

A satellite-style aerial photograph of a coastal city, likely in Malaysia, showing a complex river delta system with multiple channels and islands. The city's urban grid is visible, interspersed with green spaces and water bodies. The sea is on the left side of the frame.

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Financing Climate Resilient Development in Malaysia

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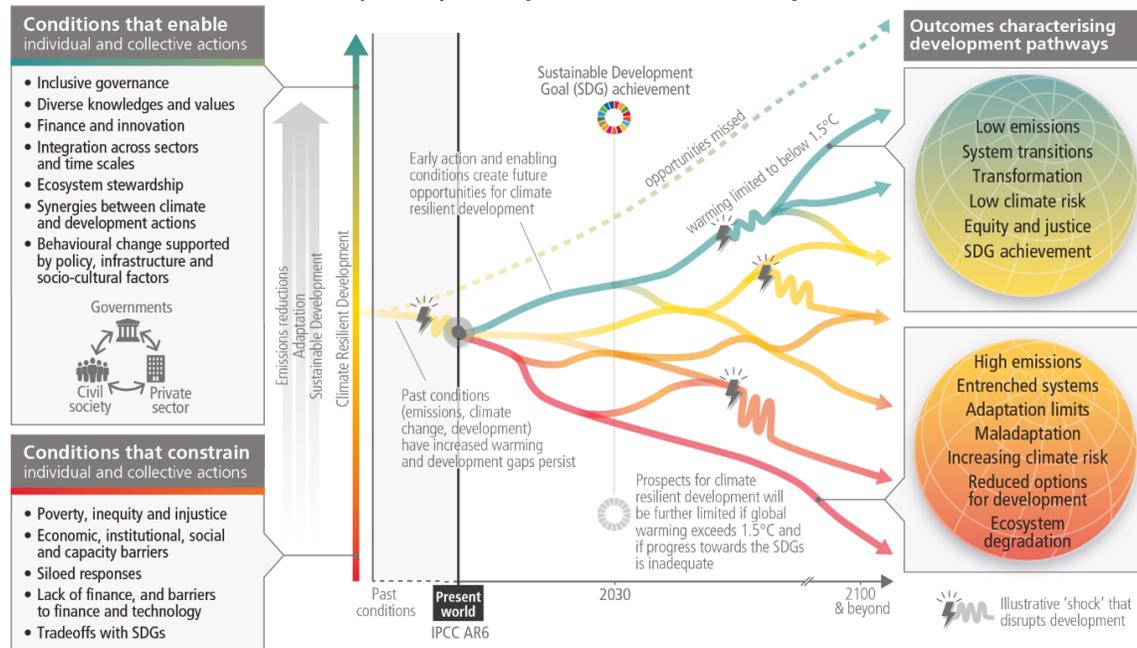
Country Background

Policy and Finance Challenges

Narrowing window of opportunity to enable climate resilient development

There is a rapidly narrowing window of opportunity to enable climate resilient development

Multiple interacting choices and actions can shift development pathways towards sustainability



Climate-resilient development is a process of implementing climate action, including greenhouse gas mitigation and risk reduction adaptation measures, to support sustainable development for all.

The longer a country and the world delays taking joint adaptation and mitigation action, the harder it will be to achieve an optimal climate resilient outcome.

Earlier action avoids future costs.
Pursuing 'co-benefits' can be efficient.

Reducing physical risk is not entirely a function of how much domestic mitigation a country undertakes. It is a function of **domestic adaptation measures** and **total global mitigation efforts**.

Country Background: Malaysia



- **Middle-income developing country** of 34 million people. Urban poverty (4.5%); Rural poverty (12%).
- **Current account surplus** of US\$ 2 billion. Trade-to-GDP ratio 141%. Manufactures are 84% of exports (2022). Foreign MNCs dominate the Electrical & Electronic sector, semiconductors & solar.
- **Fossil fuel producer**. Petroleum income supports >20% of the federal budget.
- **Sovereign credit rating** ranges from BBB+ (Fitch) to A- (S&P) and A3 (Moody's).
- Now **facing fiscal constraints** and grappling with the need for subsidy reform amidst a small revenue base. Tax-to-GDP ratio was 11.2% in 2021. Individual tax formed 11.6% of revenue.

