



Brunei,  
Cambodia,  
Laos,  
Myanmar

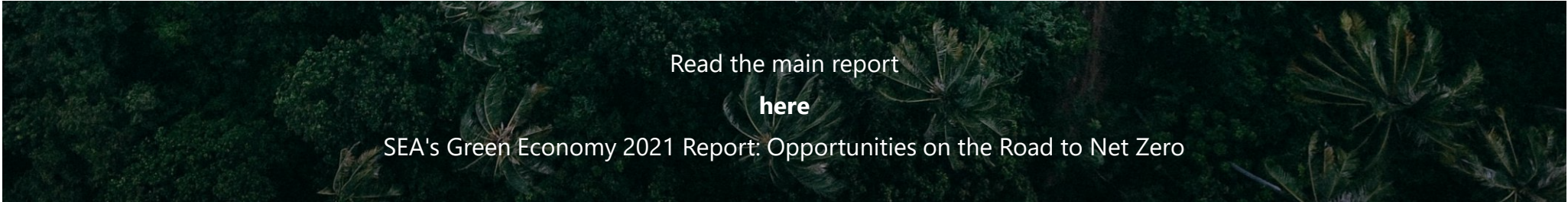
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Perspectives on the  
Green Economy

2021



Main report

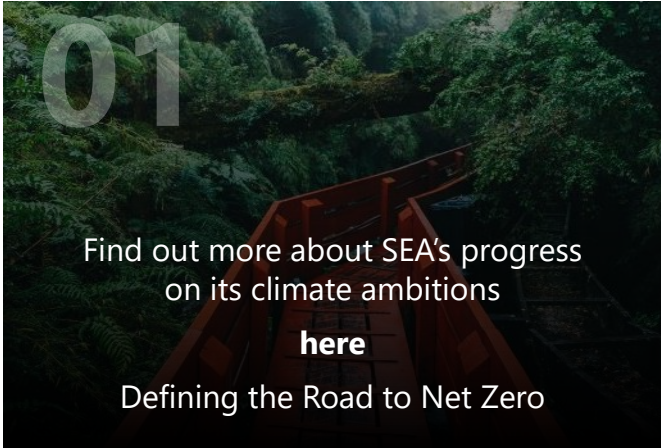


Read the main report

**here**

SEA's Green Economy 2021 Report: Opportunities on the Road to Net Zero

Deep-dive sections

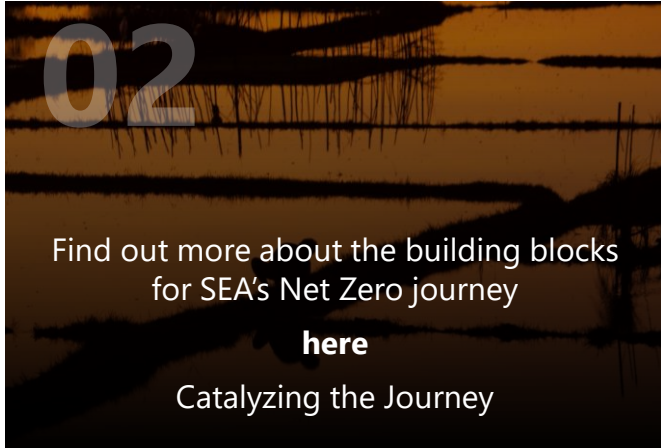


01

Find out more about SEA's progress on its climate ambitions

**here**

Defining the Road to Net Zero

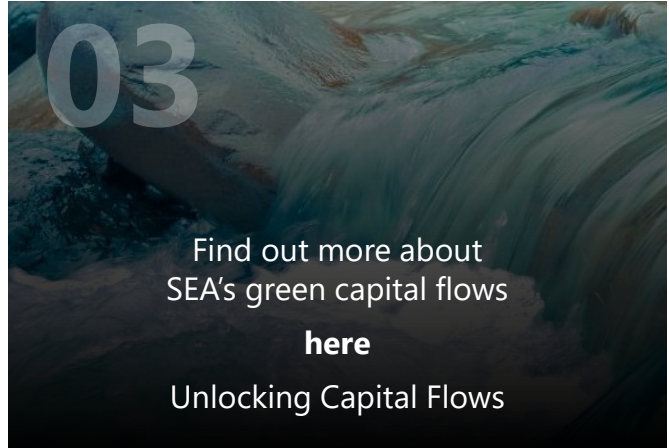


02

Find out more about the building blocks for SEA's Net Zero journey

**here**

Catalyzing the Journey



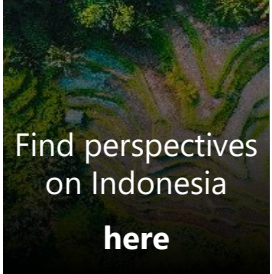
03

Find out more about SEA's green capital flows

**here**

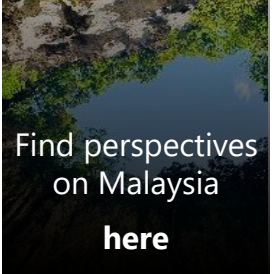
Unlocking Capital Flows

Country insights



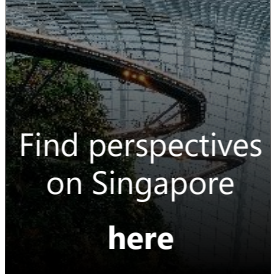
Find perspectives on Indonesia

**here**



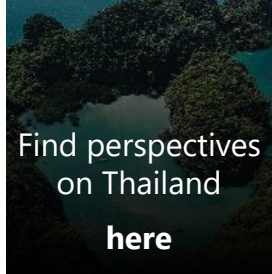
Find perspectives on Malaysia

**here**



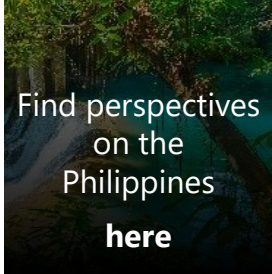
Find perspectives on Singapore

**here**



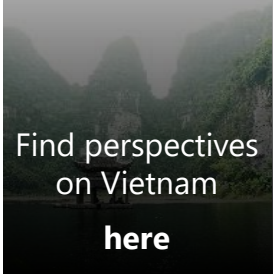
Find perspectives on Thailand

**here**



Find perspectives on the Philippines

**here**



Find perspectives on Vietnam

**here**



Brunei, Cambodia, Laos, Myanmar

**This report**

# Content

BRUNEI, CAMBODIA,  
LAOS, MYANMAR

## Brunei

is doubling down on solar energy and electric vehicle (EV) infrastructure development and has significant potential for nature-based solutions in its forests

## Cambodia

has the potential to leapfrog to sustainable infrastructure and transform its agriculture and garments industry

