KHAZANAH
RESEARCH
INSTITUTE

Financing Climate Resilient Development in Malaysia

Yin Shao Loong

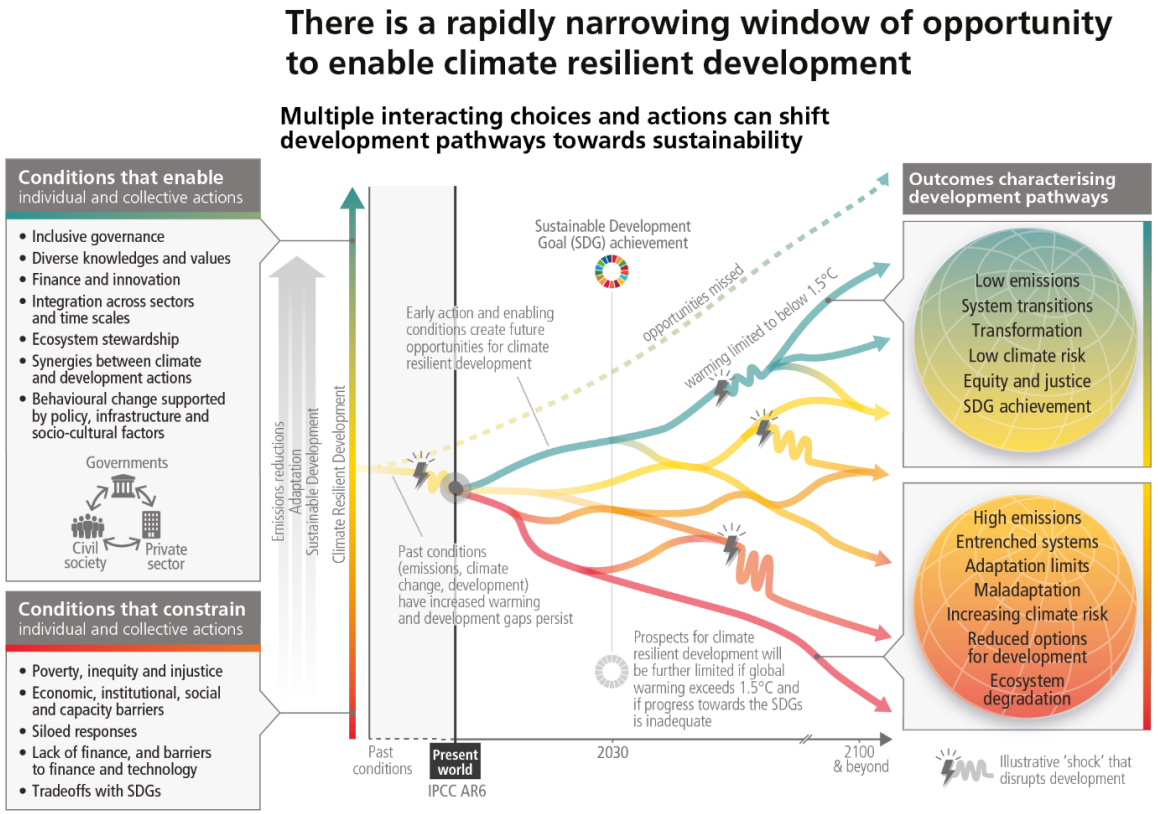
2nd November 2023

UNCTAD Intergovernmental Group of Experts on Financing for Development 7th Session

Country Background

Policy and Finance Challenges

Narrowing window of opportunity to enable climate resilient development



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.