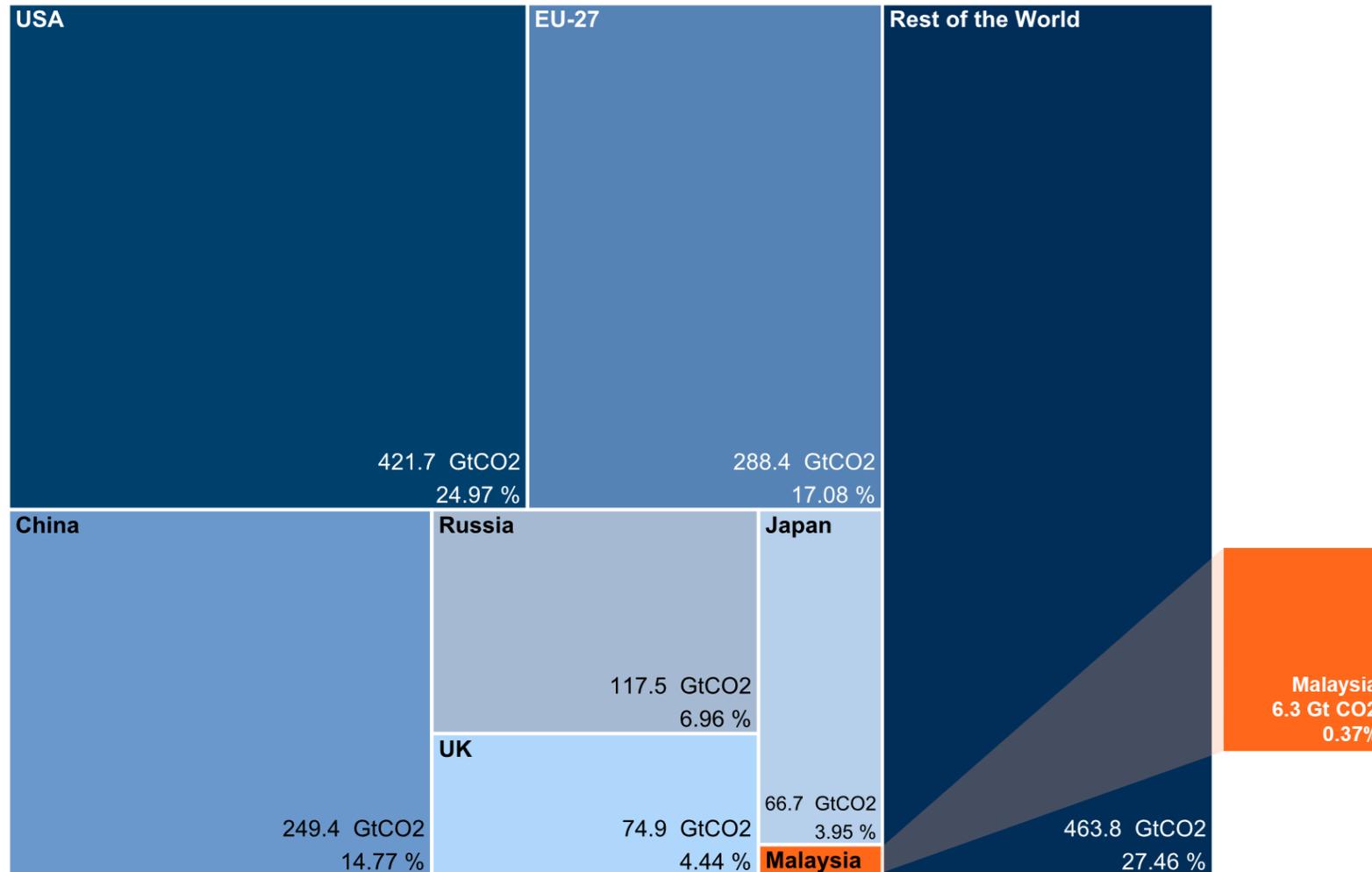
Nationally Determined Contribution (NDC)

Reduce the GHG emissions intensity of GDP by 45% (unconditional) by 2030 relative to 2005.

Additionally,

Malaysia committed to achieve “net-zero” GHG emissions “as early as” 2050.

Small share of emissions, significant transition costs



Malaysia is responsible for less than 1% of historical and current annual emissions.

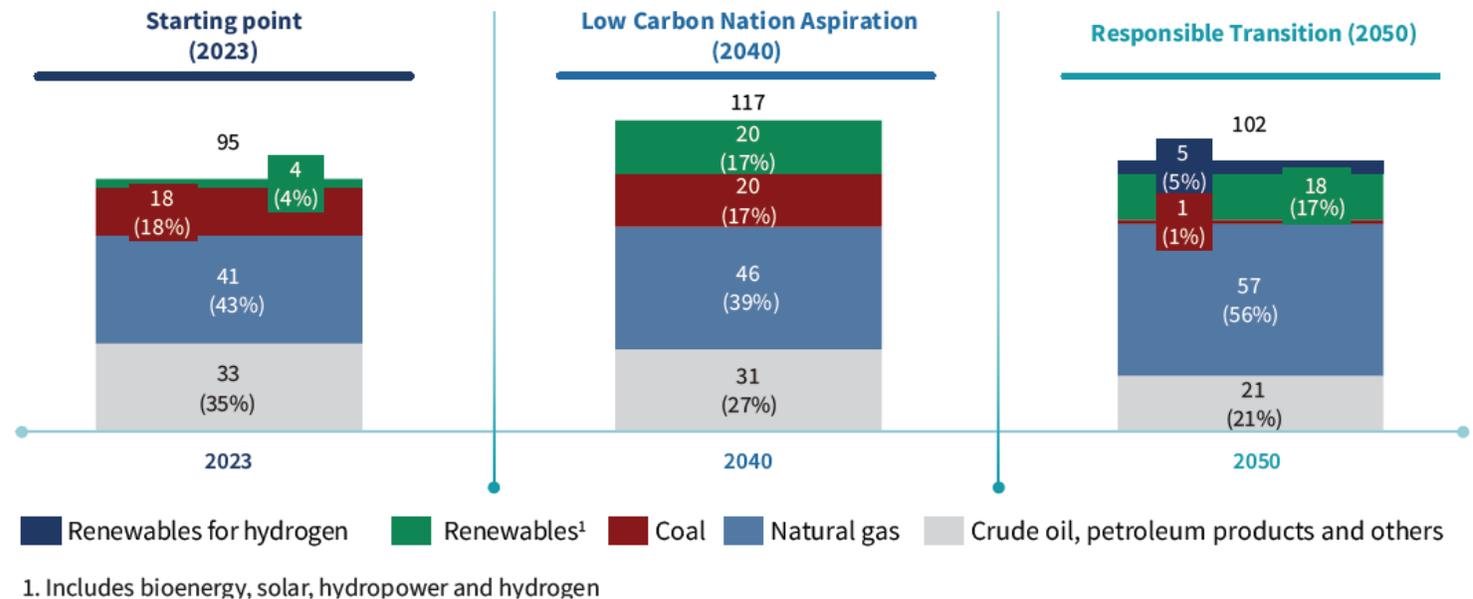
Our emission peers are **Pakistan, Egypt, Uzbekistan and North Korea.**

However, as we shall see later, energy transition costs remain significant even for a low-emission developing country.