## Laos

needs to embrace non-hydropower renewable energy and adopt sustainable agriculture to reach its 2050 Net Zero goals

## Myanmar

can reduce emissions by expanding renewable energy infrastructure, improving energy efficiency of buildings, and leveraging nature-based solutions





BRUNEI

# Brunei is doubling down on solar energy and EV infrastructure development and has significant potential for nature-based solutions in its forests

## Key opportunities:



### Solar energy infrastructure

By 2030, Brunei aims to increase renewables capacity to 30% of the country's total capacity from 0.05% today. With 60 MW of new solar power plants to be built by 2025 and ~\$170 million allocated to improving electrical grids, Brunei's solar ecosystem is poised for takeoff.



### EV ecosystem development

Brunei's newly-launched EV pilot project is part of the government's efforts to increase EV sales to ~60% of total annual vehicle sales by 2035 (vs. 0.1% in 2017). Given Brunei's high vehicle ownership rates (~0.7 vehicles/capita vs. ~0.1-0.4 in Southeast Asia [SEA]) and low population density, home charging infrastructure will likely be the dominant charging technology.



### Nature-based solutions

Forest cover constitutes 72% of Brunei's land area (second most in SEA) and has a carbon sequestration value of 11.4 MtCO<sub>2</sub>e (~70% of total emissions). To further mitigate its carbon footprint, Brunei plans to plant 500,000 new trees by 2035 and increase its protected forest area from 41% to 55% of total land area.<sup>1</sup> Its next step is to explore other ways of generating carbon offsets, such as drone-based reforestation.