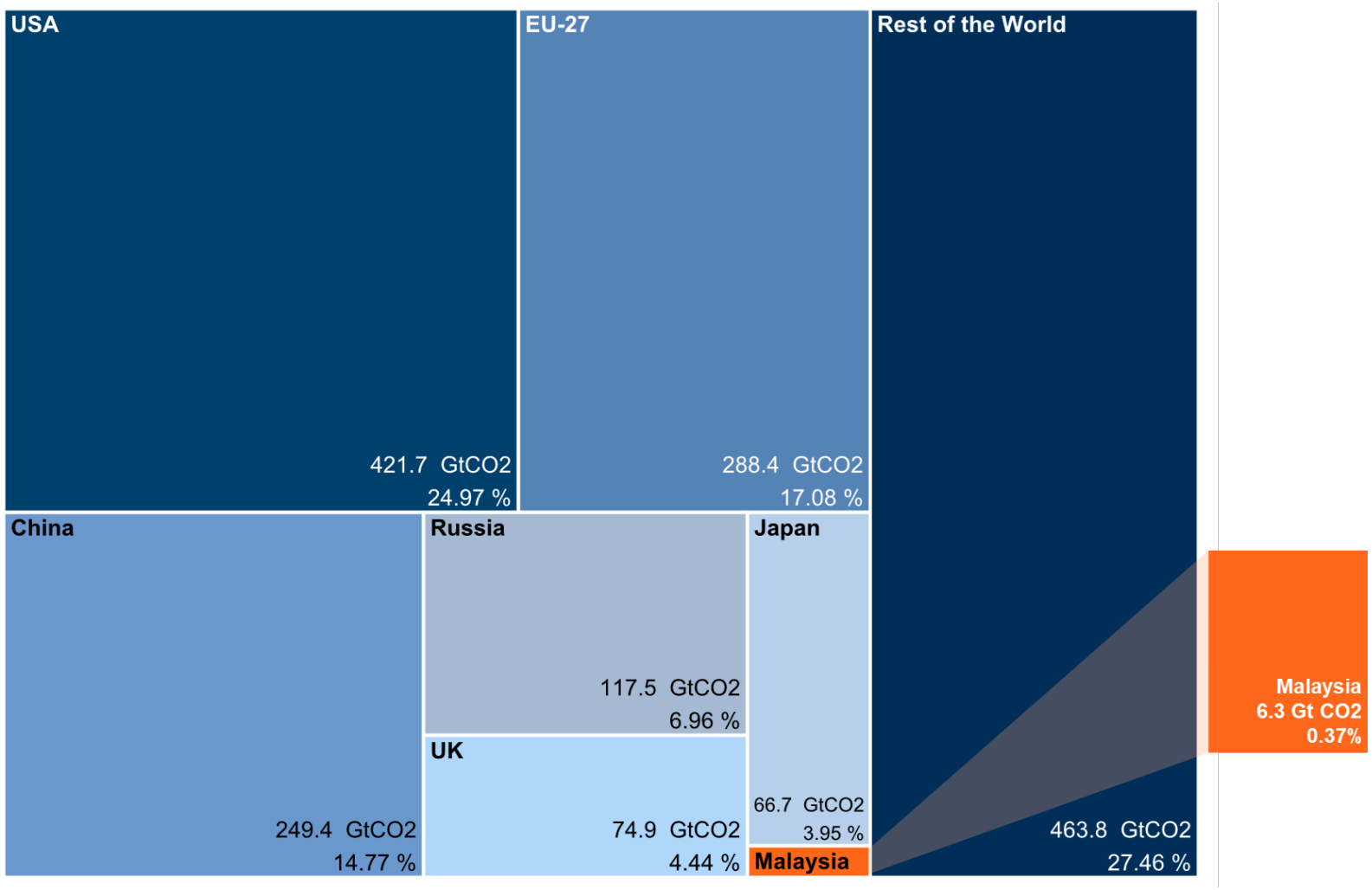
The longer a country and the world delays taking joint adaptation and mitigation action, the harder it will be to achieve an optimal climate resilient outcome.

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.

Source: IPCC (2023).

Small share of emissions, significant transition costs



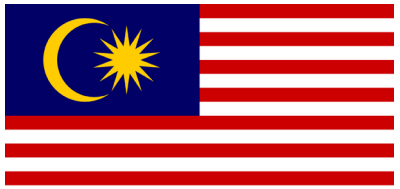
Malaysia is responsible for less than 1% of historical and current annual emissions.

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.

Source: Our World in Data (2020), KRI visualisation

Country Background: Malaysia



- **Middle-income developing country** of 34 million people. Urban poverty (4.5%); Rural poverty (12%).
- **Debt-to-GDP ratio** 63%.
- **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)

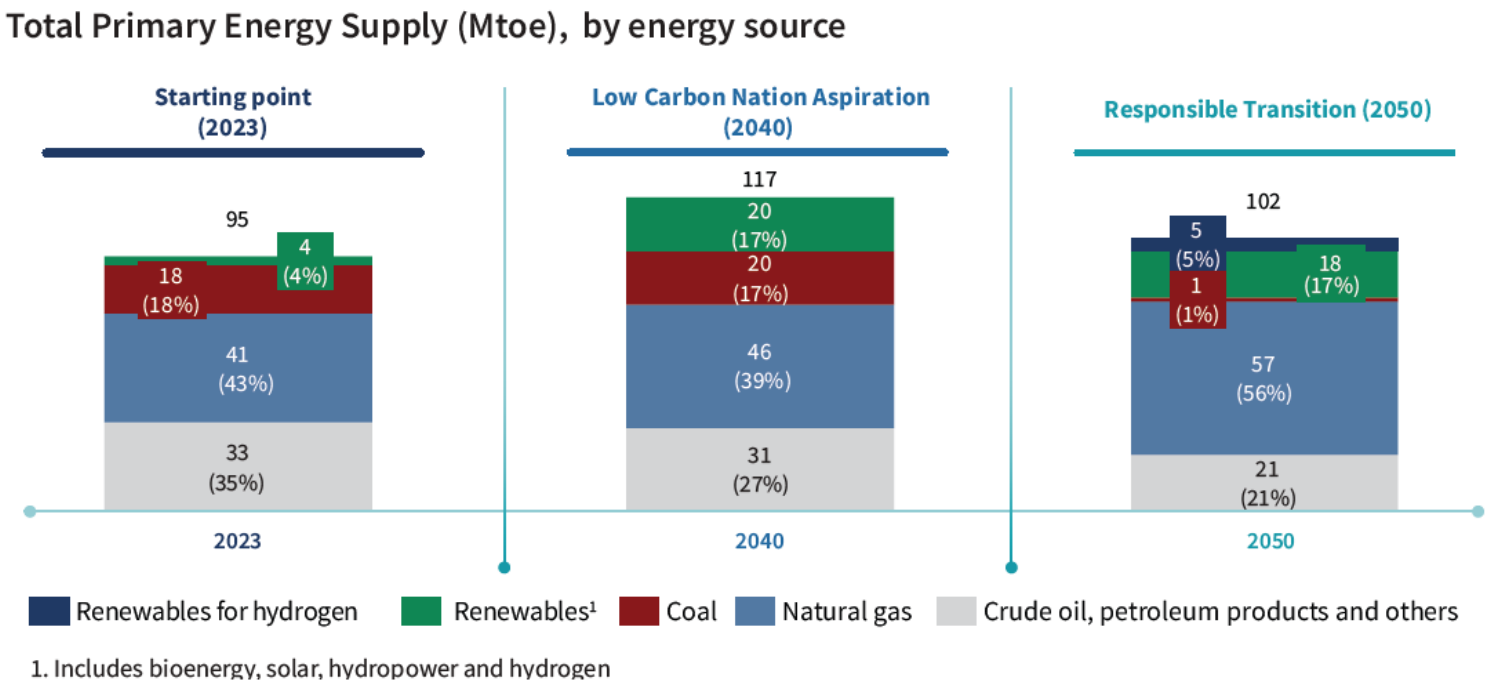
Reduce the GHG emissions intensity of GDP by 45% (unconditional) by 2030 relative to 2005.