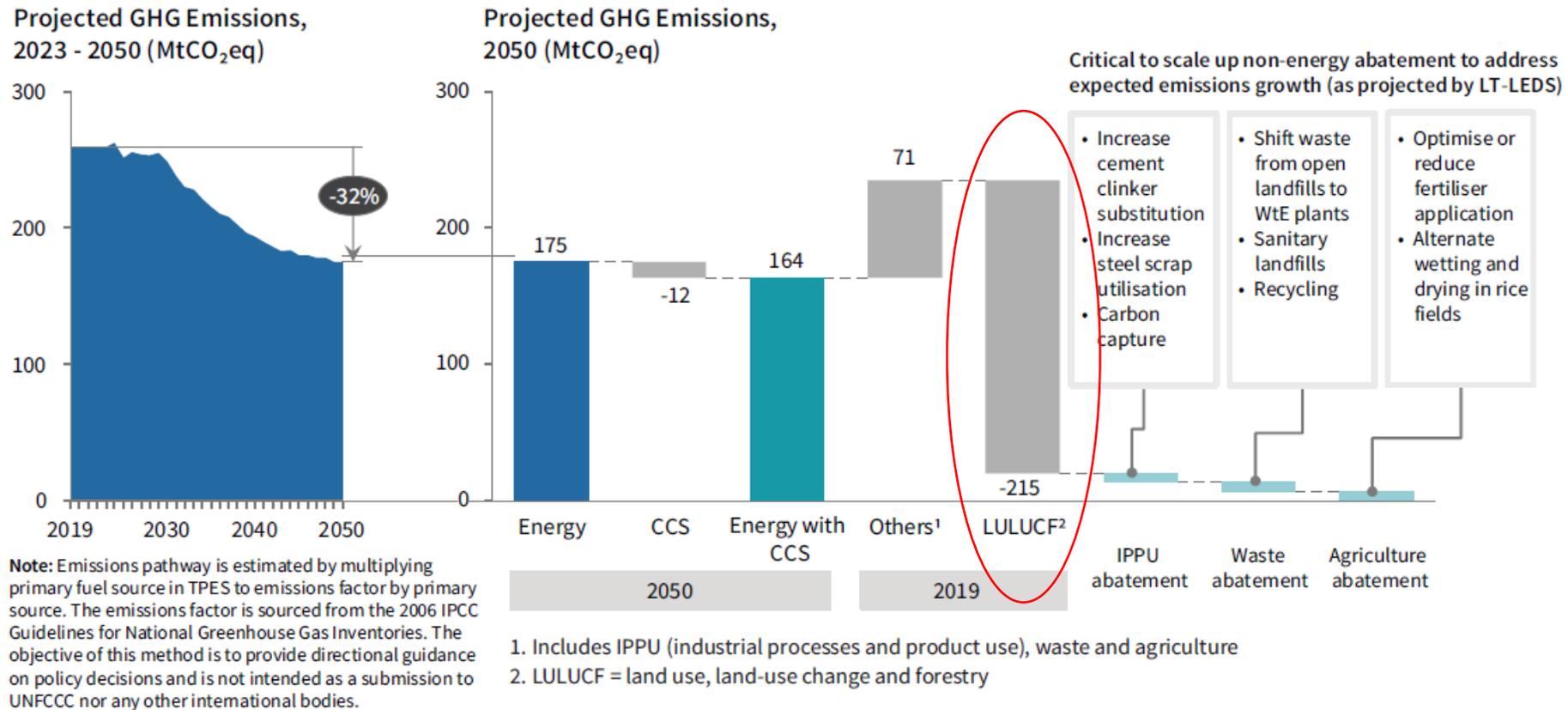
Total Primary Energy Supply by 2050

- While “net zero” and energy transition messaging appears largely targeted at foreign stakeholders, energy transition also addresses **future energy security** and long overdue reform of the electricity sector.
- Coal is 100% imported. While Malaysia is an exporter of natural gas and petroleum, reserves will last from 15 to 40 years depending on technology investments.
- In 2050, RE will be 70% of installed capacity, but 17% of the power mix. Recently revised upwards from 40%.
- Malaysia will need to rely on RE imports from a regional ASEAN grid, which implies more financial costs, albeit split amongst Southeast Asian states.