Notes: 1. Protected forest area is a legal designation, while forest cover is based on natural geography (tree density); 2. Target reduction (base year: 2015)

Sources: Country NDC; The Star; The Scoop; ERIA; ASEAN Statistical Yearbook 2020; ASEAN Post; Brunei Post; UNFCCC; Solar Quarter; Bain EV Charging Stations Insight 2019

## Mobilizing actions:

### Governmental policies for climate change

**No** Net Zero target

**20%** emissions reduction from business-as-usual by 2030<sup>2</sup>

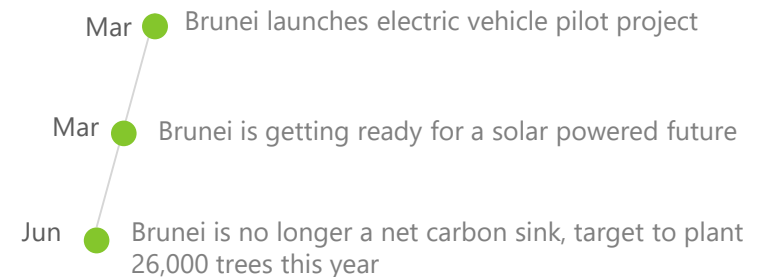
**Carbon pricing** to take effect by Jan 2025

**30%** to be renewables by 2035 of total installed capacity

**55%** of total area to be designated as forest reserves by 2035 (from 41% in 2021)

### Landmark moves in the past year

In 2021



TheStar

SOLAR QUARTER

The Brunei Post

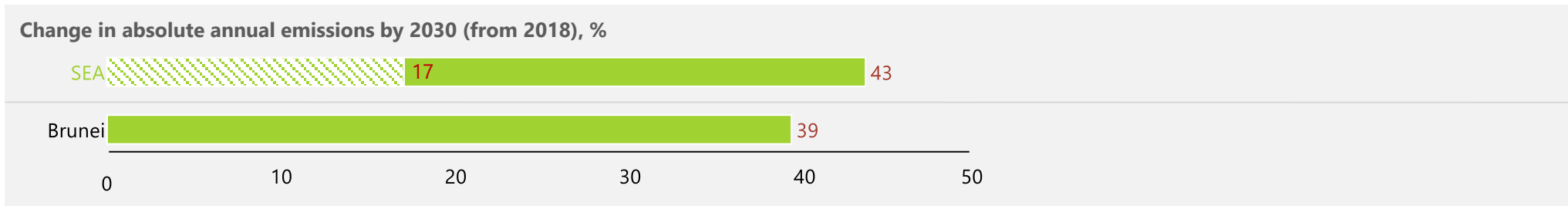


BRUNEI

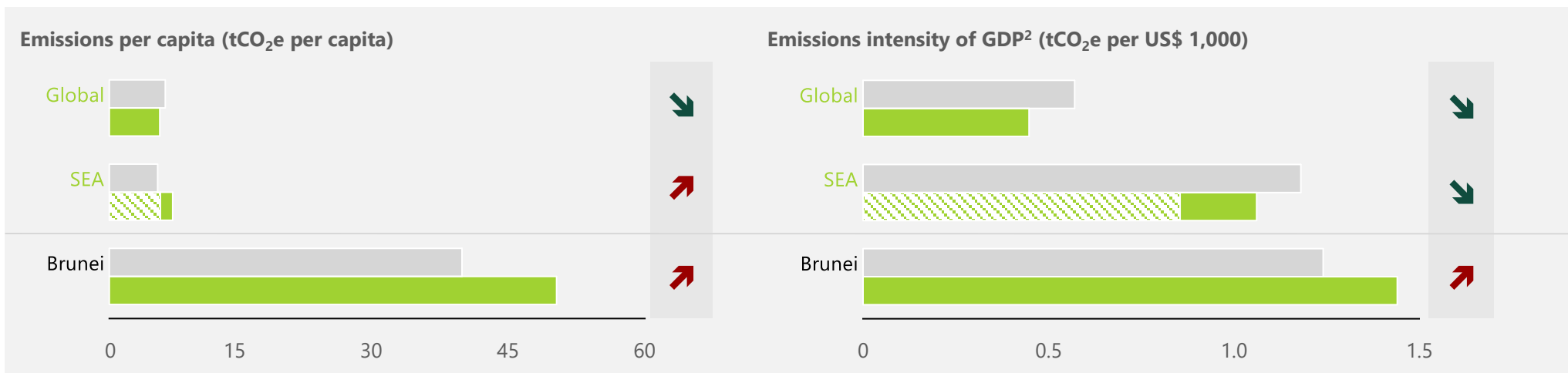
From 2018 to 2030, Brunei's absolute annual emissions expected to increase in line with SEA overall; emissions intensities set to increase more than SEA