Additionally,

Malaysia committed to achieve "net-zero" GHG emissions (7 gases) "as early as" 2050.

Total Primary Energy Supply by 2050

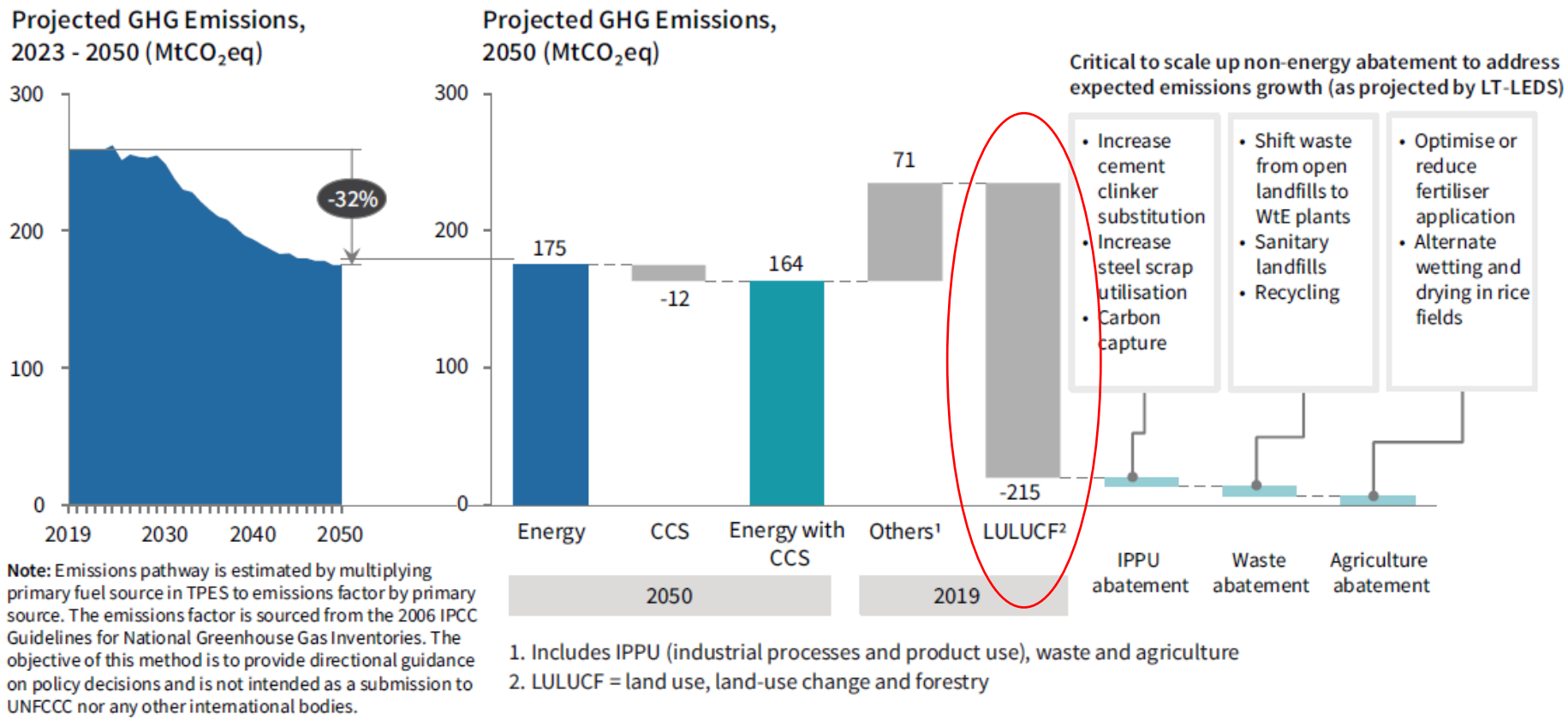
- While **"net zero" and energy transition messaging** appears largely targeted at **foreign stakeholders**, energy transition also addresses **future energy security** and long overdue reform of the electricity sector.
- **Coal is 100% imported**. While Malaysia is an exporter of natural gas and petroleum, reserves will last from 15 to 40 years depending on technology investments.