Total Primary Energy Supply (Mtoe), by energy source



Mitigation pathway to 2050

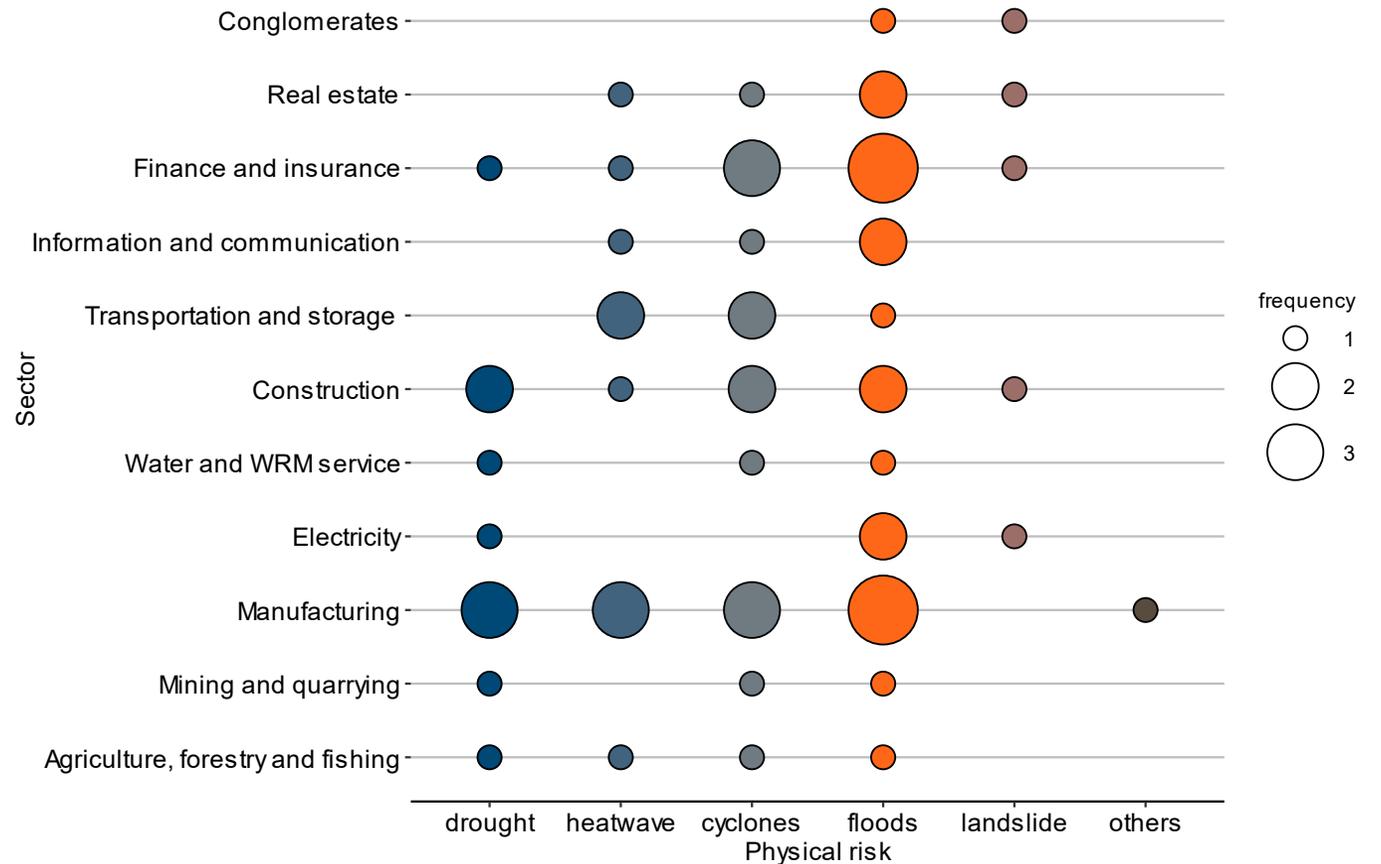


- By 2050, **sinks (LULUCF)** would cover 91% of emissions, up from 65% in 2019. Sinks are expected to remain **constant** relative to 2019 levels.
- Removals and sinks and **critically under-financed**. Beyond an Ecological Fiscal Transfer of a mere RM 150 million nationwide, policy discussion on solutions is limited to sub-standard tools such as carbon credits.

Industries are facing climate risks; adaptation needs to accelerate.

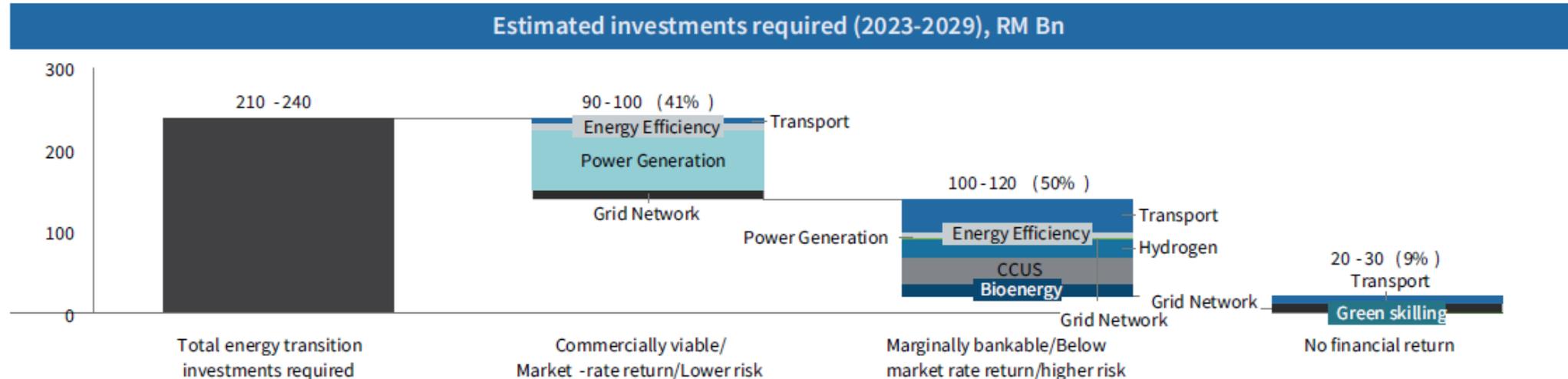
1. Of 28 companies supporting the Taskforce on Climate-related Financial Disclosures (TCFD) framework, all sectors reported physical risks across multiple climatic drivers.
2. **The manufacturing sector is exposed to most risk types.** This means companies are vulnerable to risks of not just one, but combined physical impacts, requiring different forms of adaptive measures to enhance resilience of their operations on multiple fronts.