Based on latest NDC targets

Brunei's absolute annual emissions projected to increase from 2018 to 2030, in line with SEA<sup>1</sup> overall



Brunei's emissions per capita and emissions intensity of GDP are above SEA and global averages in 2018 and are projected to increase and remain higher in 2030



■ 2018 (actual) ■ 2030 (conditional NDC)<sup>3</sup> ■ 2030 (unconditional NDC)

Notes: 1. SEA benchmarks include Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, the Philippines, and Vietnam. For countries with only one emission target, it is taken to be both conditional and unconditional; 2. GDP at current prices used for Brunei, Cambodia, Laos and Myanmar, while GDP at constant prices (2010) used for the rest; 3. Nationally determined contributions

Sources: Bain analysis; EIU; Euromonitor; Climate Watch; Country NDCs

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CAMBODIA

# Cambodia has the potential to leapfrog to sustainable infrastructure and transform its agriculture and garments industry

## Key opportunities:



### Solar energy infrastructure

>80% of Cambodia's land can produce >4 kWh/m – the most of any SEA nation. Its location is also ideal for regional trade; there is strong demand for clean energy in SEA (e.g., the LTMS-PIP)<sup>1</sup> as well as China. As such, renewable power plants, especially solar infrastructure, are viable despite low domestic demand and can spark future development.



### Digitalization of agricultural practices

Agriculture contributes to ~22% of national GDP vs. ~10% in the rest SEA, even if the sector has lower resource efficiency and more climate-vulnerable infrastructure than SEA overall. By leveraging its high mobile penetration (124% of total population) and cheap data rates, simple and affordable mobile applications will be a key enabler of agricultural improvements.



### Garments industry transformation

Representing >80% of Cambodia's exports, the garments industry is sensitive to international pressures, which are increasingly concerned with sustainability issues such as water consumption, waste management, and decarbonization. Since a 20% increase in energy productivity also represents ~\$2 billion in avoided energy costs, resource efficiency will differentiate the winners and losers.

## Mobilizing actions:

### Governmental policies for climate change

**No** Net Zero target

**42%** conditional<sup>2</sup> emissions reduction from business-as-usual by 2030 (no unconditional)

**No** carbon pricing or emissions trading scheme (ETS)

**25%** of total installed capacity<sup>3</sup> to be renewables by 2030

**60%** of total area to be restored as forest cover by 2030

### Business commitments to Net Zero

<b>2</b> SBTi <sup>4</sup> signatories	2020	2021
Joined in...	Olive Apparel Cambodia	Shoe Premier II

### Landmark moves in the past year

In 2021

Mar ● A new development policy is in place for agriculture: Strong prospects for the sector in the next 10 years



Aug ● Cambodia welcomes help from all countries for infrastructure

Notes: 1. Lao PDR-Thailand-Malaysia-Singapore Power Integration Project; 2. Target reduction (base year: 2010). Conditional targets dependent on availability of international support; 3. 25% of installed capacity does not include hydro (~60% of total capacity in 2020); 4. Science Based Targets initiative

Sources: Country NDC; Borgen Project; Stimson; ADB; SEA Globe; Global Solar Atlas; Switch Asia; The ASEAN Post; Khmer Times; FAO; Phnom Penh Post