- In 2050, RE will be 70% of installed capacity, recently revised upwards from 40%. Only 22% of the power mix (including RE for green hydrogen).
- Malaysia will need to rely on RE imports from a regional ASEAN grid, which implies more financial costs, albeit split amongst Southeast Asian states.

Source: National Energy Transition Roadmap (2023). Parliamentary Hansard (2023).

Mitigation pathway to 2050



Note: Emissions pathway is estimated by multiplying primary fuel source in TPES to emissions factor by primary source. The emissions factor is sourced from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The objective of this method is to provide directional guidance on policy decisions and is not intended as a submission to UNFCCC nor any other international bodies.

1. Includes IPPU (industrial processes and product use), waste and agriculture
2. LULUCF = land use, land-use change and forestry

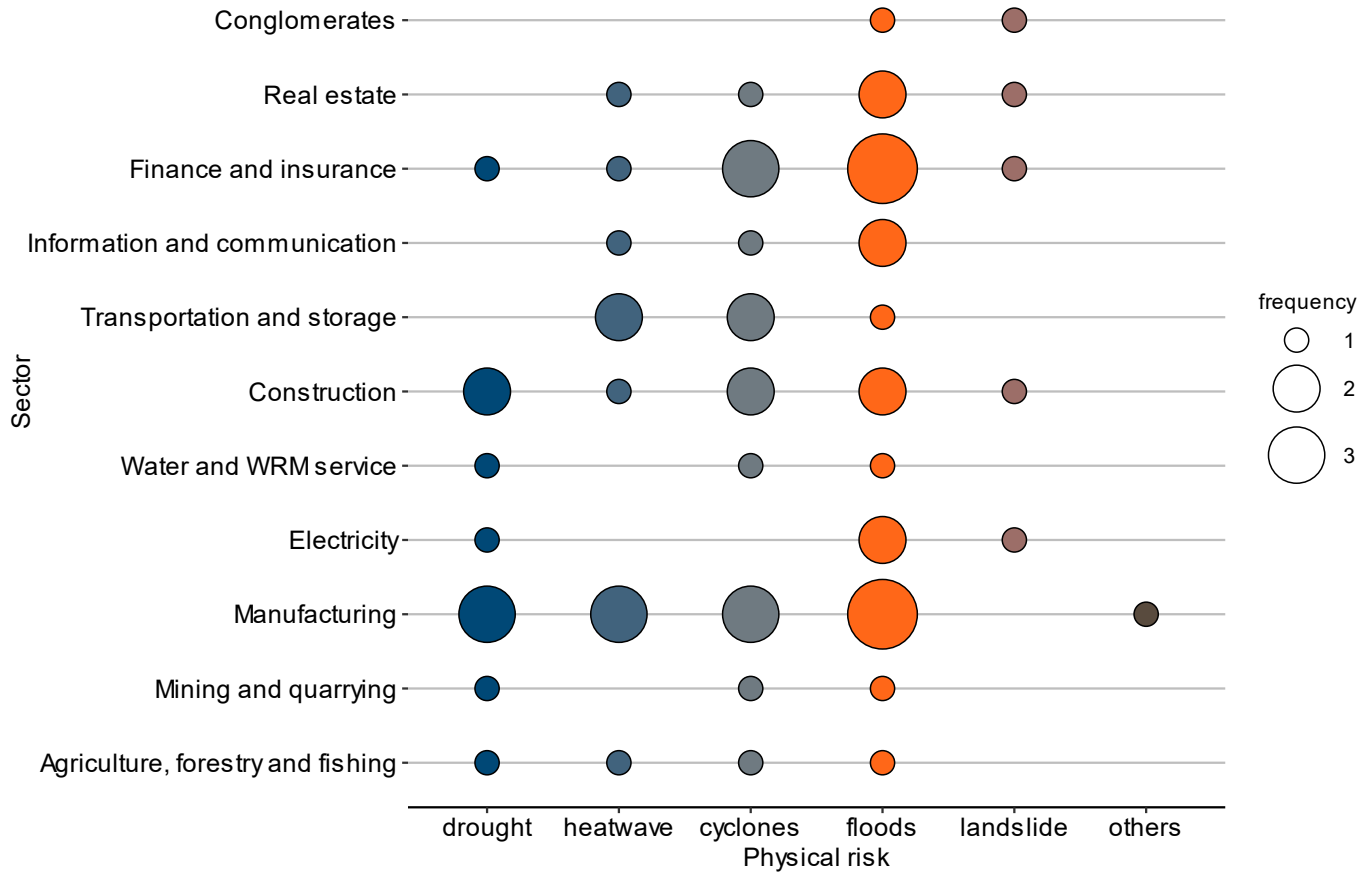
- **By 2050, sinks (LULUCF) would cover 91% of emissions**, up from 65% in 2019. Sinks are expected to remain **constant** relative to 2019 levels.
- Removals and **sinks are critically under-financed**. Beyond an Ecological Fiscal Transfer of a mere RM 150 million (US$31 million) nationwide, policy discussion on solutions is limited to sub-standard tools such as carbon credits.

