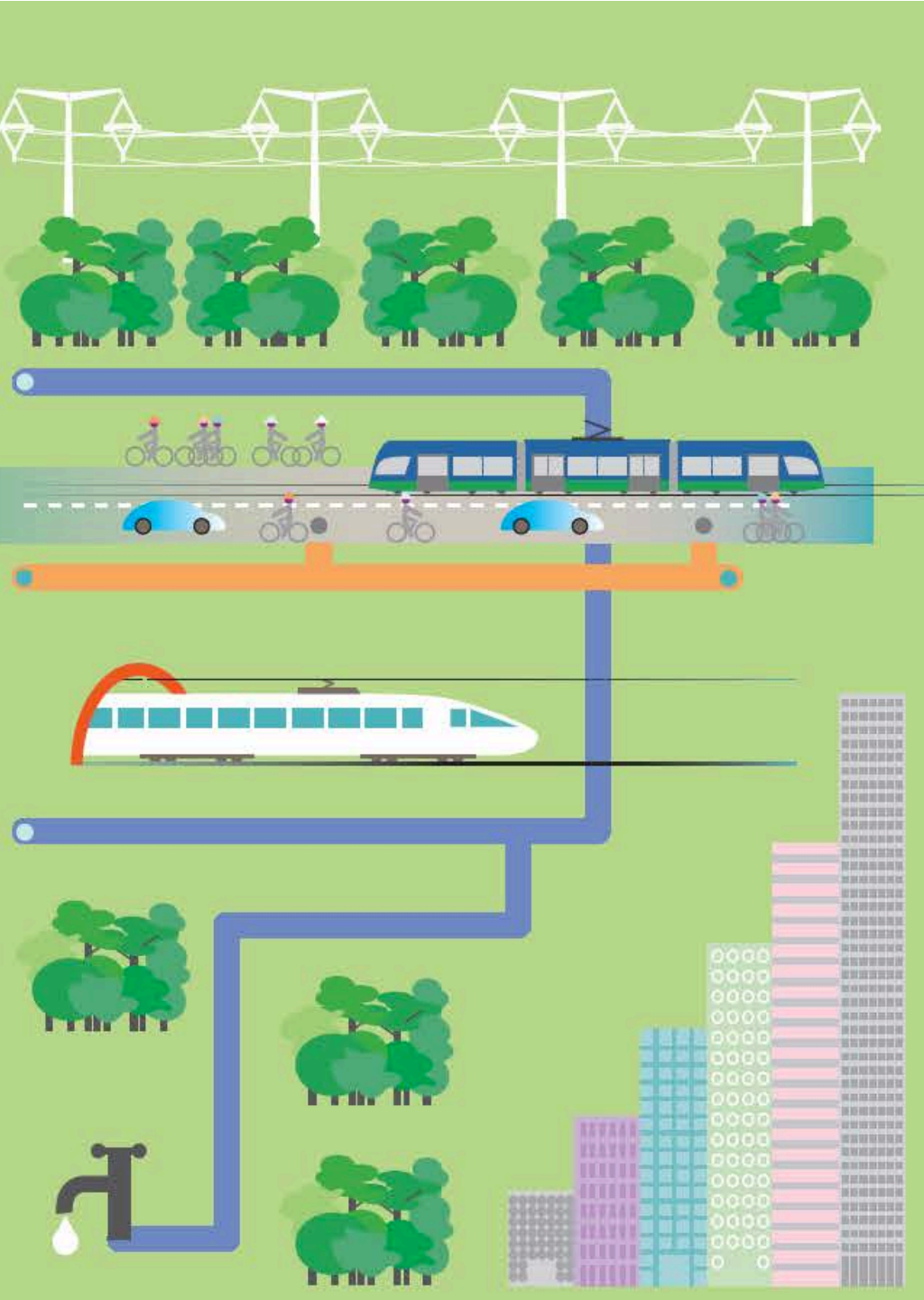
- Vietnam will **need roughly USD31bn by 2020** to ‘green’ the economy.
- Private sector has a role to play!
- **Two green bonds** - local government entities issued the first VND-denominated green bonds, listing them on Hanoi Stock Exchange. Use of proceeds: Water and Adaptation.