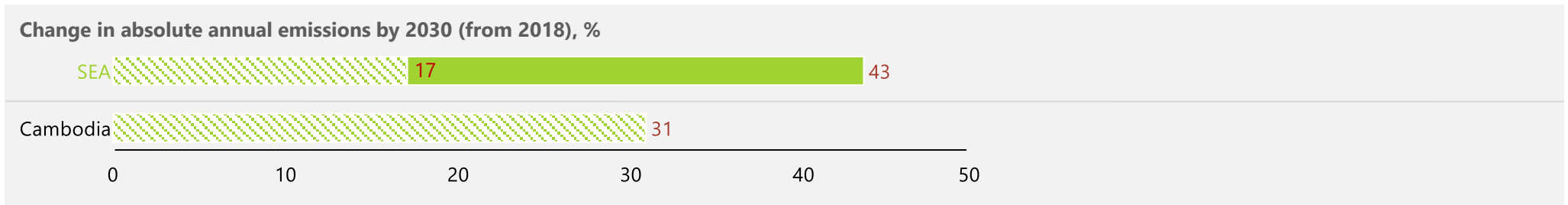


CAMBODIA

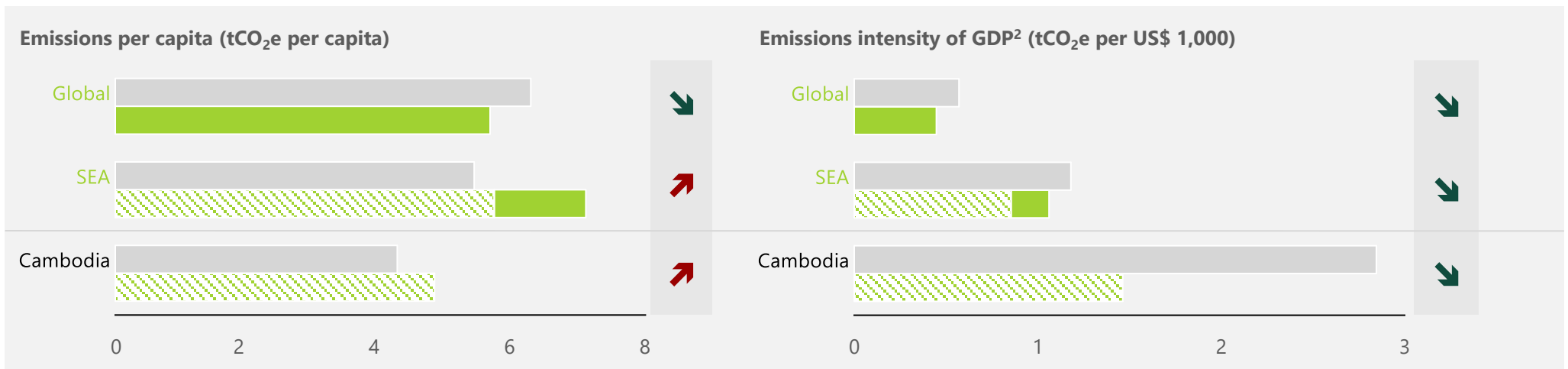
Cambodia has no unconditional emissions targets; from 2018 to 2030, the country's conditional absolute emissions and emissions per capita are set to increase

Based on latest NDC targets

Cambodia's conditional absolute annual emissions projected to increase from 2018 to 2030, above SEA's<sup>1</sup> conditional target



Cambodia's conditional emission per capita set to increase from 2018 to 2030, though will still remain below global and SEA overall. Conditional emissions intensity of GDP set to halve



■ 2018 (actual) ■ 2030 (conditional NDC) ■ 2030 (unconditional NDC)

Notes: 1. SEA benchmarks include Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, the Philippines, and Vietnam. For countries with only one emission target, it is taken to be both conditional and unconditional; 2. GDP at current prices used for Brunei, Cambodia, Laos and Myanmar, while GDP at constant prices (2010) used for the rest

Sources: Bain analysis; EIU; Euromonitor; Climate Watch; Country NDCs



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LAOS

# Laos needs to embrace non-hydropower renewable energy and adopt sustainable agriculture to reach its 2050 Net Zero goals

## Key opportunities:



### Micro solar infrastructure

Despite Laos' reliance on coal (~68% of emissions in 2015), renewable energy can be the key to overcoming challenges of long-distance transmission. By avoiding resettlement conflicts, off-grid renewable sources, such as micro solar installations, can enhance rural access to energy and aid Laos in attaining its ambitious emissions reduction target.



### Nature-based solutions

Laos aims to increase forest cover to 70% of the nation's entire terrain but has been stymied by difficulties mapping its land area. Community-based solutions for spatial planning and analysis, such as drone-based mapping and participatory monitoring, can qualify for the ADB Forestry in the GMS Corridor Program as well as address deforestation and forest degradation.