Source: National Energy Transition Roadmap (2023).

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.

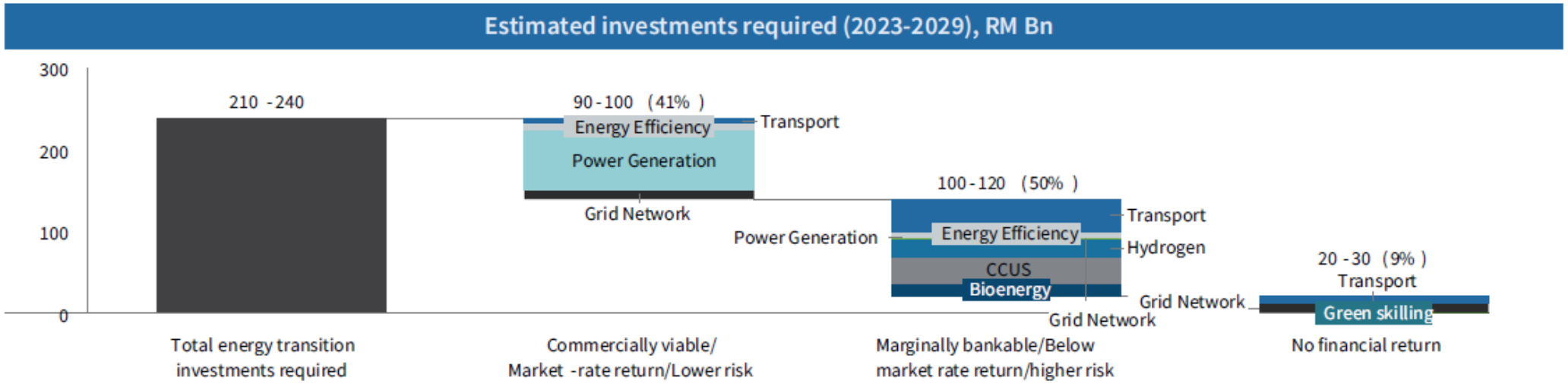
Chronic physical risks reported by Malaysian companies under the TCFD framework, 2022.



Source: KRI's compilation

Khazanah Research Institute

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.

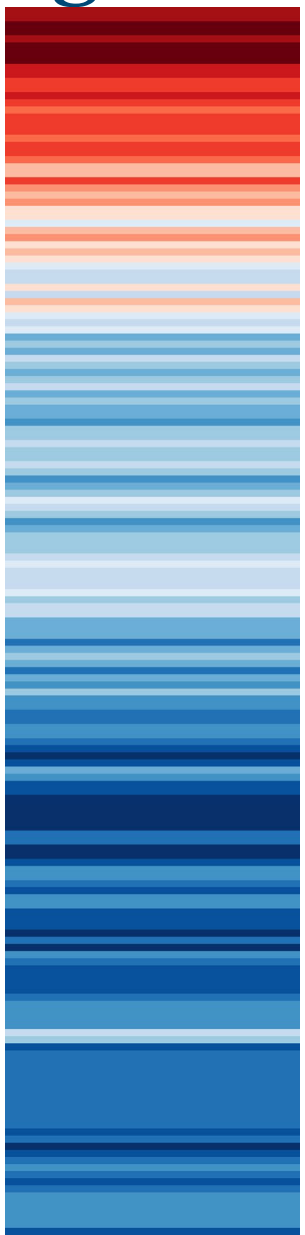
- Malaysia increased the ambition of its NDC **before** calculating investment needs, financing costs, or its Long-term Low Emission Development Strategy (LT-LEDS).
- **No concrete financing plan for mitigation, adaptation or conservation, as yet.**

Two Scenarios Framing Net-Zero Policy

SCENARIO 1 – A Cohesive, Collaborative Global Order – "A Warmer, but Wonderful World"

All major climate polluters (US, EU, Russia, UK, Japan, etc.) undertake **deep emission cuts** consistent with achieving 1.5°C, providing **climate finance** in the order of $2-3 trillion/year for developing countries. **A better world**.

- Ambitious "Net-zero" strategies imply this world. Countries may do the right thing, but so do others.
- Agents doing net-zero in expectation of commercial return may find over the long-run no distinct competitive advantage from climate leadership; industrial strategy remains decisive.
- Adaptation still needed for 1.5°C from 1.2°C today.