Chronic physical risks reported by Malaysian companies under the TCFD framework, 2022.



Source: KRI's compilation

National Energy Transition Roadmap: Only 41% of 2023-2029 investments commercially viable



Implies a significant role for public investment for less commercially viable aspects, as well as increasing sovereign debt burden to cater to hypothetical external trade & investor preferences.

- Malaysia increased the ambition of its NDC **before** calculating investment needs, financing costs, or its Long-term Low Emission Development Strategy (LT-LEDS).
- **No concrete financing plan for mitigation, adaptation or conservation, as yet.**
- **Let's explore what financing overall climate transition may cost.**

Financing Transition

The Cost of Capital

Malaysia's Climate Transition Bill

How much investment is needed for climate transition?

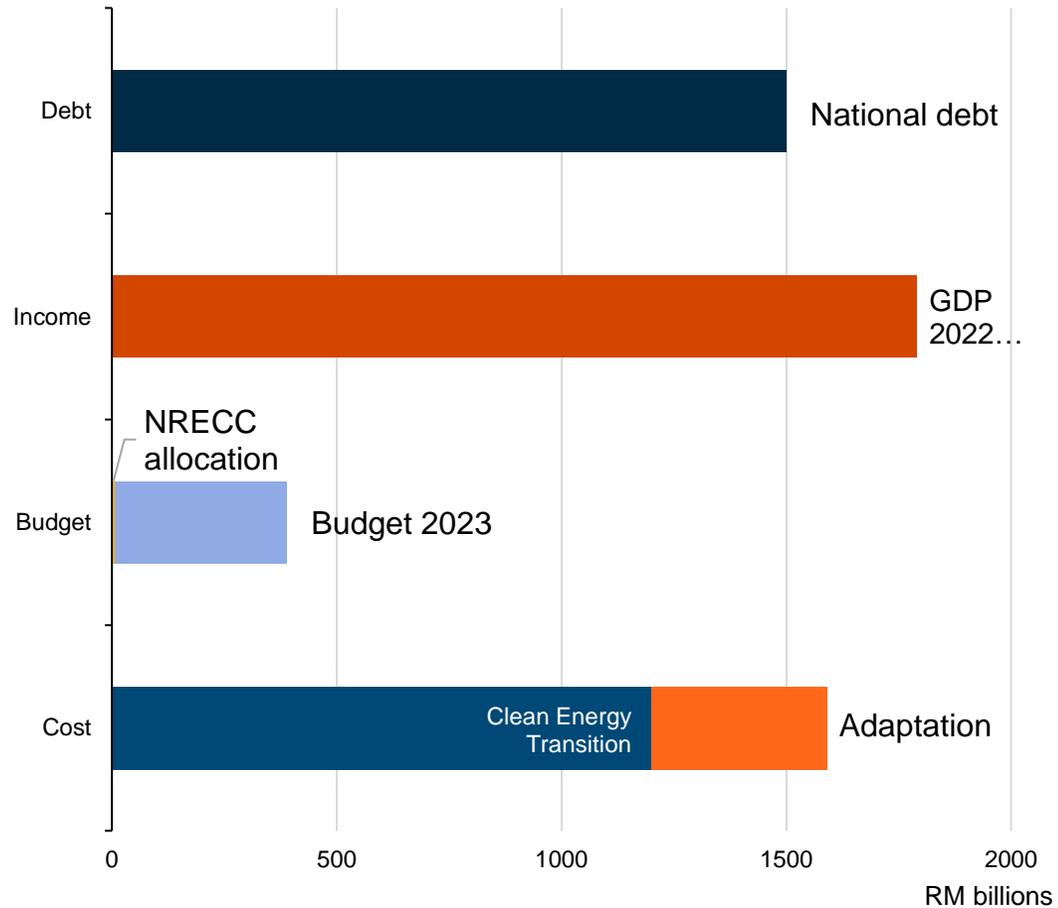
Based on official statements:

- RM 1.2 trillion (US\$ 255 billion) for **energy transition** (estimated minimum) until 2050 – National Energy Transition Roadmap (2023)
- RM 392 billion (US\$ 83 billion) for **adaptation** (estimated) over the next 50 years¹ – NRECC (Climate and Energy) Minister.

Total = RM 1.592 trillion (US\$ 338 billion) of investment needed

¹ Likely to be revised once Malaysia's National Adaptation Plan (NAP) is completed in 2-3 years.