### Digitalization of agricultural practices

>60% of the population is dependent on agriculture, and >60% of arable land is used to cultivate rice – an emissions-intensive crop. Given only 10% of value-added agricultural processing occurs domestically and smallholders have less knowledge of safe agrochemical use, productivity and emissions can be improved with offline messaging solutions that provide localized technical knowledge (79% and 43% mobile and internet penetration respectively).

## Mobilizing actions:

### Governmental policies for climate change

**2050** Net Zero target

**60%** emissions reduction from business-as-usual by 2030 (67% conditional)<sup>1</sup>  
unconditional

**No** carbon pricing or ETS

**30%** from renewables by 2025  
energy consumption

**70%** of total area to be restored as forest cover (conditional) by 2030

### Landmark moves in the past year

In 2021

- May ● (~\$30 million) Funds rolled out for Laos agriculture competitive project **TheStar**
- Jul ● BCPG Public Company Limited (BCPG) has entered into a power purchase agreement (PPA) for a 600-MW wind power project in Laos **CONSTRUCTIONWEEKONLINE**
- Jul ● Preparations are underway to set in motion Laos' green industry policy and market preparations for industrial energy efficiency **ANN**

Notes: 1. Target reduction (base year 2007). Unconditional reductions are not dependent on external support. Conditional targets dependent on availability of international support

Sources: Country NDC; GGGI; ERIA; SNRD; USDA; Factiva; Laotian Times



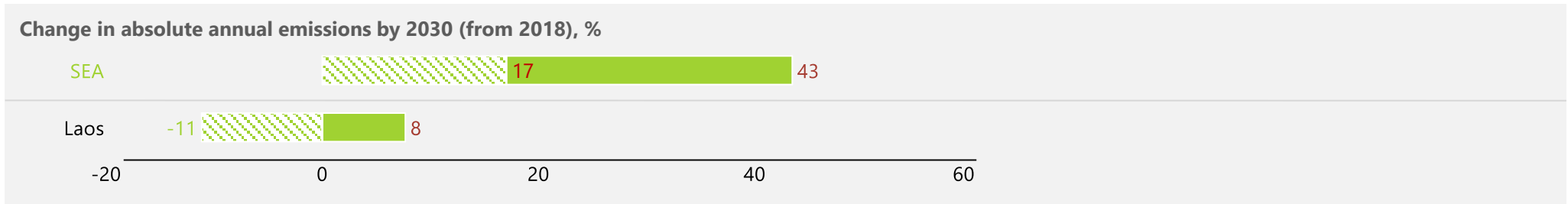


LAOS

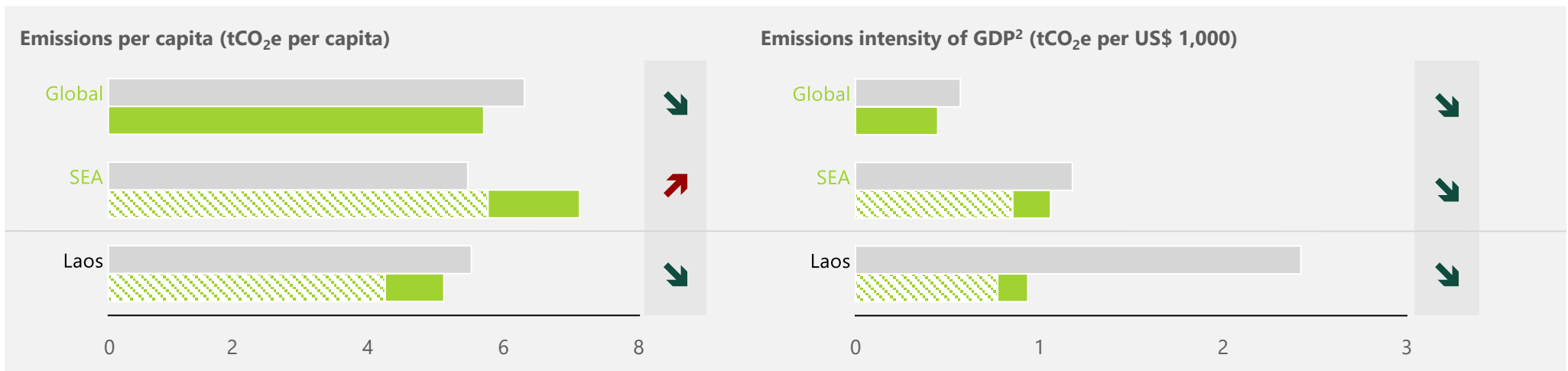
# From 2018 to 2030, Laos' conditional absolute annual emissions expected to decrease amidst SEA overall increase; emissions intensities also set to decline