SCENARIO 2 – An Incohesive, Polarised Global Reordering – "Hot Regionalism"

Major climate polluters (US, EU, Russia, UK, Japan, etc.) **fail to undertake deep emission cuts** consistent with achieving 1.5°C. Tipping points are crossed as the world heads to 2°C or higher. **Under 3.2°C, ASEAN could lose 47% GDP by 2048** (Swiss Re Institute).

Climate finance remains inadequate. Wealth transfers from Global South to North continue to be up to $2.2 trillion/year. Climate protectionism synergises with geopolitical regionalism. **Our world**.

- Net-zero optics and compliance with climate protectionism maintain access to Paris-aligned capital and markets, *provided* one can finance transition and score with moving goalposts.
- Adaptation limits likely exceeded, significant loss & damage.

Financing Transition

The Cost of Capital

Malaysia's Climate Transition Bill

How much investment is needed for climate transition?

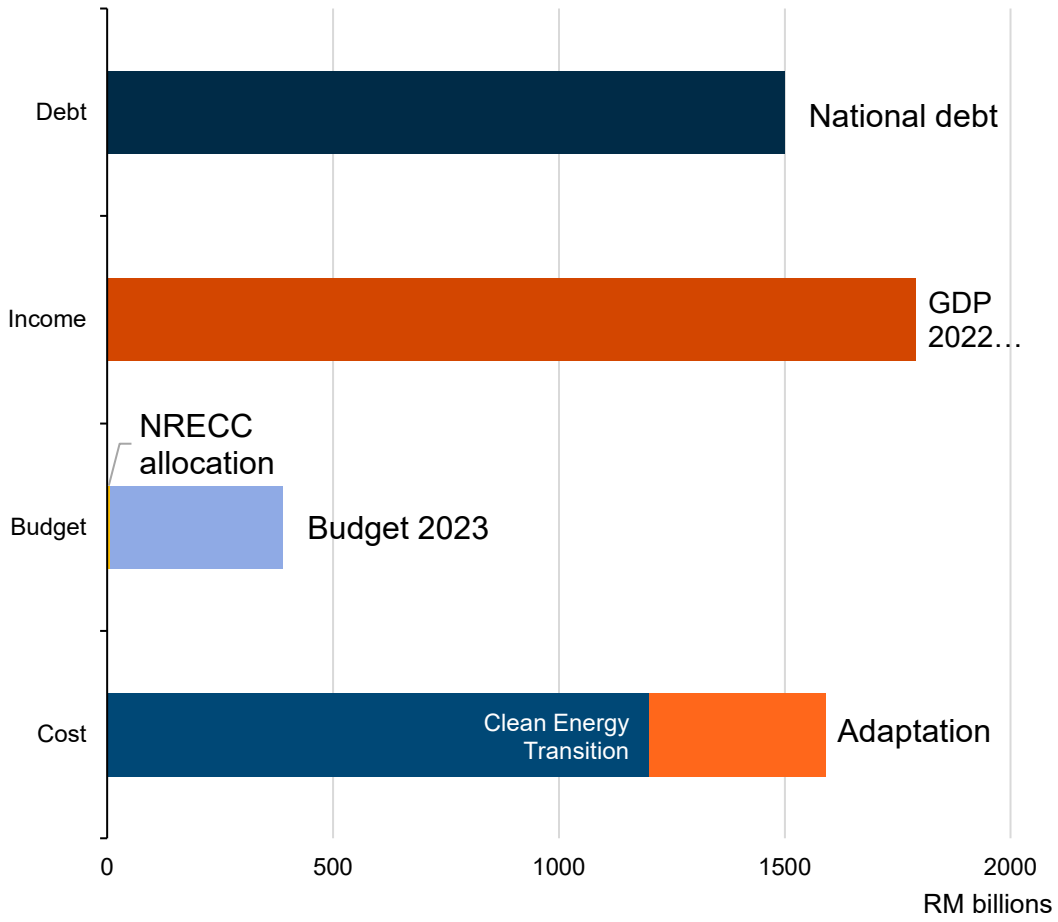
Based on official statements:

- **RM 1.2 trillion (US$ 255 billion) for energy transition (estimated minumum) until 2050** – National Energy Transition Roadmap (2023)
- **RM 392 billion (US$ 83 billion) for flood adaptation (estimated) over the next 50 years**[1] – NRECC (Climate and Energy) Minister.

Total = RM 1.592 trillion (US$ 338 billion) of investment needed, minimum, not including costs of sea-level rise or heat-related costs

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**

Note: Within the Malaysian context, a major buyer of government securities is our national pension fund for private sector employees, the Employees Provident Fund. Bond payments enrich workers.