“As ASEAN grows and steadily fulfils its economic potential, opportunities exist across a wide range of industries. For example, ASEAN has over USD2tn worth of infrastructure investment opportunities - not just traditional ports, roads, and bridges, but support in ICT, education, agriculture, and healthcare.”

Alexander Feldman, President and CEO, US-ASEAN Business Council⁴²

The VNSI has performed relatively well





Green infrastructure



Renewable energy



Low carbon transport



Sustainable water management

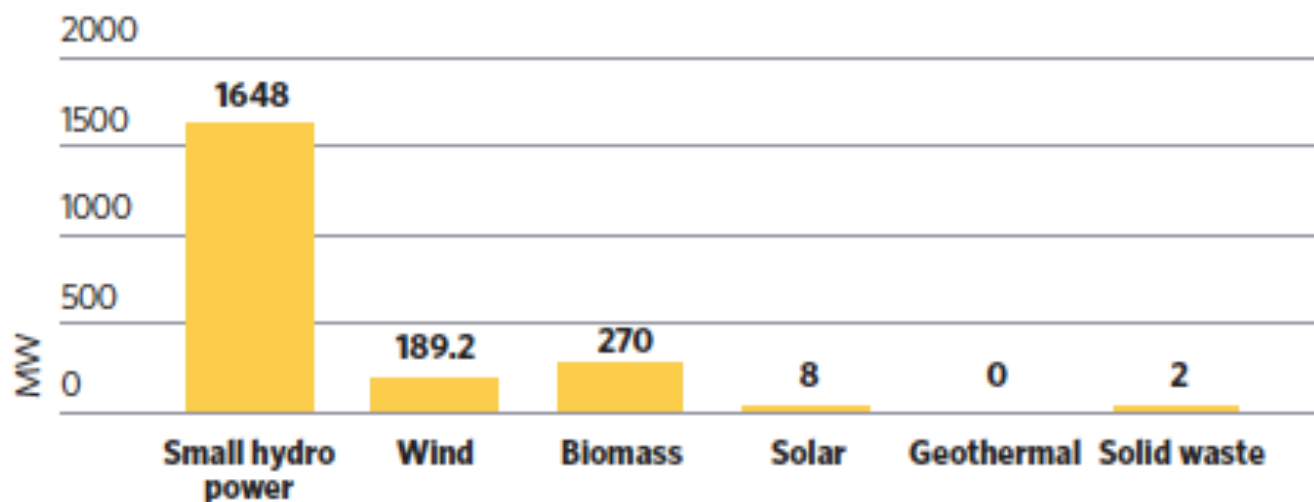


Sustainable waste management

GIIO Vietnam

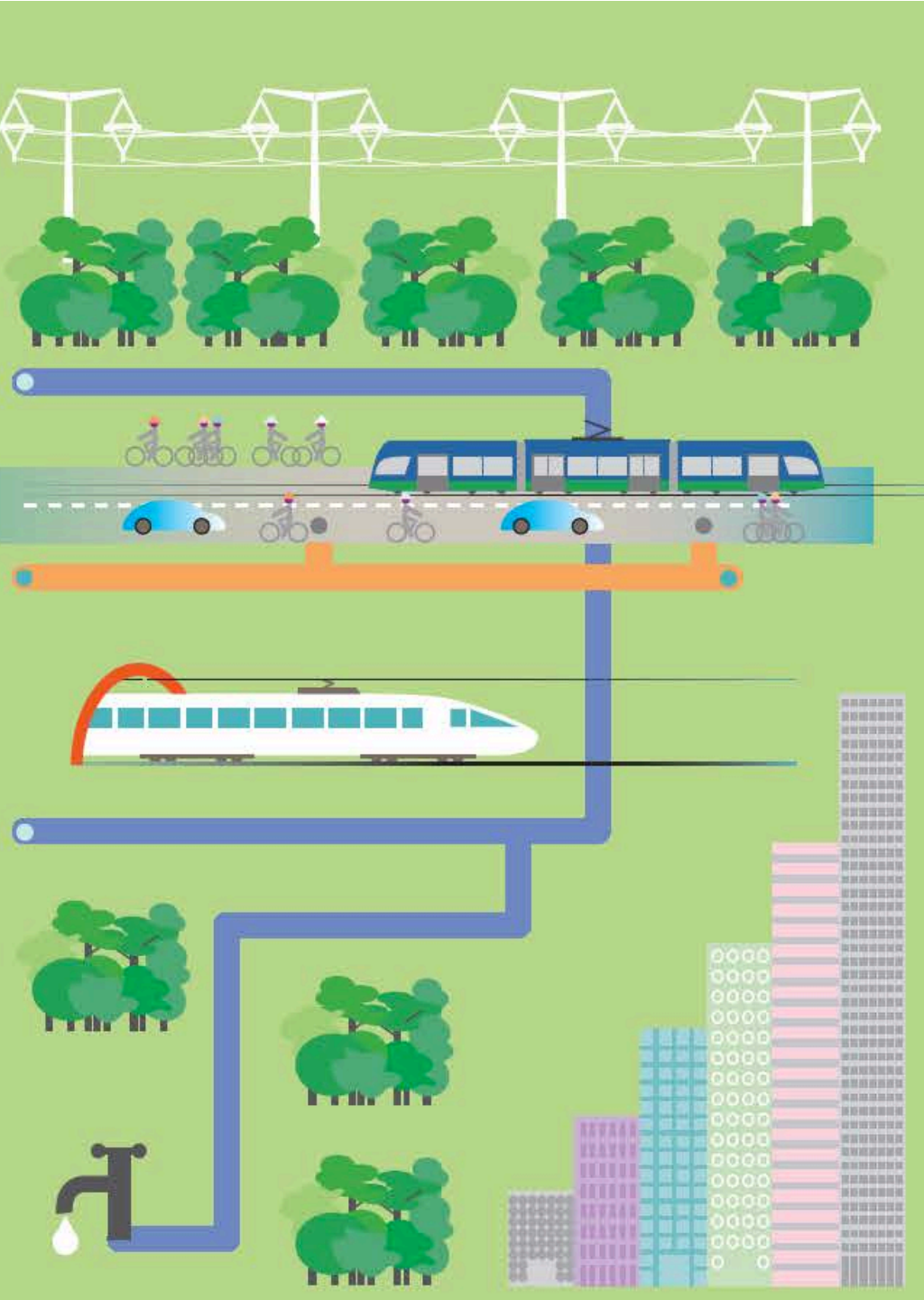
- **Renewable energy**
 - **Solar and wind** are expected to dominate future investment.
 - Existing opportunities: solar, hydropower, wind and bio-energy facilities.

Renewable energy installed capacity by type, 2018



Renewable Energy Targets				
Renewable energy	Targets	2020	2025	2030
Wind	Total capacity (MV)	800	2,000	6,000
	Electricity production (%)	0.8	1%	2.1
Hydro power	Total capacity (MV)	21,600	24,600	27,800
	Electricity production (%)	29.5	20.5	15.5
Biomass	Total capacity (MV)	-	-	-
	Electricity production (%)	1	1.2	2.1
Solar	Total capacity (MV)	850	4,000	12,000
	Electricity production (%)	0.5	1.6	3.3





Green infrastructure



Renewable energy



Low carbon transport



Sustainable water management



Sustainable waste management

GIIO Vietnam

- **Low carbon Transport**

- Transport is a large and growing contributor of GHG emissions in Vietnam.
- Government aims to reduce these GHG emissions by up to 25% in 2030 and 45% in 2050.
- The market for low carbon transport is forming in Vietnam: EVs, rail, metro, light rail and Bus Rapid Transit.