Based on latest NDC targets

Laos' conditional absolute annual emissions set to decrease from 2018 to 2030 amidst increasing SEA overall<sup>1</sup>; its unconditional absolute annual emissions also to increase less than SEA overall



Laos' emissions per capita and emissions intensity of GDP set to decrease from 2018 to 2030 to less than SEA average, regardless of availability of international support



■ 2018 (actual) ■ 2030 (conditional NDC) ■ 2030 (unconditional NDC)

Notes: 1. SEA benchmarks include Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, the Philippines, and Vietnam. For countries with only one emission target, it is taken to be both conditional and unconditional; 2. GDP at current prices used for Brunei, Cambodia, Laos and Myanmar, while GDP at constant prices (2010) used for the rest

Sources: Bain analysis; EIU; Euromonitor; Climate Watch; Country NDCs

# Agenda

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MYANMAR

# Myanmar can reduce emissions by expanding renewable energy infrastructure, improving energy efficiency of buildings, and leveraging nature-based solutions

## Key opportunities:



### Renewable energy infrastructure

While hydropower and coal are still expected to dominate the electricity mix in 2030, the country is aiming to increase its share of non-hydropower renewables, with >1.2 GW of wind and solar projects in the pipeline as of July 2021. Further, solar can be leveraged to leapfrog electrification in rural areas using mini-grids, with Myanmar targeting 100% electrification by 2030 (from ~30% in 2015).



### Energy efficiency and green buildings

Myanmar's latest NDC has set a cumulative energy consumption reduction target of 20% by 2030 (from 2012 baseline). Implementation of smart energy management systems and efficiency assets, in addition to establishing green standards for new commercial buildings, can help to stem energy consumption amid the rapidly growing economy.



### Nature-based solutions

Myanmar aims to mitigate 120–260 MtCO<sub>2</sub>e of emissions annually from forestry and land use change. Blended financing and voluntary carbon market mechanisms can be explored to deliver these targets. A national carbon pricing mechanism permitting the use of high-quality nature-based carbon credits will also provide significant tailwinds to achieve these ambitions.

## Mobilizing actions:

### Governmental policies for climate change

**No** Net Zero target

**600 MtCO<sub>2</sub>e**  
unconditional

absolute **emissions cap** by 2030 for select sectors (400 MtCO<sub>2</sub>e conditional)<sup>1</sup>

**No** Carbon pricing or ETS

**11%**  
of total installed capacity

To be (non-hydro) **renewables** by 2030

**25%**  
unconditional

Reduction of **deforestation** by 2030 (50% conditional)

Notes: 1. Select sectors include energy and land use change and forestry (exclude agriculture.). Unconditional reductions are not dependent on external support. Conditional targets dependent on availability of international support

Sources: Country NDC; ERIA; Ecosperity; IEA



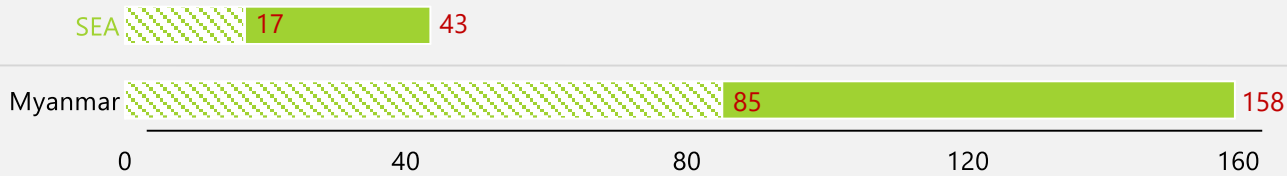
MYANMAR

From 2018 to 2030, Myanmar's absolute annual emissions expected to increase significantly more than SEA overall; emissions intensities also higher than SEA overall