A Trillion Ringgit in Context



- Malaysia's national debt is RM 1.5 trillion as of 2023.
- Government assets (domestic) exceed RM 1 trillion as of 2023.
- Malaysia's 2022 GDP at current prices was RM1.79 trillion.
- Federal Budget 2023 was RM 388 billion (RM 289 billion operating expenditure, RM 99 billion development expenditure).
- The energy and climate ministry's (NRECC) 2023 budget is RM 6.5 billion (1.7% of the total Budget; 4.9% of development expenditure).

Four Financing Options

Bonds, Concessional Finance, Offshore bonds &
a Hybrid Approach

Option 1: Funding the climate bill via bonds

Estimated combined mitigation and adaptation investment needs = RM 1.592 trillion

We shall use a hypothetical coupon rate of 4% and **lump sum** borrowing to establish an extreme case.
[Contrast 10-year bond yields: Indonesia 6.9%; Egypt 23%]

Energy transition/mitigation

RM 1.2 trillion for 27 years at 4% = RM 1.2 trillion (principal) + **RM 1.296 trillion (bond payments)** =
RM 2.496 trillion (US\$ 530 billion)

Adaptation

RM 392 billion for 50 years at 4% = RM 392 billion (principal) + **RM 784 billion (bond payments)** =
RM 1.176 trillion (US\$ 250 billion)

Malaysia's total bond-financed climate bill over 50 years could be RM 3.672 trillion (US\$780 billion).

 **Sequencing and splitting of issuances, plus shorter tenors with lower coupons can help lower costs.**

Option 1a: Shorter bond tenors

Strategy: Avoid borrowing all at once. Stagger borrowings.

We retain the hypothetical coupon rate of 4%.

Energy transition/mitigation

RM 1.2 trillion for 27 years, split into five 5-year tenors and a single 2-year tenor at 4% = RM 1.2 trillion (principal) + **RM 229 billion (bond payments)** = **RM 1.429 trillion**

Adaptation

RM 392 billion for 50 years, split into ten 5-year tenors at 4% = RM 392 billion (principal) + **RM 307 billion (bond payments)** = **RM 699 billion**

With staggered issuances, Malaysia's total bond-financed climate bill over 50 years could be RM 2.128 trillion (US\$ 452 billion)

A savings of RM 1.544 trillion (US\$ 328 billion) over the lump sum scenario

Option 2: Concessional Finance, GCF hybrid

Estimated combined mitigation and adaptation investment needs = RM 1.592 trillion

GCF High Concessionality, 40 years = ~0.75%

GCF Low Concessionality, 20 years = ~2.0%

Energy transition/mitigation

RM 889 billion for 20 years at 2% plus a 5+2 year bond issuance of RM 311 billion = RM 1.2 trillion (principal) + RM 312 billion (interest) = **RM 1.512 trillion (US\$ 321 billion)**

Adaptation

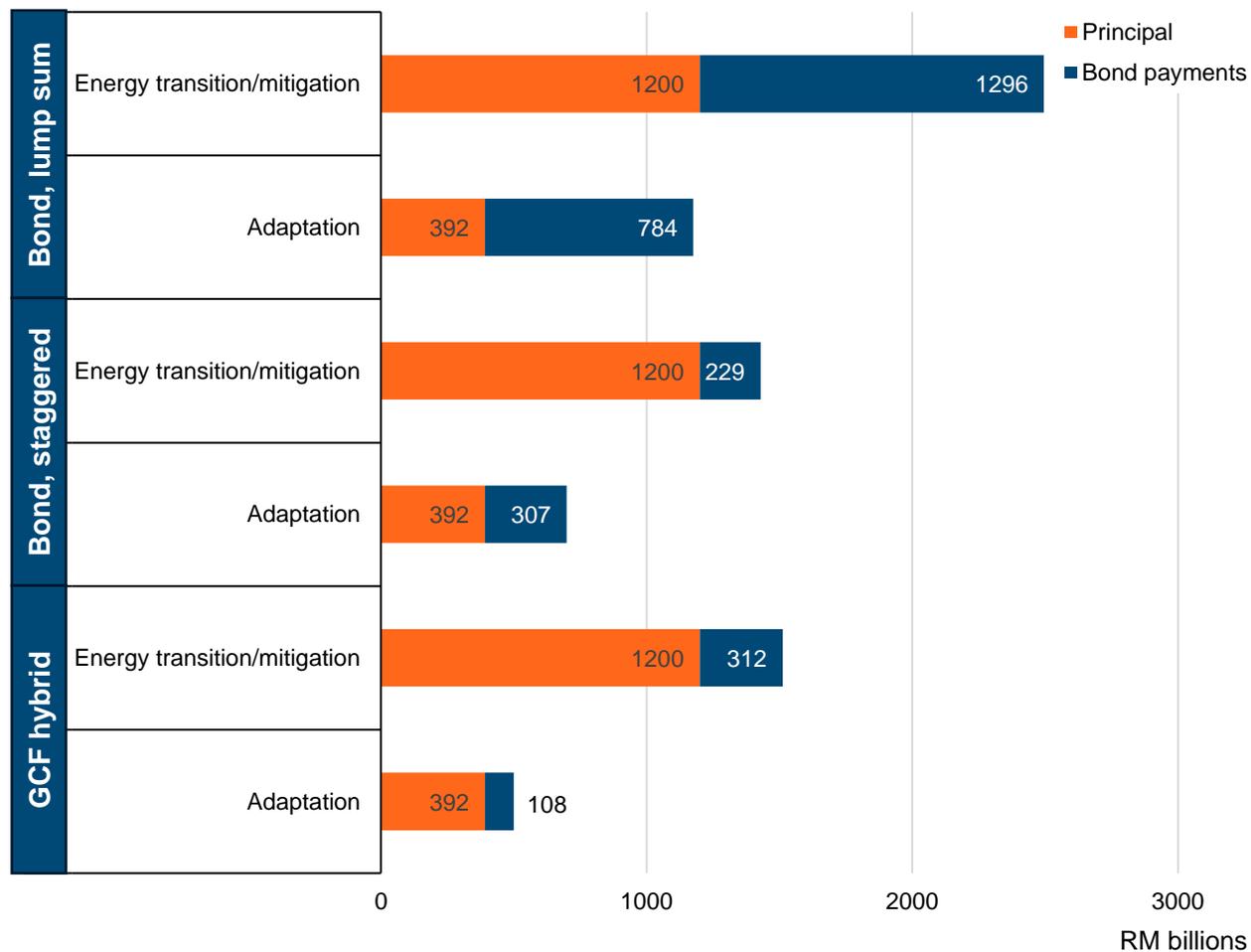
RM 314 billion for 2x20 years at 2% plus a 2x5-year bond issuance of RM 78.4 billion = RM 392 billion + RM 108 billion = **RM 500 billion (US\$ 106 billion)**