Hanoi Metro x 2 lines
Line 2A: Cat Linh-Ha Dong
Line 3: Nhon- Hanoi Railway Station^{177,178}



**Upgrading the Hanoi -
Ho Chi Minh City railway route¹⁸⁸**



Manufacture of Electric Buses^{191,192}



GIIO Vietnam

- **Sustainable water management**
 - Vietnam suffers from increasing water management and wastewater treatment problems.
 - Water supply for residential and industrial purposes has not yet met the demand.
 - The financing needs for water supply sector targets: about USD600m annually, up to 2020.

Water treatment plant
Song Da water treatment plant, phase 2



Wastewater treatment plant
Song Hau 1 water treatment plant, phase 1^{224,225}



GIIO Vietnam

- **Sustainable waste management**

- Rates of waste collection in Vietnam are 85% for urban and 40-55% for rural areas.
- The common practice of solid waste management is by incineration or landfilling; recycling is limited.
- Waste-to-Energy technology was introduced to Vietnam in 2012; the current energy generated is only 2.4 MW.

High Tech Waste Treatment Factory a Waste-to-energy Complex in Bac Son, Soc Son



Light Rail in Ho Chi Minh City Ground tram line no 1 - Sai Gon - Cho Lon - West Station^{183,184}

Proponent: The Management Authority for Urban Railways (MAUR)

Location: Ho Chi Minh City, Southern Vietnam

Status: Planned. The project is calling for foreign investment.

Classification: Public Passenger Transport, Tram, Infrastructure

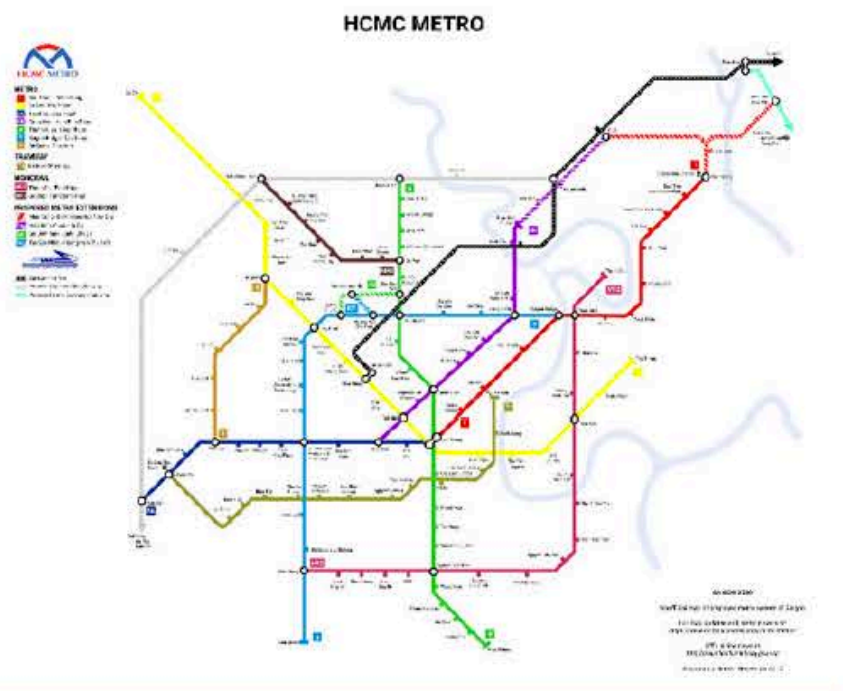
Description: There will be a light rail line beginning in Saigon (in the area of Ben Bach Dang park) and ending at the Western Bus Station, with the total length of about 12.5 km, connecting key venues in Ho Chi Minh City.

The route includes the 01 Depot located at Western Bus Station with an area of 5 ha, 6 main stations and 17 passenger terminals.¹⁸⁵

Output: Build public passenger transport services with relatively large capacity in order to reduce environmental pollution and personal vehicle usage.

Cost: Approx. USD250m¹⁸⁶

Financial structure: PPP arrangements, ODA, BOT or BT contracts



Lai Hoa wind farm^{130,131}

Proponent: Super Wind Energy Cong Ly Soc Trang Joint Stock Company

Location: Soc Trang, Mekong Delta, Vietnam

Status: Under construction. The construction of the first phase was started in 2018 and is expected to be finished within 36 months.¹³²

Classification: Wind generation facilities, Renewable Energy

Description: The project is located in Lai Hoa Ward, Vinh Chau Town, and covers an area of 2,489ha. It is named as the first wind farm in Soc Trang Province.