Based on latest NDC targets

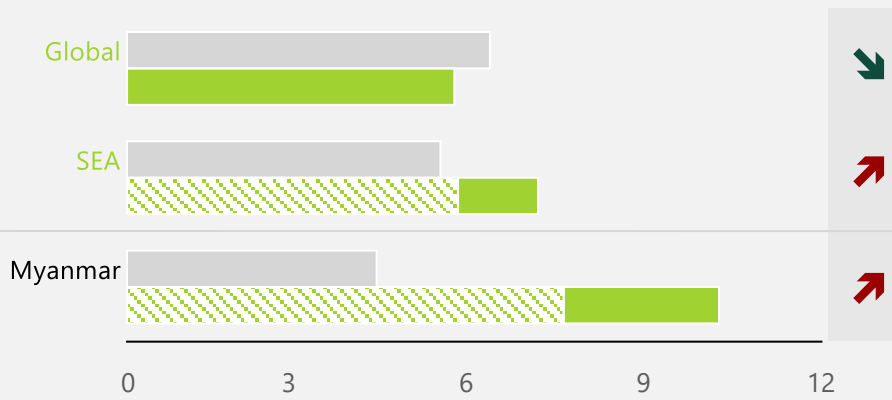
Myanmar's conditional absolute annual emissions set to increase from 2018 to 2030 ~4x more than SEA overall, and its unconditional emissions are ~5x more than SEA overall

Change in absolute annual emissions by 2030 (from 2018),<sup>1</sup> %

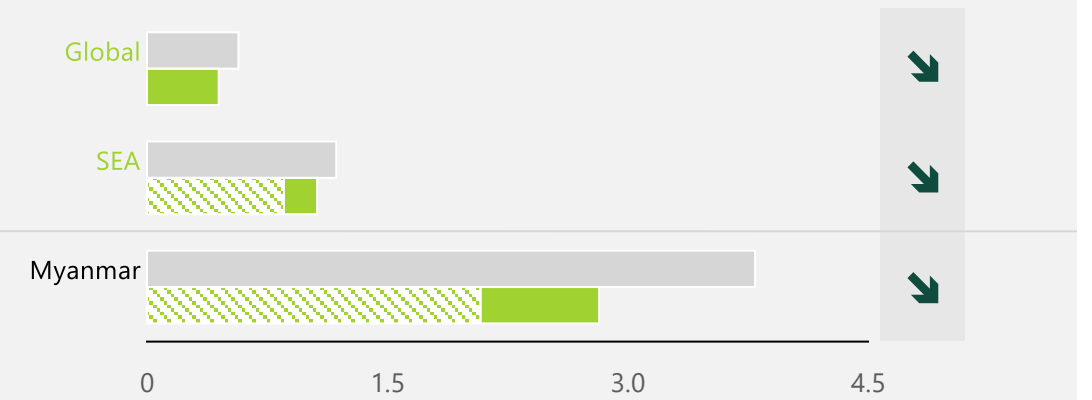


Myanmar's emissions per capita is projected to increase to surpass SEA and global averages. However, its emissions intensity of GDP is set to decrease from 2018 to 2030, but still remains above SEA and global averages

Emissions per capita (tCO<sub>2</sub>e per capita)



Emissions intensity of GDP<sup>2</sup> (tCO<sub>2</sub>e per US\$ 1,000)



■ 2018 (actual) ■ 2030 (conditional NDC) ■ 2030 (unconditional NDC)

Notes: 1. SEA benchmarks include Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, the Philippines, and Vietnam. For countries with only one emission target, it is taken to be both conditional and unconditional; 2. GDP at current prices used for Brunei, Cambodia, Laos and Myanmar, while GDP at constant prices (2010) used for the rest

Sources: Bain analysis; EIU; Euromonitor; Climate Watch; Country NDCs



A close-up photograph of several green fern fronds, showing the intricate, feathery structure of the leaves. The fronds are layered and overlap, creating a dense, textured appearance. The lighting is bright, highlighting the vibrant green color and the fine details of the leaflets.

For queries on SEA's Green Economy, please reach out to:

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Gerry Mattios, Co-Director of GSIC ([Gerry.Mattios@Bain.com](mailto:Gerry.Mattios@Bain.com))