Concessional cost of Malaysia's total climate bill over 50 years **RM 2.012 trillion (US\$ 427 bn)**

Commercial bond rates @4%, staggered **RM 2.128 trillion (US\$ 452 bn)**

Savings from concessional financing **RM 0.116 trillion (US\$ 24 bn)**

National Climate Finance Strategy



In the Malaysia case, **mitigation** costs are around 2x greater than **adaptation** costs.

Given fiscal constraints, developing country governments may wish to **hedge** against non-compliance with Paris goals by major polluters and finance adaptation since it may cost less (will vary by country) and offers immediate localised reduction of climate vulnerabilities.

An IMF Working Paper (2020) also found that climate resilience was correlated with lower bond yields.

Understandably, given funder biases and available finance that favours mitigation, an adaptation heavy approach will be hard to pursue in practice.

However, identifying “co-benefits” combining mitigation and adaptation could offer an efficient dual-use outcome alongside efforts to increase quanta of adaptation finance.

Option 3: Offshore bonds, staggered

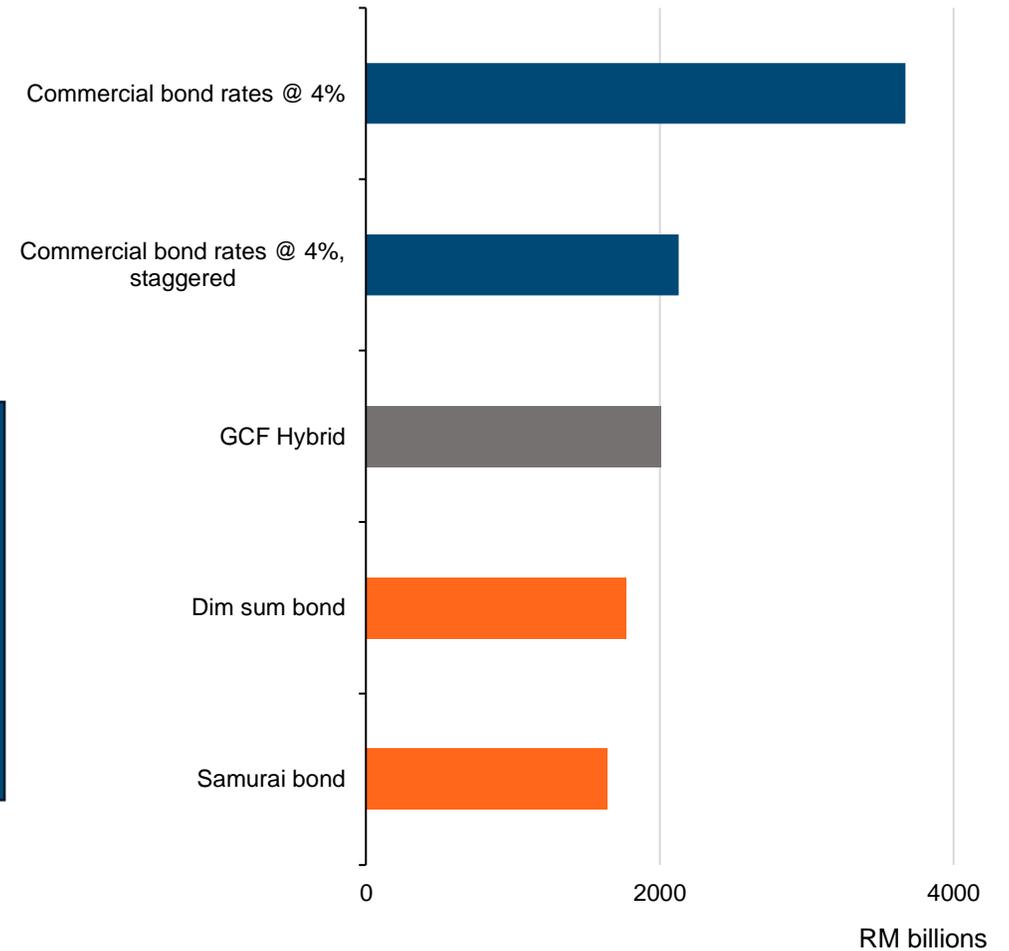
Offshore bonds in major Asian markets offer competitive financing rates and currency diversification