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)**

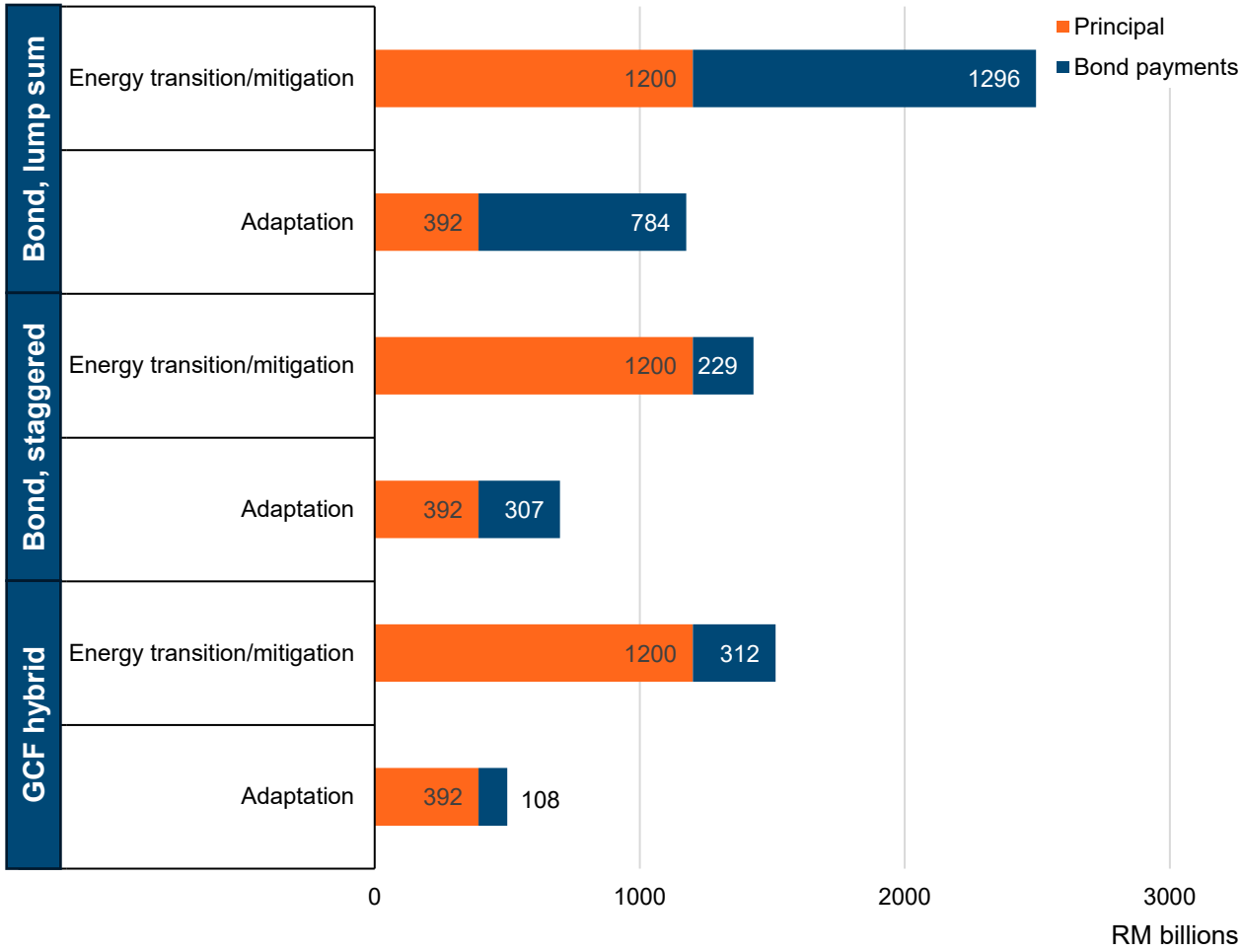
Adaptation

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)**

Unfortunately, GCF total fund size is below US$ 30 billion. Billions to Trillions needed.

National Climate Finance Strategy



In the Malaysia case, **mitigation** costs are at least 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.