The wind farm has a total capacity of 98 MW, and it will be implemented in three phases. Specifically, the first phase will have 30 MW in capacity, the second phase 30 MW, and the third phase 38 MW. The first phase has a size of 15 wind turbine masts, covering 370ha. The total investment of the phase is over VND1.68tn.¹³³

The construction of wind farm is expected to contribute to the balance of power sources as well as regional development of Mekong Delta.



Output: The wind farm is expected to generate 257 million kWh per year to connect with the national power grid.

The development of this project will bring about mutual benefits for the local economy, namely: contributing to the economic restructuring of the region, boosting tourism development, creating jobs for local people and reducing the impact of climate change.

Cost: Approx. VND5.39tn (USD237.4m)¹³⁴

Financial structure: Private funding from Cong Ly Joint Stock Company





2020 outlook for green energy in Vietnam

- **Interviewer:** Phí Thị Minh Nguyệt (Moonie),
Green Infrastructure Analyst - Climate Bonds Initiative
- **Guest speaker:** Mr Le Cong Thinh, Head of
Electrical System Department - Institute of Energy Science -
Vietnam Academy of Science and Technology



Green Infrastructure Investment Opportunities

INDONESIA
UPDATE REPORT



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GIIO Indonesia

- Infrastructure is high on the Presidential agenda!
- Indonesian **Low Carbon Development Initiative** – by the Ministry of National Planning (BAPPENAS) – requires a **low carbon investment of USD21.9bn per year** for the period of 2020-2024.
- Ministry of Finance launched **Sustainable Development Goals Indonesia One platform** – to pool funding for SDG projects in Indonesia.



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SMART Capital

- The relocation of Indonesia's capital city is currently the most ambitious infrastructure project in Indonesia.
- Estimated to cost IDR466tn (USD32.8bn).
- 19% funded by the state, the rest coming from public-private partnerships and private investment.

Recommendations:

- Incorporate climate risk exposure to new infrastructure plans.
- Improve the visibility of green investment opportunities and green infrastructure pipelines.



Low-carbon transport case study: MRT Jakarta²⁶

Title: MRT Jakarta (North - South Corridor Phase 1 and Phase 2)

Proponent: Provincial Government of Special Region of Capital Jakarta

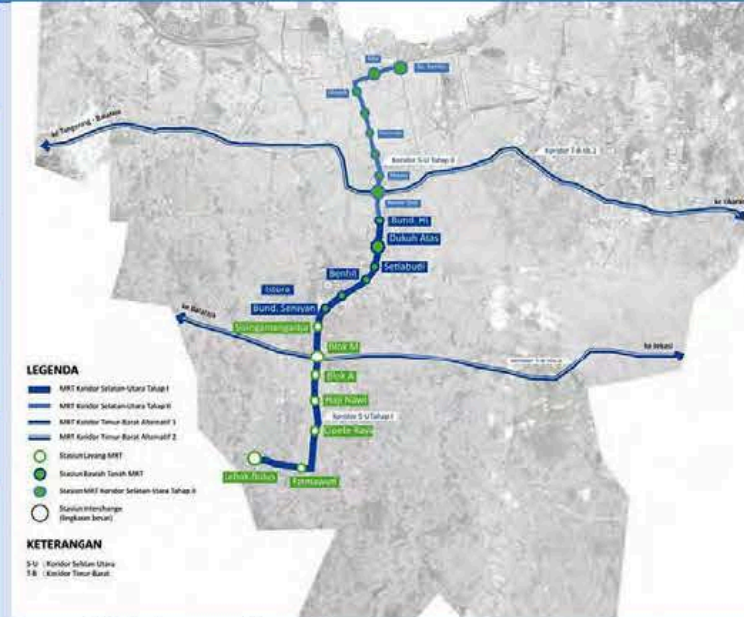
Location: Special Region Capital of Jakarta

Status: Phase 1 - Completed in 2019. Phase 2 - Planned: construction begins late 2019 and is expected to be completed in 2024

Classification: Public passenger transport, train

Description: This mass rapid transit project consists of 2 phases running along the same North - South route:

- Phase 1 is a 23.3 km corridor between Kampung Bandan and Lebak Bulus, and
- Phase 2 North-South Corridor, runs between Bundaran HI - Kampung Bandan.