Samurai bonds = ~0.7%

Dim sum bonds = ~2.3%

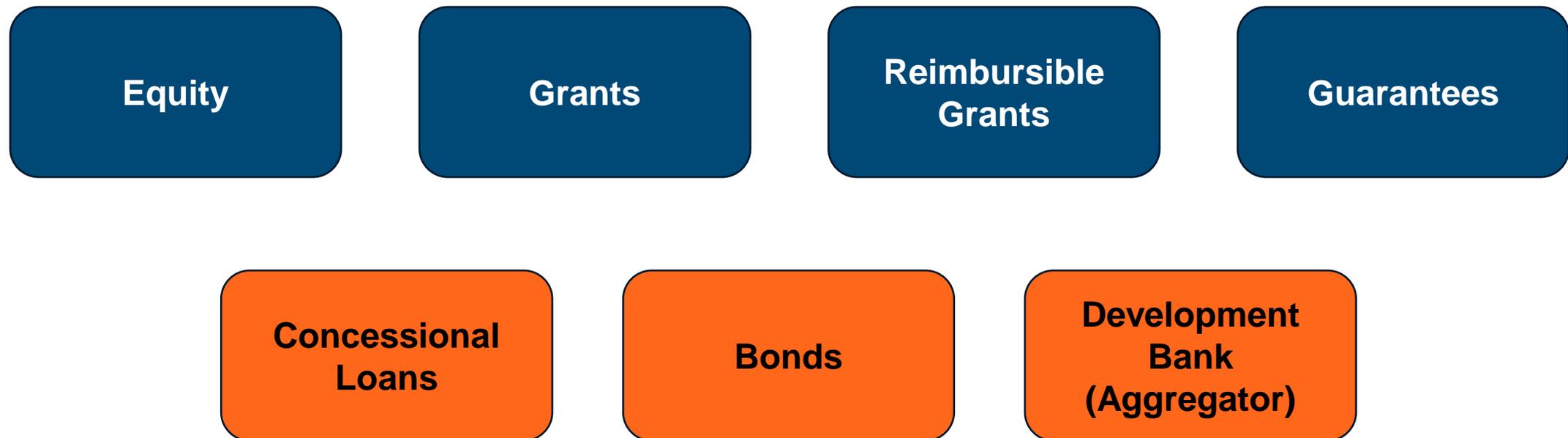
Comparison

Commercial bond rates @ 4%	RM 3.672 trillion (US\$ 780 bn)
Commercial bond rates @4%, staggered	RM 2.128 trillion (US\$ 452 bn)
GCF Hybrid costs	RM 2.012 trillion (US\$ 427 bn)
Dim sum bond costs	RM 1.769 trillion (US\$ 370 bn)
Samurai bond costs	RM 1.645 trillion (US\$ 350 bn)



Option 4: Blend it...

Ultimately, countries are likely to opt for a **diversified approach**. Profitable activities can be hived off to the private sector. State funding can take the form of equity to generate some returns for public investment. Other financing options such as debt monetisation and taxation to offset any balance of payments pressure. Allowing fossil fuel players a stake in the clean energy economy can cross-subsidise transition or decommissioning (especially coal phase outs).



Summary

- 1 Climate resilient development** is the emerging ‘Holy Grail’ of climate policy. Unfortunately, we are still dealing with mitigation and adaptation separately.
- 2 Adaptation for industry** is important for economic security, but it remains underemphasised in policy
- 3 Public funding can address the low commercial viability** of aspects of energy and adaptation transition. This raises a challenge of borrowing.
- 4 It is not enough to calculate investment gaps as financing can prove expensive, even for middle income countries.** Malaysia enjoys relatively favourable bond rates, but the long-term cost of borrowing can be significant.
- 5 Concessional finance offers more attractive rates.** Since it is limited, developing countries should support diplomatic efforts for greater sums of international climate finance via the UNFCCC process.
- 6 Offshore bonds**, such as samurai and dim sum, can offer very attractive rates and can help diversify foreign exchange dependency. However, they bring exchange rate risk. This could be offset by DIA in the complementary currency for middle-income countries.

Summary, cont.

- 7 Financing adaptation and resilience early on could ease the burden of future borrowing for energy transition.** IMF (2020) found that “countries that are more resilient to climate change have lower bond yields and spreads relative to countries with greater vulnerability to risks associated with climate change.”
- 8 Where sinks are your largest current and future source of emission removals: Conservation often remains critically under-financed.** Net-zero policy cannot focus on energy transition costs alone. Regulatory and fiscal alternatives to sub-par tools such as carbon credits and carbon pricing need to be explored.
- 9 Resist pressure to raise ambition on NDCs until you work out your transition financing costs.** Preferably for more than one transition scenario. It is important to retain conditionalities for negotiating access to transition resources, such as financing.
- 10 A different toolbox may be worth exploring for middle-income countries (MICs).** MICs can move beyond FDI dependency to DIA for, e.g. technology acquisition and exchange rate hedging. Bond issuances, while expensive, may be in their favour compared to poorer developing countries.
- 11 Is public sector support of transition corporate welfare or industrial policy?** A substantial part of climate resilient development transition costs may not be “commercially viable” but it will prevent greater loss and damage or imply state stimulation of the economy, i.e. it will add to GDP, but may increase the stock of public debt.

One thing is sure, with the high costs of capital, lenders will do very well out of climate finance.

Thank you