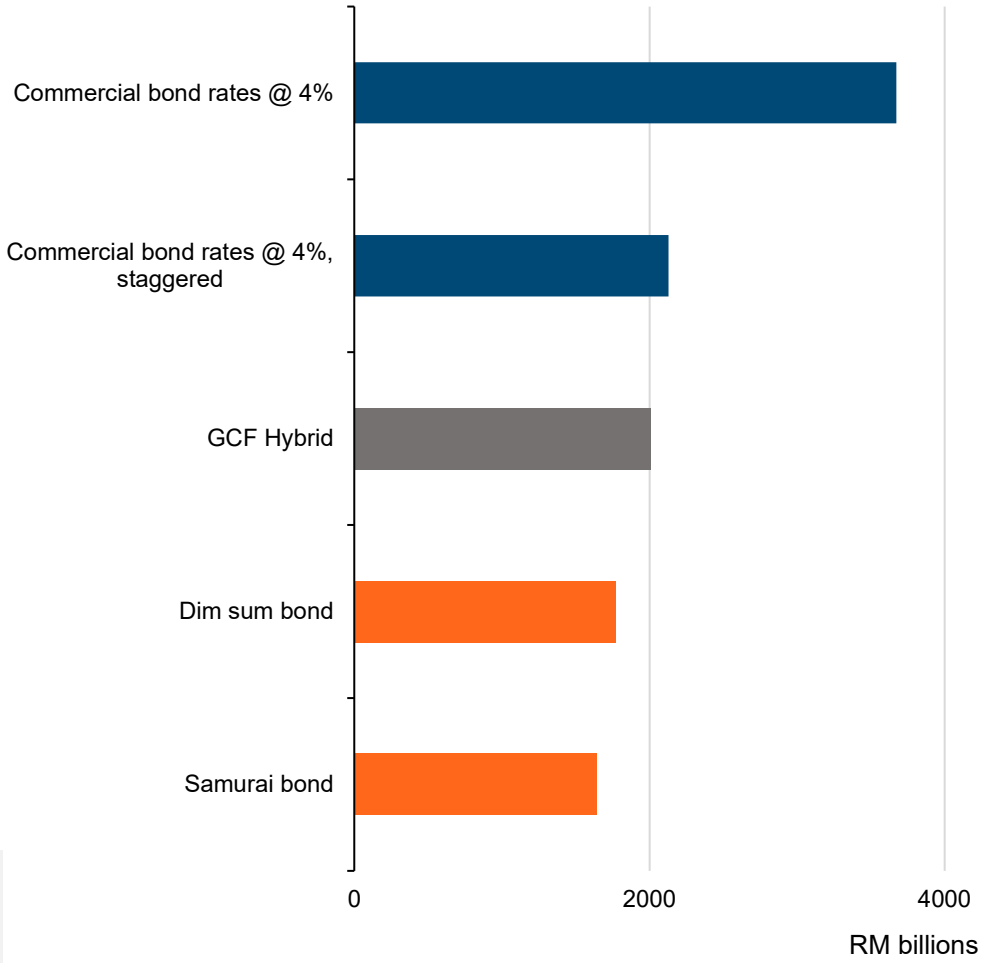
However, identifying “co-benefits” combining mitigation and adaptation could offer an efficient dual-use outcome alongside efforts to increase quanta of adaptation finance.

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%



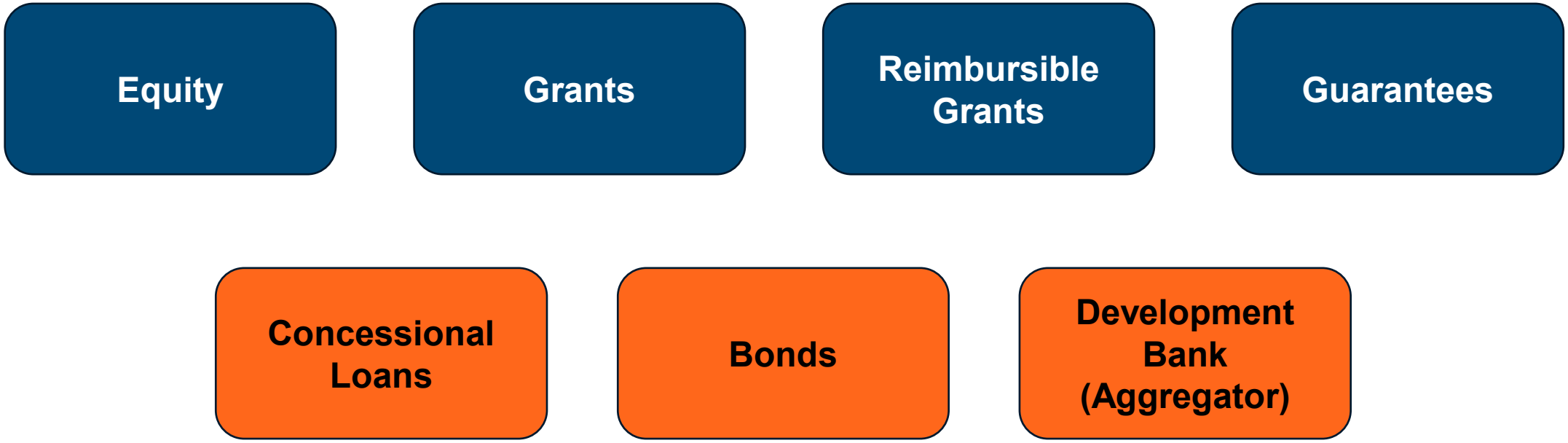
Comparison

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)

Potential risks include changes in interest rate policy and currency movements. Could be offset with DIA.

Option 4: An expansive toolbox

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 reform** 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).



Source: GCF, author.

Summary & Reflections

1. Due to the significant costs, it is optimal for developing countries to **work out the financial implications of transition prior to establishing or revising NDCs**. Note, that governments may lack **technical capacity** and management consultants may lack sufficient understanding of equity, just transition and **"common, but differentiated responsibilities and respective capabilities"**.

2. Beyond debates over public v private v blended finance, countries will need to develop a **diverse toolbox of financing tools beyond bonds**, taking account of sovereign debt burdens and other development imperatives.

3. **Adaptation investment costing may be lagging** and requires urgent inventive thinking on financing such long-term interventions. **Adaptation for industry** is important for economic security, but it remains underemphasised in policy. **Adaptation taxonomy remains a challenge**, but needs to reconcile the local, context-specific nature of adaptation.

4. **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.

5. **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.

Thank you

www.krinstitute.org