Source: MRT Jakarta map²⁷

Output: MRT Jakarta is a key mode of public transportation that should help to resolve traffic congestion, improve mobility of the people, reduce carbon emission and create new job opportunities in DKI Jakarta.

Cost: IDR39.5tn (USD1.8bn)

Financial structure: Japanese International Cooperation Agency (JICA) Official Development Assistance (ODA) and State Budget and Jakarta Regional Budget.



Waste management case study: Multimodal regional waste management

Title: Nambo Regional Waste Management

Proponent: PT Jabar Bersih Lestari⁴²

Location: West Java

Status: Planned – operation planned for 2020

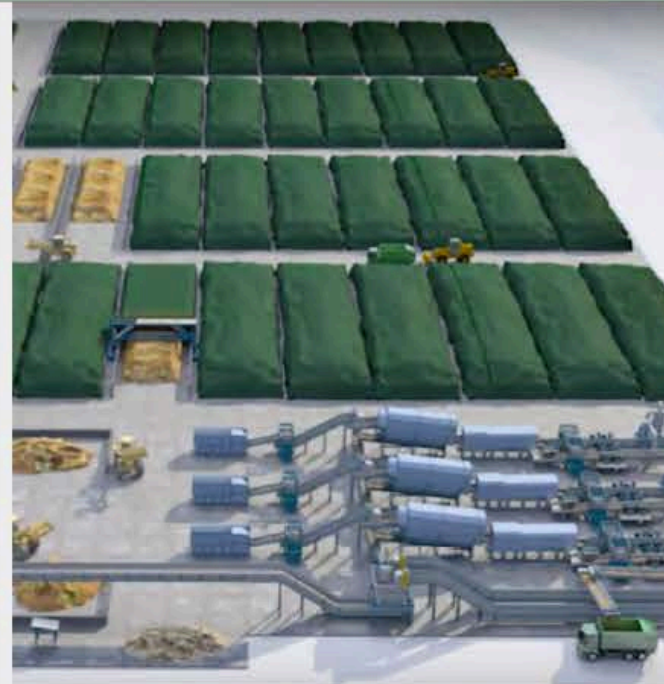
Classification: Waste, Recycling, Waste to energy, and Biological treatment facilities

Description: The Nambo waste treatment project will consist of green facilities such as sorting and materials recovery facility (MRF), and compost and refuse-derive to produce alternative energy facilities.⁴³

Output: Nambo waste processing technology can accommodate 1500-1800 tons of waste every day being turned into compost and Refuse-derived Fuel.⁴³

Cost: Appox. USD 4.8m

Financial structure: Proposed PPP



Source: Visual representation of Nambo Regional Waste Management facility⁴¹





2020 outlook for green infrastructure investment in Indonesia

- **Interviewer:** Nabilla Gunawan, Green Infrastructure Analyst - Climate Bonds Initiative
- **Guest speaker:** Mohammad Ghozie Indra Dalel, Director of Operations and Finance - PT. Sarana Multi Infrastruktur (PT SMI) (Indonesia)



Infrastructure is critical in achieving sustainable economic growth, regional connectivity and low-carbon climate solutions in ASEAN

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3.1tn**

ASEAN infrastructure investment required until 2030

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100tn**

Global climate compatible infrastructure required by 2030

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ASEAN infrastructure funding gap per year until 2030

Online resources

- Reports
 - GIIO Vietnam report (English and Vietnamese)
 - GIIO Indonesia Update report
 - GIIO Indonesia report
- Podcasts
 - Vietnam outlook podcast (Vietnamese)
 - Indonesia outlook podcast (Indonesian)
- Other GIIO reports



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Q&As



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